



2010 ALGAL BIOMASS ORGANIZATION ANNUAL MEETING

The Algal Biomass Organization promotes the development of viable commercial markets for renewable and sustainable commodities derived from algae.

www.algalbiomass.org

AGENDA



Chairman's Remarks

- **Billy Glover**, Chairman of the ABO Board of Directors

Opening Speakers

- **Matt Carr**, Biotechnology Industry Organization (BIO)
- **Paul Argyropoulos**, Environment Protection Agency

Executive Director's Report

- **Mary Rosenthal**, ABO Executive Director

Financial Report

- **Thomas Byrne**, Treasurer of the Board of Directors

Committee Report

- **Events** **Thomas Byrne**, Committee Chairman
- **Membership Development** **Mark Allen**, Committee Chairman
- **Peer Review** **John Benemann**, Committee Co-Chairman
- **Gov't & Public Relations** **Dale Smith**, Tim Zenk, Committee Co-Chairs
- **Bylaw & Governance** **Mark Allen**, Committee Chairman
- **Technical Standards** **Mark Allen**, Committee Chairman

Board of Director's Nominee Presentations

Luncheon, Sponsored by **Boeing & FedEx**

- Speaker – **Representative Harry Teague**, New Mexico

Adjournment



OPENING REMARKS

Billy Glover, Chair of the Board of Directors

The Algal Biomass Organization promotes the development of viable commercial markets for renewable and sustainable commodities derived from algae.

www.algalbiomass.org



OPENING SPEAKER

Matt Carr, Biotechnology Industry Organization (BIO)

The Algal Biomass Organization promotes the development of viable commercial markets for renewable and sustainable commodities derived from algae.

www.algalbiomass.org

BIOFUELS

STATE OF THE TECHNOLOGY REPORT

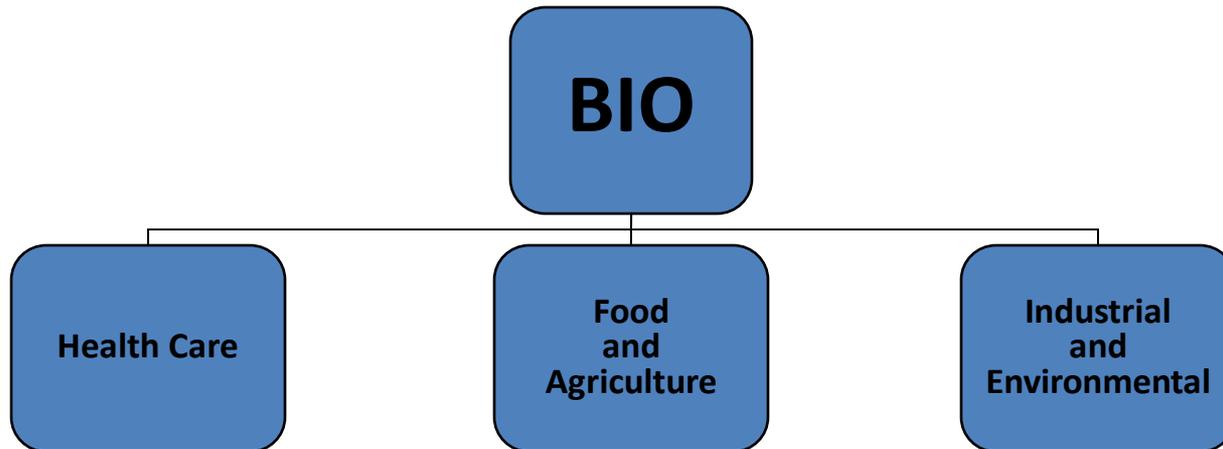
Matthew Carr

Policy Director, Industrial & Environmental Section
Biotechnology Industry Organization (BIO)

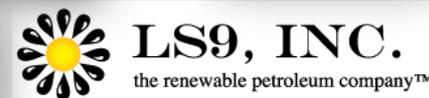
March 25, 2010

What is BIO?

