

## Overview

This standard is for people who commission Solar PV and Electrical Energy Storage System (EESS) systems and equipment.

The person undertaking this work must be able to comply with the processes and procedures for the commissioning and handing over of Solar PV and EESS systems and equipment in accordance with the current versions of the appropriate industry standards and regulations, the specification; industry recognised working practices, the working environment and the natural environment.

They must know, understand and apply the correct methods and procedures for the commissioning and handing over Solar PV and EESS systems and equipment including the:

- identification and use of the correct test equipment / instruments
- completion of the relevant certification / documentation
- recording of relevant data and information
- identification and consideration of the customer's need for Solar PV and EESS systems and equipment configuration
- planning of the resources required to undertake the commissioning process

## Performance criteria

### *You must be able to:*

1. identify the customer/client's requirements
2. plan the commissioning process
3. determine and obtain the resources required to undertake the process
4. ensure information management methods and organisational procedures are implemented correctly
5. verify that the customer/client's requirements are met
6. resolve any issues identified
7. specify methods and organisational procedures which conform with customer/client requirements
8. confirm that working conditions are suitable for commissioning to take place
9. complete the commissioning process
10. record and assess information in accordance with organisational procedures
11. ensure that the results are recorded in the appropriate systems and passed to the relevant people
12. ensure that the Solar PV and EESS system and equipment is ready for hand over to the customer/client
13. identify and explain any variations to relevant others
14. obtain confirmation of the customer/client acceptance of the Solar PV and EESS system and equipment in accordance with organisational procedures
15. ensure that all relevant documentation is correctly completed and recorded in the appropriate systems in accordance with organisational procedures

## Knowledge and understanding

### *You need to know and understand:*

1. the operation, applications, advantages and limitations of different Solar PV and EESS systems
2. the requirements for the commissioning process
3. the resources required to undertake the commissioning process
4. the methods, organisational procedures and systems to:
  - record and assess information
  - ensure that the results are recorded in the appropriate systems and passed to the relevant people
5. the correct methods and organisational procedures for implementing the commissioning process
6. the conditions that are suitable to implementation
7. how to resolve any identified issues
8. how to ensure that the Solar PV and EESS system and equipment is ready for hand over to the customer/client
9. the methods for providing clear and accurate information to relevant people
10. the organisational procedures for:
  - notifying relevant people of any variations
  - obtaining customer/client acceptance of the Solar PV and EESS system and equipment
  - the completion of all relevant documentation
  - recording of information and/or data in the appropriate systems

## Scope/range

### **Working environments (internal and/or external)**

- domestic
- non-domestic
- o commercial
- o industrial
- o agricultural
- o horticultural
- o leisure and entertainment
- o residential medical and care facilities
- o public highways and parks
- o public services establishments
- o pre-1919 traditional/historic buildings

### **Solar PV and EESS system**

- Panels/arrays
- Panel support systems
- Charge controller
- Battery bank
- Inverter/power optimiser
- Power meter
- SMART controls/technology

### **Organisation procedures**

- information management
- project management
- risk assessment
- risk management
- implementing and monitoring health and safety requirements and issues
- implementing and monitoring issues relating to the natural environment
- customer services
- emergencies
- communication with relevant people

### **Resources**

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- labour
- plant and equipment
- instruments
- finance
- IT
- materials and other consumables

### **Information**

- technical – design documentation; plans; installation specifications; equipment specifications; manufacturer data; manufacturer instructions; BIM data
- functional – operational instructions
- customer/client information – drawings; diagrams; user instructions; specifications
- contractual
- statutory consents
- health and safety
- environmental considerations

### **The commissioning process**

- tests and testing
- verification
- configuration
- hand-over

### **Equipment, accessories and components**

- arc fault detection devices (AFDDs)
- cable glands
- circuit breakers
- consumer units
- control devices – electrical; electronic; electro-mechanical
- control panels – alarms; emergency lighting; environmental control
- distribution boards and/or panels
- earthing protection
- fuses
- isolators
- luminaires

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- micro-wind turbine control equipment
- motor control equipment
- socket-outlets
- solar photovoltaic panels – control equipment, components and accessories
- surge protection devices (SPDs)
- switches

### **Relevant people**

- customers/clients
- client representatives
- site/contract manager
- other contractors/trades
- members of the public
- work colleague

### **Documentation**

- electrical installation certificates
- electrical installation condition reports
- minor electrical installation works certificates
- schedules of circuit details and test results as required:
  - o PV Array test results
  - o PV Array Inspection Checklist
  - o MCS Certificate
  - o PV Array Frame Calculations (Wind/Structure)
  - o schedules of inspections
  - o operational instructions
  - o manufacturer instructions
  - o handover agreements

BSESPV04

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<b>Developed by</b>	BSE Skills
<b>Version Number</b>	1
<b>Date Approved</b>	29 Apr 2024
<b>Indicative Review Date</b>	20 Apr 2029
<b>Validity</b>	Current
<b>Status</b>	Original
<b>Originating Organisation</b>	BSE Skills
<b>Original URN</b>	BSESPV04
<b>Relevant Occupations</b>	Electrician
<b>Suite</b>	Solar Thermal/Photovoltaic Panel Installation and Surveying
<b>Keywords</b>	Commission; Solar PV; EESS

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