

These are some cards from the University of Vermont Resource for the 1998 High School Debate Topic. Most of the cards are very dated – but they would work in a pinch. It also may help with some ideas on what to research – a lot of the problems with biomass back in the late 90s are still present.

Thanks to Danny Iberri-Shea, NAU, for pointing out this resource!
<http://debate.uvm.edu/handbookfile/energy98.rtf>

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*** SOLVENCY

Biomass energy is blocked by high costs

JOHN BERGER, National Research Council, 1997; CHARGING AHEAD: THE BUSINESS OF RENEWABLE ENERGY AND WHAT IT MEANS FOR AMERICA // VT98-acs p. 193

Today this agro-industrial complex is still mostly fantasy, mainly because of the high costs of growing fuel on dedicated energy plantations, the low cost of competing fossil fuels, and because market networks would need to evolve for absorbing the fuels and co-product.

Biomass fuels will never replace imported oil

Robert Greene, Austin American-Statesman, October 13, 1996; Pg. K3, TITLE: More bucks sought for biofuels research; Advocates say fuel from farmlands could fill good chunk of U.S. gasoline needs // VT98-acs

Ethanol from hay, brewery grains and rice straw could one day power more cars, buses and generators, as researchers and entrepreneurs seek ways to harvest fuel from U.S. farmland. No one expects plant-based fuels to wean the United States from imported oil, which caused \$47 billion to be shipped abroad last year.

Biomass projects must remain small to succeed

International Solar Energy Intelligence Report, November 15, 1996, TITLE: ISEIR Focus: Biomass Energy: Small Projects, Management Are Vital To Attracting Investors for Biomass // VT98-acs

Biomass projects looking for investors also would do well to scale projects small. A project requiring \$100 million worth of investments will only be able to find financing through a government program. It is imperative that projects find an interim, break-even point where development can happen, Truslow told the conference. [Fredric Truslow, Rappahannock Investment Corp.]

Biomass fuel cannot compete because of feedstock collection costs

CHRIS KRAUL, TIMES STAFF WRITER, Los Angeles Times, November 6, 1996, Part D; Page 2; TITLE: HEARD ON THE BEAT / ENERGY; CALIFORNIA; A Surge of Cash; Alternative Energy Firms Are Getting \$540 Million to Help Them Better Compete // VT98-acs

The problem is the cost of collecting biomass fuel--wood chips produced from forest, lumber and agricultural waste. No matter how efficient the operation, the cost of chippers, manpower and trucks to collect the fuel is too high for biomass to be competitive.

Even cash subsidies can't make biomass energy cost effective

CHRIS KRAUL, TIMES STAFF WRITER, Los Angeles Times, November 6, 1996, Part D; Page 2; TITLE: HEARD ON THE BEAT / ENERGY; CALIFORNIA; A Surge of Cash; Alternative Energy Firms Are Getting \$540 Million to Help Them Better Compete // VT98-acs

Although a short-term cash fix may make the most efficient renewables, such as wind and geothermal energy, financially viable, industry officials admit it will take more to save biomass, the least competitive of the major renewable energy sources but perhaps the most beneficial from an environmental standpoint.

Biomass energy cannot be economically successful -- hawaii study

International Solar Energy Intelligence Report, October 21, 1996, TITLE: Biomass: Studies Show Economic Compatibility, Local Benefits of Renewable Projects // VT98-acs

A Hawaiian study looking into biomass from sugar cane determined such a venture, configured around the existing assets of participant Pioneer Mill, will not likely offer a favorable return on investment, the report said. The project participants expect the facility to rake in an annual after-tax net profit of \$15.4 million. The business shows an internal rate of return of 30 percent and a return on the \$36 million investment of 11 percent for the 15-year life of the plant, the paper said.

Biomass fuels have a low heating index, which makes transportation a problem

JOHN BERGER, National Research Council, 1997; CHARGING AHEAD: THE BUSINESS OF RENEWABLE ENERGY AND WHAT IT MEANS FOR AMERICA // VT98-acs p. 201

Also, biomass generally is high in moisture when harvested, lowering its energy density (the energy content per unit mass). That increases transportation costs, a significant "factor of production," since biomass tends to be dispersed over large geographic areas, and energy must be expended for its collection. Finally, even dry biomass does not have as high a heating value as the fossil fuel with which it has to compete. Dried woody, material, for example, has only about half the energy of bituminous coal.

Biomass plantations may risk species diversity and soil depletion

Kenneth E Skog, Forest Products Journal, February 1997, Pg. 63-69; TITLE: United States wood biomass for energy and chemicals // VT98-ACS

Technology needs include improvement of short-rotation intensive culture techniques for plantations and improvement of electrical power and ethanol production processes. These efforts can help improve the comparative advantage of wood biomass feedstocks relative to fossil fuel feedstocks. Key environmental concerns will constrain the supply of wood biomass from forests and plantations; particularly concern for the effects of management for wood fuel on the diversity of plants and animals and on the depletion of soil and water resources.

40 million acres of energy crops would only supply 17% of usa gasoline use

Robert Greene, Austin American-Statesman, October 13, 1996; Pg. K3, TITLE: More bucks sought for biofuels research; Advocates say fuel from farmlands could fill good chunk of U.S. gasoline needs // VT98-acs

By planting 40 million acres -- about 10 percent of the nation's cropland -- in energy crops, the country could produce 20 billion gallons of ethanol a year. That would supply 17 percent of U.S. gasoline use.

Biomass crops would cause a food shortage

ROBERT GREENE, The Associated Press, The Record, October 6, 1996; Pg. A13,
TITLE: AGRICULTURAL CROPS SEEN AS FUEL FOR THE FUTURE // VT98-
acs

There are doubters.

Philip Verleger, vice president of Charles River Associates, an economic consulting firm, questioned whether the United States can take 10 percent of its farmland out of food production when the world population is growing.

In fact, grain shortages this summer forced ethanol producers to cut way back.

Land would come at the expense of food production

JOHN BERGER, National Research Council, 1997; CHARGING AHEAD: THE
BUSINESS OF RENEWABLE ENERGY AND WHAT IT MEANS FOR AMERICA
// VT98-acs p. 199

Neither is land scarce on a global scale for biomass production today. Well over a billion acres of tropical land is suitable for reforestation. But many questions remain as to whether this would be the best use of the land, or whether it could be better used to produce higher value goods, such as food and fiber, or for multi species wildlife habitat. If tropical energy plantations became profitable, intensified commercial demand for land conceivably could threaten subsistence farmers, or create additional incentives for tropical deforestation.

Energy generation from municipal waste fails because of collection and separation issues

Joseph Edwin, New Straits Times, January 21, 1997; Pg. 5, TITLE: Generating electricity from trash // VT98-ac

There is tremendous potential for power generation from municipal waste but its promise has been overlooked, largely due to public apathy and a poor system of garbage collection. Incentives to encourage garbage separation and delivery coupled with the need for public education on recycling garbage are lacking, although the technology to generate electricity from municipal waste is available, says Prof Mohamad Yusof Othman, a leading researcher on renewable energy sources.

Biomass plants produce dangerous slag in the equipment used

JOHN BERGER, National Research Council, 1997; CHARGING AHEAD: THE BUSINESS OF RENEWABLE ENERGY AND WHAT IT MEANS FOR AMERICA // VT98-ac p. 201

Biomass fuels are far from perfect. Some cause the formation of slag and other deposits in combustion boilers that can interfere with the boiler's operation and cause troublesome shutdowns. Fast-growing plants, such as annual grasses, which are high in alkali metals (potassium and sodium) and silica, are the most likely to cause slagging.