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The Honorable John Thune
Co-Chair, Business Income Tax Working Group
511 Dirksen Senate Office Building
Washington, DC 20510

The Honorable Dean Heller
Co-Chair, Community Development & Infrastructure Working Group
324 Hart Senate Office Building
Washington, DC 20510

The Honorable Ben Cardin
Co-Chair, Business Income Tax Working Group
509 Hart Senate Office Building
Washington, DC 20510

The Honorable Michael Bennet
Co-Chair, Community Development & Infrastructure Working Group
458 Russell Senate Office Building
Washington, DC 20510

Dear Senators Thune, Heller, Cardin, and Bennet:

Thank you for the opportunity to submit these comments on behalf of the Algae Biomass Organization (ABO). We applaud you, as well as the Senate Finance Committee as a whole under the leadership of Chairman Hatch and Ranking Member Wyden, for your attention and leadership on tax reform.

To provide a bridge to tax reform, we urge Congress to immediately pass a tax extenders package that includes the incentives for second generation biofuels. Although the structure of many existing energy tax incentives is not perfect, these incentives in particular are critical to the continued development of America's algae industry.

In the longer term, ABO understands that tax reform provides a tremendous opportunity to reform, simplify, and streamline the current patchwork of energy tax incentives into a permanent and more technology-neutral system that drives the development of clean, domestic energy. As part of tax reform, we urge Congress to consider several proposals through which to accomplish these goals; for example, by adopting elements of the energy tax reform discussion draft released under former Chairman Max Baucus, allowing an investment tax credit election for second generation biofuel producers, incorporating innovative new carbon capture and utilization technologies into the energy tax system, and expanding the availability of Master Limited Partnerships.

ABO and the Benefits of Algae

ABO is a nonprofit organization whose mission is to promote the development of viable commercial markets for commodities derived from algae—particularly advanced biofuels and other bioproducts from algae biomass. ABO also delivers information to the public about funding initiatives in the algae industry, organizes

collaborative opportunities, and develops quality and measurement best practices for the individuals, companies, and organizations that comprise ABO's membership.[1]

Algae are simple plants that can range from the microscopic (microalgae) to large seaweeds (macroalgae) more than 100 feet in length. Microalgae include both cyanobacteria (formerly called "blue-green algae") as well as green, brown, and red algae. Algae are commonly found around the globe and play an important role in many ecosystems. In particular, algae provide the foundation for the aquatic food chains supporting all fisheries and produce about 70 percent of the oxygen in the atmosphere that we breathe.

Algae are uniquely suited to serve as the foundation for a new generation of renewable liquid fuels and products. Some benefits of algae as a feedstock are listed below.[2]

1. The chemical composition of algal oil is almost identical to that of oil from fossil fuels; therefore, algal oil can be blended as a "drop-in" fuel with existing fuels such as gasoline, diesel, and jet fuel without any changes to our fuel infrastructure.
2. Algal oil does not contain the harmful chemical constituents found in crude oil, particularly heavy crude oil, and allows a refinery to operate more economically because it lacks sulfur compounds.
3. Algae is an optimal source for bioethanol and can be produced at a competitive cost using CO_2, sunlight, and saltwater. Algae-based ethanol also features the added benefit of producing fresh water as a byproduct.
4. Algae can be grown in brackish water and on marginal land not suited for agricultural use. This means that algae do not compete with food for land.
5. Algae consume CO_2 and nitrogen as they grow. This means that companies can use the byproducts of conventional energy facilities to grow drop-in algal fuel.
6. Algal oil and algae-based ethanol are predominantly domestic products, meaning that the development of the algae industry will enhance our energy security. Recognizing the importance of this issue, the Department of Defense has made significant investments in algae-to-fuel technology.
7. Finally, the algae industry is creating jobs.

