

# ACP 7000-2 202x

## Battery Energy Storage Systems Entry-Level Technician Minimum Standard

Month 2025

AMERICAN CLEAN POWER ASSOCIATION  
Standards Committee



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1299 Pennsylvania Avenue, N.W.,

Suite 1300

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## FOREWORD AND BACKGROUND

The Foreword and Background sections are included with this document for information purposes only and are not part of the American Clean Power Association ACP 7000-2-202x Battery Energy Storage Systems Entry-Level Technician Minimum Standard.

### Foreword

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### Background

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Public Review Draft

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# 1 Scope and Purpose

## 1.1 Scope

1.1.1 The American Clean Power Association (ACP) has created this entry level, utility-scale battery energy storage system (BESS) operations and maintenance technician guideline to establish minimum competencies for such entry level technicians. This standard establishes the minimum knowledge, skills, abilities, and competencies for an entry-level BESS O&M technician to safely perform required and supervised preventive and corrective maintenance.

## 1.2 Purpose

1.2.1 This framework is intended to assist employers, workforce development and training professionals, academia, and others with standardized training and education for entry level, utility-scale BESS O&M technicians, serving as a point of reference for the development of a minimum program curriculum base. Programs should meet or exceed the framework developed.

1.2.2 It is important to note that employers within the battery energy storage (BESS) energy industry are diverse. This standard is only intended to be a starting point in one’s journey as a battery energy storage technician in the United States. Each employer will require new hires and their employees to abide by their policies and procedures, this standard is not intended to conflict or contradict their policies, procedures, or expectations.

# 2 Terms and Definitions

Term	Definition
Alternating current (AC)	Alternating current is an electric current that reverses its direction at regularly recurring intervals.
AC coupled	The battery racks are connected to the part of the grid that has AC or alternating current.
AED (automated external defibrillator)	An automated external defibrillator is a lightweight, portable device that delivers an electric shock through the chest to the heart.
Arrestors	Typically installed near critical appliances or points of entry, such as an electrical panel or near a generator. When potentially dangerous lightning strikes, the arrester activates and diverts the lightning to ground, where it will disperse harmlessly.
Battery bank	Typically, a set of battery racks connected electrically in series or parallel that are all monitored collectively with connection to a single power conversion system (PCS or inverter).
Battery cell	The smallest battery storage element.
Battery module	The largest single container of battery packs with internal and external electrical connections, coolant lines, and mounting flanges capable of being installed and removed in a battery rack to form a battery bank.
Battery pack	A bundle of battery cells connected by packaging or connections or with monitoring. Typically, 4-cells although the number may vary.
Black Start	Black start is the process of restoring an electric power station or a part of an electric grid to operation without relying on the external electric power transmission network to recover from a total or partial shutdown.

Term	Definition
BESS	Battery Energy storage system consisting of batteries, battery management system, protective features, and balance of plant equipment necessary.
BMS	Battery management system is a device that monitors the battery cell, rack, and bank conditions and controls the operation of the battery system based on system designed specifications.
Cell	Enclosure that has a metallic cathode (positive), one metallic anode (negative) and electrolyte.
Code of Federal Regulations (CFR)	The codification of the general and permanent rules and regulations (sometimes called administrative law) published in the Federal Register by the executive departments and agencies of the federal government of the United States.
Clamp-on ammeter	A portable test instrument that measures current in a circuit by measuring the magnetic field's strength around a single conductor. Also frequently referred to as an amp clamp.
Combined sensor	Integrates multiple monitoring functions, such as irradiance, temperature, wind speed, and humidity, to optimize system performance and efficiency.
CPR (cardiopulmonary resuscitation)	Cardiopulmonary resuscitation (CPR) is a technique designed to temporarily circulate oxygenated blood through the body of a person whose heart has stopped.
DC (direct current)	An electric current flowing in one direction only.
DC coupled	For energy storage systems that are also connected to solar PV generating facilities, the batteries can be connected to the DC portion of the system, with the connection being either DC-DC converters or the DC bussing of the inverter.
DC-DC converter	Changes the DC voltage from one level to another. Typically found in solar plus storage systems that are DC-coupled to allow for the connection of the solar PV system directly with the battery energy storage system.
EAP (Emergency Action Plan)	A formalized written document that outlines the emergency response for personnel at a facility or site to include organizational actions for employees or personnel.
EL (entry level)	A job that is normally designed or designated for recent graduates of a given discipline and typically does not require prior experience in the field or profession. These roles may require some on-site training.
GED	Originally an acronym for the Tests of General Educational Development. Earning a GED diploma from a state is the equivalent to a U.S. high school diploma, so some students choose to take this certification exam if they were not able to complete a traditional high school program.
GSU (generator step up)	A generator step-up (GSU) transformer increases the voltage of electricity from a generator to a higher voltage for transmission. GSUs are in power stations and are often operated continuously. Very common in utility scale applications. Sometimes also called main power transformer (MPT).
High-voltage proximity detector	An electrical tester that helps to detect the presence of voltage. Voltage presence is useful information to have when troubleshooting or working on a failed asset.
Infrared thermal imaging (IR) camera	Used for building inspections (moisture, insulation, roofing, etc.), firefighting, autonomous vehicles and automatic braking, skin temperature screening, industrial inspections, scientific research, and much more.

