

# Weatherization Workforce Roadmap for Washington State

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# Weatherization Workforce Roadmap for Washington State

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WSU Energy Program

## EXECUTIVE SUMMARY

Summary: This Weatherization Workforce Roadmap report describes the key workforce challenges facing Washington’s low-income weatherization program agency employers and subcontractors. The Roadmap also offers potential solutions and actions that can enhance the availability, preparation and ongoing development of a skilled weatherization workforce in Washington state.

The state of Washington is a recognized leader in the transition to a clean energy future. Existing state policies and regulations and new legislation are aimed at enhancing environmental protection while also promoting a clean energy economy and working to improve social equity. One key strategy for achieving those goals has been the investment of federal and state resources to provide residential weatherization services to low-income individuals and families.

Recent research shows that national and state-specific demand for energy efficiency-related employment, including weatherization, has greatly exceeded the availability of a qualified workforce. In Washington, 86 percent of energy efficiency employers surveyed reported that finding qualified employees has been difficult or very difficult. Anecdotal evidence from local weatherization agencies and subcontractors also suggested that these employers have been unable to recruit, develop and retain qualified employees to meet the demand for weatherization services across the state.

In 2019, this study collected data through individual interviews, small group discussions and surveys of weatherization agencies and subcontractor employers. The results identified and confirmed the primary workforce challenges that agencies and subcontractors face, and these findings were used to propose specific actions that state and local employers can take to help address these challenges.

## Results

Surveys of weatherization agencies and subcontractors showed that 96 percent of weatherization agencies, and 72 percent of subcontractors, reported recruiting to be either ‘very challenging’ or ‘challenging.’ The concerns regarding recruiting were the highest among the seven primary workforce topics included in the surveys.<sup>1</sup> The results show several differences in workforce challenge rankings between agency employers and subcontractors, but in general the findings confirm that both groups have concerns that are shared across all topics. Sub-analyses of agency responses revealed differences in rankings on some workforce issues, depending on agency geographical location and size, and whether agencies employed their own weatherization services crews or relied on subcontractors to do weatherization work. For all topics, the findings were supported by detailed qualitative responses by employers that helped to explain the nature and types of workforce challenges.

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<sup>1</sup> In addition to recruiting, the survey asked respondents to rate workforce challenges related to wages, knowledge, skills and abilities (KSAs), employee turnover, training, retirements, and career pathways.

## **Conclusions and Recommendations**

The evidence from this study leads to the following general conclusions and specific recommendations regarding options with the potential to enhance the weatherization workforce in Washington state:

### **1. Expand the Weatherization Workforce**

Employers consistently reported that recruiting, developing and retaining weatherization employees is made more difficult by many internal and external factors. Weatherization is also an industry that is not well-known or understood; the small number and size of most weatherization employers is overshadowed by larger construction and energy efficiency firms, and most small employers simply lack the staffing capacity, effective marketing tools or resources needed to support a sustained recruiting campaign. As a result, relatively little systematic effort has been made to market employment or career opportunities in this sector. New, creative approaches to marketing and recruiting new employees are needed to help grow the weatherization workforce.

### **2. Collaborate with the Existing Workforce System**

The lack of time and resources facing most weatherization employers can be resolved in part by collaborating more actively with the public workforce system. Washington's weatherization employers could benefit considerably by leveraging existing state and local resources and expertise that are already available. These public sponsors and organizations have employment staff specialists and sponsor employment events and services for traditional job seekers as well as for non-traditional and underserved populations, including women, racial and ethnic minorities, at-risk youth and individuals seeking to re-enter employment. Weatherization employers will still need to invest time and resources to maximize the benefits available through the public workforce system, but these investments should help generate efficient, short-term hiring results while also developing long-term workforce system partnerships that will benefit employers and job seekers.

### **3. Ensure Current and Future Skills and Qualifications**

Washington is fortunate to have a dedicated training provider that is available to the state's regional weatherization agencies and subcontractors. The Building Performance Center (BPC) delivers core industry trainings and certification services across the region, however additional training capacity and expanded online/hybrid delivery options seem warranted to meet future demand and certification requirements to qualify and upskill weatherization employees, especially in rural areas of the state. Available public workforce training resources and systems can be leveraged to expand education and training outreach while offsetting some costs for agencies and subcontractors. These collaborations can help ensure that the state's weatherization service providers continue to train and upskill their employees to be productive while simultaneously expanding employees' career options.

## **Recommendations: Actions that Matter**

This Roadmap attempted to answer the following question: What actions can enhance the ability of weatherization employers and their partners to recruit, develop and retain a skilled weatherization workforce? The analysis and integration of data collected for the study underscore that the overarching and most pressing workforce challenges facing agency weatherization programs and subcontractors are

related primarily to employee recruitment. Proposed solutions range from complex systems-level changes and upgrades to straightforward, incremental improvements that can be implemented quickly and without large time or resource commitments by individual employers. The Roadmap posits two major tiers of potential actions. These options were reviewed and accepted for consideration by Commerce leadership and staff, and weatherization network advisory board members:

**Tier 1** represents solutions that can be initiated rapidly and without requiring major (and perhaps unsustainable) commitments of time, staffing and resources. These ‘low hanging fruits’ are important first steps that can help inspire collective action among state, regional and local weatherization partners and foster alliances with existing external partners that can leverage relevant resources and support for weatherization employers. Successful implementation of Tier 1 activities can also help set the stage for future (Tier 2) actions. A summary of Tier 1 actions includes:

**A. Conduct a Facilitated Weatherization System/Network Roadmap Discussion with Workforce**

**Experts:** Convene select Weatherization Network agencies, subcontractors and invited workforce development experts for three primary purposes:

- Building awareness among potential state agency partners and service providers about the state weatherization system and the workforce challenges faced by weatherization employers.
- Engaging participants in discussions about existing services and solutions that can be leveraged to support the Weatherization Network with its workforce needs; exploring alternative solutions, and future collaborations.
- Verifying and confirming (or offering alternatives to) the proposed action steps and establishing a shared commitment to implementing high-priority workforce solutions.

**B. Leverage Existing Recruiting/Hiring Resources and Events:** A fast, low-cost (time/energy) and potentially valuable set of activities includes participating in sponsored recruiting and hiring events and building relationships with staff specialists from state, regional and local agencies and organizations who are charged with supporting employers and job seekers:

- The state’s Employment Security Department (ESD) provides federal financial support to regional Workforce Development Councils (WDCs), which in turn provide a broad range of employment services for employers and job seekers.
- The ESD, local WDCs and other organizations regularly sponsor, staff and support regional and local job fairs and hiring events that connect interested employers with job seekers. These events provide a well-established, low-cost (usually free to employers) and effective way for employers to amplify awareness of the weatherization sector, boost recruitment outreach and engage directly with traditional and non-traditional populations (women, underrepresented populations, veterans, etc.) who are actively seeking employment.

**C. Develop Effective Recruiting Tools:** Low-income weatherization represents a small niche area within the broader energy efficiency sector. The specialized work content, administrative/operational structures and unique client characteristics are not well-understood by the public or potential new hires. Most weatherization employers rely on ‘word of mouth’ transmission through current employees to recruit new workers, but this approach is limited. Better, more accurate and inviting

information is needed to attract potential new employees to career opportunities in weatherization. Examples of tool development include:

- Create a Weatherization Pathways Briefer: Develop a concise marketing and recruiting document that integrates select data with employer/employee/student testimonials and a descriptive pathway visual. This Briefer could be used for general circulation by Network members during formal presentations and outreach events at job fairs, schools, colleges, WorkSource centers, community programs, and partner meetings.
- Develop Multi-Media/Digital Tools: Potential future tools could include streamed videos or alternative media and digital products, as well as other customized marketing tools appropriate for use with general or targeted audiences (students, job seekers, teachers/faculty, etc.).

**D. Enhance Internal Employment/Human Resources Strategies and Practices:** Many recruitment and selection tools, best practices and other HR resources already exist and are available online and in other forms for use by employers directly; other materials are accessible via trainings and consultants. Some of these effective strategies and tools have been designed specifically to help small employers improve their basic recruitment, selection, and development practices, as well as their ability to upgrade employee knowledge and skills, and career mobility.

**Tier 2** options are aimed at system building and restructuring to enhance weatherization workforce development. These options also rely heavily on collaboration and leverage among associations, employers, state and local governments, K-12 and postsecondary educational institutions, researcher organizations and industry training partners. Many of these actions are developmental and would likely require considerable investments of time, coordination and resources by weatherization employers and partners. Other actions might involve changes to existing policies, regulations and organizational factors that directly or indirectly impact workforce development.

**A. Specific Tier 2 workforce activities might include:**

- Expanding marketing efforts, including tools and staffing capacity, to reach out to secondary and postsecondary students to stimulate career interest in weatherization careers
- Sponsoring work-based learning experiences (internships, seasonal employment) for students
- Establishing pathways to connect preparation programs and weatherization employment
- Developing or adopting/adapting relevant certificate, apprenticeship and degree programs
- Enhancing alignment between career and technical education and industry training programs and certifications
- Expanding regional training capacity and remote delivery options
- Increasing efforts to expand employee diversity in recruiting and hiring
- Exploring an integrated approach to coordination, collaboration and leverage opportunities with a broad range of agencies and partners who operate existing workforce-related programs and services for employers and job seekers

**B. Consider Systemic and Structural Changes to Enable Workforce Development:** Workforce development issues are often related to broader structural and organizational factors that directly or indirectly influence staffing policies, practices and workplace conditions.

- Input from employers underscored how certain regulatory requirements, policies and expectations (e.g., prevailing wage, administrative requirements, fiscal record-keeping) have had direct or indirect—and often unintended—negative effects on employee recruitment, hiring, development and retention. Focused reviews and proposals outlining potential change for these issues are warranted and should be conducted by system partners.
- Service delivery models also impact how agencies and subcontractors conduct weatherization work and dictate their workforce needs. Exploring alternative models—such as a regional approach to agency and subcontractor service delivery for suburban and rural areas—may help coordinate, leverage and extend agency staff and subcontractor skills and their capacity to address labor and skill gaps in some areas of the state.

**Measurable Goals and Outcomes:** Regardless of which Tier 1 or Tier 2 strategies and actions are chosen and implemented, pre-planning should include decisions on how to define and measure intended outcomes. A schedule that includes goal definitions, ongoing process evaluations (to enable periodic progress checks and mid-course corrections) and a summative evaluation (to assess impact) should be established and completed for each major initiative or action undertaken. Essential steps should include:

- Defining goals and outcomes of each major activity
- Identifying reliable baseline measures and data sources
- Establishing an assessment plan appropriate to the activities
- Collecting, analyzing and interpreting data systematically to determine impact and inform next steps

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## INTRODUCTION

### Summary

The shortage of a qualified weatherization workforce severely limits Washington’s ability to meet the growing demand for low-income weatherization services across the state. Enhancing the recruitment, preparation and ongoing career development of new and existing weatherization employees is essential to meeting the state’s goal of providing energy-efficient, healthy homes to low-income families in every community.

This Weatherization Workforce Roadmap report describes the key challenges facing Washington’s low-income weatherization program agency employers and subcontractors and the key factors that underlie those challenges. The report also presents potential solutions, partnerships and actions that can help enhance the availability, preparation and ongoing development of a skilled weatherization workforce in Washington state.

### Energy Efficiency Background for Washington State

The state of Washington is a recognized leader in the transition to a clean energy future, as evidenced by existing state policies and regulations and by new legislation aimed at enhancing environmental protection while also promoting a clean energy economy and working to improve social equity. Building on earlier clean energy legislation, on May 7, 2019 Governor Jay Inslee signed into law the Clean Energy Transformation Act (CETA), which commits Washington to an electricity supply that is 100% free of greenhouse gas emissions, by 2045.<sup>2</sup> The shift to clean and renewable energy—which includes greater energy conservation through residential, commercial and industrial energy efficiency—will help optimize energy use, increase the proportion of clean electricity production, allow the state to replace fossil fuels in other end uses (especially transportation) and achieve the state’s long-term climate goals.<sup>3</sup>

Washington’s transition goals are aggressive and pose many challenges, not the least of which is accounting for the impacts of this shift on low-income households and communities. Low-income populations, which are usually over-represented by ethnic and racial minorities, already spend a

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<sup>2</sup> *Washington Clean Energy Transformation Act Establishes Aggressive Mandates for Grid De-carbonization and Renewable Energy Production* (2019). National Law Review (June 27): <https://www.natlawreview.com/article/washington-clean-energy-transformation-act-establishes-aggressive-mandates-grid>

<sup>3</sup> *Clean Energy Transformation Act (CETA)*. Washington State Department of Commerce (2019): <https://www.commerce.wa.gov/growing-the-economy/energy/ceta/>

disproportionate share of their incomes on energy-intensive services, and the transition to clean energy is likely to drive up energy costs, at least initially. With limited incomes, these individuals and families are often living paycheck-to-paycheck and are unable to invest in new energy-saving appliances, heating/cooling systems, insulation or other technology upgrades or services. Currently, federal and state funding aimed at weatherizing low-income households is approximately \$35 million annually.<sup>4</sup> These funds cover only a fraction of those who are eligible for services, which comprises households that are at or below 200 percent of the Federal Poverty Level (FPL).<sup>5</sup>

Even if adequate funding was available to all eligible applicants, it is unlikely that agencies and companies who provide energy efficiency services would be able to meet the increased demand. In fact, Washington is already constrained by a limited network of local weatherization agencies and subcontractors. The state's Department of Commerce relies on local community action agencies and other public entities, including their professional staffs and a network of subcontractor partners, to direct and carry out residential weatherization work on behalf of low-income populations across the state.

The limited size and scope of existing weatherization agency staffs and subcontractors—and the challenges of meeting current and future demand—is exacerbated by current economic conditions: A strong, mature economy, very low unemployment, and ongoing demand for products and services (especially in the new construction sector) has generated intense competition for qualified labor.<sup>6</sup> In addition, the state's low-income weatherization program has multiple funding sources (federal) and administrative requirements, and the 'prevailing wage' rules can be complicated and difficult to navigate, especially for employers. While many of these conditions cut across the entire economy, they directly or indirectly contribute to the workforce challenges facing Washington's low-income weatherization sector.

## **The National Context**

### *Energy Efficiency Employment*

A recent analysis of energy-related employment (U.S. Energy Employment Report, or USEER) found that in 2018 the Traditional Energy (fuels; electric power generation; and transmission, distribution and storage) and Energy Efficiency sectors combined employed approximately 6.7 million Americans.<sup>7</sup> Employment in these sectors had increased by 2.3 percent over 2017, adding 151,700 net new jobs, nearly 7 percent of all new jobs nationwide.

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<sup>4</sup> In fiscal year 2019, Commerce administered around \$27 million from multiple sources, mostly federal. Regional utilities contributed an estimated \$8.5 million for low-income weatherization activities.

<sup>5</sup> Note: There are around 770,000 low-income households in the state that are under 200% of the FPL. Since 1994 around 90,000 households have received one or more service types under the weatherization program. It should be noted that a number of factors limit the state's ability to provide services to all eligible low-income residences, including inadequate funding, technical infeasibility, funder and program priorities and regulations, and the administrative limitations of the program model.

<sup>6</sup> See: *The New Talent Landscape: Recruiting Difficulty and Skills Shortages* (2016). Society for Human Resources Management: <https://www.shrm.org/hr-today/news/hr-magazine/0716/pages/12-recruiting-tips-from-talent-acquisition-leaders.aspx>

<sup>7</sup> *U.S. Energy and Employment Report* (2019). National Association of State Energy Officials: [www.usenergyjobs.org](http://www.usenergyjobs.org)

For its part, the Energy Efficiency (EE) sector employed 2.35 million Americans, in whole or in part, in the design, manufacture and installation of energy efficiency products and services.<sup>8</sup> Energy efficiency continued to produce the most new jobs of any energy sector, adding 76,000 net new jobs in 2018 (3.4 percent)—an increase over the 67,000 jobs added in 2017—and a gain of 275,000 new jobs over the past three years (2016-18).

**Energy Efficiency Sector – Employment by Detailed Technology Application and Industry, Q2 2018**

	Total	Construction	Manu- facturing	Wholesale Trade	Professional Services	Other Services
<b>ENERGY STAR Appliances</b>	167,828	86,547	17,350	12,852	46,671	4,408
<b>LED, CFL and Other Efficient Lighting</b>	370,562	84,471	49,408	39,266	93,901	3,517
<b>Traditional HVAC goods, control systems, and services</b>	582,108	322,181	33,023	54,354	156,326	16,224
<b>ENERGY STAR/ High Efficiency heating and cooling equipment</b>	427,503	275,285	74,791	26,362	46,421	4,644
<b>Renewable Heating and Cooling (including Solar Thermal)</b>	128,896	82,513	7,823	7,865	29,909	785
<b>Advanced Building Materials/Insulation</b>	357,765	204,245	74,377	22,462	54,297	2,384
<b>Recycled building materials</b>	82,423	46,921	11,844	2,801	17,849	3,007
<b>Reduced water consumption products and appliances</b>	91,555	58,069	6,109	5,291	20,728	1,358
<b>Other</b>	116,225	35,550	46,856	9,086	18,379	6,354
<b>TOTAL</b>	<b>2,324,865</b>	<b>1,295,782</b>	<b>321,581</b>	<b>180,339</b>	<b>484,481</b>	<b>42,681</b>

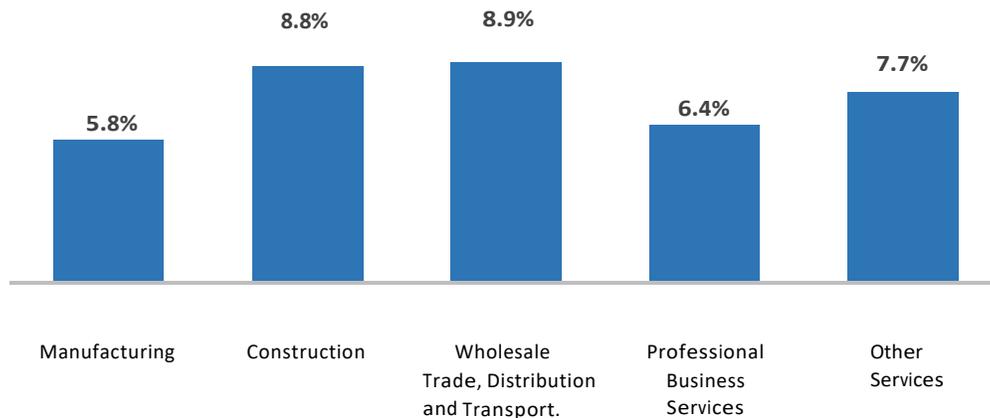
<sup>8</sup> U.S. Energy and Employment Report (2019).

### Labor Shortages Persist

At the same time, 82 percent of employers reported that it was ‘very difficult’ or ‘somewhat difficult’ to find qualified energy efficiency construction job applicants in 2018. In fact, 52 percent reported that finding qualified applicants was ‘very difficult,’ an increase from 47% in 2017. In the construction sector, a substantial percentage reported that technicians or mechanical support staff (42%), electricians (41%) and installation workers (27%) were the occupations for which energy efficiency employers had the greatest difficulty hiring in 2018. Similarly, more than 80 percent of professional and business-sector employers in energy efficiency reported that it was either ‘very difficult’ or ‘somewhat difficult’ to hire new energy efficiency employees; a lack of experience, training or technical skills were the most common reasons cited by employers.

Nationally, employers predicted growth that included 180,000 new energy efficiency jobs in 2019 (all sectors).<sup>9</sup> Yet there is evidence that current workforce shortages are negatively affecting the ability of employers to meet the market demand for existing EE work. Employers are increasingly lagging in their ability to keep pace with projected growth in this sector.<sup>10</sup>

#### Energy Efficiency Sector – Expected Employment Growth by Major Industry (Q4 2018 – Q4 2019)



<sup>9</sup> U.S. Energy and Employment Report (2019).

<sup>10</sup> These findings are consistent with the USEER report as well as the workforce challenges for the construction industry as a whole. See: <https://www.agc.org/news/2018/08/29/eighty-percent-contractors-report-difficulty-finding-qualified-craft-workers-hire>

One analysis that compared USEER employer hiring projections and actual hiring results showed that the actual hiring increase of 1.6 percent in 2018 fell far short of the projected hiring increase of 10.6 percent.<sup>11</sup> To compensate for the lack of qualified new workers, energy efficiency construction employers are relying more heavily on their existing workforces to increase productivity through expanded overtime and greater use of technology. Projections for future hiring growth have declined to 8.8 percent for 2019, and USEER analysts have reported that this reduction is due in large part to the lack of a skilled workforce.

