



Good biofuels versus bad biofuels: The best biofuels come from sustainable sources such as triticale (above left), a biomass grown as a winter crop. Bad biofuels can clearcut forests and demolish landscapes (above right).

The Billion Gallon Challenge: How America Can Produce One Billion Gallons of the Best Biofuels By 2014

To avoid the worst impacts of global warming, we need to make low-carbon biofuels work. But the best biofuels have yet to make the jump from the lab to the pump. As a first step, policy makers should stop spending tax dollars on the dirty biofuels of yesterday and start paying for performance, while maintaining our existing safeguards and standards. But that's not enough. We need to jumpstart the best biofuels and make them work for our economy and our environment.

We need a Billion Gallon Challenge.

Transportation makes up about one-third of our global warming pollution. Traditional fuel sources such as oil are putting a strain on our economy and our environment by escalating global warming pollution and leaving us vulnerable to price spikes in foreign oil. Advanced biofuels are a low-carbon solution for helping to solve global warming—if they are done right. But right now, biofuels are incredibly controversial, and for good reason.

Biofuels are a double-edged sword. They can be produced in ways that reduce greenhouse gas pollution or in ways that increase it. Biofuels can help clean up the air, water, and soil and protect wildlife. Or they can degrade our lands and water, threaten biodiversity, and harm public health.

Right now, the best biofuels—the ones that reduce global warming pollution and protect the environment—are still just a promise. Even though biofuels received about \$10 billion in taxpayer support in 2008, truly “good” biofuels are not yet produced on a commercial scale.

The Billion Gallon Challenge

2009 will likely be the first year that the United States produces 1 million gallons of advanced biofuels, but none of this will come from commercial-scale facilities. Our main existing policy—the Renewable Fuel Standard, which requires the use of 36 billion gallons of biofuels by 2022—provides a nice target, but does not provide economic certainty in the near-term needed to meet the Billion Gallon Challenge.

The real test for producing good biofuels comes in the scale-up from 1 million to 1 billion. We need to direct all of our biofuels incentives toward these first billion gallons and in return demand that this first billion gallons be the best.

We Need a Billion Gallons of the Best

A Billion Gallon Challenge would strive for 1 billion gallons of low-carbon biofuels by 2014 produced using feedstocks and conversion technologies that promise scalability and broad sustainability. These are the fuels that we can

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Biofuels: The Good and the Bad

What are the best biofuels?

The best biofuels are those that make it environmentally and economically possible to produce more food and fuel and do it in a way that clearly reduces global warming pollution, conserves and enhances our soil and water resources, protects our fragile wild lands and native ecosystems, and improves the economic welfare of workers and communities.

What do these advanced biofuels look like? Picture perennial grasses growing where land was once degraded; winter cover crops being grown on exposed croplands; and sustainably managed forests that provide a wide range of critical ecosystem services.

Rigorous and independent international sustainability standards, such as those being developed by the Roundtable on Sustainable Biofuels (RSB), hold the best promise for identifying the best biofuels in the future. (See <http://cgse.epfl.ch/page65660-en.html>)

What are "bad" biofuels?

Bad biofuels are those that degrade the environment, drive up food prices, and make global warming pollution worse. These fuels look like more of the same. Coal-fired corn ethanol plants; rows of corn, soy, or "energy crops" where wetlands, forests, and grasslands stood before; tropical rainforests cleared and burned for palm oil; more run off and pesticides poisoning our rivers and streams; displaced wildlife habitat and degraded water quality as natural forests are cleared for tree-plantations or switchgrass crops; more families around the world struggling to afford a healthy diet; and combined global warming pollution from these biofuels that are even greater than the petroleum they're replacing.

all agree will protect our economy and our environment—growing more jobs, more food, and more truly low-carbon fuel.

To do this, we need to stitch together existing government programs under a new law to provide support for the whole biofuels system, from field to fuel. The three key pieces of the challenge are:

- **A realistic scale** – The goal will be 10 to 20 advanced biofuels projects, assuming 50 to 100 million gallons per facility.

- **Comprehensive support and environmental standards** – We need to fully fund a package of existing programs, link them together into a comprehensive and coordinated initiative along with a set of sustainability requirements, and reform our biofuels tax credits to support the Billion Gallon Challenge.

- **Learning while doing** – Because we will be learning how to deploy these systems as they are developed, each of these projects should be partnered with a comprehensive research and assessment program drawing on the expertise of agricultural extension services, NRCS researchers, land grant and other universities, our national labs, and others.

How to Make it Happen

The first and most important steps are to stop funding bad biofuels and mature conventional biofuels and to maintain the performance standards and minimum sourcing safeguards adopted as part of the Renewable Fuel Standard. Then, to jumpstart advanced biofuels, we need to take advantage of a number of programs that, if fully funded, can help meet the Billion Gallon Challenge.

The Biomass Crop Assistance Program, the Farm Bill conservation programs, the Biorefinery Assistance, the EISA Section 207 grants, the SunGrant Initiative, and the Biomass R&D Act programs should be fully funded to provide full system support including research and analysis.

By coupling these programs with the Section 1705 loan guarantee program established as part of the stimulus bill, which specifically focuses on innovative biofuels systems, we will have dollars available for every stage of an advanced biofuels system.

Adding in the following measures, we will have a roadmap to producing a billion gallons of the best biofuels.

- **Link together the different incentive programs and the agencies that administer them** so that they function as a coordinated whole with a minimum amount of bureaucracy. The crops, the farming practices, the pre-processing and transport, the conversion process and the co-products should all be developed and implemented in the most sustainable manner, even if they are not all managed by the same facility.

- **Establish comprehensive gold-standard sustainability requirements for eligibility for financial incentives.** For the Billion Gallon Challenge, we should require significant and measurable improvements in a project's production systems according to a broad set of sustainability standards. Verification systems, such as the Roundtable on Sustainable Biofuels, would be the basis for these requirements and ensure we are improving practices that reduce soil erosion, improve water use efficiency and quality, and protect other critical ecological values. The approach will evaluate each project within the context of its existing surrounding landscape, with an objective of finding integrated solutions to our economic and environmental needs.

- **Reform biofuels tax credits.** In 2009, these will be worth about \$5 billion. However, there exists no federal tax policy designed to reward the increased performance of any kind of biofuels. To remedy this, we propose reforming our federal biofuel tax credits to one technology-neutral, performance-based tax credit.