What is not acceptable

- Hand drawn sketches
- Incorrect SLD's which refer to incorrect addresses etc – cut and paste with which previous details have not been removed or are wrong for the proposal
- SLD which do not align with the Pre-Approval Form
- Non Compliance with our Policy
- Non electrical layout drawings

SINGLE LINE DIAGRAM - SLD

- **Title Block**
  - Drawing Name
  - Drawing Number
  - Version Number
  - Designer and Authoriser
  - Dated

DATE 9/ 1/ 14	ERGON ENERGY/ ENERGEX	SCALE - NTS
APPROVED _	PARALLEL OPERATED INVERTER ENERGY SYSTEM UP TO 30kVA	I ES - 003
CHECKED _	I ES- 003: ADVANCED I ES EXPORT/ NON- EXPORT CAPABLE - DG WITH/ WITHOUT BESS AND WITH/ WITHOUT ADDITIONAL CHILD I ES	SHEET 1 OF 1
DRAWN N. BEERE		A

- **For all systems it should be in electronic format (ie not hand sketch)**
- **Preferably prepared to comply with AS3000 Table J1 and AS1102**
- **Ensure all application details match up with SLD ie Check total system size, no. panels, no. inverters, etc**

SINGLE LINE DIAGRAM - SLD

- **Include the wiring from the panels to the connection point or meter**
- **Identify and name each Switchboard involved**
- **Show indicative load circuits when present**
- **Identify phases involved in proposed system and total phases at each switchboard**
- **Simple SLD for simple PV systems**
- **Detailed SLD required for all complex proposals**
  - limited export
  - battery systems
  - >30 kW
  - >15 kW with Protection Relays

SINGLE LINE DIAGRAM - SLD

- **Clearly show the full connection and implementation of the system within the site, including all CT/VT connections, contactors, circuit breakers, sub boards etc**
- **Must show the manufacturer/model of each inverter, panels, relay, generator etc**
- **Should incorporate the protection scheme and show all utilised ANSI codes for respective relays/protective devices.**
- **The agreed SLD will be included in the Connection Agreement Schedules.**

COMMON SOFTWARE TO PREPARE SLD

- **Auto Cad**
  - Viewer (minimum)

- **Microsoft**
  - Visio preferred
  - Word – Insert, Illustrations
  - Excel - Insert, Illustrations

- **Other software needed to submit Drawings in High Resolution PDF format, sheet size A3**
  - PDF printer – Cute, etc
  - MS Save As pdf

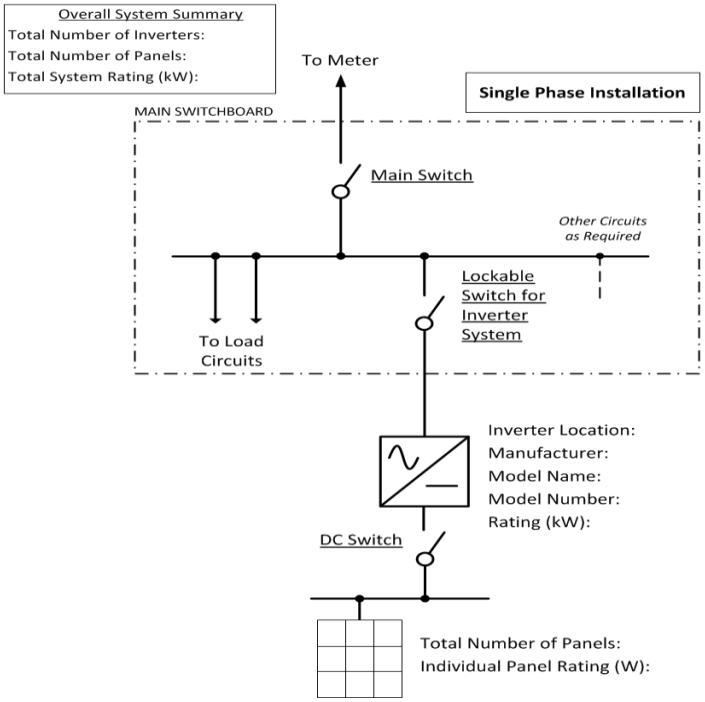
Simple SLD - system > 4.6 kW

Sample Inverter Energy System (IES) Single Line Diagram(s)