Regarding workforce diversity, USEER noted that while overall racial diversity in the national energy efficiency workforce was roughly equivalent to that of the national workforce in 2018, there were fewer Black or African American workers, and slightly fewer Hispanic or Latino and Asian workers, compared to the national average.<sup>12</sup> A more pronounced difference was that less than a quarter (23 percent) of employees were reported to be women, which is half the national average for women.<sup>13</sup>

And, while there is evidence that greater ethnic, racial and gender diversity provides real benefits for businesses, achieving greater diversity in both small businesses—which make up the majority of energy efficiency companies—and large ones has come slowly.<sup>14</sup> This discrepancy exists, in part, because business ownership and leadership roles by minorities and women (who are more likely to model diversity and hire for it in the workplace) remain disproportionately low compared to the population as a whole. Some research has noted that small employers, which typically lack dedicated human resources staffs, may be less active in diversifying their management and entry-level positions.<sup>15</sup>

### *Weatherization Impacts*

The weatherization sector is not immune to the workforce challenges faced by the national EE industry as a whole; labor shortages are being felt regionally and locally by organizations that coordinate and deliver weatherization services. Recent information gathered by the National Association for State Community Services Programs (NASCS) underscores the scope and depth of these workforce challenges specifically for the weatherization sector. NASCS reached out directly to state weatherization program leaders in 2019, asking for information on workforce development “best practices” as well as resources, education-industry partnerships, and other strategies for building up the Weatherization Assistance Program worker pipeline. Their preliminary findings echo those of the USEER report, and underscore that the challenges facing weatherization agencies and subcontractors are real,

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<sup>11</sup> Presented by David Foster of the Energy Futures Initiative on October 10, 2019, during the U.S. Department of Energy’s Better Buildings Residential Network peer exchange series titled: ‘Tackling workforce shortages in the residential energy field.’

<sup>12</sup> *U.S. Energy and Employment Report* (2018).

<sup>13</sup> *U.S. Energy and Employment Report* (2018). Also, *Energy Efficiency Jobs in America* (2018). E4TheFuture and Environmental Entrepreneurs (September): <https://e4thefuture.org/wp-content/uploads/2018/09/EE-Jobs-in-America-2018.pdf>

<sup>14</sup> *Delivering Through Diversity* (2018). McKinsey and Company: [https://www.mckinsey.com/~media/mckinsey/business%20functions/organization/our%20insights/delivering%20through%20diversity/delivering-through-diversity\\_full-report.ashx](https://www.mckinsey.com/~media/mckinsey/business%20functions/organization/our%20insights/delivering%20through%20diversity/delivering-through-diversity_full-report.ashx)

<sup>15</sup> *Minnesota Energy Efficiency Workforce Gap Analysis* (2019). Center for Energy and Environment (February): <https://www.mncee.org/MNCEE/media/PDFs/MN-Energy-Efficiency-Workforce-Gap-3-1-19.pdf>

ongoing and substantial.<sup>16</sup> States reported that their local agencies have great difficulty recruiting, training and retaining qualified staff for multiple levels and positions.

NASCSP is especially interested in leveraging partnerships that already exist between federally-funded Weatherization Assistance Program (WAP) organizations and other non-profits that are working with specific populations, such as ex-offenders, veterans, ethnic and racial minorities, out-of-school youth and teens, immigrants and refugees. By reaching out more broadly to these populations through new and untapped partnerships, NASCSP hopes to help expand and strengthen the weatherization worker pipeline.<sup>17</sup> NASCSP noted that some states are implementing promising employment practices and solutions, and the U.S. Department of Energy is also actively piloting tools and providing resources to help students and job seekers build the skills and qualifications needed to enter weatherization-related occupations. For now, unless these efforts and tools can be expanded and supported at a much broader scale, they are probably inadequate to bridge the existing labor and skills gaps.

### ENERGY EFFICIENCY EMPLOYMENT IN WASHINGTON STATE

The USEER breakdown by state estimated that in 2018, 63,877 jobs in Washington state were in energy efficiency-related services and technology applications, representing 2.7 percent of all U.S. employment in energy efficiency. Approximately two-thirds of Washington’s energy efficiency employment is in the construction industry. Energy efficiency employers in the state expect to add 3,343 jobs in energy efficiency in 2019, an increase of 5.2 percent, which is the highest among the state’s five energy technology sectors, as defined by USEER (see below).

#### Washington State-Projected Employment Growth by Major Technology Application

Technology	State Projected Growth Next 12 Months (percent)	U.S. Projected Growth Next 12 Months (percent)
<b>Electric Power Generation</b>	3.0	7.1
<b>Electric Power Transmission, Distribution and Storage</b>	4.4	3.2
<b>Energy Efficiency</b>	5.2	7.8
<b>Fuels</b>	3.7	3.0
<b>Motor Vehicles</b>	2.0	2.2

Source: U.S. Energy and Employment Report 2019

<sup>16</sup> Personal communication with Erica Burrin, Weatherization Assistance Program, US Department of Energy, and Amy Klusmeier, NASCSP, November 21, 2019.

<sup>17</sup> Personal communication with Erica Burrin and Amy Klusmeier, November 21, 2019

## **Small Businesses and Jobs Widely Dispersed**

Like most states, Washington's energy efficiency businesses are mostly small and widely distributed geographically: There are approximately 10,400 energy efficiency businesses operating in Washington, yet 86 percent of those companies have fewer than 20 employees, and 43 percent have five or fewer employees. While the largest total number of jobs are in metropolitan areas (55,890), nearly 11 percent of all energy efficiency jobs (6,629) are found in rural regions of the state.<sup>18</sup>

Some private sector subcontractors focus on specific clients and operate in concentrated regions or urban areas, but many operate wherever the work is available. In fact, this flexibility, generally lean staffing and the ability to adapt to available opportunities and develop close relationships with local customers, are among the key strategic benefits of small energy efficiency businesses. However, small firms are also subject to added risks associated with economic and market uncertainty, administrative and regulatory requirements associated with public contracts, and the risk of being too specialized. Also, because most small businesses operate with lean staffing, losses of key personnel can pose immediate and serious disruptions to operations and performance. For small businesses operating in a tight labor market, replacing key technical and managerial personnel can be extremely time-consuming, difficult and costly.

## **Efficiency Workforce Challenges**

The USEE report indicated that in 2018, nearly 60 percent of energy-related employers in Washington hired new employees. But employers also reported that the greatest overall difficulty was hiring for jobs in energy efficiency (mostly in construction). As shown below, more than 83 percent of employers said hiring for EE positions was either 'very difficult' or 'somewhat difficult' (up from 75 percent in 2017).<sup>19</sup> Moreover, the proportion of employers reporting hiring to be 'very difficult' (42%) was double that reported nationally (21%).

While employers most often reported the lack of experience, training or technical skills as their top reason for hiring difficulty, insufficient non-technical skills (work ethic, dependability, critical thinking) and lack of qualifications (certifications or education) were also cited as key challenges to hiring.

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<sup>18</sup> *Energy Efficiency Jobs in America* (2018). E4TheFuture and Environmental Entrepreneurs (September): <https://e4thefuture.org/wp-content/uploads/2018/09/EE-Jobs-in-America-2018.pdf>

<sup>19</sup> Source: U.S. Energy and Employment Report 2019 – State Reports: Washington. <https://www.usenergyjobs.org/2019-state-reports>

### Washington State-Hiring Difficulty by Major Technology Application, 2018

Technology	Very Difficult (%)		Somewhat Difficult (%)	
	State	National	State	National
<b>Electric Power Generation</b>	11.1	20.7	66.7	54.8
<b>Electric Power Transmission, Distribution and Storage</b>	16.7	21.9	50.0	46.1
<b>Energy Efficiency</b>	41.7	21.3	41.7	48.1
<b>Fuels</b>	25.0	37.9	25.0	43.0
<b>Motor Vehicles</b>	60.0	30.0	40.0	46.4

Source: U.S. Energy and Employment Report 2019

### The Weatherization Ecosystem

Considering trends in the energy efficiency industry as a whole is instructive because no one sector of the economy exists in a vacuum: Low-income weatherization is part of the broader, interconnected energy industry ecosystem. Weatherization maintains interdependencies with core features of the energy industry, including technology, funding, providers (regional and local utilities, state and local agencies, subcontractors), dynamic energy markets, education and training, and employment.

Like other energy sub-sectors, weatherization also competes with other sectors and organizations (such as new construction, transportation and manufacturing) for skilled and qualified employees. The robust economy in the U.S. and Washington state has exacerbated the dearth of skilled labor; qualified employees and new entrants are in high demand, and highly skilled incumbent workers now have many employment options.

Employers from nearly every economic sector report that difficulties recruiting new and experienced workers are widespread and growing. These shortages, in turn, affect their ability to operate, grow and compete.<sup>20</sup> Shortages are especially acute in certain sectors such as new construction, where a recent industry survey showed that 80 percent of construction employers are having difficulty filling positions, especially in the skilled trades.<sup>21</sup>

<sup>20</sup> *Help Wanted: Too Many Jobs and Not Enough Workers in Most States* (2019). PEW Charitable Trusts, Stateline (October 14): <https://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2019/10/14/help-wanted-too-many-jobs-and-not-enough-workers-in-most-states>. Also: *The Labor Shortage Is Acute in Many Industries* (2019). American Institute for Economic Research (February 20): <https://www.aier.org/article/the-labor-shortage-is-acute-in-many-industries/>. Also: *Blue-Collar Worker Shortages: Navigating a Business Environment of Higher Labor Costs* (2019) The Conference Board (December): <https://www.conference-board.org/publications/publicationdetail.cfm?publicationid=8248>

And: *Job Openings and Labor Turnover Summary* (2019). U.S. Bureau of Labor Statistics (Nov. 5): <https://www.bls.gov/news.release/jolts.nr0.htm>

<sup>21</sup> See: <https://www.agc.org/news/2018/08/29/eighty-percent-contractors-report-difficulty-finding-qualified-craft-workers-hire>. Also: *The Blue-Collar Drought* (2019). Society of Human Resources Management (February): <https://www.shrm.org/hr-today/news/all-things-work/pages/the-blue-collar-drought.aspx>

Systemic differences in wages and benefits can also influence how attractive weatherization occupations are to potential and experienced workers. The average wage for an insulation worker in Washington was \$26.21 per hour in 2018.<sup>22</sup> But wage ranges can vary considerably based on employer type (public entity or private-sector company), employer size and geographical location, industry sector (new construction vs. renovation), experience and certifications, and whether employment is covered by federal or state prevailing wage requirements. These variations can influence how competitively an employer is able to recruit new workers, as well as their ability to retain and advance skilled employees. Administrative record-keeping—including fulfilling reporting requirements to certify that employees are receiving correct wages—are complex and add to the administrative load of agencies and subcontractors, increasing the total cost of each project.

In a tight labor market, not only do costs associated with wages, training and overtime increase overall, but employers often resort to ‘poaching’ qualified workers from each other. As employers focus inward for talent, internal competition among employers can ultimately increase labor costs and make it more difficult for those who lose employees to complete contractual commitments on time. Although poaching is a rational, short-term response to labor scarcity, it is not a sustainable solution and does not address the larger need to expand the labor pipeline. What does seem clear is that these acute labor shortages have become pervasive, and absent marked shifts in labor supply or demand, they are unlikely to resolve on their own.

### **Regional Weatherization Expansion and Capacity Building**

Workforce shortages may also present barriers to planned expansions of weatherization work designed to help accelerate achievement of regional clean energy goals. In 2019, the Bonneville Power Administration (BPA) committed to boosting energy efficiency by increasing residential weatherization and related measures, effectively re-shaping BPA’s efficiency portfolio to better align with regional clean energy goals. BPA’s Resource Program aims to increase investments in residential weatherization and HVAC from 40 percent in 2018 to 75 percent by 2023. For weatherization-insulation alone, BPA intends to boost services to residential homes ten-fold, from approximately 1,400 units per year to up to 14,000 per year.<sup>23</sup> This means that BPA’s utility customers will have added resources to invest in weatherization for end-use consumers. In fact, BPA tripled the incentives for residential weatherization on October 1, 2019 to help promote this program.<sup>24</sup>

During 2018-19, BPA held five weatherization-specific workgroup meetings and conducted research to determine potential roadblocks to meeting these expanded weatherization goals and possible solutions. Among the high-priority ‘asks’ from the workgroups were “expand utility and contractor capacity to do the work” and “increase the number of insulation contractors where there aren’t enough to do the

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<sup>22</sup> Occupational employment and wages – June 2018 (2019 release). Washington State Employment Security Department (January, 2020): <https://esd.wa.gov/labormarketinfo/occupations>

<sup>23</sup> See: [https://www.bpa.gov/EE/NewsEvents/presentations/Documents/Residential\\_Support\\_Services.pdf](https://www.bpa.gov/EE/NewsEvents/presentations/Documents/Residential_Support_Services.pdf)

<sup>24</sup> According to BPA, customers will be able to choose which measures to implement, thus the take-up of specific measures (and the types of contractors/services engaged) by customers may vary considerably.

work.” In addition, the need to increase the training infrastructure for subcontractors was identified. Indeed, subcontractor recruiting, marketing and training (as well as other supports to subcontractors) are among the core actions that BPA is planning in order to grow the weatherization subcontractor network to support BPA and utility efficiency goals.<sup>25</sup>

BPA appears intent on boosting the number and capacity of weatherization subcontractors, and these new support actions may indeed help build the subcontractor and workforce capacity. Yet, it is also possible that slow or weak uptake by agencies and local subcontractors—due in part to the acute lack of qualified labor—could inadvertently *exacerbate* regional competition for existing weatherization subcontractors and workers. BPA issued a Request For Proposal (RFP) to contract with one or more providers to coordinate and deliver most of the support services across the region; vendor selection is scheduled for April 2020. BPA staff also report that they intend to include Commerce and all low-income weatherization agencies as they roll out the program.<sup>26</sup>

### **Related Contextual Factors and Trends**

Other research and reports from employers, employees and other sources show that several overarching factors and trends will continue to make recruiting, hiring and retaining a skilled energy efficiency workforce difficult going forward. These conditions also provide important clues about the potential causes of Washington’s current and future weatherization workforce shortages, and they may also help inform opportunities for future action:

1. **Demographics:** National and state population trends show that nearly all industry sectors will face the challenges of an ageing workforce and retirements; workforce shortages in sectors such as construction, energy and manufacturing are predicted to be severe over the next few years. Further, the population of working-age individuals will not increase fast enough to replace growing numbers of retirements. And, although employers appreciate that younger workers are tech savvy and can quickly adapt to a changing workplace, employers often report that differences in values, work ethic and career expectations between older and younger generations can create management challenges.
2. **Ethnic and Racial Diversity:** Like most states, Washington’s population will continue to become much more diverse over time, due mainly to increasing in-migration rates, and declining birth rates among the largest sectors of Washington’s majority-Caucasian (78%) population. However, many of these incoming ethnic and racial groups are also underrepresented in postsecondary education and training; thus, additional support will be required to ensure that new labor force entrants are work-ready, prepared to replace those who retire, and positioned for future career

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<sup>25</sup> See:

[https://www.bpa.gov/EE/NewsEvents/presentations/Documents/Residential\\_Support\\_Services\\_Program\\_Menu\\_of\\_Services.pdf](https://www.bpa.gov/EE/NewsEvents/presentations/Documents/Residential_Support_Services_Program_Menu_of_Services.pdf)

<sup>26</sup> Personal communication with Jess Kincaid, BPA Energy Efficiency group, November 8, 2019.

mobility. Employers will need to step-up their efforts to recruit, train and develop people from underrepresented groups to help ensure they have a stable and qualified future workforce.<sup>27</sup>

3. Skills and Qualifications: While energy efficiency employers continue to face labor shortages overall, their primary concern is about gaps in technical (and non-technical) knowledge and skills in the labor market. The application of new technologies, automation, machine learning/artificial intelligence tools, and ‘lean’ work processes has increased the knowledge and skill expectations of employers in all industry sectors, including construction and energy efficiency. Many employers are urging K-12 schools to include more STEM (science, technology, engineering and math) content in their curricula in the early grades, as well as greater exposure to software applications, coding and STEM career exploration later on, so that graduates are better prepared to enter an increasingly high-tech workplace.<sup>28</sup> High quality education and training at all levels will be needed to ensure that new entrants are prepared, and that existing workers are able to keep pace with ongoing changes in technology, operations, and the organization of work.
4. Perceptions about Weatherization Work—Dirty, Dangerous and Demanding: Perceptions about the weatherization workplace—whether accurate or not—are influential and can negatively impact recruiting and hiring. Attracting new workers to energy efficiency jobs is already difficult; career pathways into most efficiency jobs are not well-defined, and most employers offer weatherization as just one aspect of a broader menu of energy services. At its core, most weatherization work is physically demanding. It is work that most young people view as undesirable, in part because it is difficult, but also because of the social stigma attached to jobs requiring manual labor: K-12 students are routinely socialized by parents, guidance counselors and their peers to pursue 4-year degrees over career and technical education and the skilled trades, where there are growing skill gaps and acute labor shortages. Of those who are interested in construction careers—and especially among experienced construction workers—most would prefer working in new construction jobs rather than renovation or weatherization.
5. Weatherization Clients: Agencies and subcontractors must also be sensitive to the social and often invasive nature of weatherization work, including the circumstances and characteristics of the clientele that they serve: those with low income, the elderly, and often those with health-challenges and disabilities. Solid social and communication skills are extremely important for the weatherization workforce at all levels, yet these ‘soft’ skills are typically not taught in technical programs or the trades. For weatherization workers who are not prepared to interact with at-risk clients, the experience can be stressful and difficult to manage.
6. Economic Cycles: New home construction has begun to level off and may soon decline, following a decade-long post-recessionary growth period. During the recession, many construction firms shrank, consolidated or failed; some construction firms diversified their services to include

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<sup>27</sup> Specific information on the racial and ethnic composition of Washington’s weatherization sector was not collected for this report, in part because no accurate classification of demographic data for the energy efficiency sector (agencies and subcontractors) is readily available. Aside from a detailed collection of demographic data from individual employers, secondary analyses of data classifications and demographics for energy efficiency generated by the USEER studies provide a possible avenue for future research.

<sup>28</sup> See for example, Washington STEM: <https://washingtonstem.org/>

residential weatherization. These firms re-tooled their operations and also hired or re-trained workers to provide energy efficiency services. A downturn in new construction could again cause some home builders to pivot to weatherization and renovation, yet wage disparities between these sectors and the pervasive shortage of qualified labor overall may pose formidable roadblocks for employers and employees seeking to adapt their business lines and jobs. Also, the investment in the necessary equipment and training to add weatherization services can be significant, and there are no guarantees that either the new construction or weatherization markets will favor those who try to adapt.

### Defining the Workforce Challenges of Washington’s Weatherization Employers

Leaders from the state Department of Commerce’s Housing Improvement Program (HIP) and regional weatherization organizations have recognized that local agencies that conduct residential weatherization improvements for low-income populations are facing growing challenges in recruiting, developing and retaining qualified employees. Commerce and local agencies are interested in identifying and addressing the most pressing workforce challenges facing employers. HIP has contracted with the WSU Energy Program to help design, facilitate and complete data collection from stakeholders, conduct analyses and generate a report (aka the Weatherization Workforce Roadmap) to propose options and actions that address the identified workforce challenges.

