



2020 North Carolina Building Performance Workforce Development Report

Prepared for:
Members and Industry Professionals

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EXECUTIVE SUMMARY

Since 2017, North Carolina Building Performance Association (NCBPA) has been actively identifying needs, establishing priorities and developing resources to support our industry's current and future workforce. Over the years, our association has worked with private companies, community colleges, nonprofits, industry trade associations, local governments and many others through a wealth of varying activities.

In the fall of 2018, NCBPA held its first North Carolina Building Performance Workforce Development Summit in Raleigh that brought together nearly 100 stakeholders to discuss needs and develop priorities. Over the following 18 months, NCBPA continued this work with its members and began developing new resources that are needed by the industry.

In the spring of 2020, NCBPA held its second Workforce Development Summit in Pittsboro in partnership with the North Carolina Community College System (NCCCS) in order to prioritize opportunities for industry companies to work with community college staff and faculty together.

Entering the summer of 2020, NCBPA is actively seeking grant funding that can be used to develop and implement the resources that industry and workforce stakeholders believe to be most important.

An important message about the current COVID-19 pandemic:

Importantly, the COVID-19 pandemic that began in our state in early March has brought added workforce challenges to our industry and its workers. In some cases, workers are being laid off or furloughed. In other cases, workers continue to be busy as they abide by enhanced safety guidelines. The pandemic is also impacting students that are unable to complete internships needed for course credits in order to graduate, as well as those that were set to enter the workforce and are not on hold.

This situation is evolving as of this report's writing and NCBPA will continue to monitor market needs and support our members. To ensure that the information contained in this report is available to our market, we are publishing in its current state and will shift our focus to implementing the recommendations that are most valuable to our present and changing future market.

Prior to the COVID-19 pandemic, the resources that our member companies and stakeholders have prioritized (in general order) the development and implementation of include:

1. **Career Pathways resources** that provide students, their families, faculty, working age adults and current industry professionals with the information they need to find entry-level jobs and lasting career opportunities in North Carolina's building performance industry.
2. **Consolidated industry-specific workforce data and resources** that can be used to educate target worker populations and support efforts by industry companies and workforce advocates to improve the industry's workforce.
3. **Career Awareness advertising campaign** that effectively informs youth and working age adults of the job and career opportunities available in our industry, using resources created through the Career Pathways activities.

4. New and improved **Apprenticeship, Internship and Co-op programs** that increase the opportunities for youths, students and working age adults to earn the work experience they need to obtain industry jobs while also taking courses on a part or full-time basis.
5. Resources that increase the industry's understanding and action on opportunities that improve the **diversity, equity and inclusion** of job and career opportunities, worker recruitment tactics, employee retainment programs and training programs.

At the 2020 Workforce Development Summit, participants agreed that these areas of focus are of critical importance to students that we are interested in recruiting to our industry, faculty that are looking to support students finding jobs, companies that are looking to improve their workforce resources and advocates that want to build bridges to narrow gaps on these and other topics.

An additional area of importance for NCBPA to lead, with the much-needed support of state and local governments and other industry organizations, is the ability to capitalize on the severe lack of workforce data that our industry has. Without baseline figures on the true job numbers, average salaries and more, we are at a severe disadvantage for establishing baseline metrics that can show areas of opportunity and success.

What's been lacking in our industry is a focus on communicating job and career opportunities in our industry to our target workers. In contrast, many disparate organizations in our industry have been communicating highly specific job opportunities to target workers that lack attention to the bigger picture. NCBPA has been working with the NC Community College System to develop plans for certification, apprenticeship and career pathways programs. Prior to partnering with NCBPA, the system had little involvement in the 84,000-plus jobs in North Carolina's building performance industry. When they heard directly from an insulation contractor at our February 2020 Workforce Development Summit, they very quickly bought in to supporting the insulation trades in the immediate future.

Developing new and improved apprenticeship programs, technical college curricula, diversity, equity and inclusion resources, career pathways resources and more are needed to bring North Carolina's energy efficiency industry job readiness and career awareness much closer to the norm of other industries and serve as a benchmark for implementation in other states and regions across the country.

A primary focus of our immediate work is to simply "fill the buckets" of workforce development resources that are known to be successful in other industries but are severely lacking in availability, if available at all, in the energy efficiency industry in the U.S. and in North Carolina. Coupling a career pathway and career lattice with a training and apprenticeship program strengthens the visibility of the industry, increases the chance of success for new hires by providing them with support, trains a workforce related to specific industry needs by including industry businesses and organizations in the planning process, and opens up the industry for a more inclusive, diverse workforce.

Despite energy efficiency having the largest number of workers, number of companies and annual revenue of any clean energy sector in North Carolina, energy efficiency's workforce development resources are severely lacking in. Nationally, there are very few resources that provide students, their families, faculty or working age adults with information on finding a job or career in energy efficiency.

Simply put, the sector lacks nearly all of the workforce development resources that more traditional industries have. This is evident in the wealth of workforce resources and general awareness of jobs and careers in construction related industries, such as heating and cooling, plumbing or electrical, as well as more modern clean energy industries, such as solar or wind.

An additional area of opportunity involves replacing the many professionals in key leadership and management positions of the current workforce that are entering retirement age and will be leaving the industry in the next five to 15 years. These issues aren't unique to North Carolina, but reflect critical, national concerns in the industry. Our 2020 Summit reaffirmed these findings and prioritized a need to invest industry resources in improving diversity, equity and inclusion in employee engagement and worker recruitment to help address this issue and the overall shortage of skilled labor that energy efficiency firms have been experiencing, like many others in North Carolina.

Compared to other states, North Carolina is a strong starting point to address these workforce needs due to the large and experienced support network available to develop and implement the workforce development resources that many stakeholders have yet to prioritize.

NCBPA and its partner North Carolina Clean Energy Technology Center are submitting a grant application to Duke Energy Foundation by April 30th to support these needs.

NCBPA will continue to seek out grant funding that enables the development and implementation of these priority areas on large scales in a short timeline while also committing resources to smaller scale improvements that build a lasting impact to our industry, its target worker population and supporters.

BACKGROUND

In February of 2017, NCBPA's Board of Directors determined that Workforce Development would be one of four focal points for [the association's Strategic Plan](#) for the coming years. Since this time, NCBPA has been actively assessing member company needs, presenting to colleges and determining what workforce development resources and activities are needed to benefit NCBPA member companies, students and parents, and other stakeholders.

NCBPA held North Carolina Building Performance Workforce Development Summits in the fall of 2018 and spring of 2020 to help identify, prioritize and begin development of the resources that industry stakeholders believe to be most needed for solving the issues we have identified. More information on those Summit events is provided later on.

Questions We Seek to Answer

Leading up to each of the Summit events, NCBPA staff have worked with our members and partners to identify a variety of topics and issues to focus our efforts on. Provided here are some of the questions and problem statements that Summit attendees have been asked to respond to:

- What's been your experience finding and keeping a job in our industry? What struggles and opportunities have you experienced?
- What examples do you have of industry professionals that you've worked with – both good and bad – related to their experiences in the field, in the office, being promoted, learning new trades, making enough money to be happy, etc.
- Are there any local programs that you've worked with or know about that have offered support to industry companies locally?
- What steps would you recommend for a weatherization installer to take to become a crew lead, salesperson, manager and eventually owner of their own company? Have you experienced someone doing something like this?

Job Numbers Used in Our Efforts

The following (general) job numbers have been referenced during the prioritization of needs and opportunities in our workforce development efforts. Up until 2017, the most prominent industry job numbers came from NCBPA partner North Carolina Sustainable Energy Association, which identified roughly 15,000 jobs in energy efficiency through an annual survey. With the addition of workers involved in building performance (a wider category), NCBPA has estimated roughly 50,000 jobs in the industry since 2014.

In recent years, new national studies from E4TheFuture, NASEO and other organizations have estimated a significantly higher number of energy efficiency workers in North Carolina, mostly due to the inclusion of traditional HVAC workers in energy efficiency jobs, with a caveat of high efficiency HVAC workers being in a separate category. These national energy workforce job reports have identified 84,000+ energy efficiency jobs in North Carolina in the past few years.

Unfortunately, the discrepancies in these state and national reports make it challenging to establish baselines, milestones and detailed analysis on how efforts could be impactful. We know for certain

that the national and state construction markets face a significant shortage in available skilled labor. For residential construction, this issue is the second greatest concern behind lumber prices. For commercial construction, many efforts are underway to promote jobs in the trades as a viable and beneficial career opportunity for students in high school and middle school to pursue.

More accurate employment reporting is needed to improve our industry's workforce development efforts.

Improvement Opportunities in Progress

Over the past few years, NCBPA has begun to tie-in to opportunities with state and local organizations that are focused on workforce development. A few of these opportunities include:

- North Carolina's Apprenticeship NC program has grant funding available to work with our industry to establish Apprenticeship programs for needed trades. Our industry needs to determine what specific trade roles need an Apprenticeship program, how many hours of on-the-job and classroom training are required, what pay ranges should be provided for the Apprenticeships, and how to oversee and manage them at the state-level.
- Similarly, North Carolina's Community College System has grant funding available to work with our industry to establish Career Pathways resources for our industry. Creating resources that effectively describe to students, new professionals and experienced professionals the types of career opportunities available to them, including salary and benefit information, continuing education requirements, and more will help our industry advertise available job and career opportunities and encourage existing workers to use these resources to stay in our industry and find the right position for them.
- Faculty across the state working in the roughly one dozen industry-related programs (Sustainability Technologies, Green Building, Building Automation, etc.) at technical colleges, community colleges and universities need an opportunity to come together to share curricula, program needs, educational best practices and learn from industry leaders what they can do to better prepare and connect their students to current and future jobs in our industry.

Industry Credentials and Certifications

One significant area of concern and opportunity involves the wealth of disparate (siloed) industry credentials and certifications in building performance, which even if narrowed to energy efficiency, are still greatly varied. There are very few credentials and certifications in our residential and commercial markets that are commonly-known and used, making it very challenging for hiring companies to standardize certifications sought after from workers or credentials to request community colleges to include in their degree programs.

In truth, the lack "wild west" of industry credentials and certifications is holding our workforce back immensely. Here are a few examples from the residential and commercial markets:

- There is really only one state and nationally-recognized certification for residential home performance/energy efficiency: the Building Performance Institute's Building Analyst (BA) certification. BPI and other organizations including RESNET, NAHB and others offer a wealth of other certifications, but the BPI BA remains the most frequently-used and frequently-incorporated into utility, nonprofit, weatherization and other program requirements. NCBPA

seeks to bring together this information and make it easier for professionals and companies to effectively use the industry certifications and credentials available. NCBPA anticipates establishing licensure requirements for a variety of residential trades over the next several years.

- Commercial certifications and credentials are similarly widespread but due to the size, scope and potential liability of building performance issues and activities in larger buildings, industry companies more frequently seek out professionals with well-known certifications and credentials from ASHRAE, USGBC, AEE and others.

Sharing Stories of Industry Workers

Since NCBPA initiated its workforce development efforts in 2017, the association has been collecting stories and highlights of industry workers on its own and with partner organizations to help inform and encourage students and existing industry professionals to join our industry or seek advancement in their existing role. A few examples of this work include:

- ACEEE released a series of “Energy Efficiency Worker” videos featuring NCBPA members in late 2017. [Click here to view them.](#)
- NCBPA has interviewed several members about their careers in our industry and to obtain their guidance and recommendations for students and young professionals entering our field. [Click here to view them.](#)
- NCBPA seeks to work with member professionals and partners to tell the stories of industry professionals in order to contribute to a healthy, diverse and inclusive community and roadmap for industry careers.

NCBPA Career and Workforce Resources

Since 2017, NCBPA has begun consolidating career and workforce resources on its website in order to support companies, students and many others in finding the information they need. NCBPA firmly believes that a more robust and visible resource is needed in the market but is using its own website to collect information and share opportunities, such as job postings and resumes for workers seeking new positions.

Some of the resources available on NCBPA’s website include:

- [Workforce Development initiatives.](#)
- [Career Resources webpage](#) with videos, resources, etc.
- [Job Board](#) and [Job Seekers](#) pages.
- [Industry education courses](#) we and others offer.
- [Career Opportunities Brochure.](#)

SAMPLE GRANT APPLICATION

To help industry companies and stakeholders understand why grant funding is a needed solution to help us assess, develop, pilot and implement priority workforce development solutions, we have included below a sample of our current grant application as evidence of how grant funding would be used to support our industry's needs.

Grant Proposal Title:

Developing and Piloting Energy Efficiency Job Readiness and Career Awareness Resources in North Carolina

Timeline:

- Phases 1 (Assess) and 2 (Develop) in July 2020 - June 2021
- Planned second year grant for: Phases 3 (Implement) and 4 (Packaging) in July 2021 - June 2022) in North Carolina and an additional third grant for one year in South Carolina as well

Budget Request:

- \$125,000 for year 1
- Planned second year grant for \$125,000 in North Carolina and a third grant of TBD in South Carolina

SUMMARY

North Carolina Clean Energy Technology Center (NCCETC) and its partner North Carolina Building Performance Association (NCBPA) seek to develop and pilot energy efficiency job readiness and career awareness resources that are direly needed by individuals and industry companies in North Carolina and nationally. Despite being the largest employment sector of the energy and clean energy sectors in the state, the energy efficiency industry lacks the most basic workforce development resources that enable youths, minorities, women and other disadvantaged populations to participate in job readiness programs and simply be aware of the many career opportunities available.

More Detail:

Our project bridges significant workforce gaps in skills, readiness and awareness by developing and piloting first-of-their-kind resources that connect disadvantaged and underserved populations to readily available and well-paying jobs in North Carolina's energy efficiency industry.

Despite being the largest employment sector in the energy (41%) and clean energy (78%) sectors (see attached) with more than 87,000 workers, the industry lacks fundamental workforce resources.

Nationally and in the state, the energy efficiency industry lacks career pathways resources, apprenticeship programs, and resources for improving diversity, equity and inclusion. Additionally, impactful organizations like the [Center for Energy Workforce Development](#) and the [Carolinas Energy Workforce Consortium](#) do not focus on energy efficiency.

Our project aligns with the Foundation's K-12, workforce, nature and state strategic impact priorities by improving workforce opportunities for students and adults and offering economic prosperity to individuals and businesses that yield environmental benefits through energy savings.