Term	Definition
Inverters	The function of an inverter is to convert direct current (DC), produced by a battery or solar panel, into alternating current (AC). Also, can convert AC to DC.
JHA (job hazard analysis)	A job hazard analysis is a technique that focuses on job tasks to identify hazards before they occur. It focuses on the relationship between the worker, the task, the tools, and the work environment.
LOTO (lockout/tagout)	A safety procedure used in industry and research settings to ensure that dangerous machines are properly shut off and not able to be started up again prior to the completion of maintenance or repair work. Also frequently referred to as hazardous energy control.
LOTO affected employee from <i>CFR 29 §1910.147(b)</i>	An employee whose job requires him or her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him or her to work in an area in which such servicing or maintenance is being performed.
LOTO authorized employee from <i>CFR 29 §1910.147(b)</i>	A person who locks out or tags out machines or equipment to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under this section.
Megohmmeter	Used to measure insulation resistance and powered by an inbuilt DC generator or battery of a higher voltage range.
Module	See the definition for battery module above.
Multimeter	An electronic measuring instrument that combines several measurement functions in one unit. A typical multimeter may include features such as measuring voltage, current, and resistance.
NERC CIP	North American Electric Reliability Corporation - Critical Infrastructure Protection
NFPA (National Fire Protection Association)	A global self-funded nonprofit organization, established in 1896, devoted to eliminating death, injury, property, and economic loss due to fire, electrical and related hazards.
OSHA (Occupational Safety and Health Administration)	An agency of the United States Department of Labor. Congress established the agency under the Occupational Safety and Health Act (OSH Act), which President Richard M. Nixon signed into law on December 29, 1970. OSHA's mission is to ensure "safe and healthy working conditions for working men and women by setting and enforcing standards and by providing training, outreach, education and assistance." The agency is also charged with enforcing a variety of whistleblower statutes and regulations.
PJB (pre-job briefing)	Gathering of workers to discuss work scope and hazards involved, responsible workers, associated work areas or system impacts. The pre-job briefing ensures that the person in charge (PIC) and associated workers understand the scope of the work to be performed by discussing the tasks involved.
PMT (pad-mounted transformer)	A ground-mounted electric power distribution transformer in a locked steel cabinet mounted on a concrete pad.
POI (point of interconnection)	The point at which a battery energy storage system, or generating asset, is electrically connected to the electrical grid.
PPE (personal protective equipment)	Equipment worn to minimize exposure to hazards that cause serious workplace injuries and illnesses. These injuries and illnesses may result from contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards.

Term	Definition
Rack	A group of battery modules connected in series, through positive and negative leads.
SCADA (Supervisory Control and Data Acquisition)	A control system architecture that uses computers, networked data communications and graphical user interfaces for high-level process supervisory management but uses other peripheral devices such as programmable logic controller (PLC) and discrete PID controllers to interface with the process plant or machinery.
Skid	A factory assembled unit that has an integrated shipping and permanent placement frame containing standardized components such as batteries and control units; inverters switches, and transformers; or similar functional modules.
SoC (state of charge)	Is the ratio of the available capacity and the maximum possible charge that can be stored in a battery. A fully charged battery has an SoC of 100%, whereas a fully discharged battery has an SoC or 0%.
SoH (state of health)	Is the difference between a battery capacity in operation and the initial battery capacity considering cell degradation. It is the ratio of the maximum battery charge to its rated capacity.
SPCC (spill prevention, control, and countermeasures)	Site-specific plan that develops, maintains, and implements prevention and action requirements for oil/chemical spills.
Thermal runaway	Thermal condition that occurs when a cell, or area within the cell, achieves elevated temperatures due to thermal failure, mechanical failure, internal/external short circuiting, and electrochemical abuse. At elevated temperatures, exothermic decomposition of the cell materials begins. Eventually, the self-heating rate of the cell is greater than the rate at which heat can be dissipated to the surroundings, the cell temperature rises exponentially, and stability is ultimately lost. The loss in stability results in all remaining thermal and electrochemical energy being released to the surroundings.
Three-part communication	Three-part communication begins with (1) the sender who gets the attention of the receiver, (2) the receiver receiving the message and repeating it for clarification and verification that the message was understood as intended, and (3) the sender acknowledges that the receiver heard and understood the message.
UPS (uninterruptible power supply)	A device used to back up a power supply to prevent devices and systems from power supply problems, such as a power failure or intermittent outages. Frequently to keep monitoring and control systems online for renewable facilities.