As the Environmental Protection Agency recently explained, "Some of the potential benefits of using algae as a biofuel feedstock are that algae can be grown on marginal land, can require low water inputs, can recycle waste streams from other processes, does not compete with food production, and has high oil yield."[3]

History of Algae and the Tax Code

To encourage the production of innovative types of renewable fuel, Congress has provided a series of tax incentives, including a tax credit of $1.01 per gallon for the production of cellulosic ethanol. However, until recently, most of these tax incentives have not been available for algae-based fuel. This was not the result of a policy decision to exclude algae-based fuel; rather, algae-based fuel, which was not well known when the relevant tax incentives were created, simply did not fit the existing technical definitions.

Congress acted to fix this oversight with the American Taxpayer Relief Act of 2012 (ATRA), which President Obama signed into law on January 2, 2013. ATRA provided tax parity by reforming the $1.01 per gallon cellulosic

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[1] ABO, http://www.algaebiomass.org/.

[2] In addition to fuel, algae are increasingly used in a variety of other commercial and industrial products. For instance, algae are used as a food ingredient and a food supplement because of their high omega-3 fatty acid content. Additionally, algae are used as a sustainable animal feed, as a feedstock for the production of sustainable chemicals, and as a component of fertilizers and soil conditioners. ABO, Other Products – All About Algae.com, http://allaboutalgae.com/other-products/.

[3] U.S. ENVIRONMENTAL PROTECTION AGENCY, RENEWABLE FUEL STANDARD PROGRAM (RFS2) REGULATORY IMPACT ANALYSIS 56 (2010), *available at* http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1006DXP.PDF.

biofuel tax credit under section 40 of the tax code into the "second generation biofuel producer credit," and by including algae-based fuel within this credit. ATRA also provided bonus depreciation to property used to produce "second generation biofuel"—including both cellulosic and algae-based fuel.

Spurred in large part by these changes to the tax code, the algae industry has taken significant strides towards commercialization. For example, Florida-based Algenol is now operating a 36-acre facility in southern Florida to convert CO_2 to ethanol and bio-crude oil from algae. Algenol has invested over $250 million to develop and deploy the underlying technology, and has reported production of greater than 8,000 gallons of liquid fuel per acre per year. Algenol is now in negotiations with landholders, CO_2 emitters, and others to execute its first commercial project. In addition, algae technology developers Cellana and Renewable Algal Energy have recently signed offtake agreements with Neste Oil, a leading oil refiner, for algal oil produced at planned commercial algae production facilities.

These facilities are expected to create thousands of U.S. jobs,[4] but, because algae and other advanced biofuels technologies have not yet been demonstrated at full commercial scale, their development is particularly sensitive to policy decisions. The expiration of the second generation biofuel credits at the end of 2013, and again at the end of 2014, has significantly hindered the ability of these and other promising projects to secure private capital for construction. This unfortunate dynamic highlights the need for long-term, supportive, and predictable support for algae and other advanced biofuels in the tax code.

Algae and Tax Reform

ABO believes that tax reform provides a valuable opportunity to provide taxpayers with certainty, simplicity, and fairness while encouraging economic growth and energy security. As Congress moves ahead with tax reform, we urge you to consider ABO's tax policy priorities, outlined below.

Extend the Incentives for Second Generation Biofuels

In the short term, ABO is committed to resolving the most pressing tax policy issue facing the algae industry today: tax extenders. ABO was pleased that Congress extended the second generation biofuel producer credit and the special allowance for second generation biofuel plant property through the end of 2014. However, ABO was discouraged that Congress ultimately moved away from the two-year extension the Senate Finance Committee passed on a bipartisan basis last year. This proposal would have extended the tax incentives for second generation biofuel through the end of 2015, giving more time for companies to secure financing and break ground on new projects to provide clean domestic biofuel from algae.

In order to encourage continued investment for capital-intensive algae biofuel projects, we urge Congress to immediately enact a tax extenders package that includes these tax incentives and extends them for the maximum period possible. Extending these incentives now would give Congress the time to consider and develop its tax reform proposals thoughtfully, without the added pressure needing to address incentives that arbitrarily expire on a specific date.

