



CLEAN JOBS ILLINOIS

Clean Jobs Workforce Network Program

2027 - 2029

Clean Jobs Curriculum Framework

Revised Aug. 19, 2026



Illinois
Department of Commerce
& Economic Opportunity

CONTENTS

1. Introduction	4
2. CEJA Core Competencies	16
3. Career Clusters and Career Pathways	26
4. Manufacturing Career Cluster	28
5. Manufacturing Career Cluster – Illustrative Career Pathways	32
6. Construction Career Cluster.....	38
7. Construction Career Cluster – Illustrative Career Pathways.....	42
8. Utilities Career Cluster	69
9. Utilities Career Cluster – Illustrative Career Pathways	73
10. Installation, Maintenance, & Repair Career Cluster	83
11. Installation, Maintenance, & Repair Career Cluster – Illustrative Career Pathways	87
12. Professional Services Career Cluster.....	95
13. Professional Services Career Cluster – Illustrative Career Pathways.....	99
14. Glossary.....	105
15. Appendix A: Implementation Guidance.....	111
16. Appendix B: Supplemental Leadership and Project Management Competencies	119

Contributors

2027 Clean Jobs Curriculum Framework

Developed and authored by:

- Devin Day, Gia Suggs, Todd Rusk, University of Illinois EnergySense Resilience Center

In collaboration with:

- Diana Fuller, John Barr, Lisa Jones, Nate Keener, Larry Dawson, Michelle Cerutti, Illinois Department of Commerce and Economic Opportunity
- Natasha Allan, Whitney Thompson, Dana Wynn, Illinois Community College Board
- Linda Larsen, University of Illinois Climate Jobs Institute
- Ken Kriz, Molly Jo Lamb, Claudia Falcon Adanaque, University of Illinois Springfield Center for State Policy and Leadership

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- Brian Richard, Northern Illinois University Center for Governmental Studies

The 2026 Clean Jobs Curriculum Framework represents a comprehensive redevelopment of the 2023 Framework. The project team conducted a substantial review and restructuring of the Framework's content and architecture; developed new and revised CEJA Core Competencies, Career Clusters, and Illustrative Career Pathways; expanded curriculum content to reflect emerging occupations and technologies; incorporated labor market and stakeholder evidence; and developed revised implementation guidance for Workforce Hubs and training providers.

We thank the many clean energy employers, industry leaders, community-based organizations, and workforce and training providers who provided input on the Curriculum Framework and who reviewed drafts and provided feedback. Your input was invaluable.

2023 Clean Jobs Curriculum Framework

Developed and authored by:

- Fitsum Abebe, Paul Francisco, Zachary Merrin, Sydney Curtis, Lori Ann Shupe, University of Illinois, Illinois Climate Research and Training Center
- Linda Larsen, Todd Rusk, Stacy Gloss, Devin Day, Sumi Han, James Kim, Aakanksha Kulkarni, Pranjali Shah, Bo Pang, and Jarin Subah, University of Illinois Smart Energy Design Assistance Center
- Reggie Greenwood, Governors State University
- Gary Kinsel, Southern Illinois University
- Jubilee Dickson, Chicago State University
- Jennifer Foster and Whitney Thompson, Illinois Community College Board
- Lisa Jones and John Barr, Illinois Department of Commerce and Economic Opportunity
- Brian Richard and Deidra Minor, Northern Illinois University Center for Governmental Studies

1. INTRODUCTION

Background

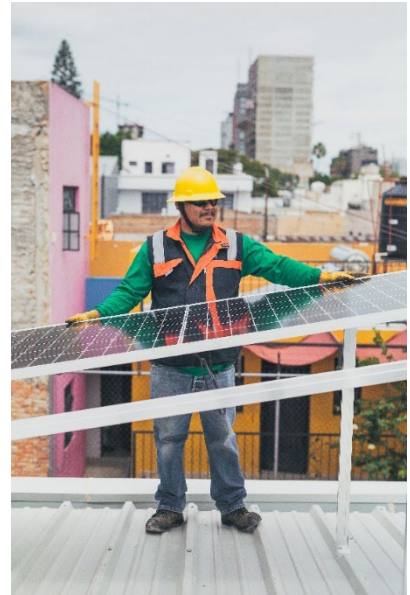
The Illinois Climate and Equitable Jobs Act (CEJA), enacted as Public Act 102-0662 and codified at 20 ILCS 730, established several new workforce programs, administered by the Illinois Department of Commerce and Economic Opportunity (DCEO), to expand the clean energy workforce in Illinois and accelerate the adoption of clean energy sources, electric vehicles, and energy efficiency efforts. The largest of these programs is the Clean Jobs Workforce Network Program. This program consists of Workforce Hubs across 14 regions, run by community-based organizations to provide clean jobs training and a career pipeline for Equity Eligible Persons (EEP), displaced energy workers, and other Illinois residents with barriers to employment.

The main objective of the Clean Jobs Workforce Network Program is to increase access to and opportunities for education, training, and support services to help program eligible individuals succeed in the labor market generally and the clean energy sector specifically.

Equity is foundational to the CEJA legislation as a whole and to the Clean Jobs Curriculum Framework in particular. Those who deliver the curriculum should uphold the core values of Equity, Diversity, Inclusion, and Accessibility (collectively referred to as “EDIA”). This must include equitable access for participants and CEJA ecosystem partners, regional responsiveness to meet the needs of diverse communities across the state, and employer-informed design to ensure hiring opportunities and career success for program graduates.

CEJA requires that the Clean Jobs Workforce Network Program hubs (“Workforce Hubs”) utilize a standard Clean Jobs Curriculum Framework (“Curriculum Framework”), developed through a stakeholder process to identify the career pathways and training curriculum needed for participants to be skilled, work-ready, and able to enter clean energy jobs. The Workforce Hubs will implement the Curriculum Framework to provide training; certification preparation; job readiness; skill development (including soft skills, math skills, and technical skills); certification test preparation; and other development needed for program participants.

Workforce Hubs must satisfy the statutory requirements established under CEJA. This Curriculum Framework provides guidance for implementing those requirements. The Framework:



Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- Identifies the core training curricular competency areas needed to prepare people to enter clean energy and related sector jobs.
- Identifies a set of required core cross-training competencies to provide a foundation for pursuing a career composed of multiple clean energy job types.
- Integrates broad occupational training to provide entry-level preparation across construction, manufacturing, utilities, installation and maintenance, professional services, and related clean energy occupations, including remedial education and work readiness support where necessary.
- Identifies work-based learning formats, where relevant, and identifies suggested trainer certification standards, where relevant.
- Recommends best practices to ensure equity and cultivate safe, dynamic, enjoyable, successful working environments for all.

According to CEJA (codified at 20 ILCS 730/5-25(a)), “clean energy jobs” includes jobs in the solar energy, wind energy, energy efficiency, energy storage, solar thermal, green hydrogen, geothermal, electric vehicle industries, other renewable energy industries, industries achieving emission reductions, and other related sectors including related industries that manufacture, develop, build, maintain, or provide ancillary services to renewable energy resources or energy efficiency products or services, including the manufacture and installation of healthier building materials that contain fewer hazardous chemicals. Clean energy jobs also include administrative, sales, and other support functions within these industries and other related sector industries.

Curriculum Framework Revision

Legislative requirement

The Illinois Climate and Equitable Jobs Act (20 ILCS 730/5-25(c)) requires updates to the Curriculum Framework every three years to ensure its efficacy for training participants in clean energy. This revised Curriculum Framework reflects extensive engagement with employers, labor organizations, education and training providers, community-based organizations, state agencies, industry associations, and other stakeholders to ensure it reflects current workforce needs and emerging clean energy industries.

Stakeholder outreach and engagement

DCEO’s implementation team conducted a stakeholder engagement process from March through June 2026 to inform the development of the revised Curriculum Framework. The team conducted outreach to 135 clean energy stakeholders representing employers, CEJA grantees and other training providers, state agencies, community-based organizations, and workforce organizations across Northern, Central, and Southern Illinois. The team conducted 18 focus groups, nine individual interviews, and two additional stakeholder conversations, engaging 121 stakeholders representing a broad range of clean energy industries and workforce perspectives. In addition, the team administered a Request for Information (RFI) from May 5 through June 7, receiving 30 unique, substantive responses. Stakeholders discussed workforce needs, curriculum priorities, implementation considerations, employer

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

expectations, and regional labor market demand to guide redevelopment of the Curriculum Framework. Stakeholder engagement findings were synthesized alongside labor market analysis and statutory requirements to inform revisions throughout the Curriculum Framework.

Key findings include the following:

- **Core workforce competencies.** Stakeholders consistently indicated that the current Bridge Program does not sufficiently prepare participants for employers' expectations. Employers emphasized dependability, punctuality, communication, adaptability, curiosity, willingness to learn, and other essential employability skills, while stakeholders also recommended strengthening career navigation, leadership and project management, and safety culture throughout the foundational curriculum.
- **Employer-informed curriculum.** Respondents expressed a need for stronger alignment between curriculum and workplace expectations, including increased employer engagement throughout curriculum development and implementation. Employers also stressed the importance of providing participants with authentic workplace experiences that better translate classroom learning into employment readiness.
- **Career advancement and progression.** Stakeholders identified opportunities to expand the Curriculum Framework beyond entry-level preparation by incorporating stackable credentials, career advancement opportunities, and pathways supporting long-term career growth.
- **Regional implementation.** Stakeholders noted that labor market demand varies across Illinois and recommended that Workforce Hubs retain flexibility to respond to regional employer demand while maintaining a common statewide competency framework. Analysis of stakeholder feedback also identified certain curriculum needs—such as safety culture and other essential technical skills—that were consistently reported across regions, while other workforce needs varied geographically.
- **Emerging industries and occupations.** Respondents favored expanding the Curriculum Framework to include emerging technologies and occupations—including clean energy manufacturing, professional services, building electrification, heat pumps, battery storage, entrepreneurship, and other evolving areas of Illinois' clean energy economy.

Clean energy jobs inventory

The [2026 Clean Jobs Inventory Report](#), produced by the Climate Jobs Institute at the University of Illinois, informed the revision of the Curriculum Framework by providing statewide labor market analysis of Illinois' clean energy workforce. The Inventory evaluates employment trends, occupational demand, workforce characteristics, regional labor market variation, and emerging clean energy industries to support workforce planning and curriculum development. Findings from the Inventory informed revisions to the CEJA Core Competencies, Career Clusters, Illustrative Career Pathways, and Implementation Guidance throughout this Framework. This Inventory, to be published every two years, will continue to serve as a resource for Workforce Hubs as they evaluate regional labor market demand and employer partnerships. Workforce Hubs are also encouraged to use the Climate Jobs

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

Institute's [Illinois Clean Energy Jobs Regional Data Packets](#) to view regional clean energy employment data. These data packets are updated annually. See [Appendix A: Implementation Guidance](#) for more information.

Compilation and revision of Curriculum Framework

Following analysis of the stakeholder engagement findings and the Illinois Clean Jobs Inventory Report, the project team conducted a comprehensive review of the original Curriculum Framework. Existing curriculum content was evaluated alongside employer needs, stakeholder recommendations, labor market evidence, and lessons learned through CEJA program implementation to identify opportunities to update and expand the Curriculum Framework. The revision followed an iterative process led by DCEO in collaboration with the University of Illinois.

The project team retained foundational elements of the original Curriculum Framework while updating competencies, expanding curriculum content to reflect emerging occupations and technologies, and reorganizing the Framework to better support implementation across Illinois' diverse regional labor markets. The revised Curriculum Framework is organized around 1) CEJA Core Competencies, 2) Career Clusters, 3) Illustrative Career Pathways, and 4) Implementation Guidance, including general standards and minimum requirements for inclusion of other clean energy training programs and work-based learning (WBL) to be offered through the Clean Jobs Network Program. This structure provides a consistent statewide foundation while allowing Workforce Hubs and training providers flexibility to adapt curriculum to regional labor market conditions, employer demand, and emerging clean energy industries and occupations.

The Curriculum Framework is designed to support CEJA workforce training programs that prepare participants for entry into clean energy careers. As established by DCEO, the duration of training should not exceed 12 months. This expectation applies to the overall training program, including the CEJA Core Competencies and any Career Cluster and Illustrative Career Pathway training delivered by the Workforce Hub. The competencies and Illustrative Career Pathways emphasize entry-level preparation that supports successful employment, career advancement, and continued learning beyond the initial training experience.

The team shared a draft of the revised Curriculum Framework with clean energy employers, representative community-based organizations, industry leaders, and training providers. Feedback informed final revisions to the Framework, reflecting an integrated approach that combines statutory requirements, stakeholder input, labor market evidence, and implementation experience to support statewide consistency while allowing regional flexibility.

Overview of the Revised Curriculum Framework

Compared to the previous version, the revised Curriculum Framework organizes clean energy occupations into broader Career Clusters that emphasize transferable competencies, employer alignment, and regional workforce responsiveness, rather than individual occupations alone. These

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

clusters represent sectors where there is a high concentration of clean energy jobs in Illinois, such as construction and professional services. Focusing on career clusters, rather than a single narrow occupation, will help participants develop cross-cutting skills that are needed for a variety of jobs within a cluster. This may provide more options for participants, potentially insulating them from market disruptions in more volatile clean energy sectors.

The Career Clusters approach utilized in this Framework is consistent with the [National Career Clusters Framework](#) to prepare participants for entry into quality clean energy careers while supporting career mobility and regional workforce needs. It is organized around a sequence of training as follows:

- **CEJA Core Competencies.** Establishes a common foundation for all participants through employability skills, workplace safety, clean energy fundamentals, math and digital literacy, certification preparation, work readiness, and other essential competencies. This section replaces the Bridge Program from the previous version of the Curriculum Framework.
- **Career Clusters.** Organizes shared technical competencies around five broad industry clusters to prepare participants for multiple related occupations in clean energy, including:
 - Manufacturing
 - Construction
 - Utilities
 - Installation, Maintenance, & Repair
 - Professional Services
- **Illustrative Career Pathways.** Examples of specific career credentials, instructional considerations, equipment recommendations, and work-based learning opportunities that Workforce Hubs may adapt to the needs of specific employer partners or specifically identified regional labor market needs. These pathways are illustrative examples, not prescriptive. The Curriculum Framework does not attempt to define all allowable clean energy career pathways.
- **Implementation Guidance.** Provides recommendations for regional implementation, employer engagement, participant support, and continuous improvement while complementing minimum program requirements.

This structure provides a consistent statewide foundation while allowing Workforce Hubs and training providers flexibility to adapt curriculum to regional market conditions, employer demand, and emerging clean energy occupations.

This revision more fully incorporates Manufacturing and Professional Services Career Pathways while strengthening coverage of electrification, heat pumps, geothermal technologies, grid modernization, and other emerging clean energy industries. Some clean energy jobs training emphases have been removed, such as **Wind Installation**, **Wind Technician**, and **Electric Vehicle Maintenance and Repair Technician**, because they require advanced training beyond the scope of entry-level training at Workforce Hubs.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

The revised Framework also supports workforce development needs associated with Illinois' implementation of the Climate Pollution Reduction Grant (CPRG), including workforce needs related to building decarbonization, clean transportation and freight, clean energy manufacturing, and other climate and clean energy investments.

Figure 1 describes the main elements of the Curriculum Framework and how it should be delivered. It provides a high-level overview of how the Curriculum Framework works and how people flow through the program, from enrollment to job placement. The different components of the Curriculum Framework will be described in more detail below.

Extent of Training: The Workforce Hubs are intended to provide short-term training designed to help qualified individuals gain entry-level employment and career opportunities in clean energy industries. The Curriculum Framework does not focus on training programs for clean energy jobs that require more than 12 months of training. Workforce Hubs grantees may discuss advanced training options with their Regional Administrator or Grant Manager, on a case-by-case basis, for especially promising qualified individuals, depending on program funding availability.

While training offered by Workforce Hubs should not exceed 12 months, many clean energy jobs may require more advanced training. Primary outcomes may include placement into entry-level clean energy employment or advanced training programs related to clean energy.

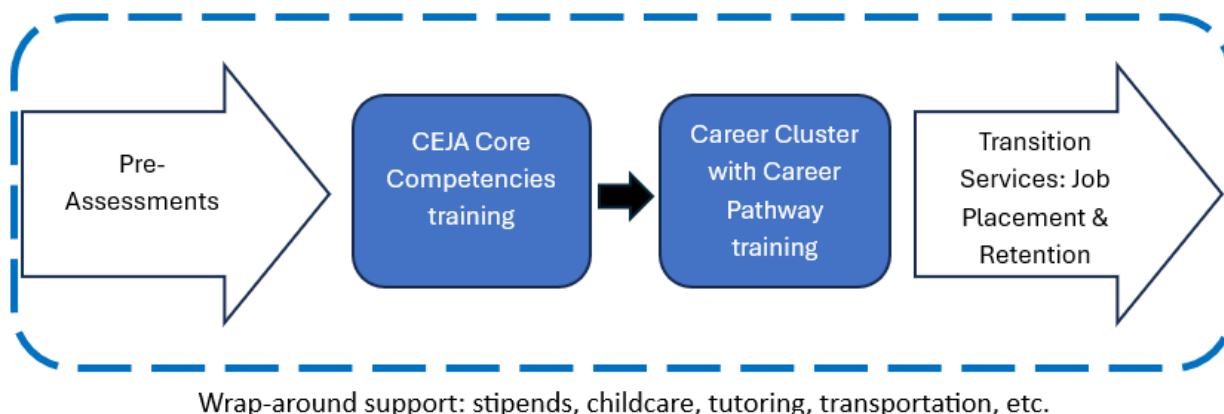


Figure 1: Overview of Clean Jobs Curriculum Framework

The Curriculum Framework provides guidelines, standards, and minimum requirements for curricula offered by education and training providers through the Workforce Hubs. The framework outlines the overall program objectives, content, and certifications and recommends how the curriculum should be taught, but *it is not intended to be a detailed curriculum or lesson plan*. Table 1 below describes what the Curriculum Framework does and does not do.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

Table 1: Curriculum Framework: What it does and does not do

The Curriculum Framework <i>does</i> . . .	The Curriculum Framework <i>does not</i> . . .
☒ Allow short-term training for entry-level clean energy jobs.	☒ Address advanced training for jobs that require more than 12 months of training. Workforce Hubs grantees may discuss possible options on a case-by-case basis with their Regional Administrator or Grant Manager for exceptional training participants.
☒ Describe clean energy job training for qualified individuals with reading and math levels of 6 th grade (or 8 th grade for solar or energy auditor training) or higher.	☒ Allow participants to begin clean energy jobs training until they have attained 6 th grade reading and math levels.
☒ Provide a common set of competencies , learning objectives, and implementation guidance. Examples and resources are provided, but Workforce Hubs and training providers retain flexibility to select instructional materials and develop curricula that meet local needs.	☒ Provide detailed lesson plans or prescribe specific instructional materials or teaching methods.
☒ Allow training providers to incorporate additional content , credentials, certifications, and industry-recognized training beyond the minimum Framework requirements.	☒ Limit additional curriculum content, certifications, or instructional resources beyond the Framework's minimum requirements.
☒ Provide recommendations for instructional delivery , learning environments, equipment, program duration, and participant assessment.	☒ Require a single approach to curriculum delivery or program implementation.
☒ Provide recommendations for instructor qualifications , knowledge, skills, and experience.	☒ Prescribe who may serve as instructors or how instructional staff must be selected.
☒ Allow Workforce Hubs to select and implement Career Clusters and Pathways that best align with regional labor market needs, employer demand, and participant interests.	☒ Require Workforce Hubs to implement every Career Cluster or Illustrative Career Pathway, or offer training in every clean energy occupation.
☒ Provide a flexible framework for preparing participants for priority clean energy occupations while allowing Workforce Hubs to incorporate additional or emerging Career Pathways that reflect regional workforce needs.	☒ Provide curriculum guidance for every clean energy occupation or emerging technology in Illinois.
☒ Support flexible training delivery by allowing training providers to tailor participant pathways based on prior knowledge, experience, assessments, regional training opportunities where appropriate, and work-based learning.	☒ Require all participants to complete the same training sequence or follow the same Career Pathway.

CEJA Core Competencies and Career Clusters

The **CEJA Core Competencies** establish a common foundation of essential employability skills, industry-recognized safety certifications, and standardized clean energy fundamentals. These competencies prepare participants for success across the clean energy workforce and provide the prerequisite knowledge and skills needed to enter specialized technical training.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

Following completion of the CEJA Core Competencies, participants transition into one of five **Career Clusters** that reflect Illinois' priority clean energy industries. Each Career Cluster builds upon the CEJA Core Competencies by developing the shared technical competencies and applied skills needed across multiple occupations within the cluster. Organizing training around Career Clusters enables Workforce Hubs to deliver cohesive technical training that aligns with regional employer demand while developing shared competencies applicable across multiple occupations before participants specialize through Career Pathways and associated credentials.

Within each Career Cluster, the Curriculum Framework includes one or more **Illustrative Career Pathways** that demonstrate how shared competencies within a Career Cluster are translated into the knowledge, skills, and credentials needed for more specific occupations within that cluster. A Workforce Hub proposing the Construction Career Cluster, for instance, should identify one or more Career Pathways within that cluster for focused career training and certification preparation. Within the Construction Career Cluster, a Workforce Hub could provide specialized career training for solar installation or energy auditor training, among others. They would need to demonstrate the need for this specific career training using regional labor data and employer input.

These pathways are intended as implementation examples rather than prescribed curricula. Workforce Hubs may adapt existing programs, develop new training pathways, or propose additional pathways that respond to regional labor market demand, employer partnerships, and emerging clean energy technologies, provided they meet the minimum requirements established by this Framework.

Workforce Hubs must offer at least two different Career Pathways, either within one cluster or across multiple clusters, and based on regional labor market demand, employer partnerships, participant interests, and available training capacity. They must also provide work-based learning. This is a required employer-driven program element that provides participants with opportunities to demonstrate their knowledge and practice the skills they gained during their program instruction. Workforce Hubs will support participants throughout their Career Cluster training and facilitate their transition into employment or advanced training.

Together, the CEJA Core Competencies, Career Clusters, Illustrative Career Pathways, and Implementation Guidance establish a consistent statewide framework while preserving the flexibility necessary for Workforce Hubs to design programs that respond to local workforce needs, employer demand, and participant goals.

The Curriculum Framework establishes competency requirements, minimum standards, and implementation guidance for each Career Cluster and its associated Illustrative Career Pathways within each cluster. While Workforce Hubs and training providers retain flexibility in curriculum design and instructional delivery, all programs must align with the competencies and minimum requirements established in this Framework. Career Clusters and Illustrative Career Pathways should be selected based on regional market demand, employer partnerships, participant needs, and identified workforce gaps.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

Workforce Hubs may propose additional Career Pathways or training approaches that are not explicitly included in this Framework when they address documented regional clean energy workforce needs.

Proposals must demonstrate:

- Regional labor market demand
- Employer partnerships and hiring commitments
- Existing education and training capacity
- Competencies and learning objectives
- Credentials and industry-recognized certifications
- Instructional sequence and duration
- Work-based learning opportunities

For more information about proposing additional training and meeting regional labor market demand, please refer to the [Appendix A: Implementation Guidance](#) section.

Existing clean energy training programs and on-the-job training

Workforce Hubs may leverage existing education and training programs that align with the competency requirements established in this Framework. To do so, Workforce Hubs must document:

- The curriculum topics, objectives, and certification exams covered in the existing training program.
- Any training program accreditations and the experience and credentials of the instructor(s).
- Program outcomes from at least one calendar year (percentage of participants who complete the program, percentage of participants who pass a certification exam, percentage of participants who are placed in jobs, demographics of participants, etc.).
- Relationships with clean energy employers to facilitate job placement after training program completion, as demonstrated through memoranda of understanding (MOU).

Workforce Hubs are also encouraged to connect participants to on-the-job training (OJT), Registered Apprenticeships (RAs), Practicums, and other work-based learning opportunities. Participants may transition into these opportunities based on the results of the CEJA pre-assessments, completion of the CEJA Core Competencies, or during or after Career Cluster training, depending on participant readiness, employer needs, and available opportunities.

On-the-job training is a “hire-first” training model in which the employer agrees to hire, train, and retain the individual upon successful completion of the training program. OJT provides reimbursement to employers from CEJA funds to subsidize participant wages. Hubs that wish to connect people to on-the-job training opportunities with employers must document:

- The skills that will be taught during the on-the-job training.
- Connections to employers to provide on-the-job training or apprenticeships, as demonstrated through MOUs.

Wrap-around supports and transition services

Workforce Hubs will provide Energy Transition Barrier Reduction funds and services to program participants throughout their participation in program activities and beyond to help reduce barriers to successful program completion and employment. Workforce Hubs will also provide participant stipends, certification testing support, and transition services.

Program funds may be used to cover tuition, books, fees, and stipends for Equity Eligible Persons who are participating in the Workforce Hubs. Barrier Reduction funds may be used to provide wrap-around supports that help participants successfully engage in and complete Workforce Hub activities.

Workforce Hubs should coordinate with training providers, employers, and other partners to support successful participant transitions into employment, apprenticeships, on-the-job training, advanced training, or other career opportunities.

Transition services and wrap-around supports are not described in detail in this Curriculum Framework but are required components of Workforce Hub implementation. Additional requirements will be provided through the applicable Clean Jobs Workforce Network program Notice of Funding Opportunity (NOFO).

Pre-assessments

Prior to beginning the CEJA Core Competencies training, participants complete the following pre-assessments.

There are four aspects of pre-assessment, as shown in Figure 2 below.

- **Needs assessment:** The purpose of this assessment is to identify the wrap-around supports needed for participants to attend training and successfully complete it. Enrolling participants should be connected to the Energy Transition Barrier Reduction Program to ensure that needs are met throughout the training program. Grantees will be required to utilize a standard needs assessment questionnaire.
- **Career assessment:** The purpose of this assessment is to explore participants' interests in clean energy jobs. If the potential participants decide not to pursue the training, the Workforce Hubs, in coordination with the Energy Transition Navigators, should help to direct them to other programs or resources that more closely match their interests or skills. Grantees will be required to utilize a standard career assessment questionnaire.
- **Reading and mathematics assessment:** Participants must complete a reading and mathematics assessment using an approved assessment instrument (e.g., TABE 13 & 14 or CASAS GOALS) to determine readiness for CEJA training. Reading and mathematics assessments should be administered consistent with current guidance issued by the Illinois Community College Board (ICCB), including approved assessment instruments, administration procedures, and assessor qualifications.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- Participants should demonstrate a minimum sixth-grade reading and mathematics level before beginning CEJA Core Competencies training.
- Participants pursuing the **Solar Energy** or **Energy Auditor** Illustrative Career Pathways should demonstrate a minimum eighth-grade reading and mathematics level before beginning those pathways.
- Completion of the CEJA Core Competencies and the **Construction or Installation, Maintenance, & Repair** Career Clusters will otherwise prepare participants for training in those and other Illustrative Career Pathways.
- **CEJA Core Competencies proficiency assessment:** Participants will complete a Core Competencies proficiency assessment to measure their proficiency in the essential employability and clean energy basics skills addressed in the CEJA Core Competencies program. The proficiency assessment should provide a baseline of participant knowledge and skills, identify areas where extra support is needed, and allow participants to test out of some or all elements of the Core Competencies program if they have already demonstrated proficiency. The CEJA Core Competencies proficiency assessment should be administered by the entity providing the CEJA Core Competencies training. See these [sample assessments](#).