- Biotechnology Industry Organization (BIO)
- Trade association based in Washington, D.C.
- Over 1,200 member companies
- Members in U.S. and 31 other countries



SOME INDUSTRIAL AND ENVIRONMENTAL SECTION MEMBERS



BIO ALGAE WORKING GROUP

- **Algaedyne**
- **Algenol Biofuels**
- **Aurora Biofuels**
- **Culturing Solutions**
- **HRBioPetroleum**
- **LifeTech**
- **LiveFuels**
- **Solazyme**
- **Synthetic Genomics**
- **Terrabon**
- **The Dow Chemical Company**

BIOFUELS TECHNOLOGY TRENDS

- 1. Improved 1st Gen. Processes**
- 2. Purpose-grown Crops and Algae**
- 3. First Commercial Production of Cellulosics**
- 4. Advances in End Molecule Diversification**
- 5. Increasing Focus on
Renewable Chemicals / Bioproducts**

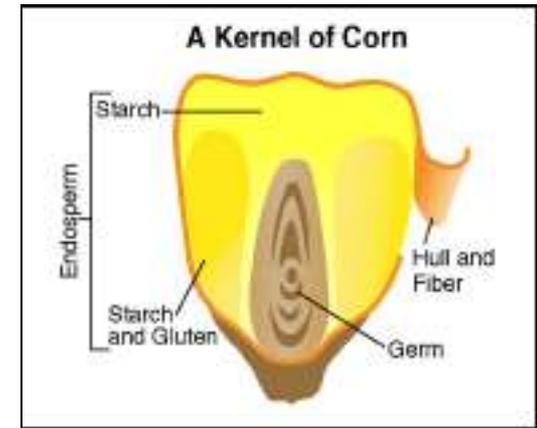
EVOLUTION IN STARCH ETHANOL PRODUCTION

- Best available technologies e.g.

- biotech “cold cook”
(raw starch) enzymes
- advanced fractionation

can:

- increase ethanol yield > 6%
- create cellulosic feedstock stream
- reduce GHG emissions > 20%



