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SCIENCE

New Report Urges Western Governments to Reconsider Reliance on Biofuels

By JUSTIN GILLIS JAN. 28, 2015

Western governments have made a wrong turn in energy policy by supporting the large-scale conversion of plants into fuel and should reconsider that strategy, according to a new report from a prominent environmental think tank.

Turning plant matter into liquid fuel or electricity is so inefficient that the approach is unlikely ever to supply a substantial fraction of global energy demand, the report found. It added that continuing to pursue this strategy — which has already led to billions of dollars of investment — is likely to use up vast tracts of fertile land that could be devoted to helping feed the world's growing population.

Some types of biofuels do make environmental sense, the report found, particularly those made from wastes like sawdust, tree trimmings and cornstalks. But their potential is limited, and these fuels should probably be used in airplanes, for which there is no alternative power source that could reduce emissions.

“I would say that many of the claims for biofuels have been dramatically exaggerated,” said Andrew Steer, president of the World Resources Institute, a global research organization based in Washington that is publishing the report. “There are other, more effective routes to get to a low-carbon world.”

The report follows several years of rising concern among scientists about biofuel policies in the United States and Europe, and is the strongest call yet by the World Resources Institute, known for nonpartisan analysis of environmental issues, to urge governments to reconsider those policies.

The report, which was made available to The New York Times in advance of its Thursday morning release, cites numerous examples of what it describes as misguided approaches to fighting global warming.

For instance, under mandates adopted by Congress during the George W. Bush administration and supported by the Obama administration, as much as 30 percent to 40 percent of the American corn crop is being turned into fuel for cars each year, displacing about 6 percent of the nation's demand for gasoline.

Several studies have found that the policy has helped drive up global food prices, has worsened some types of air pollution and has done relatively little to reduce overall emissions of carbon dioxide, the gas primarily responsible for global warming.

In Europe, burning wood pellets to displace coal has become a fundamental strategy in the power industry, driven by extensive subsidies and mandates, particularly in the United Kingdom. Millions of tons of pellets are being produced in the United States and shipped to Europe.

The American industry supplying that market says that it uses only waste wood or trees that would be cut down anyway when overgrown forests are thinned, and that it pays close attention to issues of sustainability.

"We believe in mitigating climate change," said M. Seth Ginther, executive director of the U.S. Industrial Pellet Association.

But some environmental groups have grown dubious of that assertion and argue that the continued growth of the wood-pellet industry is putting natural forests at risk. They are pressuring the European Union to reconsider its approach.

Some of the biofuel policies in the West go back a decade or longer, adopted on the basis of claims in the scientific literature that turning plant material into fuel would help lower emissions of carbon dioxide.

The basic theory was that, while burning such fuel does emit the gas, it would then be removed quickly from the atmosphere as plants grew and replaced those that had been used to produce the fuel.

That was considered a more sustainable approach than the burning of fossil fuels, which pulls carbon from deep underground and injects it into the atmosphere, trapping extra heat above the earth's surface.

Timothy D. Searchinger, a research scholar at Princeton and primary author of the new report, said that more recent science had challenged some of the assumptions underpinning many of the pro-biofuel policies.

He said such policies had often failed to consider the opportunity cost of using land to produce plants for biofuel, for instance.

If forests or grasses were grown in their place, that would pull carbon dioxide out of the air, storing it in tree trunks and soils and offsetting emissions more effectively than biofuels would do, he said.

Moreover, biofuels are an inefficient way to convert sunlight to fuel, meaning an immense amount of land would be required to supply a significant fraction of global energy demand, Mr. Searchinger said.

That land will also be needed to help meet a global appetite for food that is expected to rise 70 percent or so by 2050, he said.

“We’ve only got one planet, with only so much land,” Mr. Searchinger said. “If you use land for one purpose, you can’t use it for another.”

Mr. Searchinger added that he was concerned by recent policy statements from the Obama administration that he said might open the door to extensive burning of wood pellets in the United States in the name of fighting global warming, similar to what has happened in Europe.

But Liz Purchia, a spokeswoman for the Environmental Protection Agency, said the policy in question was not final, and would be submitted for review to a scientific advisory panel appointed by the agency.

Jason Hill, who studies bioenergy at the University of Minnesota, was not involved in the World Resources Institute report, but reviewed it at the request of The Times. He endorsed some of its conclusions, particularly the idea that turning food crops into fuel makes little sense.

Dr. Hill said, “It’s true that our first-generation biofuels have not lived up to their promise,” “We’ve found they do not offer the environmental benefits they were purported to have, and they have a substantial negative impact on the food system.”

However, Dr. Hill was more bullish than Mr. Searchinger on the potential for newer types of biofuels made from crops planted specifically for that purpose.

Their potential environmental and economic benefits are not yet clear, and governments would be acting prematurely if they were to abandon research on them, Dr. Hill said, though he also doubted that they could ever supply any large fraction of global fuel demand.

Many of the pro-biofuel policies adopted by Western governments date to a period when other types of renewable energy were viewed as prohibitively expensive. But costs for wind and solar power have plummeted over the past decade, and the new report points out that for a given amount of land, solar panels are at least 50