For approved assessment practices, administration requirements, and instructional resources, refer to the [Illinois Community College Board Adult Education and Literacy / Workforce Education resources](#), including the current Adult Education Provider Manual and related assessment guidance available under the “Policy and Program Resources” section.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

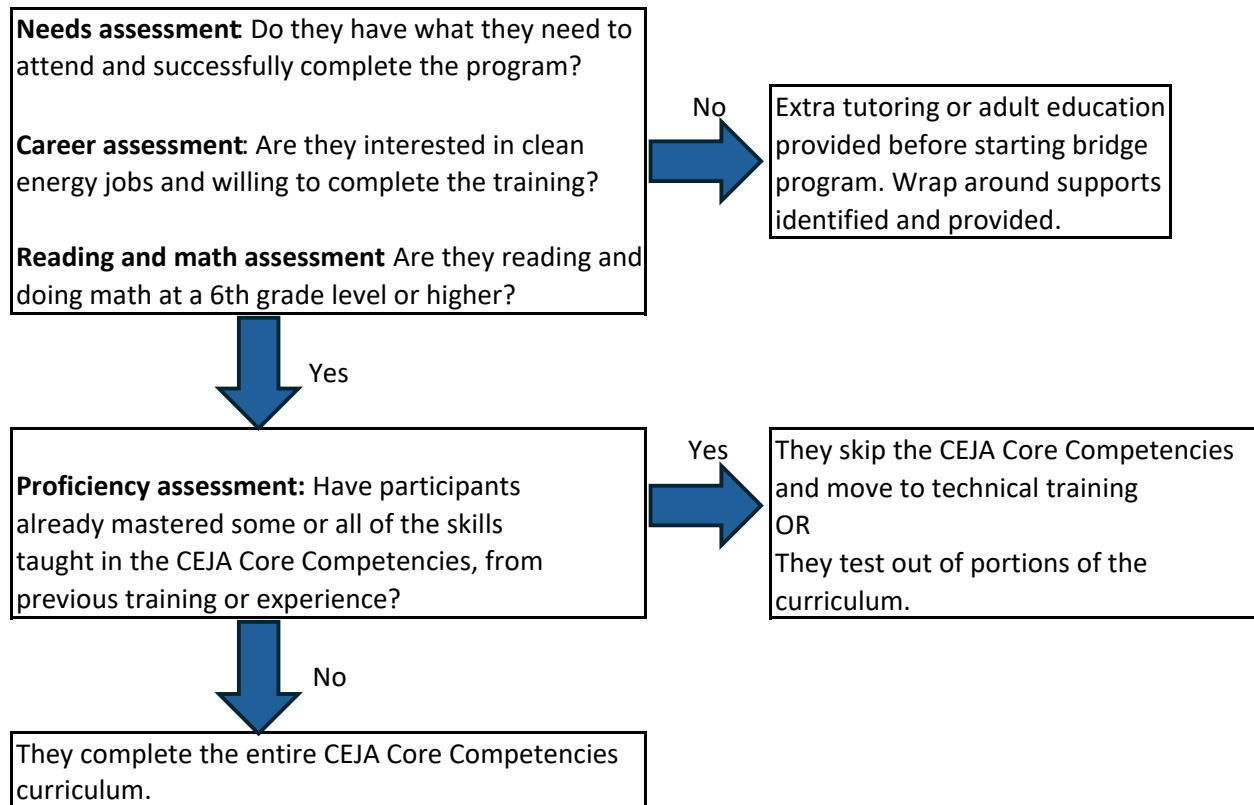


Figure 2: CEJA Core Competencies Assessment Components

2. CEJA CORE COMPETENCIES

The CEJA Core Competencies framework is a component of the overall Curriculum Framework (see Figure 1) that provides the foundational training needed for entry-level employment in the clean energy sector and for additional technical training within the Career Clusters. The CEJA Core Competencies focus on developing the employability, safety, foundational technical literacy, and clean energy fundamentals necessary for successful participation in Career Cluster training and entry into clean energy careers.

For those familiar with the 2023 publication of the Clean Jobs Curriculum Framework, this section was previously known as the Bridge Program.

The CEJA Core Competencies framework is comprised of the following components:

- **Essential Employability Skills** – This revision of the Curriculum Framework incorporates new entry-level leadership and project management skills.
- **Clean Energy Basics** – This revision of the Curriculum Framework broadens and universalizes foundational construction- and electrical-related concepts while reserving more specialized technical instruction for the Career Cluster and Illustrative Career Pathway levels. Building science principles and construction basics from the previous Bridge Program are now addressed within the applicable Career Clusters.

The competency requirements below establish the minimum instructional content expected for CEJA Core Competencies training. All entities providing CEJA Core Competencies training must address these competencies. Required training elements, including the requirement that at least ten percent (10%) of curriculum instructional hours be allocated to work-based learning (WBL) activities, must be implemented consistent with applicable DCEO policies. Recommendations regarding learning environments, instructional methods, estimated instructional time, and example resources are provided to support implementation while allowing flexibility in curriculum design.

CEJA Core Competencies Training Overview

Training outcomes

Upon completion of the CEJA Core Competencies, participants will have the personal effectiveness, workplace, and clean energy basics skills to proceed to relatively more job-specific, Career Cluster and Career Pathway technical training program(s) in a clean energy field of their choosing.

Entities providing CEJA Core Competencies training must provide all elements of the CEJA Core Competencies, as described below. The training should be tailored to participants' needs based on the results of the required pre-assessments.

Learning environment and format

Entities delivering CEJA Core Competencies training should offer classrooms with computer access, proper lighting, acoustics, equipment to accommodate group activities, and space to move about comfortably. The learning environment should accommodate individuals with disabilities such as hearing loss or diminished vision, and any instructional materials, where applicable, should reflect the broad potential diversity of those enrolled. It is recommended that the CEJA Core Competencies training be offered in person, but some elements may be offered online.

Skill development and practice should be integrated into coursework. Participants should work individually and in diverse groups. Training should be contextualized to demonstrate how foundational competency skills are needed in typical clean energy jobs. Essential employability skills should be integrated into clean energy basics training to demonstrate how these essential skills can support their ability to perform clean energy tasks.

Throughout, training deliverers should create a trusting and supportive environment in which participants feel a sense of belonging to and significance of the clean energy industry. Instructors must reinforce and build from participants' existing knowledge and strengths. The learning environment is a place where participants know their cultural values, current knowledge, and experiences are transferable and reflected in the clean energy industry. Instructors should share relevant examples and tell relatable stories during training.

Reinforcing this environment is a willingness to discuss and address difficult topics and work to find equitable solutions. Training entities should acknowledge in the curriculum and among participants the environmental and historical factors that impact underserved and disadvantaged groups. Exclusionary practices have no place within the learning environment.

Work-based learning components

Work-based learning is a required element of the program. It is defined in Perkins V legislation as

“sustained interactions with industry or community professionals in real workplace settings, to the extent practicable, or simulated environments at an educational institution that foster in-depth, firsthand engagement with the tasks required in a given career field, that are aligned to curriculum and instruction.”

Work-based learning (WBL) is employer-driven training that provides participants with work-based opportunities to practice and enhance the skills and knowledge gained in their program of study or industry training. It includes an assessment and recognition of acquired knowledge and skills.

Illinois treats work-based learning as a continuum rather than as a single activity. The continuum helps grantees design experiences that grow in intensity and authenticity as participants build skills and confidence.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

Work-based learning includes:

- Career Awareness / Career Exploration / Career Development
- Team-Based Challenges
- Customized Training
- Incumbent Worker Training (IWT)
- *Internship/Practicum/Work Experience (WEX)
- On-the-Job Training (OJT)
- Registered Apprenticeship (RA)
- Pre-Apprenticeship
- Transitional Jobs (TJ)
- *Youth Apprenticeship

Note: “*” are best suited to youth program participants between the ages of 16 and 24.

Entities providing CEJA Core Competencies training must incorporate work-based learning opportunities consistent with DCEO's Work-Based Learning Policy and in partnership with employers, labor organizations, nonprofit organizations, and other workforce partners within their region. Entities are encouraged to establish work-based learning partnerships with [employers from Equity Investment Eligible Communities](#), [Equity Eligible Contractors](#), and CEJA Clean Energy Contractor Incubators to strengthen the CEJA ecosystem. Additional work-based learning opportunities must be provided during Career Cluster and Illustrative Career Pathway training to reinforce technical competencies, strengthen employer engagement, and prepare participants for employment.

Assessments

In addition to the pre-assessments described above, Workforce Hubs should utilize assessments during and after the CEJA Core Competencies training is complete to measure learning and identify need for further training. Workforce Hubs are encouraged to use standard assessments that are developed through evidence-based industry-recognized providers or certificate granting institutions. Additional instruction, coaching, mentoring, and sponsorship may be needed for individuals who require supplementary or different supports to be successful. Furthermore, a variety of different assessment strategies are encouraged to account for participants' unique learning styles.

Suggested assessments during the training include:

- Reflective writing prompts
- Dialogue/informal interviews
- Aptitude tests/quizzes

Suggested assessments at the end of the training include:

- Role-playing on-the-job scenarios
- Formal demonstrations with evaluation by the instructor

Planning training duration

Entities providing CEJA Core Competencies training should design curricula that address all required competencies while accommodating participant needs, work-based learning requirements, and regional implementation considerations. Budgeting assumptions, instructional hour expectations, and related planning guidance are provided in the applicable Notices of Funding Opportunity (NOFO).

Program size recommendations

Program size is flexible depending on the number of participants and their needs. Entities providing CEJA Core Competencies training may deliver instruction through cohort-based, open-entry/open-exit, hybrid, or other instructional models that best meet participant needs while ensuring participants achieve the required competencies and receive appropriate instructional support. When a cohort-based model is used, cohort sizes of approximately five to 25 participants are generally recommended to support effective instruction and participant engagement.

Instructor qualifications

Instructors who deliver the Clean Energy Basics curriculum must have intermediate to advanced knowledge of clean energy industries, workplace practices, safety, and foundational technical concepts relevant to the broad range of occupations supported by the Curriculum Framework.

Instructional staff must have the ability to make a strong connection to the program participants and be capable of cultivating a welcoming, inclusive training environment. All staff, including instructors, must be trained on Equity, Diversity, Inclusion, and Accessibility.

Instructors should know how to create learning objectives and learning evaluation criteria, facilitate conversations, involve participants, and communicate clearly. Instructors should be closely connected to administrative support staff to assist with support services, stipends, scheduling, etc.

1. Essential Employability Skills

Training objectives

At the end of this training, participants should be able to:

- Set personal and professional goals effectively, utilizing goal-setting skills.
- Demonstrate an understanding of what dependability and reliability mean in a workplace context and the behaviors that are associated with dependability and reliability.
- Develop a personalized time management plan that demonstrates how to productively complete assigned tasks.
- Evaluate various strategies for learning from challenges, setbacks, and failures, and apply them to achieve personal and professional goals.
- Create a sound personal finance plan, encompassing budgeting, savings, and investments, among other elements.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- Implement effective job application practices, including resume writing and interview techniques, to facilitate successful job searches.
- Implement emotion management strategies to cope with challenges and achieve personal and professional goals.
- Demonstrate communication skills, including active listening, conveying ideas, expressing information effectively, and being understood by colleagues and customers.
- Demonstrate the ability to work cooperatively with others, completing work assignments and achieving mutual goals.
- Utilize various digital tools, including email, keyboarding, word processing, and digital media, to complete job tasks and communicate courteously and directly.
- Interact with customers using role-play to understand their needs, answer questions, resolve issues, and nurture relationships effectively.
- Demonstrate critical thinking and problem-solving skills in a workplace context, using logical and reasoned analysis to address problems, identify root causes, implement appropriate solutions, and communicate solutions.
- Identify their legal right to work in an environment free of discrimination and harassment and understand how to address discrimination and harassment if it is experienced.
- Demonstrate the ability to communicate and work effectively across a range of abilities, cultures, and backgrounds, emphasizing equity, diversity, inclusion, and accessibility.
- Identify the causes of workplace conflict, apply effective communication techniques, and demonstrate appropriate conflict resolution strategies to help resolve workplace disagreements while maintaining professional relationships.
- Promote a safe culture by identifying workplace hazards, reporting unsafe conditions, participating in safety discussions, and following established safety procedures during simulated workplace activities.
- Apply quality management principles, follow standard operating procedures (SOPs), conduct quality inspections, document findings, and recommend corrective actions to ensure work meets established quality standards.
- Use digital collaboration platforms to communicate with team members, share project documents, schedule meetings, track assigned tasks, and collaborate on project activities while following organizational communication and data security protocols.
- Create spreadsheets to organize project data, perform basic calculations, generate charts, and develop professional presentations that communicate project information effectively using industry-standard software
- Accurately organize project documents, maintain records, prepare basic correspondence, and complete administrative tasks using established workplace procedures.
- Demonstrate ethical decision-making, maintain confidentiality, follow workplace policies, honor commitments, and act with integrity.

- Develop a basic project schedule that identifies tasks, milestones, timelines, dependencies, and resource requirements using project planning tools.
- Prepare preliminary labor, material, and equipment estimates; calculate total project costs; and identify budget constraints using provided project data.

Curriculum content

Entities delivering Essential Employability Skills as part of the CEJA Core Competencies training are encouraged to tailor instruction to participants' individual needs based on assessment results while ensuring all required competencies are addressed.

At a minimum, the personal effectiveness training must cover the following topics:

Essential Workplace Skills

Foundational behaviors and capabilities needed across clean energy occupations. Participants should:

- **Goal setting:** Employ goal-setting skills to set personal and professional goals.
- **Dependability and reliability:** Explain how commitment and follow-through can ensure team effectiveness and help to meet collective goals.
- **Time management:** Develop a time management plan to accomplish assigned tasks.
- **Adaptability:** Explain different strategies to learn from challenges, setbacks, and failures; apply these strategies to achieve personal and professional goals.
- **Financial literacy:** Create a personal finance plan and explain how personal finances relate to employability.
- **Securing employment:** Apply effective job application practices, including resume writing and interviews, to search and apply for jobs.
- **Emotion management:** Practice recognizing and managing emotions to cope with challenges and achieve personal and professional goals.
- **Verbal communication skills:** Participants should improve their ability to listen to others, convey ideas, express information, and be understood by colleagues and customers.
- **Workplace writing skills:** Participants should practice using standard business English to write documents and messages to colleagues and customers that are clear, direct, and courteous.
- **Teamwork skills:** Participants should practice working cooperatively with others to complete work assignments and achieve mutual goals.
- **Digital communication and documentation skills:** Participants should practice using email, keyboarding, word processing, spreadsheets, presentation software, and digital media to complete job tasks, organize documentation and communicate directly and courteously.
- **Customer service skills:** Participants should practice working with customers to understand their needs, answer questions, resolve issues, and nurture relationships.

- **Critical thinking and problem solving:** Participants should practice critical thinking and problem-solving skills to generate and evaluate solutions as they relate to the needs of the team, customer, and company.
- **Workplace rights:** Participants should understand their right to work in an environment free of discrimination and harassment and what to do if they experience discrimination or harassment.
- **Cultural competency, diversity, inclusion, and accessibility:** Participants should demonstrate the ability to communicate and work effectively with individuals from diverse backgrounds, cultures, abilities, perspectives, and experiences, while recognizing differences respectfully, fostering inclusive workplace environments, and building positive working relationships.

Entry-Level Leadership Skills

Foundational leadership behaviors that enable participants to take initiative, communicate effectively, support safe and high-quality work, collaborate with others, resolve routine workplace conflicts, and contribute to team and project success.

- **Conflict resolution:** Participants should understand the causes of workplace conflict and practice effective communication to help resolve workplace disagreements.
- **Culture of safety:** Participants should practice identifying and reporting workplace hazards, while following established safety procedures.
- **Quality management:** Participants should practice quality inspections, document findings, identify and discuss corrections, and apply continuous improvement concepts to maintain quality standards.
- **Digital collaboration tools:** Participants should practice team communication, document sharing, and task tracking using digital collaboration tools.
- **Ethical behavior:** Participants should discuss ethical workplace practices, truthfulness, transparency, and conscientious, rather than expedient decisions.

Examples of learning activities may include:

- Role-playing workplace conflict-resolution scenarios.
- Practicing hazard identification, stop-work communication, and reporting of unsafe conditions.
- Conducting basic quality inspections and documenting findings and corrective actions.
- Practicing team communication and document sharing using digital collaboration tools.
- Discussing ethical workplace scenarios and evaluating appropriate responses.

Entry-Level Project Management Skills

Foundational project-management capabilities that enable participants to organize and support project work, understand task dependencies and schedules, track information and resources, communicate

project progress, and contribute to basic project planning and cost estimation. [Appendix B](#) provides expanded information on leadership and project management skills.

- **Basic project planning and scheduling:** Participants should practice planning timeframes and milestones for project tasks.
- **Basic cost estimating:** Participants should practice developing estimates for labor, materials, and other project costs.

Examples of learning activities may include:

- Developing a basic project schedule identifying tasks, milestones, timelines, dependencies, and resource requirements.
- Organizing project documents and tracking assigned tasks.
- Preparing preliminary labor, material, and equipment estimates.
- Using spreadsheets or other digital tools to organize project data and communicate project information.
- Practicing communication and resource coordination in simulated project activities.

All essential employability training should be hands-on and scenario-based when possible. It should be contextualized and integrated into clean energy basics to demonstrate how these skills are needed in typical clean energy jobs. It should allow participants to practice skills, set goals, develop plans and demonstrate mastery.

Curriculum examples and resources

- [Illinois Essential Employability Skills Framework and Self-Assessment](#)
- [Illinois workNet Job Skills Guide](#)
- [Revolution Learning and Development: Managing Yourself and Personal Effectiveness Training Course](#)
- [Illinois Adult Education and Literacy resources from the Illinois Community College Board \(ICCB\)](#)
- [Northstar \(digital literacy assessments and training\)](#)

2. Clean Energy Basics

Training objectives

After completing this training, participants should be able to:

- Identify job opportunities and analyze career pathways for their potential for growth and advancement in the clean energy industry.
- Work with grantee staff to develop an individualized training and career pathway plan based on interests, strengths, regional labor market opportunities, and the Career Clusters included in this Framework.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- Demonstrate safe work practices and explain how applicable safety regulations, standards, and workplace procedures support safe work across clean energy occupations.
- Explain the roles, responsibilities, and workplace expectations associated with different clean energy occupations and how workers contribute to safe, effective, and productive operations.
- Interpret and follow work instructions, standard operating procedures, technical documentation, drawings, specifications, and applicable standards used in clean energy workplaces.
- Demonstrate the use of basic hand and power tools and understand their proper use and maintenance in clean energy work environments.
- Explain the different types of energy, energy conservation, features of green buildings, and principles of sustainability or energy efficiency in the clean energy industry.
- Explain basic electricity and clean energy fundamentals, including the principles of energy generation, transmission, and storage, and their applications in the clean energy industry.

Curriculum content

Entities delivering Clean Energy Basics as part of the CEJA Core Competencies training are encouraged to tailor instruction to participants' individual needs based on assessment results while ensuring all required competencies are addressed.

At a minimum, the clean energy basics training must cover the following topics:

- **Introduction to clean energy careers.**
 - Clean energy careers and pathways: Develop a personalized clean energy career pathway leading to promising credentials and career advancement opportunities.
- **Energy and sustainability fundamentals.**
 - Clean energy definitions: Explain energy, clean energy, sustainability, energy efficiency, energy conservation, and climate change.
 - Climate change: Explain how different clean energy careers will help with state and national climate goals.
 - Sample curriculum guide for [energy and sustainability fundamentals](#).
- **Safety basics.** Training includes required certifications in OSHA 10 and First Aid/CPR.
 - Safety compliance: Explain foundational safety principles, regulations, standards, and workplace procedures that support safe work across clean energy occupations and work environments.
 - Hazard awareness and safe work practices: Identify common workplace hazards and demonstrate appropriate prevention, personal protective equipment (PPE), and safe work practices in clean energy work environments, including fall, electrical, struck-by, caught-in/between, and other hazards relevant to the work.
 - First Aid/CPR: Demonstrate ability to administer emergency first aid and CPR and know when to call for help.
 - Sample curriculum guide for [safety basics](#).

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- **Buildings, energy, and the clean energy transition.** Explain how buildings, energy systems, transportation, manufacturing, water and wastewater infrastructure, and other sectors interact with energy use, efficiency, electrification, and decarbonization.
- **Work instructions and technical documentation.** Interpret and follow work instructions, standard operating procedures, technical documentation, drawings, specifications, and applicable standards used in clean energy workplaces.
- **Foundational electricity and energy systems.** The topics below provide foundational knowledge of electricity and energy systems that are crucial to work in the clean energy industry and support the Career Clusters competencies established in this Curriculum Framework.
 - Introduction to electricity: Explain basic electrical concepts and the role of electricity in clean energy systems and infrastructure.
 - Basic electrical concepts: Explain the difference between direct current (DC) and alternating current (AC), identify basic circuit components, and describe how electrical circuits function.
 - Electrical safety awareness: Explain common electrical hazards and foundational practices for preventing electric shock and other electrical injuries.
 - Energy systems: Describe at a high level how electricity is generated, transmitted, distributed, stored, and used across clean energy applications.
 - Sample curriculum guide for [electrical basics](#).
- **Clean energy industries and work environments.** Describe how clean energy products, services, infrastructure, and projects are developed, manufactured, installed, operated, maintained, and supported across different industries and occupations.
- **Technology, digital systems, and automation.** Explain at a high level how automation, digital technologies, data systems, and emerging technologies such as artificial intelligence are increasingly used across clean energy workplaces.

All Clean Energy Basics training should be hands-on and scenario based when possible. It should be contextualized to demonstrate how these skills are needed in typical clean energy jobs. It should allow participants to practice skills, set goals, develop plans, and demonstrate mastery.

3. CAREER CLUSTERS AND CAREER PATHWAYS

Each Career Cluster is organized around a common set of Career Cluster competencies followed by one or more Illustrative Career Pathways. Career Cluster competencies establish shared technical knowledge and skills across related occupations, while Illustrative Career Pathways provide more specialized preparation for specific occupations, technologies, or industry applications.

Clean energy work is performed across a wide range of established occupations and is not limited to occupations whose titles explicitly reference clean energy technologies. Electricians, construction laborers, machinists, HVAC mechanics, maintenance technicians, utility workers, sales professionals, administrative staff, and many other occupations may perform work that supports clean energy industries and projects. The Career Clusters and Illustrative Career Pathways in this Framework therefore provide practical ways of organizing related training rather than mutually exclusive classifications of occupations, technologies, or industries.

A single occupation may support multiple clean energy technologies or applications, and a single technology or application may involve workers from multiple occupations and Career Clusters. Shared competencies may consequently appear across multiple Clusters and Pathways, particularly where common safety, technical, operational, or workplace skills are required. Where competencies overlap across Career Clusters or Illustrative Career Pathways, the Framework is intended to distinguish the context and level of application rather than duplicate identical training content. Curricula should minimize unnecessary repetition while ensuring that participants achieve the competencies required for their selected training pathway.

Illustrative Career Pathways are named to describe a clean energy occupation, technology, industry application, or area of training that may be meaningful to participants, employers, and Workforce Hubs, while representative occupations use U.S. Bureau of Labor Statistics (BLS) Standard Occupational Classification (SOC) titles and codes. Six-digit SOC codes provide a standardized system for identifying occupations and support consistent use of labor market and employment data across sources. Pathway names and occupational classifications therefore may not match exactly. This distinction allows the Framework to describe training in terms that are useful for curriculum design and career navigation while enabling Workforce Hubs to use standardized occupational data to document regional labor market demand, employer need, and employment outcomes. Workforce Hubs should use applicable standard occupational classifications, together with employer engagement and other appropriate regional labor market evidence, when documenting demand for proposed training.

The Career Clusters and Illustrative Career Pathways provide representative examples of clean energy occupations and training approaches aligned with CEJA workforce priorities. They are not intended to

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

represent every eligible occupation or training program. Many traditional occupations—including those in construction, manufacturing, utilities, transportation, and building operations—play an essential role in advancing Illinois' clean energy economy through activities such as energy efficiency, electrification, renewable energy deployment, infrastructure modernization, and building retrofits.

The competencies developed through the Career Clusters and Illustrative Career Pathways are intended primarily to prepare participants for employment within Illinois' clean energy economy and, secondarily, to support career mobility across related industries. Many of the technical, safety, and workplace competencies identified in this Framework are transferable to occupations in traditional construction, manufacturing, utilities, transportation, building operations, and other sectors that increasingly support clean energy technologies and infrastructure.

Workforce Hubs are encouraged to adapt curricula to regional workforce needs while ensuring participants achieve the competencies identified in this Framework. Workforce Hubs may also develop additional clean energy Career Pathways or propose new clean energy curricula where supported by regional labor market demand, employer partnerships, applicable industry standards, and the requirements of the CEJA program. Additional information and requirements are provided in the [Appendix A: Implementation Guidance](#).

4. MANUFACTURING CAREER CLUSTER

Industry Overview

The Manufacturing Career Cluster prepares participants for entry-level careers supporting the production of technologies, equipment, and components that advance Illinois' clean energy economy. Clean energy manufacturing plays a critical role in strengthening domestic supply chains, supporting infrastructure investments, expanding access to emerging technologies, and creating high-quality employment opportunities throughout Illinois. Manufacturing occupations within this Career Cluster support the production of electric and hybrid vehicles, batteries and energy storage technologies, solar photovoltaic equipment, wind energy components, heat pumps and energy-efficient HVAC equipment, EV charging infrastructure, electrical equipment, grid technologies, and other clean energy products and systems.

Modern manufacturing environments increasingly utilize automated production equipment, digital technologies, advanced quality systems, and standardized manufacturing processes. As these technologies continue to evolve, employers consistently seek entry-level workers who demonstrate strong safety practices, technical aptitude, reliability, professionalism, communication skills, and the ability to adapt to new technologies while working effectively as part of a production team. This Career Cluster prepares participants to enter these manufacturing environments by developing foundational competencies in manufacturing safety, quality, production processes, equipment operation, technical documentation, digital literacy, and teamwork that are transferable across a wide range of clean energy manufacturing industries.

The Manufacturing Career Cluster emphasizes competency-based, hands-on instruction that prepares participants for entry-level employment in production, assembly, manufacturing operations, quality assurance, manufacturing equipment maintenance, materials management, logistics, supply chain operations, and related occupations. Curriculum should integrate classroom and laboratory experiences developed in partnership with employers to reflect current manufacturing practices and regional workforce needs.

In addition, work-based learning must be incorporated as a curriculum element. The goal of WBL is to bridge the gap between **academic learning** and **professional practice**, preparing program participants for future employment. It should be viewed as a continuum rather than as a single activity. Experiences should grow in intensity and authenticity as participants build skills and confidence. Lower-intensity activities may be appropriate at the beginning when participants are exploring options. Higher-intensity activities should be prioritized whenever feasible as participants demonstrate readiness to apply more complex technical skills.

