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| Title | **Off-grid solar PV systems with battery storage** |
| Level | **2** | **Credits** | **5** |

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| Purpose | This competency standard is intended for those who carry out installation of off-grid solar PV system. People holding credit for this module are able to describe, Off-grid Solar PV Systems, Backup (UPS) systems, Batteries (Characteristics, handling, maintenance, safety, life time, autonomy, recycling) and Charge controllers |

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| Classification ISCED | 0713 Electricity and energy |

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| Available grade | Competent / Not yet competent |

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| Modification history | N/A |

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| **Competency Unit** | **Performance Criteria** | **Knowledge and Understanding** |
| **B1:** **Off grid solar PV system** | **P1-** Follow safety and other regulatory requirements for off-grid solar PV system.**P2-** Interpret circuit diagram**P3-** Identify and select tools and equipment for off- grid PV system**P4-** Perform connection of PV panels and electrical components. | **K1-** Safety requirements and hazards identification**K2-** Interpretation of drawings and specifications**K3-** Tools and equipment for installation**K4-** Jointing techniques ,specifications and safety requirements |
| **B2:** **Plan and prepare for****backup system** | **P1-** Follow safety and other regulatory requirements for backup system**P2-**  Plan and prepare electrical tools and equipment for backup system**P3-**  Performs connections for backup system**P4-** Monitor load specifications for backup system | **K1-** Safety requirements and hazards identification**K2-** Tools and equipment for backup system**K3-** Methods and techniques of connections**K4-**  Calculation of load, method of electrical measuring parameters and load management |
| **B3:** **Maintain batteries** | **P1-** Identify the characteristics of different types of batteries**P2-** Perform battery connections**P2:** Plan and prepare for charging of batteries**P3-** Maintain electrolyte level**P4-** Testing procedures for batteries**P-5** Recycling of batteries | **K1-** Types of batteries**K2-** Connection techniques and requirements**K3-** Battery charging techniques**K4-** Role of electrolyte**K5-** Recycling and repairing procedures |
| **B4:** **Use electrical tools and charge controller** | **P1-** Follow safety and other regulatory requirements for use of electrical tools.**P2-** Interpret circuit diagram**P3-** Identify and select tools and equipment for charge controller **P4-** make connections of charge controller with components | **K1-** Safety requirements and hazards identification**K2-** Interpretation of drawings and specifications**K3-** Tools and equipment for charge controller system**K4-** Methods of connection and specifications |