

## Solar PV Panel Installation Requirements at

### Address:

17 Novello Close, Brighton Hill, Basingstoke, RG22 4LF

### Overview

- Grid connected unit
- Connection with electric vehicle traction battery (about 15KWHr) :-
  - to supplement panel output during night time and
  - to provide a power source for future implementation temporary island mode if necessary

### Detailed Requirements

- Size of panels will be limited by available roof space (approx 7x4m plan view)/weight and space for thermal panels (not supplied by you)
- A remote display terminal with an easily accessible log of inverter trips and current power delivery, etc.
- Electrical Requirements
  - Electric vehicle (EV) DC connection between panel and inverter to supply additional storage

PV (155-190v) --> (120-190v) Inverter

Target MPP is more than 155 (#) and Berlingo 6.4v x 27 = 173 (80%)

| Mode           | Parameter | Min       | Max       | Notes  |
|----------------|-----------|-----------|-----------|--|
| PV -> EV       | Voltage   | 155 V [1] | 240 v [2] | [1] Min defined by Lithium 106, 3.85v x 38 = 146 + #<br>[2] defined by Berlingo charger peak output on charge.   |
|                | Current   | 0 A       | <32 A     | [1] min dependent on weather<br>[2] max limited by PV max output (3kw @ 150v = 20A)  |
| EV -> inverter | Voltage   | 122 V [1] | 185 v [2] | [1] min defined by 3.2v x 38 @ knee of Lithium 106, 98%. Also includes 135 V from 5 V x 27 low voltage cutoff by Berlingo, 100%<br>[2] max defined by Berlingo onload Berlingo |
|                |           | 20 A [1]  | <32 A [2] | [1] min defined by assuming worse case of PV output at 3kw @ 150 V<br>[2] limited by inverter output overload (3kw)  |

# is controller headroom (assume 10v)

- EV supplying stored energy
  - minimum voltage

- Toyota Prius not suitable ( $\text{min} = 228 \times 1.1 = 250\text{v}$ )
- maximum voltage
  - Need to ensure that Berlingo is down to this voltage before connection by use of cut-out
- current = less than 16A (limited by inverter max input current)
- Panel charging EV
  - voltage
    - minimum = Lithium spec ???? (need relay on DC input ?)
    - 
    - less than 243v ??106?? (limited by panel output)
  -
- 16A socket located in mains meter cupboard
  - Must be compatible with (a future addition of) a mains simulator such as “Sony Backup”
- A remote display terminal (as a minimum located in the meter cupboard) with an easily accessible log of inverter trips and current power delivery, etc.

#### Optional

- separate standby circuit including
  - freezer
  - fridge
  - central heating pump
  - (possibly lights)