Workforce Hubs are expected to collaborate with manufacturers, labor organizations, educational institutions, and other workforce partners to provide participants with meaningful hands-on learning

opportunities, exposure to modern manufacturing environments, and preparation for stackable industry-recognized credentials that support long-term career advancement within Illinois' growing clean energy manufacturing sector.

Demonstration of Need

Illinois' transition to a clean energy economy is increasing demand for a skilled manufacturing workforce capable of producing the technologies, equipment, and components that support clean energy generation, electrification, transportation, energy storage, and grid modernization. State and federal investments in domestic manufacturing, clean energy infrastructure, and resilient supply chains continue to expand employment opportunities across a diverse range of manufacturing sectors, reinforcing the need for employer-informed workforce development programs that prepare participants for entry-level manufacturing careers.

Stakeholder engagement conducted during the development of this revised Curriculum Framework identified clean energy manufacturing as an emerging workforce priority across Illinois. Employers, educators, labor organizations, community-based organizations, and other workforce partners consistently emphasized the importance of hands-on learning, strong safety practices, technical fundamentals, digital literacy, professionalism, and stackable industry-recognized credentials. These findings reinforce the need for competency-based training that develops transferable skills applicable across multiple clean energy manufacturing industries while supporting participants' long-term career advancement.

Representative Occupations

Representative occupations within the Manufacturing Career Cluster may include, but are not limited to:

- Miscellaneous Assemblers and Fabricators (51-2090) and associated clean energy manufacturing assembly work
- Machinists (51-4041) and associated clean energy manufacturing machining work
- Welders, Cutters, Solderers, and Brazers (51-4121) and associated clean energy manufacturing fabrication work
- Electrical, Electronics, and Electromechanical Assemblers (51-2020)
- Engine and Other Machine Assemblers (51-2030)
- Machine Tool Cutting Setters, Operators, and Tenders, Metal and Plastic (51-4030)

Note: These occupation titles align with [U.S. Bureau of Labor Statistics \(BLS\) Standard Occupational Classification \(SOC\) codes](#). Though occupation titles are standardized, job titles are not. Employers use a variety of different job titles in this cluster.

Shared Technical Competencies

The shared technical competencies for the Manufacturing Career Cluster include:

- **Manufacturing Safety and Health.** Understand workplace hazards, safe work practices, personal protective equipment (PPE), hazard communication, lockout/tagout awareness, ergonomics, material handling procedures, and the importance of complying with applicable safety regulations and workplace policies.
- **Manufacturing Processes and Production Systems.** Understand the purpose and operation of common manufacturing processes, production workflows, assembly operations, materials handling systems, logistics, and quality functions within modern clean energy manufacturing environments.
- **Tools, Equipment, and Manufacturing Technology.** Safely use and maintain common manufacturing hand tools, power tools, production equipment, measuring instruments, and digital technologies in accordance with manufacturer recommendations and workplace procedures.
- **Quality Assurance, Lean Manufacturing, and Continuous Improvement.** Understand quality standards, inspection methods, measurement techniques, standardized work practices, documentation requirements, and the role of continuous improvement methodologies including Lean manufacturing principles, in supporting safe, efficient, and high-quality manufacturing operations.
- **Technical Documentation and Manufacturing Information.** Interpret work instructions, production documentation, equipment manuals, safety information, labels, specifications, and introductory engineering drawings, blueprints, and technical diagrams commonly used in manufacturing environments.
- **Mechanical, Electrical, and Digital Fundamentals.** Understand foundational mechanical principles, basic electrical concepts, common manufacturing equipment and components, and the digital technologies used to support production, quality, and manufacturing operations.
- **Industrial Maintenance and Automation Fundamentals.** Understand foundational concepts of preventive maintenance for mechanical and electrical systems, mechatronics, robotics, and automated production systems.
- **Logistics and Supply Chain Fundamentals.** Understand material flow, inventory management, digital tracking systems, and the role of logistics and supply chains in supporting manufacturing operations and distribution.
- **Manufacturing Documentation and Data Management.** Complete production records, inspection forms, digital reporting systems, inventory documentation, and other manufacturing records accurately and in accordance with workplace procedures.
- **Workplace Readiness and Professional Practices.** Demonstrate effective communication, teamwork, professionalism, adaptability, problem-solving, and attention to detail while contributing to safe, efficient, and productive manufacturing operations.

Applied Skills

Participants should demonstrate the ability to:

- Apply safe work practices in manufacturing environments.
- Operate common manufacturing tools, equipment, and measuring instruments.
- Interpret basic manufacturing documentation, work instructions, and technical drawings.
- Perform basic measurement, inspection, and quality verification activities.
- Document production and quality activities using accepted industry practices.
- Apply quality assurance, quality control (QA/QC), and foundational Lean manufacturing principles.
- Effectively and professionally communicate with supervisors, coworkers, and other workplace stakeholders.

Industry Credentials

Workforce Hubs should prepare participants for industry-recognized credentials appropriate to the Manufacturing Career Cluster and selected Career Pathway(s), where applicable. Examples may include:

- OSHA 30
- Manufacturing Skill Standards Council (MSSC) Certified Production Technician (CPT)
- Society of Manufacturing Engineers (SME) Certified Manufacturing Associate (CMfgA)
- Applicable manufacturer, safety, or equipment-specific training and credentials

Minimum Career Cluster Requirements

Workforce Hubs delivering the Manufacturing Career Cluster must:

- Address all Manufacturing Career Cluster competencies.
- Provide participants with opportunities to demonstrate the Applied Skills identified for the Career Cluster.
- Incorporate hands-on instruction and activities representative of authentic manufacturing work environments.
- Integrate applicable industry standards, workplace practices, and quality principles throughout instruction.
- Prepare participants to successfully transition into one or more Manufacturing Career Pathways.

5. MANUFACTURING CAREER CLUSTER – ILLUSTRATIVE CAREER PATHWAYS

A. Clean Energy Component Manufacturing

The Clean Energy Component Manufacturing Career Pathway is designed to build upon the shared technical competencies established in the Manufacturing Career Cluster. This pathway prepares participants for entry-level careers supporting the production and assembly of components, equipment, and systems used in clean energy technologies. Training may be contextualized to regional employer needs and may include applications such as electric and hybrid vehicles, batteries and energy storage systems, electrical equipment, and other clean energy technologies.

For the purposes of providing a representative example, this Illustrative Career Pathway focuses on EV/HEV component manufacturing. However, Workforce Hubs may develop curricula around other clean energy component manufacturing subjects based on regional employer demand and workforce needs.

A-1. Demonstration of need for training

Workforce Hubs proposing a Clean Energy Component Manufacturing Career Pathway must document regional alignment with clean energy manufacturing employers and the specific manufacturing occupations and activities the proposed training will support. Applicants should describe:

- Regional labor market demand for the proposed manufacturing occupations and clean energy component manufacturing activities.
- Documented partnerships with regional clean energy manufacturers, suppliers, or specialized contractors.
- Alignment between the proposed training and identified employer workforce needs, available training capacity, and equitable access for program participants.

A-2. Training outcomes

Upon completion of the Clean Energy Component Manufacturing Career Pathway with an EV/HEV focus, participants should be able to:

- Operate specialized EV/HEV manufacturing equipment safely.
- Demonstrate awareness of and adherence to applicable high-voltage electrical safety standards and workplace procedures, including NFPA 70E principles where applicable.
- Demonstrate precision assembly, measurement, and quality control techniques.
- Pursue stackable, industry-recognized credentials relevant to manufacturing and EV/HEV-specific technical proficiency.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

A-3. Representative occupations

- Miscellaneous Assemblers and Fabricators (51-2090) and associated clean energy component manufacturing work
- Machinists (51-4041) and associated clean energy component manufacturing work
- Welders, Cutters, Solderers, and Brazers (51-4121) and associated clean energy component manufacturing work

Note: These occupation titles align with [U.S. Bureau of Labor Statistics \(BLS\) Standard Occupational Classification \(SOC\) codes](#). Though occupation titles are standardized, job titles are not. Employers use a variety of different job titles in this pathway.

A-4. Example job titles and career progression

Though occupation titles are standardized, job titles are not. Employers use a variety of different job titles in this career pathway. Some job titles demonstrate career advancement opportunities. Here are a few example job titles in this career pathway:

- Production Team Lead
- Advanced Manufacturing Technician
- Quality Assurance Specialist
- Operations Supervisor
- Manufacturing Process Engineer (with further education)

A-5. Prerequisites

Before beginning the Clean Energy Component Manufacturing Career Pathway, participants should:

- Successfully complete the CEJA Core Competencies and Manufacturing Career Cluster competencies (or demonstrate equivalent knowledge and experience).
- Be prepared to perform precision assembly tasks requiring attention to detail and consistent adherence to work instructions.

A-6. Learning environment and format

Instruction should include a simulated or authentic production-floor environment that reflects modern clean energy component manufacturing settings and, for the illustrative example provided in this Framework, EV/HEV component manufacturing.

Workforce Hubs must incorporate work-based learning (WBL) opportunities consistent with CEJA program requirements:

- At least 10% of the training hours must include work-based learning activities.
- If a program cannot provide work-based learning experiences for technical or regulatory reasons, job site visits and tours may replace the requirements, with the approval of the grantee's assigned Grant Manager and Regional Administrator.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

Note: Grantees are accountable for a minimum of 10% of their curriculum instructional hours to be allocated for work-based learning hours. Work-based learning hours must be added to the existing curriculum hour requirement and are eligible for participant stipends.

Workforce Hubs are expected to establish meaningful work-based learning partnerships with [employers from Equity Investment Eligible Communities and Equity Eligible Contractors](#) to strengthen the CEJA ecosystem and to support participants' successful transition into employment.

A-7. Tools and equipment

The Clean Energy Component Manufacturing Career Pathway should provide participants with access to the tools, equipment, and instructional resources necessary to develop and demonstrate the occupation-specific competencies identified in this Framework. At a minimum, training should include access to:

- Precision torque-measurement tools and fastening systems.
- Digital multimeters and basic high-voltage insulation-testing equipment appropriate for the instructional setting.
- Personal protective equipment (PPE) appropriate for EV/HEV manufacturing activities and applicable electrical and workplace hazards, including high-voltage-rated gloves and arc-flash protection where required by the task and applicable safety procedures.
- Assembly jigs, fixtures, and documentation systems used for Standard Operating Procedures (SOPs).
- Current instructional materials, technical references, manufacturer documentation, and applicable safety standards.

A-8. Estimated training length

The Clean Energy Component Manufacturing Career Pathway should be delivered using a competency-based approach. As such, the duration of the pathway training should provide sufficient instructional time for participants to develop the occupation-specific competencies identified in this Framework through classroom, laboratory, and field-based learning activities. Workforce Hubs should determine the appropriate instructional hours based on curriculum design, participant needs, and employer expectations. Additionally, work-based learning is a required program element that must be incorporated into the curriculum. At least 10% of the training hours must be work-based learning activities.

A-9. Training size

A cohort of approximately 12-18 participants is recommended to promote effective hands-on instruction, effective supervision, and meaningful access to tools, equipment, and laboratory facilities.

A-10. Instructor requirements

Instructors should demonstrate technical expertise consistent with the competencies identified in this Career Pathway and possess relevant education, professional experience, technical qualifications, or industry-recognized credentials. Relevant experience or credentials may include:

- Manufacturing production, assembly, or quality assurance experience.
- Experience with automated manufacturing equipment, clean energy component manufacturing, battery manufacturing, or EV/HEV manufacturing processes.
- Relevant manufacturing, safety, equipment, or technical credentials.
- Demonstrated expertise in technical training delivery.

It is strongly recommended that lead instructors possess recent industry experience in manufacturing, including experience with automated assembly, clean energy component manufacturing, battery manufacturing, high-voltage environments, or related manufacturing processes.

A-11. Occupation-specific competencies

By completing the Clean Energy Component Manufacturing Career Pathway, participants should be able to:

General Manufacturing Competencies

- Interpret general engineering drawings, blueprints, and Standard Operating Procedures (SOPs).
- Utilize precision measurement tools, such as calipers and micrometers, to verify that parts meet specifications.
- Apply Lean manufacturing principles, including 5S and waste-reduction concepts, to maintain efficient and organized workstations.
- Perform quality-control inspections and complete accurate production documentation in accordance with manufacturing standards.

Introductory Maintenance and Logistics

- Understand the role of preventive maintenance, automation, and material flow in supporting manufacturing operations.
- Identify basic components of robotic and mechatronic systems.
- Demonstrate foundational competency in digital inventory tracking and supply chain workflows.

Illustrative EV/HEV Technical Skills

- Explain basic battery chemistry, safety, and handling considerations relevant to EV/HEV manufacturing.
- Apply torque specifications and precision fastening protocols.
- Explain and follow applicable high-voltage safety and hazardous-energy-control procedures, including lockout/tagout requirements where applicable to assigned work.
- Read and interpret EV/HEV component schematics and work instructions.

A-12. Curriculum content overview

The table below summarizes the occupation-specific content recommended for the Clean Energy Component Manufacturing Career Pathway with an EV/HEV focus. Curriculum content should align with applicable industry standards, manufacturer requirements, workplace safety requirements, and relevant industry-recognized credential frameworks.

Table 2: Clean Energy Component Manufacturing Content Domains

Domain I	Domain II	Domain III	Domain IV
Manufacturing Fundamentals	Applied Quality & Safety	Automation & Logistics	EV/HEV Technical Proficiency
- Lean manufacturing principles - Industrial mathematics - Blueprint and technical documentation - Interpretation, tool handling, and production workflow documentation	- High-voltage safety awareness - OSHA/workplace safety - ESD control - Quality inspection methods - Standard Operating Procedure (SOP) compliance	- Basic mechatronics - Robotic and automated-system awareness - Preventive maintenance fundamentals - Material handling - Digital inventory tracking	- Battery module assembly - Electric drive unit components - High-voltage architecture - EV/HEV charging systems

A-13. Assessment methods

The Clean Energy Component Manufacturing Career Pathway should use assessment methods that evaluate both technical knowledge and practical application of occupation-specific competencies.

Assessment methods may include:

- Written knowledge examinations aligned with applicable industry standards.
- Practical assembly evaluations demonstrating proper torque sequence, adherence to work instructions, precision, and safety.
- Scenario-based defect-identification and quality-control simulations.
- Evaluation of production documentation and adherence to applicable SOPs.

A-14. Certification

Workforce Hubs should prepare participants for industry-recognized credentials appropriate to the Manufacturing Career Cluster and Clean Energy Component Manufacturing Career Pathway, where applicable. Examples may include:

- Manufacturing Skill Standards Council (MSSC) Certified Production Technician (CPT).
- Society of Manufacturing Engineers (SME) Certified Manufacturing Associate (CMfgA).
- Applicable manufacturer, safety, equipment, or technology-specific training and credentials.

Workforce Hubs should select credentials based on regional employer demand, applicable industry standards, and the competencies addressed through the Career Pathway.

A-15. References

- [U.S. Department of Energy, Battery Workforce Initiative](#)
- [U.S. Department of Energy, National Guideline Standards for Battery Machine Operator](#)
- [U.S. Department of Labor, Advanced Manufacturing Competency Model](#)
- [Manufacturing Skill Standards Council \(MSSC\), Certified Production Technician \(CPT\) 4.0](#)
- [Society of Manufacturing Engineers \(SME\), Certified Manufacturing Associate \(CMfgA\) Body of Knowledge](#)
- [National Fire Protection Association \(NFPA\), NFPA 70E: Standard for Electrical Safety in the Workplace](#)
- [Occupational Safety and Health Administration \(OSHA\), General Industry Standards](#)
- [U.S. Bureau of Labor Statistics, Careers in Electric Vehicles](#)
- [U.S. Bureau of Labor Statistics, Charging into the Future: The Transition to Electric Vehicles](#)
- [Understanding by Design \(Wiggins & McTighe\)](#)

6. CONSTRUCTION CAREER CLUSTER

Industry Overview

The Construction Career Cluster prepares participants for careers constructing, installing, renovating, retrofitting, inspecting, and improving buildings and clean energy infrastructure. Occupations within this Career Cluster support Illinois' transition to a clean energy economy through building construction and performance improvements, renewable energy deployment, transportation electrification and electric vehicle charging infrastructure, energy infrastructure modernization, and related construction activities.

Participants develop shared technical competencies related to construction safety, tools and materials, construction processes, electrical construction, technical documentation, building systems and performance, quality assurance, and project coordination before progressing into occupation-specific Career Pathways. The Construction Career Cluster includes both skilled construction and infrastructure activities and energy-efficient building construction and retrofit, recognizing that many occupations support multiple clean energy technologies and applications.

These occupations are increasingly supported by public and private investment in Illinois' clean energy infrastructure, including transportation electrification initiatives administered by the Illinois Department of Transportation (IDOT) and the Illinois Environmental Protection Agency (IEPA), such as the [National Electric Vehicle Infrastructure \(NEVI\) Program](#) and [Illinois Drives Electric](#) programs.

Demonstration of Need

Illinois' transition to a clean energy economy is increasing demand for workers who construct, install, renovate, retrofit, inspect, and maintain buildings and clean energy infrastructure. Stakeholder engagement conducted prior to development of the revised Curriculum Framework identified construction, weatherization, building performance, building inspection, renewable energy deployment, transportation electrification, and related infrastructure construction as workforce needs. Employers emphasized the importance of construction safety, technical fundamentals, electrical and mechanical systems, building performance, quality assurance, construction documentation, and hands-on experience across a broad range of construction occupations. The Construction Career Cluster establishes a shared technical foundation that prepares participants for multiple construction-related Career Pathways while allowing Workforce Hubs to tailor occupation-specific training to regional employer demand.

Representative Occupations

Representative occupations for the Construction Career Cluster include, but are not limited to:

- Carpenters (47-2031)
- Construction Laborers (47-2061)

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- Operating Engineers and Other Construction Equipment Operators (47-2073)
- Electricians (47-2111)
- Plumbers, Pipefitters, and Steamfitters (47-2152)
- Insulation Workers, Floor, Ceiling, and Wall (47-2131)
- Insulation Workers, Mechanical (47-2132)
- Roofers (47-2181)
- Structural Iron and Steel Workers (47-2221)
- Solar Photovoltaic Installers (47-2231)
- Construction and Building Inspectors (47-4011)

Note: These occupation titles align with [U.S. Bureau of Labor Statistics \(BLS\) Standard Occupational Classification \(SOC\) codes](#). Though occupation titles are standardized, job titles are not. Employers use a variety of different job titles in this cluster.

Shared Technical Competencies

The shared technical competencies for the Construction Career Cluster include:

- **Construction Safety, Codes, and Quality Assurance.** Apply foundational construction safety practices and understand the purpose and application of construction, electrical, energy, building, and occupational safety codes, standards, and quality requirements.
- **Construction Tools, Equipment, and Materials.** Safely select, use, maintain, and store common hand and power tools, construction equipment, materials, and related PPE used in construction, installation, retrofit, and infrastructure activities.
- **Construction Drawings, Documentation, and Technical Communication.** Interpret construction drawings, blueprints, specifications, schematics, work instructions, and other technical documentation and communicate project information, field observations, and recommendations clearly and accurately.
- **Construction Processes, Mathematics, and Measurement.** Apply basic construction processes, measurement systems, scaling, mathematical calculations, and cost-estimation concepts to support safe and effective construction and installation work.
- **Electrical Construction and Installation Fundamentals.** Understand foundational electrical systems, circuits, components, wiring, installation practices, and electrical safety requirements relevant to construction, clean energy infrastructure, and electrification applications.
- **Building Performance and Building Envelope Systems.** Understand how building envelope components—including insulation, air barriers, moisture management systems, windows, doors, roofs, and foundations—interact to influence energy efficiency, durability, occupant comfort, and indoor environmental quality.
- **Building Assessment and Diagnostic Principles.** Apply systematic approaches to evaluating building conditions, identifying performance deficiencies, documenting observations, and supporting informed decision-making regarding energy efficiency improvements.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- **Energy Efficiency Retrofit Principles.** Apply whole-building principles to evaluate energy efficiency retrofit opportunities, recognizing the interactions among building systems, occupant health, durability, and long-term building performance.
- **Clean Energy Infrastructure Installation Principles.** Understand foundational site, structural, equipment, and installation considerations applicable to clean energy infrastructure, including photovoltaic systems, electric vehicle charging infrastructure, and related systems.
- **Water Systems and Infrastructure Installation Principles.** Understand foundational site, material, equipment, and installation considerations applicable to water supply, distribution, plumbing, drainage, and related water infrastructure.
- **Hazardous Materials Awareness.** Recognize conditions that may indicate the presence of hazardous materials, including asbestos-containing materials and mold, and follow established procedures for reporting, avoiding disturbance, and referring identified conditions to appropriately trained personnel.
- **Construction Project Coordination.** Understand construction sequencing, trades coordination, quality assurance processes, and collaborative project delivery practices that support safe, efficient, and high-quality construction, installation, and retrofit activities.

The following resources align with the Building Performance Institute (BPI) Building Science Principles curriculum and the NCCER Core Construction curriculum, respectively. Both curricula are more comprehensive than the material included in this Framework and may support preparation for related industry credentials:

- [Building Performance Institute \(BPI\) Building Science Principles curriculum](#)
- [NCCER Core curriculum and applicable modules](#)

Applied Skills

Participants should demonstrate the ability to:

- Safely use common construction hand and power tools and handle construction materials.
- Interpret construction drawings, specifications, schematics, and other technical documentation.
- Apply construction measurement, mathematics, and basic estimation concepts to common tasks.
- Apply foundational electrical construction practices appropriate to the work being performed.
- Assess building envelope conditions and identify common conditions affecting building performance.
- Identify energy-efficiency and retrofit opportunities based on observed building conditions.
- Document field observations and construction activities accurately.
- Apply quality assurance and quality control (QA/QC) practices.
- Interpret basic water-system plans, specifications, and installation requirements and identify common considerations related to water supply, distribution, plumbing, drainage, and related infrastructure.

- Communicate technical information effectively with supervisors, coworkers, contractors, clients, and other project stakeholders.

Industry Credentials

Workforce Hubs should prepare participants for industry-recognized credentials appropriate to the Construction Career Cluster and selected Career Pathway(s), where applicable. Examples may include:

- OSHA 30
- BPI Building Science Principles (BSP)
- EPA Lead Renovation, Repair and Painting (RRP)
- NCCER Core (or applicable NCCER modules)

Minimum Career Cluster Requirements

Workforce Hubs delivering the Construction Career Cluster must:

- Address all Construction Career Cluster competencies.
- Provide participants with opportunities to demonstrate the Applied Skills identified for the Career Cluster.
- Incorporate hands-on instruction and activities representative of authentic construction work environments.
- Integrate applicable industry standards, codes, and best practices throughout instruction.
- Prepare participants to successfully transition into one or more Construction Career Pathways.

7. CONSTRUCTION CAREER CLUSTER – ILLUSTRATIVE CAREER PATHWAYS

The following Illustrative Career Pathways build upon the shared technical competencies established in the Construction Career Cluster. The pathways are intended to illustrate occupation-specific training recommendations and may be adapted by Workforce Hubs to address regional workforce needs, employer demand, and evolving industry practices.

B. Energy Auditor

The Energy Auditor Career Pathway builds upon the shared technical competencies established in the Construction Career Cluster and prepares participants for entry-level careers conducting residential building energy assessments, evaluating building performance, identifying energy efficiency opportunities, and supporting quality assurance activities. The pathway emphasizes occupation-specific competencies related to building diagnostics, whole-building performance evaluation, energy modeling, and the development of energy efficiency retrofit recommendations through classroom, laboratory, and hands-on field instruction. Upon successful completion, participants should be prepared for applicable industry-recognized credentials appropriate to the pathway, such as the Building Performance Institute (BPI) Energy Auditor certification.

B-1. Demonstration of need for training

Workforce Hubs proposing an Energy Auditor Career Pathway should demonstrate regional demand for Energy Auditor training by documenting employer workforce needs, labor market demand, and existing training capacity. Applicants are encouraged to engage employers, workforce development organizations, labor organizations, and other regional stakeholders to ensure the proposed pathway reflects current workforce priorities.

At a minimum, applicants should describe:

- Regional demand for occupations within the **Construction and Building Inspectors (47-4011)** category and associated work, including energy auditing and building performance, supported by available labor market information and employer engagement.
- Existing education and training opportunities within the region, including identified gaps or unmet workforce needs.
- Anticipated benefits for Equity Eligible Persons and communities consistent with CEJA program goals.
- Meaningful employer partnerships that demonstrate workforce demand and support work-based learning, hiring, or other workforce development activities.

B-2. Training outcomes

Upon successful completion of the Energy Auditor Career Pathway, participants should be able to:

- Complete residential building energy assessments using appropriate diagnostic methods, equipment, and procedures.
- Analyze building performance information to identify energy efficiency, health and safety, and building durability considerations.
- Develop and communicate energy audit findings and recommendations consistent with applicable program requirements and industry standards.
- Apply recognized residential energy auditing practices and standards in support of quality energy assessments.
- Pursue applicable industry-recognized credentials and entry-level employment in residential energy auditing and building performance.

B-3. Representative occupations

- Construction and Building Inspectors (47-4011) and associated energy auditing/building performance occupations

Note: These occupation titles align with [U.S. Bureau of Labor Statistics \(BLS\) Standard Occupational Classification \(SOC\) codes](#). Though occupation titles are standardized, job titles are not. Employers use a variety of different job titles in this pathway.

B-4. Example job titles and career progression

Though occupation titles are standardized, job titles are not. Employers use a variety of different job titles in this career pathway. Some job titles demonstrate career advancement opportunities. Here are a few example job titles in this career pathway:

- Residential, Multifamily, or Commercial Energy Auditor
- Quality Control Inspector
- Construction and Building Inspector
- Energy Services Coordinator
- Building Performance Consultant
- Weatherization Technical Trainer or Building Performance Instructor
- Program Manager or Quality Assurance Specialist

B-5. Prerequisites

Before beginning the Energy Auditor Career Pathway, participants should:

- Successfully complete the CEJA Core Competencies and Construction Career Cluster competencies (or demonstrate equivalent knowledge and experience).
- Be comfortable working in a variety of residential environments, including attics, crawl spaces, basements, and outdoor conditions.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- Be capable of safely performing field-based work, including standing, climbing ladders, lifting equipment, and working for extended periods.
- Possess basic digital literacy sufficient to operate computers, tablets, and industry software used for data collection and reporting.
- Demonstrate effective communication and teamwork skills.

B-6. Learning environment and format

The Energy Auditor Career Pathway should primarily be delivered through in-person classroom, laboratory, and field-based instruction with substantial hands-on learning opportunities. Training facilities should provide sufficient space and equipment for participants to complete individual and team-based technical activities.

Participants should have access to computers or mobile devices and software necessary to complete energy modeling, data collection, diagnostic analysis, documentation, and related instructional activities.

Whenever practicable, participants should complete hands-on instruction in residential structures or realistic building simulation environments that allow them to perform diagnostic testing, collect field data, and practice inspection procedures using industry-standard equipment.

Workforce Hubs must incorporate work-based learning (WBL) opportunities consistent with CEJA program requirements:

- At least 10% of the training hours must include work-based learning activities.
- If a program cannot provide work-based learning experiences for technical or regulatory reasons, job site visits and tours may replace the requirements, with the approval of the grantee's assigned Grant Manager and Regional Administrator.

