Clean Power Institute
Certified Clean Energy Professionals
A Framework for Assessing Technician Skills

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Table of Contents

1 Introduction

1.1 Overview & Purpose

Building, operating, and maintaining power generation projects demands strong electrical safety awareness, training, technical skills, and personal discipline. Utility-scale clean energy sites are unique, requiring fewer technicians to perform diverse tasks without the specializations found in traditional facilities. While demand for clean energy technicians is rising, training programs have not kept pace, leading to inconsistent curricula and skill levels. This variability increases safety risks, equipment downtime, and operational costs.

To address this, the American Clean Power Association (ACP) and Clean Power Institute (CPI), in collaboration with ACP members, developed the Certified Clean Energy Professional (CCEP) Program. This Program outlines a transparent and standardized set of methods to certify technicians' knowledge, skills, and abilities to install, maintain, and troubleshoot clean energy technologies effectively.[1] It sets an industry-wide bar for the skills and competencies technicians should be able to demonstrate, standardizing training programs, recognizing competent technicians, and promoting a safer, more efficient workforce.

| Entity	Value Proposition
Industry & Assessors	Establishes minimum bar for safety and technical competency. Improve standardization of terminology, workforce, and skill sets. Improve and stabilize the workforce.
Organization	Allows HR and managers to hire, validate training, and promote based on industry-recognized credentials. Opportunity to align in-house training programs to the competencies prescribed and prepare their technicians to become certified, creating alignments across varying regions or teams in performance or work.
Team	Increases efficiency by having standardized skill set mapping. Reduces safety incidents and rework.
Technician	Increases technical competency and awareness of safety requirements and skills they should be able to demonstrate. Collect stackable credentials as career advances and differentiate from peers.
Training Providers	Standardizes industry expectations of the worker skills needed, allowing for programs to strive for meaningful outcomes of learning objectives that align with industry needs. Creates the opportunity to align training programs to the competencies prescribed and prepare technicians to become certified.

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[1] This Program builds upon ACP's Wind Technician Entry-Level Minimum ANSI Standard and Guidelines for Entry-Level Wind, Solar, and BESS Technicians. Additional program references are included in the Appendix.

2   Certified Clean Energy Professional Model

2.1   Program Overview

Competency validation in the field for clean energy technicians is crucial to ensure that they can effectively apply their theoretical knowledge and skills in real-world scenarios to ensure high performance standards in the field.

Currently, entry-level wind technicians are trained through various pathways, including internal company programs, community or technical colleges, or third-party training centers. The CCEP Program is not intended to replace these programs; rather, it validates and recognizes technicians' skills and competencies once they complete training and on-the-job training.
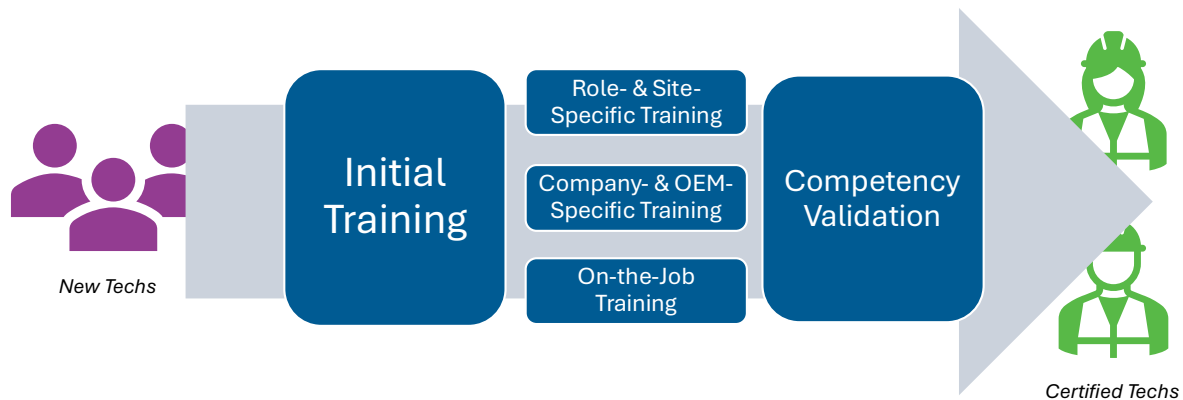
2.2   Validation Process

2.2.1   Assessment Scenarios & Scopes of Work

The CCEP Program is grounded in core competencies that technicians should possess. These competencies have been identified and confirmed in partnership with ACP members, representing owner/operators, original equipment manufacturers (OEMs), and third-party/independent service providers.