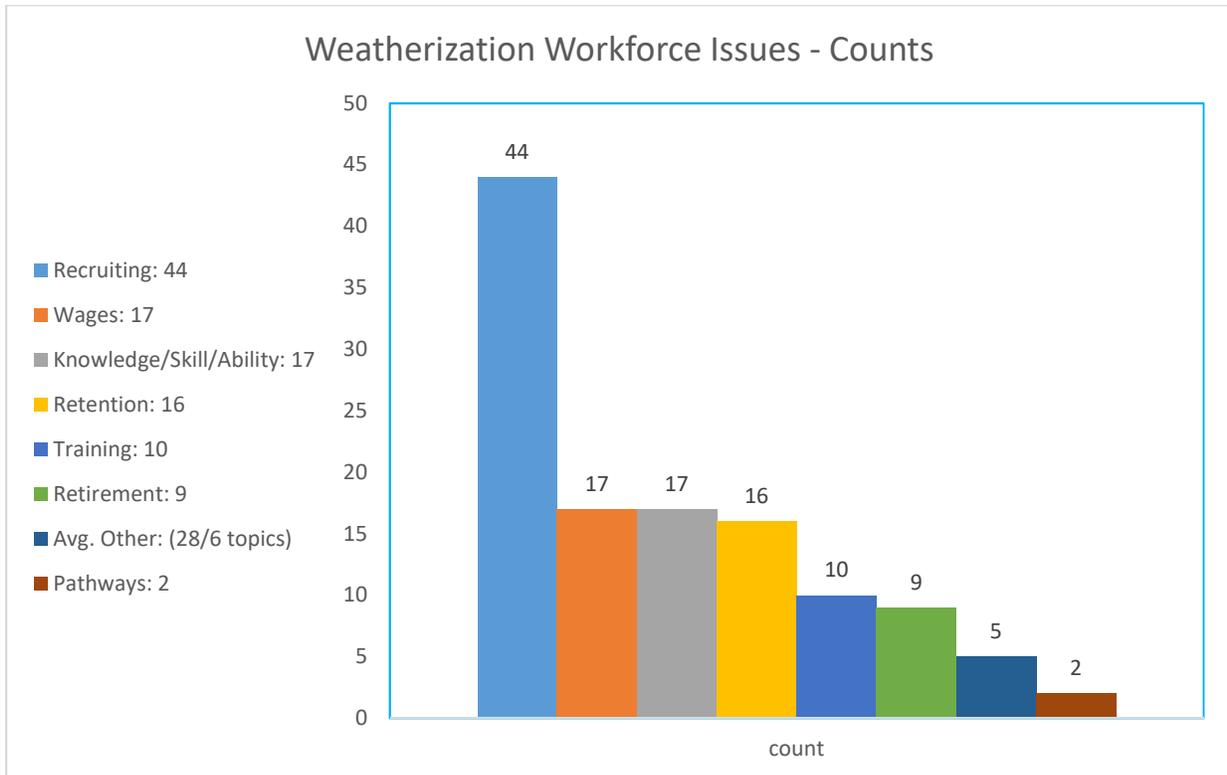
As a first step, on March 29, 2019 a general presentation on weatherization workforce challenges was delivered to staff from Commerce’s Housing Improvement Program, local agencies and other stakeholders by staff from WSU and the Building Performance Center (BPC).<sup>29</sup> Afterward, small groups were convened to identify and prioritize the most pressing workforce-related issues facing local weatherization agencies.<sup>30</sup> The results from all 5 groups were subsequently analyzed and are summarized in the figure below and the associated descriptive summary.

## An Industry Evolves

*“No one ever thought that a small federal program from the 1970s called CETA (The Comprehensive Employment and Training Act) would ever turn into a full-fledged weatherization industry. No wonder we have never paid much attention to workforce issues.” (Owner, regional weatherization services company, July 2019)*

<sup>29</sup> For information on the BPC, see: <https://www.buildingperformancecenter.org/>

<sup>30</sup> For a description of the data collection methods and procedures see Appendix A.



#### Descriptive Summary of Issues

1. **Recruiting:** Difficult to find qualified applicants generally, including subcontractors and most position types
2. **Wages:** Prevailing wage requirements are hard on subcontractors; wages too low to attract qualified Agency hires (esp. auditors, inspectors)
3. **Knowledge/Skill/Ability:** Shortage of applicants or existing employees with necessary KSAs.
4. **Retention:** Turnover is generally high (42 local agency staff have left during the last 2 years); low pay, difficult work conditions, and better offers outside the weatherization industry are frequently reported as key reasons for high turnover.
5. **Training:** Needed training is not available or not accessible; cost and time requirements are high
6. **Retirement:** Experienced employees are retiring, taking their knowledge with them.
7. **Other: Mix of issues (5),** including funding uncertainty; increasing complexity of sector and work; subcontractor performance; demand/competition; attitudes/morale
8. **Pathways:** No clear pathway for new or experienced employees and need for stronger orientation to work and more public awareness of industry and requirements.

#### SURVEYS AND RESULTS

##### Validating Categories and Engaging Subcontractors

These findings were shared during meetings with Commerce-HIP leadership and the Weatherization Advisory Team (comprising HIP staff and several local agency partners). Following several reviews, the

initial findings were used to design and administer two online surveys. The goal was to systematically confirm the initial Agency findings, collect additional information, and engage with and better understand the perspectives of Subcontractor partners. The Agency and Subcontractor surveys were administered between July and September 2019. The Agency survey was distributed electronically to community action organizations that administered low-income agency funds and projects. Both surveys collected quantitative and qualitative input from respondents. Matched questions were employed to allow for comparisons between Agencies and Subcontractors on the issues that give rise to workforce challenges.<sup>31</sup>

## **Overview of Survey Results**

The survey results were consolidated and are presented below for each of the primary workforce challenge issues, along with the associated written input. A total of 27 weatherization Agency respondents (comprising all of the weatherization agencies) and a sample of 39 weatherization Subcontractor partners participated, completing all or many of the survey questions.<sup>32</sup> The results of both surveys (Agency and Subcontractor) have been integrated to allow for simple comparisons between the two groups, and to enable a consolidation of the key findings. The survey results are presented in the order listed above in Figure 2.

### *Initial Verification*

On October 17, 2019, these results were also presented during a regular meeting of approximately 50 participants including Commerce and Weatherization staff and agency representatives (many of whom self-identified as survey participants) representing the Weatherization Network. When asked if the workforce challenges results were accurate, and whether the interpretation of results seemed reasonable, no participants reported inaccuracies or concerns about the interpretation of the survey results.

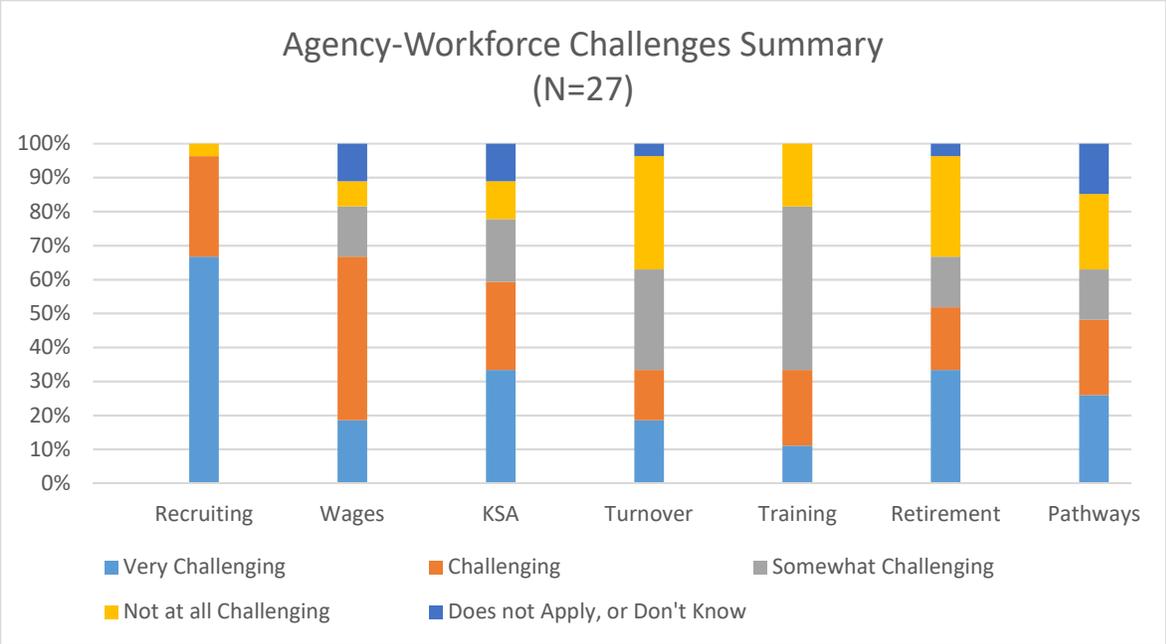
### *Agency Summary*

The following chart shows the Agency survey results by response category for each of the major workforce challenges included in the survey. Recruiting was by far the topic ranked highest as ‘very challenging,’ followed by Knowledge/Skill/Abilities (KSA) and Retirement. When the top two challenge response categories (i.e. ‘very challenging’ and ‘challenging’) are combined, Wages also ranks highly but is still a distant second to Recruiting.

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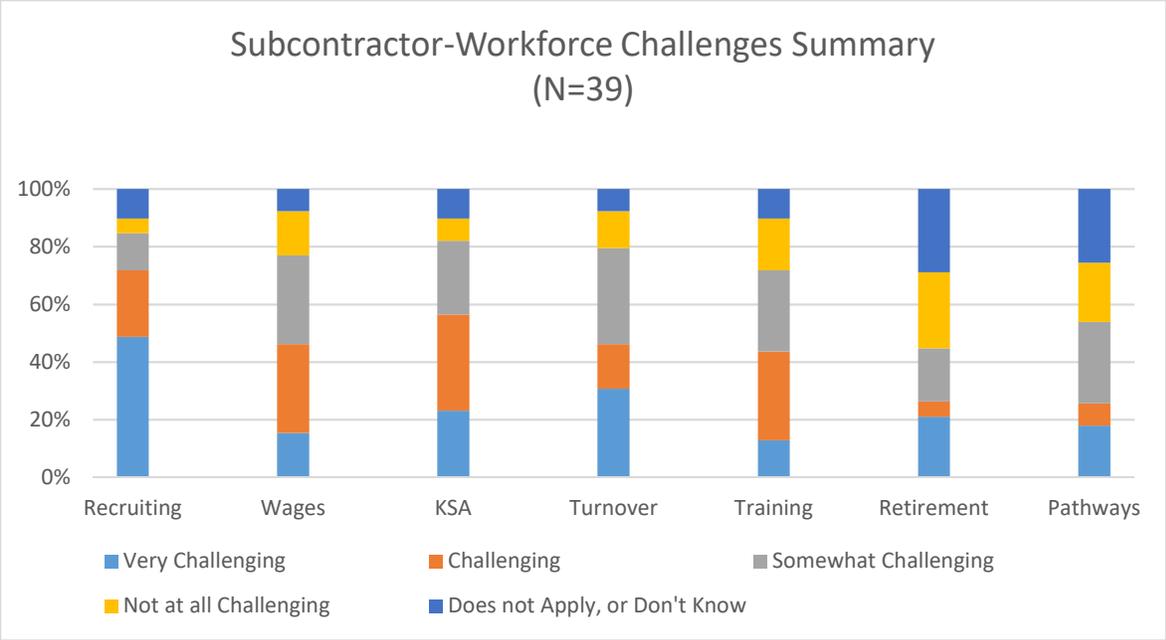
<sup>31</sup> See Appendix A for a description of the survey procedures.

<sup>32</sup> Complete summaries of the quantitative and qualitative data collected from each respondent group are included in Appendix B.



**Subcontractor Summary**

The next chart shows the Subcontractor survey results by response category for each of the major workforce challenges included in the survey. As with the Agency results, Recruiting was by far the issue ranked highest as 'very challenging' by Subcontractors, followed by Turnover with the second-highest 'very challenging' ranking. When the top two challenge response categories ('very challenging' and 'challenging') are combined, Knowledge/Skill/Abilities (KSA) also ranks highly, yet KSA and all other categories were eclipsed by the overall high ranking for Recruiting.



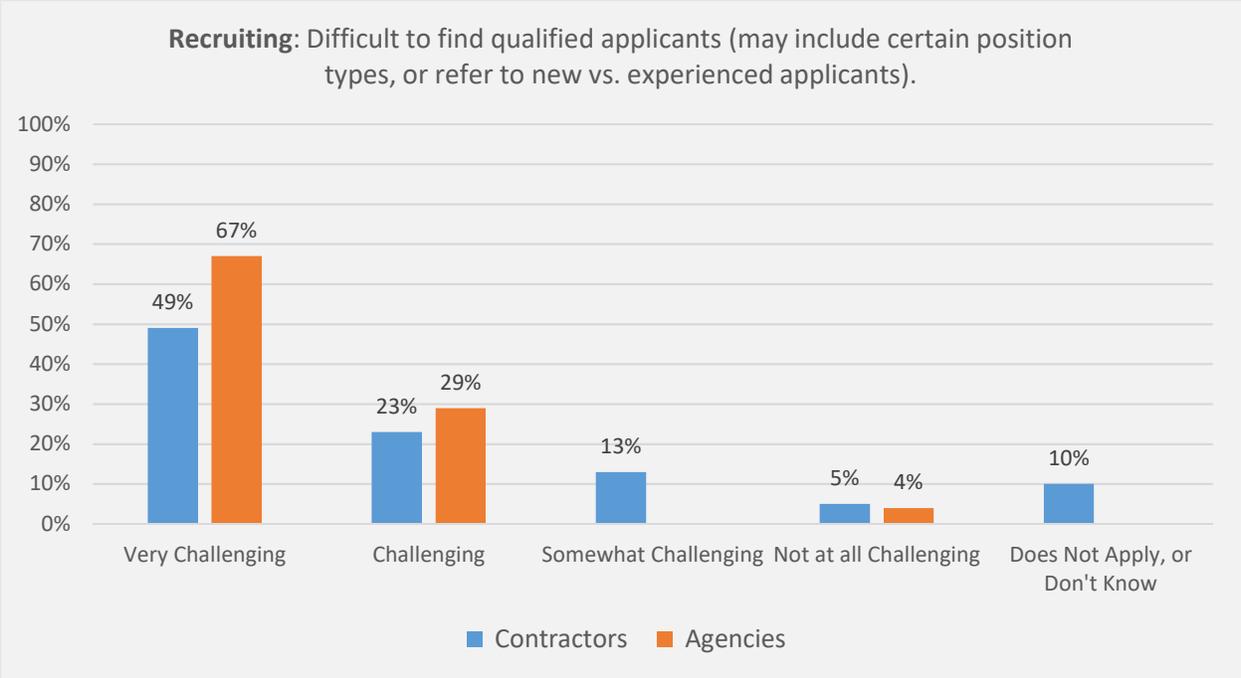
**Agency-Subcontractor Comparisons**

Because both Agencies and Subcontractors comprise integral service providers for the state’s Low Income Weatherization system, understanding the relative importance of these workforce challenges to each entity provides useful information about the difference between groups and input about priorities and potential options that might be pursued to help resolve the workforce challenges faced by these key system partners.

In this section, the survey rankings are compared to illustrate the relative values reported by both groups. In addition, the qualitative data collected from surveys about the underlying themes and reasons for survey scores are summarized and displayed along with several exemplars (direct quotes) from the data that represent typical written responses from respondents in each group.

*Recruiting: The Predominant Workforce Challenge*

The most notable result for both surveys was confirmation of Recruiting as the top workforce challenge. The intensity (percentage rated as ‘very challenging’ or ‘challenging’) of Recruiting was somewhat higher for Agencies than for Subcontractors. As shown below, all but one of the 27 weatherization Agencies (96%) reported Recruiting to be either ‘very challenging’ (67%), or ‘challenging’ (29%). In contrast, 72 percent of Subcontractors reported Recruiting as ‘very challenging’ or ‘challenging’.



Analyses of the written comments provided by respondents from both groups added important information that helped confirm and explain the survey results. The central themes and examples of the written, verbatim comments submitted by respondents (representative of both groups) are provided below:

Local Agency Results – Recruiting	Subcontractor Results – Recruiting
<p><u>Major themes:</u></p> <ul style="list-style-type: none"> <li>▶ Skilled, qualified labor unavailable; few meet certification requirements.</li> <li>▶ Poaching of staff from other agencies is common.</li> <li>▶ Weatherization is difficult work and people leave for easier work, higher wages.</li> </ul> <p><u>Recruiting – Comments:</u></p> <p><i>“The high level of certification required for QCIs and BAs limits us to stealing employees from other agencies or hiring and training and hopefully getting someone to stick. We got lucky and stole someone with the experience and certs the last time we hired...”</i></p> <p><i>“No experienced workers. If you do get someone with experience they are from another agency.”</i></p>	<p><u>Major themes:</u></p> <ul style="list-style-type: none"> <li>▶ Skilled, qualified labor unavailable.</li> <li>▶ Hard to find young people with strong work ethic, or who are willing to do this type of work.</li> <li>▶ The work is difficult, and people leave unless they are fairly compensated; retention can be hard.</li> </ul> <p><u>Recruiting – Comments:</u></p> <p><i>“New employees will claim they understand weatherization and then have no clue what they are doing so it sets the job back...a lot of them are not interested in working weatherization because they claim it does not pay enough.”</i></p> <p><i>“The USA current generation of young potential workers do not want to crawl around in attics and</i></p>

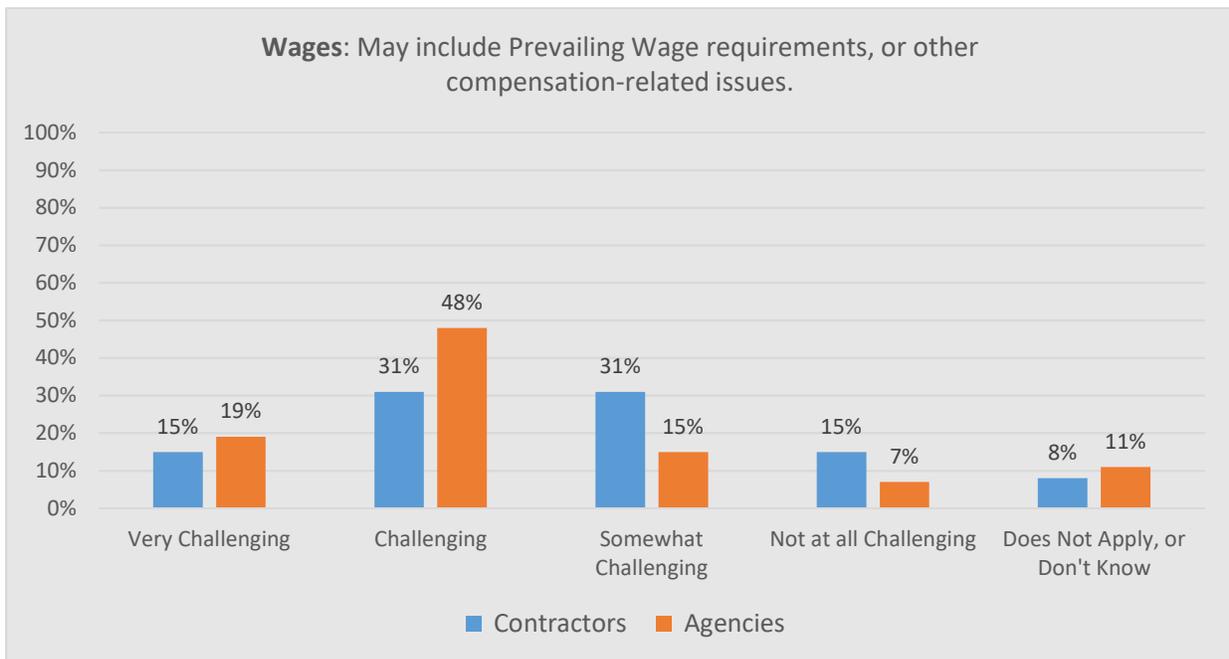
Local Agency Results – Recruiting	Subcontractor Results – Recruiting
<p><i>“There is a shrinking pool of possible applicants due to the complexities and continuously changing certifications and requirements that are expected to understand and do our work.”</i></p>	<p><i>crawlspaces. Trying to find the young people who will is very time consuming.”</i></p>

*QC Inspectors and Auditors Most Difficult to Recruit*

Agency employers cited recruiting challenges for all occupations, however the lack of qualified quality control inspectors and auditors was often emphasized. These technical jobs require industry certifications that are attained through extensive experience in the field. These specialized job classes are employed by all Agencies, and by employers external to the weatherization sector. Some management-related jobs, such as project managers or installation crew leaders, were also cited as hard to find. The general lack of available installation workers was frequently cited by Agency employers. The majority (around two-thirds) of Agency employers relied on external subcontractors to do weatherization work, and agencies frequently reported that a lack of competent subcontractors is a concern.

