

Wind Turbine, Heat Pump and Photo Voltaic Cell electricity generation

Prior to making a decision to use any of these features in this new build, I considered all aspects of use, installation, cost and payback period.

- Wind Turbine. Small scale wind turbines are not the most cost effective way of producing electricity. The minimum and most cost effective size of wind turbine is 5kw which would also have a capability of connecting to the electricity grid and might 'just' be sufficient to supply all the electricity needs of the house assuming walls, floors ceiling and windows achieve the lowest 'U' values. The total cost of planning, purchase and installation would be approximately £20,000 including the government grant. Although wind speeds on the site are suitable for a turbine, the average wind speed still might only generate approximately 2kw on average. Payback period might be only 10-15 years in which time I might not achieve a full payback of the initial investment and might even be dead before it paid back its investment. As I don't have a 'spare' £20K I didn't consider it a good idea even apart from the fact the local electricity grid infra structure is not capable of connecting to. The way to achieve the lowest carbon footprint of using energy is to benefit from large scale low carbon electricity generation such as from nuclear, wind or wave power!
- Heat Pump. The cheapest heat pump, associated earth works, under floor heating system would be £10,000 plus. Other heat pumps are also very expensive. On the basis of initial cost, complication and ongoing maintenance costs, this was ruled out.
- PV cell Electricity generation. This system has a £15,000 plus initial cost, 15-20 year limited lifespan and has all the disadvantages of a wind turbine mentioned above

All these micro generation methods of producing electricity and the heat pump do not represent good value for money either for me, Scotland or the UK, especially when I am building within a strict budget.