Core competencies that are tested through the program include:

- ✓ Basic safety (hazard assessment, PPE identification, hazard mitigation)
- ✓ Basic system theory and operation (components, schematics)
- ✓ Understanding and demonstrating mechanical and electrical maintenance and hydraulic fundamentals
- ✓ Visual inspection and maintenance of external and internal equipment components
- ✓ Communicating site safety information
- ✓ Proper care and usage of technical tooling
- ✓ Record keeping and documentation

These competencies are assessed through hands-on scenarios that simulate typical maintenance and repair tasks that technicians are expected to perform. The scenarios are pass/fail, where the technician must successfully complete each task to be certified. Pass and fail criteria are outlined within a standardized scoring sheet for each scenario. Successfully completing each assessment scenario signifies that the technician has the knowledge, skills, and abilities to safely perform the task(s) in the field with minimal to no supervision for entry-level tasks. Failing to comprehensively complete any part of the assessment signifies that the technician does not have the knowledge, skills, and abilities to perform the task(s) in the field safely or would require heavy supervision.

Core Competencies
The knowledge, skills, and abilities needed to be certification ready.

Assessment Scenarios
Each scenario tests multiple core competencies.

Technician Certification
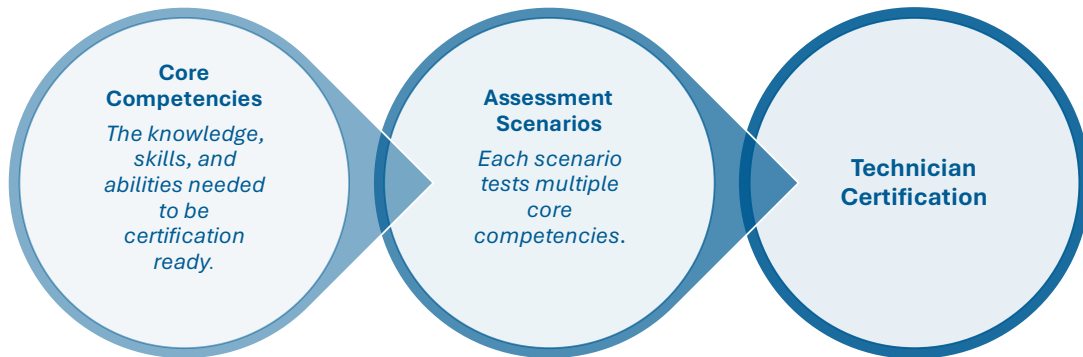
CPI recommends that assessments occur in the field for the best validation of technician competence; however, CPI does not prescribe a location. The assessment can take place in the field or at a training facility, as long as all the equipment needed for the scenario is available.

2.2.2 Learning Management System

The Program is hosted through a learning management system (LMS). Resources on the LMS include scoring sheets and SOWs, the assessor oath, preparation checklists, and other background materials. Importantly, the LMS hosts the assessment form that assessors must complete and submit to CPI on behalf of technicians, and technician certifications are issued through the LMS.
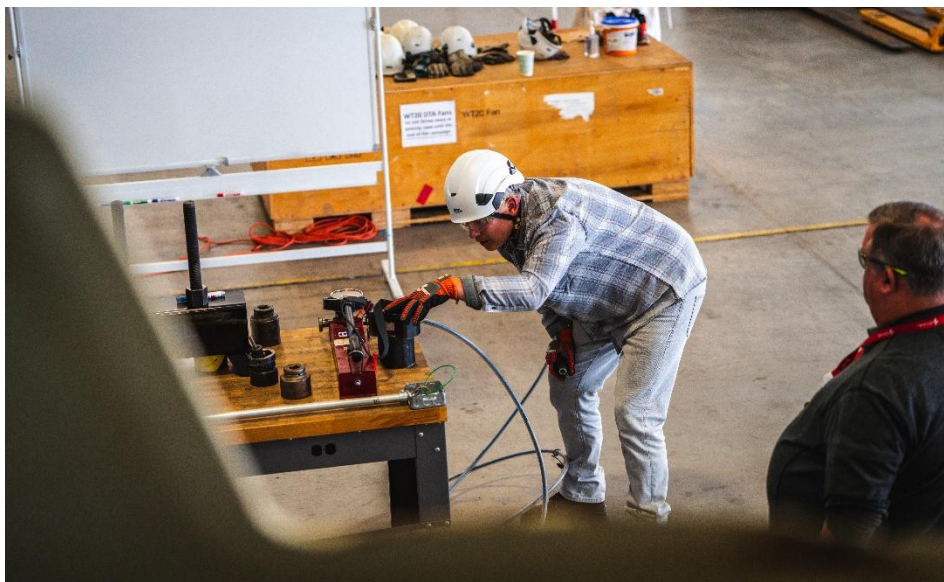
3 Certified Clean Energy Professional Stakeholders

