

Green Energy Update and Discussion Paper

This discussion is based upon Peter Whewell's attendance at a CoRE Renewable energy community champions course in May 2011 and a subsequent visit by Steve of Susenergy to the Green Energy Subgroup on Saturday the 11th June (present Sue Johnson; Anne Noble; Mike Palmer, Peter Whewell).

1. Introduction

The primary stimulus to this initiative was a perceived need to have a reliable source of energy for lighting and heating our two huts and to be able to use and charge up electrical tools on site. Secondary considerations were to be a green energy producer, helping to mitigate climate change and peak oil; to be a green energy pioneer for allotment sites in Newcastle; to possibly obtain revenue from the feed-in tariff.

Wind energy was rejected for several reasons:- the visibility of the turbine and its potential noise would be disturbing and would inevitably attract planning difficulties. In addition the efficiency of a low level mast would be compromised by turbulence.

Ground heat source generation has not yet been explored but seems a promising possibility. The installation would not be visible, security problems would be much reduced and we have potentially a lot of ground space.

Photovoltaic cells. We began with the idea of installing cells upon the roofs of the Trading Hut and the Community Hut. We then had the choice to continue to stand alone from the mains grid and store our PV electricity in batteries; or to connect to the mains and feed-in electricity and take out when we needed it.

(In discussing renewable systems they are classified in terms of their potential maximum generating capacity in Kilowatts. We at Moorside would be looking at the lowest band of output, under 4 KW. The actual generating capacity of photovoltaic cells will be much less than the potential maximum)

2. Planning permission

Planning permission for small p/v cell installations of less than 4kw is not usually required. However the planning laws are applied differently in different places and we would need to check up upon this. In particular there might be a problem if we put the cells on the roofs of our huts as they would technically be above the existing skyline (though we don't seem to have had a problem with the cell on top of the toilet block)

3. Grid connection or stand-alone

Moorside is not currently connected to the electricity grid. Grid connection is usually expensive but my understanding from the CoRE course is that energy companies are required to make grid connections for small (under 4KW) installations. Steve of Susenergy could not confirm this and it would need to be checked out. Grid connection would have major benefits for Moorside, as we could then be sure of an electricity supply the year round. If we were not connected to the grid we would need to store our generated electricity on site in batteries. Inexpensive batteries e.g second hand mobility scooter batteries, could store electricity but would be difficult to insure against fire. Proper solar batteries are both expensive and space-consuming. Overall it seems that grid connection is the better option

4. Feed-in tariff

For renewable P/V systems under 4KW the government give the highest feed-in tariff payments. The feed in tariff consists of a generating tariff added to an export tariff. The generating tariff is currently 43p per KW hour whilst the export tariff is 3p per KW hour. Thus there is no great financial incentive to export to the grid. However if we were connected to the grid we would gain a feed-in tariff of around 46p per KW hour.

5. Number and location of P/V cells

Steve of Susenergy thought that because of the shade problem, putting P/V cells on the Trading Hut would not be viable. Six cells (representing 2kw) could be placed upon the Community Hut. However, again because of shade, Steve estimated that they would function at only 30-50% of their maximum on the Community Hut. A brief tour of Moorside indicated that plot 59b, currently unused, could be used for a bank of ten P/V cells (between 3 and 4 kw) raised slightly from the ground which would be able to function at around maximum. The plot 59b option would be the most cost-effective use of P/V cells on Moorside. Steve will send us estimates for the output and cost of these two options... the community hut and plot 59b. If cells were installed on plot 59b we would need to lay a cable back down to the huts.

6. Funding

The CoRE course gave a list of potential grant-givers. Of these Steve of Susenergy thought that Biffaward would be very keen to give a grant to a small community initiative such as Moorside. However if we did receive a grant for the total package it is likely that we would not be then able to claim the feed-in tariff, (on the basis that a grant and then the feed-in would be a licence to print money). An alternative might be some sort of partnership arrangement (with whom?) with Moorside contributing to the cost. We need to see what the cost is, first. Another possibility is that the monies for installation come out of the Allotment Working Group budget with Moorside fulfilling one of the targets of the new Allotment Strategy, which is to facilitate a pioneer green energy scheme

7. Next steps

7.1 We need to revisit/confirm our priorities. What are we doing this for?

7.2 We need to look at Steve's two cost/output options

7.3 We need to decide whether we want to use plot 59b for the installation

7.4 We need to check the feasibility of grid connection and whether or not there is a cost

7.5 We need to decide how to finance the system

7.6 We need to continue to think about possible planning issues.

7.7 We need to look at ground source heat as an alternative possibility for Moorside.

Peter Whewell 19th June 2011.