### 3 General

- 3.1 The core competencies detailed in this document are divided into five (5) knowledge base areas: general work skills, operational theory and skills, environmental, health, and safety training and skills, mechanical theory and skills, and electrical theory and skills.
- 3.2 Each skill set outlines minimum competencies that individuals should demonstrate to qualify as an entry-level battery energy storage BESS technician.

### 4 General Work Skills

- 4.1 Summary: At the conclusion of a training program, the worker shall demonstrate broad competencies aimed at ensuring confidence in general knowledge and skill sets, such as basic office, computer, communication, and soft skills
- 4.2 Understanding of physical requirements and fitness for duty, i.e., lifting, walking, and extreme weather exposure as relevant (heat, cold, precipitation etc.)
- 4.3 Demonstrate basic math skills.
- 4.4 Demonstrate professional oral and written communications.

## 5 Operational Theory and Skills

- 5.1 Battery energy storage (BESS) fundamentals:
  - 5.1.1 Demonstrate basic understanding and knowledge of battery energy storage facility infrastructure, basic life cycle system components, battery fundamentals, and system operation.
  - 5.1.2 Demonstrate ability to identify, describe, interpret, and distinguish types of drawings (electrical, civil, and mechanical schematics). This can be satisfied by relating the drawings to the physical plant and identifying the relationship between the as-built drawings to the existing plant.
  - 5.1.3 Demonstrate knowledge of fundamentals of basic battery energy storage operations and conversion of battery energy storage energy to electrical energy.
  - 5.1.4 Describe the difference between AC and DC coupled energy storage systems.
  - 5.1.5 Describe basic parts of battery modules.
  - 5.1.6 Describe the battery monitoring systems and the failure modes.
  - 5.1.7 Demonstrate basic understanding of DC-DC converters.
  - 5.1.8 Describe different overcurrent protective devices (fuses, motor protection, circuit breakers, etc.) and surge protection devices.
  - 5.1.9 Demonstrate basic understanding for the purpose of BESS power generation equipment heating, ventilation, and cooling systems.
    - 5.1.10.1 Describe basic equipment installed on the battery systems (example: inverter, transformer, electrical disconnects and breakers) including function checks and basic maintenance.
    - 5.1.10.2 Identify the temperature parameters of the battery systems, inverter systems, transformer systems, the sensors used for monitoring, the protection systems in place, and the failure mode of each system due to both high and low temperatures.
- 5.2 Demonstrate understanding of the state of charge (SoC) for battery energy storage systems.
  - 5.2.1 Demonstrate understanding of different operational considerations regarding:
    - 5.2.1.1 Different battery chemistries on the plant;
    - 5.2.1.2 The implications of various low state of charge recharging rates and life expectancy;
    - 5.2.1.3 Black start operations.
- 5.3 Demonstrate an understanding of the state of health (SoH) for battery energy storage systems and the factors that impact the degradation of battery modules
- 5.4 Describe site access procedures and restrictions, including NERC CIP regulations and cybersecurity measures related to site access, critical infrastructure control, and reporting requirements.