3.1 Technicians

3.1.1 Timing of Certification & Recertification

Technician readiness should be determined by the technician's company and/or supervisor based on the technician's on-the-job training and performance, experience or certifications, and ability to complete tasks with minimal to no supervision. The assessment scenarios should be referenced to understand the assessment's tasks, pass expectations, and fail criteria.

CPI does not prescribe timing for completing the assessment. However, CPI generally recommends it be completed after an initial training program and some period of on-the-job training to learn company- and OEM-specific procedures and apply skills they learned within a controlled training environment to the field.

The length of the initial training will be program-specific, and the length of OJT will be individual-specific. Technicians with relative experience (e.g., mechanical, electrical, military) could require less OJT, while someone new to the industry could require a longer period of OJT.

Initial Training	On-the-Job Training (OJT)	Competency Validation
• Trade School • Community College • Company Onboarding	• Hands-on field experience under instruction developing skills and proficiency.	• Recognition of application of skills to real-world scenarios for technicians.

The certification lasts for two years and can be automatically renewed as long as the technician attests that they are still actively working with wind turbines in the field. All certifications include the year originally earned.

3.1.2 Eligibility & Enrollment Process

Once a technician is deemed ready to take the assessment, they must create an account with CPI's LMS. Here, they will complete pre-assessment courses that review the CCEP Program and assessment content and be assigned to an assessor. Technicians can be assessed by assessors internal or external to their company; however, the assessor cannot be the technician's manager or supervisor. The certification will be issued via the LMS when the technician passes the assessment.

3.1.3 Fees

Each technician certification requires a one-time fee and is specific to a certification level. If a technician wishes to obtain certification for advanced technician levels, a separate assessment and certification fee will apply for each additional level.

3.1.4 Failing an Assessment

If a technician fails the assessment, they should work with their assessor and manager to identify the task they need to improve upon. CPI does not prescribe how long a technician must wait before assessing again, but generally recommends that the technician complete some period of OJT to improve upon the scenario and/or task before re-attempting the assessment.

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3.2   Assessors

3.2.1   Overview

The Program is comprised of assessors from **companies** and **third-party providers**. Assessors observe technicians during the assessment to validate competency. They closely monitor technicians' actions, techniques, and decision-making processes during the tasks and utilize scoring sheets to systematically assess technicians' performance based on predetermined criteria, including accuracy, efficiency, safety compliance, and problem-solving abilities.

3.2.2   Eligibility & Enrollment Process

Assessors hold the bar of integrity, quality, and reliability for the Program through their assessment of technicians. Qualifications to become an assessor include:

- Five or more years of **experience supervising wind technicians, conducting competency assessments, or leading technician training programs** with at least three of those years occurring in the last five years, including:
  - Demonstrated understanding of clean energy systems, including installation, maintenance, troubleshooting, and safety procedures, and ability to solve technical challenges encountered in the field effectively.
  - Experience conducting field assessments, inspections, or quality control checks for clean energy facilities, preferably focused on performance optimization and safety compliance.
- Demonstrated interest in **raising the bar** of trained and competent clean energy technicians, including:
  - Commitment to ongoing professional development and staying updated on advancements in clean energy technologies, industry standards, and assessment methodologies.
- Possession of **strong assessment skills**, including a(n)
  - Proficiency in observing, analyzing, and documenting technicians' performance during practical assessments using standardized evaluation criteria.
  - Effective communication and interpersonal skills to provide constructive feedback to technicians and facilitate post-assessment debriefings and discussions.
- Passed the competency assessment themselves.
- Attended CPI's assessor training and was certified by CPI as an assessor.
- Received a recommendation from their company to serve as an assessor.

Individuals must apply through CPI to become an assessor. Throughout the year, CPI will periodically open assessor applications. The frequency of application openings and assessor trainings will be determined by CPI based on certification demand. CPI will keep a wait list of individuals interested in becoming an assessor, in the event that there is greater interest than capacity allows.

