Biomass

Biomass is one of those concepts that is difficult to define. Generally it is used to means organic remains from another process, such as excess straw, sawdust etc. It can also be tree branches from forestry operations or shrubbery grown specifically for energy purposes. There are a number of fast growing plant types used for this, such as eucalyptus trees, but also grasses and similar material is used.

So, what is new about biomass? Surely this is just what our ancestors were burning in their caves 10000 years ago? Yes, it is, but hopefully we can use biomass without filling the area with smoke and fumes! The cooking fires in Asia are held to be one of the major sources of eye disorders in the household. For many years we have consumed fossil fuels with no worries about possible shortages, but now that some oil fields have already run dry and coal mines are closing after removing the last lump of coal, people are beginning to think that an alternative just *might* be needed for the future. Biomass is one of the options being either explored or actively used in many countries, together with use of landfill gas, direct methane digestion and various methods to increase combustion efficiency.

The advantages of using biomass are obvious: this is material that would otherwise have been either left to rot (producing CO_2) or simply burnt in an uncontrolled manner (producing CO_2 as well as smoke and fumes). Since we are apparently going to produce carbon dioxide with this material, whether we use it or not, we might as well use it and gain an advantage from the matter! It is important to add to the calculation the fact that the energy produced here would have to be produced anyway, probably by burning one fossil fuel of other. Biomass is not exactly something for nothing, but it is, in ecological terms, a cheap alternative.

Naturally, there are difficulties: Biomass is generally bulky and requires a lot of space to store it, not to mention transport of material to the burner etc. Biomass will generally require chopping before combustion is possible, to ensure a good mixture with air. Drying of the material will also be necessary in some cases, which is a problem exacerbated by the fact mentioned above, that biomass tends to be bulky. The mixture of fuels will require some cleaning of the flue gases and regular checks with a combustion analyser to ensure that everything is working as planned.

Nevertheless, the problems mentioned above with the use of biomass can be overcome, and biomass plants are already running in many countries, not just as pilot projects, but providing heating for single or multiple villages. The importance of biomass will undoubtedly increase in the coming years as the prices of fossil fuels increase and the environmental concern of the general population becomes better focussed and informed. Biomass will not readily replace all the fossil fuels we use, but will without doubt be used to eke out our reserves and be especially important in areas that do not yet have piped supplies of gas or oil. A district heating installation using biomass will prove an economically viable alternative to laying a new gas pipeline for a hilltop village that has no other general source of heating.