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Written Testimony Submitted by:

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To the US House of Representatives  
Agriculture Subcommittee on Conservation, Energy and Forestry  
Farm Bill Hearing on Energy and Forestry  
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On behalf of the more than 150 members of the Algal Biomass Organization (ABO), I am pleased to submit these written comments to be included in the record for the Agriculture Subcommittee Hearing on the Farm Bill energy and forestry provisions.

The ABO is a non-profit business trade organization whose mission is to promote the development of viable commercial markets for renewable and sustainable products and services derived from algae. Its membership is comprised of people, companies and organizations across the value chain.

The ABO focuses much of its effort on supporting algae as a feedstock for biofuels. Algae are unique amongst biofuel feedstocks because they can be used to produce many different types of fuel, without impacting agricultural land and potable water resources. Algae grown on non-arable desert land, using non-potable salt or brackish water can be used to make biodiesel, renewable diesel, ethanol, renewable jet fuel, renewable gasoline, or renewable crude oil.

Furthermore, algae-based crude oil, jet fuel, biodiesel and gasoline also have the distinct advantage of being 'drop-in' replacements, meaning they are chemically identical to the fossil-based equivalents we use today. Consequently, they are wholly compatible with existing engines and oil and gas pipelines infrastructure; no modifications are necessary, and the fuels meet the same performance criteria, including ASTM standards, as traditional fuels. In addition, because these fuels can be domestically produced, they provide commercial airlines and the US military

with a secure supply of domestically produced energy that happens to also be significantly lower in GHG emissions on a lifecycle basis.

In a January 2012 industry survey, 88% of those surveyed said that “stable and supportive federal policy would accelerate development of the algae industry,” and 80% of those surveyed said that stable federal policy would likely result in increased hiring within the industry. Eliminating the Energy Title of the Farm Bill would be a significant break in “stable and supportive federal policy,” inevitably putting the many thousands of existing jobs in the algae and other biofuels industries at risk.

ABO members have identified inclusion of an Energy Title in the upcoming Farm Bill as one of their top legislative priorities. While a review of Farm Bill program beneficiaries will not reveal many algae companies who have taken advantage of the USDA energy programs to date, we anticipate that progress being made in the algal fuel industry today will enable more of our members to achieve the technology readiness necessary to use the USDA energy programs. Furthermore, an Energy Title will incentivize private investment in the algae industry, which will, in turn, expedite commercialization of algae-based fuels.

Sapphire Energy, an ABO member company, is one example of an algae-based fuel company that has been awarded a 9003 Biorefinery Assistance Program loan guarantee. The guarantee will support development of Sapphire’s first in kind demonstration-scale algal biorefinery, located in Columbus, New Mexico. The Green Crude oil produced at this facility will be refined into “drop in” transportation fuel – specifically jet and diesel fuels. Sapphire has benefitted enormously from significant private investment, as a result of the 9003 loan guarantee award. They recently closed on a \$145 million private funding round, which brings their total private and public investment level to more than \$300 million since the company was founded in 2007. The USDA loan guarantee has helped Sapphire leverage private funding, and establish significant partnerships with companies like Linde and Monsanto, all towards the goal of accelerating commercialization of Green Crude.

As the Sapphire example proves, using taxpayers’ dollars to spur more private investment is tax money well spent. It multiplies the value of those public funds. We must not overlook the significant private investment which is leveraged by Farm Bill Energy Title investments. And, conversely, elimination of the Energy Title in the Farm bill will, inevitably, have a significant detrimental effect on investment in the biofuels industry in the near future. Furthermore, the

loan guarantee program, which leverages significant private funding, costs the taxpayer a fraction of the funds which are loaned.

Public and private investment in algae and other feedstocks result in job creation in rural America, a core USDA mission. That being the case, ABO believes that the Farm Bill Energy Title is an appropriate vehicle for job creation and growth in rural American communities. Removal of these titles, upon which many jobs have already been created, would result in further erosion of rural America's struggling economy.