*Comparisons by Issue*

**Wages:** As shown below, Wages surfaced as a somewhat bigger issue for Agencies (67% reported Wages as ‘very challenging’ or ‘challenging’) than Subcontractors (44%). A modest proportion of respondents from both groups (15-19%) viewed Wages as ‘very challenging’.

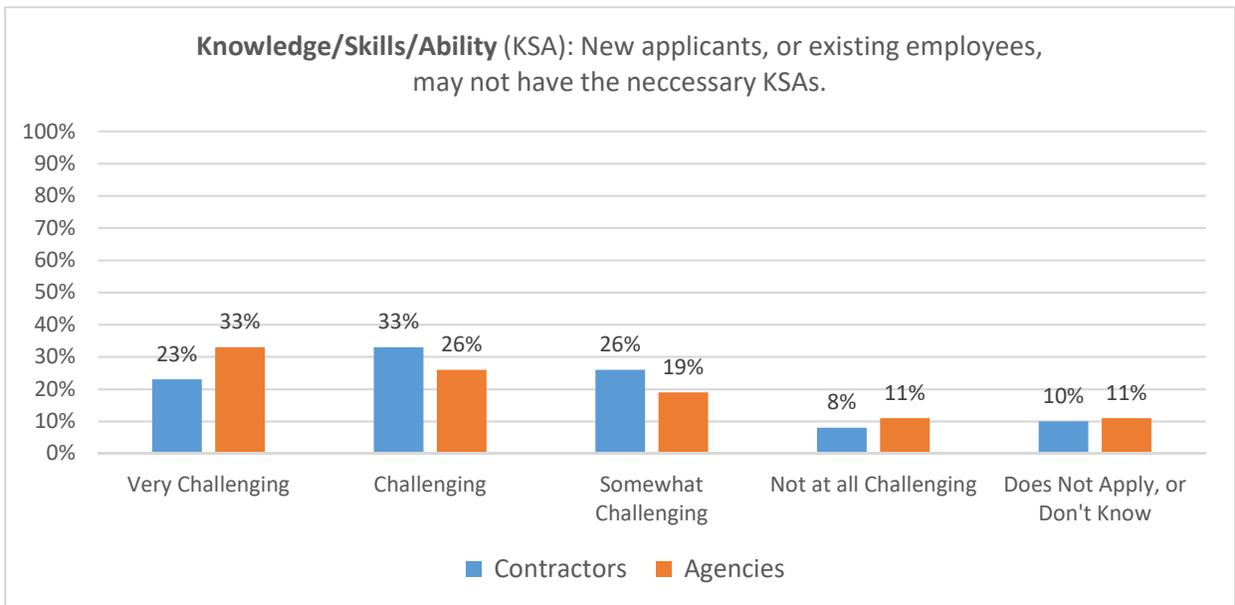


Analyses of the written comments provided by respondents from both groups show that the reasons given for Wages as a workforce challenge issue varied greatly, ranging from the difficulty of competing with other industry sectors for skilled workers in the current economy, to the disruptions and administrative burden caused by frequent shifts in prevailing wage rules and reporting requirements. The cost and added workload required to meet certified payroll and reporting requirements associated with the state’s prevailing wage rules were frequently cited concerns among Agencies and some Subcontractors.

Local Agency Results – Wages	Subcontractor Results – Wages
<p><u>Major Themes (Reasons varied):</u></p> <ul style="list-style-type: none"> <li>▶ Difficult to pay competitive wages in this industry, with rising costs and prevailing wage requirements. Construction, other industries and some agencies’ pay is much higher.</li> <li>▶ High prevailing wages required for inexperienced employees is an affront to experienced employees.</li> <li>▶ Changes in wage structures have been frequent, are disruptive, and administratively burdensome for agencies.</li> </ul> <p><u>Wages – Comments:</u>  <i>“Right now the job market is very good, and our wages have not kept up.”</i></p> <p><i>“Many contractors do not want to work with prevailing wage and L&amp;I (state Dept. of Labor and Industries, which sets wage rates). Prevailing wage adds a lot of complexity to our accounting for our crew also.”</i></p> <p><i>“The pay scale for a new auditor is lower than the pay scale to install or manage the program on a subcontractor/contractor level. Interested applicants can make more money on the private-sector contractor side of things than working within a public agency program as an auditor.”</i></p>	<p><u>Major themes (Reasons varied considerably):</u></p> <ul style="list-style-type: none"> <li>▶ Prevailing wages required for inexperienced employees are viewed as an affront and inequity issue by experienced employees.</li> <li>▶ Difficult to pay competitive wages in this industry and remain profitable, due to rising minimum wage and prevailing wage requirements.</li> <li>▶ Government-mandated changes in wage structures have been frequent and are disruptive and administratively burdensome for employers. Wage structures need stability, standardization and accountability.</li> </ul> <p><u>Wages – Comments:</u>  <i>“It is difficult enough to pay qualified people let alone non-qualified people prevailing wage.”</i></p> <p><i>“In 2018/2019 alone we have had over three shifts in prevailing wage rates that incur a tremendous amount of communication with every Washington agency we serve. There is also a trickle-down effect to inform and re-train our entire staff to combat changes including the employees that receive the prevailing wage. We have had concerns if we are truly competing with other contractors that follow the prevailing wage standards as it seems L&amp;I does not directly enforce or inspect compliance of contractors. Also challenging is the constant shift or lack of a process in standardizing wages within our industry. A standardized well monitored living wage determined by L&amp;I is key to the future success of this industry.”</i></p>

Local Agency Results – Wages	Subcontractor Results – Wages
	<p><i>“People who respond to our job notices like the idea of making \$30-32.00 with the prevailing wage work we perform; it's the attics and crawlspaces.”</i></p>

**Knowledge, Skills and Abilities (KSA):** As shown below, KSAs are of concern to both groups—59 percent of Agencies and 56 percent of Subcontractors reported KSAs as ‘very challenging’ or ‘challenging’. The overall range of responses are graduated across the response categories, and the comparison of scores between groups does not show large differences.



Analyses of the written comments provided by respondents from both groups show that the reasons given for KSAs as a workforce challenge issue were varied, however there was considerable overlap and confirmation regarding the dearth of applicants with the required or desired skills, including the long time required to achieve competence.

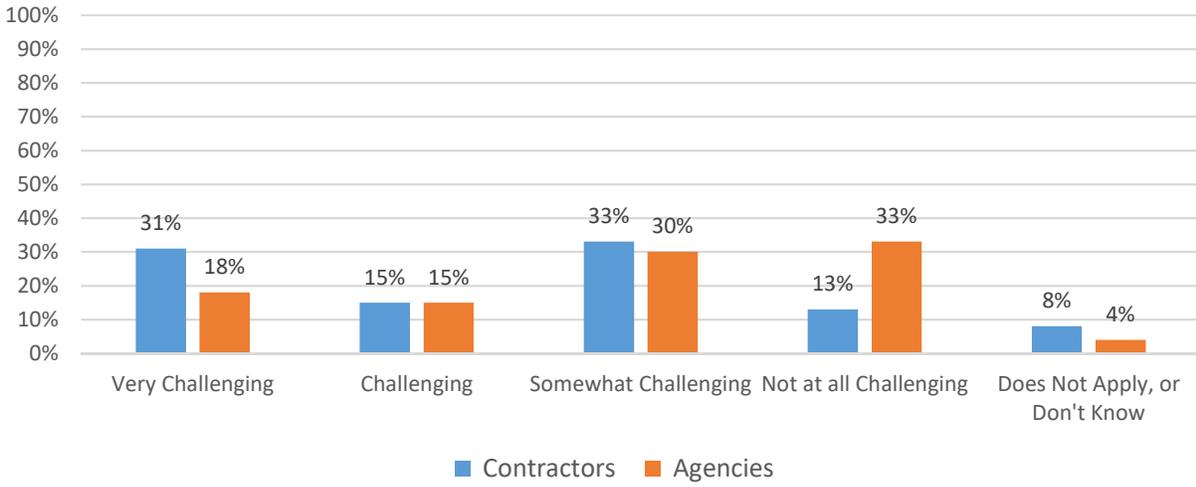
Local Agency Results – KSA	Subcontractor Results – KSA
<p><b>Major Themes (Reasons varied considerably):</b></p> <ul style="list-style-type: none"> <li>▶ Few new applicants have required skills. Considerable time/effort to train is needed at entry.</li> <li>▶ Significant field experience is required to be eligible for and achieve job certification.</li> </ul>	<p><b>Major themes (Reasons varied considerably):</b></p> <ul style="list-style-type: none"> <li>▶ New (inexperienced) applicants have few relevant skills; there are very few Journey level applicants.</li> <li>▶ Weatherization KSAs are not taught in most trade schools or outside programs; the pool of weatherization-ready workers is small.</li> </ul>

Local Agency Results – KSA	Subcontractor Results – KSA
<ul style="list-style-type: none"> <li>▶ Difficult to find or develop replacements for experienced employees who leave or retire, esp. for small agencies/crews.</li> </ul> <p><u>KSAs – Comments:</u>  <i>“Very seldom do we find applicants with existing KSAs, so all positions face the need for hand- on training, much of it taking up to 2 years for reasonable competency.”</i></p> <p><i>“Applicants don't appear to have the depth of knowledge about construction or energy measures, or even computer skills, necessary to pass the required tests to become an auditor, without extensive on-the-job training.”</i></p> <p><i>“We are a very small agency with only two QCIs/Bas; if we lose one we're in a world of hurt but we are lucky and have very loyal employees.”</i></p>	<ul style="list-style-type: none"> <li>▶ Advanced technology, the need for multi-skilling, licensure and certification requirements take time and financial investment with no guarantee of employee retention.</li> </ul> <p><u>KSA – Comments:</u>  <i>“Today the technology requires training to be competent in our field. Our installers are not just duct work or insulation installers; these guys need years of training to become expert at our work. We do not hire people that are not prequalified.”</i></p> <p><i>“It's difficult to train employees and have them meet the state requirements for getting certifications. Once we have one of our employees certified, they quit and so paying for certification was all for nothing.”</i></p> <p><i>“New generations not trained; this work is not taught in the trade schools.”</i></p>

**Turnover:** Turnover showed considerable variation across response categories, both within and between the two groups. On average, Turnover was viewed as a somewhat bigger challenge for Subcontractors (46%) than for Agencies (33%). It is notable that around a third of respondents from each group also reported Turnover as only ‘somewhat’ challenges. And, interestingly, fully one-third of Agencies reported that workforce Turnover was ‘not at all challenging.’<sup>33</sup>

<sup>33</sup> Possible explanations for this finding are discussed later in this section.

**Turnover:** Turnover may be related to certain factors (pay, work conditions, competition from other employers or industries).

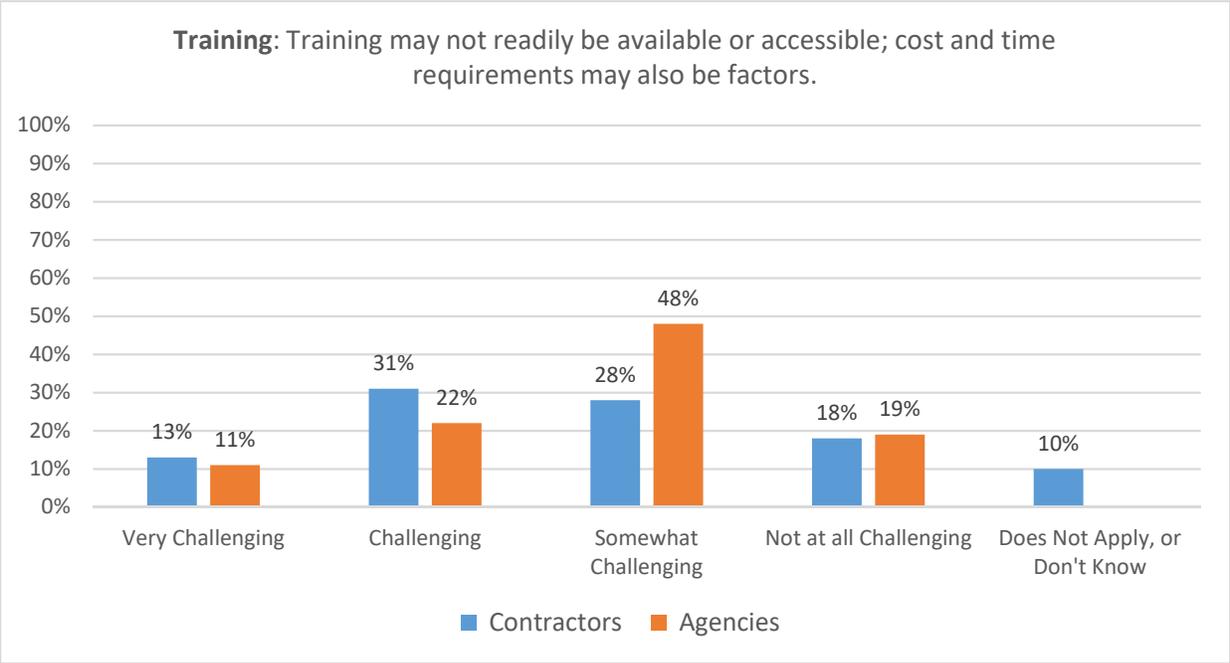


Respondents’ written comments highlight the impact of unanticipated Turnover on production, and the general disruption caused by employees who exit, especially if they are skilled, experienced employees. Small agencies and crews (mostly rural) were more likely to emphasize the difficulty that Turnover causes for operations and production. Higher pay and better/less demanding work conditions with other employers were frequently cited as primary causes of Turnover for all technical positions, but especially for installer technicians.

Local Agency Results – Turnover	Subcontractor Results – Turnover
<p><b>Major Themes:</b></p> <ul style="list-style-type: none"> <li>▶ Agencies impacted immediately, and often severely, when turnover in skilled positions happens, especially for small agencies/crews.</li> <li>▶ Low pay and nature of the work/working conditions drives most turnover, especially at entry-levels.</li> <li>▶ Turnover generates pressure to replace, but available laborers are usually underqualified and need extensive training.</li> </ul> <p><b>Turnover – Comments:</b></p> <p><i>“Our turnover has been infrequent, but when it happens, with only 5 staff, the impact is long-lasting and immediately affects production.”</i></p> <p><i>“The challenge of turnover related to certain factors here primarily affects the auditor and QCI</i></p>	<p><b>Major themes (Reasons varied considerably):</b></p> <ul style="list-style-type: none"> <li>▶ Workers follow the money; go to highest wages within or outside of Weatherization industry.</li> <li>▶ Difficult working conditions and physical nature of the work cause many to leave.</li> <li>▶ Installers see the largest proportion of turnover, but all job types can be affected.</li> <li>▶ Smaller labor pool with less-qualified, less-motivated candidates contributes to higher turnover</li> </ul> <p><b>Turnover – Comments:</b></p> <p><i>“Hard work and low wages equals high turnover. Weatherization margins are significantly lower than other construction fields.”</i></p>

Local Agency Results – Turnover	Subcontractor Results – Turnover
<p><i>positions, but also extends to the program managers and the need to learn all of the requirements of the program.”</i></p>	<p><i>“We have lost valuable men to the Shipyard where pay is better and the work- load or volume is very low.”</i></p> <p><i>“Competitive field, loyalty is rare, and there are demanding conditions. Workers go to where the highest wages are.”</i></p> <p><i>“Because of the demand for electricians, many of those available for employment have been terminated from other companies, and not for lack of work. They tend to be less desirable for lack of work ethic and generally quit or are terminated very quickly.”</i></p>

**Training:** While Training is viewed as a challenging issue by both groups, there does not appear to be a high-level of concern. The Training issue is somewhat more salient for Subcontractors (44%) than for Agencies (33%), yet the survey responses reflect that the issue is of moderate intensity, albeit still important to respondents.

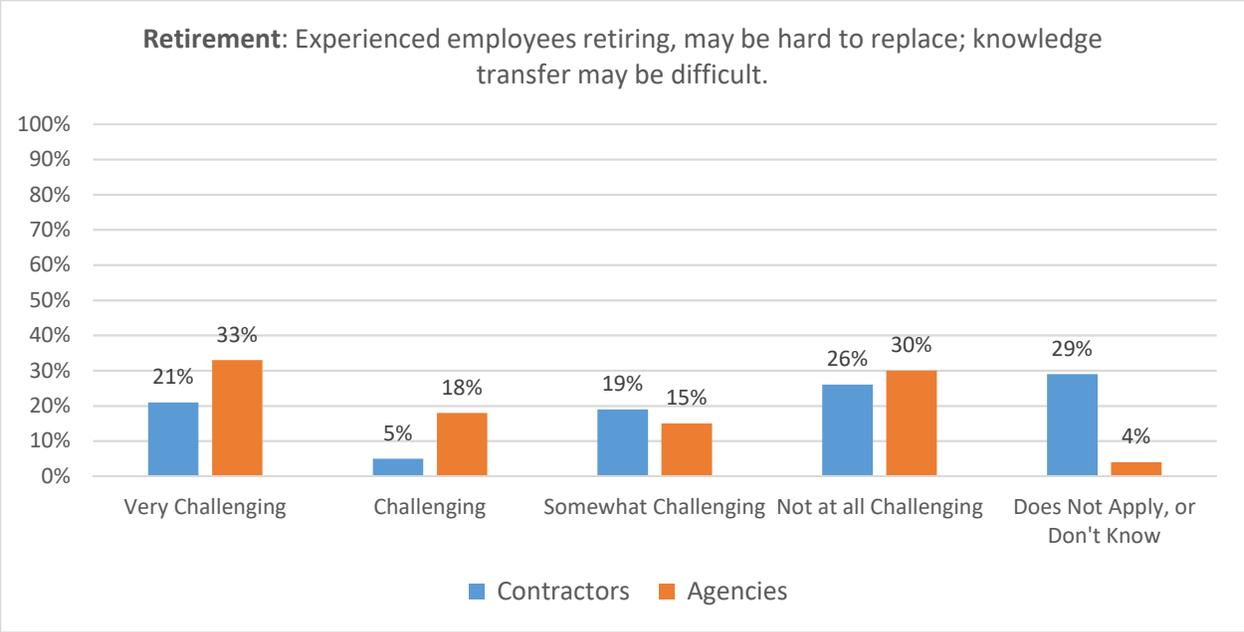


Analyses of the written comments provided by respondents from both groups show that Agencies are generally satisfied with the quality and availability of training provided by the state’s Building Performance Center (Bellingham), and that this service relieves them of much of the costs in time and money of having to provide training and certification support to employees internally. Tension does

exist between the need for training and certification, and because of lost production due to time away from the job, which could potentially be reduced through expanded regional capacity, the use of technology (online delivery), and more site-based training delivery. Extending financial support and training to Subcontractors was also emphasized by several Subcontractor respondents.

Local Agency Results – Training	Subcontractor Results – Training
<p><u>Major Themes:</u></p> <ul style="list-style-type: none"> <li>▶ BPC training schedules and training quality has been good.</li> <li>▶ Challenging to ensure all employees get the training they need, when they need it.</li> <li>▶ Time, effort, and lost production capacity are more typical concerns than cost.</li> <li>▶ Availability and delivery: Desire for more topics, higher frequency, online/site based.</li> </ul> <p><u>Training – Comments:</u></p> <p><i>“Certification training is typically only available in one location not centrally located for any of the agencies. It requires additional costs for travel and extended time away from the office. However, we do recognize that the Building Performance Center has been offering more classes elsewhere recently.”</i></p> <p><i>“Time is always an issue. We have production targets, monitoring visits quarterly and trainings for the most part are not local.”</i></p> <p><i>“Training via BPC is excellent and available on a prescribed basis. The daily training on an in-house basis is time consuming and puts additional pressure on existing staff to not only maintain processes that are constantly moving, but to assist new employees with no knowledge of the program or process.”</i></p>	<p><u>Major themes (Reasons varied considerably):</u></p> <ol style="list-style-type: none"> <li>1. Training takes time and impacts production.</li> <li>2. Wary of making investments in training when turnover happens—no ROI.</li> <li>3. Interest in qualifying for financial support to train their workforces.</li> <li>4. More training and regional training locations would be helpful.</li> </ol> <p><u>Training – Comments:</u></p> <p><i>“Can’t afford to pay for (outside) training and not producing at the same time.”</i></p> <p><i>“The amount of time and distance it takes to get our employees trained is difficult because then they may end up just quitting.”</i></p> <p><i>“Financial assistance from state agencies to subcontractors should be largely included into grant specifications as to eliminate any financial burden a subcontractor cannot support being passed down to a developing workforce.”</i></p> <p><i>“I hope that we can find the means to reopen the training center at South Seattle Comm. College. We also need to figure how to keep the Opportunity Councils facility running at its maximum capacity.”</i></p>

**Retirement:** Not all respondents viewed Retirement as a key issue: Although 51 percent of Agencies viewed Retirement as ‘very challenging’ or ‘challenging’, just 26 percent of Subcontractors gave similar reports. Moreover, the distribution of ratings was quite varied, with a considerable proportion from both groups reporting that Retirement was ‘not at all challenging’ (26%-30%). Also, 29 percent of Subcontractors reported ‘does not apply, or ‘don’t know’ for this issue.