3.2.3   Assessor Expectations

Assessor expectations are outlined within the Assessor Oath, located within the LMS. The oath requires assessors to set and maintain a clear bar for the industry for technician performance and safety, strive to be objective and create a supportive culture during the assessment process, and avoid performing assessments that may be a conflict of interest. It formalizes the assessor's role,

reinforces the Program's mission around objectivity, and asks the assessor to commit to these responsibilities.

3.2.4 Fees

Each assessor certification requires a one-time fee and is specific to a certification level. If an assessor wishes to obtain certification for advanced technician levels, a separate assessor training and certification fee will apply for each additional level.

3.3 Managers, Supervisors, & Company Leaders

The content of the CCEP Program has been vetted by industry as the correct knowledge, skills, and abilities technicians must have at their respective levels to safely and effectively perform tasks. Managers, supervisors, and company leaders can support the Program through assessor nominations and technician readiness preparations and determinations.

Companies should encourage seasoned technicians and training managers to apply for assessor positions so they can assess technicians internally and/or externally. Individuals must have a recommendation from their company to apply for assessor positions.

Companies are also encouraged to align their training programs to the core competencies and scenarios of the Program and incorporate opportunities for technicians to practice these competencies during their maintenance and repair schedule. Once a technician has demonstrated an ability to complete assessment tasks with minimal to no supervision, the technician's manager or supervisor will determine that they are ready to complete the assessment.

4 Disclaimer

[Applicant/Recipient] acknowledges the following and agrees and represents that they will not make any certification, representation or claim to the contrary if certification is granted:

Scope of Certification - This certification validates that the individual has demonstrated the competencies assessed at the time of evaluation. It does not guarantee future performance or the application of these skills in all contexts.

Limitations of Assessment - The assessment is based on specific criteria and conditions outlined in the certification process. It does not encompass all potential skills, knowledge, or scenarios required in all contexts.

Conditions of Use - The certification credential may not be used in a misleading manner or to imply qualifications beyond those assessed.

Non-Liability for Misuse - The certifying organization is not responsible for the misuse of the certification or for any incidents, damages, or losses resulting from the certified individual's performance.

Independence of Assessment - This certification is issued independently of any employment or contractual agreements and does not imply endorsement of the individual by any third party.

Not a Substitute for Licensure - This certification is not a substitute for any licensure or legal requirements mandated by local, state, or national authorities for practicing in any particular field, including the electrical industry.

Compliance with Safety Standards - Certification holders are responsible for complying with all relevant safety standards, laws, and regulations applicable to their work.

Validity Period and Renewal - This certification is valid for [specific period] and must be renewed according to the certifying body's guidelines to remain current.

Continuing Education and Updates - The certification holder is responsible for maintaining their knowledge and skills, including staying current with industry standards, regulations, and technologies regardless of the certification's dates of validity.

Accuracy of Information Provided - The certifying body relies on the accuracy of information provided by the candidate during the certification process. False or misleading information may result in revocation of certification.

No Guarantee of Employment - This certification does not guarantee employment, promotion, or any specific job role.

5 Appendix

5.1 References

At the time of publication of this framework, the following referenced documents:

- ANSI/ACP 5000-1-2022 Wind Workforce Definitions
- ANSI/ACP 5000-2-2022 Wind Technician Entry-Level Minimum Standard
- ACP Guidelines for Entry-Level Wind Technician Training
- ACP Guidelines for Entry-Level Solar PV O&M Technician Training
- ACP Guidelines for Entry-Level Battery Energy Storage (BESS) Technician Training
- Qualified Electrical Worker (QEW) Program for Wind Operations
- Qualified Electrical Worker (QEW) Program for Solar PV Operations
- Qualified Electrical Worker (QEW) Program for Battery Energy Storage Operations
- ANSI/ASTM E2659-18 Standard Practice for Certificate Programs
- ISO/IEC 17011:2017(E) Conformity Assessment—General Requirements for Accreditation Bodies
- ISO/IEC 17024:2012 Conformity Assessment—General Requirements for Bodies Operating Certification of Persons
- ISO 9001:2015 Quality management systems — Requirements
- Guidelines for the Development of an Initial Systematic Training Program
- Maintaining a Skilled Workforce: Strategies and Implementation Plan
- On-the-Job Training and Mentoring Assessment Guideline
- Benchmarking of Instructor Qualification and Continuing Development of Training Staff
- Standard Evaluation Tools for Assessing Employee Competencies to Determine Training Needs for Operations
- Guidelines for Implementing a Training Review Process to Address Continuing Training Needs
- Guidelines for Implementing a Mentor/Coaching Program
- Training Course for OJT/OJE

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