

Abstract Submitted
for the NEF11 Meeting of
The American Physical Society

Biochar As a Renewable Energy Source RICHARD STEIN, Retired
— Biochar is a form of charcoal prepared by heating biomass in limited air. It is porous and has high surface area, maintaining much of the morphology of the biomass. The heat for its preparation arises primarily from burning volatiles emitted upon heating. About half the chemical energy in the biomass is contained in the biochar, about 40% is used for the conversion, and about 10% may be used as a local heat source. The biochar can serve as a soil additive where it acts as a template for the growth of bacteria and fungi which then lead to improved growth of biomass by as much as several hundred percent. It remains inert in the soil for many years. Thus, it sequesters the carbon, originally coming from the carbon dioxide absorbed during the photosynthesis occurring during the growth of the biomass. Its use reduces fertilizer and water needs and to pollution arising from the run-off of fertilizer and emission of noxious vapors. Its use is best done at a local level, close to sources of biomass from farm and forest waste. The Pioneer Valley Biochar Initiative along with the Center of Agriculture of the University of Massachusetts, Amherst is promoting the use of biochar on local farms which reduces their dependence on energy arising from fossil fuel and nuclear sources.

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Date submitted: 14 Oct 2011

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