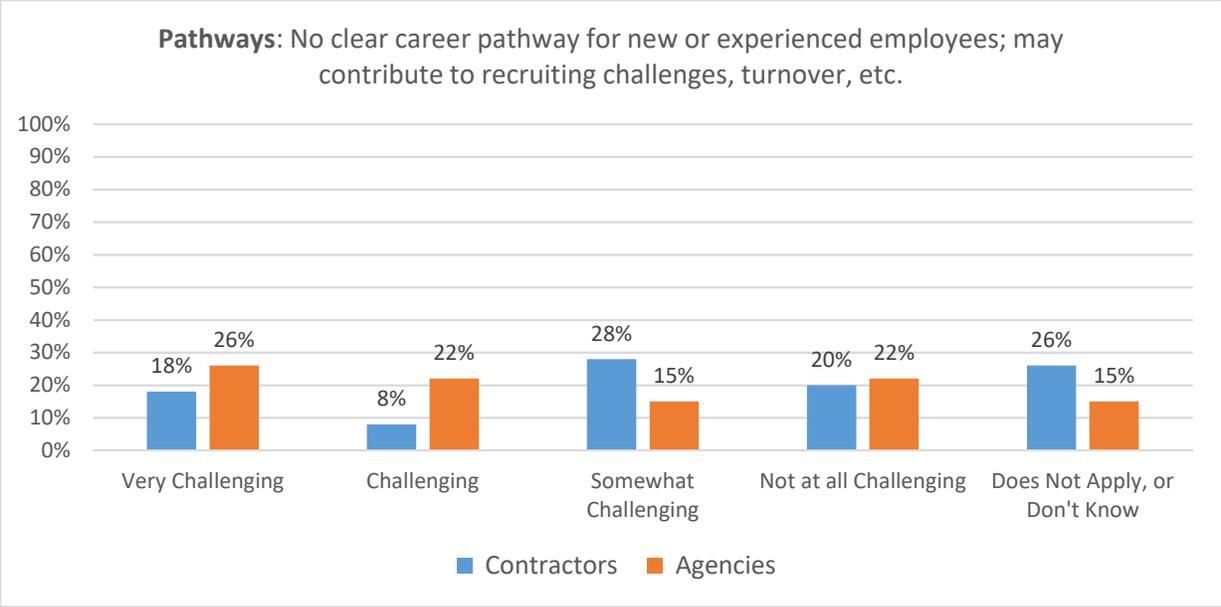


Analyses of respondents’ comments shows that the perceived impacts of Retirement vary, mainly by how imminent the retirements of current employees are, or by past losses due to Retirement. For respondents who reported prior or recent retirements, the impact on productivity and capacity was often severe and disruptive. Both Agencies and Subcontractors emphasized the time and experience required to achieve competence, especially in auditing, inspection and other specialty technical roles such as electrician. The loss of historical knowledge and technical expertise can take years to replace—especially in a tight labor market. Considerable time, training, and experience are needed to achieve industry certifications in core technical positions. Yet, only a few organizations reported that they were actively preparing for transitions due to Retirement.

Local Agency Results – Retirement	Subcontractor Results – Retirement
<p><u>Major Themes (Reasons varied considerably):</u></p> <ul style="list-style-type: none"> <li>▶ Retirement is a big and immediate issue for some agencies, while other agencies have achieved greater age diversity and are less concerned about retirements over the next few years.</li> <li>▶ Loss of historical knowledge and technical experience is of great concern</li> <li>▶ Replacement of retirees will require considerable time and effort due to tight labor markets and skill shortages</li> <li>▶ Auditor and QCI positions esp. hard to fill because of long training, experience and certification requirements.</li> </ul>	<p><u>Major themes (Reasons varied considerably):</u></p> <ul style="list-style-type: none"> <li>▶ Replacing experienced staff who retire is challenging and disruptive.</li> <li>▶ Retirements may require restructuring staff jobs and crews to compensate for the skills loss.</li> <li>▶ Some organizations have increased training in anticipation of upcoming retirements, but this practice is not common.</li> </ul>

Local Agency Results – Retirement	Subcontractor Results – Retirement
<p><u>Retirement – Comments:</u></p> <p><i>“Actually, the historical knowledge is one component, but mostly the loss is the same as other positions, resulting in the time commitment to train new staff and the inherent loss of production ability for that period of time.”</i></p> <p><i>“Most staff retiring have been here a long time and it's difficult to transfer extensive knowledge to other staff.”</i></p> <p><i>“It will be very challenging to replace the Manager, our senior WEATHERIZATION Specialist (QCI/BA) and our junior WEATHERIZATION Specialist. We are all about the same age and will retire rather closely together. This is potentially disastrous without spending time and money lining up new employees and getting them trained.”</i></p> <p><i>“Auditor and especially QCI positions need experience and time-worked within the program to pass and receive certifications.”</i></p>	<p><u>Retirement – Comments:</u></p> <p><i>“We’re losing our electrician to retirement and we were lucky to find him. Prospects are slim at this point.”</i></p> <p><i>“You can’t transfer knowledge to a population of under-educated children.”</i></p> <p><i>“I have two with physical issues and another with health issues and age creeping up on him. That is why I'm looking at restructuring my crew lead positions.”</i></p> <p><i>“We ask that our people of influence are continually spending up to 10 hours a week training, coaching and even mentoring their subordinates and possible replacements.”</i></p>

**Pathways:** Respondents from both groups varied widely in their assessment about career Pathways (how to enter and advance in a given field or job) as a workforce challenge. While nearly half (48%) of Agencies viewed Pathways as a ‘challenging’ or ‘very challenging’ issue (compared to just 26% of Subcontractors), the remaining rankings were graduated across the other response categories for both groups; this issue also saw a fairly large percentage of ‘does not apply, or ‘don’t know’ responses.



Respondent comments generally described straightforward yet limited Pathways for employees, mainly due to the narrow structure and the types of occupations in some Agencies (especially those without Weatherization crews) and the small size of most weatherization contracting firms. Organizations with diverse customers and service types saw greater internal potential for employee skill development in new areas, if not through vertical Pathways or advancement. On-boarding new employees and encouraging employees to pursue higher-level certifications can be difficult. In some cases, respondents reported that low Turnover can even constrain new hiring, limiting internal promotions and professional development.

Local Agency Results – Pathways	Subcontractor Results – Pathways
<p><u>Major Themes:</u></p> <ul style="list-style-type: none"> <li>▶ Agencies without crews lack an obvious pathway for potential new auditors; no natural progression from the field.</li> <li>▶ On-boarding someone who lacks agency experience and training can be hard.</li> <li>▶ There are comparatively few higher-level positions to pursue.</li> <li>▶ Low turnover can constrict opportunities for employees who want to move up.</li> </ul> <p><u>Pathways – Comments:</u>  <i>“Once trained in a specific skill it is often difficult for staff to see the next available step and</i></p>	<p><u>Major themes (Reasons varied considerably):</u></p> <ul style="list-style-type: none"> <li>▶ Pathways are limited, especially in smaller companies, but they are fairly straightforward.</li> <li>▶ It takes considerable time and effort to move to upper levels.</li> <li>▶ More pathways (lateral and vertical) exist in companies that have diverse customers and/or a broad range of services.</li> </ul> <p><u>Pathways – Comments:</u></p>

Local Agency Results – Pathways	Subcontractor Results – Pathways
<p><i>difficult for managers within an agency to ‘promise’ a career pathway again, subject to the lack of understanding by agency administration about the complexity of this particular program.”</i></p> <p><i>“Our hiring and employment structure is very difficult to use when trying to onboard someone who is not already trained. Because we are not crew-based, we have no direct onboard method for our auditors to transition from.”</i></p> <p><i>“Limited turnover can reduce the opportunity for rapid advancement; can take years, sometimes decades.”</i></p>	<p><i>“The pathway is clear, the challenge is keeping the people and getting them to test for licensing, and keeping them productive and profitable.”</i></p> <p><i>“Being a small company it is a challenge to provide an expansive career trajectory (in fact I started my own company after being in a similar circumstance).”</i></p> <p><i>“We do a lot of different stuff (insulation, heat pumps, electrical) so it keeps guys interested.”</i></p> <p><i>“The challenge in offering a dream or a pathway is having an employee patient enough to allow the picture to develop.”</i></p>

**Additional Workforce Challenges:** Employers were also asked to identify other workforce challenges they felt were important. Survey participants responded with a wide range of input, most of which reiterated or clarified some aspect of the seven issues already introduced in the survey. In a few cases, entirely new issues were raised, especially among Subcontractors. In several cases, newly identified topics appeared to be directly related to conditions at particular companies (such as a specific comment about manager-employee relations) and were not generalizable to most employers. Thematic analyses of respondents’ collective input were used to consolidate and generate the topic summary given below:

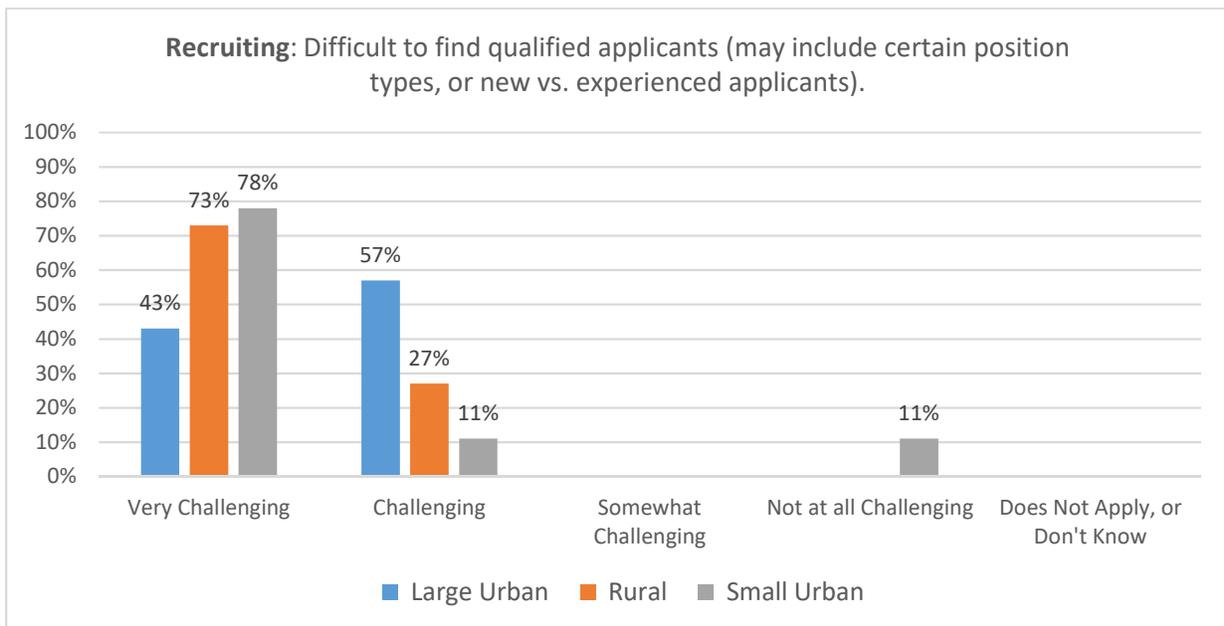
Local Agency Results – Additional Challenges	Subcontractor Results – Additional Challenges
<ul style="list-style-type: none"> <li>▶ Recruiting/finding qualified employees and subcontractors</li> <li>▶ Wages low compared to private sector</li> <li>▶ Administrative workload and burden too high</li> <li>▶ Program/rules too complex and change frequently, deterring potential subcontractors</li> <li>▶ Job applicants unprepared/unaware of work requirements and conditions</li> <li>▶ Low-income clients with poorly-maintained homes are challenging to work with</li> <li>▶ Project costs keep rising</li> </ul>	<ul style="list-style-type: none"> <li>▶ Finding licensed/certified technical and trade employees</li> <li>▶ Profit margins too low</li> <li>▶ Inconsistent, unpredictable backlog of work from agencies</li> <li>▶ Lack of standardized agency processes prevents subcontractor growth and workforce development</li> <li>▶ Lack of trade schools/programs for Weatherization careers</li> <li>▶ Apprenticeship requirements: mentoring, supervision costs/time, journey-to-apprentice ratios</li> </ul>

### Demographic Factors - Agencies

Sub-analyses of the workforce challenges data for weatherization Agencies (only) were conducted to examine whether any of the seven challenge topics showed differences based on certain demographic factors.<sup>34</sup> The sub-analyses were conducted to help inform future recommendations regarding strategy and implementation options for enhancing the weatherization workforce.

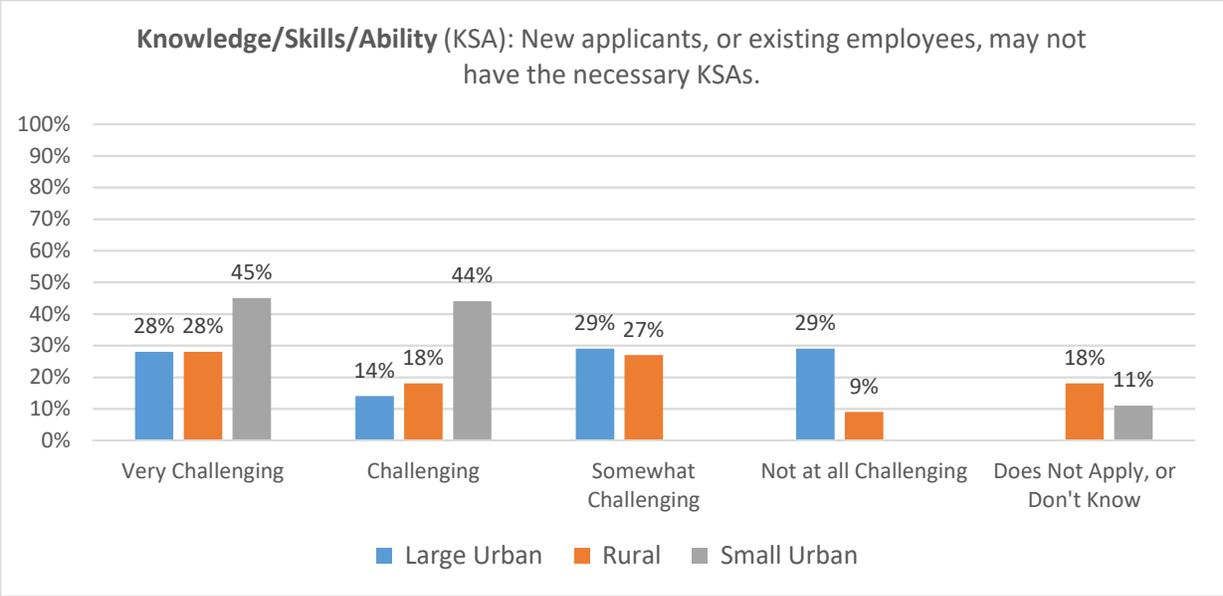
One set of sub-analyses compared responses to workforce challenges based on whether agencies operated primarily in large urban, small urban, or rural geographic areas. Most of the findings showed only slight differences based on demographic factors; however, in a few cases the differences were notable, and those are presented below.

**Geography and Size:** As noted earlier, all but one Weatherization Agency reported Recruiting as challenging, but the breakout below shows that Small Urban and Rural Agencies viewed Recruiting as somewhat more challenging than Large Urban Agencies. It is worth noting that Large Urban Agencies are public entities, and they all rely exclusively on Subcontractors. Agencies that operate without their own crews typically have fewer internal positions available. While they are located in areas with large labor markets, this does not necessarily ensure labor quality. In contrast, two-thirds of Rural Agencies operate using their own work crews, while drawing from more limited labor markets.

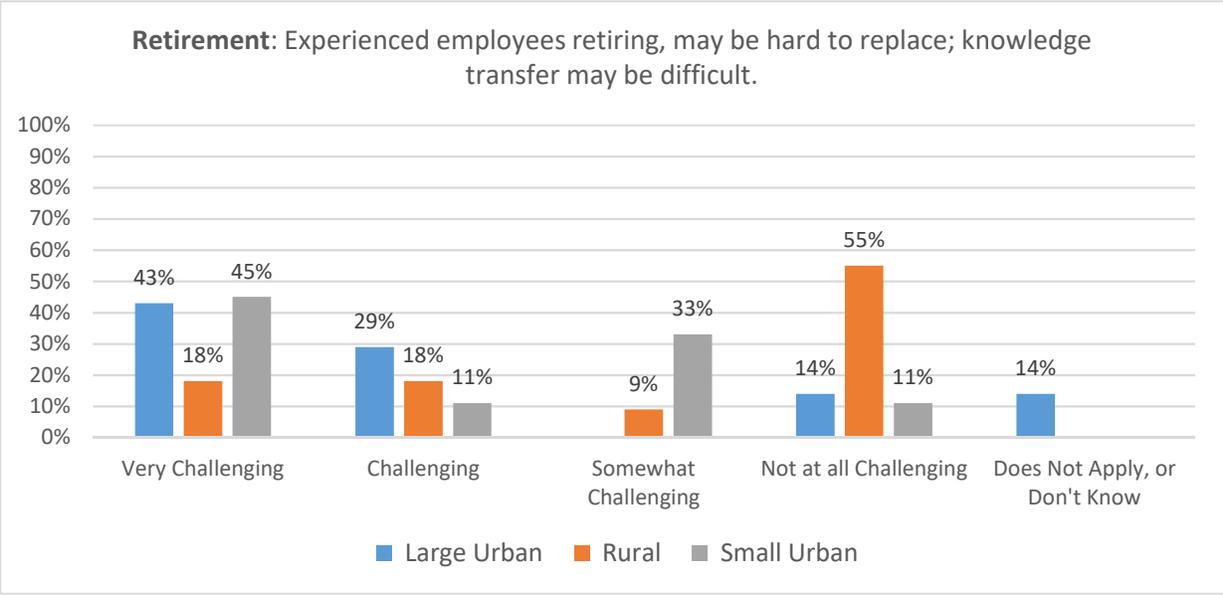


Small Urban Agencies were more likely (89%) to report that Knowledge, Skills and Abilities (KSAs) are a major workforce challenge than either Large Urban (42%) or Rural (46%) Agencies; 29% of Large Urban Agencies reported that KSAs are 'not at all challenging' for them.

<sup>34</sup> Geographic analyses for subcontractors were not conducted for this study, mainly because most subcontractors are not limited to specific market areas; many provide services across multiple geographic areas.