We will address pressing skills gaps in communities served by Duke Energy by developing and piloting resources that assist individuals, faculty, workforce boards and companies in understanding and addressing the gaps related to energy efficiency.

Our project will cultivate an important future workforce by developing the nation's first online career pathways resource that guides students, families, faculty and professionals of all ages in understanding available job and career opportunities.

We will increase the diversity, equity and inclusion of the industry by piloting resources that help companies to recruit and retain workers, students and youths to become more aware of the industry, and target populations of at-risk youths, underserved adults, low-income individuals, women and minorities to access employment opportunities.

Duke Energy volunteers may participate in educational programs with students and disadvantaged individuals on available job and career opportunities.

Our project will develop and pilot comprehensive job readiness and career awareness resources through a marketing plan that enables stakeholders to fully implement these resources in our target population groups.

GOALS AND BENEFITS

Project Goal #1: Complete a comprehensive assessment of the resources needed to significantly improve the job readiness and career awareness of individuals in target demographics related to entry-level and lasting career opportunities in North Carolina's energy efficiency industry.

- Benefit: Workforce and industry stakeholders will have the information they need to take impactful action that leads to minorities, youths, women and others taking actionable steps to earn entry-level jobs and lasting careers in the energy efficiency industry.

Project Goal #2: Develop and pilot career pathways, apprenticeship programs, diversity training and other workforce resources that the energy efficiency industry currently lacks to improve the talent pipeline, improve the shortage of skilled labor and introduce improved diversity into the industry.

- Benefit: Create first-of-their-kind resources (nationally) that assist workforce and industry stakeholders in creating new employment opportunities for up to 10,000 individuals living in Duke Energy service areas that are presently unaware of job and career opportunities in energy efficiency.

Project Goal #3: Complete a series of pilot projects that inform the development of a comprehensive plan and resource package for implementing the new workforce resources across North Carolina, South Carolina and other states and regions that Duke Energy operates in.

- **Benefit:** Plans for a comprehensive and wide-ranging implementation plan are developed that can be acted upon by workforce and industry stakeholders to significantly improve job readiness and career awareness in target demographic groups across North Carolina and other Duke Energy service areas.

PROJECT PHASES

The four phases include:

Phase 1: Resource Assessment - Assess and measure the current state of and opportunities for each of the six topic areas of the energy efficiency's workforce development resources.

Phase 2: Resource Development - Develop and pilot new and improved resources that support improvement in each of the six topic areas.

Planned phases for second year grants in NC and SC:

Phase 3: Resource Implementation - Implement new and improved resources in each of the six topic areas across employer, student, nonprofit and other stakeholder categories.

Phase 4: Resource Packaging - Package together the strategies, activities and resources developed through the project so that they can be made available to organizations in other Duke Energy service areas to implement.

PROJECT TOPIC AREAS, GOALS AND OUTCOMES

Our project will cover the following six topic areas:

A: State Recognition of Programs and Resources: Assess, develop and pilot resources needed to establish new and improved state-approved and supported certification, credentialing and Apprenticeship programs and career pathways resources for energy efficiency trades using the insulation profession as a proof of concept. This includes developing new energy efficiency apprenticeship programs and earning state approval for an energy efficiency career pathway that can be implemented at community colleges in North Carolina.

B: Employer-Focused Workforce Resources: Assess, develop and pilot resources needed to support the role of energy efficiency employers North Carolina in improving skills gaps, participating in apprenticeship programs, educating students, improving diversity and more. This includes developing the industry's first (in the nation) comprehensive workforce data analysis of the number of companies and workers, types of positions and wage ranges, and other important demographics that are needed to help workforce advocates, industry companies and workers grow into a stronger future workforce.

C: Career Pathways Resources: Assess, develop and pilot resources needed to inform students, their families, faculty, existing industry professionals and target industry professionals about entry-level jobs and lasting career opportunities in energy efficiency. This includes developing the industry's first (in the nation) online interactive Career Pathways resource focused on energy

efficiency that can be adapted and used nationally under the Architecture and Construction Career Cluster.

D: Job Readiness and Career Awareness: Assess, develop and pilot resources needed to improve the job readiness and general career awareness of energy efficiency jobs and career paths in target demographics that include working age adults, youths, community college students, existing industry professionals, minorities, disadvantaged communities and more. This includes developing the industry's first (in the nation) broad career awareness campaign that uses modern methods such as social media advertising to spread the message that careers in energy efficiency are available and attractive to workers of all ages and backgrounds.

E: Diversity, Equity and Inclusion: Assess, develop and pilot resources needed to improve the understanding of and action taken on opportunities for the energy efficiency industry to incorporate better resources and education related to diversity, equity and inclusion of the workplace environment. This includes developing the industry's first (in the nation) online and in-person free resources to help companies, current workers and future workers understand the benefits of a more diverse, equitable and inclusive industry.

F: Job Readiness and Employer Training: Assess, develop and pilot resources needed to lessen skills gaps through improved job training resources and events that increase access and uptake of energy efficiency-related certifications, credentials, apprenticeships and career pathways resources. This includes offering innovative online and in-person training opportunities that provide job-ready education and skills that can be employed by working age adults looking to transition into energy efficiency or youths looking to find a position "in the trades" related to energy efficiency. Also include training resources and events that support improved employer participation in training programs for future and current workers, especially those that feature opportunities to improve diversity, equity and inclusion.

PROOF OF CONCEPT TRADES FOR THE PROJECT

The project will prioritize the assessment, development and piloting of two energy efficiency trades that NCBPA believes provide the best opportunities for success. These trades will be the focus areas of each of the project phases to ensure that specific curricula, companies, jobs and other features of our project have a tangible industry role to use as a benchmark and proof of concept.

Commercial Building Automation

Commercial building automation is an important trade role in the energy efficiency industry that is positioned to expand significantly in the coming years. In North Carolina, the energy efficiency industry seemingly at a pivot point where the use of building automation and control systems, artificial intelligence and valuable energy management systems are positioned to expand significantly in the coming years.

To support this coming wave of new work in the marketplace, many more workers will be needed with the hands-on skills to effectively install and service these systems, while others with computer engineering and systems backgrounds will be needed to design and monitor them. Jobs in this sector

pay well for both field and office-based workers. The blending of traditional HVAC and engineering technologies with artificial intelligence and automation systems is an exciting opportunity for youths and adults that are unfamiliar with the role that building automation will increasingly play in North Carolina's commercial buildings sector.

Proof of concept activities will involve:

1. Assessing currently available education and training programs that support readiness for jobs in this industry sector. Existing curricula and programs related to HVAC, mechanical engineering, sustainability technologies and other related educational areas will be assessed. Where possible, new curricula and educational resources will be developed. Wake Tech Community College and other community colleges across North Carolina have recently developed programs in this area that will be highlighted and supported.
2. Developing career pathways for students and faculty to follow that lend themselves to improving career awareness opportunities for jobs in this sector.
3. Piloting the development of new resources that support companies, students and workers in increasing the number of interested workers in this industry sector. Consideration will be provided to both high school and college students as well as working age adults that are unaware of the job and career opportunities in this trade role.
4. Improving existing apprenticeship programs that relate to this industry role and developing new programs that more closely align with this industry role. Existing on-the-job training checklists and other resources that support combined classroom and workplace learning will be assessed and improved.
5. Developing resources that improve this industry sector's ability to reach target workers from more diverse backgrounds, resulting in improved diversity, equity and inclusion in the industry that supports the retention of current workers and the recruitment of future workers.
6. Supporting the expansion of classroom and lab facilities at community and technical colleges across North Carolina that support education and training in this trade role. Projects currently underway at Wake Tech and Guilford Technical Community Colleges will be highlighted.

NCBPA member companies [Brady Services](#) and [Building Clarity](#) (subsidiary) have agreed to play very active roles in the assessment, development and piloting activities of the project related to this trade role. Headquartered in Greensboro, NC, Brady Services is a leader in North Carolina's HVAC industry and is an active player in workforce development and education initiatives with students and industry professionals. Headquartered in Morrisville, NC, Building Clarity works with Brady Services and SAS to implement innovative and class-leading building automation, energy management and artificial intelligence solutions that yield major energy savings and performance benefits.

Residential Insulation Installation

Residential insulation installation is an important trade role to the energy efficiency industry as it's more than 6,000 workers in North Carolina represent an important sector of both the clean energy and construction industries. By working across these industry lines, insulation installers serve both a very practical and code-required construction service to residential (and commercial) new

construction and retrofit projects, while also serving on the front lines of energy efficiency services resulting from the energy saving properties of their work.

Residential insulation installation is particularly valuable as a proof of concept due to continued employment and wage growth in this trade role, as well as the increasingly important value of the short and long-term energy and performance benefits of insulation. North Carolina's construction industry has very little, if any, workforce resources that support insulation as a trade. By using this trade as a proof of concept, the residential energy efficiency industry will receive workforce development resources for an important trade role, and the construction industry will also receive the same information for an important role that it has yet to prioritize. In doing so, the energy efficiency and construction industries will blend workforce resources for the betterment of both industries.

Proof of concept activities will involve:

1. Assessing currently available education and training programs that support readiness for jobs in this industry sector. Existing curricula and programs related to construction, building science, energy efficiency, sustainability technologies and other related educational areas will be assessed. Where possible, new curricula and educational resources will be developed.
2. Developing career pathways for students and faculty to follow that lend themselves to improving career awareness opportunities for jobs in this sector.
3. Piloting the development of new resources that support companies, students and workers in increasing the number of interested workers in this industry sector. Consideration will be provided to both high school and college students as well as working age adults that are unaware of the job and career opportunities in this trade role.
4. Improving existing apprenticeship programs that relate to this industry role and developing new programs that more closely align with this industry role. Existing on-the-job training checklists and other resources that support combined classroom and workplace learning will be assessed and improved.
5. Developing resources that improve this industry sector's ability to reach target workers from more diverse backgrounds, resulting in improved diversity, equity and inclusion in the industry that supports the retention of current workers and the recruitment of future workers.
6. Supporting the expansion of classroom and training facilities at community and technical colleges across North Carolina that support education and training in this trade role.

NCBPA member company [Knauf Insulation](#) has agreed to play a very active role in the assessment, development and piloting activities of the project related to this trade role. Headquartered in Indianapolis, IN with employees and many customers in North Carolina, Knauf is a national leader in insulation education and will play an important role in the project.

TARGET GOALS

Through our workforce development efforts, NCBPA seeks to provide the resources that our member companies, industry-at-large, North Carolina residents and many others need in order to foster more and improved entry-level jobs and lasting careers in our industry.

Some of the specific goals for our efforts include:

1. Develop the country's first online Career Pathways resources for building performance and trades.
2. Develop and implement foundational education campaigns and resources that improve our industry's understanding of and action on reasons to improve the diversity, equity and inclusion of our current and target workforce.
3. Develop the number of working age adults obtaining a certificate, diploma or degree in an educational area related to energy efficiency, which has strong growth potential with an estimated 15% shortage of workers and high transferability to other industries.
 - a. Community college degree programs in growing career areas such as HVAC maintenance, sustainability technologies and building automation, and valued industry certification programs related to residential and commercial building efficiency will be prioritized.
4. Develop new certification and credential programs that target short-term and low-cost (or no-cost) education or training that yields immediately employable opportunities.
 - a. One example includes the development of a certification program and state-recognized career pathways for jobs in the insulation field, which currently employ 6,222 persons in North Carolina but lack these resources.
5. Increase the number of working age adults participating in apprenticeship, internship and/or externship programs that offer immediate employability upon completion.
 - a. NCBPA has already developed a framework for four new apprenticeship programs that would provide direct job opportunities in new home construction, home retrofits, new commercial building construction and commercial building retrofits that are founded in energy efficient construction education and training.
 - b. Additionally, recent NCBPA surveys indicate strong interest but low action from industry employers in offering apprenticeship, internship and externship programs.
 - c. This project will support employers of various sizes in participating in new and existing programs.
6. Increase the number of working age adults receiving employment that pays a living wage or wages that meet or exceed the county average. According to the U.S. Energy and Employment Report 2019¹, North Carolina employers reported the following as the three most difficult occupations to hire for:
 - a. Technician or mechanical support – \$16.06 median hourly wage

¹ (EFI/NASEO), E. E. (2019). U.S. Energy and Employment Report 2019. Retrieved from U.S. Energy and Employment Report 2019: <https://www.usenergyjobs.org/>

- b. Sales, marketing, or customer service – \$30.48 median hourly wage
- c. Management (directors, supervisors, vice presidents) – \$37.29 median hourly wage
- 7. Fill 1,298 (10%) of the estimated 12,984 of job vacancies in North Carolina’s energy efficiency industry (note: pre-March 2020) from youths aged 18 - 24, long-term unemployed and unemployed adults over the three-year term of the project.
- 8. Recruit small, medium and large employers from across the state to participate in the job training, recruitment, apprenticeship, internship and other workforce development activities.
- 9. Partner with community colleges to offer training programs that result in certifications and credentials that are deemed to be most beneficial for direct and immediate employment opportunities in the energy efficiency industry.
 - a. These certifications and credentials may include: BPI Building Analyst, RESNET Rating Field Inspector and Home Energy Rater, Certified Residential Energy Auditor, International Energy Conservation Code (IECC)/Home Energy Rating System (HERS) Compliance Specialist, Building Operator Certification, NATE Support Technician Certification and the new Insulation Contractor Certification to be developed by our project.
- 10. Support the introduction of energy efficiency curriculum and programs in 12 additional community colleges in target rural areas that do not currently offer it.

NORTH CAROLINA'S BUILDING PERFORMANCE WORKFORCE

Through our research efforts and surveys, NCBPA has collected valuable information on our industry's workforce that can be used to prioritize initiatives and develop new resources.