- 5.5 Demonstrate basic understanding and knowledge of electrical grid infrastructure to include power generation, transmission, and distribution levels.
- 5.6 Demonstrate basic understanding and knowledge of site inspection maintenance:
  - 5.6.1 Demonstrate understanding, knowledge, typical frequency, and practical ability.
    - 5.6.1.1 Describe what to look for during a site visual inspection.
- 5.7 Demonstrate basic understanding and considerations for replacing battery modules, including how to handle, store, and package damaged modules.
- 5.8 Demonstrate basic understanding and knowledge of wire management:
  - 5.8.1 Demonstrate distinct types of electrical wiring and conductors on BESS sites.
    - 5.8.1.1 Battery skid wiring and connectors;
    - 5.8.1.2 Battery skid to power station wiring and connectors;
    - 5.8.1.3 Power station internal wiring;
    - 5.8.1.4 Power station to feeder switch wiring and connectors.
- 5.9 Demonstrate basic understanding and knowledge inverter maintenance:
  - 5.9.1 Describe the general operational modes of a battery energy storage inverter.
  - 5.9.2 Demonstrate basic understanding, knowledge, and practical ability of standard inverter maintenance requirements.
  - 5.9.3 Demonstrate understanding of inverter human-machine interface (HMI).
  - 5.9.4 Describe inverter operational state, production, and faults.
  - 5.9.5 Demonstrate ability to clean/replace inverter cooling system filters or air intakes/exhausts.
- 5.10 Demonstrate basic understanding and knowledge DC-DC converter maintenance:
  - 5.10.1 Describe the general operational modes of a battery energy storage converter.
  - 5.10.2 Demonstrate basic understanding and knowledge understanding, knowledge, and practical ability of standard inverter maintenance requirements.
  - 5.10.3 Demonstrate understanding inverter human-machine interface (HMI).
  - 5.10.4 Describe inverter operational state, production, and faults.
  - 5.10.5 Demonstrate proper inspection, use, and operation of a variety of electric, hydraulic, and hand tools.
  - 5.10.6 Demonstrate ability to clean inverter cooling system filters or air intakes/exhausts.
- 5.11 Demonstrate basic understanding and knowledge of fire detection and protection systems.
  - 5.11.1 Demonstrate basic understanding and knowledge of fire system maintenance.
  - 5.11.2 Demonstrate basic operation of fire detection panels.
  - 5.11.3 Describe common failure modes of fire system components.
- 5.12 Demonstrate basic understanding and knowledge of emergency ventilation or deflagration panels.
  - 5.12.1 Demonstrate basic understanding and knowledge of deflagration panel inspections.
- 5.13 Demonstrate basic understanding and knowledge of the use of testing equipment:
  - 5.13.1 Infrared (IR) thermal imaging camera.
  - 5.13.2 Hand-held temperature gun/infrared thermometer.

5.13.3 Digital multimeter.

5.14 Demonstrate basic understanding and knowledge of battery skid cleaning.

5.15 Demonstrate basic understanding and knowledge of the battery management system (BMS).

## 6 Environmental, Health, and Safety Training and Skills

6.1 Successfully complete OSHA 10-hour course (or equivalent) course.

6.2 Successfully complete a Hazardous Communication course under 29 *CFR* 1910.1200. Be able to articulate, based on a safety data sheet (SDS) for a chemical used in the workplace, the PPE required, first aid to be rendered, the physical handling characteristics, combustion characteristics, chemical reactivity, and waste disposal.

6.3 Recognize and understand employee responsibilities for workplace electrical safety requirements under 29 *CFR* §1910.269, 29 *CFR* §1910.147, Subpart S, NFPA 70E.

6.4 Demonstrate an understanding of lock out tag out (LOTO). Identify the system's Energy Isolating Devices. Identify a LOTO lock, tag, and articulate the conditions for both application and removal. Articulate the functions of the LOTO authorized person and the LOTO affected person per company LOTO policy. 29 *CFR* §1910.147.

6.5 Using an equipment manual, articulate the safety hazards and proper PPE when using tools or around specified machinery.

6.6 Successfully complete a nationally recognized first aid course (i.e., American Red Cross, American Heart Association, National Safety Council, etc.), including bloodborne pathogens training. Recognize and treat medical injuries including CPR and use of an automatic external defibrillator (AED).

6.7 Complete training on the site's Emergency Action Plan including communications, evacuations, and locations.

6.8 Complete awareness training on the site's spill response and waste management procedures, typically a Spill Prevention and Control and Countermeasures (SPCC) Plan.

6.9 Describe the requirements for safe packaging for used battery modules.

6.10 Describe the personal safety risks and hazards of the battery energy storage facility, to include:

6.10.1 DC and AC voltages and locations of the equipment.

6.10.2 Arc flash:

6.10.2.1 Articulate the meaning of the various distances and energy levels on the arc flash label.

6.10.2.2 Identify the PPE requirements for a piece of equipment based on its arc flash label and a scope of work with an exposed conductor.

