# **Construction supervision checklist – Solar mini-grid**

This checklist is to be utilised to identify, review and correct any conditions or hazards that may endanger personnel, contractors, or members of the public at solar mini-grid projects.

Date: ***[Insert date]***

**Project name: *[Insert project name]***

| **SN** | **Task or Condition** | **Tick Result** | | | **Actions to Address**  **(If the result is NO, then include an action)** |
| --- | --- | --- | --- | --- | --- |
| **Yes** | **No** | **N/A** |
| **A.** | **Before construction- Stage 1** |  |  |  |  |
| **Site safety induction** | | | | | |
| 1. | Has a site safety induction been conducted and signed by all personnel involved in the task? |  |  |  |  |
| 2. | If dangerous goods are in use, are there adequate safety controls in place? |  |  |  |  |
| 3. | Are environmental considerations addressed? |  |  |  |  |
| 4. | Does the workforce have the necessary safety training? |  |  |  |  |
| 5. | Are the local site permits all fulfilled and signed? |  |  |  |  |
| **Forms/Documentation** | | | | | |
| 1. | Is there a certified/current working drawing on site? |  |  |  |  |
| 2. | Is there an installation checklist on site? |  |  |  |  |
| 3. | Is the work order or appropriate permit issued for work on-site? |  |  |  |  |
| **Personal protective equipment** | | | | | |
| 1. | Are the PPE as per daily risk assessment? This includes gloves, helmets, etc. |  |  |  |  |
| 2. | Is other safety apparel in good condition? |  |  |  |  |

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| **Tools/Equipment** | | | | | |
|  | | **Yes** | **No** | **N/A** |  |
| 1. | Are all electrical tools within their test date range and tagged? |  |  |  |  |
| 2. | Are the ladders in good working condition? |  |  |  |  |
| 3. | Are the lifting equipment in good working condition? |  |  |  |  |
| **After construction – Stage 2** | | | | | |
|  | | **Yes** | **No** | **N/A** |  |
| 1. | Is the system installed by a qualified installer? |  |  |  |  |
| 2. | Have the as-built electrical drawings been received? |  |  |  |  |
| 3. | PV module specification is as per the approved BoQ? |  |  |  |  |
| 4. | Inverter specification is as per the approved BoQ? |  |  |  |  |
| 5. | Combiner box specification is as per the approved BoQ? |  |  |  |  |
| 6. | Battery inverter specification is as per the approved BoQ? |  |  |  |  |
| 7. | Battery specification is as per the approved BoQ? |  |  |  |  |
| **PV modules** | | | | | |
|  | | **Yes** | **No** | **N/A** |  |
| 1. | PV Modules are physically installed per plans, drawings |  |  |  |  |
| 2. | The array is optimized for performance without sacrificing aesthetics |  |  |  |  |
| 3. | Trees and plants will not grow tall enough to shade the array |  |  |  |  |
| 4. | Array installation is neat and clean |  |  |  |  |
| 5. | Roof penetration is secure and tight |  |  |  |  |
| 6. | The PV module model number matches the approved specifications |  |  |  |  |
| 7. | The combiner box(es) is installed and matches the approved specifications |  |  |  |  |
| 8. | Module connectors are tight and secure |  |  |  |  |
| 9. | Module interconnection cables as per the approved specifications |  |  |  |  |
| 10. | The wires and conduit sizes installed are as per the approved specifications |  |  |  |  |
| 11. | Wiring is neat and secure |  |  |  |  |
| 12. | Conductors are not in contact with the roof surface |  |  |  |  |
| 13. | Electrical boxes are accessible and suitable for the environment |  |  |  |  |
| 14. | No potential for wire damage |  |  |  |  |
| 15. | Confirm metallic PV module frame grounding uses a dedicated grounding conductor or the rack/module system is UL listed for grounding |  |  |  |  |
| 16. | Proper grounding of all other metallic surfaces that might become energized (conduit, combiner boxes, disconnect enclosures, etc.) |  |  |  |  |
| 17. | Dissimilar metals are electrically isolated to avoid galvanic corrosion |  |  |  |  |
| 18. | Aluminium is not placed in direct contact with concrete |  |  |  |  |
| 19. | Protective fencing installed and will not shade array (if required) |  |  |  |  |
| **Inverter (grid and battery)** | | | | | |
|  | | **Yes** | **No** | **N/A** |  |
| 1. | The inverter is installed per the approved BoQ |  |  |  |  |
| 2. | Confirm inverter model number matches the approved specifications |  |  |  |  |
| 3. | Inverter is warranted |  |  |  |  |
| 4. | Wire and conduit sizes installed per the approved specifications |  |  |  |  |
| 5. | Installation is neat and permanent |  |  |  |  |
| 6. | Inverter is easily accessible |  |  |  |  |
| 7. | DC disconnect is DC-rated, permanently installed and readily accessible |  |  |  |  |
| 8. | An AC disconnect is permanently installed and accessible |  |  |  |  |
| **Battery** | | | | | |
|  | | **Yes** | **No** | **N/A** |  |
| 1. | The battery is installed as per the work drawing |  |  |  |  |
| 2. | Proper ventilation available at the site |  |  |  |  |
| 3. | Cable sizes for batteries are as per drawing and specification |  |  |  |  |
| 4. | Cable shoes are properly crimped and cable caps are used |  |  |  |  |
| 5. | Proper cable colours are used |  |  |  |  |
| 6. | Battery series and parallel are as per the approved specifications |  |  |  |  |
| 7. | Batteries are well placed in the room for adequate accessibility from all sides of the room |  |  |  |  |
| 8. | The battery room is free from fire and direct sunlight |  |  |  |  |
| 9. | The batteries are securely placed in racks or above an insulating material |  |  |  |  |