WORKFORCE DEMOGRAPHICS

The building performance sector's workforce demographics are far from representative of the national averages. NCBPA seeks to connect disconnected youth ages 18 - 24 to "jobs in the trades" and working age adults that are long-term unemployed or underemployed and currently outside of the traditional energy efficiency worker to available job opportunities, and work with employers to reach out to these underrepresented communities. Key demographics of our industry include:

- 76% male and 24% female vs. national workforce averages of 53% and 47%
- 8% black or African American vs. national workforce average 12%
- 14% aged 55 and over vs. national workforce average of 23%

On the more positive side, our industry does have strong representation of two key demographics in North Carolina:

- 16% Hispanic vs. national workforce average of 17%
- 10% veteran vs. national workforce average of 6%

COMPANIES IN BUILDING PERFORMANCE

The types of companies representing North Carolina's building performance industry include, but are not limited to:

1. Architecture and Design
2. Residential Builder
3. Commercial Developer
4. General Contractor
5. Engineer
6. Commissioning Agent
7. HVAC Design/Installation/Maintenance
8. Utility
9. Nonprofit
10. Home Energy Auditor/Rater/Modeling
11. Insulation Contractor
12. Crawl Space/Foundation/Basement Contractor
13. Product Manufacturer/Distributor/Sales
14. Association
15. State and Local Government
16. Environmental Services
17. Remodeler/Remediation

18. Lighting Installer
19. Building Materials
20. Real Estate/Appraisal/Lending
21. Water Efficiency/Recycling/Management
22. Code Official/Inspector
23. Building Efficiency Consultant
24. Home and/or Building Automation/Controls
25. Education Provider
26. Third Party Verification/Inspector
27. Energy Services Performance Contracting
28. Waterproofing Consultant/Contractor
29. Weatherization Contractor

The U.S. Energy and Employment Report 2019 survey of energy efficiency firms identified the most difficulty in hiring for these positions:

1. Construction: Technician or mechanical support (42%), Electricians (41%), Installation workers (27%)
2. Manufacturing: Sales, marketing or customer service representatives (24%), Technician or mechanical support (21%)
3. Wholesale Trade, Distribution and Transport: Sales, marketing or customer service representatives (67%), Technician or mechanical support (25%)

JOB TYPES FOR PROSPECTIVE WORKERS

NOTE: The following job numbers come from national reports that are believed to be overstated in many cases. This information is provided for general education only, as better reporting is needed.

The majority of jobs in our industry are with firms working in or with energy efficient products or services that include ENERGY STAR appliance and lighting manufacturing, distribution and sales at 42,893 (49.6%), traditional HVAC with some energy efficiency focus at 20,267 (23.4%), high efficiency HVAC at 12,091 (14.0%), advanced building materials and insulation at 6,222 (7.2%) and other types of firms at 5,086 (5.9%).

Of the employees of these firms, 36,409 are in the construction sector (42.1%), 29,064 are in the professional services sector (33.6%), 14,391 are in the manufacturing sector (16.6%), 5,106 are in the “trades” sector (5.9%) and 1,589 are in other sectors (1.8%).

The top three types of positions we’re seeking to support are in local communities with companies that are focused on field-based installation or repair of homes and buildings (31.7%), office or home-based administrative positions (25.0%) or manufacturing and production (17.7%). This accounts for 74.4% of the energy efficiency industry’s available jobs being excellent options for workers in rural and disadvantaged communities.

The vast majority of our industry's available jobs are local and lasting and our industry continues to show consistent job growth. In 2018, 27.3% of energy-related employers in North Carolina hired new employees. These employers reported the greatest overall difficulty in hiring workers for jobs in energy efficiency. 60% of firms reported that it was "Very Difficult" to hire needed workers at the state level compared to the national average of 21.3%.

As part of our industry's workforce training efforts, we seek to implement training programs that impact participants for jobs and careers in these and other energy efficiency occupations (with current percentage for North Carolina jobs by category from U.S. Energy and Employment Report 2019 and expected positions to fill based on % of current 15% gap by category):

1. Installation and/or Repair (31.7% current, 4,116 expected): new/existing construction crew member or supervisor, HVAC installation or maintenance technician, weatherization contractor, building performance contractor, crawl space contractor, insulation contractor, window installer, lighting installer, appliance installer or repair, water efficiency contractor.
2. Administrative and Customer Service (25.0% current, 3,246 expected): administrative support, customer service representative, call center representative, facilities management.
3. Manufacturing, Distribution, Production or Wholesale (17.7% current, 2,298 expected): product design/development, engineer, logistics, transportation, warehousing, order processing research and development, quality control, buying, packing, process technician.
4. Management or Professional Services (13.9% current, 1,805 expected): architect or designer, energy engineer, building automation, consultant, financial services, real estate services, research
5. Sales (7.3% current, 948 expected): business development, sales, account management, advertising and marketing, inside sales, order processing.
6. Other (4.2% current, 545 expected): utility programs, nonprofit programs, policy and regulatory.

WORKFORCE ISSUES OUR INDUSTRY IS FACING

LACK OF CAREER PATHWAYS RESOURCES

Nationally and in North Carolina, there is no documented career path for energy efficiency. There is no framework for apprenticeship programs, there are no established resources for improving diversity, equity and inclusion, and unfortunately, national organizations such as the [Center for Energy Workforce Development](#) and state organizations such as the [Carolinas Energy Workforce Consortium](#) have no resources for or focus on energy efficiency. To address these needs and opportunities, NCBPA seeks to develop and implement these resources in North Carolina and make them available to other states and regions across the U.S.

Our grant project seeks to cultivate an important future workforce of the energy sector by developing the industry's first (nationally) free, online and interactive career pathways resource that guides students, their families, faculty members and industry professionals of all ages in understanding the entry-level job, educational program and career opportunities available to them in energy efficiency. This is a critical step in improving awareness, access and acceptance to many trade-related energy efficiency career opportunities with K-12 students, their families and faculty guiding them in education and career decisions.

HIRING DIFFICULTIES

Important note: Information is pre-COVID-19 pandemic and uses national job reporting data that is believed to be overstated.

Our state's energy efficiency industry is facing many of the same challenges that other state industries face, all of which are rather unique to an industry of energy efficiency's size. According to the most recent U.S. Energy and Employment Report 2019², North Carolina employs 54,198 workers in its traditional energy industry of electric power generation at 19,894 (36.7%), transmission, distribution and storage at 25,962 (47.9%) and fuels at 8,342 (15.4%). Our state's renewable energy industry continues to grow with firms employing 8,912 workers in solar generation, 908 in wind generation and more in battery storage and electric vehicles.

With 86,559 jobs in North Carolina's energy efficiency industry reported in 2019, this sector is by far the largest employment sector of the state's traditional or clean energy industries. Unfortunately, jobs in this sector are far less known to eligible and interested workers due to a severe lack of state and local resources that connect employers to working age adults. Firms are nearly always left to make connections to underemployed working age adults on their own.

With an estimated 15% worker shortage in North Carolina's energy efficiency industry, we seek to develop and implement the workforce resources available in other energy sectors that energy

² (EFI/NASEO), E. E. (2019). U.S. Energy and Employment Report 2019. Retrieved from U.S. Energy and Employment Report 2019: <https://www.usenergyjobs.org/>

efficiency lacks that make it difficult for potential workers to connect with available jobs in their local communities, including in rural areas. Doing so will help lessen the gap and put up to 12,984 residents to work in our state's urban and rural communities.

As detailed in the NCWorks Commission 2018 Employer Needs Survey³, many businesses in our state are facing difficulties hiring workers. However, unlike many other more notable industries, our state's energy efficiency industry and workforce are not represented in this data and rarely mentioned in other surveys and reports. NCBPA is the lead organization in our state to bring attention to these concerns and create new opportunities that offer workers lasting and well-paying jobs.

We estimate a 15% gap in full employment for our industry, equal to 12,984 available jobs. For a possible grant project, we can set a conservative but realistic goal of filling just 10% of those jobs over the next three to four years. Meeting this goal would create full-time and permanent work opportunities for 1,298 individuals in mostly rural areas of North Carolina.

With 29,000 clean energy jobs in rural North Carolina communities and energy efficiency comprising 22,632 or 78% of them, we estimate that 3,395 energy efficiency jobs in rural communities are immediately available⁴.

A funded grant project would allow us to focus on improving the three primary reasons for the workforce shortage according to energy efficiency employers surveyed in the U.S. Energy and Employment Report 2019 that include:

1. Lack of experience, training or technical skills: 48% in the Construction sector, 55% in Manufacturing and 49% in Wholesale, trade distribution and transport. Our project will provide educational resources and training to youth, underemployed and long-term unemployed citizens in areas that offer immediate employment opportunities.
2. Competition/small applicant pool: 24% in the Construction sector and 19% in the Wholesale, trade distribution and transport sector. Our project will create and advertise career pathways resources that significantly increase the awareness of our target population for energy efficiency jobs.
3. Insufficient non-technical skills: 24% in the Construction sector, 39% in the Manufacturing sector and 27% in the Wholesale, trade distribution and transport sector. Our project will provide educational resources and training to target citizens in soft skills and non-technical areas that improve their opportunities for employment.

Despite the significant size of North Carolina's current 86,559 energy efficiency workforce⁵ (third in the nation by states), industry surveys state that North Carolina could add an additional 15% of new workers immediately. Doing so would add up to 12,984 new workers to our industry. With 22,632

³ NCWorks Commission. (2018). 2018 Employer Needs Survey. Retrieved from NC Department of Commerce: <https://files.nc.gov/nccommerce/documents/files/2018-employer-needs-survey.pdf>

⁴ E2. (2019). Clean Jobs North Carolina 2019. Retrieved from E2 (Environmental Entrepreneurs): <https://e2.org/reports/clean-jobs-north-carolina-2019/>

⁵ U.S. Energy and Employment Report (USEER) North Carolina Report 2019. Retrieved from U.S. Energy and Employment Report (USEER) North Carolina Report 2019: <https://www.usenergyjobs.org/s/NorthCarolina.pdf>

jobs already located in rural North Carolina communities⁶, we estimate that 3,395 energy efficiency jobs in rural communities are immediately available and up to 9,589 in urban communities.

In addition to these jobs that we believe to be immediately available, North Carolina's energy efficiency industry and workforce is predicted to continue growing in the coming years. In 2019, a national survey of energy efficiency employers estimated a 7.8% annual growth in the workforce with North Carolina predicted at nearly 9%. In 2018, 27.3% of energy-related employers in North Carolina hired new employees with the majority joining the energy efficiency workforce.

Like many other industries in North Carolina, the energy efficiency industry is facing difficulties in hiring workers, particularly connecting younger workers to "jobs in the trades" and more experienced workers looking to transition to a new industry. According to a national survey in 2019⁷, 84% of construction employers and 72% of manufacturing employers in energy efficiency reported that it was somewhat difficult or very difficult to hire new employees in 2018. Of all energy firms included in the survey, energy efficiency employers reported the greatest overall difficulty in hiring. 60% of firms reported that it was "Very Difficult" to hire needed workers at the state level compared to the national average of 21.3%.

North Carolina's energy efficiency industry maintains a growing and diverse range of jobs that include non-technical or non-skilled positions in remote/virtual customer service and product distribution and technical positions in construction, maintenance and management. The non-technical and non-skilled positions oftentimes require no form of degree, certification or credential. These positions are excellent targets for disconnected youth ages 18 - 24 who are oftentimes discouraged or unaware of "jobs in the trades". The more technical and skilled positions in our industry are excellent targets for more experienced workers that are long-term unemployed or underemployed. These workers can put their past job experience, degrees and credentials to use in an industry that they are most likely unaware of. Hiring difficulties in the industry amount to 42% for technical and maintenance positions with construction firms and 67% in sales, marketing and customer service for product manufacturing, distribution and wholesale trade firms.

The most prominent barrier to employment for our identified population is simply that they do not know about North Carolina's energy efficiency industry. While high school students, college students or experienced workers may know to look for job opportunities in energy industries with more state and local attention like solar or wind, they are unaware that the state's energy efficiency workforce and available jobs outnumber other clean energy sectors by nearly 8 to 1 and the traditional energy industry by 2 to 1. Regarding educational attainment, we do not view major barriers in this area as North Carolina's energy efficiency industry currently lacks thousands of workers that do not need any forms of degrees, credentials or certifications, while at the same time the thousands of positions that do require traditional degrees in most cases and some specialized certifications, credentials or secondary degrees that larger firms are oftentimes able to support.

Nationally, firms are having difficult finding prospective workers. According to the U.S. Energy and Employment Report 2019:

⁶ E2. (2019). Clean Jobs North Carolina 2019. Retrieved from E2 (Environmental Entrepreneurs): <https://e2.org/reports/clean-jobs-north-carolina-2019/>

⁷ (EFI/NASEO), E. E. (2019). U.S. Energy and Employment Report 2019. Retrieved from U.S. Energy and Employment Report 2019: <https://www.usenergyjobs.org/>

- 84 percent of construction employers in energy efficiency reported that it was somewhat difficult or very difficult to hire new employees in 2018 (with 52 percent reporting that it was very difficult, increasing from 47.3 percent in 2017).
- 82 percent of professional and business employers in energy efficiency reported that it was either somewhat difficult or very difficult to hire new employees.
- 72 percent of energy efficiency manufacturing employers reported that it was either somewhat or very difficult to hire new employees.

SHORTAGE OF SKILLED LABOR

Using data obtained from national reports, it is easy to see that our industry's national job market faces similar challenges to our more localized issues in North Carolina. At its core, our entire industry has done a poor job marketing itself to prospective employees.

In the energy efficiency sector nationally, 84% of employers in construction and 82% of professional and business services reported some difficulty finding qualified job applicants. 70% or more of energy efficiency employers in all industries reported at least some difficulty in hiring. Energy efficiency construction, the largest single segment of the traditional and energy efficiency sectors with over 2.3 million employees, also reported the single highest degree of difficulty in hiring new employees.

Across the three major employment sectors in energy efficiency nationally of construction, manufacturing and wholesale trade/distribution/transport of products, firms reported:

- The top reasons for having difficulty in finding these positions to be a lack of experience, training or technical skills at 48%, 55% and 49% respectively, followed by insufficient non-technical skills at 24%, 39% and 27% respectively.
- The types of occupations that have the most difficulty hiring include technician or mechanical support at 42%, 21% and 25% respectively and sales/marketing/customer service representatives at 26%, 24% and 67% respectively.

Hiring is the number one issue facing the industry today. For labor positions, a major issue is a failure of applicants to pass background checks. For non-labor positions, a major issue identified is a lack of awareness by target candidates about our industry. Candidates may find a mechanical engineering job by looking for that role specifically, but they are not aware of or looking for a position in building performance or any variation of the term (i.e. green building, energy efficiency services, etc.).

There are industry jobs available for interested parties with a variety of educational requirements available. In the case of Siemens, the company had more than 150 open positions available in North Carolina on the day of the Summit. Not all are in building performance-related trades or positions, but many are. Key issues with connecting available jobs to available workers involve students and parents not understanding the value, career opportunities, benefits, etc. of jobs in our "trades" industry – i.e. a vocational career. This is commonplace across the U.S., whereas the situation is very different in many European countries where vocational jobs are at the same class as office jobs.