POET™

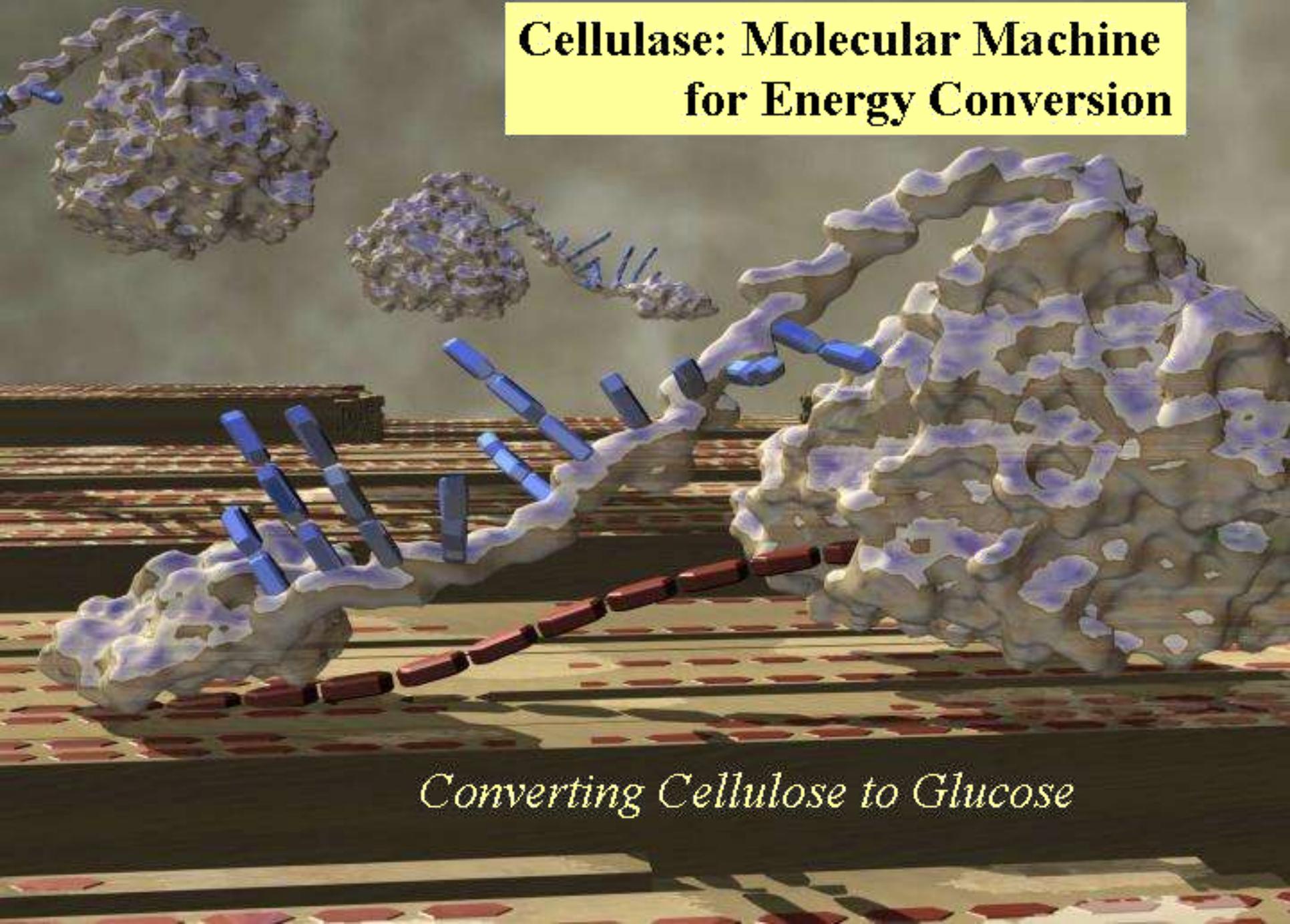
novozymes®

PURPOSE-GROWN CROPS

- **Commercial switchgrass seeds now on the market**
- **Variety of short rotation woody crops under development**



Cellulase: Molecular Machine for Energy Conversion



Converting Cellulose to Glucose

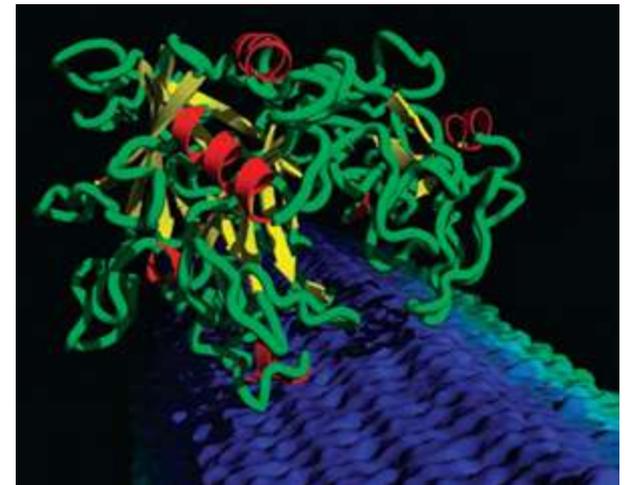
The Pacific Dampwood Termite *Zootermopsis angusticollis*



