

**'Shopping List for the architects/landscape designers in masterplanning/outline stages'**

Community Energy system potential requirements for energy system.

Note: this is very much a starter for ten of the options – the actual requirements will become clearer during the feasibility/options appraisal by technical consultants as to the best solution for the private/rental/South Lakes Housing; and may not be the same for each tenure. At the outline stage we need to consider these assets so space is allocated in theory for them.

<b>Fabric Efficiency</b>	Designed to minimise heating demand, as well as over-heating.
<b>Space for solar PV panels</b>	Roof space on car barn, ideally oriented to south, unshaded
	Roof space on housing – either for BCE to lease or privately-owned
	Field/landspace for ground mounted solar south facing, not shaded, with suitable access – will need security fencing plus sub-station. Can be hedged to shield views. Wildflower planting possible for biodiversity gain.
<b>Energy Centre (including battery storage)</b>	Depending on system selected after technical options analysis: an energy centre with a possible footprint the size of a house; space outside for batteries and sub-station and security fenced. Information board and planting possible. Needs to be accessible for plant and fire & rescue emergency. It can be beautiful – does not need to be an ugly lump in a lovely housing development.
<b>Housing layout/density</b>	Ideally optimised to reduce groundworks needed for heat system and private wire
<b>Shared ground works</b>	BCE will need to install ground works: e.g. ground source heat loop or district heat network; private wire electricity cables; telecoms cables. It may not be in 'straight line trunking' as GSHP loops / share loop systems will need to be laid across an area or areas near the homes.
<b>Interseasonal storage space (underground)</b>	We may be installing interseasonal heat storage (i.e. an underground pit/tank for dumping summer heat – possibly borehole/gravel/sand bed/water) - this depends on the technical solution and ground conditions. Preferably on an area of land separate to the PV site (but will get advice on whether could be the same site). It could be under a playground/football pitch/field. Could re-purpose one of the waste water ponds? Will need plant access to build it (and to maintain it); and a connection to the ground loop. Area/volume will be dependent on number of homes / winter energy demand
<b>Water tanks in homes</b>	Each home will likely need a water tank to store hot water for hot water and for heating. The location of the tank in the house is not important but may be larger than typical.
<b>Heat exchanger unit or heat pump &amp; meter</b>	Space for heat exchanger or heat pump in each house (depending on heat solution developed). Similar size to a gas boiler. Note location to avoid any sound issues. May need heat meter with internet connection – separate to household internet.
<b>Electricity Meters</b>	Space for electricity meter(s) with remote reading connection. Will need import/export meter if roof-PV is privately owned.
<b>Temperature monitor</b>	If a Smart systems heat pump is provided; remote home temperature monitoring will be needed to ensure at peak times

	the system is not switched down by BCE to avoid peak demand if the house is below a certain temperature.
<b>Smart heating controls</b>	
<b>Smart energy display</b>	
<b>Appliances</b>	Highly efficient fixed appliances, smart-enabled if available
<b>Internet connection to the energy system</b>	Separate from household internet
<b>Home batteries</b>	Not ideal for BCE as will interfere with communal storage and demand management, but may be installed in some of the high-end properties.
<b>EV charging</b>	Private and communal?
<b>Car club &amp; good walking/cycling/bus routes</b>	Ideal to minimise EV charging demand