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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 |