In addition to efforts to recruit new workers to the industry and its companies, BPI recommends focusing on developing needed skills for existing professionals, both new and experienced. One example includes teaching HVAC professionals about building performance work in the off season.

Provided below is information from the NC Clean Energy Technology Center:

This hiring difficulty is especially problematic since the current workforce is retiring in the very near future. The National Institute of Building Sciences reports 30 percent of the existing building official workforce is expected to retire in the next five years, and 80 percent within 15 years.⁸ The current workforce is diminishing while employers are struggling to find new hires that are qualified to do the work.

An apprenticeship or pre-apprenticeship program alongside a training program would have a positive impact on the businesses and apprentices involved. The US Department of Labor's Apprenticeship Toolkit⁹ cites that the average starting wage for an apprentice is \$15.00 per hour and apprenticeship graduates earn an average of \$50,000 per year. 91% of apprentices also retain employment since an apprenticeship offers an effective work-based learning strategy that increases their skills, assists in earning industry-recognized credentials, and puts them on a pathway to higher wages and career advancement.

Businesses also benefit from an apprenticeship program since the program would be providing skilled, qualified, and trained workers in roles that need to be filled. Research has shown that these types of programs can lead to reduced turnover rate, increased productivity, and reduced costs to hire new employees due to a direct pipeline of talent available.

This type of program would also have a positive impact on diversity, equity, and inclusion in the industry. Currently, the industry is dominated by white males. Although women make up 47% of the national workforce, they make up just 23% of the energy efficiency workforce. Black and African American workers are also underrepresented, making up 8% of the energy efficiency workforce as compared to 12% of the national workforce. Hispanic and Latino workers are also underrepresented. (2018 U.S. Energy and Employment Report).

However, a training and apprenticeship program is not an adequate solution to the industry's workforce problems. For example, many people don't know what an "energy efficiency job" is or that they exist as a viable career option. According to the EIA Foundation, "many students and recent graduates lack accurate knowledge about building energy efficiency careers, how to gain relevant skills for employment, or the positive impacts these jobs have on quality of life and conservation of natural resources." This would be addressed by creating a United States Department of Education certified career pathway located under an existing career cluster for Architecture and Construction and by creating a career lattice that would clearly outline the careers available, the pathways to get there, and the pathways to advancement in the industry. The creation of these tools and the integration of them into high schools, community colleges, and trade schools would attract a younger

⁸ <https://www.nibs.org/news/190033/Survey-of-Code-Professionals-Predicts-Substantial-Retirement-Exodus.htm>

⁹ <https://www.dol.gov/apprenticeship/docs/RA-Planning-Tool.pdf>

workforce and traditionally marginalized populations such as women, veterans, and people of color by creating awareness about energy efficiency careers and outlining an obtainable path on how to pursue a career in the industry.

IMPROVED DIVERSITY, EQUITY AND INCLUSION ARE NEEDED

One of our major workforce topic areas focuses on resources needed to improve the diversity, equity and inclusion of job and career opportunities for key populations including at-risk youths, under-represented and underserved adults, low-income individuals, women and minorities. Our work will improve how energy efficiency companies recruit and retain workers, how students and youths view the industry, and how working age adults, women, minorities and other key demographic groups view and have access to employment opportunities.

- Some industry professionals are greatly concerned about the lack of diversity, equity and inclusion in our workforce (not just our workforce, but construction and clean energy overall). In some cases, companies are being forced to diversify their workforce due simply to a lack of skilled labor. In other cases, companies are proactively broadening the diversity, equity and inclusion of their workforce through new hiring processes and target areas.
- There is a need in our industry (and many others) to include unseen diversity such as sexual orientation, veteran status, family status and geographic location in our existing workforce and recruiting practices for our future workforce. Improving diversity, equity and inclusion is an opportunity that many companies are taking on voluntarily and others are now looking at due to shortages in skilled workers and other factors.
- These issues are present in urban communities and also rural communities. In many cases, persons talking about these two different communities speak two different languages about the same issues.

BUILDING PERFORMANCE IS NOT A PRIORITY WORKFORCE AREA

Despite the vast size of our industry workforce, organizations and initiatives that support workforce development rarely incorporate building performance, energy efficient, green or high performance construction.

- There is no central national organization in our industry currently managing workforce development information, resources, candidate recruitment, etc. The information that industry companies need have yet to be sufficiently collected, organized and shared for use across our industry.
- National Association of Home Builders (NAHB) and North Carolina Home Builders Association (NCHBA) are focused on workforce efforts of traditional trade areas such as carpentry, framing and subcontractors like HVAC, plumbing and electrical. NCHBA has ten focus areas in their statewide Careers Committee and none are related to building performance or insulation trades. NCBPA has actively advocated for them to include a focus on insulation as a first step and has garnered their general interest, but no commitment. They are likely to support the implementation of such resources once developed.

- The Center for Energy Workforce Development (CEWD) is a national nonprofit that is leading workforce development efforts on behalf of the Energy industry. However, despite its strong [strategies and initiatives](#), the organization has no focus on energy efficiency jobs, which is the largest energy employment sector in North Carolina and many other states. NCBPA has been in contact with CEWD's new Executive Director to ask their new Board of Directors to prioritize the development of energy efficiency workforce development resources (including insulation) to bring them on par with the [resources they have for other energy trades](#).
- Organizations such as RESNET, BPI, USGBC and many others in the building performance and clean energy sector have workforce resources that are highly siloed by trade roles and divided in areas such as residential new construction vs. residential existing construction, commercial vs. residential, etc. These silos make it incredibly difficult for students, their families, faculty members and existing industry professionals to have clear visibility into job and career opportunities in the industry.
- The ACE Mentor Program in Raleigh/Durham offers programs and resources that our industry could benefit from. Unfortunately, building performance is not a topic area included in other trade-related industry workforce initiatives.

To improve these areas and offer direct benefits to energy efficiency companies, existing industry professionals and target workers, NCBPA believes that the activities list to act on should target “catching up” with the resources available in more traditional trades, to help our industry get on par with the resources and visibility that other trades already have. Essentially, our industry is behind and needs to catch up. Developing similar resources, such as career pathways and job profiles with salary information, will be quick-fix activities that will offer strong benefits and are long overdue.

Unlike more traditional trades such as HVAC, electrical and plumbing, the building performance industry (and specifically energy efficiency) lack many of the resources other industries have. As a result, job and career opportunities in our industry are rarely advertised or highlighted in schools, national job campaigns and more.

MORE AND BETTER EDUCATION AND TRAINING RESOURCES ARE NEEDED

There is a lack of educational and other resources for skilled labor positions needed by our industry companies. Many “unofficial learners” exist – skilled laborers who would be good fits for our industry positions but that are unaware of our industry, unaware of career opportunities or that see our trades work as uninteresting or “lower class” than other trade roles and office jobs.

There is a need for greater collaboration between professionals and organizations to structure curriculum and broaden opportunities. More than a dozen universities, community colleges and technical colleges in North Carolina offer programs related to building performance (or sustainable technologies, building science, etc.) but the state curricula is limited and faculty have few opportunities to connect and learn from one another and lack many resources needed to provide a quality education to students about our industry's work.

There is a significant need to develop certification and credentialing programs that address soft and hard skills needed by industry professionals in today's workplace environment.

BETTER CONNECTIONS ARE NEEDED WITH YOUNG AND FUTURE WORKERS

The home and building performance industry workforce is aging. This is most commonly seen and discussed relative to code officials. Non-college degree program pathways are needed for young professionals interested in careers in clean energy and building performance. More post-college professional certifications are needed.

- One example in the residential industry involves just two primary industry certifications related to residential building performance: BPI Building Analyst or RESNET HERS Rater/RFI.
- On the commercial side, there are many more certifications and credentials popular amongst industry professionals. Some provide overlap in commissioning and energy auditing, while others are very specific.

Young professionals entering our industry and existing professionals more than ever need to be educated and experienced in a wider set of skills that includes a strong focus on soft skills – selling, communications, listening, etc.

RECRUITMENT GAPS BETWEEN COMMUNITY COLLEGES AND INDUSTRY COMPANIES NEED TO BE LESSENERD

Students report feeling “lucky” that they chose an educational pathway in Sustainability Technologies or other related industry course work, as they had no idea what job or career opportunities may be available, or even what the industry is going into it. We know that more work is needed to reconcile curricula being taught in colleges with the jobs that companies are hiring for now, and will be hiring for in the future.

Very few industry companies participate in community college internship, co-op, apprentice and career fair programs. NCBPA hears every year of students graduating from great programs related to sustainability, building performance, etc. that take entry-level positions in non-industry fields because they weren’t aware or connected to available jobs in the industry.

SIMILAR OPPORTUNITIES EXIST IN BOTH CAROLINAS

The workforce resources we seek to develop first in North Carolina and be easily implemented across the U.S. and in neighboring states such as South Carolina, which lacks all of the resources unavailable in North Carolina. While North Carolina has a wealth of infrastructure available, the workforce development resources we find most needing are lacking. In contrast, South Carolina’s industry lacks an organizing body and the construction, clean energy and manufacturing industries related to energy efficiency are less robust than North Carolina. South Carolina’s minimum energy code standards are based on the 2009 International Energy Conservation Code (IECC), trailing North Carolina (generally equivalent to the 2012 IECC) and lagging behind many states nationally.

In the most recent [state energy efficiency policy scorecard from ACEEE](#), North Carolina ranks 26th and South Carolina ranks 40th. While these policy rankings are not directly related to workforce development, they do provide a measurement of each state’s focus and support for energy efficiency

more broadly. North Carolina’s energy efficiency industry is on the cusp of being able to improve significantly, while South Carolina’s energy efficiency industry is in need of greater support of its workforce and market.

RESULTS FROM NCBPA AND KNAUF TRAINING INNOVATION SURVEY

In late 2019, NCBPA and member company Knauf Insulation completed an industry survey to inform our companies’ independent and shared efforts to improve our industry’s training, recruitment and employee development practices to benefit all industry companies and professionals. Having these survey responses proves incredibly helpful to prioritizing our activities at the local and state levels, and for organizations like Knauf Insulation working at the regional and national levels.

The results of the survey have already begun to help NCBPA, Knauf Insulation and others improve how we train, recruit and develop our industry’s workforce. At a high-level, the survey results tell us that work is needed to transition industry companies from high awareness with low action to high awareness with high action that is supported by tangible resources that support training, recruitment and development.

Here is a chart created by NCBPA to summarize survey findings in the eight topic areas across these three categories:

	Awareness	Resources	Execution
Training Program	High	Middle	Low
Career Pathways	High	Low	Low
Soft Skills	High	Middle	Low
Technology	Low	Low	Low
Recognition	High	Middle	Middle
Developing Leaders	High	Middle	Low
Work Life Balance	Low	Low	Low
Recruiting Students	High	Low	Low

Our analysis of the survey results identifies several key areas that NCBPA’s workforce development efforts will focus on in the coming months. Based on the survey results, these areas include:

Employee Training Program: The majority of respondents reported employee training programs as being important but indicated a lack of ability in acting on offering and managing them. Eleven respondents reported having training programs but few provided examples that would be considered more robust or sophisticated than routine onboarding forms and annual performance reviews. Respondents did feel that training programs were important for all of the roles listed in the question.

Career Pathways Resources: One major theme that NCBPA has already been working on that is present in the survey results is strong awareness and desire for resources that clearly outline career pathways for students and professionals to follow in our industry. Unfortunately, the survey results indicate that few, if any, resources are available that can be used to illustrate those pathways. In this survey, no respondents indicated clearly available career pathways resources at their company or that they know of!

Need for Soft Skills: While widely known in our industry as a core skill set for obtaining an entry-level job and advancing a career, the lack of formal resources or methods that companies can use to help recruits and workers to improve their soft skills is significantly lacking. Survey respondents indicated a strong understanding for what soft skills are and how they are important, but responses varied widely and wildly in how companies and workers can work to improve them.

Company Use of Technology: As we expected, survey respondents affirmed a lack of innovation and clarity in how technology can be used to support improved training, recruitment and employee development. Survey respondents indicated that “slides and online videos” are frequently used for training, but that enterprise-wide systems, whether custom to the company or purchased out-of-the-box from a vendor, are few and far between. As our industry’s target workforce population continues to increase in its interactions with and reliance on technology in daily life (and increasingly work life), our industry needs to improve its usage of technology in training, recruitment and development.

Employee Recognition: The availability and attention to employee recognition programs scored highest of any category in the survey. “Old school methods” such as badges, certificates and recognition in company meetings were commonly referenced. Examples of more modern methods for recognition and reward were also offered in the comments. No matter the methods, having a strong employee recognition program no doubt benefits industry companies. However, we believe the survey responses indicate an overall lack of innovation in this area that could further improve how industry companies reward their workers.

Leadership Development: Following the overall trend on this topic, survey respondents indicated a strong awareness and understanding of the need and benefits for leadership development programs. However, few responding companies indicated that they have formal leadership development programs or at the least select formal resources for encouraging leadership development. In some cases, the “old methods” of identifying and developing leaders, such as job shadowing or only performance reviews were referenced. In a few cases, larger companies reported formal programs that offer strong support for employees with leadership potential.

Work-Life Balance: This category scored the lowest of any in the survey with just one of the 26 respondents indicating that they have a clear or formal way of supporting a good work-life balance for their workers. Responses indicated efforts to encourage the use of vacation and some offerings of leave for community service projects. However, the overall lack of results and only two write-in comments on this topic indicate significant weakness in this area.

Recruiting Students: Also following the overall trend, survey respondents indicate strong awareness for the opportunities and benefits of recruiting students as potential workers for industry firms. However, the resources available and action taken to do so were limited. A few respondents indicated formal processes and resources to recruit students, while some commented that they “wait for them to contact us”. Newspaper ads were referenced as well, which may be beneficial in some cases, but wouldn’t be regarded as innovative.

2020 WORKFORCE DEVELOPMENT SUMMIT

Provided below is an over of the 2020 Workforce Development Summit held in February. The event should be used as a benchmark or template in other states and regions to assess their own industry workforces and create new connections between industry companies, community colleges and other stakeholders.