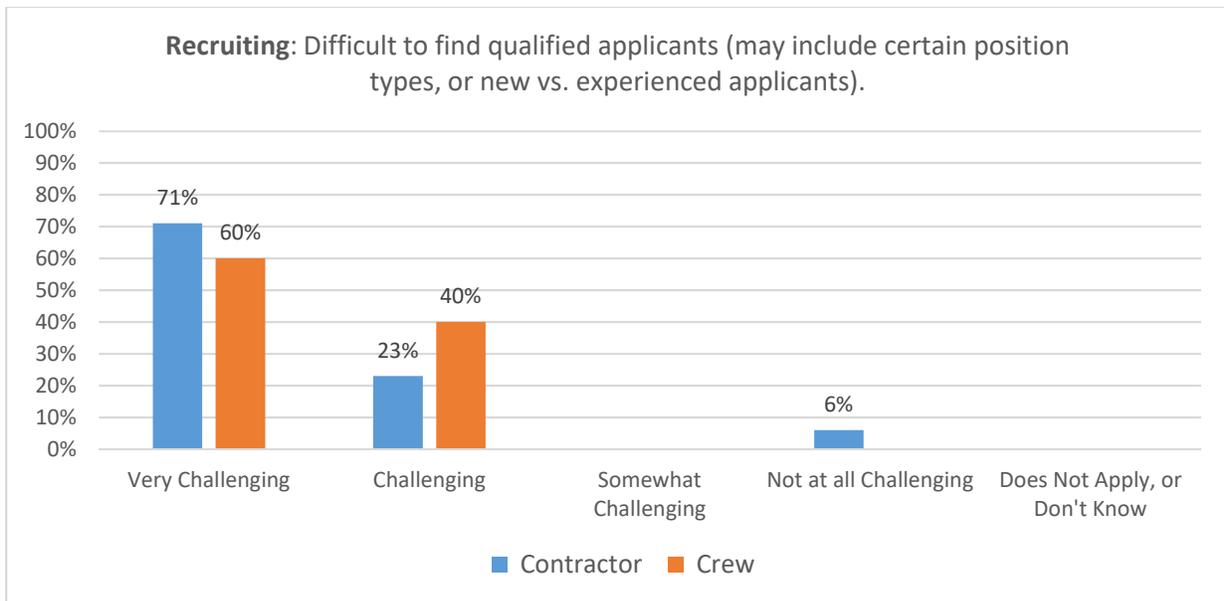
Finally, as noted earlier, Retirement was a factor for Agencies overall, but not a highly-rated concern. Fifty-one percent of agencies (and just 26 percent of Subcontractors) reported that Retirement was ‘challenging’ or ‘very challenging’. When broken out by geography and size, the data show that 72 percent of Large Urban Agencies view Retirement as a ‘challenging’ or ‘very challenging’ factor. Interestingly, the majority (55%) of Rural Agencies reported Retirement as ‘not at all challenging.’ Some written input from Rural Agencies suggests that while retirements are disruptive when they occur, retirements are not currently a major concern among Rural Agencies.



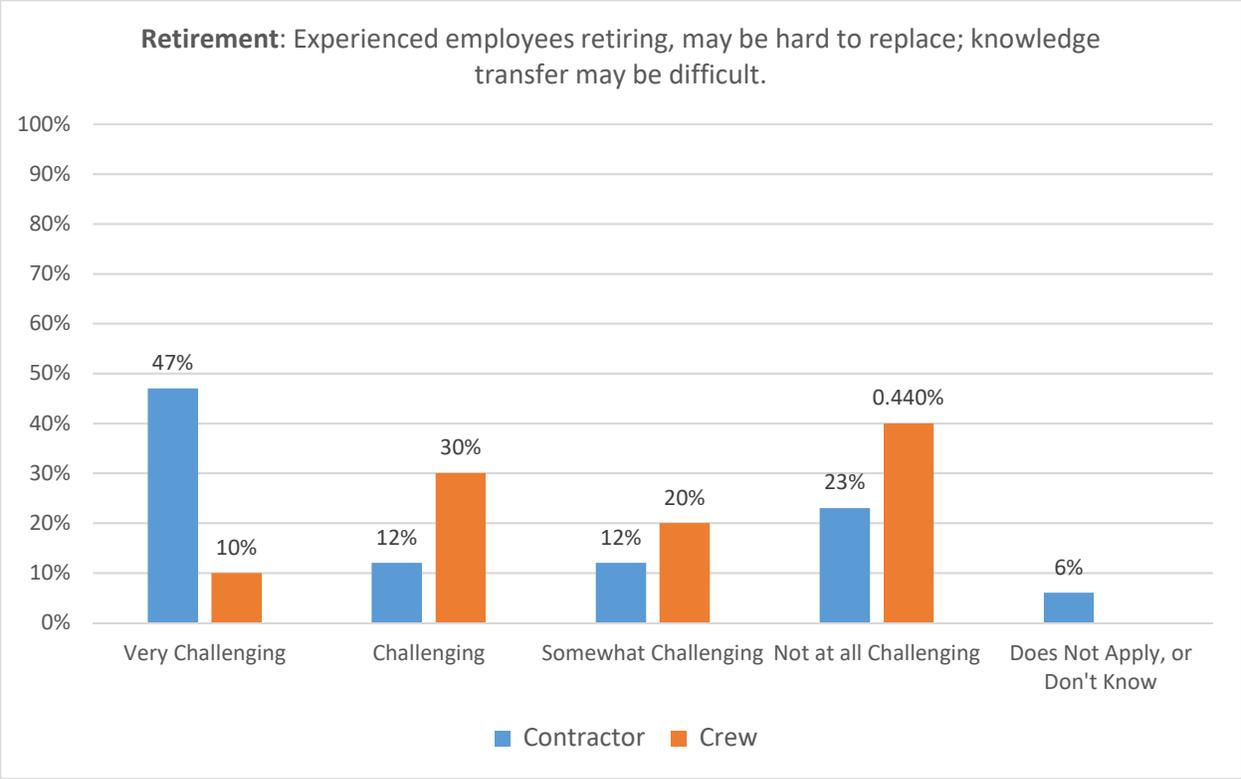
### Subcontractor vs. Crew-Based Workforce

The second set of sub-analyses examined responses to workforce challenges by comparing Agencies that employ their own work crews for weatherization projects with Agencies that rely primarily on Subcontractors. Two-thirds of all Agencies rely on a Subcontractor network to implement most weatherization measures, and most crew-based Agencies rely at least periodically on Subcontractors for specialty work and services that they do not provide in-house (e.g., electrical, roofing).

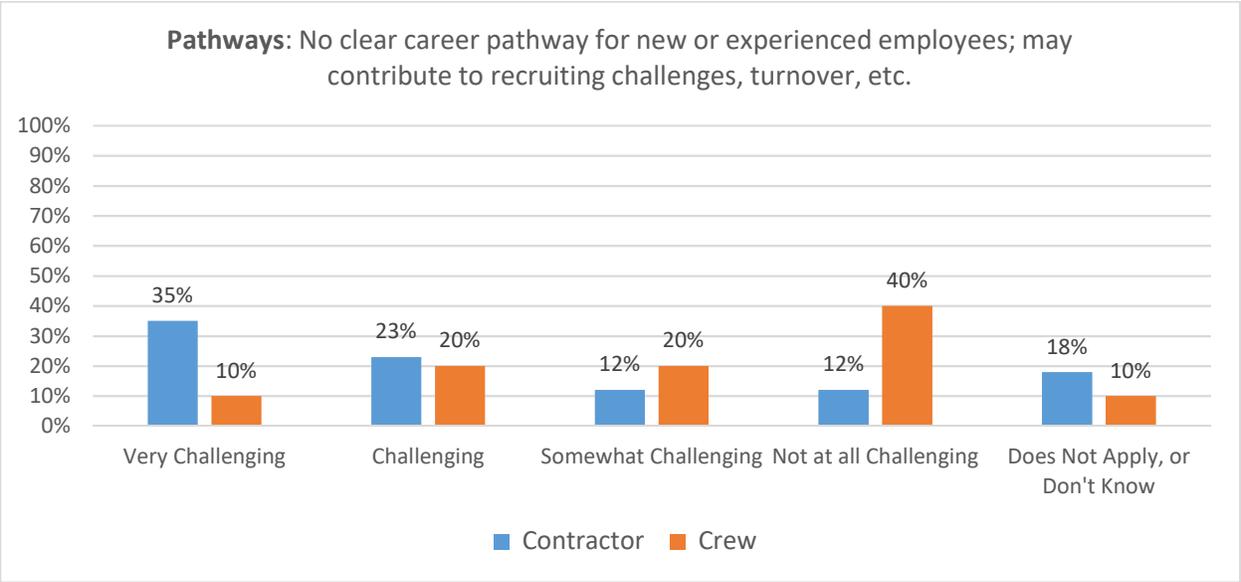
Regarding Recruiting, the breakout reveals that Subcontractor-based Agencies regard the intensity of this issue ('very challenging') as somewhat higher (71%) than crew-based Agencies (60%). While these differences are not large, written input from Agencies suggest that crew-based Agencies are able to draw upon their installer crews (as well as Subcontractors) as a source of new labor when experienced employees move into higher-level positions.



The second breakout shows that Subcontractor-based Agencies are much more likely (47%) than crew-based Agencies (10%) to report Retirement as a 'very challenging' issue. One possible explanation, based in part on written input from Agencies, is that Subcontractor-based Agencies with limited technical staffs may be more severely impacted (due to operational and technical KSA losses) than Agencies with crews, in which crew employees who develop new skills help to compensate for retirement-induced skills losses.



Finally, Subcontractor-based Agencies viewed Pathways as a bigger challenge (58%) than crew-based Agencies (30%). Notably, 40 percent of crew-based Agencies reported that Pathways were ‘not at all challenging’ for them. Subcontractor-based Agencies typically have a relatively flatter and simpler organizational structure, and thus a more straightforward set of occupational Pathways, yet they may also lack the internal pipeline that is available to crew-based Agencies.



## Analyses Summary – Workforce Challenges

The survey results clearly show that Recruiting is the predominant workforce challenge for weatherization Agencies and Subcontractors. Comments from both groups underscore that skilled and qualified applicants (those with required certifications, such as inspectors and auditors) are generally unavailable and very difficult to recruit in the current labor climate. ‘Poaching’ of experienced employees by employers is a common practice, and inexperienced new hires require considerable additional training and support to perform the required work. Agencies are somewhat more likely than Subcontractors to report Recruiting as ‘very challenging.’ While all Agencies typically employ inspectors and auditors, only about a third of Agencies also have their own weatherization installation crews. The lack of new and experienced weatherization workers is the primary concern for most Subcontractors.

It seems logical that Recruiting emerged as the leading challenge for both groups, because virtually all other workforce challenge categories identified by employers underlie and are associated with Recruiting, as demonstrated below:

Wages are a concern to agencies in part because prevailing wage rules require that subcontractors pay wages that are generally higher than most agencies are able (or willing) to pay for similar work; agencies sometimes lose skilled employees to subcontractors, who pay higher wages as required by the state.

While prevailing wage rules are burdensome for agencies—especially in light of rule changes and added administrative requirements—these rules are also challenging for subcontractors to monitor and comply with. Agencies report that some potential subcontractors actively avoid working with weatherization agencies because of the administrative burden, which further reduces the already-limited pool of qualified service providers.

Knowledge/Skills and Abilities (KSAs) are a highly-rated concern, in part because the current labor pool does not have the required KSAs that agencies or subcontractors want. Employers who hire underqualified applicants must invest considerable time and effort before these new employees can be productive, which is costly and requires more training by senior staff. Poaching and retirements exacerbate the loss of skilled employees.

Turnover (especially unanticipated/unplanned turnover) can cause immediate and sustained production deficits. Finding qualified replacements can take a long time, and in the current competitive labor environment employers may feel compelled to offer higher wages than usual. Employers may hire underqualified workers as replacements, which can necessitate an increase in training and the time required to ramp-up new employees.

Training is not a high-level concern for employers; it is generally viewed as available and accessible. Yet, training for auditors and inspectors is substantial (and also requires time on the job) and impacts costs and production capacities of employers, especially if those being trained are underqualified and training and certification take longer than anticipated to complete.

Retirement is generally not a high-level concern for employers at this time, but the loss of experienced employees in a highly competitive labor environment makes finding and training replacements a more lengthy and costly endeavor.

Pathways relate to recruitment because the lack of a clear and progressive weatherization pathway makes it difficult for employers to explain the employment opportunities to potential new hires and prevents applicants from seeing how they may be able to grow with the organization and develop their careers. The nature of weatherization work itself is hard to ‘sell’ to potential applicants; the lack of clearly-defined career trajectories and advancement options may compel potential new hires to look elsewhere for opportunities. In the current labor environment—marked by economy-wide labor shortages—there are many alternatives to weatherization.

## **Employment Results**

Additional questions were included in the survey to identify employment in various job categories, current job openings, turnover, estimated future staffing and retirements. A review of the data showed non-completion or partial completion for some employment-related questions. Due to weak response rates, analyses for some employment-related items are not included in this report.<sup>35</sup>

Job openings, future new hires and retirements: Adequate responses regarding employment, current job openings, future new hires and retirements for weatherization agencies were reported, and those results are shown below in two tables:

1. For program and technical management job openings, and
2. For technical and trades-related job openings.<sup>36</sup>

The overall results show that the largest number of current openings are for inspectors, auditors and client educators. These are also the occupations in which employers estimate the largest number (and proportion) of future new hires will occur. Estimates for future employment (for the next 3 years) of new crew leaders and insulation installers suggest that employers anticipate employment growth as well as retirements of experienced employees in several key positions.

It should be noted that only about a third of local agencies employ their own work crews to implement weatherization measures (air sealing, insulation installation, and associated technical work). Two thirds of local agencies rely on subcontractors to implement all or most residential weatherization measures. Even agencies with dedicated crews routinely rely on subcontractors for certain skilled trades, such as electrical work, plumbing, cooling and heating, roofing, drywall hanging, painting and other specialty work.

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<sup>35</sup> In particular, the subcontractor response rates for specific questions about employment, job openings, future new hires, and retirements were very low.

<sup>36</sup> Only the job titles for current openings are shown in the tables; agencies employ many types of administrative, managerial, professional and technical workers not listed, which if included would substantially increase total employment by agencies that support weatherization (management, fiscal, administrative, IT, and other non-technical positions). Not all agencies use the same job titles, and some titles represent shared jobs, where an employee may work in more than one job type, or the hours spent in a job may be less than a full-time equivalent.

## Agency Job Openings, Estimated New Hires and Retirements

Program and Technical Management				
Job Title – Agency Employees	Estimated Current Employment	Current Job Openings	Estimated New Hires (3 years)	Estimated Retirements (3 years)*
Quality Control Inspector	23.5	5.5	12	4
Energy Auditor	30	6.5	8	4
Weatherization Program Manager	29.5	1.75	3	4
Program Assistant	20	1.5	3	3
Crew Leader	5	2	8	1
Client Educator/Outreach	9	4.5	12	1
Other (administrative support, related)	18	3	5	2
<b>Total</b>	<b>134</b>	<b>27.75</b>	<b>51</b>	<b>19</b>
Technical and Trades				
Job Title – Agency Employees	Estimated Current Employment	Current Job Openings	Estimated New Hires (3 years)	Estimated Retirements (3 years)*
Insulation Applicator/Installer	25	5	9	1
Electrician		1	1	0
Laborer		1	2	0
Heat/Frost Insulator		1	0	2
Heating Equipment Mechanic		1	2	0
Plumber/Pipefitter		1	3	0
Other (technical)	2	0	4	0
<b>Total</b>	<b>27</b>	<b>10</b>	<b>21</b>	<b>3</b>

\*Estimated new hires do not include potential replacements due to retirements.

### Employment Data Summary

The employment data, while limited, generally confirms the findings and concerns expressed by employers about the challenges of recruiting a qualified workforce now and in the future. Quality control inspectors and auditors, who also require certification and experience on the job, show some of the largest future growth and retirement estimates. These key positions must meet industry requirements, and certification requires considerable time in the workplace. Agency employers report that finding qualified inspectors and auditors is difficult, and they are concerned about hiring new employees in these positions to replace those who do retire. Employers are also concerned about hiring

installers and client educators/outreach employees now and in the future, but these jobs require less industry experience for entry, and estimated retirements are comparatively low.

## **CONCLUSIONS AND RECOMMENDATIONS**

Preliminary data and input from agencies served to inform the design of more detailed surveys that included agencies and a sampling of weatherization subcontractors. Personal interviews with select agency leaders, subcontractors and other stakeholders provided additional information that was used to triangulate the results (i.e., incorporating data collected through several different methods and sources to inform the findings and conclusions).

At every stage of this project, stakeholders have emphasized the difficulties associated with finding, hiring, developing and retaining a qualified and skilled weatherization workforce. Although the initial inquiry focused on local weatherization agencies, the majority of agencies rely on subcontractors to complete weatherization work across the state; thus, subcontractors are also important partners to the state's weatherization network. The inclusion of subcontractor employers in the study served to expand the analyses beyond weatherization agencies alone and helped extend the findings and implications to the state's broader weatherization system.

As described in this report, the findings from both groups served to confirm the importance that each group attaches to workforce development, while also displaying some subtle but important differences between agency and subcontractor employers on certain workforce-related topics. In general, however, the level of unanimity far outweighed the differences between weatherization agencies and subcontractors. No doubt these similarities are due in part to the fact that the majority of agencies (around two-thirds) rely on subcontractors to perform low-income weatherization work; even agencies that employ their own weatherization crews depend somewhat on subcontractors to perform at least some technical/specialty work. These interdependencies are an important feature of Washington's weatherization tapestry and add to our understanding of the workforce challenges facing the weatherization employer network.

The evidence from this study leads to the following general conclusions and recommendations about how to enhance the weatherization workforce in Washington state.

### **Expand the Weatherization Workforce**

In 2018 Washington state was estimated to have nearly 64,000 workers employed in energy efficiency, with two-thirds of that employment in the construction sector, and the majority of that employment is in new construction, not renovation. In fact, weatherization-specific work makes up only a small fraction of that total as one of many efficiency-related services provided by construction companies. In addition, weatherization work is typically just one facet of an employee's overall job responsibilities. Renovation-focused low-income weatherization work coordinated through the state's 27 local agencies and private-sector subcontractors comprises an even smaller wedge of overall employment; internal estimates suggest that the low-income weatherization work conducted under funding from the state's department

of commerce likely represents a total employment of less than 500 individuals, and not all of that employment is solely dedicated to weatherization.<sup>37</sup> With such a limited employer and workforce base to draw from, the weatherization program is constrained and lacks capacity.

As this report has shown, the recruitment, development and retention of weatherization employees is made more difficult by many factors: A tight labor market and intense competition for skilled labor; concerns about state wage rules and comparative inequity for agency employees that exacerbates turnover and promotes employee ‘poaching’; a complex financial reporting and regulatory environment regarding program accountability, wages, record keeping and other administrative requirements that can directly and indirectly effect employee hiring, development and retention; technical skill requirements and certifications for auditors and inspectors that can be difficult to achieve; and the demanding, physical nature of the work that limits its appeal to potential new workers, especially at the entry level.

**Marketing Awareness:** Weatherization is an industry that is not well-known or understood; the small number and size of most weatherization employers is overshadowed by larger energy services firms, and most small employers simply lack effective marketing tools or resources needed to support a sustained recruiting campaign. Agencies typically support multiple social and support services in their communities, and weatherization is usually just one of many programs. Small subcontractors are intensely focused on meeting day-to-day production to ensure their economic viability, and they lack the time and tools that could help enhance their hiring practices, even when the need is acute. As a result, relatively little systematic effort has been made to market employment or career opportunities in this sector.

Creative messaging about weatherization’s focus on serving communities, reducing energy costs, reducing the carbon footprint of residential buildings, supporting climate and environmental protection, and supporting social justice is an important approach that the weatherization industry can use to build greater awareness and interest in weatherization as a career among students, young adults, and individuals undergoing employment and career transitions. Conversely, lack of awareness and limited systematic outreach to non-traditional groups result in missed opportunities for employers and job seekers alike.

### **Collaborate with the Existing Workforce System**

The lack of time and resources facing most weatherization employers can be resolved in part by collaborating more actively with the public workforce system. Washington’s weatherization employers could benefit considerably by leveraging existing state and local resources and expertise that are already available, such as regional business outreach staffs employed at area offices for employment security and workforce development, as well as colleges and business support organizations. Participating in low- or no-cost sponsored events, such regular job fairs and customized hiring events, brings employers and

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<sup>37</sup> Estimate is based on data collected by Commerce on weatherization agency and subcontractor employment and the survey results included in this study. This internal estimate does not include utility-driven weatherization work, which also relies on many of the same subcontractors employed by local agencies to implement weatherization projects.

job seekers together and provides an efficient forum for recruiting. These public sponsors and organizations support employment events and services for traditional job seekers, but also for non-traditional and underserved populations (women, racial and ethnic minorities, at-risk youth and individuals seeking to re-enter employment) that can serve as new sources of qualified applicants who are often highly diverse and motivated to secure employment.

