

1. Technical Energy Specifications Sheet, Cluster 3D

This information is compiled for Witchcliffe Ecovillage Cluster 3D lot owners and their builders and electricians.

2. Strata Cluster 3D Microgrid Features

This strata cluster features:

- 12 Lots
- 225A - 160kW micro-grid connection to Western Power grid
- Single point connection to WP grid for sale of energy

A detailed analysis of the Cluster 3D energy budget is provided in Table 1 below.

Cluster 3C	Number of Lots	Min PV (kW)	Recommended Inverter (kW)	Total inverter (kW)
Short Stay lots	12	6.6kW	3 Phase 5kW	60 kW
Total	12			60 kW

Table 1. Cluster 3D Energy Budget

It is not a requirement for solar systems to be installed on Agricultural lots, however, should owners wish to have one installed they may install a system with a capacity between 5kW-10kW. 5kW systems have been recommended as the application process for systems of this size is straightforward. Owners may connect larger systems however this will entail additional costs due to the complexity of the application process.

Owners who would like to install a system which is capable of providing “black out” backup using a battery system will need to install a Fronius Symo with a minimum 3-phase 6kW inverter capacity. This is a hybrid inverter that is battery compatible.

3. Cluster 3D Energy Connection Requirements

Phases

All homes at the Ecovillage need to be wired for 3-phase power.

3-phase power allows for a more balanced distribution of loads across the three phases, which means that each phase carries a relative equal amount of power. A balance of power across phases reduces the risk of overloading and helps improve micro-grid power stability. 3-phase power can enable higher power loads than that of single-phase power making 3-phase power more suitable for use in houses with large solar arrays, residential batteries and EV chargers. It is essential that electricians balance loads as much as possible across the 3 phases in each home to enable the support of larger loads in the cluster such as EV chargers.

Meter

Each household must install an NMI certified meter. The National Metering Identifier (NMI) is a unique 10 or 11-digit number used to identify electrical network connection points in Australia. It is a requirement that every connection, including homes, are given their own NMI. It is not legal in Australia to trade energy across meters that are not NMI certified.

Indicative NMI costs below.

Requirement	Responsibility	Cost
NMI meter	Home Owner	\$506.40 + GST (Approx)
NMI meter installation at temporary power board and transfer to your home	Builder's Electrician	\$180 + GST (Approx)

Droplet

Droplets are not required for Agricultural lots unless owners would like to trade energy peer-to-peer between lots. The indicative cost for the supply and installation of a Droplet is approximately \$450 including GST.

As NBN connections are not required for Agricultural lots and in the event owners wish to engage in peer-to-peer trading they will be able to install either of the options below.

1. Standalone 4G modem coupled with a residential Droplet
2. Droplet + capable of delivering smart metering without the need of a hard-wired internet connection

Inverter

In **Cluster 3D**, solar systems are not required however owners will be capable of installing up to a 10kW system

- 3 phase 10kW (Max);

Internet

There is no requirement for internet to be installed on Agricultural lots.

Solar systems

Solar systems may be installed on Agricultural lots however this is not a requirement.