PARTICIPANTS

Working Groups: The focal point of the Summit involved working group sessions on the following seven topic areas that NCBPA member companies believe to be the most important for our industry to address:

1. Bridging the Gaps Between Community Colleges an Industry Companies
2. Faculty Curricula
3. Apprenticeship Programs
4. Career Pathways
5. Internships and Co-ops
6. State and Local Resources
7. Diversity, Equity and Inclusion

Attendees: More than 80 industry professionals and stakeholders representing a wide variety of backgrounds and roles attended the Summit. Attendees included:

1. Faculty from universities, community colleges and technical colleges
2. Nonprofits supporting workforce development and industry jobs
3. State and local government staff offering workforce programs and resources
4. Students seeking industry jobs and looking to contribute to the creation of new resources
5. Industry professionals involved in building performance products and services

Organizer Information: The Summit was organized by NCBPA with support from NC Community College System. Organizers included:

<p>Ryan Miller Founder & CEO NC Building Performance Association 919-521-3385 Ryan@BuildingNC.org</p>	<p>Margaret Roberton Associate Vice President, Workforce Continuing Education NC Community College System 919-807-7159 robertonm@nccommunitycolleges.edu</p>	<p>Karen Tikkanen Director, Training & Standards, Workforce Continuing Education NC Community College System 919-807-7158 tikkanenk@nccommunitycolleges.edu</p>
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Sponsors: NCBPA would like to thank and recognize the following companies for offering sponsorship and scholarship funding for the Summit:

- Allison Blanks, Owner at [Allison Blanks, Architects](#) in Pittsboro
- Russell Richter, Executive Vice President at [L.L. Vann Electric, Inc.](#) in Raleigh

- Jarrett Davis, National Technical & Building Science Director at [MaxLife Industries](#) in Salisbury
- Parker Cannady, Owner at [EcoStructure Energy Consulting](#) in Louisburg

LOCATION AND FORMAT

The Summit was held at the [Chatham County Agriculture & Conference Center](#) in Pittsboro, NC. The format for the Summit included:

1. Registration and networking.
2. Opening comments from NCBPA's Ryan Miller about the association's workforce development priorities.
3. Opening comments from NCCCS's Margaret Robertson about the organization's current and planned workforce development activities.
4. Panelist comments from John Thigpen, Climate Advisor with NRDC who is working with the City of Charlotte's American Cities Climate Challenge program. One of their projects is the development of a workforce training program for green collar jobs, particularly for careers in building performance (residential and commercial). The program will be modeled after an existing City workforce program called Project P.I.E.C.E.
5. Panelist comments from Roxanne McDonough, part-time employee of NCBPA in the position of Member Services Specialist and student at Central Carolina Community College who will soon graduate with a degree in Sustainability Technologies.
6. Group discussion to determine priority areas for afternoon breakout sessions. Topics proposed include:
 - a. Faculty curricula improvements
 - b. Apprenticeship programs
 - c. Career pathways
 - d. State and local government resources
 - e. Diversity, equity and inclusion
 - f. Bridging gaps between industry companies and community colleges
 - g. Recruiting new instructors and supporting existing ones
 - h. Recruitment of students
 - i. Industry credentials
7. Breakout sessions on:
 - a. Increasing awareness of jobs in building performance through marketing, recruitment and training of students.
 - b. How apprenticeship programs can help connect companies to CC students.
 - c. Big picture improvement opportunities including developing career pathways and improving diversity, equity and inclusion.
8. Group discussion and wrap-up on:
 - a. Key findings from the previous breakout sessions.
 - b. Recommendations for community college staff and faculty, employers, NCBPA and NCCCS (each).

- c. Priority items to work on in the next three months.

SELECT WORKING GROUP RESULTS

BRIDGING GAPS BETWEEN COMMUNITY COLLEGES AND INDUSTRY COMPANIES

Key Findings:

We need to bridge the gaps between CC faculty/staff that are educating students and industry companies that want to hire them:

- Students report feeling “lucky” that they chose an educational pathway in Sustainability Technologies or other related industry course work, as they had no idea what job or career opportunities may be available, or even what the industry is going into it.
- We know that more work is needed to reconcile curricula being taught in colleges with the jobs that companies are hiring for now, and will be hiring for in the future.
- Very few industry companies participate in community college internship, co-op, apprentice and career fair programs.
- NCBPA hears every year of students graduating from great programs related to sustainability, building performance, etc. that take entry-level positions in non-industry fields because they weren’t aware or connected to available jobs in the industry.
- Insulation contracting companies are in need of additional workers but there is “nothing available” by way of educational programs, credentials or certifications that support this specific trade.
- Many community colleges have difficulty finding and keeping qualified instructors on a part or full-time basis that are oftentimes the best connection between students and industry companies.
- Retired, semi-retired and industry professionals with seasonal schedules can find teaching opportunities with local community colleges.

Recommended Action:

1. Employer should connect to local workforce development boards that offer programs and support, including paying for employee training in some cases, to help their businesses. An association like NCBPA can help connect businesses to WDBs in their local areas.
2. NCBPA and NCCCS to develop a marketing and communications plan and resources that effectively advertise the any job and career opportunities in the industry.
3. NCBPA to connect industry workers, particularly those that are recently retired, semi-retired or with seasonal schedules to available teaching opportunities in local community colleges.

DIVERSITY, EQUITY & INCLUSION

Key Findings:

- Industry employers need to be open to speaking with their employees and target workers about all forms of diversity, equity and inclusion that particularly include ageism, sexism and racism.
- Community college initiatives on entrepreneurship support DEI education and development.

- Youths are historically prejudiced against jobs in all types of trades. In order to get them interested, stakeholders need to gain the interest of their parents and family members.
- Larger companies that have diversity programs in place do not always find diverse candidates as a result. Having programs documented and in place do not do enough.

Recommended Action:

1. NCBPA to identify partner organizations to support the association's efforts to introduce education and resources on DEI to our industry companies and workers.

CAREER PATHWAYS

Key Findings:

1. Workforce development boards are available in local communities across the state to support companies that are looking to recruit, train and retain workers. Many have formal programs that can lend support and in some cases fund needed training to fill jobs.
2. Local workforce development boards can develop certified career pathways that support employers in their communities. These can then be made available at the state level.
3. Some Summit attendees were well-aware messaging and resources provided by Generation T, while others were not. This is a good example of A (singular) beneficial resource that is well-known to some but not to others.
4. Employers should get to a point where common language on occupations, certifications, skills, etc. is used when referencing jobs so that students and faculty will become more familiar with what our companies are expecting and looking for.

Recommended Action:

1. NCBPA to develop a North Carolina-specific free online Building Performance Career Map using California's <https://hvaccareermap.org/> as a benchmark
2. NCBPA and NCCCS to work together to develop an NC-specific insulation contractor certification program and related career pathway resource in order to create a strong example of a new resource that can benefit students, colleges and employers.
3. NCBPA to connect industry companies to local workforce development boards to support the development or refinement of recognized career pathways that support these companies hiring more workers.
4. NCBPA to include beneficial resources such as Generation T in its updated online resources for workforce development and career opportunities.
5. NCBPA to plan industry-wide project to develop/affirm consistent occupation language and terminology that all companies can use to advertise positions, seek out skills, etc.

ADDITIONAL AREAS CONSIDERED

Faculty Curricula

The development of updates to existing industry-related curricula and new curricula was not prioritized during the 2020 Workforce Development Summit. Faculty felt that the current curricula being offered through North Carolina community colleges were meeting the needs of students and hiring companies, based on their feedback and results. One recommended action included creating a

matrix of industry credentials and certifications to better inform faculty and students about the programs they should look into obtaining as part of their education.

Internship & Co-Op Programs

The development and advertising of internship and co-op programs was not prioritized at the 2020 Workforce Development Summit.

State & Local Resources

The development and advertising of state and local resources was not prioritized at the 2020 Workforce Development Summit.

SURVEY RESULTS

Throughout the 2020 Summit, participants were asked to document their feedback on a form for a number of questions related to priorities and their recommendations for action items. These are the results from those surveys:

Question 1: Which of the topic areas covered today do you feel need the most and least improvement in order to yield real results?

- Most Improvement Needed:
 - Career Pathways: 10
 - Bridging the Gaps between Community Colleges and Industry: 10
 - Apprenticeship Programs: 8
 - Internship and Co-Op Programs: 8
 - Diversity, Equity and Inclusion: 8
 - State and Local Resources: 6
 - Faculty Curricula: 3
- Least Improvement Needed:
 - Faculty Curricula: 5
 - Internship and Co-Op Programs: 4
 - State and Local Resources: 4
 - Apprenticeship Programs: 3
 - Diversity, Equity and Inclusion: 3
 - Career Pathways: 2
 - Bridging the Gaps between Community Colleges and Industry: 0

Question 2: Based on what you learned today, what resources or support do YOU need in order to improve job and career opportunities for NC community college students interested in building performance?

1. Work-based learning opportunities.
2. Employment needs forecasts well ahead of time.
3. Participation in job exposure programs (industry tours at onset of education).

4. Bring building performance to the forefront and involve the public and private school systems.
5. Better communication with business partners and community college staff to meet economic needs for local industries.
6. I am an advisor at a high school. My concern is how do I advise trade students? What resources are available?
7. Local industry list in our geographical areas.
8. Awareness of careers in the building trades field for parents, students, career coaches, etc.
9. Central communication place.
10. There are a lot of great resources at community colleges.
11. Continued contact and communication with businesses.
12. Assistance with identifying good, qualified instructors in the trades areas.
13. Defined career pathway for students in sustainability degrees.
14. More networking events and training.
15. What resources or certifications can we offer that adds value to our students and industry?
16. Certification prior to employment, such as HERS Rater or OSHA.

Question 3: What is one improvement, resource or activity that you see as being ready to act on that supports the goals discussed today?

1. A digital portal to connect employers with their local community college. We will need 12 HVAC techs in 8 months = immediate action plan for local community college.
2. Workforce Development Board and community college recruiters should begin visiting the public and private schools at the 5th grade level and explaining the educational opportunities and career outcomes.
3. Adult apprenticeships.
4. Bringing together resources in a comprehensive/unified way.
5. Marketing to increase awareness.
6. Contact the industry.
7. Development of new program for insulation installation.
8. Conversations about disconnects with education and workforce.
9. Curricula redesign based on industry needs.
10. Other stakeholders on campus need to be involved in these efforts.
11. Survey more local industry to better learn about the needs.
12. Internships for students in the process of getting AAS.

Question 4: How can NCBPA help you and your organization?

1. Be a leader in educating community colleges on best practices for internships and work-based learning.
2. Filtering more information to our local career centers regarding NCBPA's next steps and what we can do as a state agency to assist upward mobility.
3. Continue to provide collaborative learning opportunities such as this one-day Summit.

4. In a nutshell, resources to advise my students, such as job banks, career paths and job descriptions.
5. Finding a pathway to get centralized information.
6. Provide marketing materials to increase awareness that we can customize with our associated programs at each college.
7. Job opportunities emailed to me.
8. Stay in touch, would love to represent my company again and keep learning.
9. Excellent resources for us at community college level.
10. The newsletter will be awesome for us in community colleges to keep up with current needs in the industry.
11. Continue building on what you are doing.
12. Provide resource list of companies in local area and certifications needed.
13. More comprehensive job board and job seeker list.

Question 5: How can NCCCS help you and your organization?

1. Facilitate regional partnerships to assure each area in NC is able to meet its development and workforce needs.
2. Provide us with new programs, incentives, etc. which we can use to assist with marketing career opportunities and jobs.
3. Grants and funding for community college programs.
4. Develop curricula with employers that can be used across all colleges.
5. More opportunities like this Summit.
6. Stay in touch, would love to represent my company again and keep learning.
7. Continued support with class development.
8. Lots of good ideas on training, apprenticeships, networks, etc.
9. Provide resource list of companies in local area and certifications needed.
10. Develop HERS Raters as a specific industry trade.

Question 6: What other feedback do you have for us?

1. Provide uniform curricula for needed skills in workforce.
2. Diversity, equity and inclusion is more essential than many of us would like to admit. But, if those who can intervene don't intervene, our holistic upward mobility will be stagnated. We must start this conversation now 😊
3. Great Summit!
4. I would be happy to help wherever needed.
5. Great Summit! We need to continue heaving more of these to develop resolutions and network.
6. Be the change you want to see.
7. I would love to stay involved.

8. I would love to stay involved in meetings and activities with these organizations. It will be so beneficial as we work through how to meet needs through education.
9. What model needs to be created to incentivize industry workers to teach when the economy is doing well?

RECOMMENDED ACTION ITEMS

Resulting from both the 2018 and 2020 Workforce Development Summits AND our additional workforce work, NCBPA is leading the way in addressing the following action items.