6.10.2.3 Articulate the proper boundaries for a piece of site equipment based on posted arc flash label given various levels of PPE, including the safe distance for an untrained person without PPE.

6.10.3 Demonstrate the ability to perform a job safety analysis (JSA) process and document on an appropriate form. Use work instructions, equipment manuals, SDS, and other resources based on a specified scope of work.

6.10.4 Discuss and demonstrate an understanding of hazards associated with night work. Discuss response time differences between night work and normal business hours.

6.11 Describe the safety risks and hazards of the battery energy storage facility, to include:

- 6.11.1 Different voltages, current, conductor distances and PPE ratings for each component.
- 6.11.2 The chemicals and materials used in the system and their hazards in accordance with the SDS.
- 6.11.3 The mechanical risks, weights, heights of the various equipment.
- 6.11.4 The thermal risks - where elevated temperatures may be present in the equipment.
- 6.11.5 The pressures and flow of the gases and liquids in the systems
- 6.11.6 The function and limitations of emergency stop controls (i.e., does not release stored energy)
- 6.12 Demonstrate understanding of battery thermal runaway:
  - 6.12.1 Discuss and demonstrate an understanding of proper response thermal runaway.
  - 6.12.2 Demonstrate understanding of off gases based on fire test results.

## 7 Mechanical Theory and Skills

- 7.1 Identify, describe, and understand the following:
  - 7.1.1 Fasteners, torque.
  - 7.1.2 Demonstrate the basic understanding:
    - 7.1.3.1 The nomenclature and use of the types of fasteners found in various systems and equipment.
    - 7.1.3.2 The various tools used for fasteners.
    - 7.1.3.3 Mechanical and digital torque measurement devices - use, setting, measurement, and care.
    - 7.1.3.4 Explain the proper use of washers and bushings.
    - 7.1.3.5 Understand the proper techniques for torque marking.
    - 7.1.3.6 Articulate what stationary and moved torque mark means.
- 7.2 Fire protection system understanding:
  - 7.2.1 Discuss and demonstrate an understanding of:
    - 7.2.1.1 Fire protection and suppression systems.
    - 7.2.1.2 Mechanical components of the system.
    - 7.2.1.3 Flow of piping systems.
  - 7.2.2 Demonstrate fire protection system inspections in accordance with the manufacturer's manual.
- 7.3 Transformer oil sampling:
  - 7.3.1 Explain the proper safety procedures for oil sampling of transformers.
  - 7.3.2 Demonstrate the process and articulate the significance of oil sampling including proper record keeping and preventing contamination.
  - 7.3.3 Explain oil spill prevention and safe handling techniques.
  - 7.3.4 Demonstrate the ability of the spill reporting process.
  - 7.3.5 Explain how to contain and then initiate the cleanup of an oil spill.
- 7.4 Tools:
  - 7.4.1 Articulate the proper personal protective equipment (PPE) for mechanical work:



- 7.4.1.1 Impact drivers for fasteners
- 7.4.1.2 Hand tools for fasteners
- 7.4.1.3 Hand material handling equipment
- 7.4.1.4 Motorized material handling equipment
- 7.4.1.5 Handheld cutting tools
- 7.4.1.6 Pumps and hoses
- 7.4.1.7 Winches
- 7.5 Lifting equipment:
  - 7.5.1 Demonstrate understanding of lifting mechanisms to include:
    - 7.5.1.1 Inverter module lifting mechanism.
    - 7.5.1.2 Battery module lifting mechanism.
    - 7.5.1.3 General material handling operations including rigging for equipment component replacement.
- 7.6 Heating, ventilation, and cooling systems:
  - 7.6.1 Demonstrate understanding of heating, ventilation, and cooling systems purpose and components for battery energy storage systems.
  - 7.6.2 Discuss general knowledge of the operation and inspection of heating, ventilation, and cooling systems for inverters.
  - 7.6.3 Demonstrate understanding of the maintenance and replacement of:
    - 7.6.3.1 Filters;
    - 7.6.3.2 Fans;
    - 7.6.3.3 Cooling fluid;
    - 7.6.3.4 Pumps;
    - 7.6.3.5 Restart and air purge procedures.