Note: Grantees are accountable for a minimum of 10% of their curriculum instructional hours to be allocated for work-based learning hours. Work-based learning hours must be added to the existing curriculum hour requirement and are eligible for participant stipends.

Workforce Hubs are expected to establish meaningful work-based learning partnerships with [employers from Equity Investment Eligible Communities and Equity Eligible Contractors](#) to strengthen the CEJA ecosystem and to support participants' successful transition into employment.

B-7. Tools and equipment

The Energy Auditor Career Pathway should provide participants with access to the tools, equipment, and instructional resources necessary to perform residential energy assessments and diagnostic testing. At a minimum, training should include access to:

- Tool belt.
- Basic hand tools (e.g., hammer, screwdrivers, pliers, wire cutters, tape measure).

- Common portable power tools appropriate for residential building diagnostics and minor field activities.
- Computers or mobile devices with software necessary for data collection, calculations, reporting, and related instructional activities.
- Residential energy auditing and diagnostic equipment, as applicable, including:
 - Blower door system
 - Digital manometer
 - Infrared (thermal imaging) camera
 - Combustion analyzer
 - Combustible gas detector
 - Four-gas monitor, where applicable
 - Exhaust fan flow meter
 - Duct leakage testing equipment (e.g., duct blaster, pressure pan)
- Equipment necessary to safely transport diagnostic tools during field activities (e.g., dolly or equipment cart).
- Current instructional materials and reference resources.
- Access to residential buildings or realistic building simulation environments suitable for hands-on diagnostic testing and field exercises. Virtual reality (VR) or other digital simulation technologies may supplement, but should not replace, hands-on instruction where field-based learning is practicable.
- Access to functional residential heating, ventilation, air conditioning (HVAC), and domestic water heating equipment for combustion safety testing and diagnostic instruction. Virtual or simulated instructional environments may replace hands-on activities when appropriate.

Recommended: Airflow visualization tools (e.g., smoke pencils, physical demonstration props, interactive software, or instructional videos).

B-8. Estimated training length

The Energy Auditor Career Pathway should be delivered using a competency-based approach. As such, the duration of the pathway training should provide sufficient instructional time for participants to develop the occupation-specific competencies identified in this Framework through classroom, laboratory, and field-based learning activities. Workforce Hubs should determine the appropriate instructional hours based on curriculum design, participant needs, and employer expectations. Additionally, work-based learning is a required program element that must be incorporated into the curriculum. At least 10% of the training hours must be work-based learning activities.

B-9. Training size

A cohort of approximately 10-15 participants is recommended to promote effective hands-on instruction, access to diagnostic equipment, and individualized feedback during laboratory and field-based learning activities.

B-10. Instructor requirements

Instructors should possess demonstrated expertise in residential building performance, energy auditing, and diagnostic testing consistent with the competencies identified in this Career Pathway. Instructional staff should hold relevant industry-recognized credentials, such as Building Performance Institute (BPI) certifications, or demonstrate equivalent education, professional experience, or technical qualifications.

Workforce Hubs are encouraged to provide an instructional team that consists of:

- Lead Instructor
- Laboratory or Field Instructor/Facilitator
- Program or Training Coordinator to support participant services, scheduling, logistics, and employer engagement

B-11. Occupation-specific competencies

By completing this Career Pathway, participants should be able to:

- Collect and document residential building information necessary to complete comprehensive energy assessments.
- Perform residential diagnostic testing using industry-standard equipment and procedures.
- Evaluate building performance data to identify opportunities for energy efficiency improvements while considering occupant health, safety, comfort, and building durability.
- Assess the performance of building envelope systems, mechanical equipment, ventilation, and combustion appliances using accepted industry practices.
- Develop scopes of work and energy efficiency recommendations consistent with applicable program requirements and industry standards.
- Prepare accurate energy audit documentation and communicate findings effectively to homeowners, contractors, and program administrators.
- Apply applicable BPI, DOE Home Energy Professional (HEP), and RESNET guidance when conducting residential energy assessments.

B-12. Curriculum content overview

The Energy Auditor Career Pathway curriculum should align with current industry-recognized competencies for residential energy auditing and building performance. Instruction should incorporate the knowledge, skills, and abilities necessary to prepare participants for applicable Building Performance Institute (BPI) Energy Auditor certification requirements, while incorporating guidance from the U.S. Department of Energy (DOE) Home Energy Professional (HEP) program, National Renewable Energy Laboratory (NREL) Standard Work Specifications (SWS), and applicable Residential Energy Services Network (RESNET) standards.

The curriculum should be organized around the following occupation-specific competency domains.

Table 3: Energy Auditor Content Domains

Domain I	Domain II	Domain III
Collection of Building Information for an Energy Audit	Diagnostic Testing of the Dwelling Unit for an Energy Audit	Evaluation of Energy Audit Data and Development of a Scope of Work
- Document building energy consumption and utility info - Document building history and occupant info - Conduct a visual inspection - Collect health and safety info - Document appliances and base electrical loads - Identify the conditioned building enclosure (building boundary) - Collect mechanical ventilation info - Assess insulation in attics, walls, and foundations/crawlspaces) - Collect attic characteristics - Collect wall characteristics - Collect window and door characteristics - Collect foundation/crawlspace characteristics - Collect roof characteristics	- Prepare the dwelling unit for diagnostic testing - Test electrical appliances - Conduct indoor air quality and ventilation testing - Evaluate combustion appliance safety and performance - Measure building envelope air leakage - Evaluate HVAC distribution system performance	- Evaluate health and safety findings - Evaluate building durability and structural conditions - Evaluate HVAC system performance - Evaluate the mechanical ventilation performance - Analyze building energy use - Evaluate foundation/crawlspace conditions - Evaluate wall performance - Evaluate attic performance - Evaluate window and door performance - Use energy modeling software to evaluate building performance - Develop a recommended scope of work

B-13. Assessment methods

Participants should demonstrate competency through a combination of written, practical, laboratory, and field-based assessments. Assessment methods may include:

- Written knowledge assessments
- Laboratory and hands-on performance evaluations
- Field-based competency demonstrations
- Scenario-based exercises and case studies
- Comprehensive practical and/or final assessments
- Preparation for applicable industry-recognized credential examinations, such as the BPI Energy Auditor certification

Workforce Hubs are encouraged to provide additional instructional support, coaching, mentoring, and reasonable accommodations to help participants successfully demonstrate competency. Assessment

methods should be varied to recognize different learning styles and educational experiences while maintaining consistent technical performance expectations.

B-14. Certification

The Energy Auditor Career Pathway should prepare participants to pursue applicable industry-recognized credentials associated with residential energy auditing and building performance, including the Building Performance Institute (BPI) Energy Auditor certification. Programs may also incorporate complementary credentials—such as BPI Building Science Principles (BSP), BPI Quality Control Inspector (QCI), and RESNET HERS—consistent with employer needs and program design.

B-15. References

- [Building Performance Institute \(BPI\) Energy Auditor Certification Scheme Handbook](#) (current edition)
- [ANSI/BPI Standards applicable to residential energy auditing](#) (current editions)
- [U.S. Department of Energy Home Energy Professional \(HEP\) Job Task Analysis](#)
- [National Renewable Energy Laboratory \(NREL\) Standard Work Specifications \(SWS\) for Single-Family Energy Upgrades](#)
- [Residential Energy Services Network \(RESNET\) Home Energy Rating \(HERS\) Standards](#) (including applicable diagnostic testing standards)
- [U.S. Department of Energy Guidelines for Home Energy Professionals](#)
- [Green Building Career Map \(Center for Energy Workforce Development\)](#)
- [Understanding by Design \(Wiggins & McTighe\)](#)

C. Weatherization

The Weatherization Career Pathway builds upon the shared technical competencies established in the Construction Career Cluster and prepares participants for entry-level careers performing residential weatherization and energy efficiency retrofit work. The pathway emphasizes occupation-specific competencies related to the installation of energy conservation measures, air sealing, insulation, mechanical ventilation improvements, and quality workmanship through classroom, laboratory, field-based, and hands-on instruction. Upon successful completion, participants should be prepared to pursue applicable industry-recognized credentials, such as the Building Performance Institute (BPI) Retrofit Installer Technician (RIT) certification, as appropriate to program design and employer needs.

Stakeholder engagement conducted during development of the revised Curriculum Framework identified training and hiring needs associated with the Illinois Home Weatherization Assistance Program (IHWAP). These needs reinforce the importance of preparing qualified workers for weatherization and residential energy-efficiency retrofit work and strengthening connections among training providers, employers, and contractors.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

C-1. Demonstration of need for training

Workforce Hubs proposing a Weatherization Career Pathway should demonstrate regional demand for weatherization training by documenting employer workforce needs, labor market demand, and existing training capacity. Applicants are encouraged to engage employers, workforce development organizations, labor organizations, and other regional stakeholders to ensure the proposed pathway reflects current workforce priorities.

At a minimum, applicants should describe:

- Regional demand for occupations within the **Insulation Workers (47-2131 and 47-2132)** categories and associated weatherization and energy-efficiency retrofit work, supported by available labor market information and employer engagement.
- Existing education and training opportunities within the region, including identified gaps or unmet workforce needs.
- Anticipated benefits for Equity Eligible Persons and communities consistent with CEJA program goals.
- Meaningful employer partnerships that demonstrate workforce demand and support work-based learning opportunities, hiring, or other workforce development activities.

C-2. Training outcomes

Upon successful completion of the Weatherization Career Pathway, participants should be prepared to:

- Perform residential weatherization and energy efficiency retrofit work using industry-standard practices.
- Apply building enclosure, air sealing, insulation, and related energy conservation techniques appropriate to residential weatherization.
- Perform weatherization work safely while maintaining quality workmanship and protecting occupants and properties.
- Document completed work and communicate effectively with supervisors, coworkers, customers, and other project stakeholders.
- Pursue applicable industry-recognized credentials and entry-level employment in weatherization and energy efficiency retrofit work.

C-3. Representative occupations

- Insulation Workers, Floor, Ceiling, and Wall (47-2131) and associated weatherization and energy-efficiency retrofit occupations
- Insulation Workers, Mechanical (47-2132) and associated weatherization and energy-efficiency retrofit occupations

Note: These occupation titles align with [U.S. Bureau of Labor Statistics \(BLS\) Standard Occupational Classification \(SOC\) codes](#). Though occupation titles are standardized, job titles are not. Employers use a variety of different job titles in this pathway.

C-4. Example job titles and career progression

Though occupation titles are standardized, job titles are not. Employers use a variety of different job titles in this career pathway. Some job titles demonstrate career advancement opportunities. Here are a few example job titles in this career pathway:

- Weatherization Crew Leader
- Weatherization Supervisor
- Retrofit Installation Trainer
- Quality Control Inspector
- Residential Energy Auditor

C-5. Prerequisites

Before beginning the Weatherization Career Pathway, participants should:

- Successfully complete the CEJA Core Competencies and Construction Career Cluster competencies (or demonstrate equivalent knowledge and experience).
- Be comfortable working in residential environments, including attics, crawl spaces, basements, and outdoor conditions.
- Be capable of safely performing physically demanding field work, including climbing ladders, lifting materials, and working in varying weather conditions.
- Demonstrate the ability to work effectively as part of a team.

C-6. Learning environment and format

The Weatherization Career Pathway should primarily be delivered through classroom, laboratory, and field-based instruction with substantial hands-on learning opportunities. Training facilities should provide sufficient space and equipment for participants to complete individual and team-based technical activities.

Participants should have access to computers or mobile devices and software necessary to complete documentation, data collection, quality assurance activities, and other instructional tasks associated with residential weatherization projects.

Workforce Hubs must incorporate work-based learning (WBL) opportunities consistent with CEJA program requirements:

- At least 10% of the training hours must include work-based learning activities.
- If a program cannot provide work-based learning experiences for technical or regulatory reasons, job site visits and tours may replace the requirements, with the approval of the grantee's assigned Grant Manager and Regional Administrator.

Note: Grantees are accountable for a minimum of 10% of their curriculum instructional hours to be allocated for work-based learning hours. Work-based learning hours must be added to the existing curriculum hour requirement and are eligible for participant stipends.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

Workforce Hubs are expected to establish meaningful work-based learning partnerships with [employers from Equity Investment Eligible Communities and Equity Eligible Contractors](#) to strengthen the CEJA ecosystem and to support participants' successful transition into employment.

C-7. Tools and equipment

The Weatherization Career Pathway should provide participants with access to the tools, equipment, and instructional resources necessary to perform residential weatherization and energy efficiency retrofit activities. At a minimum, training should include access to:

- Basic hand tools used in residential weatherization and retrofit work
- Power tools appropriate for weatherization installation activities
- Weatherization diagnostic and verification equipment
- Measuring and documentation tools
- Installation materials and equipment representative of residential weatherization projects
- Computers or mobile devices for documentation, training activities, and applicable software
- Current instructional materials and technical references

C-8. Estimated training length

The Weatherization Career Pathway should be delivered using a competency-based approach. As such, the duration of the pathway training should provide sufficient instructional time for participants to develop the occupation-specific competencies identified in this Framework through classroom, laboratory, and field-based learning activities. Workforce Hubs should determine the appropriate instructional hours based on curriculum design, participant needs, and employer expectations.

C-9. Training size

A cohort of approximately 15-20 participants is recommended to promote effective hands-on instruction, effective supervision, and meaningful access to tools, equipment, and field-based learning experiences.

C-10. Instructor requirements

Instructors should demonstrate technical expertise consistent with the competencies identified in this Career Pathway and possess relevant industry-recognized credentials or equivalent education, professional experience, or technical qualifications.

Relevant credentials may include Building Performance Institute (BPI) certifications such as:

- Retrofit Installer Technician (RIT)
- Crew Leader (CL)
- Quality Control Inspector (QCI)
- Building Science Principles (BSP)
- Air Leakage Control Installer (ALCI)
- Healthy Home Evaluator (HHE)

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- Other relevant weatherization, residential construction, or building performance credentials, as appropriate.

Workforce Hubs are encouraged to provide an instructional team that consists of:

- Lead Instructor
- Laboratory or Field Instructor/Facilitator
- Program or Training Coordinator to support participant services, scheduling, logistics, and employer engagement

C-11. Occupation-specific competencies

By completing this Career Pathway, participants should be able to:

- Explain the purpose and application of residential weatherization measures, including air sealing, insulation, ventilation, and other energy efficiency improvements.
- Interpret work orders, project specifications, and installation instructions to complete assigned weatherization tasks safely and effectively.
- Install residential weatherization measures in accordance with applicable industry standards, manufacturer specifications, and program requirements.
- Apply safe work practices that protect workers, occupants, and residential properties while maintaining compliance with applicable health and safety requirements.
- Use common weatherization tools, equipment, and diagnostic instruments to support installation activities and verify the quality of completed work.
- Document completed work, communicate progress and field observations, and accurately record information required for quality assurance and program reporting.
- Recognize conditions that may affect the effectiveness, durability, health, safety, or performance of weatherization measures and communicate findings to the appropriate supervisor or team member(s).
- Recognize potential mold, asbestos-containing materials, and other hazardous building conditions that may affect the scope or safety of weatherization work, and follow established procedures for reporting and referral before proceeding.
- Recognize opportunities for additional energy efficiency improvements, electrification, renewable energy technologies, or other building performance upgrades, and refer those opportunities in accordance with program procedures.

C-12. Curriculum content overview

The table below summarizes the occupation-specific competencies recommended for the Weatherization Career Pathway. Curriculum content should align with current industry standards and best practices, including the National Renewable Energy Laboratory (NREL) Standard Work Specifications (SWS), as applicable.

Table 4. Weatherization Content Domains

Domain I	Domain II	Domain III
Weatherization Installation Fundamentals	Intermediate Installation and Quality Assurance	Crew Leadership and Project Coordination
- Maintain safety - Prepare for residential weatherization work - Prepare and maintain tools, materials, and equipment - Prepare and maintain a safe work site - Identify materials and staffing needs - Communicate the scope of work with occupants - Determine readiness of the job site for the scope of work - Install windows and doors - Install baseload measures - Clean all debris and work materials from the job site	- Perform installation verification and quality checks - Identify and report conditions requiring modification of the scope of work - Locate and verify access to specific work areas - Protect interior/exterior of house (e.g., with drop cloths, poly, Tyvek booties, pressurizations) - Worksite safety and fall protection - Install roof penetrations and weatherproofing - Install or repair vapor retarders - Energy efficiency upgrades - Identify and report deviations from scope of work	- Develop plan to execute scope of work - Prepare and maintain job site - Implement scope of work - Verify work completion, document change orders, and conduct quality inspections

C-13. Assessment methods

Participants should demonstrate competency through a combination of written, practical, laboratory, and field-based assessments. Assessment methods may include:

- Written knowledge assessments
- Laboratory and hands-on performance evaluations
- Field-based competency demonstrations
- Scenario-based exercises and case studies
- Comprehensive practical and/or final assessments
- Preparation for applicable industry-recognized credential examinations, such as the BPI Retrofit Installer Technician (RIT) certification

Workforce Hubs are encouraged to provide additional instructional support, coaching, mentoring, and reasonable accommodations to help participants successfully demonstrate competency. Assessment methods should be varied to recognize different learning styles and educational experiences while maintaining consistent technical performance expectations.

C-14. Certification

The Weatherization Career Pathway should prepare participants to pursue applicable industry-recognized credentials associated with residential weatherization and energy efficiency retrofit work, including the Building Performance Institute (BPI) Retrofit Installer Technician (RIT) certification. Programs may also incorporate complementary credentials—such as BPI Building Science Principles (BSP) or other relevant industry-recognized credentials—consistent with employer needs and program design.

C-15. References

- [Building Performance Institute \(BPI\) Retrofit Installer Technician](#)
- [Building Performance Institute \(BPI\) Crew Leader](#)
- [National Renewable Energy Laboratory \(NREL\) Standard Work Specifications \(SWS\)](#)
- [Green Building Career Map \(Center for Energy Workforce Development\)](#)
- [Understanding by Design \(Wiggins & McTighe\)](#)

D. Solar Photovoltaic

The Solar Photovoltaic Career Pathway prepares participants for entry-level careers supporting the installation, commissioning, operation, and maintenance of photovoltaic (PV) systems. Building upon the Construction Career Cluster, participants develop the technical knowledge and practical skills necessary to assist with site assessment, system installation, equipment commissioning, basic maintenance, and system documentation while working safely and effectively as members of a solar installation team. Instruction should combine classroom, laboratory, and field-based learning experiences representative of current industry practice. Upon successful completion, participants should be prepared to pursue the North American Board of Certified Energy Practitioners (NABCEP) Photovoltaic Associate (PVA) credential and entry-level employment within Illinois' growing solar industry.

D-1. Demonstration of need for training

Workforce Hubs proposing a Solar PV Career Pathway should demonstrate regional demand for photovoltaic training by documenting employer workforce needs, labor market demand, and existing training capacity. Applicants are encouraged to engage employers, workforce development organizations, labor organizations, and other regional stakeholders to ensure the proposed pathway reflects current workforce priorities.

At a minimum, applicants should describe:

- Regional demand for occupations within the **Solar Photovoltaic Installers (47-2231), Electricians (47-2111)**, and other relevant construction occupation categories and associated solar installation work, supported by available labor market information and employer engagement.
- Existing education and training opportunities within the region, including identified gaps or unmet workforce needs.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- Anticipated benefits for Equity Eligible Persons and communities consistent with CEJA program goals.
- Meaningful employer partnerships that demonstrate workforce demand and support work-based learning opportunities, hiring, or other workforce development activities.

D-2. Training outcomes

Upon completion of the Solar PV Career Pathway, participants should be able to:

- Explain the basic components, operating principles, and applications of photovoltaic systems.
- Evaluate basic site and system considerations that affect photovoltaic installation and performance.
- Support the safe installation, commissioning, operation, and maintenance of photovoltaic systems in accordance with applicable requirements.
- Apply applicable electrical codes, manufacturer requirements, safety practices, and industry standards to routine photovoltaic work.
- Communicate basic photovoltaic system information, performance considerations, and maintenance requirements to customers and other project stakeholders.
- Pursue the NABCEP Photovoltaic Associate credential and entry-level employment in the solar industry.

D-3. Representative occupations

- Solar Photovoltaic Installers (47-2231) and associated solar installation occupations
- Electricians (47-2111) and associated solar electrical installation work

Note: These occupation titles align with [U.S. Bureau of Labor Statistics \(BLS\) Standard Occupational Classification \(SOC\) codes](#). Though occupation titles are standardized, job titles are not. Employers use a variety of different job titles in this pathway.

For a more detailed solar career progression map, see the Interstate Renewable Energy Council's [Solar Career Map](#).

D-4. Example job titles and career progression

Though occupation titles are standardized, job titles are not. Employers use a variety of different job titles in this career pathway. Some job titles demonstrate career advancement opportunities. Here are a few example job titles in this career pathway:

- Solar PV Crew Chief
- Solar Installation Supervisor
- Solar Project Manager
- Solar Operations and Maintenance Supervisor
- Renewable Energy Systems Technician

D-5. Prerequisites

Before beginning the Solar PV Career Pathway, participants should:

- Successfully complete the CEJA Core Competencies and Construction Career Cluster competencies (or demonstrate equivalent knowledge and experience).
- Be comfortable working in outdoor environments and at elevated locations, including rooftops, while following applicable safety procedures.
- Be capable of safely performing physically demanding field work, including climbing ladders, lifting and carrying materials, and working in varying weather conditions.
- Safely use hand tools, power tools, and materials commonly associated with photovoltaic installation activities.
- Work effectively both independently and as part of a team.
- Apply foundational mathematics, reading, and digital literacy skills necessary to interpret technical documentation, perform basic calculations, and complete required work activities.

D-6. Learning environment and format

The Solar PV Career Pathway should primarily be delivered through classroom, laboratory, and field-based instruction with substantial hands-on learning opportunities. Training facilities should provide sufficient space and equipment for participants to complete individual and team-based technical activities associated with PV installation, commissioning, and maintenance.

Participants should have access to computers or mobile devices and software necessary to complete documentation, basic system calculations, technical plan review, quality assurance activities, and other instructional tasks associated with PV systems.

Workforce Hubs must incorporate work-based learning (WBL) opportunities consistent with CEJA program requirements:

- At least 10% of the training hours must include work-based learning activities.
- If a program cannot provide work-based learning experiences for technical or regulatory reasons, job site visits and tours may replace the requirements, with the approval of the grantee's assigned Grant Manager and Regional Administrator.

Note: Grantees are accountable for a minimum of 10% of their curriculum instructional hours to be allocated for work-based learning hours. Work-based learning hours must be added to the existing curriculum hour requirement and are eligible for participant stipends.

Where practicable, work-based learning and career exploration activities may include exposure to utility facilities, including water and wastewater facilities, to demonstrate applications of electrical, controls, and troubleshooting skills in utility environments.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

Workforce Hubs are expected to establish meaningful work-based learning partnerships with [employers from Equity Investment Eligible Communities and Equity Eligible Contractors](#) to strengthen the CEJA ecosystem and to support participants' successful transition into employment.

D-7. Tools and equipment

The Solar PV Career Pathway should provide participants with access to the tools, equipment, and instructional resources necessary to perform PV installation, commissioning, operations, and maintenance activities. At a minimum, training should include access to:

- Basic construction hand tools commonly used during PV installation activities.
- Power tools appropriate for PV installation and related construction activities.
- Electrical testing and diagnostic equipment, such as multimeters, insulation resistance testers, irradiance meters, infrared thermometers, and other industry-standard testing instruments.
- Demonstration PV systems, mock roof assemblies, training racks, or access to PV installation sites that support hands-on instruction.
- Personal protective equipment (PPE) appropriate for PV installation activities.
- Laptops, tablets, or access to a computer laboratory.
- Software and digital resources used for PV system design, documentation, performance estimation, and other instructional activities.
- Current instructional materials, technical references, manufacturer documentation, and applicable codes and standards.

D-8. Estimated training length

The Solar Photovoltaic Career Pathway should be delivered using a competency-based approach. As such, the duration of the pathway training should provide sufficient instructional time for participants to develop the occupation-specific competencies identified in this Framework through classroom, laboratory, and field-based learning activities. Workforce Hubs should determine the appropriate instructional hours based on curriculum design, participant needs, employer expectations, and preparation for the NABCEP Photovoltaic Associate (PVA) credential, where applicable. Additionally, work-based learning is a required program element that must be incorporated into the curriculum. At least 10% of the training hours must be work-based learning activities.

D-9. Training size

A cohort of approximately 10-15 participants is recommended to promote effective hands-on instruction, effective supervision, and meaningful access to tools, equipment, and field-based learning experiences.

D-10. Instructor requirements

Instructors should demonstrate technical expertise consistent with the competencies identified in this Career Pathway and possess relevant industry-recognized credentials or equivalent education, professional experience, or technical qualifications.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

Relevant credentials may include:

- NABCEP PV Associate (PVA)
- NABCEP PV Installation Professional (PVIP)
- Other relevant NABCEP photovoltaic credentials or equivalent industry-recognized certifications, as appropriate

Workforce Hubs intending to prepare participants for the NABCEP PVA credential through the NABCEP Education Pathway should ensure the program satisfies current [NABCEP Associate Registered Training Provider](#) requirements, including any applicable provider registration, curriculum alignment, and administrative requirements necessary to qualify participants for the PVA examination. Workforce Hubs should note that Registered Training Provider approval is a program-level designation that is separate from individual instructor qualifications and may require institutional eligibility or other organizational requirements established by NABCEP.

It is strongly recommended that lead instructors possess recent industry experience in PV system installation, commissioning, operations, and maintenance.

Workforce Hubs are encouraged to provide an instructional team that consists of:

- Lead Instructor
- Laboratory or Field Instructor/Facilitator
- Program or Training Coordinator to support participant services, scheduling, logistics, and employer engagement

D-11. Occupation-specific competencies

By completing this Career Pathway, participants should be able to:

- Explain PV system components, operating principles, system configurations, and common applications.
- Conduct basic site assessments by identifying factors that influence PV system design, performance, and installation feasibility.
- Interpret installation plans, electrical diagrams, equipment specifications, manufacturer documentation, and applicable codes and standards relevant to PV systems.
- Assist with the installation, commissioning, inspection, operation, and maintenance of PV systems in accordance with industry standards, manufacturer requirements, and applicable codes.
- Use common PV installation tools, electrical testing instruments, and diagnostic equipment to safely support installation, commissioning, troubleshooting, and maintenance activities.
- Document installation, testing, commissioning, and maintenance activities while communicating technical information effectively with supervisors, customers, and other project stakeholders.

- Recognize factors that affect PV system safety, performance, reliability, and long-term operation, and communicate findings or recommendations to the appropriate supervisor or team member(s).
- Describe basic PV system economics, customer considerations, incentives, and financing concepts to support informed customer interactions and preparation for the NABCEP PVA credential.

D-12. Curriculum content overview

The table below summarizes the occupation-specific content recommended for the Solar Photovoltaic Career Pathway. Curriculum content should align with the current [NABCEP Photovoltaic Associate \(PVA\) Job Task Analysis](#), applicable industry standards, manufacturer requirements, and relevant federal, state, and local codes, as applicable.