For their part, weatherization employers will still need to invest time and resources to maximize the benefits available through the public workforce system, but these investments should help generate efficient, short-term hiring results while also developing long-term workforce system partnerships that will benefit employers and job seekers.

### **Ensure Current and Future Skills and Qualifications**

Washington is fortunate to have a dedicated training provider that is available to the state's regional weatherization agencies and subcontractors. The Building Performance Center (BPC) delivers core industry trainings and certification services across the region, and the survey results show that its services are well-regarded by weatherization employers. Additional training capacity may be warranted as the state expands its emphasis on energy efficiency to meet increased energy conservation goals.

Leveraging online and hybrid (online/on-site) delivery options may help expand availability to rural areas in the state. Available public workforce training resources and systems can be used to expand education and training outreach while offsetting costs for agencies and for new and current subcontractors. These collaborations can help ensure that the state's weatherization service providers continue to train and upskill their employees to be productive, while simultaneously expanding their employees' career options.

### **Recommendations and Solutions: Actions that Matter**

The analysis and integration of data sources underscore a consistent general conclusion: **That the overarching and most pressing workforce challenges facing agencies and subcontractors engaged in weatherization work are related primarily to employee recruitment.** And, while these data show that there are many related concerns that deserve attention, they are mostly subordinate to—yet directly relevant to—the full range of recruiting challenges facing most weatherization employers. With recruiting as the leading driver, the recommendations and solutions will follow in answer to this question: What actions are best for improving the ability of employers to recruit, develop and retain a skilled workforce?

Many potential solutions were considered, from complex systems-level changes and upgrades to straightforward, incremental improvements that can be implemented quickly and without large time or resource commitments by individual employers. The analysis also attempted to gauge the feasibility of potential courses of action suggested by agencies and subcontractors by using reviews of relevant programs in other states and input from experts on national, state and local workforce policies and programs. Recommended solutions were reviewed internally for their likelihood of successful

implementation and support, and for their potential to generate tangible, near-term results that would build momentum for future action and success.

It is important to note that the solutions chosen for implementation will require time and effort (and varying levels of financial investment) by all parties: State agencies, weatherization agencies and subcontractor employers. The maximization of benefits to sponsors, employers, employees and weatherization customers is more likely with the active participation of all partners, and this collaboration will also help ensure that the chosen strategies and actions will be successfully implemented.

Recommendations and potential actions are presented in two major tiers:

Tier 1 represents solutions that can be initiated in a fairly straightforward fashion, without requiring major (and perhaps unsustainable) commitments of time, staffing and resources. These “low hanging fruits” are important first steps that can help inspire collective action among state, regional and local weatherization partners and foster alliances with existing external partners that can leverage relevant resources and support for weatherization employers.

Building and leveraging state agency alliances is strategic because the weatherization agencies and subcontractors who drive the state’s low-income weatherization program comprise a relatively small and specialized sub-sector, with total employment estimated at less than 500 statewide. The costs associated with developing customized employment support services will be high and require added administrative capacity. Also, the most pressing workforce needs of weatherization employers—recruiting and hiring employees—can be well-served through state agency services and resources. As an initial first step, leveraging existing workforce and employment programs and resources enables weatherization employers to efficiently access existing, established services that are relevant to their needs. Successful implementation of Tier 1 activities can also help set the stage for future (Tier 2) actions.

Tier 2 options are generally broader and longer-term than those listed in Tier 1. They are aimed at system building and restructuring to enhance weatherization workforce development. Tier 2 recommendations also rely heavily on collaboration and leverage among employers, state and local governments, educational institutions and training partners. Enhancing and expanding the workforce pipeline and increasing the capacity of the weatherization system to support ongoing skills development will also require unwavering commitments by the all partners, as restructuring or building new programs will necessitate new investments and an increased operating capacity.

### ***Tier 1***

**E. Weatherization System/Network Roadmap Discussion with Workforce Experts (Spring, 2020):** This half-day event would convene select Weatherization Network agencies, subcontractors and invited workforce development experts for three primary purposes:

1. Enable Commerce staff, state employment and workforce agencies, subcontractors and invited guests to learn about and discuss the Roadmap research findings, recommendations and proposed actions. Few state agencies interviewed knew much

about the state's overall weatherization system, much less the workforce challenges faced by weatherization employers.

2. Engage participants in a facilitated discussion among invited workforce development experts from other state agencies, education, labor, training and other organizations that provide programs, services and support to employers, incumbent workers and individuals who are preparing to enter or re-enter the workforce. This discussion will aim to reveal the existing services and solutions that can be leveraged to support the Weatherization Network with its workforce needs, explore alternative solutions, and engage external leaders and organizations in future collaborations.
3. Verify and confirm (or offer alternatives to) the proposed action steps and outcomes, and establish a shared commitment to implementing the top-tier workforce solutions to benefit the full Weatherization Network of employers and current and future employees.

**Costs:** There are few actual costs besides the time and effort required to design and sponsor the half-day event, and for staff and employers to participate (note that some costs can be covered with existing or additional outside funding).

**Benefits:**

- Clarity about Weatherization Workforce Roadmap recommendations and action steps
- Awareness of available resources, support, programs and services to assist employers and job seekers.
- External input from participants and invited guests will inform the design and implementation of proposed actions, and secure leadership support and resources for current and future actions.

**F. Leverage Existing Recruiting/Hiring Resources and Events (Ongoing):** The primary workforce challenge identified by Network agencies and subcontractors is linked to recruiting. A fast, low-cost (time/energy) and potentially valuable set of activities includes participating in sponsored recruiting and hiring events and building relationships with staff specialists from state, regional and local agencies and organizations who are charged with supporting employers and job seekers. Some examples:

- Workforce Staff Support: The state's Employment Security Department (ESD) provides federal financial support to regional Workforce Development Councils (WDCs), which in turn provide a broad range of employment services. Most WDCs employ "business solutions specialists" whose primary role is to learn about employers who are seeking to hire employees and connect them with job seekers from the local community. Business solutions specialists can advise employers about local labor markets and incentives for hiring and training support because they are aware of regional economic dynamics and federal, state and local employment resources and services.

- Recruiting/Hiring Events: The ESD, local WDCs and other organizations regularly sponsor, staff and support regional and local job fairs and hiring events that connect interested employers with job seekers. These events provide a well-established, low-cost (usually free to employers) and effective way for employers to amplify awareness of the weatherization sector, boost recruitment outreach beyond ‘word of mouth,’ and engage directly with traditional and non-traditional populations (women, underrepresented populations, veterans, etc.) who are actively seeking employment.<sup>38</sup>

**Costs:** Costs include the time/effort for staff and employers to coordinate with Workforce Agencies, and for employers to collaborate with, and actively participate in, regional employment events; related costs such as those required for recruiting materials or other outreach tools will need to be determined (unless these costs can be covered with existing or additional funding).

**Benefits:** Workforce agency leaders leverage staff support, existing programs, sponsored events, funding and services to facilitate the processes by which employers connect with and recruit job seekers.

**G. Develop Effective Recruiting Tools (Summer/Fall, 2020):** Low-income weatherization represents a small niche area within the broader energy efficiency sector. The specialized work content, administrative/operational structures and unique client characteristics are not well-understood by the public or potential new hires. “Dirty and demanding” and “limited mobility” are terms often attached to the career opportunities in this field, which can cause potential new recruits to look elsewhere. Most employers rely on ‘word of mouth’ transmission through current employees to recruit new workers, but this approach is limited. Better, more accurate and inviting information is needed to attract—not repel—potential new employees to career opportunities in weatherization. Examples of employment marketing tool development include:

- Creating a Weatherization Pathways Briefer: Develop a concise marketing and recruiting document that integrates select data with employer/employee/student testimonials and a descriptive pathway visual. This Briefer could be used for general circulation by Network members during formal presentations and outreach events at job fairs, schools, colleges, WorkSource centers, community programs, and partner meetings.
- Developing Multi-Media/Digital Tools: Potential future tools could include streamed videos or alternative media and digital products, as well as other customized

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<sup>38</sup> For example: <https://jobfairsin.com/washington?trumbaEmbed=view%3Devent%26eventid%3D133906334>

marketing tools appropriate for use with general or targeted audiences (students, job seekers, teachers/faculty, etc.).

**Costs:** Costs will depend on the design and scope of this project. A very basic “Weatherization Careers” handout and digital version could likely be produced internally and distributed digitally at a modest cost. Costs of multi-media tools and products may vary considerably depending on features, delivery and usage.

**Benefits:** This project will build awareness and knowledge of weatherization careers, opportunities and requirements. Recruiting tools can be widely distributed and used for events and presentations. In addition, such tools can be designed to appeal to specific groups and levels: Students, inexperienced job seekers, re-entry/career changers, and experienced professionals.

- H. Enhance Internal Employment/Human Resources Strategies and Practices (2020):** Many recruitment and selection tools, best practices and other HR resources already exist and are available online and in other forms for use by employers directly; other materials are accessible via trainings and consultants. Some of these effective strategies and tools have been designed specifically to help employers improve their basic recruitment, selection, development and retention of employees as well as their ability to prepare employees for career-related transitions.<sup>39</sup>

Some of these resources are also aimed at preparing HR professionals and managers for workplace changes due to technology innovations (automation, artificial intelligence), shifts in the structure of occupations and labor trends (such as reductions in the number of permanent workers and increased numbers of temporary or ‘gig’ workers), and forecasted economic and demographic cycles (retirements of ‘boomers’ and the rise of ‘millennials’ in the workplace).

Yet, relatively few organizations regularly, consistently or effectively apply these practices. For instance, the survey results revealed that the primary recruiting method used by agencies and subcontractors is to rely on existing employees to identify and recruit potential new hires. While this ‘word of mouth’ approach is an important and effective tool, most employers neglect other recruitment methods and rely on this approach almost exclusively. Also, since most weatherization agencies and subcontractors represent small employers, they may indeed lack the levels of professional staffing, sophistication and technical support required to launch and sustain effective HR practices, much less to adopt new strategies or methods to enhance employee recruitment and development.

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<sup>39</sup> See: <https://www.shrm.org/hr-today/news/hr-magazine/0716/pages/12-recruiting-tips-from-talent-acquisition-leaders.aspx>. See also: Cappelli, P. (2019). *Your approach to hiring is all wrong*. Harvard Business Review (May-June): <https://www.shrm.org/hr-today/news/hr-magazine/0716/pages/12-recruiting-tips-from-talent-acquisition-leaders.aspx>

The reality is that some weatherization sector jobs and pathways are inherently limited due to the nature of the work, the small size of most employers, and the limited advancement opportunities. Turnover in entry-level jobs is generally high and pervasive, and should be built into regular planning, budgeting and forecasting. Reducing turnover due to preventable, correctable circumstances is more important than trying to limit natural career transitions; planned employee transitions can be healthy, opening up advancement opportunities for newer and experienced workers alike.

Potential ways to support agencies and subcontractors who want to enhance their internal HR recruiting practices might include the following:

- Focusing first on effective recruiting practices and their optimal use to help employers attract, hire and develop new employees.
- Working with agencies and subcontractors to select a small number/range of high-potential strategies and actions that will help build a foundation for improved recruiting and hiring practices across the Network.
- Adopting, creating and incentivizing other proven HR tools and reinforcing their use to help resolve workforce shortages, develop transition plans and prepare succession strategies.
- Supporting or providing best practices training/consulting to interested Network and subcontractor partners.
- Encouraging Network partners with effective HR policies/practices to support other partners who request assistance by consulting with them and sharing information.

**Costs:** Costs will depend on the willingness of participants, which in turn hinges on the value they assign to learning new strategies and practices. Initial activities could include the distribution of best practices materials, basic training information, and/or assessments of current recruiting and development practices.

**Benefits:** Competition within and across industry sectors for qualified new hires is keen and is likely to continue. Actions aimed at enhancing HR recruiting and development practices positions employers to more successfully recruit qualified talent now and in the future. There is no down-side to improved HR systems and practices; in the current tight labor market, there is no up-side to complacency.

### ***Tier 2:***

Tier 2 represents other potential structural and programmatic actions that would likely require more time and coordination among the relevant partners—and a larger commitment of staffing and internal/external resources—to review, launch and sustain. Leveraging new findings from national sources such as the Energy Futures Initiative and the National Association for State Community Services Programs, which has been investigating states' responses to weatherization worker shortages, may provide new approaches and models that could be adapted for Washington. Also, additional analyses should be conducted to determine whether changes to existing administrative

structures, policies and service delivery models would improve current and future staffing challenges.

Specific Tier 2 workforce activities might include reaching out to secondary and postsecondary students, sponsoring work-based learning experiences, establishing pathways, developing certificate and degree programs, and enhancing program alignment. Tier 2 also includes expanding regional training capacity and delivery options; increasing employee diversity; and exploring coordination, collaboration and leverage opportunities with a broad range of agencies and partners who operate existing workforce-related programs and services for employers and job seekers.

**A. Consider Systemic and Structural Changes to Enable Workforce Development:** Workforce issues are often symptomatic of structural and organizational factors that directly or indirectly influence staffing policies and practices. Input from employers underscores how certain regulatory requirements, policies and expectations can have direct or indirect—and unintended—effects on employee recruitment, hiring, development and retention. Specific examples reported by employers include:

- The complex fiscal and administrative requirements associated with federal funding
- State or local labor regulations, such as prevailing wage rules that frequently change and carry considerable administrative requirements.
- Disparities in wage scales between agencies and private employers, which are often amplified by prevailing wage rules, can impact hiring and contribute to employee turnover and feelings of inequity among employees.

It may also be worth considering whether improvements or alternatives to the current weatherization program delivery structure can be identified that would enhance service delivery, better accommodate new program elements, and support future growth in residential weatherization. These and other structural changes could also help improve current and long-term workforce development efforts in this sector.

**B. Widen the Workforce Pipeline: Expand Recruiting and Capacity-Building**

1. **Marketing Activities:** Develop marketing strategies to build awareness of new and existing opportunities to increase outreach to potential sources of weatherization labor:
  - Awareness: Work with agencies to identify organizations (K-12 schools and vocational skills centers, colleges, state agencies and other relevant programs) and individuals (counselors, teachers/faculty, program directors, etc.) that currently serve potential new hires. Brief these organizations and staff about the weatherization sector, occupations, employment, career opportunities, preparation, career exposure (K-12 students), and discuss recruitment strategies.
2. **Network Outreach:** Add staff capacity at the Building Performance Center and/or agency partners to conduct targeted outreach to local schools, regional/community programs (K-12 Skill Centers, 2-yr colleges, Corrections, Worksource, etc.), to build awareness of weatherization and expand recruiting. Agencies could also make these tasks the responsibility of the Client Educator/Outreach Coordinator. Outreach could include formal

presentations, explanations of opportunities and expectations, demonstrations and the distribution of materials. Examples include:

- Creating online tools, website resources and materials for use by Network partners and external sources (Worksource, high schools, re-training programs, etc.) to describe the weatherization industry, job preparation and career opportunities/pathways.
  - Providing stipends for employers/employees who give presentations to classes and target groups (youth, ESL program participants, dislocated workers, etc.).
3. Enhance Equity and Diversity: Expand the use of inclusive procurement and contracting policies and practices in energy-related construction projects to increase overall subcontractor capacity and internal diversity, while simultaneously expanding employment and new business opportunities for underserved and disadvantaged populations in local communities.<sup>40</sup>
    - Expand the number of small minority-, woman- or veteran-owned businesses through workforce development partnerships with government and industry; for instance, the Emerald Cities Collaborative’s E-Contractor Academy provides a seven-week training program to prepare small and minority subcontractors to complete energy efficiency, renewable energy and retrofit projects. Academy training sessions have been held in Los Angeles, the San Francisco area, and Cuyahoga county, Ohio, with reportedly good results.<sup>41</sup>
  4. Work-Based Learning/Exposure: Develop or adopt WBL programs for youth/HS students, to provide real-world exposure to energy efficiency work in a structured setting (and for class and college credit and possible certification). Activities could range from company/site visits and observation to paid internships, summer employment and youth apprenticeships. Career Connect Washington (CCW) is actively working to create more opportunities for career awareness, exploration and preparation and career launch experiences for K-12, postsecondary students and young adults (to age 29), to prepare them for careers in high-demand, high-wage industry sectors and jobs. CCW was created in 2019 through state legislation and directs funding to support expanded career-focused awareness and WBL opportunities for students at all levels, through partnerships with education, state and local agencies, community-based organizations, and labor and industry, including the construction industry.<sup>42</sup>
  5. Apprenticeship Programs: Assess the feasibility of a Weatherization Apprenticeship and/or a broad-based energy efficiency youth apprenticeship, sponsored by employers, to reach young people and other individuals (veterans, career changers, dislocated workers) and provide a pathway into related skilled trades and careers (HVAC, construction).
  6. Residential Job Development: Some state and regional housing organizations have integrated home improvement/energy efficiency programs with job development initiatives

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<sup>40</sup> See: [https://www.policylink.org/sites/default/files/Inclusive\\_Procurement\\_Exec\\_Sum\\_041818.pdf](https://www.policylink.org/sites/default/files/Inclusive_Procurement_Exec_Sum_041818.pdf)

<sup>41</sup> See: <http://e-contractoracademy.com/>

<sup>42</sup> See: [https://secureservercdn.net/166.62.110.60/w9p.ea4.myftpupload.com/wp-content/uploads/2019/12/CCW-Overview-and-Update\\_updated-November-2019-1.pdf](https://secureservercdn.net/166.62.110.60/w9p.ea4.myftpupload.com/wp-content/uploads/2019/12/CCW-Overview-and-Update_updated-November-2019-1.pdf)

(Cleveland’s Cuyahoga Housing Authority and the New York City Housing Authority, for instance) to help residents find entry-level employment doing residential repair and renovation.

7. Economic Cycles: Prepare for and Enable Subcontractor Conversion to Weatherization: The last recession (2008) and federal stimulus funding through ARRA drove some construction companies to convert or expand into providing weatherization services as the market for new housing declined. Although economic and construction cycles can be hard to predict, adjustments are certain to be made. Long-term growth in the EE-weatherization sector seems likely and can provide alternative opportunities and stability for subcontractors. Determining and preparing plans, services, training, or other supports may help agencies and subcontractors to enter or expand their capacity in the weatherization market.

**C. Ensure Skills and Qualifications/Enhance Preparation and Training**

1. Energy Efficiency/Weatherization Certification: The federal Department of Energy (DOE) requires that weatherization employees—including those from agencies and subcontractors—complete industry training and obtain certification through the Building Performance Institute and its affiliates. These certifications for crew leaders and installers were sponsored by the DOE and designed to meet their requirements. The standards used for these certifications are now included in a certification toolkit, which allows crew leaders/installers to earn competency-based ‘badges’ for successfully completing weatherization tasks and measures. The Badges Toolkit could be used by states to encourage students to explore and qualify for weatherization employment.<sup>43</sup>
2. Create, adapt or adopt a new entry-level ‘Energy Fundamentals’ or ‘Energy Foundations’ certificate program that is sufficiently broad/transferrable that it could assist individuals (youth, students and adults) in qualifying for LI-Weatherization installer positions, as well as employment in other entry-level energy efficiency sector jobs (such as construction, energy services, and utility support positions, for example ). This would expand the weatherization pipeline while also maximizing the relevance of the certificate and the options available to individuals in other energy-related employment. A broader employment scope would also garner greater support and resources from existing workforce support organizations and programs (ESD/Worksource centers, youth and employment initiatives, colleges, high school skill centers, etc.)
3. Stacked Credentials: Combine a new Weatherization Certification with existing (or new, generic) building sciences certifications, such as those offered at South Seattle College. A variant could include a weatherization stacked module, short-term ‘micro’ credential or badge (similar to or adapted from the Badges Toolkit resources noted above) that is part of a multi-topic prep curriculum that students can take as part of a broader (longer-term) program that leads to an industry certification or college degrees (such as the AAS or BAS offered by Washington’s two-year colleges).

