

Renewable Energy

Report by the Renewable Energy Sub-Group to Colerne Neighbourhood Plan Steering Group 15 March 2018

Renewable Energy (RE) is energy that is collected from [geothermal heat](#) from [renewable resources](#), which are naturally replenished, such as [sunlight](#), [wind](#), water, such as rivers, [tides](#), [waves](#), and . **Anaerobic digestion from food and farming wastes can also be considered a renewable energy generating technology**

The Government has set a [target](#) to deliver 15% of the UK's energy consumption from renewable sources by 2020. To help achieve this, it introduced a subsidy on renewable energy generation (known as the Feed-in Tariff, or FIT) in 2010 to help 'kick-start' the installation industry. The FIT scheme has been very successful and numerous projects, from small scale domestic solar power schemes to large scale off-shore wind farms have resulted. However, there has been a significant reduction in the [FIT](#) in recent years. Whilst development and installation costs of renewable energy generating schemes has also fallen over the last few years, the dramatic fall in subsidy support has largely resulted in the cessation of most new renewable projects on cost grounds. Some very large-scale developments are being pursued where battery storage is being trialed. These schemes however, are not yet technically or commercially proven.

In addition to the availability or otherwise of a subsidy, the viability of a project is also dependent upon two other key criteria.

The first of these is the ability to consume the majority or all of the renewable generated electricity by an on-site user in real time or to sell it to a third-party electricity trader via a Power Purchase Agreement (PPA). The presence of an on-site demand for the renewable electricity is often the determining factor in the size of the generation equipment. PPAs are only cost effective on very large-scale schemes, such as large solar or wind farms.

The second of these is the technical and financial ability to connect the renewable generating equipment to the local electricity network. All renewable energy generating projects must be connected to the local electricity distribution network, unless they are installed under what is known as a 'private wires' arrangement whereby the distribution of the renewably generated electricity is not part of the local network. Usually, the ability or 'capacity' of the local network to receive any renewably generated electricity isn't constrained. For larger generating schemes however, the network may already be at, or close to, 'capacity' so the generating scheme cannot go ahead unless there is a grid upgrade. Depending upon the size of the upgrade, this can sometimes be prohibitively expensive.

That said, the renewable energy industry is adapting to Government policy and market opportunities. Certainly, community-owned renewable energy schemes still have potential. Community funds accrued under these Community Benefit Society schemes can be strongly enabling and may even result in part of the income generated being reinvested back into parishes like Colerne.

Let's consider each of the generation methods in turn:

1.1. Solar

Solar Photovoltaic Panels (PV) are likely to be the only real option within the Parish of Colerne. The scale of the PV installation will be dependent upon either an on-site demand or the ability to sell to a third party. The connection to the local distribution network would also need to be tested on capacity and cost grounds. There are currently no obvious on-site

users for PV generation, although should development of the airfield site create new civilian businesses, opportunities may arise in the future.

2. Wind

Wiltshire Council has historically been opposed to energy generation by wind turbines and with the government's move to generate from wind primarily through large offshore wind farms this is unlikely to change. Colerne Parish is also in an AONB, much of it in Green Belt, which is likely to constrain consent. It is unlikely that any significant wind generation schemes will be approved in the Colerne area for the foreseeable future.

3. Anaerobic Digestion (AD)

In Government policy terms, AD is considered a renewable generating technology since it was both eligible for the FIT and the RHI (Renewable Heat Incentive). The AD technology produces gasses from organic material (most often food and farm wastes) which are then burned to generate power and heat. Colerne has narrow roads and transporting material in any sensible quantity is unlikely to be practicable. However, there are numerous agricultural sites and their organic waste may be usable for energy generation. We may wish to encourage owners to look at individual or group schemes that may benefit the community or simply reduce energy consumption from the grid at a local level.

4. Biomass

For the most part energy is generated by burning woody material, such as forestry residues, straw or energy crops. As large quantities are required for a scheme to be viable it is unlikely the Parish infrastructure would be able to support such a method for the same reasons as AD above (para. 3)

5. Community Heating Scheme

Community Heating schemes have the potential to reduce overall energy consumption and can be considered renewable depending upon their fuel source i.e. food/farm wastes for AD, biomass or geothermal. Community heating schemes which deliver heat into homes from a central source can be effective where there is a sufficient heat demand from businesses and installation of the underground pipework is straightforward. It is unlikely that any such schemes would be viable in the Parish for the foreseeable future.

6. Hydro

Despite being the "Village on the Hill" Colerne does not possess the natural resources to make any hydro scheme viable.

7. Geothermal

Most commonly, geothermal energy is used for heating by extracting the heat directly from very hot portions of the earth's crust. At Colerne, however, no such areas exist within exploitable distance of the surface. However, some heat can be extracted from surrounding land using "heat pumps". These pump a fluid, usually water and antifreeze, around long lengths of pipe buried in the ground. The heat absorbed by these fluids is then released into the building. Usually, a considerable amount of land is required for the pipework and the amount of electricity used to power the pumps can mean that the outputs are not necessarily competitive with other forms of heat production such as gas boilers.