Gentlepersons,

The following are some cooments to supplement the extensive ones by Alan Page concerning regulations pertaining to the use of biomass:

1. In considering practices for obtaining energy from biomass and iots relationship to CO_2 elution, it is impotant that one adopt a "cradle to crave" consideration and to compare the CO_2 evolved in a proposed method with that which is evolved in alteratives. For example, it is my understanding that the use of wood chips as fuel for driving an electricty generator by Roberds Brothers was not approved because of excess CO_2 evolution. However the alternative of burning these chips or just letting them lie and decay would be approved. I contend that burning or decay would evolve at least as much CO_2 as would the engine, so banning the engine for this reason does not make sense. Furthermore, by using the wood chips as fuel for the engine, one is obtainingg electricity from part of the chemical energy stored in the wood chips, whereas burning or decay would not provide such electrical energy. (It is possible that electricity could be obtained by generating steam from the heat of burning and passing this through a turbine which drives an electricity generator. However, I believe that less electricity would be obtained by this route than by using the wood chips directly to provide combustable gases to drive the generator.)

3. It appears that the consideration of biomass as fuel is based primarily on its ability to provide heat energy. I agree that biofuel may have less fuel value than fossil fuel and also, its use may result in pollutants in the emitted fumes. However, technology exists to remove these to an acceptable level, but its use adds to the cost which should be considered

The alternative of pyrolizing rather than burning yields less energy in that about half the energy resides in the char which is profuced. If this char was burned, the total energy obrained from both pyrolysis and burning would be about the same.

We do not recommend burning the chat bur rather using it as biochar as a soil amendment. Its value as such would be considerably greater than its value as a fuel for the following reasons:

a. It would serve to ehance biomass groth and the resulting bomass woulf then serve as a CO_2 sink through photosynthesis. It would contribute to the much need food supply.

b. The use of biochat leads to reduced fertilizer needs. The production of

fertilizer requires energy, so this results in energy savings.

c. Since biochar binds fertilizer, run-off which pollutes waterways is reduced.

d. Biochar serves to bind pollutants such as industrial wastes and heavy metals, preventing them from, entering the biomass which grows.

e. Biochar adds to soil structure and its carbon content and serves to restore depleted soil and render soil suitable for agricultural use that would not be otherwise. It remains in the soil for long timee periods, up to centures.

This should be compared with what happens when the farm or forestry waste is left on the ground. It also adds to soil texture, but it decays in a few years releasing its carbon as CO2 to the atmosphere.

f. Biochar retains water reducing irrigation needs.

Thus, I contend that one needs to take sucvh asgricutural use into account in formulating rergulatory policies concerning biochar. Interactions between DOER and energy deparments are essential for this.

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