Table 2: Solar Photovoltaic Content Domains

Domain I	Domain II	Domain III
Safety	Core Knowledge	Sales & Economics
- Apply safe work practices during PV system installation, commissioning, operation, and maintenance - Identify workplace, electrical, fall protection, and energy storage hazards associated with PV systems - Select and use appropriate PPE, tools, and safety equipment - Comply with applicable safety regulations, standards, and site-specific safety requirements	- Explain PV system components, technologies, configurations, and applications - Describe PV system operating principles and fundamental electrical concepts - Identify the functions of major system components, including energy storage systems, where applicable - Explain the advantages, limitations, and expected performance of PV systems - Identify applications of electrical, automation, and monitoring systems in utility and water and wastewater facility environments, where relevant	- Identify customer goals, project requirements, and site considerations relevant to PV systems - Explain financial considerations, available incentives, financing options, and lifecycle costs associated with PV systems - Describe factors that influence customer expectations and system value - Communicate PV system capabilities and limitations to customers and stakeholders

Domain IV	Domain V	Domain VI
Design	Installation	Operations & Maintenance
- Evaluate site conditions that influence PV system design and performance - Interpret plans, electrical diagrams, manufacturer documentation, and applicable codes and standards - Explain equipment selection, system sizing, and structural considerations for PV systems - Identify factors affecting system performance and interconnection requirements	- Install PV system components in accordance with applicable codes, manufacturer specifications, and project requirements - Install mounting systems, electrical equipment, and associated system components - Perform system testing, inspection, and commissioning activities - Verify installation quality and document completed work	- Perform routine inspection and preventive maintenance activities - Use testing and diagnostic equipment to evaluate PV system performance - Identify common causes of reduced system performance and recommend appropriate corrective actions - Document maintenance activities, field observations, and system performance findings

D-13. Assessment methods

Participants should demonstrate competency through a combination of written, practical, laboratory, and field-based assessments. Assessment methods may include:

- Written knowledge assessments
- Laboratory and hands-on performance evaluations
- Field-based competency demonstrations
- Scenario-based exercises and case studies
- Comprehensive practical and/or final assessments
- Preparation for applicable industry-recognized credential examinations, such as the NABCEP Photovoltaic Associate (PVA) certification

Workforce Hubs are encouraged to provide additional instructional support, coaching, mentoring, and reasonable accommodations to help participants successfully demonstrate competency. Assessment methods should be varied to recognize different learning styles and educational experiences while maintaining consistent technical performance expectations.

D-14. Certification

The Solar Photovoltaic Career Pathway should prepare participants to pursue applicable industry-recognized credentials associated with PV system installation, operation, and maintenance, including the NABCEP Photovoltaic Associate (PVA) certification. Programs may also incorporate complementary NABCEP certifications or other relevant industry-recognized credentials, consistent with employer needs, program design, and current NABCEP program requirements.

D-15. References

- [NABCEP Photovoltaic Associate \(PVA\) Job Task Analysis \(JTA\)](#)
- [NABCEP Associate Registered Training Provider Program](#)
- [U.S. Department of Labor Employment and Training Administration \(ETA\) Renewable Energy Competency Model](#)
- [NCCER Solar Photovoltaic Systems Curriculum](#)
- [Interstate Renewable Energy Council \(IREC\) National Solar Career Map](#)
- [Understanding by Design \(Wiggins & McTighe\)](#)

E. Electric Vehicle Supply Equipment (EVSE) & Charging Infrastructure

The Electric Vehicle Supply Equipment (EVSE) & Charging Infrastructure Career Pathway prepares participants for entry-level employment supporting the installation, commissioning, maintenance, and troubleshooting of residential, commercial, workplace, fleet, and public EV charging systems. The pathway may support charging infrastructure serving light commercial, medium- and heavy-duty electric vehicles, including fleet and freight applications. Instruction combines classroom, laboratory, and hands-on learning to develop foundational competencies in EV charging technologies, electrical systems, installation practices, networking fundamentals, commissioning, maintenance, and safe work practices in accordance with applicable codes, manufacturer requirements, and industry standards.

This Career Pathway prepares participants to pursue applicable industry-recognized credentials associated with EV charging infrastructure installation and maintenance while supporting Illinois' growing clean transportation workforce.

E-1. Demonstration of need for training

The Workforce Hubs proposing an Electric Vehicle Supply Equipment (EVSE) & Charging Infrastructure Career Pathway should demonstrate regional demand for EVSE and charging infrastructure training by documenting employer workforce needs, labor market demand, and existing training capacity. Applicants are encouraged to engage employers, workforce development organizations, labor organizations, and other regional stakeholders to ensure the proposed pathway reflects current workforce priorities.

At a minimum, applicants should describe:

- Regional demand for occupations within the **Electricians (47-2111)** category and associated EVSE installation, commissioning, maintenance, and charging infrastructure work, supported by available labor market information and employer engagement.
- Regional workforce demand related to fleet and freight charging, including workforce needs associated with medium- and heavy-duty charging infrastructure maintenance, where applicable.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- Existing education and training opportunities within the region, including identified gaps or unmet workforce needs.
- Anticipated benefits for Equity Eligible Persons and communities consistent with CEJA program goals.
- Meaningful employer partnerships that demonstrate workforce demand and support work-based learning opportunities, hiring, or other workforce development activities.

E-2. Training outcomes

Upon completion of the Electric Vehicle Supply Equipment (EVSE) & Charging Infrastructure Career Pathway, participants should be able to:

- Explain EV charging technologies, EVSE components, and common charging applications.
- Evaluate basic site, equipment, electrical service, and operational considerations for EV charging infrastructure.
- Support the safe installation, commissioning, operation, maintenance, and troubleshooting of EV charging equipment.
- Apply applicable electrical codes, safety requirements, manufacturer specifications, and industry standards to routine EVSE work.
- Communicate basic charging system information, operational considerations, and maintenance requirements to customers and other project stakeholders.
- Recognize basic considerations associated with fleet and freight charging applications.
- Pursue applicable industry-recognized credentials and entry-level employment supporting EV charging infrastructure.

E-3. Representative occupations

- Electricians (47-2111) and associated EVSE and charging infrastructure occupations

Note: These occupation titles align with [U.S. Bureau of Labor Statistics \(BLS\) Standard Occupational Classification \(SOC\) codes](#). Though occupation titles are standardized, job titles are not. Employers use a variety of different job titles in this pathway.

E-4. Example job titles and career progression

Though occupation titles are standardized, job titles are not. Employers use a variety of different job titles in this career pathway. Some job titles demonstrate career advancement opportunities. Here are a few example job titles in this career pathway:

- Lead EVSE Installer
- EVSE Installation Supervisor
- EV Infrastructure Project Manager
- EV Charging Network Operations and Maintenance (O&M) Supervisor
- Distributed Energy Resources (DER) Technician

E-5. Prerequisites

Before beginning the Electric Vehicle Supply Equipment (EVSE) & Charging Infrastructure Career Pathway, participants should:

- Successfully complete the CEJA Core Competencies and Construction Career Cluster competencies (or demonstrate equivalent knowledge and experience).
- Be comfortable working in indoor and outdoor environments, including residential, commercial, workplace, fleet, and public charging locations while following applicable safety procedures.
- Be capable of safely performing physically demanding field work, including lifting and carrying equipment and materials, using appropriate personal protective equipment (PPE), and working in varying environmental conditions.
- Safely use hand tools, power tools, and materials commonly associated with EVSE installation and maintenance activities.
- Work effectively both independently and as part of a team.
- Apply foundational mathematics, reading, and digital literacy skills necessary to interpret technical documentation, perform basic calculations, and complete required work activities.

E-6. Learning environment and format

The Electric Vehicle Supply Equipment (EVSE) & Charging Infrastructure Career Pathway should primarily be delivered through classroom, laboratory, and field-based instruction with substantial hands-on learning opportunities. Training facilities should provide sufficient space and equipment for participants to complete individual and team-based technical activities associated with EVSE installation, commissioning, maintenance, troubleshooting, and service.

Participants should have access to computers or mobile devices and software necessary to complete documentation, equipment diagnostics, basic system configuration, technical drawing review, quality assurance activities, and other instructional tasks associated with EV charging systems. Whenever practicable, participants should also have access to installed or simulated EV charging equipment representative of Level 1, Level 2, and DC Fast Charging applications to support hands-on installation, commissioning, maintenance, and troubleshooting activities.

Workforce Hubs must incorporate work-based learning (WBL) opportunities consistent with CEJA program requirements:

- At least 10% of the training hours must include work-based learning activities.
- If a program cannot provide work-based learning experiences for technical or regulatory reasons, job site visits and tours may replace the requirements, with the approval of the grantee's assigned Grant Manager and Regional Administrator.

Note: Grantees are accountable for a minimum of 10% of their curriculum instructional hours to be allocated for work-based learning hours. Work-based learning hours must be added to the existing curriculum hour requirement and are eligible for participant stipends.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

Workforce Hubs are expected to establish meaningful work-based learning partnerships with [employers from Equity Investment Eligible Communities and Equity Eligible Contractors](#) to strengthen the CEJA ecosystem and to support participants' successful transition into employment.

E-7. Tools and equipment

The Electric Vehicle Supply Equipment (EVSE) & Charging Infrastructure Career Pathway should provide participants with access to the tools, equipment, and instructional resources necessary to perform EVSE installation, commissioning, maintenance, troubleshooting, and service activities. At a minimum, training should include access to:

- Electrical hand tools commonly used for EVSE installation and maintenance activities.
- Power tools appropriate for EVSE installation and related construction activities.
- Electrical testing and diagnostic equipment, such as multimeters, clamp meters, insulation resistance testers, continuity testers, and other industry-standard testing instruments.
- Demonstration EVSE equipment, training systems, mock installation assemblies, or access to EV charging installations that support hands-on instruction, including representative Level 1, Level 2, and, where practicable, DC Fast Charging equipment.
- Personal protective equipment (PPE) appropriate for electrical installation and maintenance activities.
- Laptops, tablets, or access to a computer laboratory.
- Software and digital resources used for equipment configuration, commissioning, diagnostics, documentation, and other instructional activities.
- Basic networking equipment and communication devices representative of connected EV charging systems.
- Current instructional materials, technical references, manufacturer documentation, and applicable codes and standards.

E-8. Estimated training length

The Electric Vehicle Supply Equipment (EVSE) & Charging Infrastructure Career Pathway should be delivered using a competency-based approach. As such, the duration of the pathway training should provide sufficient instructional time for participants to develop the occupation-specific competencies identified in this Framework through classroom, laboratory, and field-based learning activities. Workforce Hubs should determine the appropriate instructional hours based on curriculum design, participant needs, employer expectations, and preparation for applicable industry-recognized credentials, where appropriate. Additionally, work-based learning is a required program element that must be incorporated into the curriculum. At least 10% of the training hours must be work-based learning activities.

E-9. Training size

A cohort of approximately 10-15 participants is recommended to promote effective hands-on instruction, effective supervision, and meaningful access to tools, equipment, and field-based learning experiences.

E-10. Instructor requirements

Instructors should demonstrate technical expertise consistent with the competencies identified in this Career Pathway and possess relevant industry-recognized credentials or equivalent education, professional experience, or technical qualifications.

Relevant credentials may include:

- EVITP Certification
- Relevant electrical contractor, journeyperson, or master electrician credential
- OSHA 30-Hour Construction Safety and Health
- Other relevant EVSE, electrical, or industry-recognized certifications

It is strongly recommended that lead instructors possess recent industry experience in EVSE installation, commissioning, operations, maintenance, and troubleshooting.

Workforce Hubs are encouraged to provide an instructional team that consists of:

- Lead Instructor
- Laboratory or Field Instructor/Facilitator
- Program or Training Coordinator to support participant services, scheduling, logistics, and employer engagement

E-11. Occupation-specific competencies

By completing this Career Pathway, participants should be able to:

- Explain EV charging technologies, EVSE components, charging levels, connector types, system configurations, and common applications.
- Conduct basic site assessments by identifying factors that influence EVSE installation, equipment selection, accessibility, electrical service capacity, and installation feasibility.
- Interpret installation plans, electrical diagrams, equipment specifications, manufacturer documentation, and applicable codes and standards relevant to EV charging infrastructure.
- Assist with the installation, commissioning, inspection, operation, maintenance, and troubleshooting of EVSE, including charging infrastructure used in fleet and medium- and heavy-duty applications, in accordance with industry standards, manufacturer requirements, and applicable codes.
- Use common EVSE installation tools, electrical testing instruments, diagnostic equipment, and software to safely support installation, commissioning, troubleshooting, and maintenance activities.

- Document installation, testing, commissioning, maintenance, and troubleshooting activities while communicating technical information effectively with supervisors, customers, and other project stakeholders.
- Recognize factors that affect EVSE safety, performance, reliability, accessibility, and long-term operation, and communicate findings or recommendations to the appropriate supervisor or team member(s).
- Describe basic EV charging concepts, customer considerations, utility coordination, and emerging charging technologies to support informed customer interactions and preparation for applicable industry-recognized credentials.

E-12. Curriculum content overview

The table below summarizes the occupation-specific content recommended for the Electric Vehicle Supply Equipment (EVSE) & Charging Infrastructure Career Pathway. Curriculum content should align with current industry standards, manufacturer requirements, applicable federal, state, and local codes, and relevant industry-recognized credential requirements, as applicable.

Table 6: EVSE Content Domains

Domain I	Domain II	Domain III
Safety, Codes, & Standards	EVSE Fundamentals	Site Assessment & Installation Planning
- Apply safe work practices during EVSE installation, commissioning, operation, maintenance, and troubleshooting - Identify workplace, electrical, energized equipment, excavation, and other hazards associated with EVSE installation and servicing - Select and use appropriate PPE, tools, test equipment, and safety procedures - Comply with applicable safety regulations, standards, and site-specific safety requirements	- Explain EV charging technologies, charging levels, connector types, and common EVSE applications - Describe EVSE components, operating principles, and system configurations - Describe common EVSE applications, including residential, commercial, workplace, public, fleet, and medium- and heavy-duty charging - Explain basic electrical concepts, power delivery, and charging system operation - Describe communication protocols, network connectivity, and basic connected charging system concepts	- Conduct basic site assessments to identify installation requirements and constraints - Interpret installation plans, electrical diagrams, manufacturer documentation, and applicable codes and standards - Identify factors influencing equipment placement, accessibility, electrical service capacity, and installation feasibility - Recognize permitting, inspection, utility coordination, and customer site considerations relevant to EVSE installations

Domain IV	Domain V	Domain VI
Installation & Commissioning	Operations, Maintenance, & Troubleshooting	Customer Communications & Emerging Technologies
- Install EVSE equipment and associated components in accordance with applicable codes, manufacturer specifications, and project requirements - Install mounting systems, raceways, conductors, overcurrent protection, and associated equipment, as applicable - Perform testing, inspection, commissioning, and functional verification activities - Verify installation quality, document completed work, and prepare systems for operation	- Perform routine inspection and preventive maintenance activities, including for charging equipment used in fleet and heavy-duty applications - Use testing instruments, diagnostic equipment, and software to evaluate EVSE performance - Identify common installation and operational issues and recommend appropriate corrective actions or escalation - Document maintenance activities, troubleshooting results, and field observations	- Communicate EVSE capabilities, limitations, and basic operating procedures to customers and other stakeholders - Explain customer considerations related to charging equipment selection, operation, and maintenance - Describe basic utility coordination, managed charging concepts, and emerging EV charging technologies - Identify applicable industry-recognized credentials and continuing education opportunities that support career advancement

E-13. Assessment methods

Participants should demonstrate competency through a combination of written, practical, laboratory, and field-based assessments. Assessment methods may include:

- Written knowledge assessments
- Laboratory and hands-on performance evaluations
- Field-based competency demonstrations
- Scenario-based exercises and case studies
- Comprehensive practical and/or final assessments
- Preparation for applicable industry-recognized credential examinations, such as EVITP certification, where appropriate

Workforce Hubs are encouraged to provide additional instructional support, coaching, mentoring, and reasonable accommodations to help participants successfully demonstrate competency. Assessment methods should be varied to recognize different learning styles and educational experiences while maintaining consistent technical performance expectations.

E-14. Certification

The Electric Vehicle Supply Equipment (EVSE) & Charging Infrastructure Career Pathway should prepare participants to pursue applicable industry-recognized credentials associated with EVSE installation, commissioning, operation, and maintenance, including the Electric Vehicle Infrastructure Training Program (EVITP) certification. Tooling U-SME/SME training and credentials, including EV-related training and the Electric Vehicle Fundamentals (EVF) certification, may be considered as supplemental resources where appropriate to the pathway and regional employer needs. Programs may also incorporate complementary EVSE, electrical, safety, manufacturer-specific, or other relevant industry-recognized credentials and training, consistent with employer needs, program design, and current credential requirements.

E-15. References

- [Electric Vehicle Infrastructure Training Program \(EVITP\)](#)
- [National Electrical Code \(NEC\), including Article 625](#)
- [NFPA 70E: Standard for Electrical Safety in the Workplace](#)
- [Occupational Safety and Health Administration \(OSHA\)](#)
- [SAE J1772 standard](#)
- [SAE J3400 standard](#)
- [Open Charge Point Protocol \(OCPP\)](#)
- [SME Electric Vehicle Fundamentals Certification](#)
- [Tooling U-SME Electrification Training](#)
- [U.S. Department of Energy Alternative Fuels Data Center \(AFDC\)](#)
- [Understanding by Design \(Wiggins & McTighe\)](#)

8. UTILITIES CAREER CLUSTER

Industry Overview

The Utilities Career Cluster prepares participants for careers supporting the operation, maintenance, modernization, and improvement of utility systems and related infrastructure. Occupations within this Career Cluster support Illinois' transition to a clean energy economy by helping utilities and infrastructure operators safely produce, distribute, monitor, maintain, and improve essential energy and water systems.

Utility occupations increasingly support integrated systems that connect energy generation, transmission, distribution, storage, water and wastewater infrastructure, building systems, industrial facilities, and digital controls. Foundational competencies include electrical and mechanical systems, utility infrastructure, system controls, operations and maintenance, testing and troubleshooting, safety, technical documentation, and applicable codes, standards, and regulatory requirements.

The Utilities Career Cluster recognizes that many occupations support multiple utility systems and clean energy applications. Participants develop shared technical competencies related to utility infrastructure, electrical and mechanical systems, system operation, controls and instrumentation, monitoring and data systems, preventive maintenance, troubleshooting, technical documentation, and regulatory compliance before progressing into occupation-specific Career Pathways.

Demonstration of Need

Illinois' transition to a clean energy economy is increasing demand for workers capable of operating, maintaining, repairing, and modernizing utility infrastructure and related systems. Stakeholder engagement and labor market analysis identified utility occupations supporting electric transmission and distribution, power generation, utility maintenance, controls, and water and wastewater infrastructure as important components of Illinois' clean energy workforce.

Utility employers and workforce stakeholders identified a need for workers with transferable technical skills that can support the safe and reliable operation of utility systems and infrastructure across a range of occupations and work environments. These needs include foundational knowledge of electrical and mechanical systems, equipment operation and maintenance, controls and instrumentation, troubleshooting, safety, technical documentation, and applicable standards and regulatory requirements.

The Utilities Career Cluster responds to these workforce needs by establishing a shared technical foundation that can prepare participants for multiple utility and infrastructure occupations while allowing Workforce Hubs flexibility to tailor occupation-specific training to regional employer demand. Because utility hiring and training pathways vary by occupation, region, and employer, Career Cluster

training should support transition into entry-level employment, on-the-job training, Registered Apprenticeships, and other forms of advanced occupational training where applicable.

Representative Occupations

Representative occupations for the Utilities Career Cluster include, but are not limited to:

- Electric Power-Line Installers and Repairers (49-9051)
- Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (49-2095)
- Power Plant Operators (51-8013)
- Water and Wastewater Treatment Plant and System Operators (51-8031)
- Water Resource Specialists (*O*NET-SOC 11-9121.02*)
- Control and Valve Installers and Repairers, Except Mechanical Door (49-9012)
- Stationary Engineers and Boiler Operators (51-8021)
- Utility Meter Readers (43-5041)

Representative occupations may also include related utility construction, operations, maintenance, instrumentation, controls, and infrastructure occupations based on regional employer demand.

Note: These occupation titles, except where noted, align with [U.S. Bureau of Labor Statistics \(BLS\) Standard Occupational Classification \(SOC\) codes](#). Though occupation titles are standardized, job titles are not. Employers use a variety of different job titles in this cluster.

Shared Technical Competencies

The shared technical competencies for the Utilities Career Cluster include:

- **Utility Systems and Infrastructure.** Understand the basic purpose, components, and operation of utility infrastructure, including electrical generation, transmission and distribution systems, water and wastewater systems, pumping and treatment systems, and related utility equipment.
- **Electrical Systems and Safety.** Understand electrical principles, circuits, components, power distribution, electrical hazards, and safe work practices relevant to utility systems and infrastructure.
- **Mechanical Systems and Equipment.** Understand the operation, function, and interaction of mechanical equipment, components, pumps, valves, motors, and related systems used in utility operations and infrastructure.
- **System Operation, Monitoring, and Controls.** Understand how utility systems are monitored, controlled, and operated using instrumentation, control systems, digital technologies, and other operational tools.
- **Testing, Troubleshooting, and Preventive Maintenance.** Apply systematic approaches to inspecting, testing, diagnosing, maintaining, and troubleshooting utility systems and equipment while supporting safe and reliable operation.

- **Tools, Equipment, and Diagnostic Instrumentation.** Select, operate, and maintain appropriate hand tools, power tools, testing instruments, measurement devices, and diagnostic equipment used in utility operations and maintenance.
- **Technical Documentation and Data Management.** Interpret operating procedures, equipment specifications, technical drawings, system diagrams, manufacturer documentation, and other technical information while accurately documenting inspections, tests, maintenance activities, and system conditions.
- **Codes, Standards, and Regulatory Compliance.** Understand the purpose and application of applicable electrical, mechanical, environmental, occupational safety, utility, water, and other regulatory requirements supporting safe and compliant utility operations.
- **Utility Safety and Hazard Recognition.** Identify and respond appropriately to hazards associated with utility and infrastructure work, including electrical, mechanical, confined space, chemical, environmental, and other site-specific hazards.
- **Systems Thinking and Infrastructure Resilience.** Explain how utility systems interact with communities, buildings, industries, environmental systems, and other infrastructure and recognize the importance of reliability, resilience, resource efficiency, and continuous improvement.

Applied Skills

Participants should demonstrate the ability to:

- Safely perform basic utility operations, inspection, maintenance, and support activities in accordance with applicable procedures, standards, and employer requirements.
- Interpret technical drawings, system diagrams, operating procedures, equipment specifications, and manufacturer documentation.
- Use common hand tools, power tools, measurement devices, testing instruments, and diagnostic equipment appropriate to utility operations and maintenance.
- Inspect utility equipment and infrastructure and identify conditions requiring maintenance, repair, additional testing, or escalation to qualified personnel.
- Perform basic testing and troubleshooting activities using systematic procedures and appropriate diagnostic equipment.
- Apply preventive maintenance procedures and document maintenance activities and system conditions using accepted industry practices.
- Recognize common electrical, mechanical, environmental, confined space, chemical, and other utility workplace hazards and follow established safety procedures.
- Use basic instrumentation, controls, and digital systems to monitor equipment and system performance and identify abnormal operating conditions.
- Maintain accurate technical records and communicate operational conditions, maintenance needs, test results, and other findings to supervisors and other project or operations personnel.

- Explain how utility systems support clean energy deployment, energy efficiency, infrastructure modernization, environmental protection, and community needs.

Industry Credentials

Workforce Hubs should prepare participants for industry-recognized credentials appropriate to the Utilities Career Cluster and selected Career Pathway(s), where applicable. Examples may include:

- OSHA 30
- Confined Space Entry certification or training, where applicable to the selected utility occupation
- Applicable electrical safety, utility, water, wastewater, or equipment-specific credentials
- Illinois water or wastewater operator certification preparation, where applicable to regional employer demand and Career Pathway design
- Applicable manufacturer, instrumentation, controls, or utility-specific training and credentials

Minimum Career Cluster Requirements

Workforce Hubs delivering the Utilities Career Cluster must:

- Address all Utilities Career Cluster competencies.
- Provide participants with opportunities to demonstrate the Applied Skills identified for the Career Cluster.
- Incorporate hands-on instruction and activities representative of authentic utility operations, maintenance, and infrastructure work environments.
- Integrate applicable industry standards, codes, safety requirements, and regulatory requirements throughout instruction.
- Provide opportunities for participants to understand utility systems and infrastructure through authentic workplace applications, including energy and/or water systems as appropriate to the selected training.
- Prepare participants to successfully transition into one or more Utilities Career Pathways, entry-level utility employment, on-the-job training, Registered Apprenticeships, or other appropriate advanced occupational training opportunities.

9. UTILITIES CAREER CLUSTER – ILLUSTRATIVE CAREER PATHWAYS

F. Utility Infrastructure Technician

The Utility Infrastructure Technician Career Pathway prepares participants for entry-level careers supporting the safe operation, monitoring, maintenance, troubleshooting, and improvement of utility systems and related infrastructure. Building upon the Utilities Career Cluster, participants develop the technical knowledge and practical skills necessary to support electrical, mechanical, water and wastewater, controls, and other utility systems while applying industry safety practices and applicable codes, standards, and regulatory requirements. Instruction should combine classroom, laboratory, and field-based learning experiences representative of current industry practice. Upon successful completion, participants should be prepared for entry-level employment and transition into employer-based training, Registered Apprenticeships, occupational credentials, and other advanced training opportunities appropriate to the selected utility occupation.

F-1. Demonstration of need for training

Workforce Hubs proposing a Utility Infrastructure Technician Career Pathway should demonstrate regional demand for utility operations, maintenance, and infrastructure training by documenting employer workforce needs, labor market demand, and existing training capacity. Applicants are encouraged to engage utilities, workforce development organizations, labor organizations, and other regional stakeholders to ensure the proposed pathway reflects current workforce priorities.

At a minimum, applicants should describe:

- Regional demand for utility operations, maintenance, infrastructure, and related occupations supported by available labor market information and employer engagement.
- Regional workforce demand associated with electric transmission and distribution, power generation, water and wastewater systems, utility maintenance, controls and instrumentation, or other applicable utility systems.
- Existing education and training opportunities within the region, including identified gaps or unmet workforce needs.
- Anticipated benefits for Equity Eligible Persons and communities consistent with CEJA program goals.
- Meaningful employer partnerships that demonstrate workforce demand and support work-based learning opportunities, hiring, Registered Apprenticeships, on-the-job training, or other career advancement opportunities.

F-2. Training outcomes

Upon completion of the Utility Infrastructure Technician Career Pathway, participants should be able to:

- Explain the basic functions and interrelationships of electrical, mechanical, water, wastewater, and other utility systems.
- Apply safe work practices and applicable technical, environmental, occupational safety, and utility-specific requirements to routine utility activities.
- Perform basic utility operations, inspection, testing, monitoring, maintenance, and troubleshooting activities using appropriate tools and procedures.
- Use foundational instrumentation, controls, digital systems, and operational data to monitor utility equipment and system performance.
- Document operational conditions, inspection findings, maintenance activities, and other technical information and communicate findings appropriately.
- Pursue applicable industry-recognized credentials, entry-level utility employment, Registered Apprenticeships, on-the-job training, or other occupational training consistent with regional employer needs.