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| **Powerhouse and toilet** | | | | | |
|  | | **Yes** | **No** | **N/A** |  |
| 1. | Are the construction standards of the powerhouse and toilet as per the approved specifications and drawings? |  |  |  |  |
| 2. | Are the dimensions of the powerhouse and toilet as per the approved drawings? |  |  |  |  |
| **Power transmission and distribution** | | | | | |
|  | | **Yes** | **No** | **N/A** |  |
| 1. | If transformer(s) is used, is it mounted safely and securely? |  |  |  |  |
| 2. | Are the poles used as per specifications and drawings? |  |  |  |  |
| 3. | Are the poles installed properly i.e. secure foundations and straight? |  |  |  |  |
| 4. | Are the insulators used as per specifications and drawings? |  |  |  |  |
| 5. | Are the insulators in the pole mounted properly? |  |  |  |  |
| 6. | Are the transmission and distribution cables as per specifications and drawings? |  |  |  |  |
| 7. | Are the sag of cables within acceptable limits? |  |  |  |  |
| 8. | Are the joints in the power transmission and distribution cables securely connected and neatly installed? |  |  |  |  |
| 9. | Are there any safety hazards in the power transmission and distribution network? |  |  |  |  |

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| **System labelling** | | | | | |
|  | | **Yes** | **No** | **N/A** |  |
| 1. | All equipment and parts are labelled as required. |  |  |  |  |
| 2. | All cables are appropriately colour-coded. |  |  |  |  |
| 3. | The labels identify PV power source attributes at the DC disconnect |  |  |  |  |
| 4. | The labels identify the AC point of connection |  |  |  |  |
| 5. | Outdoor labels designed to withstand the elements |  |  |  |  |
| 6. | Accessible emergency and maintenance contact information |  |  |  |  |

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| **Additional comments/findings:** |
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| **Supervised by:** | **Name** | **Position** | **Signature** |
| Contractor representative |  |  |  |
| Employer representative |  |  |  |
| Consultant representative |  |  |  |