## 8 Electrical Theory and Skills

- 8.1 Demonstrate basic understanding of electrical systems, symbols, and charts.
- 8.2 Basic electrical theory and general knowledge:
  - 8.2.1 Electrical safety – describe general electrical safety awareness.
  - 8.2.2 Demonstrate proper identification of basic electrical meters and operation and safe measurement techniques.
    - 8.2.2.1 Megohmmeters;
    - 8.2.2.2 Amp clamps;
    - 8.2.2.3 Multimeters;
    - 8.2.2.4 High-voltage proximity probe.
- 8.3 Demonstrate knowledge of AC/DC theory including being able to measure resistance, voltage, current, and power.
  - 8.3.1 Demonstrate knowledge of the difference between series and parallel circuits and the impact of the configuration on system parameters.

- 8.3.2 Demonstrate knowledge of electrical laws:
  - 8.3.2.1 Ohm's Law;
  - 8.3.2.2 Kirchhoff's Voltage Law (KVL);
  - 8.3.2.3 Kirchhoff's Current Law (KCL);
  - 8.3.2.4 Power Law (Jules Law)
- 8.4 Grounding:
  - 8.4.1 Describe understanding of equipment grounding conductors (EGC).
  - 8.4.2 Describe understanding and knowledge of installed system ground.
  - 8.4.3 Demonstrate proper application and removal of protective (temporary) grounds for maintenance.
- 8.5 Batteries:
  - 8.5.1 Demonstrate understanding of battery system configurations.
  - 8.5.2 Demonstrate understanding of different battery chemistries.
  - 8.5.3 Demonstrate ability to test individual battery modules.
  - 8.5.4 Demonstrate the ability to remove and replace battery modules.
- 8.6 Inverters:
  - 8.6.1 Describe general knowledge of the function and operation of inverters.
  - 8.6.2 Demonstrate understanding of inverter electrical ratings.
  - 8.6.3 Identify the main components of an inverter.
- 8.7 Converters:
  - 8.7.1 Describe general knowledge of function, and operation of converters.
  - 8.7.2 Demonstrate understanding of converter electrical ratings.
  - 8.7.3 Identify components of a converter.
- 8.8 Transformers:
  - 8.8.1 Describe general knowledge of the function and operation of transformers.
  - 8.8.2 Describe differences and similarities for the following transformers:
    - 8.8.2.1 Main power transformer (MPT), generator step-up (GSU), or substation);
    - 8.8.2.2 Pad mount transformer (PMT);
    - 8.8.2.3 Auxiliary transformer.
- 8.9 Describe general knowledge of the function and operation of protection relays.
- 8.10 Demonstrate the understanding of checking fuse continuity.
- 8.11 Describe general knowledge of the function and operation of recloser or point of interconnection switchgear.
- 8.12 Communication Cables:
  - 8.12.1 Describe general knowledge of communication cables (Cat 4, Cat 5, fiber optics).
  - 8.12.2 Identify fiber optic cable and connectors.
  - 8.12.3 Identify fiber optic terminals and splices.

- 8.12.4 Articulate the means and methods to avoid damage to the communication cables connector and associated equipment.
- 8.13 UPS (uninterruptible power supply):
  - 8.13.1 Describe types and purposes of UPS for battery energy storage facilities.
  - 8.13.2 Describe danger associated with UPS.
- 8.14 Capacitor banks:
  - 8.14.1 Describe types and purposes of capacitor banks.
  - 8.14.2 Describe danger associated with capacitor banks.
- 8.15 Demonstrate understanding of National Electrical Manufacturer Association (NEMA)/ingress protection (IP) enclosure ratings.

## 9 References

Reference Title	Reference Number
Labor, Regulations Relating to Labor, Occupational Safety and Health Administration, Department of Labor, Occupational Safety and Health Standards; The Control of Hazardous Energy (Lockout/Tagout)	CFR 29 §1910.147
Labor, Regulations Relating to Labor, Occupational Safety and Health Administration, Department of Labor, Occupational Safety and Health Standards; Electric Power Generation, Transmission, and Distribution	CFR 29 §1910.269
Labor, Regulations Relating to Labor, Occupational Safety and Health Administration, Department of Labor, Occupational Safety and Health Standards; Hazard Communication	CFR 29 §1910.1200
Labor, Regulations Relating to Labor, Occupational Safety and Health Administration, Department of Labor, Occupational Safety and Health Standards, Subpart S—Electrical	CFR 29 §1910 Subpart S
Standard for Electrical Safety in the Workplace	NFPA 70E