F-3. Representative occupations

The Utility Infrastructure Technician Career Pathway may prepare participants for entry-level utility support roles and provide foundational preparation for occupations including:

- Electric Power-Line Installers and Repairers (49-9051)
- Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (49-2095)
- Power Plant Operators (51-8013)
- Water and Wastewater Treatment Plant and System Operators (51-8031)
- Control and Valve Installers and Repairers, Except Mechanical Door (49-9012)
- Stationary Engineers and Boiler Operators (51-8021)

Additional utility operations, maintenance, infrastructure, instrumentation, controls, and related occupations may be supported based on regional employer demand and available occupational training opportunities.

Note: These occupation titles align with [U.S. Bureau of Labor Statistics \(BLS\) Standard Occupational Classification \(SOC\) codes](#). Though occupation titles are standardized, job titles are not. Employers use a variety of different job titles in this pathway.

F-4. Example job titles and career progression

Though occupation titles are standardized, job titles are not. Employers use a variety of different job titles in this career pathway. Some job titles demonstrate career advancement opportunities. Here are a few example job titles in this career pathway:

- Utility Technician

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- Utility Maintenance or Service Technician
- Water or Wastewater Operator
- Controls or Instrumentation Technician
- Power Plant Operator
- Stationary Engineer
- Electrical Utility Technician
- Electric Power-Line Installer or Repairer
- Utility Operations or Maintenance Supervisor

Progression into certain occupations may require additional employer-based training, Registered Apprenticeship participation, occupational licensing, or other advanced education and training.

F-5. Prerequisites

Before beginning the Utility Infrastructure Technician Career Pathway, participants should:

- Successfully complete the CEJA Core Competencies and Utilities Career Cluster competencies (or demonstrate equivalent knowledge and experience).
- Demonstrate foundational reading, mathematics, and digital literacy skills necessary to interpret technical documentation, perform basic calculations, document work activities, and use common digital tools.
- Be comfortable working in indoor and outdoor environments, including utility facilities, equipment areas, construction or maintenance sites, and other field-based work environments appropriate to the selected utility occupation.
- Be capable of safely performing physically demanding field work, including standing, walking, climbing, lifting and carrying tools or equipment, and working in varying environmental conditions, as appropriate to the selected occupation.
- Work effectively both independently and as part of a team.
- Demonstrate an understanding of the importance of following established safety procedures, standard operating procedures, and supervisory direction.

F-6. Learning environment and format

The Utility Infrastructure Technician Career Pathway should primarily be delivered through classroom, laboratory, and field-based instruction with substantial hands-on learning opportunities. Training facilities should provide sufficient space and equipment for participants to complete individual and team-based technical activities associated with utility operations, inspection, maintenance, testing, troubleshooting, and documentation.

Instruction should incorporate realistic utility equipment, system simulations, technical documentation, operational scenarios, and other authentic workplace applications. Whenever practicable, participants should participate in job site visits, facility tours, demonstrations, practicums, or other work-based learning opportunities with electric utilities, water and wastewater utilities, power-generation facilities, utility contractors, or related employers.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

Workforce Hubs must incorporate work-based learning (WBL) opportunities consistent with CEJA program requirements:

- At least 10% of the training hours must include work-based learning activities.
- If a program cannot provide work-based learning experiences for technical or regulatory reasons, job site visits and tours may replace the requirements, with the approval of the grantee's assigned Grant Manager and Regional Administrator.

Note: Grantees are accountable for a minimum of 10% of their curriculum instructional hours to be allocated for work-based learning hours. Work-based learning hours must be added to the existing curriculum hour requirement and are eligible for participant stipends.

Workforce Hubs are expected to establish meaningful work-based learning partnerships with employers from Equity Investment Eligible Communities and Equity Eligible Contractors to strengthen the CEJA ecosystem and to support participants' successful transition into employment.

F-7. Tools and equipment

The Utility Infrastructure Technician Career Pathway should provide participants with access to the tools, equipment, and instructional resources necessary to perform basic utility operations, inspection, maintenance, testing, troubleshooting, and documentation activities. At a minimum, training should include access to:

- Basic hand tools commonly used in utility operations and maintenance activities.
- Portable power tools appropriate to the selected utility application.
- Electrical testing and measurement equipment, such as multimeters, clamp meters, voltage testers, and other appropriate diagnostic instruments.
- Basic mechanical measurement and diagnostic equipment.
- Pumps, motors, valves, piping, electrical components, or comparable utility equipment suitable for hands-on instruction.
- Demonstration instrumentation, controls, sensors, or digital monitoring equipment appropriate to utility operations.
- Water and wastewater system components or comparable training equipment, where water-related instruction is included.
- Safety equipment and PPE appropriate to utility operations and maintenance activities.
- Confined space entry training equipment or simulated environments, where applicable.
- Computers, tablets, or access to a computer laboratory for technical documentation, data collection, system monitoring, and related instructional activities.
- Current instructional materials, technical references, manufacturer documentation, operating procedures, and applicable codes and standards.

F-8. Estimated training length

The Utility Infrastructure Technician Career Pathway should be delivered using a competency-based approach. The duration of pathway training should provide sufficient instructional time for participants to develop the occupation-specific competencies identified in this Framework through classroom, laboratory, field-based, and work-based learning activities. Workforce Hubs should determine the appropriate instructional hours based on curriculum design, participant needs, employer expectations, available work-based learning opportunities, and preparation for applicable credentials.

Additionally, work-based learning is a required program element that must be incorporated into the curriculum. At least 10% of the training hours must be work-based learning activities.

F-9. Training size

A cohort of approximately 10-15 participants is recommended to promote effective hands-on instruction, access to technical equipment, effective supervision, and opportunities for individualized feedback during laboratory and field-based learning activities.

F-10. Instructor requirements

Instructors should demonstrate technical expertise consistent with the competencies identified in this Career Pathway and possess relevant industry-recognized credentials or equivalent education, professional experience, or technical qualifications.

Relevant experience may include utility operations, electrical or mechanical systems, water and wastewater systems, industrial maintenance, power generation, instrumentation and controls, facilities operations, or related utility infrastructure work.

It is strongly recommended that lead instructors possess recent industry experience in utility operations, maintenance, testing, troubleshooting, or related technical work.

Workforce Hubs are encouraged to provide an instructional team that consists of:

- Lead Instructor
- Laboratory or Field Instructor/Facilitator
- Program or Training Coordinator to support participant services, scheduling, logistics, and employer engagement

Where instruction includes water and wastewater operations, Workforce Hubs should engage instructors or industry partners with relevant water or wastewater operations experience and knowledge of applicable Illinois requirements.

F-11. Occupation-specific competencies

By completing this Career Pathway, participants should be able to:

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- Explain the purpose, components, operating principles, and common applications of utility systems and related infrastructure, including electrical generation, transmission and distribution, mechanical systems, water and wastewater systems, and control systems.
- Interpret technical documentation, operating procedures, system diagrams, equipment specifications, manufacturer literature, and applicable codes and standards relevant to utility operations and maintenance.
- Apply safe work practices during utility operations, inspection, maintenance, testing, and troubleshooting activities.
- Identify electrical, mechanical, environmental, confined space, chemical, and other hazards associated with utility work and apply appropriate prevention, PPE, and safe work practices.
- Use common utility hand tools, power tools, testing instruments, measurement devices, and diagnostic equipment to safely perform routine operations and maintenance activities.
- Perform basic inspections, measurements, system checks, and operational testing using established procedures and appropriate equipment.
- Identify common equipment faults, deficiencies, abnormal operating conditions, and maintenance needs and communicate findings to appropriate supervisors or other qualified personnel.
- Apply preventive maintenance procedures to utility equipment and infrastructure while following manufacturer recommendations, standard operating procedures, and applicable requirements.
- Describe the basic functions of instrumentation, sensors, controls, alarms, and digital monitoring systems used to measure, regulate, and monitor utility equipment and system performance.
- Interpret basic operating data and recognize conditions that may indicate changes in system performance, equipment condition, or operational status.
- Describe basic water and wastewater treatment and distribution concepts, including pumps, valves, treatment processes, water quality monitoring, process monitoring, sampling, and the relationship between water systems and energy use, where applicable.
- Recognize the role of energy efficiency, infrastructure modernization, resource efficiency, and resilience in utility operations.
- Document inspections, testing, maintenance activities, operational conditions, and system performance findings while communicating technical information effectively with supervisors and other project or operations personnel.
- Recognize when an activity requires additional training, authorization, licensing, or supervision and appropriately escalate work beyond the participant's scope of practice.

F-12. Curriculum content overview

The Utility Infrastructure Technician Career Pathway curriculum should align with current industry practices, applicable safety requirements, manufacturer recommendations, federal, state, and local regulations, and relevant industry-recognized credential frameworks. Instruction should emphasize

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

transferable skills that can be applied across electric, water, wastewater, power-generation, and related utility environments.

The curriculum should be organized around the following occupation-specific competency domains.

Table 7: Utility Infrastructure Content Domains

Domain I	Domain II	Domain III
Utility System Fundamentals	Safety & Regulatory Compliance	Operations & Monitoring
- Explain utility infrastructure and system functions - Describe electrical generation, transmission, and distribution - Explain electrical and mechanical systems - Explain water and wastewater treatment and distribution - Identify the functions of pumps, motors, valves, and related equipment - Describe the interdependence of utility systems and basic energy-water connections	- Apply electrical and mechanical safety - Identify utility workplace hazards - Apply lockout/tagout awareness and PPE - Identify confined space hazard recognition and entry procedures, where applicable - Identify environmental and chemical hazards - Apply hazard communication practices - Identify applicable utility, environmental, occupational safety, and facility requirements	- Follow standard operating procedures (SOP) - Monitor routine equipment and system conditions - Identify instrumentation, sensors, and measurement devices - Describe basic control systems and automation - Monitor alarms and recognize abnormal operating conditions - Collect and document operational data and process measurements - Perform basic water-quality measurement and process monitoring

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

Domain IV	Domain V	Domain VI
Maintenance & Troubleshooting	Technical Documentation & Data	Infrastructure Resilience & Resource Efficiency
- Perform preventive maintenance on utility equipment and infrastructure - Conduct equipment inspections and operational testing - Perform basic electrical and mechanical diagnostics - Use diagnostic tools and measurement equipment to evaluate equipment and system conditions - Perform basic maintenance on pumps, motors, valves, and related equipment - Identify common equipment faults and appropriate corrective actions - Assess equipment condition and identify maintenance needs - Recognize conditions requiring evaluation or work by qualified personnel	- Interpret technical drawings and system diagrams - Interpret equipment specifications and manufacturer documentation - Maintain operating records - Document inspection, testing, and maintenance activities - Use digital monitoring and data systems - Interpret basic operational and performance data - Communicate technical information and findings	- Identify opportunities for energy efficiency in utility operations - Explain relationships between water systems and energy use - Identify opportunities for resource efficiency - Identify factors affecting infrastructure reliability and resilience - Explain equipment performance and lifecycle considerations - Describe infrastructure modernization strategies - Explain the role of utility infrastructure in environmental protection and public health

Where a training program emphasizes water and wastewater systems, instruction should additionally address water and wastewater treatment fundamentals, water quality monitoring and sampling, pumps and distribution systems, process monitoring and data recording, regulatory compliance basics, and applicable confined space safety practices.

Where a training program emphasizes electric utility systems, instruction should additionally address electrical distribution systems, substations and related equipment, utility system safety, power generation or transmission and distribution operations, and applicable employer or apprenticeship requirements.

F-13. Assessment methods

Participants should demonstrate competency through a combination of written, practical, laboratory, and field-based assessments. Assessment methods may include:

- Written knowledge assessments
- Laboratory and hands-on performance evaluations
- Field-based competency demonstrations

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- Scenario-based exercises and case studies
- Practical demonstrations of equipment inspection, measurement, testing, troubleshooting, and documentation
- Simulated utility operations and maintenance activities
- Comprehensive practical and/or final assessments
- Preparation for applicable industry-recognized credential examinations

Workforce Hubs are encouraged to provide additional instructional support, coaching, mentoring, and reasonable accommodations to help participants successfully demonstrate competency. Assessment methods should be varied to recognize different learning styles and educational experiences while maintaining consistent technical performance expectations.

F-14. Certification

The Utility Infrastructure Technician Career Pathway should prepare participants to pursue applicable industry-recognized credentials associated with utility operations, maintenance, safety, and related infrastructure work.

Programs may incorporate credentials consistent with employer needs, program design, and applicable credential requirements. Examples include:

- Confined Space Entry certification or training, where applicable
- Applicable electrical safety or utility-specific certifications
- Applicable water or wastewater operator certification preparation, where supported by regional employer demand and pathway design
- Manufacturer-specific equipment or controls training
- Other industry-recognized credentials appropriate to the selected utility application

Where participants pursue Illinois water or wastewater operator careers, training providers may incorporate foundational preparation for applicable Illinois Environmental Protection Agency operator certification examinations. Training should clearly distinguish educational preparation from the facility operating experience, education, examination, and other requirements necessary for occupational certification.

F-15. References

- [O*NET OnLine, Utility and Infrastructure-Related Occupational Profiles](#)
- [Illinois Environmental Protection Agency, Drinking Water Operator Certification](#)
- [Illinois Environmental Protection Agency, Wastewater Operator Certification](#)
- [U.S. Occupational Safety and Health Administration, 29 CFR 1910.146, Permit-Required Confined Spaces](#), and applicable confined-space requirements for construction
- [U.S. Occupational Safety and Health Administration, 29 CFR 1910.147, The Control of Hazardous Energy \(Lockout/Tagout\)](#)
- [U.S. Department of Labor, Renewable Energy and Energy Efficiency Competency Model](#)

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- [U.S. Environmental Protection Agency, Water Infrastructure](#)
- [Understanding by Design \(Wiggins & McTighe\)](#)

10. INSTALLATION, MAINTENANCE, & REPAIR CAREER CLUSTER

Industry Overview

The Installation, Maintenance, & Repair Career Cluster prepares participants for careers installing, commissioning, maintaining, troubleshooting, and repairing clean energy systems, equipment, and related building technologies. Occupations within this Career Cluster support Illinois' transition to a clean energy economy by ensuring that building electrification systems, heating and cooling equipment, energy storage systems, electrical equipment, and other clean energy technologies are safely installed, operated, maintained, and serviced.

Installation and maintenance occupations increasingly support integrated energy systems that connect buildings, distributed energy resources, energy storage, and electric power systems. Foundational competencies include electrical and mechanical systems, system controls, commissioning, testing, preventive maintenance, troubleshooting, diagnostic tools, technical documentation, and applicable codes and standards.

Participants develop shared technical competencies related to electrical systems, mechanical systems, equipment installation, commissioning, system testing, preventive maintenance, troubleshooting, controls, and technical documentation. These shared competencies provide a foundation for specialized training within individual Illustrative Career Pathways.

Demonstration of Need

Illinois' transition to a clean energy economy is increasing demand for workers capable of installing, commissioning, maintaining, troubleshooting, and repairing clean energy systems and equipment. Stakeholder engagement conducted prior to development of the revised Curriculum Framework identified installation and maintenance occupations supporting building electrification, heat pump technologies, energy storage, electrical equipment, and related clean energy systems as critical workforce needs. Employers emphasized the importance of technical competencies related to electrical and mechanical systems, equipment installation, commissioning, system testing, preventive maintenance, troubleshooting, controls, and applicable codes and standards across a broad range of occupations. The Installation, Maintenance, & Repair Career Cluster responds to these workforce needs by establishing a shared technical foundation that prepares participants for specialized training while allowing Workforce Hubs flexibility to tailor occupation-specific training to regional employer demand.

Representative Occupations

Representative occupations for the Installation, Maintenance, & Repair Career Cluster include, but are not limited to:

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- Automotive Service Technicians and Mechanics (49-3023)
- Bus and Truck Mechanics and Diesel Engine Specialists (49-3031)
- HVAC Mechanics and Installers (49-9021)
- Electric Power-Line Installers and Repairers (49-9051)
- Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (49-2095)
- Electrical and Electronics Repairers, Commercial and Industrial Equipment (49-2094)
- Industrial Machinery Mechanics (49-9041)
- Maintenance and Repair Workers, General (49-9071)

Note: These occupation titles align with [U.S. Bureau of Labor Statistics \(BLS\) Standard Occupational Classification \(SOC\) codes](#). Though occupation titles are standardized, job titles are not. Employers use a variety of different job titles in this cluster.

Shared Technical Competencies

The shared technical competencies for the Installation, Maintenance, & Repair Career Cluster include:

- **Electrical Systems, Safety, and Circuit Fundamentals.** Understand the principles of electrical systems, circuits, components, and power distribution that support the safe installation, operation, maintenance, and troubleshooting of clean energy technologies.
- **Mechanical Systems and Equipment Principles.** Understand the operation, function, and interaction of mechanical equipment, components, and assemblies commonly used in clean energy systems, building technologies, and related infrastructure.
- **System Installation and Commissioning.** Apply industry-recognized installation practices, equipment specifications, and commissioning procedures to verify that clean energy systems, including battery energy storage systems, are installed correctly, configured appropriately, operate as intended, and meet applicable performance requirements.
- **System Testing, Troubleshooting, and Preventive Maintenance.** Apply systematic approaches to inspecting, testing, diagnosing, maintaining, and repairing clean energy systems and equipment, including battery energy storage systems, while identifying performance issues and supporting reliable long-term operation.
- **Tools, Equipment, and Diagnostic Instrumentation.** Select, operate, and maintain appropriate hand tools, power tools, testing instruments, and diagnostic equipment used to install, commission, maintain, and troubleshoot clean energy systems.
- **Technical Documentation.** Interpret installation manuals, wiring diagrams, equipment specifications, manufacturer documentation, and technical drawings while accurately documenting installation, testing, maintenance, and service activities.
- **Codes, Standards, and Regulatory Compliance.** Understand the purpose and application of applicable electrical, mechanical, building, energy, safety, and manufacturer standards supporting compliant installation, maintenance, and system performance.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- **Controls and Integrated Energy Systems.** Understand the function and interaction of electrical, mechanical, and digital control systems used to monitor, regulate, and optimize clean energy technologies and related building and energy systems, including battery management systems, energy management systems, and grid-connected systems.

The following resources align with the Building Performance Institute (BPI) Building Science Principles curriculum and the NCCER Core Construction curriculum, respectively. Both curricula are more comprehensive than the material included in this Framework and may support preparation for related industry credentials:

- [Building Performance Institute \(BPI\) Building Science Principles curriculum](#)
- [NCCER Core curriculum and applicable modules](#)

Applied Skills

Participants should demonstrate the ability to:

- Safely install and commission clean energy systems and equipment in accordance with manufacturer specifications and applicable industry standards.
- Apply basic commissioning, testing, and documentation procedures to battery energy storage systems and related control systems.
- Inspect, test, troubleshoot, and document system performance using appropriate tools and diagnostic equipment.
- Interpret technical drawings, wiring diagrams, equipment specifications, and manufacturer documentation.
- Identify equipment deficiencies and recommend appropriate corrective actions or maintenance activities.
- Apply applicable codes, standards, and quality assurance and quality control (QA/QC) principles during installation and maintenance activities.
- Document installation, commissioning, maintenance, and service activities using accepted industry practices.
- Effectively and professionally communicate technical information and findings with clients and other project stakeholders.

Industry Credentials

Workforce Hubs should prepare participants for industry-recognized credentials appropriate to the Installation, Maintenance, & Repair Career Cluster and selected Career Pathway(s), where applicable.

Examples may include:

- OSHA 30
- NCCER Core (or applicable NCCER modules)

Minimum Career Cluster Requirements

Workforce Hubs delivering the Installation, Maintenance, & Repair Career Cluster must:

- Address all Installation, Maintenance, & Repair Career Cluster competencies.
- Provide participants with opportunities to demonstrate the applied skills identified for the Career Cluster.
- Incorporate hands-on instruction and activities representative of authentic installation, commissioning, maintenance, and service work environments.
- Integrate applicable industry standards, codes, and best practices throughout instruction.
- Prepare participants to successfully transition into one or more Installation, Maintenance, & Repair Career Pathways.

11. INSTALLATION, MAINTENANCE, & REPAIR CAREER CLUSTER – ILLUSTRATIVE CAREER PATHWAYS

G. HVAC

The HVAC Installation, Maintenance, & Repair Career Pathway prepares participants for entry-level careers supporting the installation, commissioning, maintenance, and service of residential and light commercial heating, ventilation, air conditioning (HVAC), and building electrification systems. Building upon the Installation, Maintenance, & Repair Career Cluster, participants develop the technical knowledge and practical skills necessary to install, troubleshoot, maintain, and repair conventional and high-efficiency HVAC equipment, including heat pump systems, while applying industry safety practices and applicable codes and standards. Instruction should combine classroom, laboratory, and field-based learning experiences representative of current industry practice. Upon successful completion, participants should be prepared to pursue the U.S. Environmental Protection Agency (EPA) Section 608 Technician Certification and other applicable industry-recognized credentials, including North American Technician Excellence (NATE) and HVAC Excellence certifications, as well as other relevant credentials supporting heat pump technologies and building electrification, consistent with employer needs and program design.

G-1. Demonstration of need for training

Workforce Hubs proposing an HVAC Career Pathway should demonstrate regional demand for HVAC and building electrification training by documenting employer workforce needs, labor market demand, and existing training capacity. Applicants are encouraged to engage employers, workforce development organizations, labor organizations, and other regional stakeholders to ensure the proposed pathway reflects current workforce priorities.

At a minimum, applicants should describe:

- Regional demand for occupations within the **HVAC Mechanics and Installers (49-9021)** category and associated HVAC installation, service, maintenance, and building electrification work, supported by available labor market information and employer engagement.
- Existing education and training opportunities within the region, including identified gaps or unmet workforce needs.
- Anticipated benefits for Equity Eligible Persons and communities consistent with CEJA program goals.
- Meaningful employer partnerships that demonstrate workforce demand and support work-based learning opportunities, hiring, or other workforce development activities.

G-2. Training outcomes

Upon completion of the HVAC Career Pathway, participants should be able to:

- Explain the operating principles and common applications of residential and light commercial HVAC and heat pump systems.
- Interpret technical documentation and system information relevant to HVAC installation, commissioning, maintenance, and service.
- Support the safe installation, commissioning, maintenance, troubleshooting, and service of HVAC and heat pump systems.
- Apply applicable mechanical, electrical, refrigerant handling, safety, and industry requirements to routine HVAC work.
- Evaluate basic HVAC system performance and identify conditions requiring maintenance, correction, or additional evaluation.
- Communicate system operation, maintenance requirements, energy efficiency considerations, and service recommendations to customers and other project stakeholders.
- Pursue the EPA Section 608 Technician Certification and other applicable industry-recognized credentials and entry-level employment in HVAC.

G-3. Representative occupations

- HVAC Mechanics and Installers (49-9021) and associated HVAC, heat pump, and building electrification occupations

Note: These occupation titles align with [U.S. Bureau of Labor Statistics \(BLS\) Standard Occupational Classification \(SOC\) codes](#). Though occupation titles are standardized, job titles are not. Employers use a variety of different job titles in this pathway.

G-4. Example job titles and career progression

Though occupation titles are standardized, job titles are not. Employers use a variety of different job titles in this career pathway. Some job titles demonstrate career advancement opportunities. Here are a few example job titles in this career pathway:

- Lead HVAC Installer
- HVAC Installation Supervisor
- HVAC Service Manager
- HVAC Project Manager

G-5. Prerequisites

Before beginning the HVAC Career Pathway, participants should:

- Successfully complete the CEJA Core Competencies and Installation, Maintenance, & Repair Career Cluster competencies (or demonstrate equivalent knowledge and experience).
- Be comfortable working in indoor and outdoor environments, including on ladders, rooftops, attics, crawlspaces, and other locations commonly encountered during HVAC installation and

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

service activities.

- Be capable of safely performing physically demanding field work, including lifting and carrying equipment and materials, using appropriate personal protective equipment (PPE), and working in varying environmental conditions.
- Safely use hand tools, power tools, and materials commonly associated with HVAC installation and maintenance activities.
- Work effectively both independently and as part of a team.
- Apply foundational mathematics, reading, and digital literacy skills necessary to interpret technical documentation, perform basic calculations, and complete required work activities.

G-6. Learning environment and format

The HVAC Career Pathway should primarily be delivered through classroom, laboratory, and field-based instruction with substantial hands-on learning opportunities. Training facilities should provide sufficient space and equipment for participants to complete individual and team-based technical activities associated with HVAC installation, commissioning, maintenance, troubleshooting, and service.

Participants should have access to computers or mobile devices and software necessary to complete documentation, equipment diagnostics, basic system calculations, technical drawing review, quality assurance activities, and other instructional tasks associated with HVAC systems. Where practicable, participants should have opportunities to observe or participate in HVAC-related work at water or wastewater facilities when water-facility HVAC applications are included in the training.

Workforce Hubs must incorporate work-based learning (WBL) opportunities consistent with CEJA program requirements:

- At least 10% of the training hours must include work-based learning activities.
- If a program cannot provide work-based learning experiences for technical or regulatory reasons, job site visits and tours may replace the requirements, with the approval of the grantee's assigned Grant Manager and Regional Administrator.

Note: Grantees are accountable for a minimum of 10% of their curriculum instructional hours to be allocated for work-based learning hours. Work-based learning hours must be added to the existing curriculum hour requirement and are eligible for participant stipends.

Workforce Hubs are expected to establish meaningful work-based learning partnerships with [employers from Equity Investment Eligible Communities and Equity Eligible Contractors](#) to strengthen the CEJA ecosystem and to support participants' successful transition into employment.

G-7. Tools and equipment

The HVAC Career Pathway should provide participants with access to the tools, equipment, and instructional resources necessary to perform HVAC installation, commissioning, maintenance, troubleshooting, and service activities. At a minimum, training should include access to:

- HVAC hand tools commonly used for installation and service activities.
- HVAC specialty tools and diagnostic equipment, such as multimeters, refrigerant gauges, vacuum pumps, thermometers, combustion analyzers, leak detection equipment, and other industry-standard testing instruments.
- Demonstration HVAC equipment and training systems representative of residential and light commercial applications, including furnaces, air conditioners, heat pumps, air distribution components, controls, and refrigeration systems.
- Personal protective equipment (PPE) appropriate for HVAC installation and service activities.
- Laptops, tablets, or access to a computer laboratory.
- Software and digital resources used for equipment diagnostics, load calculations, documentation, and other instructional activities.
- Current instructional materials, technical references, manufacturer documentation, and applicable codes and standards.

G-8. Estimated training length

The HVAC Career Pathway should be delivered using a competency-based approach. As such, the duration of the pathway training should provide sufficient instructional time for participants to develop the occupation-specific competencies identified in this Framework through classroom, laboratory, and field-based learning activities. Workforce Hubs should determine the appropriate instructional hours based on curriculum design, participant needs, employer expectations, and preparation for applicable industry-recognized credentials, including EPA Section 608 Technician Certification, where appropriate.