Please provide a sketch of the proposed installation in the form of a single line diagram, specifically showing:

- The main switchboard.
- The manufacturer, model and ratings of all major equipment. i.e. inverters, relays, etc.
- Any internal distribution sub-panels to which the inverter will be connected.
- The location of all fuses and switches between the grid and the inverter.
- Brief details of the DC-side connections of the inverter.
- Any other relevant details.

SAMPLE 1: Single Phase Installation



TYPICAL SINGLE LINE DIAGRAM

Equipment Schedule

Panel Details

Total System Capacity(kW):

Red Phase

Total Number of PV Panels:

Individual Panel Rating(Watt):

White Phase

Total Number of PV Panels:

Individual Panel Rating(Watt)

Blue Phase

Total Number of PV Panels:

Individual Panel Rating(Watt)

Inverter Details

Manufacturer:

Model Name:

Model Number:

Rating (kW):

Total Number of Inverters:

Relay Details

Manufacturer:

Model Name:

Model Number:

Protection Legend

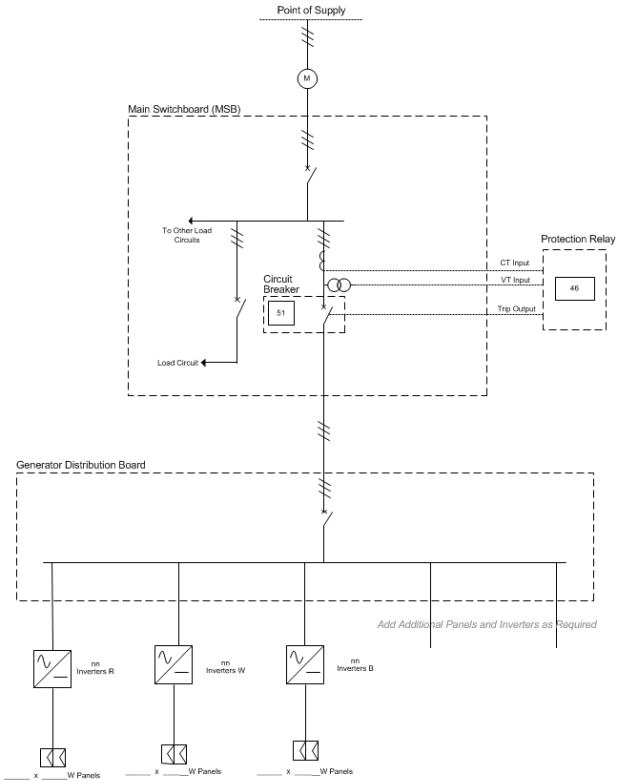
27	Undervoltage
46	Phase Balance
51	Overcurrent
59	Overvoltage
78	Vector Shift
81R	Rate of Change of Frequency
81O	Over frequency
81U	Under frequency

Alternate protection schemes could include:

32	Directional or reverse power
59N	Neutral Voltage Displacement
67	Reverse Current
94	Intertrip to Zone Substation
50M	Communication Failure

NOTE: The customers protection requirements are not included in this diagram

EMBEDDED GENERATOR - SINGLE LINE DIAGRAM (FOR CONSTRUCTION)



Initial Settings		
ANSI	Setting	Time
27		
32		
46		
51		
59		
78		
81R		
81O		
81U		

NOTE: This Single Line Diagram is for AusNet Services purposes only. It is not intended for any other purposes and no liability is accepted for any items included or not included as required to meet Statutory or Regulatory compliance.

Installation Company:
Address:
Contact Number:
Email:
Registered Electrical Contractor:

Project Name:
Customer Name:
Supply Address:
Town:
NMI: Date:

Rev.

Connection Standard for Small Scale Parallel Inverter Energy Systems up to 30kVA – ERGON/ENERGEX