Algae can grow in a wide variety of climates in a multitude of production methods, ranging from ponds to photobioreactors to biofermenters, and thus will create a wide variety of jobs throughout the United States, from research to engineering, construction to farming, and marketing to financial services. The Algal Biomass Organization projects the potential for creation of 220,000 jobs in this sector by 2020.

Pilot and demonstration projects being built today in the US will be the gateway to commercial production of biofuels: renewable diesel, biodiesel, renewable jet fuel, ethanol, renewable gasoline, and renewable crude oil (aka Green Crude). Industry analysts believe that the next decade will be particularly important.

- Greentech Media Research has predicted that algae biofuels could be produced at a rate of [6 billion gallons](#) a year by 2022
- Some industry executives expect large algae production facilities will be operating at full scale in the US within the next 10 years if not sooner
- In 2009, [nearly 90 percent](#) of ABO members believed algae could replace current ethanol production in 20 years
- ABO members are now planning large-scale production projects which, at full scale, will be able to produce more than one million gallons of fuel annually, by 2013
- The [Algal Biomass Organization](#) expects that the industry will be able to provide significant market volumes – tens of millions of gallons per year – by 2016.

These job creation and industry growth predictions, however, are based on a business climate that continues to support growth of an algal industry. The biofuel industry ebbs and flows based on the price of oil. When oil is cheaper, support for biofuels wanes. When oil is expensive, there is interest in funding biofuel research and development. It is extremely difficult to build an industry in such an unstable environment. And yet, it is clear that at some time in the near future, alternative fuel will be necessary to supplement existing domestic reserves of crude oil and hasten American energy independence. Energy independence requires a true portfolio of fuel choices.

With the development of shale oil and natural gas technology, the need for alternative fuels may be delayed, but definitely not eliminated. It is necessary for the federal government to take the long view of America's energy needs and support programs like the Farm Bill Energy Title, which are necessary to the continued progress of the biofuels industry.

In 2005, in remarks to the American Council on Renewable Energy, then Secretary of Agriculture Mike Johanns said, "Energy is the new cash crop of rural America." And we are very pleased see algae's recognition as an agricultural crop.

Recently, two states, Arizona and Ohio, designated algaculture as agriculture. In Arizona, legislation which enjoyed bipartisan support and was signed into law by Governor Jan Brewer includes land that is used for the controlled propagation, growth and harvest of algae in the definition of state trust lands classified as agriculture. A second piece of Arizona legislation which also was signed into law will tax land used for algaculture as agriculture land.

Earlier this year, in a very similar scenario, Ohio Governor John Kasich signed into law bipartisan legislation which passed the Ohio House and Senate unanimously. The Ohio law defines the production of algae as agriculture in the Ohio Revised Code.

Bipartisan leadership in Arizona and Ohio believe classifying algaculture as agriculture is important to the growth of their states' agriculture sectors, with an eye to creation of new agriculture jobs. This is landmark, leading legislation.

Members of the Subcommittee, our industry is seeing real progress in the area of biofuels produced from algae. I am very concerned that, should Congress decide to eliminate the Energy Title from the Farm Bill, investors will see this as a signal that biofuels are not worth the

investment. This would have a devastating effect on our industry, on the jobs we are creating, and our nation's future energy independence.

On April 5, on behalf of ABO, I joined my colleagues from more than 100 federal and state organizations in signing a letter to the chairs and ranking members of the House and Senate Agriculture Committees, outlining our strong support for a Farm Bill Energy Title with mandatory funding. This letter was signed not only by biofuels associations, but by traditional agriculture, forestry, and land use organizations. We speak as one voice in our support for the retention of the USDA energy programs in the Farm Bill.

Continued innovation in American agriculture is essential to the future of our rural communities, and the Farm Bill's Energy Title is a key component in this innovation. Through the Farm Bill, the House and Senate Agriculture Committees have an opportunity to lead our states into the future of agriculture. And, Mr. Chairman, the future of agriculture includes energy.