

# 100% Renewable UK

<https://100percentrenewableuk.org/>

## Biomass

When is biomass good, bad or indifferent? Here I focus on positive aspects of biogas from food or farm wastes, but other types of biomass can be less desirable.

In theory biomass sources can be carbon neutral since the carbon that is emitted on burning may be balanced by carbon being absorbed while growing the biomass that is being burned. Or, in the case of wastes, the carbon that would otherwise get into the atmosphere during decomposition can be turned into useful energy, hence making the biomass carbon neutral. But in many cases this does not translate into sustainable outcomes, maybe because trees are simply being chopped down without this being associated with trees that are regrown. Moreover traditional wood burning in domestic fires or stoves produces particulates and toxic emissions that can greatly add to harmful air pollution. Added to these issues there are arguments that if wood or other plants are grown as energy crops the fertilisers and other chemicals needed to grow them have their own carbon footprint.

Biodiesel is widely used as a substitute for fuel in transport, but this is criticised because the energy input into growing the plants from which the biodiesel is produced can rival the carbon saving from using the fuel – and anyway the emphasis of policy is now to switch to electrically powered vehicles that can avoid pollution caused from either energy generation or tailpipes.

## Biogas

So, to cut a longer story short, probably the only biomass source that is generally given a favourable score from modern day green activists is biogas sourced from farm or food wastes. Even here there are arguments that the priority ought to be given to waste reduction. However given that biomass waste quantities have been increasing, there are likely to be quite a lot of waste resource available for some time to come!

In fact a lot of 'natural' biogas is released from old landfill sites where anaerobic decomposition releases methane which can be trapped and used to generate electricity in gas engines. This has (not many people know this) been producing around 1 per cent of electricity in the UK for quite a few years. Biogas from waste water treatment plant also generates quite a bit of energy in the UK.

But in some places – especially Denmark which has led the way in many alternative energy strategies since the 1970s - active encouragement of biogas technology has led it to become a substantial energy source. But then Denmark has a biogas strategy involving supply of energy via its district heating system. The biogas can be used to produce a) electricity b) heating only or, c) both electricity and heating through using the biogas combined heat and power plant (CHP). The UK, which has been under the sway of the natural gas industry for many years, has resisted such a strategy of district heating systems. But certainly they could be supplied with energy by large scale heat pumps, or, in some cases, by biogas CHP.

The main UK trade group for anaerobic digestion in the UK is the Anaerobic Digestion and Bioresources Association, see

<http://adbioresources.org/>

### **Other types of biomass**

In Sweden and Finland a major proportion of energy supply is derived from biomass wastes which come from the forestry and allied paper and pulp industries. However there are limited opportunities for this in the UK.

A major use of biomass in the UK has been in otherwise coal-fired power stations through the substitution of coal by mostly imported biomass. However this has been attacked by many environmentalists on the grounds that the biomass sources are unsustainable. This article in WIRED argues that the substitution of coal by biomass in previously coal-fired power stations is not justifiable on carbon reduction grounds:

<https://www.wired.co.uk/article/drax-carbon-neutral-plan>

David Toke, February 2020