

## **Bioenergy: Stakeholders see parts of the elephant**

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Our extended discussions with environmental and farmer/producer stakeholders explore their views and concerns about bioenergy and its development as a renewable energy system. [1, 2] Over the past three years, we have contacted 37 environmental groups in the U.S and three in the UK. National, state and local organizations are included. Field work in the corn belt and New York has involved farmers, farm organizations, agricultural colleges, state and federal agency personnel, and others in the agricultural infrastructure.

Stakeholders were selected for discussions using criteria that sampled the wide range of variation within each set of stakeholders. About 115 stakeholders have been consulted at length, including about 40 that were recontacted as issues have developed.

Major concerns of environmental stakeholders have been documented in areas of sustainability, biodiversity, global warming, genetically modified crops (GMOs), and economic viability of bioenergy systems. All were in favor of renewable energy and about half favored bioenergy unconditionally. Many questions were received about all aspects of bioenergy as stakeholders sought to understand the future layout and likely environmental impacts of a full-fledged bioenergy fuel cycle. [1 - Appendix D].

Enduring concerns of environmental stakeholders include 1) environmental impacts of cultivating and harvesting energy crops and collecting residues, 2) reluctance to support ethanol as currently produced. Concerns are that the corn used is not grown in a sustainable manner.

Some environmentalists oppose or are intensely concerned about certain processes producing bioenergy such as:

- use of waste materials, especially animal wastes, municipal (organic) solid wastes and landfill gas.
- use of forest residues
- conversion methods such as cofiring biomass with coal.
- combustion of wood and any incineration operation
- possible incursion into old growth forests

Environmental concerns are of three major types: 1) specific impacts resulting from bioenergy crops or operations, 2) system effects when bioenergy fuel systems are fully deployed, and 3) undesirable enabling effects on existing polluting operations such as confined animal farming.

Examples of each type in turn are: 1) The impact of removal of corn stover from the fields, 2) Will the effects of fully developed system(s) include incursions into natural old growth forests when residues or energy crop supplies run short, and 3) Will the life of polluting out-of-compliance coal plants be lengthened, Will confined animal operations become more viable by providing ways to clean up their wastes?

Favorable views of environmentalists toward bioenergy often arose from concerns about global warming and absence of new CO<sub>2</sub> releases from energy crops and residues. One energy crop, switchgrass, received widespread support because of its natural heritage, perennial characteristics and its low

environmental impact potential. While many are hopeful about the environmental prospects of bioenergy, they await demonstrated evidence that claimed benefits are realized.

Farmers, on the other hand, had one primary and overwhelming concern: would any bioenergy fuel system become economically viable? While they frequently acknowledged that climate changes were occurring, global warming was not a driver issue for them. Some farmers and agricultural infrastructure personnel shared environmental stakeholders' concerns about sustainability and opposition to GE crops. Those involved in field trials of energy crops were usually strong supporters of bioenergy prospects, though concerned about the survival of their field trial projects. Some with entrepreneurial bent are enthusiastic boosters of bioenergy prospects of corn stover. As the Starlink corn disaster unfolded in summer of 2000, more farmers began registering concerns about the economic wisdom of planting GE crops, changing their previous belief that "it'll all blow over."

The picture emerging from these extended contacts with stakeholders shows widely variable views about bioenergy prospects. Stakeholders favor or oppose, in varying degrees, different aspects of bioenergy and energy crops, often for very different reasons. They see different parts of the elephant but rarely the whole creature. Reasons for this wide divergence in beliefs and expectations are examined. Some of the differences arise from very different circumstances and interests, but this gap poses potential problems for the future development of bioenergy .

Four approaches to narrowing the gaps and widening the understanding of bioenergy futures are argued:

- Better definition, explanation and discussion of the many varieties of bioenergy production is overdue. When do we acknowledge that some production routes are more advantageous than others?
- Dialogue between internal and external stakeholders is needed.
- Facilitated discussions among and between different sets of stakeholders are in order.
- When the groundwork above is laid, tradeoff discussions will reveal more of the "whole elephant" and provide a more realistic basis for continuing dialogue and policy agreement.

## **References**

1. Peelle, E. Biomass stakeholder views and concerns: environmental groups and some trade associations, ORNL/TM-1999/271.
2. Peelle, E. Stakeholder views and concerns about bioenergy: organizational focus, driver issues and uncertainty, Proceedings, Bioenergy 2000, Buffalo, NY, Oct. 2000.