

# AIMBE POSITION STATEMENT

## CONGRESS MUST CONTINUE TO SUPPORT INNOVATION AS IT RELATES TO THE APPLICATION OF BIOENGINEERING TO ADDRESS ENERGY PRODUCTION

The nation is seeking alternative means to generate electricity and fuel our vehicles so as to break America's independence on foreign oil. Congress must do more to capitalize on the American innovation infrastructure to develop alternative fuels. This will not only to reduce dependence on foreign oil, but also identify clean energy sources to improve the health of Americans through an improved environment. Additionally, while nations such as China, Japan and South Korea invest heavily in alternative energy research, America must take advantage of an opportunity to strengthen the economy and job market by being a global leader in this emerging field.

### Biowaste as a Fuel

- An estimated 1.5 billion tons of municipal solid waste, green waste, sewage sludge, plastics, auto fluff, agricultural, forestry and other biowaste products, are generated in the U.S. each year. 320 million tons are readily available for use in the bioengineering of waste into energy.
- Tapping into the nation's agricultural biowaste could provide the nation's farmers and dairy industries with productive and economically beneficial alternatives to the open-field burning of agricultural residues and the disposal of animal wastes.
- Additionally, utilizing bioengineering technologies to turn biowaste into fuel could extend by up to 80% the useful lives of existing landfills, while at the same time, lowering the cost of waste transport and disposal for municipalities, and it can convert landfill gas (i.e., methane, a precursor of greenhouse gases 21 times more powerful than CO<sub>2</sub>) into ethanol. Ultimately, it has the potential enable the world to reclaim approximately 80% of the materials in existing landfills (the organic fraction) for use in the production of energy.

### Algal Energy

- Researchers looking to identify a reliable source of biodiesel to replace its fossil-fuel alternative have identified algae as a potential "miracle oil producer." As part of the process algae uses to turn sunlight into energy, algae produce oil and can generate 15 times more oil per acre than other plants used for biofuels, such as corn and switchgrass. Algae can grow in salt water, freshwater or even contaminated water, at sea or in ponds, and on land not suitable for food production.
- The use of biodiesel derived from algae is found to eliminate the additional carbon-dioxide (CO<sub>2</sub>) released by combustion and jet engines burning diesel fuels today.
- The impact on human health a switch to biodiesel is dramatic. With reductions in pollutants, the nation can expect to find cleaner air, cleaner water supplies and a healthier ecosystem. Additionally, health problems associated with pollutants such as respiratory problems can be curbed through this switch over in fuel sources.
- In an illustration of its reliability and usefulness, the United States Air Force has committed to changing over its fuel consumption to 50% "synthetic fuels" such as biodiesel derived from algae by 2016. This is a move that will both prove the effectiveness of algal biodiesel, but also act to reduce the nation's dependence on foreign oil. One percent of the nation's fossil fuel is consumed by the Air Force.
- Currently most research into efficient algal-oil production is being done in the private sector, but predictions from small scale production experiments bear out that using algae to produce biodiesel may be the only viable method by which to produce enough automotive fuel to replace current world diesel usage.

**AIMBE supports the following legislative actions to ensure a pathway for biological engineering innovation to develop alternative clean energy solutions:**

- A major boost in research and development funding is necessary to improve the price and performance of clean energy solutions and gain a competitive advantage in the clean energy industry. A current barrier to increased use of clean energy alternatives such as biodiesels is the increases in prices associated with biodiesels as compared to fossil fuels.



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- Congress should consider economic incentives such as tax-incentives or technology-specific production incentives to draw out more private investors to augment federal investment in, and support of, alternative energy solutions.
- The federal government must invest in research and development at the national university level to grow our national basic and applied research understanding of biological energy sources, and to develop a world class, educated workforce.
- Congress should provide a mechanism for low-cost financing, incentives, and technical assistance to retool the nation's industrial base and ensure that U.S. factories are commercializing and exporting cleaner, cheaper energy solutions to the world.

For more information, please contact Benjamin Corb, Director of Legislative Affairs, via e-mail at [bcorb@aimbe.org](mailto:bcorb@aimbe.org), or via telephone at 202.496.9660.

#### Sources:

"Green Investing: Toward a Clean Energy Infrastructure" – *Mark World Economic Forum*

Algal Biomass Organization Website

IHS / Jane's Information Group

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