PRIORITY #1: DEVELOP FREE ONLINE CAREER PATHWAYS RESOURCES

#	Item	Proposed Owner	Priority
1	Continue the build-out of NCBPA's current Career Lattice framework with support from Malinda at NCWorks. Obtain industry feedback along the way and communicate the final result via websites, social media, educational presentations and more.	NCBPA, NCWorks	High
2	Add information on professionals moving back and forth between residential and commercial trades to the Career Lattice. What skills are needed, certifications, credentials, etc.?	NCBPA	Med
3	Incorporate standardized job titles for positions in Career Lattice.	NCBPA	Med
4	Incorporate building performance trades work into existing high school, college and university curricula.	TBD	High
5	Another focal point for the Career Lattice needs to include the soft skills that are needed at the starting points on the Lattice and all the way up, with increasing importance on those soft skills that are needed the most by business managers and CEOs.	NCBPA	High
6	Offer employee training resources that inform new/young professionals of what career choices they have, how to move up in a company or industry, etc.	NCBPA	High
7	Improve and expand existing resources that connect available workers to available jobs. NCBPA job board, NCWorks job portal and other resources should be included. Indeed, Craigslist, etc. viewed as difficult and low value for many positions.	NCBPA	High
8	Career Lattice – Develop pathways that originate from individual industry roles/positions. Consider how building types matter – residential single family, multifamily, commercial, public and industrial. Also consider how a person's individual interest in sustainability, green building and/or high performance construction matters. Fundamentally, this is the primary driver for someone to enter into and participate in our Career Lattice.	NCBPA	High
9	Develop a North Carolina-specific free online Building	NCBPA	High

	Performance Career Map using California's https://hvaccareermap.org/ as a benchmark		
10	Add priority industry certifications and credentials to online career pathways resource.	NCBPA	High
11	NCBPA to include beneficial resources such as Generation T in its updated online resources for workforce development and career opportunities.	NCBPA	Med
12	NCBPA to prioritize incorporating building performance, energy efficiency and green building career opportunities and resources into programs and resources such as Generation T that are garnering	NCBPA	Med
13	NCBPA to plan industry-wide project to develop/affirm consistent occupation language and terminology that all companies can use to advertise positions, seek out skills, etc.	NCBPA	Med
	Benchmark what trade unions offer for workforce development and determine how these resources could be offered for our industry in NC.	NCBPA	Low

PRIORITY #2: IMPLEMENT JOB AND CAREER AWARENESS CAMPAIGN

1	Develop free online career pathways resources that inform youths aged 18 - 24, young professionals, experienced professionals, college and university faculty, local governments, long-term unemployed and underemployed individuals about the many full-time permanent job opportunities available in our industry.	NCBPA	High
2	NCBPA and NCCCS to develop a marketing and communications plan and resources that effectively advertise the any job and career opportunities in the industry.	NCBPA and NCCCS	High
3	Educate potential and current citizens on the many certification, credentialing and degree programs available but not well-known that, if obtained, afford anyone a significant step up and clear pathway to a well-paying full-time permanent job in our industry.	NCBPA	High
4	Attend meetings with local organizations including Chapel Hill Chamber of Commerce on trade jobs and also state orgs like NCHBA to encourage them to include jobs in our industry in their	NCBPA and Members	Med

	priorities. Present to students		
5	Present to local workforce development boards and nonprofit workforce support organizations	NCBPA and Members	Med
6	Create or participate in “jobs in the trades” campaign and resources for high school, college and university students and their parents.	NCBPA	Low (costly)
7	Identify opportunities to recruit current and former military for positions in our industry.	NCBPA	Med
8	Industry needs to develop and promote case studies to encourage other students and young professionals to join our industry.	NCBPA	High
9	NCBPA to connect industry companies to local workforce development boards to support the development or refinement of recognized career pathways that support these companies hiring more workers.	NCBPA	Med
10	Visit each college and university with an industry-related program at least once a semester to speak with students about career opportunities and faculty about support their need.	NCBPA and Members	High
11	Establish a presence in middle and high schools to inform students and their parents of options for trade work is needed.	TBD	Low

PRIORITY #3: BRIDGE GAPS BETWEEN COMMUNITY COLLEGES AND INDUSTRY COMPANIES

#	Item	Proposed Owner	Priority
1	Create an online matrix that details needed and desirable industry certifications and credentials, including how to get them and what industry positions they apply to, so that faculty members can point students in their classes toward them and support educational opportunities in those areas.	NCBPA	High
2	Create connections between industry companies and local workforce development boards that can support their businesses	NCBPA	Med

	with hiring, training and retaining works.		
3	Develop an NC-specific insulation contractor certification program and related career pathway resource in order to create a strong example of a new resource that can benefit students, colleges and employers.	NCBPA and NCCCS	High
4	Connect industry workers, particularly those that are recently retired, semi-retired or with seasonal schedules to available teaching opportunities in local community colleges.	NCBPA	Med
5	Develop, implement and manage a faculty support plan: <ul style="list-style-type: none"> • Improve collaboration and networking amongst faculty. • Provide discounted or free education and training. • Create resource center for curricula add-ons, activities, programs, etc. 	NCBPA	High

PRIORITY #4: IMPROVE EXISTING AND ESTABLISH NEW APPRENTICESHIP PROGRAMS

#	Item	Proposed Owner	Priority
1	Survey industry employers (again) to determine if creating state-run (through NCBPA, state govt or nonprofit) apprenticeship programs meet their needs, and how, if at all, they are willing to support and/or participate in these programs. <ul style="list-style-type: none"> • Signing on individual companies already offering related apprenticeship programs is also a starting point. Ingersoll-Rand, Siemens, Piedmont Service Group and others could be targets for this. 	NCBPA	High
2	If desired by industry employers, then complete the build-out of NCBPA's four proposed Apprenticeship programs (see below) – or develop new ones – so that Apprenticeship NC can aid in building out and making the programs available.	NCBPA	High, after item #1
3	Develop, implement and manage programs, resources and campaigns that make our industry's job and career opportunities more attractive to potential candidates, particularly those that are already actively engaged in, or pursuing, trade apprenticeship programs.	All vested parties	High

4	<p>Develop a one-stop-shop resource for apprenticeships to make opportunities easier to find and to help educate potential candidates and parents.</p> <ul style="list-style-type: none"> Note 1: ApprenticeshipNC provides this service already. Promoting it and ensuring that our industry apprenticeship programs, including those managed by industry groups and private companies, are included is needed. Note 2: The problem is one that is common for all trades. 	NCBPA and Apprenticeship NC	Med-High
5	Incorporate our industry trade work into existing Apprenticeship programs offered across the state.	NCBPA	Med
6	Create case studies of apprentices that have successful careers to share with prospective students, their parents and other young professionals.	NCBPA	Med
7	Create promotional collateral for job opportunities in our industry. Leverage national and state clean energy/energy efficiency job reports and NCBPA's Potential Report.	NCBPA	Med

PRIORITY #5: IMPROVE AWARENESS AND ACTION THAT IMPROVES DIVERSITY, EQUITY AND INCLUSION

#	Item	Proposed Owner	Priority
1	Industry needs to develop language, educational materials and trainings on ED&I (diversity training, racial equity training, etc.) that start from a very basic understanding that applies to all industry pros and dives in to key areas.	TBD	High
2	Develop industry-specific resources that improve the ways that our companies act on diversity, equity and inclusion needs in order to recruit new workers into our industry from backgrounds that are different than our norm, and also to ensure that we retain workers who prioritize companies that offer a more diverse, equitable and inclusive work environment.	TBD	High
3	Highlights of diverse workers in management and leadership positions at industry firms will help encourage younger diverse workers to grow in their positions and support non-diverse workers changing <i>some</i> perceptions about diverse workers in	TBD	High

	leadership positions.		
4	Networking opportunities, mentoring programs and opportunities to work or network with diverse and non-diverse employees inside and outside of the company will help create a support system to retain and encourage new diverse employees.	TBD	High
5	Research and promote resources for companies interested in or willing to hire workers with criminal records.	TBD	Med
6	Create industry resources and spaces (online forums) for employees to go where they can learn about opportunities for advancement within the industry. Create ED&I certification or recognition for the industry to encourage or incentivize participation in ED&I programs.	TBD	Med
7	How does, and can, our industry measure diversity within its ranks? Need to start there to gauge improvement over time.	TBD	High
8	Support companies recruiting diverse workers outside of their normal ranks. Recruiting through current workers perpetuates the same level of diversity in more cases – reaching out through career fairs, local programs and other sources will help provide a diverse hiring pool.	TBD	High
9	Send job/internships descriptions to historically black colleges and universities (HBCUs) or minority serving institutions (MSIs) of interest, if they are not already part of your outreach. Go to high schools (with special focus on solar or environment) or community colleges and discuss employment opportunities, making efforts to be inclusive and reaching out to veterans, women and people of color.	Industry companies	High
10	Connect employers to women-only construction and clean energy courses to participate and offer time for their staff to attend.	TBD	High
11	Offer an initial 30-minute DEI training course/webinar to industry companies to introduce the topic with low commitment (time invested, cost, etc.) for companies to participate. Include surveys (anonymous, worker and company-focused) to collect data on employee and employer sentiment, needs, etc.	TBD	High
12	NCBPA to identify partner organizations to support the association's efforts to introduce education and resources on DEI to our industry companies and workers.	NCBPA	High

PRIORITY #6: MODERNIZE AND IMPROVE TRADE-RELATED CURRICULA

#	Item	Proposed Owner	Priority
1	Develop soft skills training for new and experienced workers. May be possible to develop/purchase an existing soft skills training program for industry companies to use.	TBD	Med
2	Assess opportunities for updating/improving/expanding industry-related curricula in NC community college and university system. Where possible, identify and incorporate curricula add-ons that are inexpensive and able to be used by faculty – from nonprofits, private companies, etc.	NCBPA and NCCCS	High

PRIORITY #7: INTERNSHIP AND CO-OP PROGRAMS

#	Item	Proposed Owner	Priority
1	Establish an online clearinghouse of available internship and co-op programs with industry companies and educational institutions.	NCBPA	Med
2	Create case studies and testimonials (and consolidate existing) of successful programs and individuals to promote to students, parents and hiring companies.	NCBPA	Med
3	Add internship and co-op opportunities to Career Pathways resources to highlight their role in pre-Apprenticeship and other opportunities.	NCBPA	High

PRIORITY #8: STATE AND LOCAL RESOURCES

#	Item	Proposed Owner	Priority
1	Identify the companies, associations, state and local government entities, and other stakeholders that will commit to addressing some, not all, of the building performance industry's workforce needs and challenges in the coming years.	NCBPA	High
2	Apply for grants with partners focused on workforce development at the local, state and federal levels.	Industry companies,	High

		NCBPA and stakeholders	
3	Develop soft skills trainings and resources that better prepare prospective and new workers for today's modern jobs.	NCBPA	High
4	Coordinate free online trainings to industry company owners, hiring managers and HR managers to help them address workforce issues including soft skills training, hiring practices, retention policies and more.	NCBPA	Med
5	Curricula for our trade work are needed in vocational and high schools. State-funded courses or certifications available? Pre-apprenticeship programs? Use Connecticut programs as examples. What about scholarship opportunities?	NCBPA	High

KEY FINDINGS FROM 2018 WORKFORCE DEVELOPMENT SUMMIT

The 2018 Workforce Development Summit was held to bring together industry professionals and stakeholders to review NCBPA's work thus far, discuss opportunities amongst each other and share ideas and opportunities. With a diverse group of industry professionals, faculty, students, nonprofits, local government staff and others in attendance, the Summit was a success. The focal point of the Summit involved working group sessions on six topic areas that NCBPA member companies believed to be the most important for our industry to address.

The morning's opening presentations shared stories of success and need from across the state, helping attendees understand what we have, what we need and how to get there. Afterward, working groups formed from diverse backgrounds – faculty, industry pros, students and government representatives – to discuss these needs and opportunities and identify new ones. Lunch provided “near peer” networking opportunities for attendees with peers from their own region.

The Summit concluded with working group sessions focused on developing the actual resources our industry needs to be successful. These resources included:

- An outline for modernized curricula that colleges and universities can use to train our industry's future workforce.
- A career “lattice” that illustrates to students (and their parents) the job, career and educational opportunities available in our industry.
- The requirements our industry supports for Apprenticeship programs that will help train future leaders that will work for our companies.

Following the Summit, NCBPA staff worked to compile the findings, best practices and recommendations provided by attendees into this report. Upon completion, NCBPA began to lead industry efforts to develop and manage needed resources, campaigns and programs.

Provided here is a summary of the key findings from the Summit. Note that the action items are included in the Recommended Action Items section provided earlier in this report.

A significant lack of skilled labor exists in our industry:

- Workforce development topics have been in the news for many months now. We are experiencing a strong construction and clean energy industry growth period in North Carolina and have an opportunity to capitalize on it. But, our industry lacks the workforce resources needed to support new workers coming into our field and keeping our existing workers happily employed.
- One of the most trending topics we see is the need for more women in our industry. Taking this a step further, improving general workforce diversity, equity and inclusion are also becoming more important.
- Hiring is the number one issue facing the industry today. For labor positions, a major issue is a failure of applicants to pass background checks. For non-labor positions, a major issue identified is a lack of awareness by target candidates about our industry. Candidates may find a mechanical engineering job by looking for that role specifically, but they are not aware of or

looking for a position in building performance or any variation of the term (i.e. green building, energy efficiency services, etc.).

- There are industry jobs available for interested parties with a variety of educational requirements available. In the case of Siemens, the company had more than 150 open positions available in North Carolina on the day of the Summit. Not all are in building performance-related trades or positions, but many are. Key issues with connecting available jobs to available workers involve students and parents not understanding the value, career opportunities, benefits, etc. of jobs in our “trades” industry – i.e. a vocational career. This is commonplace across the U.S., whereas the situation is very different in many European countries where vocational jobs are at the same class as office jobs.
- In addition to efforts to recruit new workers to the industry and its companies, BPI recommends focusing on developing needed skills for existing professionals, both new and experienced. One example includes teaching HVAC professionals about building performance work in the off season.

Efforts to improve diversity, equity and inclusion are needed:

- Some industry professionals are greatly concerned about the lack of diversity, equity and inclusion in our workforce (not just our workforce, but construction and clean energy overall). In some cases, companies are being forced to diversify their workforce due simply to a lack of skilled labor. In other cases, companies are proactively broadening the diversity, equity and inclusion of their workforce through new hiring processes and target areas.
- There is a need in our industry (and many others) to include unseen diversity such as sexual orientation, veteran status, family status and geographic location in our existing workforce and recruiting practices for our future workforce. Improving diversity, equity and inclusion is an opportunity that many companies are taking on voluntarily and others are now looking at due to shortages in skilled workers and other factors.
- These issues are present in urban communities and also rural communities. In many cases, persons talking about these two different communities speak two different languages about the same issues.

The size and impact of our workforce is not recognized:

- North Carolina is home to many building performance jobs. NCBPA estimates roughly 50,000 in building performance/energy efficiency, while national studies estimate more than 85,000.
- NCBPA’s [2018 Energy Efficiency Potential Report](#) identified an opportunity to increase building energy efficiency in the state by 16.8% and create more than 52,000 new industry jobs. Workforce solutions and resources are needed to meet this desired demand increase.

Issues and solutions to our workforce challenges are not unique:

- Our industry’s needs are not unique. The ACE Mentor Program in Raleigh/Durham offers programs and resources that our industry could benefit from. Unfortunately, building performance is not a topic area included in other trade-related industry workforce initiatives.
- There is no central organization in our industry currently managing workforce development information, resources, candidate recruitment, etc. The information that industry companies needs has yet to be sufficiently collected, organized and share for use across our industry.

More and better education and training resources are needed:

- There is a lack of educational and other resources for skilled labor positions needed by our industry companies. Many “unofficial learners” exist – skilled laborers who would be good fits for our industry positions but that are unaware of our industry, unaware of career opportunities or that see our trades work as uninteresting or “lower class” than other trade roles and office jobs.
- There is a need for greater collaboration between professionals and organizations to structure curriculum and broaden opportunities. More than a dozen universities, community colleges and technical colleges in North Carolina offer programs related to building performance (or sustainable technologies, building science, etc.) but the state curricula is limited and faculty have few opportunities to connect and learn from one another and lack many resources needed to provide a quality education to students about our industry’s work.
- There is a significant need to develop certification and credentialing programs that address soft and hard skills needed by industry professionals in today’s workplace environment.