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<sup>43</sup> The certifications for crew leaders and technicians were developed from 2011 to 2017 and were updated and reorganized in 2018. The 25 installation badges were developed using a portion of the updated certification standards. The Badges Toolkit, which is now being evaluated by reviewers, can be found here: <https://sws.nrel.gov>

4. Expand Training Capacity: Add satellite and/or affiliate training capacity at strategic locations (Seattle-Tacoma, Vancouver, Spokane), using agency facilities/trainers or co-located facilities such as colleges, skill centers or subcontractors, where warranted (i.e. rural areas). Implementing this option would require sufficient/increased demand for training services, stimulated by:
  - Training incentives (additional funding, advantages for agencies, etc.)
  - Greater convenience (online training, site-based training, shorter 'just-in-time' or customized training options, etc.)
  - Providing bilingual trainers, translation services and materials to help English-as-a-second-language applicants and trainees participate in and complete education, training and certification programs
  - State regulations or program policies that require more or expanded training
  - Other (uncontrollable) coincidental economic factors (e.g., new construction downturn, other market forces).
5. Expand distance and online training: Expand training opportunities with technology and hybrid (online-onsite and site-specific) strategies for training delivery and certification, especially for rural sites and communities. Provide non-English versions of training and materials to extend training outreach and participation by culturally diverse populations.
6. Leverage State Training Resources and Target Populations: Training providers that register with the state as 'Qualified Training Providers' (which could include BPC and other organizations) would then be eligible to provide weatherization-related training to a full range of Employment Security/Worksource clients while using federal (WIOA) and state funding.

#### **D. Leverage/Align with External Programs, Services, and Resources (Detail)**

There are many opportunities for finding solutions to weatherization workforce challenges through ongoing alignment, leveraging and collaborations with existing agencies and through programs that are offered nationally, regionally, and locally. The U.S. Department of Energy and national associations such as NASCSP are examining the impacts of workforce shortages across the U.S. with the dual goals of sharing practices planned or underway in different states and providing strategies, solutions, tools and support. Regionally and locally, some primary examples to consider include:

1. Bonneville Power Administration (BPA) Residential Support Services Initiative: BPA recently re-emphasized its commitment to increasing its portfolio of weatherization investments from 40 percent in 2018 to 75 percent by 2023. For weatherization-insulation alone, BPA intends to boost services to residential homes from approximately 1,400 per year to up to 14,000, a ten-fold increase.<sup>44</sup> BPA intends to expand utility and subcontractor capacity to do the work by increasing its incentives, expanding marketing and offering training services to potential new subcontractors.<sup>45</sup>

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<sup>44</sup> See: [https://www.bpa.gov/EE/NewsEvents/presentations/Documents/Residential\\_Support\\_Services.pdf](https://www.bpa.gov/EE/NewsEvents/presentations/Documents/Residential_Support_Services.pdf)

<sup>45</sup> See: [https://www.bpa.gov/EE/NewsEvents/presentations/Documents/Residential\\_Support\\_Services\\_Program\\_Menu\\_of\\_Services.pdf](https://www.bpa.gov/EE/NewsEvents/presentations/Documents/Residential_Support_Services_Program_Menu_of_Services.pdf)

2. Employment Security Department (ESD)/Worksource:
  - The Trade Adjustment Assistance (TAA) program: This program assists workers who have become unemployed as a result of increased imports from, or shifts in production work to, foreign countries. The goal is rapid re-employment via training and related services.
  - Veterans: Worksource provides veterans with priority access to WorkSource services. This includes priority referrals to jobs that are listed with WorkSource, as well as other employment services for veterans and their spouses.
  - Dislocated workers: The program provides employment and training services for unemployed and underemployed workers who are unlikely to return to their prior job or employer.
3. Worksource (See ESD): Offers a variety of employment services and support in every region of the state, for both job seekers and employers.<sup>46</sup> Education and training is available through a broad range of local providers, using federal and state funding that is targeted for dislocated workers, unemployed individuals, veterans and other disadvantaged groups (those with low incomes, women, racial and ethnic minorities, corrections re-entry, and disabled individuals).
4. State Board for Community and Technical Colleges:
  - Worker Retraining Program: This program can help pay for training expenses at Washington state's community and technical colleges and selected licensed private schools for those who have lost their jobs due to economic changes and for those receiving Unemployment Insurance (UI) benefits.
  - The Washington Customized Training Program (CTP): Provides interest-free training loan assistance to businesses that provide employment opportunities in the state.
  - Washington's Job Skills Program (JSP): Provides training to meet employers' specific needs. College instructors provide training to new and current employees at work or in the classroom. JSP is a tool for training in regions with high unemployment rates and high levels of poverty. This program also supports new and growing industries; areas where the local population lacks the skills needed to stay employed; and regions impacted by large-scale job loss.
  - Integrated Basic Education and Skills Training (I-BEST): This program uses a team-teaching approach; students work with two teachers in the same classroom—one provides job training and the other teaches basic skills in reading, math or English language skills (ESL).
5. Corrections: Washington Colleges in Prison Program: The Department of Corrections partners with the State Board for Community and Technical Colleges and eight community colleges to provide educational programs to incarcerated individuals who are preparing for

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<sup>46</sup> See: <https://www.esd.wa.gov/about-employees>

- re-entry into society and employment. Students can enroll in a variety of educational options including basic education for adults, English as a second language, and professional-technical degree and certificate programs. Students can enroll in one of twenty-five different professional-technical degree or certificate programs. Special programs in environmental sustainability and conservation (waste, energy, water, etc.) are offered.
6. Washington state Department of Children, Youth and Families (DCYF): DCYF's Juvenile Rehabilitation (JR) serves Washington state's highest-risk youth. JR supports special programs and facilities that include residential and community educational, vocational and employment opportunities. Youth have the opportunity to attend regular high school, vocational training programs, community college and/or work at regular jobs in the community.
  7. DSHS-Department of Vocational Rehabilitation: DVR provides employment services and counseling to individuals with disabilities who want to work but who experience employment barriers because of a physical, sensory, and/or mental disability.
  8. Washington STEM: WA STEM promotes partnerships that advances Science, Technology, Engineering and Math (STEM) education and career experiences for students at all grade levels across the state, with an emphasis on groups that have been historically underrepresented in STEM fields: students of color, girls and young women, students living in poverty and those from rural areas.
  9. Career Connect Washington (CCW): Career Connect Washington works statewide to combine classroom learning with practical career experiences for youth and young adults, up to age 29.<sup>47</sup> CCW was tasked by the Legislature to overcome barriers to career opportunities for students who lack pathways and work-related experiences that can enhance learning and to help students find meaningful educational and career opportunities. CCW provides funding that supports the development of programs and services in K-12 and postsecondary (2- and 4-year) educational institutions, registered apprenticeships, and other high-quality career-connected learning programs across the state.

### **Measurable Goals and Outcomes**

Regardless of which Tier 1 or Tier 2 strategies and actions are chosen and implemented, pre-planning should include decisions on how to define and measure intended outcomes. A schedule that includes goal definitions, ongoing process evaluations (to enable periodic progress checks and mid-course corrections) and a summative evaluation (to assess impact) should be established and completed for each major initiative or action undertaken. Essential steps should include:

- Defining goals and outcomes of each major activity
- Identifying reliable baseline measures and data sources
- Establishing an assessment plan appropriate to the activities

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<sup>47</sup> See: <https://careerconnectwa.org/>

- Collecting, analyzing and interpreting data systematically
- Using evaluation results to determine impact and inform next steps.

## Appendix A

### Study Methods and Approach

#### Summary

Staff from Commerce's Housing Improvement Program, the Building Performance Center-OC and the WSU Energy Program presented information about workforce trends and the development of a Weatherization Workforce planning document during a Local Agency Weatherization Network meeting on March 21, 2019. Following the presentation, which described general workforce challenges and weatherization industry trends, five (5) small groups of local agency staff were formed and convened with the aid of facilitators (Commerce staff) who worked with each group. The members of these groups completed a worksheet to capture the workforce-related issues, descriptions and positions identified by individuals as of concern to their organizations. A total of 33 completed worksheets were collected.

Each group was also asked to prioritize the issues and to engage as a group in consolidating and summarizing the top priorities. Top priorities were subsequently reported by each group to the full audience of participants, and a summary of the highest-priority issues for all the groups collectively was generated and recorded.

WSU collected, organized and analyzed the data from the individual worksheets, the small group flip charts, and the notes from the full-audience summary. Major themes and issues were consolidated and quantified, and charts and tables were generated that showed dominant issue categories and summary information on the major workforce challenges, descriptions and job positions reported by participants. Those results are included below.

#### Agency and Subcontractor Surveys

Subsequent discussion of the Network meeting results by Commerce staff and the Weatherization Advisory Committee (comprising Commerce and agency partners) led to the agreement that additional information regarding the emerging workforce challenges should be collected from agencies and their subcontractors using online surveys. The Network meeting results informed the design of two surveys. Survey goals included:

Agency survey: Verify the Network meeting findings, and collect additional relevant demographic, financial, employment and workforce challenges data, applying the categories identified during the Network meeting.

Subcontractor survey: The agency survey items were replicated for the subcontractor survey to enable comparisons between groups on some factors. Additional demographic, financial and employment-related questions were included.

## Population Sampling and Survey Administration

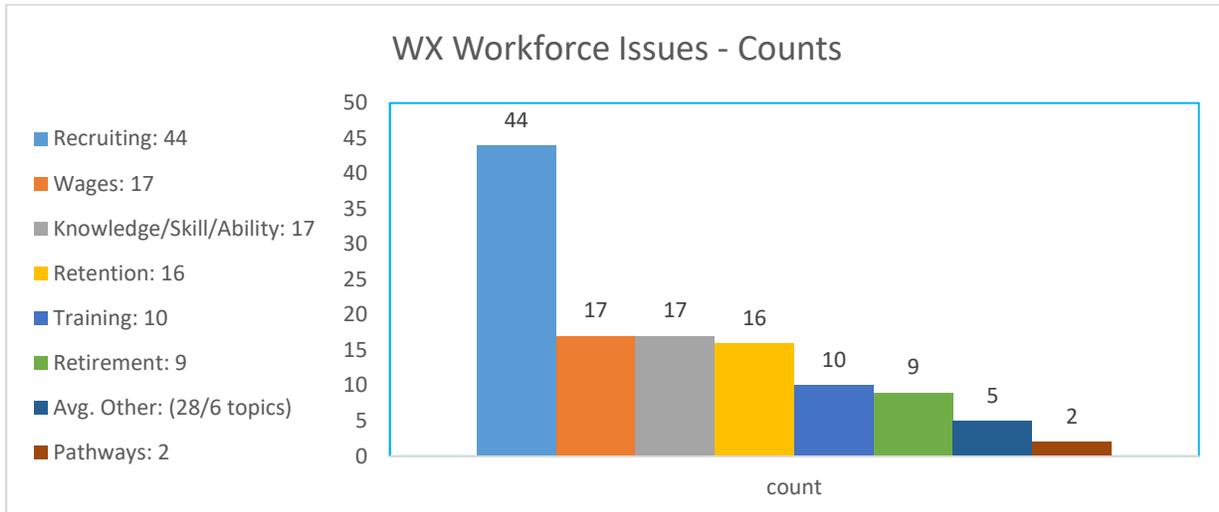
Agencies: Weatherization agencies comprise a defined group of 28 organizations that administer weatherization services and other community-focused services in regions and offices across the state.<sup>48</sup> The survey invitation and link was emailed to agencies of record in late July 2019 and the survey remained available through September. Several reminder emails were issued throughout the administration period to promote survey completion. All but one of the targeted agencies (96%) completed the survey and all responses were deemed complete and usable for the analysis.

Subcontractors: A contact list of 164 weatherization program subcontractors was compiled by Commerce staff from available records and agency lists. This contact list was the basis for inviting subcontractor participants. It should be noted that contact information for all known weatherization subcontractors is not complete, and therefore does not represent the true population. No statistical sampling procedures were used to select or adjust the sample, survey data or analyses, therefore the sample should be considered a sample of convenience. Email invitations were issued to subcontractors in late July 2019, and the survey remained open through September. Regular reminder emails were issued to promote completion; 68 surveys (41%) were returned. Upon review 39 (24%) were deemed to be fully or sufficiently completed, and thus usable for the analysis.

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<sup>48</sup> See: <http://www.wapartnership.org/> Not all weatherization service organizations deliver the same services or are structured in the same way to support the provision of weatherization services. For more details see: <https://www.commerce.wa.gov/growing-the-economy/energy/weatherization-and-energy-efficiency/>

A1: WX Workforce Issues Data Summary and Results (from Local Agency Weatherization Network Meeting, March 12, 2019)



**Descriptive Summary of Issues**

1. **Recruiting:** Difficult to find qualified applicants generally, including subcontractors and most position types
2. **Wages:** Prevailing wage requirements are hard on subcontractors; wages too low to attract qualified Agency hires (esp. auditors, inspectors)
3. **Knowledge/Skill/Ability:** Shortage of applicants or existing employees with necessary KSAs.
4. **Retention:** Turnover is generally high (42 local agency staff have left during the last 2 years); low pay, difficult work conditions, and better offers outside the weatherization industry are frequently reported as key reasons for high turnover.
5. **Training:** Needed training is not available or not accessible; cost and time requirements are high
6. **Retirement:** Experienced employees are retiring, taking their knowledge with them.
7. **Other: Mix of issues (5),** including funding uncertainty; increasing complexity of sector and work; subcontractor performance; demand/competition; attitudes/morale
8. **Pathways:** No clear pathway for new or experienced employees and need for stronger orientation to work and more public awareness of industry and requirements.

## Workforce Topics, Descriptions and Positions

### 1. RECRUITING: Summary

Major Underlying Themes:	Levels/Positions
<ul style="list-style-type: none"> <li>• Unavailable—few applicants</li> </ul>	<ul style="list-style-type: none"> <li>• Subcontractors/Crews</li> </ul>
<ul style="list-style-type: none"> <li>• Not qualified—inexperienced</li> </ul>	<ul style="list-style-type: none"> <li>• Auditors</li> </ul>
<ul style="list-style-type: none"> <li>• Not trained</li> </ul>	<ul style="list-style-type: none"> <li>• Inspectors</li> </ul>
<ul style="list-style-type: none"> <li>• Low pay</li> </ul>	<ul style="list-style-type: none"> <li>• Managers, Admin.</li> </ul>

Recruiting details: Raw data on descriptions and levels/positions:

Description	Levels/Positions
Hard to recruit	Crew/Installer
Other jobs	
Hard to find	Any Position
Experienced	Auditors
People interested in being on the crew	
Applicants	Entry
Pool of qualified applications are from our subcontractors or agency	All
Who are willing to jump through our hoops	Plumbers, HVAC, Electric
So many certifications required	Agency Inspector Auditor
Too many rules and steps.	Owner
Hard to attract experience	Auditor
Not enough	Subcontractor Crew
Lack of experience	All
Difficult to navigate county process	Any that require specific experience
Finding auditors to train	Subcontractors
Prevailing wage, admin burden, willingness	Esp. HVAC, New Subcontractors
No applicants	Auditor/Rehab Inspector
Finding the right people	Crew Management
Not enough experience	Manager/Director
Trained	Electricians
Pay scale	
Need trained WX + H employees	Enhanced WX + H Auditor/ Inspector
Application pool low	Inspector, Managers, All
We do not pay enough to attract qualified or experienced individuals	
Trained	Administration
Career path development	Auditors
EAP clients are less, temp worker turn-over	Front Desk/Intake

Description	Levels/Positions
Hard to find (too easily distracted by shiny objects)	Crew
Attracting new employee	Auditor/Inspector
Subcontractors	Weatherization Plus
Difficult to get/ prevailing challenges	Subcontractors
Experienced staff	
Hard to attract experienced applicants	
Trained	subcontractors
Lack of Drive	

**2. WAGES:** Raw data on descriptions and levels/positions

Description	Levels/Positions
Hard to compete with private sector wages	
Other employers offer more money	All
With construction booming our wages cannot compete	
Hard to hire workforce for low pay	Mostly Auditor
Having funds	Auditor/QCI
Can't fill our AmeriCorp position, keep getting turned down—low pay	
Low	
Not competitive, competition, agency, not	Auditor, Inspectors
Pay capacity/fair pay	All
Prevailing wage	Field Staff
People can't afford to keep working for us	Auditor/ Inspector + Non-Management Office
No interest in technicians to fill auditor positions "why would I take a pay cut"	
Subcontractors	
Our staff can make more outside CAP agency	Inspectors/Auditor

**3. KNOWLEDGE, SKILLS AND ABILITIES (KSA):** Raw data on descriptions and levels/positions

Description	Level/Position
Not or no skilled workers in area	Subcontractors
Job skills	Auditors
No formal background	Crew/Installer, Auditor, Inspectors
Now need a new cert	

Description	Level/Position
Hard to find people to actually work hard	Subcontractor
Limited pool of people with skills	Auditors/ Inspectors
Administrative, budget, support	Program Director
Hard to find	Crew
Passion, knowledge	
Sympathy, empathy	
Not aligned with competing for non-traditional workforce	
Workforce ill equipped to do our work	All
Where is the entry level	Auditor

**4. RETENTION:** Raw data on descriptions and levels/positions

Description	Level/Position
At least 3 left in last 2 years, one about to leave	Auditors
More pay—better jobs	Auditor
Hard to keep around	Lower Level
Difficult to keep	Crew/Installer
Experience ones leave; taking knowledge with them	
Compassion fatigue	Crew, Auditors/Inspectors
Changes in rules, burnout	Office
Cost of living is rising in our area	Lower Level Workers
Qualified/ Experience	Support
Retaining Staff is challenging when there's funding uncertainty	All
Employees moving position	Auditor/Inspector
They move on	Middle Management
Burnout	Most with Direct Service Staff
As a small agency have trouble with keeping electricians/other small subcontractors of a high quality	
Qualified/ Experience	Subcontractors
No promotion opportunities	

**5. TRAINING:** Raw data on descriptions and levels/positions

Description	Level/Position
Training path is long and expensive	Auditor/Inspector
Challenge to convince crew to take interest in certification	
For Entry into job market	Crews
Need more training/turnover	Crew/Crew Lead
Closer to home	
Time off, jobs, project flow	Office
Difficult to do all the trainings with a busy small crew	All Positions
Time for training	All
Having available, relevant training and time, money available to send staff	Crew
Subcontractors providing/committing to continued technical training	Subcontractor, Agency

**6. RETIREMENT:** Raw data on descriptions and levels/positions

Description	Level/Position
Workforce aging out	Auditor/Inspector
Aging employee—key person	Auditor, All
Weatherization employees plan retirement in about 4 years	Project Coordinator + QCI
	Crew to Auditor
	Auditor
Is it documented/written down	QCI/Coordinator
Hard to fill skilled positions	
Who will follow	Office Staff Management
Do not want to do it because of retirement	Old OCI Guys

**7. PATHWAYS:** Raw data on descriptions and levels/positions

Description	Level/Position
No clear path	All
No starting point for career path	Auditors

**8. OTHER TOPICS:** Raw data on descriptions and levels/positions

Major themes included funding uncertainty; increased complexity of sector, rules and work; subcontractor performance; market demand/competition; industry awareness; attitudes/morale/compassion)

Topic	Description	Level/Position
Subcontractors	Proper work, client demographic	Subcontractor
Building Boom	Weatherization workers get trained, get tired of work	Subcontractor Crew
Standard work specifications followed		Tech
Key Words	Trade name	Energy Auditor, Weatherization Auditor, Weatherization Technician
Branding	Agency reputation	All
Funding Stability	Detours people from taking a risk	All Levels at Agency
Lack of Knowledge/Appreciation	By CAP ED's related to complexity of the WX program	
Enthusiasm	Creating the magic	All Levels
Newer Program Workload	Hard to add and learn about all new programs	
Subcontractors	Supervising thin	Employees
Client List Getting Short		
Program Complexity	So many rules, regs, policies and procedures	All Agency Staff
Awareness	The industry is still somewhat unknown	
Season	Seasonal job train/not	
Understanding of Industry		
Complexity	Jobs are becoming more complex	All
Homes	Identifying homes that are not already insulated or that do not have structural damage.	
Funding Uncertainty	Keeping people	All
Lack of Agency Knowledge of Construction Industry		
Funding Uncertainty	Grant delays	Manager Gets Gray Hair

Topic	Description	Level/Position
Time	Production is time consuming with short-handed staff	
Employee Morale		
Equity of treatment regarding clients		
Programs	Lots of new programs, intimidating	All
Time	Other projects	
All Staff	Stress vs. pay	All Staff
Subcontractors Completing Jobs in a Timely Manner		
Compassion, Desire to help People, Complexity		