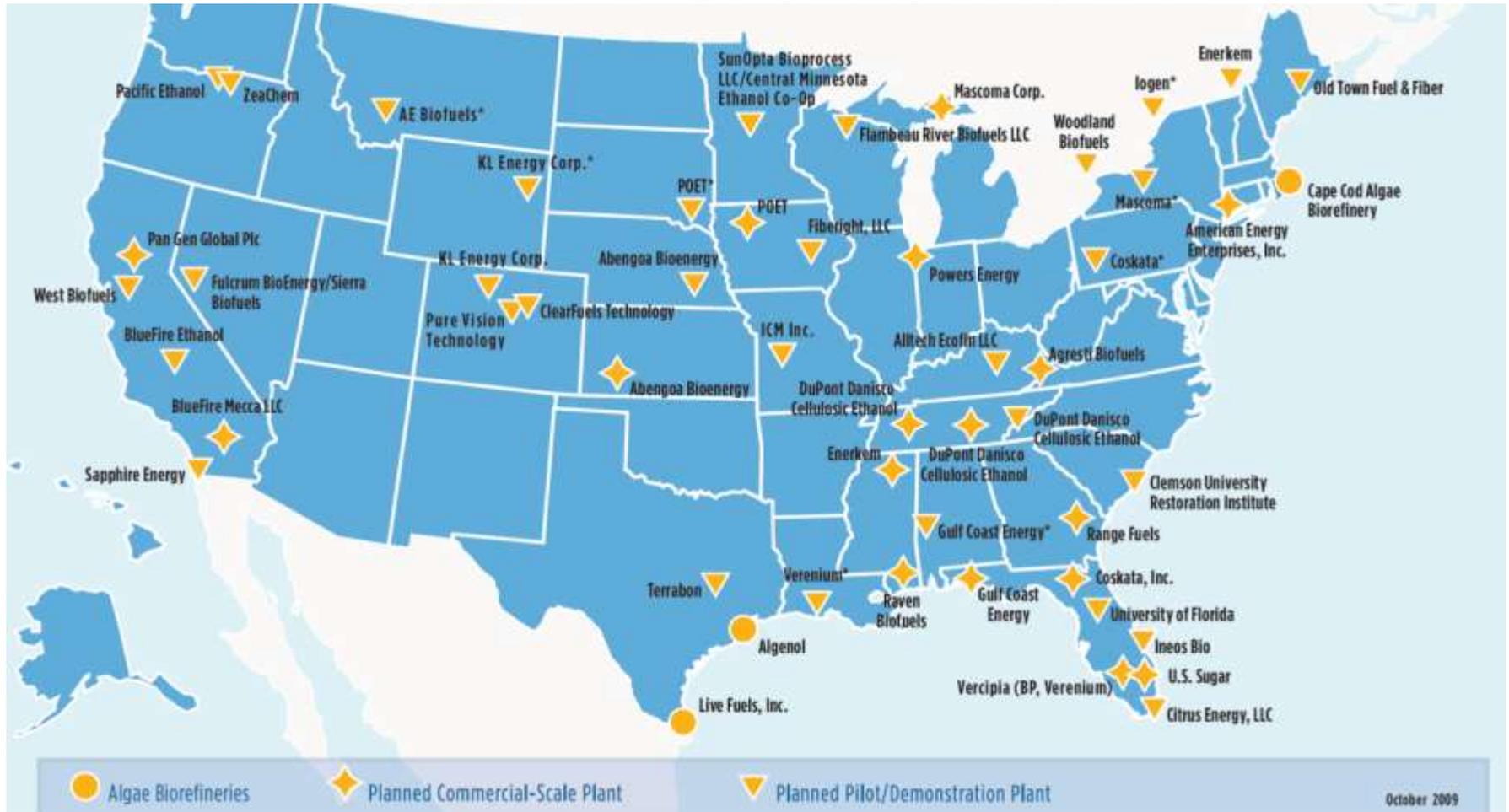
Salmassi and Leadbetter

DRAMATIC COST REDUCTIONS FOR CELLULASE ENZYMES

- **Novozymes, Genencor recently announced 80% reduction in enzyme cost vs. 2008**
- **Forecast cellulosic ethanol production cost under \$2.00 per gallon by 2011**



EXISTING/ PLANNED ADVANCED BIOFUELS FACILITIES



Over 40 cellulosic biorefineries planned or in pilot production

ALGAE

- Multiple developers moving to commercial demonstration
- Variety of approaches and end molecules





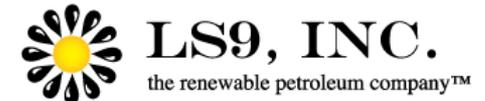
HIGHER ALCOHOLS & RENEWABLE HYDROCARBONS

- **Biobutanol**

- Higher energy density,
infrastructure compatibility

- **Green gasoline / jet fuel**

- Use synthetic biology to produce organisms capable of generating renewable petroleum surrogates – tremendous promise



RENEWABLE CHEMICALS & BIOPRODUCTS

- Higher value products getting more attention as investment \$\$ become more scarce

- Ethanol -> Polyethylene



- Succinic Acid



- Isoprene



POLICY OPPORTUNITIES / THREATS

- **Indirect Land Use Change**
 - Need for conclusive policy approach
- **Blend Wall**
 - Need short-term market to drive long-term investment
- **Cap and Trade Legislation**
 - Carbon accounting for biofuels and bioproducts
- **Financing Policy**
 - Need programs that de-risk investment
- **Technology / Product Diversity**
 - Need variety of feedstocks, conversion technologies, and products to achieve relevance and sustainability

ALGAE POLICY PRIORITIES

- **Incentives Parity**

- Open cellulosic tax credits to algae-based fuels
 - S. 1250 / H.R. 4168
 - Tax extenders bill, green jobs bill
- Consider qualifying algae-based fuels for cellulosic mandate in RFS2
- Ensure algae-based fuels qualify for advanced biofuel grants and other funding programs

- **Climate Legislation**

- Ensure GHG benefits of algae are adequately accounted for
 - How will Kerry-Graham-Lieberman treat biofuels?