Our industry needs to connect to younger/future workers:

- The home and building performance industry workforce is aging. This is most commonly seen and discussed relative to code officials.
- Non-college degree program pathways are needed for young professionals interested in careers in clean energy and building performance. More post-college professional certifications are needed.
 - One example in the residential industry involves just two primary industry certifications related to residential building performance: BPI Building Analyst or RESNET HERS Rater/RFI.
 - On the commercial side, there are many more certifications and credentials popular amongst industry professionals. Some provide overlap in commissioning and energy auditing, while others are very specific.
- Young professionals entering our industry and existing professionals more than ever need to be educated and experienced in a wider set of skills that includes a strong focus on soft skills – selling, communications, listening, etc.
- Case study: Connecticut Trade high schools have a 4-year plan for incorporating green technology into high schools and to keep workers in the state.
- Targeting for college students: it is important to make our students aware of industry pathways and opportunities because they are not advertised.

There have been limited efforts to reconcile curricula to industry needs:

- There is a major need for curriculum, resource and messaging consistency across the industry. In most cases, industry companies are working through workforce development activities on their own.
- Faculty shared examples of how there is a large disconnect between coursework taught in today’s curricula and industry work needed by NCBPA member companies, no matter which career pathway a student may be pursuing.

We need to bridge the gaps between CC faculty/staff that are educating students and industry companies that want to hire them:

- Students report feeling “lucky” that they chose an educational pathway in Sustainability Technologies or other related industry course work, as they had no idea what job or career opportunities may be available, or even what the industry is going into it.
- We know that more work is needed to reconcile curricula being taught in colleges with the jobs that companies are hiring for now, and will be hiring for in the future.
- Very few industry companies participate in community college internship, co-op, apprentice and career fair programs.
- NCBPA hears every year of students graduating from great programs related to sustainability, building performance, etc. that take entry-level positions in non-industry fields because they weren’t aware or connected to available jobs in the industry.

FACULTY CURRICULA WORKING GROUP

Overview Statement:

About a dozen community colleges, technical colleges and universities across North Carolina offer programs directly related to building performance: sustainability technologies, green building, etc. Are these courses teaching students the information that industry companies want them to know? Do faculty members have the physical resources and education of their own to meet that need? This working group seeks to identify gaps in our current higher education programs and prioritize actionable steps needed to address them the right way.

Discussions to Consider:

1. Identify all vocational schools, community colleges, technical colleges, universities and local programs that train students and young professionals on our industry’s work.
2. Identify knowledge, skills and abilities (KSA) gap between what students are learning and what industry needs.
3. Identify resources that faculty need to succeed – physical supplies, continuing education of their own, financial support, etc.
4. Identify useful benchmarks in other industries – home building, HVAC, plumbing, solar, etc.

Questions to Answer:

1. What problems do we see in the marketplace that could be improved through greater attention to this topic area? Lack of skilled labor, retiring or aging workforce, lack of “respect” for trades work, etc.
2. What type of curricula are we talking about? Statewide, CC, local, etc.?
3. Can we talk about high schools? What about middle schools?
4. What skills gaps exist in current curricula vs. what industry needs?
5. What credentials or certifications are most valuable for students to earn?
6. How to incorporate internships and co-op programs or apprenticeships?
7. What kinds of speakers are helpful for students to hear from?

8. What topics and formats are available, and what are needed, for faculty to learn about our industry and continue *their* education? What are the costs?
9. What are some of the best and most effective programs available and how can we emulate them elsewhere?
10. What software programs and reporting/benchmarking tools are being taught and used? REM/Rate, WrightSoft, Portfolio Manager, BIM, etc.?
11. Are “Passive House” fundamentals, principles and practices being taught for both residential and commercial?
12. What updates are needed to what parts of NC’s state curricula?
13. What add-on topic areas, coursework or field work can be added?
14. Can apprenticeship, internship or co-op programs be incorporated?
15. What data do we have? What problems or opportunities can we quantify?
16. How do students and parents find out about internships and co-op programs in our industry? What resource is needed to help advertise them?

Resources to Reference:

1. BPI’s Building Science Principles certification and related program brochures.
2. Connecticut program curricula information.
3. What resources are available through [The Association for the Advancement of Sustainability in Higher Education](#) (AASHE)?
4. What resources are available through the [Home Building Institute](#)?
5. Companies can use the WBL Navigator: <https://wblnavigator.org/web/>
 - The Navigator is an online marketplace that makes it easier for NC educators and workforce development professionals to integrate work-based learning resources into their classrooms.

Comments from 2018 Summit:

- North Carolina’s building performance industry is struggling to fill available jobs, like many other industries.
- A major gap/opportunity identified by many participants is that younger/newer workers that aren’t familiar with, comfortable with or strong in communications, relationship management and other soft skills.
- College and university students are excited about careers but there are significant barriers:
 - Sometimes there is a lack of awareness of job and career opportunities available to them. Because NC’s building performance industry (at the industry level) lacks the same visibility or job interest as architecture, general contracting, solar energy, etc. students being trained in sustainability technologies or similar programs are unaware of job and career opportunities with industry companies.
 - Faculty struggle with paperwork and normal institutional regulatory barriers that can make it hard to apply for and obtain grants that could be used to offer new programs, curricula or resources to students.
 - Some students see barriers in colleges or universities related to minimum educational requirements and age. NC has several community and technical colleges that have been

very welcoming to more experienced students working on second, third or fourth careers.

- Lack examples of students like them completing an education (or not) and finding a good career. Industry needs to develop and promote case studies to encourage other students and young professionals to join our industry.
- High school guidance counselors are primarily focused on the college pipeline because it is the most familiar to their work and any incentives to the counselor are likely tied to sending students to colleges and universities, not into trade work. Establishing an industry presence in middle and high schools to inform students and their parents of their options for trade work is needed.
- Our industry offers a wealth of different career opportunities that are amenable to various educational backgrounds and on-the-job experiences. From high-end architecture and design to high-performance plumbing or framing, sales, marketing... our industry offers a wide variety of positions.
- There is curriculum available through NCCER.org to support educational and career opportunities for persons with disabilities entering or staying in our industry.
- Greater collaboration between organizations working in and with our industry is needed:
 - Home builders associations are primarily focused on framing, plumbing, carpentry, etc.
 - Organizations like ASHRAE and USGBC are focused on their own certifications and credentials.
 - Our industry needs to come together to form our internal workforce development resources and form relationships with partner/stakeholder organizations, industries, etc. to promote job and career opportunities.
- Faculty needs include:
 - Opportunities to collaborate more – most from across the state rarely see each other or have opportunities to collaborate with one another.
 - Share updates to curricula and add-ons, activities and opportunities that they can share with others.
 - Grant funding opportunities that they can pursue on their own or with others.
 - Obtain software and other types of training (inexpensive or free preferred) to ensure that faculty are current on the latest (and future) industry tech, operations, needs, etc.
- Legislature previously allocated money for rebranding the construction industry. We as an industry need to take advantage of that.
- Technical skills of students need to be improved in some areas to make them more viable candidates for industry positions. As the technical nature of our positions increases – via computers, connectivity, etc. – students will need these skills in order to garner jobs with industry companies.
 - Some students don't understand the process and focus on being able to answer test questions.
 - Some college/university students don't know practical skills like math that are basic requirements for most educational courses or jobs related to our industry.
- There is a significant need for increased attention to, support for and resources for:
 - Hands on experience for students to work in the field as part of educational courses.

- Instructor education to ensure that faculty members are up-to-speed on industry needs, opportunities, modern technology and best practices for educating students.
- Improving the representation of, resources for and image/reputation of trades in high schools.
 - STEM primarily leads to 4-year degrees when it doesn't have to. Focus on cross training?
 - Incorporate our industry work into high school STEM programs.
- Early college programs on high school campuses.
- Generally speaking, our industry struggles from the same as traditional construction – that it is “not sexy” as a job or career option.
 - Our industry needs better (any?) advertising, marketing and communications strategies to produce tangible results – students and young workers being interested in working in our industry.
 - Apprenticeships and unions are not seen favorably in the South. May be possible to benchmark what unions offer for workforce development and offer through NCBPA and other orgs.
 - Need to focus our language on comfort and health instead of energy efficiency.
- Need to focus on recruiting military and ex-military because they are good for our type of work.

APPRENTICESHIP PROGRAMS

Overview Statement:

Building performance trades are not incorporated in any state or local apprenticeship programs across North Carolina. Apprenticeship NC has offered to help NCBPA and our industry build programs that would be operated by the state and/or NCBPA on behalf of the industry. What programs do we need? How much will participants be paid? What should they learn? To build the programs, industry companies must come together to define the program requirements. Once they do, our industry can have active apprenticeship programs in a matter of just a few months.

Discussions to Consider:

1. Define the benefits of apprenticeship programs to trades – ours and others.
2. Identify specific ways that an apprenticeship program addresses industry workforce challenges.
3. Identify useful benchmarks in other industries – home building, HVAC, plumbing, solar, etc.
4. Review NCBPA's four draft apprenticeship programs and determine if we can move forward with these or need to develop different programs.

Questions to Answer:

1. What problems do we see in the marketplace that could be improved through greater attention to this topic area? Lack of skilled labor, retiring or aging workforce, lack of “respect” for trades work, etc.
2. What's the purpose of an apprenticeship program? What problem does it solve?

3. What types of programs do we have in NC? Identify examples of private company programs. Are there nonprofit or state-run programs as well?
4. How close are NCBPA's draft four programs to what we need? What changes are needed to these, or is something different better?
5. What industry credentials or certifications are needed for each program?
6. How much course work and field work, and in what areas, is needed?
7. How long should each program be?
8. What existing programs can we benchmark?
9. What data do we have? What problems or opportunities can we quantify?
10. How can we best leverage federal resources like Apprenticeship.gov, the Labor Dept's new online portal?
11. Can we work with organizations like [ABC Carolinas](#) to establish apprenticeship programs through their existing channels? What about CAGC or NCHBA?

Resources to Reference:

1. NCBPA's four draft apprenticeship program descriptions.
2. Resources from Apprenticeship NC.
3. Alaska Building Energy Retrofit Technician
4. Connecticut Energy Efficiency Technician
5. DOL Energy Auditor & Analyst Apprenticeship Program
6. National Association of Regional Councils Report
7. Liuna Training
8. PHCC Academy of North Carolina

Problem Statement:

Infrastructure in place for apprenticeships in general, but there's a disconnect between potential candidates and programs/employers, including communication, awareness of available opportunities, perception, parent buy-in, university/college influence on decision making process, etc.

Barriers to Success:

- Universities have a huge influence on high schools, counselors, students, parents, etc. in the decision making process.
- Existing programs, employers, etc. combining their efforts and resources.
- Building performance industry is not a mature industry and may not have enough demand yet to implement dedicated apprenticeship.

Strengths:

- Existing opportunities, infrastructure and programs are available – just not for building performance trades, specifically.
- Viable and potentially lucrative career path.
- For companies – molding employees from day one to fit your company and needs.
- The jobs are there!!!

Opportunities:

- Tying resources, opportunities together.
- Educating school counselors, students, parents, etc. to change the perception of both trades and building performance industry.
- Taking advantage of already existing apprenticeship paths and adding options that include building performance aspects.

Partners Needed:

- Employers basically develop and implement apprenticeship programs, so it starts with them; they need to realize the benefit and be willing to invest in developing a program.
- An entity that can tie together all the information and resources for apprenticeships to make it easier for candidates & parents to find opportunities and educate themselves – A one-stop-shop so to speak.

CAREER PATHWAYS

Overview Statement:

There is no national, regional or state resource available that effectively describes to a student, young professional or experienced professional what a career in the building performance trades looks like. To sell workers on joining or staying in our industry, we need to define the opportunities, pay ranges, benefits, minimum education and experience standards, and more that our industry offers. By developing a “Career Lattice” and other resources that illustrate to our target audience what a career in our trades looks like, and the benefits they offer, we can more effectively address our short and long-term workforce needs.

Discussions to Consider:

1. Define career opportunities and benefits available in our industry.
2. Develop a “Career Lattice” from student to CEO and everything in between.
3. Identify useful benchmarks in other industries – home building, HVAC, plumbing, solar, etc.
4. Identify actionable steps to developing the resources we need and then implementing them across high schools, colleges, universities, companies and supporting agencies and organizations.

Questions to Answer:

1. What problems do we see in the marketplace that could be improved through greater attention to this topic area? Lack of skilled labor, retiring or aging workforce, lack of “respect” for trades work, etc.
2. What career pathways are available to new professionals and students looking at our industry?
3. What career pathways are available to existing professionals? Example: a laborer leaving the field and going into the office.
4. What certifications and credentials are required vs. desired by role/level? Certified Energy Manager, LEED, ASHRAE, BPI, etc.?
5. What pay and benefits bands do we see in the marketplace?
6. Do high school, college and univ career fairs include our industry?

7. What are the soft skills that students, new professionals and experienced professionals must have to move up the Career Lattice?
8. What data do we have? What problems or opportunities can we quantify?
9. What role does state regulation and oversight (e.g. licensure) play in our industry's trades? Not much available for residential, what about commercial?
10. How do students and parents find out about internships and co-op programs in our industry? What resource is needed to help advertise them?
11. Can we incorporate our trades into the [ACE Mentor Program](#) for Raleigh/Durham and other municipalities?