G-9. Training size

A cohort of approximately 10-15 participants is recommended to promote effective hands-on instruction, effective supervision, and meaningful access to tools, equipment, laboratory facilities, and field-based learning experiences.

G-10. Instructor requirements

Instructors should demonstrate technical expertise consistent with the competencies identified in this Career Pathway and possess relevant industry-recognized credentials or equivalent education, professional experience, or technical qualifications.

Relevant credentials may include:

- EPA Section 608 Technician Certification
- North American Technician Excellence (NATE)
- HVAC Excellence certifications
- Other relevant industry-recognized credentials supporting HVAC installation, service, heat pump technologies, or building electrification, as appropriate

It is strongly recommended that lead instructors possess recent industry experience in HVAC installation, service, commissioning, maintenance, and troubleshooting, including heat pump technologies and other emerging high-efficiency HVAC systems.

Workforce Hubs are encouraged to provide an instructional team that consists of:

- Lead Instructor
- Laboratory or Field Instructor/Facilitator
- Program or Training Coordinator to support participant services, scheduling, logistics, and employer engagement

G-11. Occupation-specific competencies

By completing this Career Pathway, participants should be able to:

- Explain the components, operating principles, and common configurations of residential and light commercial HVAC systems, including furnaces, air conditioners, refrigeration systems, refrigerants, heat pumps, ventilation systems, and associated controls.
- Interpret construction documents, wiring diagrams, equipment specifications, manufacturer documentation, and applicable mechanical, electrical, and energy codes and standards relevant to HVAC systems.
- Assist with the installation, commissioning, inspection, maintenance, and troubleshooting of HVAC equipment in accordance with industry standards, manufacturer requirements, and applicable codes.
- Use common HVAC hand tools, specialty tools, electrical testing instruments, refrigerant service equipment, and diagnostic devices to safely perform installation, maintenance, and service activities.
- Perform basic system testing, equipment startup, preventive maintenance, and operational verification while recognizing conditions that require additional evaluation or corrective action.
- Document installation, testing, commissioning, maintenance, and service activities while communicating technical information effectively with supervisors, customers, and other project stakeholders.
- Recognize factors that affect airflow, HVAC system performance, energy efficiency, indoor environmental quality, occupant comfort, and long-term reliability, and communicate findings or recommendations to the appropriate supervisor or team member(s).
- Identify common applications of high-efficiency HVAC technologies, including air-source and ground-source heat pumps, and describe their role in building electrification and energy-efficient retrofit projects.
- Identify and support the installation, commissioning, and maintenance of heat pump water heaters and associated domestic hot-water systems, where applicable.
- Identify applications of HVAC systems in utility and water and wastewater facilities, including ventilation, humidity control, heat recovery, corrosion-resistant equipment, and energy efficiency considerations, where applicable.

G-12. Curriculum content overview

The table below summarizes the occupation-specific content recommended for the HVAC Career Pathway. Curriculum content should align with applicable industry standards, manufacturer requirements, federal, state, and local codes, and relevant industry-recognized credential frameworks, including EPA Section 608 Technician Certification, North American Technician Excellence (NATE), and HVAC Excellence.

Consistent with Illinois' clean energy and building electrification goals, instruction throughout this Career Pathway should integrate heat pump technologies throughout the curriculum, including their principles of operation, installation, commissioning, maintenance, troubleshooting, and role in energy-efficient building systems.

Table 8: HVAC Content Domains

Domain I	Domain II	Domain III
Safety	HVAC Fundamentals	Installation & Commissioning
- Apply safe work practices during HVAC installation, commissioning, maintenance, and service activities - Identify electrical, mechanical, refrigerant, combustion, confined space, ladder, and fall hazards - Select and properly use appropriate PPE, tools, and safety equipment - Apply refrigerant handling procedures consistent with EPA Section 608 requirements - Comply with applicable OSHA requirements, manufacturer safety guidance, and relevant codes and standards	- Explain HVAC system operating principles, refrigeration cycles, airflow, ventilation, combustion, heat transfer, and the operating principles of air-source and ground-source heat pump systems - Compare conventional heating and cooling equipment with heat pump technologies, including operating characteristics, applications, advantages, and limitations - Identify residential and light commercial HVAC equipment, controls, distribution systems, and system components - Explain the operation and applications of furnaces, air conditioners, heat pumps, ventilation equipment, and associated controls - Interpret technical documentation, wiring diagrams, equipment specifications, and manufacturer literature	- Install and commission furnaces, air conditioners, heat pumps, heat pump water heaters, and associated system components in accordance with manufacturer requirements and applicable codes - Demonstrate proper piping, tubing, ductwork, wiring, fastening, sealing, and equipment installation techniques - Perform equipment startup, commissioning, operational verification, and basic performance testing - Document completed installation activities - Verify proper startup, operating modes, controls, airflow, and refrigerant performance for heat pump systems

	- Explain HVAC considerations for water and wastewater facilities, including ventilation, humidity control, corrosion resistance, heat recovery, and energy efficiency	
Domain IV	Domain V	Domain VI
Diagnostics & Troubleshooting	Operations & Maintenance	Building Performance & System Optimization
- Use testing instruments and diagnostic equipment to evaluate HVAC system operation - Perform basic electrical testing and airflow measurements - Identify common equipment faults and operational deficiencies - Identify common operational issues associated with heat pump systems, including heating and cooling mode operation, defrost cycles, reversing valves, auxiliary heat, and control systems - Apply systematic troubleshooting methods to support repair and maintenance activities	- Perform preventive maintenance procedures on HVAC equipment and heat pump systems, including filters, coils, refrigerant circuits, electrical components, and condensate management - Inspect system components for safety, efficiency, and proper operation - Document maintenance activities and service findings - Identify conditions requiring repair, replacement, or additional evaluation	- Describe the role of heat pumps in residential and light commercial building electrification - Explain factors that influence heat pump equipment selection, performance, and energy efficiency under varying climate conditions - Explain how HVAC equipment selection interacts with building envelope improvements, ventilation, and performance - Communicate the benefits, limitations, and appropriate applications of heat pump technologies to customers and project stakeholders - Identify opportunities to improve HVAC energy efficiency and system performance in water and wastewater facility environments, where applicable

G-13. Assessment methods

Participants should demonstrate competency through a combination of written, practical, laboratory, and field-based assessments. Assessment methods may include:

- Written knowledge assessments
- Laboratory and hands-on performance evaluations
- Field-based competency demonstrations
- Scenario-based exercises and case studies
- Comprehensive practical and/or final assessments

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- Preparation for applicable industry-recognized credential examinations, including EPA Section 608 Technician Certification and other relevant HVAC credential examinations

Workforce Hubs are encouraged to provide additional instructional support, coaching, mentoring, and reasonable accommodations to help participants successfully demonstrate competency. Assessment methods should be varied to recognize different learning styles and educational experiences while maintaining consistent technical performance expectations.

G-14. Certification

The HVAC Career Pathway should prepare participants to pursue applicable industry-recognized credentials associated with HVAC installation, service, maintenance, and building electrification, including EPA Section 608 Technician Certification.

It is recommended that programs also prepare participants for additional industry-recognized credentials, consistent with employer needs, program design, and applicable credential requirements. Examples include:

[North American Technician Excellence \(NATE\)](#)

- Ready-to-Work Certificate
- Core and Specialty Certifications (including Air-to-Air Heat Pump Installation or Service)
- Certified HVAC Professional (CHP-5) certifications

[HVAC Excellence](#)

- Employment Ready certifications, including Air Conditioning, Electrical, Electric Heat, Heat Pumps / Geothermal Heat Pumps, Basic Refrigeration and Charging Procedures, Building Automation Systems, and other applicable specialty certifications

[Building Performance Institute \(BPI\)](#)

- BPI Heat Pump Professional
- Relevant Manufacturer-specific Credentials

G-15. References

- [ACCA Quality Installation \(QI\) Standard](#)
- [ACCA Manual H: Heat Pump Systems – Principles and Applications](#)
- [EPA Section 608 Technician Certification Program](#)
- [HVAC Excellence Certification Program](#)
- [NFPA 54: National Fuel Gas Code](#)
- [NATE Knowledge Areas of Technician Expertise \(KATEs\)](#)
- [U.S. Department of Labor Employment and Training Administration \(ETA\) Renewable Energy Competency Model](#)
- [Green Building Career Map \(Center for Energy Workforce Development\)](#)
- [Understanding by Design \(Wiggins & McTighe\)](#)

12. PROFESSIONAL SERVICES CAREER CLUSTER

Industry Overview

Professional services play a critical role in the successful planning, execution, delivery, and long-term sustainability of clean energy projects. While electricians, HVAC technicians, solar installers, and other skilled trades perform the physical installation and maintenance of clean energy systems, professional services support project coordination, client and stakeholder relationships, financial and administrative functions, and compliance with applicable requirements.

The rapid expansion of clean energy—driven by federal and state policies, public investment, and growing private-sector investment—has increased demand for professional services that support clean energy projects and programs. These roles provide the organizational, financial, operational, and customer-facing expertise necessary to support successful project delivery and program implementation.

Demonstration of Need

Illinois' transition to a clean energy economy is increasing demand for workers who can provide the professional, administrative, operational, financial, and customer-facing services necessary to support clean energy projects and programs. Stakeholder engagement conducted since the initial publication of the Curriculum Framework has consistently identified professional support services as an important component of clean energy workforce development.

Professional services include, but are not limited to, program administration, project coordination, sales, customer service, and administrative support. These roles complement the technical expertise provided by electricians, technicians, installers, laborers, and other skilled workers by supporting project coordination, customer and stakeholder relationships, documentation, compliance, and other functions necessary for successful project delivery.

As the clean energy sector grows in scale and complexity, employers increasingly rely on professional services skills and competencies to support project performance, customer satisfaction, regulatory compliance, and long-term program and business success.

Representative Occupations

Representative occupations within the Professional Services Career Cluster may include, but are not limited to:

- Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products (41-4011)

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- Bookkeeping, Accounting, and Auditing Clerks (43-3031)
- Sales and Related Workers, All Other (41-9099)
- Customer Service Representatives (43-4051)
- Office Clerks, General (43-9061)
- Project Management Specialists (13-1082)
- Cost Estimators (13-1051)
- Accountants and Auditors (13-2011)

Note: These occupation titles align with [U.S. Bureau of Labor Statistics \(BLS\) Standard Occupational Classification \(SOC\) codes](#). Though occupation titles are standardized, job titles are not. Employers use a variety of different job titles in this cluster.

Shared Technical Competencies

The shared technical competencies for the Professional Services Career Cluster include:

- **Performance Measurement and Reporting.** Collect, analyze, and report performance data to monitor outcomes, identify trends, and support project and program decision-making.
- **Regulatory Compliance and Reporting.** Track applicable program, funding, and regulatory requirements; maintain accurate records; and support timely reporting and compliance throughout the project lifecycle.
- **Project Scheduling.** Develop and maintain project schedules that sequence tasks, identify dependencies, allocate resources, and establish milestones and realistic timelines.
- **Project Coordination.** Organize project activities, coordinate schedules and responsibilities, track commitments, and support communication among internal teams, contractors, clients, stakeholders, and other partners.
- **Clean Energy Technology and Project Fundamentals.** Understand the basic functions, applications, and project requirements of common clean energy technologies sufficiently to communicate with technical staff, interpret project information, and explain project activities and outcomes to clients, funders, partners, and other stakeholders.
- **Proposal Development.** Prepare clear project proposals that identify scope, objectives, material requirements, costs, schedules, deliverables, and value.
- **Project Cost Estimation, Budgeting, and Financial Analysis.** Estimate project costs, monitor budgets, identify cost variances, and apply basic return-on-investment concepts to support project planning and decision-making.
- **Procurement.** Support procurement activities by sourcing equipment and services, evaluating vendor information, preparing purchase requests, tracking purchase orders, and documenting procurement activities in accordance with organizational procedures.
- **Project Milestone Tracking.** Establish and monitor project milestones, document progress, identify schedule variances, and communicate risks or recommended corrective actions to appropriate team leaders.
- **Project Documentation and Records Management.** Organize, maintain, and update project documentation, including contracts, memoranda of understanding (MOUs), change orders, permits, correspondence, and other required records.

- **Risk Assessment and Management.** Identify project risks, assess their likelihood and potential impact, prioritize risks, and communicate recommended mitigation strategies.
- **Stakeholder Coordination and Engagement.** Coordinate communications and relationships among clients, customers, contractors, internal teams, external partners, and other stakeholders to support project alignment and successful outcomes.
- **Customer, Client, and Stakeholder Service.** Provide information and education, respond to inquiries, manage service requests, resolve concerns, and collect and use feedback to support customer and stakeholder satisfaction.
- **Customer Relationship Management Systems.** Use customer relationship management (CRM) systems and comparable digital tools to maintain client information, track service requests, document communications, and support project or service coordination.

Applied Skills

Participants should demonstrate the ability to:

- Identify key performance indicators (KPIs), collect and interpret performance data, and prepare summaries that support project or program decision-making.
- Identify applicable regulatory requirements, complete compliance documentation, and prepare accurate reports in accordance with organizational and industry standards.
- Develop project schedules that sequence tasks, identify dependencies, allocate resources, and establish realistic timelines.
- Coordinate project activities across teams, track responsibilities and progress, and communicate schedule updates to stakeholders.
- Explain the features, benefits, limitations, and applications of clean energy technologies to clients, customers, and stakeholders using clear, audience-appropriate language.
- Prepare project proposals that define scope, objectives, schedules, budgets, deliverables, and value propositions while meeting applicable quality standards.
- Prepare preliminary estimates of labor, materials, equipment, and overhead costs; develop project budgets; and apply basic return-on-investment analysis to support project planning and decision-making.
- Follow procurement procedures by preparing purchase requests, evaluating vendor quotations, tracking purchase orders, and documenting procurement activities.
- Monitor project milestones, identify schedule variances, document project status, and communicate recommended corrective actions when milestones are at risk.
- Monitor project expenditures, compare actual costs with budget forecasts, identify variances, and communicate recommended corrective actions.
- Organize, maintain, and update project documentation, including memoranda of understanding (MOUs), contracts, change orders, permits, and correspondence, in accordance with organizational recordkeeping requirements.
- Identify project risks, evaluate likelihood and potential impact, prioritize risks, and communicate recommended mitigation strategies.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- Educate clients, customers, and stakeholders about clean energy programs, technologies, incentives, and project processes using accurate, audience-appropriate information.
- Build and maintain productive client, customer, and stakeholder relationships through professionalism, active listening, trust-building, and timely follow-up.
- Receive, prioritize, document, assign, and monitor customer service requests through resolution while meeting established response and resolution timelines.
- Respond accurately and professionally to client, customer, and stakeholder inquiries by identifying needs, providing appropriate information, and documenting responses.
- Resolve client, customer, and stakeholder concerns by identifying root causes, applying conflict-resolution techniques, communicating solutions, and documenting outcomes.
- Coordinate communications among internal teams, contractors, clients, stakeholders, and external partners by scheduling meetings, documenting action items, tracking commitments, and resolving communication gaps.
- Collect, analyze, and report customer satisfaction data using surveys, feedback tools, or interviews and recommend service improvements based on findings.

Industry Credentials

Workforce Hubs delivering the Professional Services Career Cluster should consider industry-recognized credentials appropriate to the Career Cluster and selected Career Pathway(s), where applicable.

Examples may include:

- Building Operator Certification (BOC)
- [Leadership in Energy and Environmental Design](#) (LEED) Green Associate
- [Certified Energy Manager](#) (CEM)
- Green Professional (GPRO) Operations

Minimum Career Cluster Requirements

Workforce Hubs delivering the Professional Services Career Cluster must:

- Address all Professional Services Career Cluster competencies.
- Provide participants with opportunities to demonstrate the Applied Skills identified for the Career Cluster.
- Incorporate hands-on instruction and authentic workplace scenarios.
- Integrate classroom activities that reflect real-world professional services work and employer practices.
- Prepare participants to transition into one or more Professional Services Career Pathways or related employment opportunities.

13. PROFESSIONAL SERVICES CAREER CLUSTER – ILLUSTRATIVE CAREER PATHWAYS

H. Customer Service & Sales Representative

The Customer Service & Sales Representative Career Pathway prepares participants for entry-level customer-facing roles within the clean energy industry. Instruction focuses on professional communication, customer and client relationship management, responding to inquiries and service requests, resolving customer concerns, and providing accurate information about clean energy products, services, programs, and processes. Participants should develop the skills needed to communicate effectively with customers, clients, stakeholders, and internal teams while supporting positive customer experiences and successful project or service delivery.

H-1. Demonstration of need for training

Workforce Hubs proposing a Customer Service & Sales Representative Career Pathway should demonstrate regional demand for Customer Service & Sales Representative training by documenting employer workforce needs, labor market demand, and existing training capacity. Applicants are encouraged to engage employers, workforce development organizations, labor organizations, and other regional stakeholders to ensure the proposed pathway reflects current workforce priorities.

At a minimum, applicants should describe:

- Regional demand for Customer Service & Sales Representative and related customer-facing occupations that support clean energy businesses, programs, projects, or services, supported by available labor market information and employer engagement.
- Existing education and training opportunities within the region, including identified gaps or unmet workforce needs.
- Anticipated benefits for Equity Eligible Persons and communities consistent with CEJA program goals.
- Meaningful employer partnerships that demonstrate workforce demand and support work-based learning opportunities, hiring, or other workforce development activities.

H-2. Training outcomes

Upon completion of the Customer Service & Sales Representative Career Pathway, participants should be able to:

- Communicate professionally with customers, clients, stakeholders, and internal teams across common clean energy service and project contexts.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- Explain clean energy programs, technologies, products, services, incentives, and processes using accurate, audience-appropriate information.
- Manage customer and client interactions throughout the service or project lifecycle.
- Respond to and resolve routine customer, client, and stakeholder inquiries, service requests, and concerns.
- Support project and service coordination through effective communication, documentation, scheduling, and follow-up.
- Use customer feedback and service information to support customer satisfaction and continuous service improvement.

H-3. Representative occupations

The Customer Service & Sales Representative Career Pathway may prepare participants for entry-level customer-facing roles in the clean energy industry, including:

- Customer Service Representatives (43-4051)
- Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products (41-4011)

Note: These occupation titles align with [U.S. Bureau of Labor Statistics \(BLS\) Standard Occupational Classification \(SOC\) codes](#). Though occupation titles are standardized, job titles are not. Employers use a variety of different job titles in this pathway.

H-4. Example job titles and career progression

Though occupation titles are standardized, job titles are not. Employers use a variety of different job titles in this career pathway. Some job titles demonstrate career advancement opportunities. Here are a few example job titles in this career pathway:

- Customer Service Team Lead
- Customer Service Supervisor or Manager
- Customer Experience or Client Services Coordinator
- Project Coordinator
- Sales Representative
- Program Administrator

H-5. Prerequisites

Before beginning the Customer Service & Sales Representative Career Pathway, participants should:

- Successfully complete the CEJA Core Competencies and Professional Services Career Cluster competencies (or demonstrate equivalent knowledge and experience).
- Demonstrate basic digital literacy skills sufficient to use electronic systems for customer, client, and stakeholder communication and documentation.
- Demonstrate effective verbal and written communication skills.

H-6. Learning environment and format

The Customer Service & Sales Representative Career Pathway should primarily be delivered through classroom and applied learning experiences that provide substantial opportunities for participants to practice customer, client, and stakeholder engagement. Instruction should incorporate individual and team-based activities and realistic workplace scenarios that reflect customer service and professional services practices.

Participants should have access to computers or mobile devices and software necessary to complete instructional activities, including digital communication, documentation, customer relationship management, scheduling, and other customer service tasks.

Workforce Hubs must incorporate work-based learning (WBL) opportunities consistent with CEJA program requirements:

- At least 10% of the training hours must include work-based learning activities.
- If a program cannot provide work-based learning experiences for technical or regulatory reasons, job site visits and tours may replace the requirements, with the approval of the grantee's assigned Grant Manager and Regional Administrator.

Note: Grantees are accountable for a minimum of 10% of their curriculum instructional hours to be allocated for work-based learning hours. Work-based learning hours must be added to the existing curriculum hour requirement and are eligible for participant stipends.

Workforce Hubs are expected to establish meaningful work-based learning partnerships with [employers from Equity Investment Eligible Communities and Equity Eligible Contractors](#) to strengthen the CEJA ecosystem and to support participants' successful transition into employment.

H-7. Tools and equipment

The Customer Service & Sales Representative Career Pathway should provide participants with access to the tools, equipment, and instructional resources necessary to simulate customer, client, and stakeholder engagement and relationship-management activities. At a minimum, training should include access to:

- Computers or mobile devices.
- Email, word-processing, spreadsheet, presentation, and digital communication software.
- Customer relationship management (CRM) or comparable customer and service-tracking software.
- Digital collaboration, scheduling, and task-tracking tools.
- Sample customer communications, service requests, project documents, and other clean energy industry materials.
- Current instructional materials and relevant clean energy industry references.

H-8. Estimated training length

The Customer Service & Sales Representative Career Pathway should be delivered using a competency-based approach. The duration of pathway training should provide sufficient instructional time for participants to develop the occupation-specific competencies identified in this Framework through classroom, applied, and work-based learning activities. Workforce Hubs should determine the appropriate instructional hours based on curriculum design, participant needs, and employer expectations.

H-9. Training size

A cohort of approximately 10–15 participants is recommended to promote effective applied instruction, meaningful participation in individual and team-based activities, and opportunities for individualized feedback.

H-10. Instructor requirements

Instructors should demonstrate professional services expertise consistent with the competencies identified in this Career Pathway and possess relevant education, professional experience, industry-recognized credentials, or equivalent qualifications.

Relevant experience may include customer service, client or stakeholder engagement, sales, account management, program administration, project coordination, or related professional services work, preferably within the clean energy industry or a closely related field.

Instructors should also demonstrate effective communication skills and the ability to facilitate applied, scenario-based learning in inclusive learning environments.

H-11. Occupation-specific competencies

By completing this Career Pathway, participants should be able to:

- Maintain productive relationships with customers, clients, and stakeholders through professionalism, active listening, trust-building, and timely follow-up.
- Educate customers, clients, and stakeholders about clean energy programs, technologies, incentives, products, services, and project processes using accurate, audience-appropriate communication.
- Explain the basic functions, features, benefits, limitations, and applications of relevant clean energy technologies using clear, nontechnical language.
- Respond accurately and professionally to customer, client, and stakeholder inquiries by identifying needs, providing appropriate information, and documenting responses.
- Receive, prioritize, document, assign, and monitor service requests through completion while meeting established response and resolution timelines.
- Resolve customer, client, and stakeholder concerns by identifying root causes, applying conflict-resolution techniques, communicating solutions, and documenting outcomes.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- Support project and service coordination by tracking assigned activities, communicating schedule updates, and coordinating information among customers, clients, stakeholders, and internal teams.
- Maintain accurate customer, client, and service documentation in accordance with organizational procedures.
- Use customer relationship management (CRM) and comparable digital tools to document interactions, track requests, and support customer and service coordination.
- Collect, analyze, and report customer satisfaction information and identify opportunities for service improvement.

H-12. Curriculum content overview

The Customer Service & Sales Representative Career Pathway curriculum should align with current industry-recognized customer service and professional services practices relevant to clean energy industries. Instruction should incorporate the knowledge, skills, and abilities necessary to prepare participants for entry-level customer service and client-support roles within the clean energy industry.

The curriculum should be organized around the following occupation-specific competency domains.

Table 9: Customer Service & Sales Content Domains

Domain I	Domain II
Customer, Client, and Stakeholder Management	Communication, Documentation, and Service Coordination
- Customer/client relationship management - Clean energy education and communication - Inquiry and service-request management - Conflict resolution and concern resolution - Customer satisfaction and service improvement	- Professional verbal and written communication - Digital communication and documentation - CRM and service-tracking systems - Project/service coordination - Scheduling and progress communication

H-13. Assessment methods

Participants should demonstrate competency through a combination of written, practical, and scenario-based assessments. Assessment methods may include:

- Written knowledge assessments.
- Role-playing and customer-service simulations.
- Case studies and scenario-based exercises.
- Practical demonstrations of communication, documentation, service-request management, and problem resolution.
- Digital tools and CRM-based exercises.
- Comprehensive practical and/or final assessments.

Workforce Hubs are encouraged to provide additional instructional support, coaching, mentoring, and reasonable accommodations to help participants successfully demonstrate competency. Assessment

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

methods should be varied to recognize different learning styles and educational experiences while maintaining consistent performance expectations.

H-14. Certification

The Customer Service & Sales Representative Career Pathway should prepare participants to pursue applicable industry-recognized credentials appropriate to the specific clean energy industry, employer, or customer-service context. Workforce Hubs may incorporate additional credentials when supported by employer demand and relevant to the pathway.

H-15. References

- [U.S. Department of Energy, 2025 U.S. Energy & Employment Report \(USEER\)](#)
- [U.S. Department of Labor, Employment and Training Administration, Competency Model Clearinghouse](#)
- [O*NET OnLine, Customer Service](#) and [Sales Occupational Profiles](#)
- [Understanding by Design \(Wiggins & McTighe\)](#)

14. GLOSSARY

The Glossary defines terms used throughout the CEJA Clean Jobs Curriculum Framework. Definitions are intended to support consistent interpretation of the Framework and should not supersede definitions established in statute, regulation, the applicable Notice of Funding Opportunity (NOFO), or other controlling program guidance.

Accessibility

The degree to which an environment, service, product, or resource is understandable, meaningful, and usable by as many people as possible. Accessibility includes considerations related to disability as well as financial, technological, and linguistic access.

Advanced Training

Education, training, or occupational preparation that extends beyond the entry-level competencies addressed in the Curriculum Framework. Advanced training may include continued education, specialized technical training, Registered Apprenticeships, employer-sponsored training, stackable credentials, or specialized occupational experience.

Applied Skills

Practical skills that participants demonstrate through authentic or simulated workplace activities after developing the shared technical competencies established through a Career Cluster.

Career Cluster

A broad grouping of related occupations and industries that share common technical competencies. Career Clusters establish a shared technical foundation that can support preparation for multiple related occupations before participants specialize through Career Pathways.

Career Cluster Competencies

Shared technical knowledge and skills that apply across multiple occupations within a Career Cluster and establish the technical foundation for more specialized Career Pathway training.

Career Navigation

Activities and services that help participants understand career options, identify appropriate education and training opportunities, develop career plans, connect with employers, and transition into employment or continued education and training.

Career Pathway

An occupation- or application-focused training option that builds upon Career Cluster competencies and provides more specialized preparation for employment, credentials, or continued occupational training.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

Career Progression

The development of skills, credentials, experience, responsibilities, and other qualifications that enables a participant to advance from entry-level employment into increasingly skilled, specialized, supervisory, or other career opportunities.

CEJA Core Competencies

The foundational training component of the Curriculum Framework that establishes essential employability skills, workplace safety, clean energy basics, and other foundational knowledge and skills needed for success across clean energy occupations and for entry into specialized technical training.

Clean Energy Basics

Foundational knowledge of clean energy systems, energy and sustainability concepts, electricity and energy systems, safety, technical documentation, and related concepts that support specialized Career Cluster and Career Pathway training.