4. Microgrid Connection Information

Connection Process

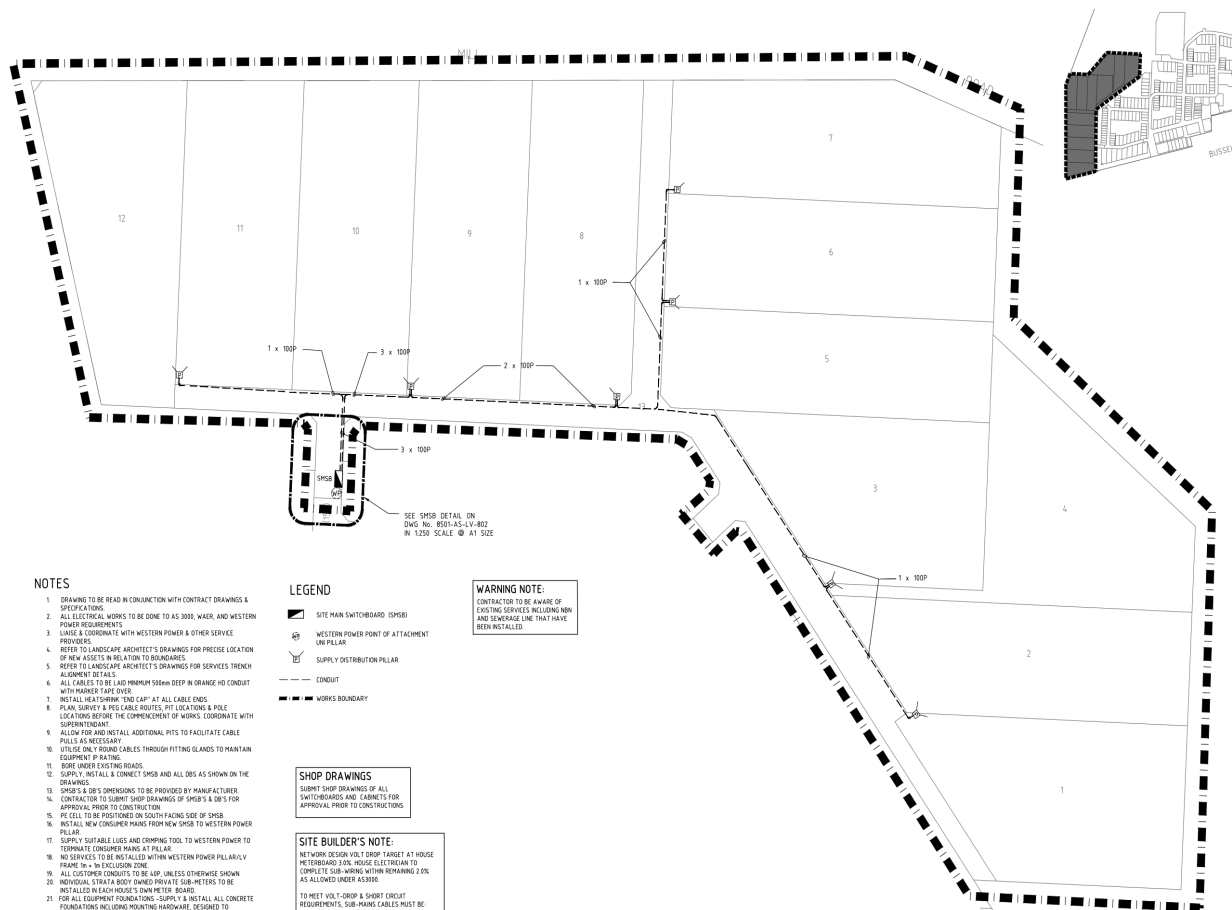
Green domes have been installed in stage 4. The connection process is the same as a standard subdivision whereby your builder/electrician will run a cable from the green dome to your home.

5. Solar system connection

The application process for solar system connections up to 30kW is as per standard residential applications and is relatively straightforward.

The process for connecting solar to the microgrid in clusters with greater than 30kW of installed solar capacity is as follows:

1. Solar systems are installed on residents' roofs.
2. Qualified Electrician will perform Power Quality Testing (PQT) to confirm stability of the cluster microgrid. During testing cluster microgrid power outages will apply, outage times will be communicated to residents in advance. This is a standard Western Power requirement for large solar systems.
3. Our engineers "Cossill & Webley" will perform "Grid Protection Testing" (GPT) to confirm our switchboard will operate correctly in the event the microgrid needs isolation from the Western Power grid. Depending on availability this step may be done before or after step 2. During testing cluster microgrid power outages will apply, outage times will be communicated to residents in advance.
4. "Grid Protection Testing" and "Power Quality Testing" data will then be consolidated and sent to Western Power for approval, this is our "Approval to Operate".
5. Once our "Approval to Operate" is received we are then able to activate solar systems that were included in that application.



NOTES

- [illegible]

LEGEND

-  SITE MAIN SWITCHBOARD (SMSB)
 WESTERN POWER POINT OF ATTACHMENT
 SUPPLY DISTRIBUTION PILLAR
 CONDUIT
 WORKS BOUNDARY

SHOP DRAWINGS

SUBMIT SHOP DRAWINGS OF ALL SWITCHBOARDS AND CABINETS FOR APPROVAL PRIOR TO CONSTRUCTIONS

SITE BUILDER'S NOTE:

TO MEET VOLT-DROP & SHORT CIRCUIT REQUIREMENTS, SUB-MAINS CABLES MUST BE:
- 3PH: 250sqmm Cu V90 PVC
UNLESS OTHERWISE SHOWN