Resources to Reference:

1. NCBPA's draft Career Lattice.
2. Resources from NCWorks.
3. Connecticut program resources.
4. ACE Mentor Program (Raleigh/Durham)
5. Solar Career Map and HVAC maps
 - a. <https://irecsolarcareermap.org/>
 - b. <https://www.hvaccareermap.org/>
 - c. <https://hvaccareermap.org/jobs/energy-analyst>

Comments from 2018 Summit

- Perceptions about our industry's careers:
 - The *concept* of sustainability is not a career. It needs to be communicated to people that sustainability can be woven into the industry but on its own is not a career path.
 - Some people and stakeholders affiliated with our industry see construction and development as bad for the environment, but that perception needs to be changed, particularly as it relates to the high performance and green construction that our industry represents.
 - Parents absolutely need to be involved in the conversation to be able to change a lot of negative perceptions.
- Titles for positions need to be updated and standardized— “Technician,” “Designer” instead of “HERS Rater”.
 - Job descriptions and titles need to focus on the term Building Performance to begin standardizing the industry and shifting perceptions about construction and development.
 - NCBPA has seen a shift in this over our five years in business. More member companies have positions for “Building Performance Technician” whether residential or commercial, and performance is being used more often than “green” or for a specific role like an insulation consultant or Home Energy Rater.
- Current industry professionals need to focus on sharpening and teaching soft skills.
 - For example, learning to identify how your target audience communicates (text vs. phone call) and being able to shift your communication style for maximum efficiency.
- There is a need to improve Curriculum consistency:

- Sustainability as profit center for businesses.
- Apprenticeship career path: companies combine sending trainees to one centralized training that teaches valuable core competencies related to our industry work.
- Community colleges can adapt to what is needed in the local area, but improvements to minimum requirements and standard resources provided by the state, college or university are needed.
- Student apprentices can serve as ambassadors for prospective students, speaking to their classes and sharing their experiences.
- Overall, communication and collaboration needs to be improved around all workforce development resources – career opportunities, apprenticeship programs, job titles, etc.
- Supporting residential professionals moving into careers/jobs in light commercial is a big opportunity. Equipment, building science and other matters are relatively similar. With the right training, it can open doors to young and experienced professionals.

INTERNSHIP AND CO-OP PROGRAMS

Overview Statement:

To support students and new professionals entering our industry, private companies, government agencies and nonprofits alike can offer internship and co-op programs. Programs of these types are very popular across many industries and oftentimes easy to manage. But, North Carolina's building performance trades have no industry standards, curricula or other resources available to inform students and professionals of these opportunities or support companies interested in offering them. Developing resources that ease and expand entry points into our industry will support new workers and help existing workers find the right employment opportunities for them.

Discussions to Consider:

1. Identify existing internship and co-op programs available.
2. Identify useful benchmarks in other industries – home building, HVAC, plumbing, solar, etc.
3. Determine what state or industry resources (like NCBPA) can do to promote these programs and support companies, colleges, etc. looking to participate.
4. Develop a framework for common programs that could be offered – what types of positions are offered, how long do they last and what are the expected results?

Questions to Answer:

1. What problems do we see in the marketplace that could be improved through greater attention to this topic area? Lack of skilled labor, retiring or aging workforce, lack of “respect” for trades work, etc.
2. Are there any state or local programs supporting our industry, or just private companies?
3. Do high school, college and univ career fairs include our industry?
4. Are there technical or vocational programs for high schools supporting our industry?
5. What data do we have? What problems or opportunities can we quantify?
6. How do students and parents find out about internships and co-op programs in our industry? What resource is needed to help advertise them?

Comments from 2018 Summit:

- A clearinghouse of available internship and co-op programs would be helpful to industry companies and students.
- Smaller industry companies are not familiar with participation rules, policies and procedures regarding internships and co-ops.
- Larger companies have formal programs for internships and co-ops that can be benchmarked by industry stakeholders and small to mid-sized companies as needed.
- Internships and co-ops are lead-ins to Apprenticeship programs.
- Industry needs to collect data on the high schools, vocational schools, technical colleges, community colleges and universities that offer internship and co-op programs related to our industry.
- Central Piedmont Community College (CPCC) in Charlotte has a co-op program that industry companies participate in directly. Ryan Miller of NCBPA has spoken with their faculty previously about an industry role in the program. As it is already established, that role would simply be to advertise and refer companies to participate in CPCC's existing program.

STATE AND LOCAL RESOURCES

Overview Statement:

As North Carolina's economy continues to strengthen, state and local governments are increasing their investment and support of workforce development. Traditional construction trades like carpentry, electrical and HVAC are well-represented, while newer trades in clean energy like solar and wind are becoming increasingly popular. With more than 50,000 jobs and a 3% contribution to the state's GDP, how can building performance trades be incorporated into the mix?

Discussions to Consider:

1. Identify state and local workforce resources that are working and that are needed.
2. Define incentives and benefits to state and local governments for supporting our workforce.
3. Identify useful benchmarks in other industries – home building, HVAC, plumbing, solar, etc.
4. Develop our industry's asks – reasonable ones – of state and local governments to support our workforce efforts.

Questions to Answer:

1. What problems do we see in the marketplace that could be improved through greater attention to this topic area? Lack of skilled labor, retiring or aging workforce, lack of "respect" for trades work, etc.
2. What are, and can, state and local governments do to help? What resources are available and what resources are needed?
3. How can NC Commerce help us? Worker or company survey?
4. Do state and local government staff have access to, and training for, programs like EPA's ENERGY STAR Portfolio Manager?

5. How do state and local governments train their own workers on building energy efficiency and performance – both at work AND in their own homes?
6. What benchmarks do we have for state legislation?
7. What benchmarks do we have for local programs?

Resources to Reference:

1. Local, state, regional and national employment surveys and studies
2. Illinois Future Energy Jobs Act – see [job training legislation on pg 43](#).
3. Triangle-area workforce survey
4. Statewide energy employment surveys

Comments from 2018 Summit

- The cultural, social, competency and “expectation” gap between prospective employees and employers is large and diverse.
 - Many prospective employees do not possess the “soft skills” expected by employers that include: business and sales language, behavioral management, and an understanding of the social norms unique to the business or sector.
 - Many employers have not adjusted employment standards to today’s cultural/social standards and encounter difficulties with employees passing drug tests, written tests and needing flexible work hours and remote working opportunities.
 - Many employers do not understand what “success” may mean for a prospective employee.
 - Employment pathways and results are not clear to prospective employees.
 - Employers don’t realize that “trade” or “craft” may have a stigma associated with low wages and hard work and by not “packing” their employment opportunities or the general nature of their business/industry, they are overlooked by prospective employees.
- Prospective employers often don’t know whether they are seeking “workers” or a “workforce”.
 - Employers seeking workers have many established state or local programs which source and train workers, but may be unaware of most or all.
 - Workforce development is a broad and diversely supported area which no one entity in a state or metro area “owns”, making identification and coordination of resources difficult for prospective employees and employers.
 - Because of the diversity of worker development and trainings programs and the organizations offering these on a state or local level, development of a comprehensive, ongoing program to serve a particular industry is very difficult.
 - Employers, groups of employers or industry sectors wishing to develop a workforce have few programs or financial resources available to them.
- Federal and statewide programs don’t solve or wholly-address local problems.
 - Program funding requirements often do not relate to a specific need of a locale, but must be addressed to comply with the legal requirement of accepting the funds.
- The commercial building industry is having difficulty finding and retaining workers. Data shows an increase in employers having difficult increasing to 3:1 from 10:1.
- NCWorks offers “Finish Line” Grants:
 - This is a local board that works with community colleges and provides up to \$1,000 worth of funding for completion for trade education.

- Focused on recruiting and trade pipeline development.
- This is a function of the community college system.
- In some industries, only 1/10 prospective employees will pass a drug test.
 - Companies should be straight forward about it if they are going to test.
 - Need to eliminate blanket decisions on hiring.
- Business EDGE is a program that provides grants to assist companies having financial issues.
- NCWorks offers career centers that provide job fairs, interview space, soft skills training, match 50% for training, tax credits for hiring felons and more.

DIVERSITY, EQUITY AND INCLUSION

Overview Statement:

Industry companies are increasingly diversifying their workforces through voluntary initiatives and, in some cases, due to a lack of skilled labor that offers them little choice in not doing so. What tangible and intangible benefits are offered by employing workers from different cultural, geographic, gender and socioeconomic backgrounds? What resources are available to help building performance firms understand and act on these issues? What job training programs can support company and community needs? This working group seeks to bring clarity and direction to these and other issues related to diversity and inclusion.

Discussions to Consider:

1. Define the benefits of a diverse and inclusive workforce for our industry.
2. Identify useful benchmarks in other industries – home building, HVAC, plumbing, solar, etc.
3. Identify ways that all, most or some companies can participate in improving their workforce’s diversity and inclusion.
4. Establish actionable steps for Summit participants and partners to work on.

Questions to Answer:

1. What problems do we see in the marketplace that could be improved through greater attention to this topic area? Lack of skilled labor, retiring or aging workforce, lack of “respect” for trades work, etc.
2. What industry-specific issues is our industry facing?
3. What non-industry-specific issues is our industry facing?
4. What are the demographics of people that we feel are underserved in our workforce? Women, minorities, etc.?
5. What data do we have? What problems or opportunities can we quantify?

Resources to Reference:

1. NCCETC’s Clean Energy Opportunity Diversity (CEOD) project in eastern NC.
2. NCSEA’s Women in Clean Energy activities.
3. TBD

2018 Summit Comments:

- Recognizing the difference between diversity, equity and inclusion is an important first step in understanding the inherent issues and needs.
 - Diversity is more about the numbers (a noun).
 - Inclusion is the act of including others (the verb).
 - Equity is promoting fairness recognizing that people are starting at different places.
- **KEY FINDING:** Very important observation that the first session had 6 women and no men participating. This is part of the problem. We need more diverse voices and decision-makers at the table.
 - Why are diverse voices overlooked?
- Often with ED&I there's a constant refrain that we don't want to talk about the problems anymore. Let's fix it, let's solve the problem.
 - Problem with this is if you don't understand the true problem how can you understand and develop a solution?
- Course correcting and information sharing are key for organizations/companies who want to do ED&I.
- Must also make deposits into a community, as opposed to just withdrawing help/money/support.
- How are we thinking about workforce development?
 - Are people seeing a workforce that looks like them? Less diversity as you move up the ladder and in business ownership.
 - More diversity in the installer/entry level jobs.
 - Diversity should be shown throughout the different management levels and in ownership models.
 - Part of the problem is cultural competency and making sure people in positions of power understand socio-economic and gender dynamics.
- One of the biggest barriers is that if there's an agreement that we need to have a diverse workforce then there is an inherent understanding that the industry needs to change and change is scary.
 - Organizational structures need to change.
 - Personal and cultural systems need to change.
- What do we need?
 - Networking.
 - Diversity training.
 - Racial equity training.
 - Support system to retain diverse employees (mentoring programs, opportunities to network in/outside the company).
 - Apprenticeships: more than just bringing someone on, but does the company feel like it's a value for their company?
 - It's a good business decision for folks and they need to understand that diversity is a good decision.
 - Continuing support and training once an apprentice or intern or staff has made an entry into an industry.
 - Diverse class backgrounds and implications for folks from lower income backgrounds.
 - Structural and geographical barriers: Is there a lack of interest, lack of opportunity, lack of financing, lack of jobs, etc.: how do we tell that story?
 - Example: bringing in outside workforce to work on a project in a particular community.

- Peer to peer connection is important for trust and accountability.
- Information about hiring those with criminal records and how you can become one of those companies.
 - Check a box on tax forms: look into this?
- Brand and market the industry as a leader in this exciting, emerging, issue area.
- The ready workers and ready employers are speaking different “languages” even though they’re talking about the same things.
- Many employers haven’t adjusted their employment standards to reflect some of the ways that our social norms have evolved.
- Stigma and perception play a major role in whether individuals are interested in a particular role.
- Difference between looking for a workforce vs. workers.
- Communication is key, particularly amongst business and employee job seekers.
 - Important to consider that if you’re only looking at candidates for jobs through your current employees then that’s very likely not going to increase the diversity of your company.
 - Go to some more untraditional places to look for candidates: Community centers, churches, barber shops, grocery stores, etc.
- Need to pay people more.
 - NC has the second highest level of working poor.
 - i.e. individuals working more than one job but still very poor.
- Cultural competency is not just about the potential employees ability to meet a certain cultural environment, but about the employers ability to work with people from different cultures.
- Create a space for employees to go where they can learn about opportunities for advancement within the industry.
- Create some sort of ED&I certification or recognition for the industry to encourage or incentivize participation in ED&I programs?

Problem Statement:

To effectively address equity, diversity and inclusiveness in the industry and sufficiently address workforce demand, there are a broad range of considerations including:

- Defining, understanding and educating industry professionals and stakeholders on the difference between diversity, equity and inclusion.
- How do you create ownership?
 - For example, we noticed there were no men who came to the first two ED&I sessions.
 - Also, when ED&I is taken on in a company it’s often that one of two people of color who are tasked with tackling it—that’s a huge burden and it’s not fair.
- Understanding the problem before creating solutions.
 - Tendency in this space to just want to fix it; important to think about the problems so that the solutions developed are appropriate and helpful.
- Address diversity among leadership and decision makers.
 - Focusing on diversity among entry level or mid-level staff is important but there also needs to be diversity in the board room and at the C-suite.
- Truly changing the structural barriers to diversity and inclusiveness requires change of both organizational structure and sometimes personal and cultural structures.
 - This is scary and requires some self-reflection and critical thinking.

How are we measuring diversity? Measuring numbers alone can be misleading. If the growth in staff is not where the decisions are being made, then are you making progress?

Barriers to Success:

- Some people think that it is an HR issue though it is an organizational commitment.
- Lack of communication and unwillingness to be “uncomfortable”.
- Lack of training.

Strengths:

- Strong Leadership and accountability.

Opportunities:

- Try to recruit from different sources to increase your chance of incorporating diverse candidates.
- Attend job fairs or conferences that are well attended by diverse candidates.
- Broaden your organization’s networking base by attending/sponsoring community events.
- Send job/internships descriptions to historically black colleges and universities (HBCUs) or minority serving institutions (MSIs) of interest, if they are not already part of your outreach.
- Go to high schools (with special focus on solar or environment) or community colleges and discuss employment opportunities, making efforts to be inclusive and reaching out to veterans, women and people of color.
- Women-only construction and education courses can be offered. CCCC does this (Jeff Gannon) and other faculty members expressed interest. Consider expanding from women as focal point to same courses for Latin American/Hispanic and other demographic target participants. Consider costs of these programs – to develop, host and attend.

Partners Needed:

- Organization’s HR, Leadership Team and Board
- [Society for Human Resources Management \(SHRM\) – Diversity](#)
- [American Association for Blacks in Energy](#)
- [Hispanics in Energy](#)

Key Data Points:

- [Spencer Stuart: Why is Diversity Critical for the Energy Industry?](#)
- [US Energy and Employment Report \(2017\)](#)
- [National Solar Jobs Census \(2017\)](#)
- [Solar Energy Industries Association \(SEIA\) Diversity Best Practices Guide for the Solar Industry \(2016\)](#)
- [5 Numbers that Explain Why STEM Matters to All of Us](#)