Reform Tax Incentives for Transportation Fuels

In the longer term, ABO is also committed to helping resolve the long-term tax policy issues facing the energy industry. For example, ABO supports the development of permanent energy tax policy as an alternative to the temporary and unpredictable nature of energy tax policy today. The start-and-stop nature of many tax

[4] ABO: Algae Industry Project Book, http://www.algaebiomass.org/wp-content/uploads/2010/06/ABO_project_book_lo-res_July2013.pdf.

incentives has made it more difficult for companies producing algae biofuels to attract financing and make long-term investment decisions, ultimately undermining the continued development of the industry. A permanent system of tax incentives would alleviate this problem by giving businesses the policy certainty they need to grow.

Such permanent, predictable tax policy should focus on incentivizing:

1. Technologies with the greatest promise to achieve the nation's objectives of domestic energy security, job creation, and environmental protection; and

2. Emerging technologies most in need of support for the transition to full commercial adoption.

Algae-based biofuels are a strong fit for both criteria. In terms of energy security and environmental performance, a comprehensive 2013 analysis by Pacific Northwest National Labs found the nation's land and water resources could support 25 billion gallons of algae-based fuel a year in the United States,[5] and peer-reviewed lifecycle analyses of two of the leading commercial demonstration algae production facilities show CO_2 reductions of 68 to 80 percent on a full lifecycle basis versus petroleum-based alternatives. [6,7] ABO's analysis of algae industry projects has identified the potential for thousands of new jobs from projects already in the development stages.[8]

In terms of technology maturity, the algae industry has made significant progress since Congress enacted incentives for algae-based fuels in 2013, but pioneering algae biofuel developers are only today seeking financing for the first full-scale commercial algae biofuel production facilities. Algae biofuels are at a much earlier stage of development than other energy sources whose tax support is being considered for phase-out. Any near-term phase-out of credits for algae-based fuels would be inappropriate and deleterious to the development of this emerging industry.

As part of tax reform, we urge Congress instead to consider various ways in which to simplify and streamline the current patchwork of energy tax incentives. As an example, the energy tax reform discussion draft released under Chairman Baucus would have consolidated the various tax incentives for transportation fuels under a new technology-neutral framework. Congress could work towards creating a system that similarly rewards technologies, process, and feedstocks that demonstrate improvements in environmental performance. Under such a system, Congress could build a mechanism to adjust the credit rate for various fuels based on greenhouse gas emissions or other criteria.

Such a proposal could build off Chairman Baucus' draft while also improving on some key elements. For example, the draft could incorporate additional or alternative environmental criteria instead of relying exclusively on greenhouse gas emissions. In addition, it could preserve the existing tax credit rates for certain fuel categories to prevent unwarranted tax credit reductions compared to current law. We look forward to working more with the Committee as this process continues.

One particular change Congress could consider as part of tax reform would be to harmonize the definition of "second generation biofuel" in the tax code with the EPA's existing definition of "advanced biofuel," while also requiring such fuels to meet applicable ASTM, Department of Defense, or other equivalent specifications for highway transportation, rail, aviation, or military use.

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[5] *See* http://pubs.acs.org/doi/abs/10.1021/es304135b.
[6] *See* http://www.sciencedirect.com/science/article/pii/S0960852413013631.
[7] *See* http://pubs.acs.org/doi/abs/10.1021/es1007577.
[8] ABO: Algae Industry Project Book, http://www.algaebiomass.org/wp-content/uploads/2010/06/ABO_project_book_lo-res_July2013.pdf.

Allow an ITC Election for Second Generation Biofuels

Under current law, taxpayers eligible for the production tax credit (PTC) under section 45 may elect to receive a one-time 30 percent investment tax credit (ITC) under section 48 in lieu of the PTC. Congress enacted this change in 2009 in recognition of the fact that taxpayers would benefit from having the option of choosing the incentive that best fits their needs. In some cases, the ability to build in the PTC to long-term economic forecasts is very important; in other cases, the upfront benefit of the ITC is more effective at driving investment in these energy technologies.

