



**CERTIFIED BUILDING COMMISSIONING  
PROFESSIONAL - CBCP EXAM PREP**

**KRISHNAJI PAWAR**, LEED AP BD+C, GSAS CGP, ISO 14001:2015, GCP  
COMMISSIONING SPECIALIST CURRICULUM



---

---

---

---

---

---

---

---



**ELECTRICAL SYSTEMS COMMISSIONING**

**KRISHNAJI PAWAR**, LEED AP BD+C, GSAS CGP, ISO 14001:2015, GCP  
COMMISSIONING SPECIALIST CURRICULUM



---

---

---

---

---

---

---

---

**LEARNING OBJECTIVES**



- Electrical Systems Commissioning
- Requirements & Methods – Levels of Cx
- Design Review
- Developing Cx Plan
- Cx Tools & Execution
- Variable Frequency Drives (VFDs) – Delivered Product



---

---

---

---

---

---

---

---

## ELECTRICAL SYSTEMS COMMISSIONING

Electrical commissioning (ECx) is the systematic process of verifying, documenting, and placing into service newly installed or retrofitted electrical power equipment and systems.

To manage the challenges of today's complex electrical power systems and tightening budgets, facility managers need to understand the critical connection between electrical commissioning and acceptance testing, and planning for lifecycle management.

To assist in this responsibility, this article will review the scope of services required for each stage of electrical system lifecycle management, and provide details on how proper commissioning and acceptance testing should inform the design of a maintenance program that fits the needs of a specific facility. It will demonstrate how the first stages of electrical system management can be used to establish an optimal maintenance program, set outage schedules, and plan for equipment life extension.

## ELECTRICAL COMMISSIONING AND ACCEPTANCE TESTING



Electrical commissioning (ECx) is the systematic process of verifying, documenting, and placing into service newly installed or retrofitted electrical power equipment and systems. Its purpose is to assure that tested electrical systems are safe, reliable, perform within manufacturer tolerances, are installed in accordance with design specifications, and conform with applicable standards.

Acceptance testing occurs concurrently with commissioning. It is the field-testing phase in which individual electrical components are assessed to verify their suitability for initial energization. Field tests and inspections are conducted to assure that the equipment and systems are as specified in the original design documents, meet manufacturer specifications, and are installed correctly.

ECx and acceptance testing should always be performed during new construction. In addition, similar procedures should be followed when there is an update to electrical equipment or system segments. This is critical to a successful system energization.

Working with experienced field technicians and electrical engineers will ensure that the appropriate scope of ECx and acceptance testing services is performed relative to national standard recommendations/requirements and specifications. These experts will also be able to provide a comprehensive analysis of the facility, identify efficiency opportunities, and conduct both a reliability analysis through the identification of single points of failure and an end-of-life analysis of equipment.

## THE ECX AND ACCEPTANCE TESTING SCOPE INCLUDES THE FOLLOWING:

- Development of a project commissioning schedule, including design, construction, acceptance testing, occupancy stages, and key commissioning milestones.
- Description of commissioning activities that will occur during pre-energization, energization, and post-energization.
- Creation of commissioning and acceptance testing checklists, test plans, and test forms specific to the project.
- Visual and mechanical inspections.
- Electrical acceptance tests.
- Documentation of the commissioning process.
- Commissioning and acceptance testing reporting.
- Documentation of test parameters.
- Reporting on testing results.
- Documentation of approval by the facility owner and operator to allow the equipment to be energized.



---

---

---

---

---

---

---