

OFF-GRID HOME - SYSTEM DESIGN AND LAYOUT

TASKS - You have approx 20 mins to work as a team. You may wish to split the sizing & AS5139 task.

1. With the information below, size & select hardware items and quantities of each.
2. Layout these items on the white board to meet/satisfy AS 5139.
3. Write on the white board the 4 or 5 main issues needed to meet AS 5139.
Include which category your equipment comes under: 4, 5 or 6.

One group will present these main issues to the group. (quick 2-minute presentation)

KEY LEARNING OUTCOMES - CPD POINTS

- *Be able to interpret peak/continuous load & energy requirements & select hardware, pv mppt etc*
- *Improve familiarity with AS5139, w.r.t laying out hardware, design and compliance.*

SITE DESCRIPTION

- 20km directly north of Ballarat in a rural area.
- Two adults and two children (18 & 20 yo) all moving in in 2 months.
- NEW weatherboard home recently completed. Grid is 5km away. Wood heating.
- No shading from trees. Good roof orientation
- Location of battery & inverter/charger etc - **Side Verandah (only available space)**
- House roof - corrugated iron, ample space for 50 x 370W panels
- Electrical inspector will be inspecting and signing off the installation.

RESULTS FROM YOUR LOAD ANALYSIS (Full load table prepared to AS4509)

- Single Phase
- Peak demand 8kVa (5 sec peak 8kVa, includes water pump, etc)
- Continuous 5kVa (30 mins 5kVa during cooking and other times of day)
- 26kWh/d Summer, 24kWh/d Winter
- 18kW of solar PV You have decided to use up all of the available space on the roof.
- Auto start generator (customer has 8kVa Honda, very small shed 20 m from house)

SYSTEM DESIGN - BOM

QUANTITY

- _____ Winaico 370W Solar Panels
- _____ Victron Multiplus / Quattros Size _____
- _____ Victron GX device ,
- _____ Victron Wifi - Short range Nano or Long range
- _____ Victron Smart Solar Charge Controllers _____ or: RS 450/100 _____
- _____ Fronius inverter (State the Size) _____
- _____ AERL Earth Guard
- _____ CBI 125A or 250A battery breaker
- _____ PowerPlus ECO 4.0
- _____ PowerPlus PIR8, PIR10, PIR12, PIR18, PIR20 or PEF9
- _____ Off Grid Label Kit