Congress should extend the same ITC option to taxpayers eligible for the second generation biofuel producer credit under section 40. Companies producing second generation biofuels from algae and other renewable sources face similar financial and business pressures that sparked Congress to allow the ITC election for PTC-eligible entities. As Congress has previously recognized, an ITC is more beneficial than a production credit for some companies, depending on their business structure, how close their technology is to commercialization, and other factors.

Provide Tax Parity to Carbon Capture and Utilization Technologies

It is also important for the federal tax system to account for the next generation of transformative technologies. One example of such a technology involves the use of algae as a means of accomplishing carbon capture and sequestration (CCS).

Current law, as well as the energy tax reform staff discussion draft released in 2013 under former Chairman Baucus, provides tax incentives for CCS technologies. However, they rely on an outdated definition of sequestration that focuses only on the "geological storage" of carbon dioxide. They do not include the next generation of carbon capture technologies—called "carbon capture and utilization" (CCU) technologies—which monetize carbon dioxide through the beneficial reuse of carbon to grow algae.

CCU technology has numerous benefits. Carbon dioxide from power plants can be fed directly to algae, which can then be converted into valuable products such as advanced biofuels, animal feed, and chemical ingredients. As a result, the use of CCU helps displace petroleum and other depletable feedstocks with renewable algae. In addition, CCU technology would help existing utilities reach environmental targets in the years ahead. By creating markets for carbon dioxide, utilities and ratepayers can offset the cost of carbon capture, minimizing the impact of investments in CCU technology on electricity costs while creating jobs and new sources of sustainable fuels and other products. At the same time, CCU would help deliver real, permanent reductions in carbon dioxide. In fact, a 10,000-acre commercial algae production unit would absorb nearly one million tons of carbon dioxide annually.

Moreover, CCU technology is ready for commercial deployment. Technologies for algae utilization of carbon dioxide are being demonstrated throughout the country. Since 2010, the Department of Energy has funded a dozen such projects, and CCU demonstrations are currently underway in Florida, New Mexico, Iowa, Hawaii, Kentucky, and elsewhere. These projects are covering a wide range of CCU applications, including mineralization, soil remediation, polymer manufacturing, and others.

In recognition of CCU's benefits and the state of the technology, the President's Fiscal Year 2016 budget includes for the very first time a new refundable tax credit for carbon sequestration. Importantly, this proposal would make a credit available for investments in technologies, like CCU, that "beneficially reuse" carbon dioxide.

As part of tax reform, we urge Congress to take similar steps to account for next-generation technologies like CCU—either as part of existing incentives or in a tax reform environment—rather than simply relying on existing definitions of outdated technologies.

Expand Master Limited Partnerships to Second Generation Biofuel Producers

In addition, it is important for Congress to ensure that advanced energy technologies are not shut out of tax-preferred financing mechanisms that have long been available to the oil and gas industries. The most prominent example of this disparity in the tax code involves Master Limited Partnerships (MLPs). An MLP is a business structure that is taxed as a partnership (i.e., taxed at the shareholder level but not the entity level) but whose ownership interests are traded like corporate stock. Midstream oil and gas companies, in particular, have used the MLP structure to attract private investment for decades. However, MLPs are not available to companies producing advanced biofuels like algae-based biofuel, producing electricity from renewable sources, implementing CCU technologies, and others involved in the advanced energy sector. ABO urges Congress to provide parity in the tax code by expanding the availability of MLPs to these types of projects, similar to the Master Limited Partnerships Parity Act introduced last Congress by Senator Chris Coons.

Conclusion

In the short term, ABO urges Congress to immediately enact a tax extenders package to ensure the continued development and growth of the algae industry in the United States. In the longer term, we applaud the Committee's efforts on tax reform. ABO believes tax reform has the potential to simplify the tax code to provide stability and certainty to businesses while also encouraging the development of a cleaner and more secure energy supply. As part of this effort, we urge Congress to consider the proposals outlined above. We appreciate the opportunity to offer these comments to the Working Groups and look forward to working with Congress as it continues to explore tax reform in the months ahead.

Sincerely,



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