Clean Energy Occupation

An occupation that supports the production, development, construction, installation, operation, maintenance, improvement, or advancement of clean energy technologies, systems, infrastructure, products, or services. Clean energy occupations may be found across multiple industries and may not have “clean energy” in the occupation title.

Competency

A combination of knowledge, skills, abilities, and behaviors that a participant can demonstrate in a particular occupational or workplace context.

Curriculum Framework

A statewide set of competency requirements, minimum standards, illustrative training recommendations, and implementation guidance intended to support consistent, industry-aligned CEJA workforce training while allowing regional adaptation.

Customized Training

A business-driven program designed to meet the unique skill requirements of an employer or group of employers. Customized Training is separate from the approved CEJA/FEJA Curriculum and results from an employer requesting specific new training. It allows businesses to train new hires or upskill current staff for advanced roles. Customized Training must enable individuals to obtain industry- or employer-recognized skills and is subject to applicable approval and funding requirements.

Diversity

The representation of people from a variety of backgrounds and experiences, including race, ethnicity, gender, and other characteristics and perspectives that contribute to difference.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

Energy Transition Barrier Reduction Program

A DCEO-administered program that provides supportive services and financial assistance intended to help eligible individuals overcome financial and other barriers to participation in the Clean Jobs Workforce Network Program and the Illinois Climate Works Pre-apprenticeship Program.

Energy Transition Navigators

Community-based providers selected by the Illinois Department of Commerce and Economic Opportunity (DCEO) to provide the services and activities required by the Energy Transition Navigators Program.

Equity

The state, quality, or ideal of being just, impartial, and fair. Equity recognizes that individuals and communities may have different circumstances, needs, and barriers and therefore may require different resources or approaches to achieve fair access and opportunity.

Equity Eligible Contractor

A business that is majority-owned by Equity Eligible Persons; a nonprofit or cooperative that is majority-governed by Equity Eligible Persons; or a natural person who is an Equity Eligible Person and offers personal services as an independent contractor. The statutory definition is established in the Illinois Power Agency Act and applicable CEJA legislation.

Equity Eligible Person

A person who meets the statutory criteria for Equity Eligible Person or eligible person under the Illinois Power Agency Act. The current statutory definition includes specified participants and graduates of qualifying clean energy workforce programs, persons who are or were in the foster care system, formerly incarcerated persons, and persons whose primary residence is in an Equity Investment Eligible Community.

Equity Investment Eligible Community

A geographic area identified under Illinois law as an area that would most benefit from equitable investments by the State designed to combat discrimination. The statutory definition includes designated R3 Areas and environmental justice communities meeting the applicable statutory criteria.

Equity, Diversity, Inclusion, and Accessibility (EDIA)

The set of values and practices used to support equitable access, meaningful participation, inclusive learning and workplace environments, and removal of barriers to participation and success. The Framework calls for EDIA to inform program design, curriculum delivery, participant engagement, and workplace preparation. See the Illinois Office of Equity's [*Illinois Toward Equity Action Framework*](#) for additional information.

Essential Employability Skills

Foundational workplace behaviors and capabilities that are transferable across clean energy occupations and support successful workplace performance. Examples include dependability and reliability, communication, teamwork, adaptability, problem solving, digital communication, workplace writing, and other skills addressed through the CEJA Core Competencies.

Incumbent Worker Training (IWT)

Training designed to meet the needs of an employer or group of employers to retain a skilled workforce or avert layoffs. IWT is designed to increase the skill levels of employees so they can be promoted within the company and create backfill opportunities for new or less-skilled employees. Employers and participants must meet applicable program eligibility and cost-sharing requirements.

Illustrative Career Pathway

A Career Pathway included in the Curriculum Framework as an example of how shared Career Cluster competencies can be applied in a particular occupation, occupational group, technology, or industry context. Illustrative Career Pathways are not intended to represent the full range of allowable clean energy training or to prescribe a single curriculum.

Industry-Recognized Credential

A certification, license, credential, or other recognized qualification that demonstrates knowledge, skills, or competencies valued by employers or required for an occupation.

Labor Market Information (LMI)

Information about employment, occupations, wages, job openings, projected employment, employers, and other labor market conditions used to assess workforce demand and inform training and career decisions.

Minimum Career Cluster Requirements

The minimum requirements that Workforce Hubs must address when delivering a Career Cluster, including required Career Cluster competencies, opportunities to demonstrate Applied Skills, appropriate hands-on instruction and industry application, and preparation for transition into one or more Career Pathways.

Occupation-Specific Competencies

Knowledge, skills, and abilities that apply to a particular occupation, occupational group, technology, or industry application and build upon the shared technical competencies established through a Career Cluster.

On-the-Job Training (OJT)

Training that provides employers with reimbursement to help compensate for costs associated with skills-upgrade training for newly hired employees and, where applicable, the costs associated with current employees providing training. OJT can support employers that need to expand their businesses

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

and train employees in specialized skills. OJT is separate from the approved CEJA curriculum when implemented as a distinct employer training activity and is subject to applicable approval and program requirements.

Pre-Apprenticeship

A training program designed to prepare participants for entry into an apprenticeship or other formal occupational training pathway. Pre-apprenticeship programs within CEJA are restricted to the Climate Works Pre-apprenticeship Program; pre-apprenticeship programs cannot be used to count toward the 10% work-based learning requirement for the Clean Jobs Workforce Network Program.

Registered Apprenticeship (RA)

A program that combines on-the-job training (OJT) with related instruction to enable participants to master the practical and technical skills required for a skilled occupation. A Registered Apprenticeship must be registered with the U.S. Department of Labor and meet applicable standards, including five required components:

- Business Involvement
- Structured On-the-Job Training
- Related Instruction
- Rewards for Skill Gains
- Industry Credential

Training Outcome

A knowledge, skill, ability, or performance that participants should demonstrate upon completion of a training component or program.

Transitional Jobs (TJ)

Time-limited, wage-paid work experiences that are subsidized up to one hundred percent (100%) for participants with barriers to employment who are chronically unemployed or have an inconsistent work history. These jobs are designed to enable participants to establish a work history, demonstrate work success in an employer-employee relationship, and develop the skills that lead to unsubsidized employment.

Workforce Hub

A grantee organization or team of organizations participating in the Clean Jobs Workforce Network Program and responsible for coordinating eligible participants, training, employer engagement, work-based learning, support services, and transitions into employment or continued training in accordance with applicable CEJA program requirements.

Work-Based Learning (WBL)

An employer-driven training strategy that provides participants with opportunities to practice and build upon the skills and knowledge gained through classroom or industry training while developing the employability skills needed to succeed in the workforce. Illinois treats WBL as a continuum rather than a

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

single, uniform activity, allowing experiences to increase in intensity and authenticity as participants build skills and confidence. WBL also includes assessment and recognition of acquired knowledge and skills.

Work Experience / Internship / Practicum (WEX)

A planned, structured learning experience that takes place in a workplace for a limited period. Work experiences and internships provide participants with opportunities to apply skills and gain occupational experience and may take place in private, nonprofit, or public-sector settings, consistent with applicable laws and program requirements.

Youth Apprenticeship

A program that combines paid on-the-job training (OJT) with classroom instruction for participants ages sixteen to twenty-four. Youth Apprenticeships help student participants build skills and earn portable credentials without college debt. In Illinois, state-aligned programs link high schools and employers to address industry talent shortages.

15. APPENDIX A

Implementation Guidance for NOFO Applicants and Prospective Grantees

Curriculum Framework overview

The CEJA Curriculum Framework is designed to provide comprehensive guidance to Climate and Equitable Jobs Act (CEJA) training providers, Notice of Funding Opportunity (NOFO) applicants, and grantees in developing and implementing high-quality workforce development training programs. In addition, the Framework identifies key workforce development considerations relevant to clean energy employers and the diverse industries and occupations that support Illinois' clean energy economy.

The CEJA Curriculum Framework provides a structured approach to curriculum development and program implementation, with built-in flexibility that allows the Framework to be tailored to specific local and regional needs while maintaining a clear focus on preparing participants for meaningful employment and long-term career advancement.

The Framework allows for the alignment of instructional programs with the evolving needs of regional clean energy industries, ensuring that curriculum content remains current and relevant as technologies, occupations, and employer expectations continue to shift. This structure gives Workforce Hubs and training providers a consistent foundation to build from, while leaving room to adapt content, pacing, and delivery to the realities of their local communities, industries, employer partners, and participant populations.

Curriculum Framework flexible design approach

The CEJA Clean Jobs Curriculum Framework is intentionally designed as a **flexible model** rather than a prescriptive, one-size-fits-all curriculum. This approach enables Workforce Hubs and training providers to select and adapt Career Clusters and Illustrative Career Pathways in response to regional workforce needs and employer demand, while using participant prior knowledge, education, work experience, assessment results, career interests, and demonstrated competencies to inform appropriate entry points, instructional strategies, sequencing, and supports. Flexibility is important at a time of evolving energy demands, and it is intended that the CEJA Clean Jobs Curriculum Framework be able to adapt in a changing energy environment, particularly those changes following the approval of the Illinois Commerce Commission's Integrated Resource Planning process.

Note the guidance below:

- Assessment results and other participant information can be used to determine appropriate entry points, instructional strategies, and supports. The Framework also leverages key instructional strategies such as work-based learning, hands-on training, regional employer

engagement, and other relevant development opportunities to strengthen the connection between classroom instruction and employment.

- By combining standardized guidance with the flexibility to respond to local and regional workforce conditions, the Curriculum Framework supports training providers in creating accessible, industry-responsive pathways that prepare participants for priority clean energy occupations and long-term careers across Illinois' clean energy economy.
- Workforce Hubs are not expected to implement every Career Cluster or Illustrative Career Pathway included in the Framework. Workforce Hubs should select and adapt the components most appropriate to their regional labor market, employer demand, participant needs, and identified workforce opportunities.
- Illustrative Career Pathways are not intended to represent the full range of clean energy occupations in Illinois. Workforce Hubs should use regional labor market information, employer partnerships, and career navigation services to help participants identify and pursue additional education, apprenticeship, or training opportunities aligned with their career interests, including occupations not specifically addressed through the Illustrative Career Pathways.

How to use the Curriculum Framework

The CEJA Clean Jobs Curriculum Framework is not intended to be read from front to back as a linear document. It is designed to serve as a flexible resource that Workforce Hubs and training providers can selectively reference based on the needs of their programs, target populations, participants, employers, and regions.

Consider the following steps:

- **Start with the participants, not the document.**
Begin by considering the target population, participants, and regional labor markets served. Use this information to determine which components of the Framework are most relevant to program design.
- **Select and adapt Framework components as needed.**
Workforce Hubs are not expected to implement every Career Cluster or Illustrative Career Pathway. Select the Career Cluster competencies, occupation-specific competencies, credentials, instructional approaches, and other components that align with identified participant and workforce needs while addressing all applicable minimum requirements.
- **Adapt guidance to local and regional context.**
The Framework provides standardized guidance rather than a prescriptive curriculum. Workforce Hubs should apply professional judgment to determine how each component translates into practice based on their specific region, industry partnerships, participant population, and identified workforce needs.
- **Build from shared competencies toward occupational specialization.**
Use Career Cluster competencies to establish shared technical foundations and occupation-specific competencies to apply those skills in occupation-specific contexts. Avoid duplicating

Career Cluster competencies within Pathways; instead, provide opportunities for participants to demonstrate how shared competencies are applied in specific occupational settings.

- **Use the Framework iteratively.**

The Framework can be revisited throughout program planning and implementation as participant needs, employer partnerships, available work-based learning opportunities, and regional workforce conditions evolve.

Assessing regional workforce demand

Workforce Hubs should use multiple sources of information when evaluating regional workforce demand and proposing Career Clusters and Illustrative Career Pathways. Labor market information, including occupational employment projections and job posting data, can provide valuable insight into current and anticipated hiring trends. However, some clean energy occupations may be underrepresented in publicly available job postings because hiring occurs through apprenticeship programs, contractor networks, community action agencies, utilities, labor organizations, or other workforce intermediaries. Workforce Hubs should therefore supplement quantitative labor market information with qualitative input from employers, industry associations, labor organizations, workforce development partners, community-based organizations, and other regional stakeholders when assessing workforce needs and designing training programs.

When documenting the regional demand for a proposed Career Cluster or Career Pathway, Workforce Hubs should consider:

- **Regional industry employment and projected growth, aligned with Career Clusters.**

Using [IDES Economic Development Region Industry Projections](#), identify the total number of workers in the industries most aligned with the selected Career Cluster and the short-term and long-term employment projections. Note that only a fraction of the overall industry employment will be involved in clean energy work, but this data can provide a sense of the overall jobs available in these industries in the applicable region. Within the applicable Economic Development Region, identify the base year employment and the projected long-term employment. Also note the annual growth rate.

- **Consider the industry data that align best with your career cluster.** Follow these recommended categories:

- Manufacturing Cluster
 - Durable Goods Manufacturing, Total (326900)
 - Construction cluster
 - Construction total (230000)
 - Construction of Buildings (236000)
 - Specialty Trade Contractors (238000)
 - Utilities Cluster
 - Utilities Total (220000)
 - Installation, Maintenance, & Repair Cluster

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- Specialty Trade Contractors (238000)
 - Repair and Maintenance (811000)
 - Professional Services Cluster
 - Professional and Business Services (539900)
 - Administrative and Support Services (561000)
- **Regional occupational employment for key careers within selected Career Clusters or Career Pathways.** Use [IDES Economic Development Region Occupation Projections 2022-2032](#) to identify the number of workers and employment projections for the focus occupations in the applicable region. The Standard Occupation Codes are listed in the Curriculum Framework so that NOFO applicants can more easily locate data for applicable regions. Workforce Hubs should use standard occupational codes and classifications when documenting this information so that regional employment and projection data can be identified consistently.

Note: *Workers identified under a specific occupational code may or may not be involved in clean energy (i.e., only a fraction of construction laborers are involved in clean energy work).*

- **Clean energy employment.** To get a sense of the specific clean energy employment in a region, turn to the Climate Jobs Institute’s [Clean Energy Jobs Regional Data Packets](#). These data packets aggregate county-level data from the most recent US Energy Employment Report (USEER) to identify the clean energy jobs in the region. Estimates are provided for specific clean energy sectors: solar; wind; energy efficiency; transmission, distribution, and storage; and clean motor vehicles; as applicable to the proposed training.
- **Employer relationships and workforce demand.** Existing and prospective relationships with clean energy employers, including information about anticipated job openings, job types, hiring needs, employer partnerships, and, where applicable, memoranda of understanding or hiring commitments. To identify employers for regional outreach, consider the following sources of information:
 - [CEJA Map](#)
 - The map includes a Green Manufacturing layer that shows clean energy manufacturers, organized by clean energy sector.
 - The map includes a Clean Energy Employers layer that denotes locations of Illinois Commerce Commission-certified installers for energy efficiency programs, Solar PV, EV Infrastructure, and more.
 - Utility energy efficiency program service provider or trade ally lists
 - [Ameren Illinois Business Program Ally Contractors](#)
 - [Ameren Illinois Residential Program Allies](#)
 - [ComEd Energy Efficiency Service Providers--Businesses](#)
 - Illinois Home Weatherization Assistance Program (IHWAP) or affiliated contractors (contact your local [Community Action Agency](#))

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- Illinois Shines and Illinois Solar for All lists of approved vendors or designees, particularly Equity Eligible Contractors
 - [Illinois Shines Approved Vendors](#)
 - [Illinois Solar for All Approved Vendors](#)
- Illinois Power Agency's [Energy Workforce Equity Portal](#) (see the [Clean Energy Company Listing Dashboard](#) for a list of companies and contact information)
- **Regional economic and industry context.** Regional economic development plans, long-term employment projections, clean energy investments, infrastructure development, and other relevant information that may indicate current or anticipated workforce demand. For example, see:
 - The [WIOA Works Regional/Local Plan Dashboard](#). Includes regional economic development plans by economic development region.
 - Illinois Commerce Commission [Renewable Energy Access Plan \(REAP\) Zones](#). These resources will help prospective grantees target clean energy projects in places where infrastructure is either adequate or already slated for investment.
 - The [Climate Jobs Institute's Regional Data Packets](#) include information about clean energy investments and infrastructure development.

Workforce Hubs should use professional judgment when interpreting these sources and should consider both the quantity and quality of available evidence. No single data source is expected to fully capture regional clean energy workforce demand, particularly for occupations in which hiring occurs through apprenticeship, contracting, or other nontraditional channels.

Workforce Hubs should also be prepared to explain how the evidence reviewed supports their selection of Career Clusters, Illustrative Career Pathways, and, where applicable, additional training options proposed under this Framework.

For NOFO applicants: The regional data packets can provide specific evidence to support statements about regional workforce need, including current clean energy employment, apprenticeship activity, training providers, and clean energy employers. This information can be particularly useful when proposing a Career Cluster, Illustrative Career Pathway, or additional training option that responds to a documented regional workforce need.

For grantees: The regional data packets can support ongoing program design and implementation. Workforce Hubs can use regional job posting data, apprenticeship information, and employer and manufacturer listings to identify potential work-based learning partners, calibrate training capacity to regional demand, and inform adjustments to instructional strategies, work-based learning opportunities, and employer engagement. For changes that deviate from the grantee's established curriculum and workplan, grantees must seek approval from their assigned DCEO Grant Manager and Regional Administrator.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

For regional employers: The packets offer a shared, data-driven picture of the clean energy labor market in employers' local and regional areas. This includes nearby training providers, apprenticeship programs, and other employers in their sector. This information can help employers benchmark their hiring plans against regional trends, identify potential partners for Registered Apprenticeships or work-based learning opportunities, and better understand the broader ecosystem of clean energy activity both in their region and statewide.

Employer engagement

Workforce Hubs should engage employers as active partners in the design, delivery, and continuous improvement of clean energy training. Employer engagement should extend beyond identifying hiring demand and should help ensure that training reflects current workplace expectations, technical practices, industry standards, and opportunities for employment and career advancement.

Employer partnerships may support:

- Identification and validation of regional workforce needs and priority occupations
- Development and refinement of curriculum, competencies, and instructional activities
- Provision of work-based learning, job shadowing, mentoring, site visits, demonstrations, or other opportunities to connect training with workplace expectations
- Identification of industry-recognized credentials and training requirements
- Recruitment, interviewing, hiring, and job placement
- Connections to Registered Apprenticeships, on-the-job training, and other opportunities for continued career development
- Ongoing feedback on participant preparedness, training effectiveness, and changing workforce needs

Workforce Hubs should seek employer partnerships that reflect the communities and populations served by their programs, including employers and contractors located in or serving Equity Investment Eligible Communities and other priority populations identified through CEJA.

Proposing additional training options

Workforce Hubs may propose training options outside the Illustrative Career Pathways identified in this Framework when those options are consistent with the Framework's overall guidance, intent, and quality standards and address a documented local or regional clean energy workforce need. Workforce Hubs may demonstrate this need through employer demand or anticipated demand following approval of the Illinois Commerce Commission's Integrated Resource Plan. The Framework is not intended to limit Workforce Hubs to the Illustrative Career Pathways included in this document; rather, the illustrative pathways provide examples of training opportunities that may be appropriate based on regional workforce conditions.

A proposed additional Career Cluster and/or Career Pathway training option should be supported by evidence such as:

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- Regional labor market information
- Employer letters of support
- Hiring commitments
- Documented industry partnerships
- Existing education and training capacity
- Identified workforce gaps
- Relevant credentials
- Proposed competencies and learning objectives
- Instructional sequence and duration
- Appropriate work-based learning opportunities

Training options developed outside this Framework's specified Clusters and Pathways should continue to reflect the Framework's underlying principles, including alignment with CEJA Core Equity Values, appropriate assessment, work-based learning, and a clear connection between instruction and participant employment outcomes.

For changes that deviate from the grantee's established curriculum and workplan, grantees must seek approval from their assigned DCEO Grant Manager and Regional Administrator.

Work-based learning requirements and considerations

Work-based learning should provide meaningful opportunities for participants to apply and demonstrate the knowledge and skills developed through classroom, laboratory, and other instructional activities in authentic workplace or workplace-simulated settings.

Workforce Hubs should design work-based learning opportunities in partnership with employers and other appropriate workforce partners and align them with the competencies, skills, and career objectives of the associated training pathway. Opportunities should reflect participant readiness and, where appropriate, provide connections to employment, Registered Apprenticeship, on-the-job training, or continued career development.

Workforce Hubs must incorporate work-based learning into their curricula as a planned, documented, and supervised component of training. Work-based learning activities must:

- Occur during or after finishing formal classroom instruction.
- Align with CEJA Core Equity Values.
- Connect to the participant's training pathway, occupational focus, or related employability competencies.
- Reinforce the professional and technical skills addressed through the CEJA Core Competencies, Career Cluster, and Career Pathway.
- Include meaningful interaction with an employer, mentor, supervisor, or other industry-connected professional, unless an alternative activity has been approved by the grantee's assigned Grant Manager and Regional Administrator.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

- Be supervised by an employer, site supervisor, program instructor, and/or another designated responsible party.
- Be documented in sufficient detail to support monitoring, reporting, and validation of completion.
- Be completed before a participant is recorded as a program completer, unless an exception is expressly authorized in the applicable program manual or in writing by the grantee's assigned Grant Manager and Regional Administrator.

At least 10% of curriculum instructional hours must be allocated to work-based learning activities. If a program cannot provide work-based learning experiences because of technical or regulatory constraints, job site visits and tours may serve as a substitute with the required approval. Work-based learning hours are added to, rather than included within, the existing curriculum hour requirement and are eligible for participant stipends.

Workforce Hubs should consider the accessibility, quality, supervision, and relevance of work-based learning opportunities when developing employer partnerships. For definitions of types of work-based learning, please see the Glossary.

Advanced training

The Illustrative Career Pathways in this Framework emphasize entry-level preparation for clean energy employment. The Curriculum Framework is not intended to encompass the full range of education and training that may be required for every occupation or specialization within Illinois' clean energy economy. Many occupations require additional education, Registered Apprenticeship, employer-sponsored training, stackable credentials, or specialized experience beyond the scope of this Framework.

Workforce Hubs should prioritize the competencies necessary for entry-level employment while considering how participants may progress into continued education, advanced technical training, Registered Apprenticeships, or other specialized training opportunities. During curriculum and budget planning, Workforce Hubs should consider how participants may transition to these opportunities through employer partnerships, education and training providers, or other workforce programs, where appropriate.

Workforce Hubs should also use career navigation and employer engagement to help participants understand opportunities for continued education, training, and career advancement beyond the initial CEJA training experience.

16. APPENDIX B

Supplemental Leadership and Project Management Competencies

Purpose

Leadership and project management competencies can strengthen participants' ability to contribute to safe, effective, and high-quality work and to understand how individual tasks contribute to broader project and organizational goals. The CEJA Core Competencies already address foundational leadership and project management skills, including communication, teamwork, quality management, digital collaboration, basic project scheduling, and basic cost estimating.

This Appendix provides supplemental guidance and examples for Workforce Hubs that wish to incorporate additional leadership or project management content based on participant needs, regional workforce conditions, or employer demand. The material below does not establish additional statewide minimum requirements.

Leadership development

Leadership development within entry-level clean energy training should emphasize the ability to contribute effectively to teams, support safe and high-quality work, communicate professionally, and take initiative. Leadership development should not be interpreted as preparation for formal supervisory responsibility unless additional training and experience are provided.

Workforce Hubs may incorporate additional emphasis on:

Team Communication and Collaboration

Participants may practice coordinating with coworkers, supervisors, contractors, project teams, and other professionals; communicating information clearly; asking clarifying questions; and supporting effective team performance.

Culture of Safety

Participants may practice speaking up about unsafe conditions, reporting hazards, participating in safety discussions, and reinforcing established safety procedures.

Quality Management

Participants may practice following standard operating procedures, conducting basic quality inspections, documenting findings, identifying nonconforming work, and discussing corrective actions.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

Conflict Resolution

Participants may practice identifying sources of routine workplace conflict, using effective communication, and applying appropriate strategies to resolve disagreements while maintaining professional relationships.

Decision Making

Participants may practice evaluating available information, considering risks and alternatives, and selecting appropriate responses to routine workplace or operational challenges using established procedures.

Digital Collaboration

Participants may use digital collaboration platforms to communicate with team members, share documents, schedule meetings, track assigned tasks, and support team activities while following organizational communication and data-security practices.

These supplemental competencies build upon leadership-related skills already addressed through the CEJA Core Competencies. Workforce Hubs may incorporate them as appropriate to the needs of participants, employers, and the selected training pathway. Advanced leadership responsibilities, such as formal supervision and management, require additional training and experience beyond this entry-level preparation.

Advanced Leadership

Advanced leadership development falls outside the normal scope of entry-level CEJA training. Where appropriate, Workforce Hubs may help participants understand opportunities for continued development in areas such as:

- Promoting organizational safety culture
- Improving team communication and collaboration
- Supporting workforce retention
- Developing future leadership capacity
- Supervisory communication and coordination
- Leading quality and safety programs
- Strategic decision making
- Delegation and team management

Advanced leadership competencies should be addressed through continued education, employer-sponsored training, supervisory development, or other advanced training opportunities rather than treated as minimum requirements for entry-level CEJA training.

Project management development

The CEJA Core Competencies already establish foundational project management skills, including basic project planning and scheduling, preliminary labor and material estimates, documentation, digital collaboration, and understanding task dependencies.

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

Workforce Hubs may build upon these foundations when project-based work is particularly relevant to a selected Career Cluster or Career Pathway.

Supplemental project management instruction may address:

- **Project administration.** Organize project information, maintain records, track assigned tasks, and support basic compliance documentation.
- **Project planning.** Identify tasks, milestones, dependencies, timelines, and resource requirements.
- **Resource coordination.** Track materials, equipment, personnel, schedules, and other resources relevant to assigned work.
- **Project communication.** Communicate progress, schedule changes, task status, and other project information to supervisors and project teams.
- **Cost awareness.** Prepare preliminary labor, material, and equipment estimates and recognize basic cost constraints.
- **Permitting and regulatory awareness.** Identify common local ordinances, permitting requirements, and situations in which additional authorization may be required.
- **Risk awareness.** Identify routine workplace and project risks and follow established procedures for communicating and addressing those risks.
- **Digital project tools.** Use spreadsheets, presentation software, digital collaboration platforms, and other appropriate tools to organize information and communicate project activities.

These skills may be particularly relevant to construction, manufacturing, utilities, infrastructure, and professional services training where participants are expected to contribute to team-based projects or understand how their work connects to broader project schedules and deliverables. These skills distinguish entry-level project participation from advanced project management responsibilities such as managing budgets, contractual matters, strategic decisions, delegation, advanced scheduling, and multidisciplinary project management.

Advanced Project Management

Advanced project management is outside the normal scope of entry-level CEJA training. Examples include:

- Managing project budgets and cost constraints
- Legal and contractual management
- Strategic project decision making
- Delegation and formal supervision
- Advanced project planning and scheduling
- Managing multidisciplinary technical teams
- Complex problem solving involving technical, financial, contractual, and stakeholder considerations

Clean Jobs Workforce Network Program

Clean Jobs Curriculum Framework, Revised 2026

Participants interested in these responsibilities should be connected to appropriate continued education, employer-sponsored training, professional development, or other advanced career opportunities.