MARK YOUR CALENDARS

WASHINGTON ★ DC ★ JUNE 27-30 ★ 2010

**The World Congress on
Industrial Biotechnology
& Bioprocessing**



Bio
BIOTECHNOLOGY
INDUSTRY ORGANIZATION



Matt Carr, Policy Director, BIO I&E Section, mcarr@bio.org



OPENING SPEAKER

Mr. Paul Argyropoulos
Office of Transportation Air Quality
US Environmental Protection Agency

The Algal Biomass Organization promotes the development of viable commercial markets for renewable and sustainable commodities derived from algae.

www.algalbiomass.org

Algal Based Fuels and the National Renewable Fuel Standard Program

Presentation to: Algal Biomass Organization
Annual Meeting, March 25, 2010

Paul Argyropoulos
Office of Transportation and Air Quality
US Environmental Protection Agency



Overview

- Key Changes Required by EISA
- Key Highlights of the RFS2 Rule
- The 2010 Standards
- Renewable Biomass Provisions
- Application of Lifecycle Results
- Summary of Program Impacts
- Overview: Algae Based Fuels in RFS2
- Conclusions / Questions

Key Changes Required by EISA

- **Energy Independence and Security Act (December 2007) required changes to the RFS program**
 - Significantly increased volumes of renewable fuel – to 36 billion gallons
 - Expanded from on road gasoline to on and off-road gasoline and diesel
 - Separation of the volume requirements into four separate categories of renewable fuel: cellulosic biofuel, biomass-based diesel, advanced biofuel, total renewable fuel
 - Changes to the definition of renewable fuels to include minimum lifecycle GHG reduction thresholds and grandfathering of volume from certain facilities
 - Restrictions on the types of feedstocks that can be used to make renewable fuel, and the types of land that can be used to grow and harvest feedstocks
 - Inclusion of specific types of waivers and EPA-generated credits for cellulosic biofuel

Highlights of the New RFS2 Program

- Today's rule sets the full 2010 EISA renewable fuels volume = 12.95 Billion Gallons* (See Slide 9)
- The new RFS2 Regulations will go into effect July 1, 2010.
- EPA has developed a path for transitioning from RFS1 to RFS2
- The rule also establishes volume standards for specific categories of renewable fuels.
- In order to qualify for these new categories, fuels must demonstrate they meet certain minimum greenhouse gas reduction standards, based on lifecycle assessment, in comparison to the petroleum fuels they displace (2005 baseline).
- EPA conducted significant work since the proposal AND -- EPA's current modeling of specific fuel pathways (0% discount and 30 Year time horizon) has determined the following fuels qualify :
 - Renewable Fuel 20% Category: Ethanol and Biobutanol from corn
 - Non Cellulosic Advanced 50% Category: Ethanol produced from sugarcane
 - Biomass-based Diesel / Advanced 50% Category: Biodiesel from soy oil; renewable diesel from waste oils, fats, and greases; and diesel produced from algal oils
 - Cellulosic Biofuel 60% Category: Cellulosic ethanol and cellulosic diesel (based on currently modeled pathways)
- Rule also provides a process to efficiently evaluate and establish new fuels and feedstocks
- Rule maintains several key components of RFS1 program, including energy based approach.

EISA Categories and Standards

- **Four Separate Standards**

- **Biomass-Based Diesel: Minimum of 1 Bgal by 2012 and beyond**

- E.g., Biodiesel, “renewable diesel” if fats and oils not co-processed with petroleum
- Must meet a 50% lifecycle GHG threshold

- **Cellulosic Biofuel: Minimum of 16 Bgal by 2022**

- Renewable fuel produced from cellulose, hemicellulose, or lignin
- E.g., cellulosic ethanol, BTL diesel, green gasoline, etc.
- Must meet a 60% lifecycle GHG threshold

- **Advanced Biofuel: Minimum of 21 Bgal by 2022 (Minimum of 4 billion additional)**

- Essentially anything but corn starch ethanol
- Includes cellulosic biofuels and biomass-based diesel
- Must meet a 50% lifecycle GHG threshold

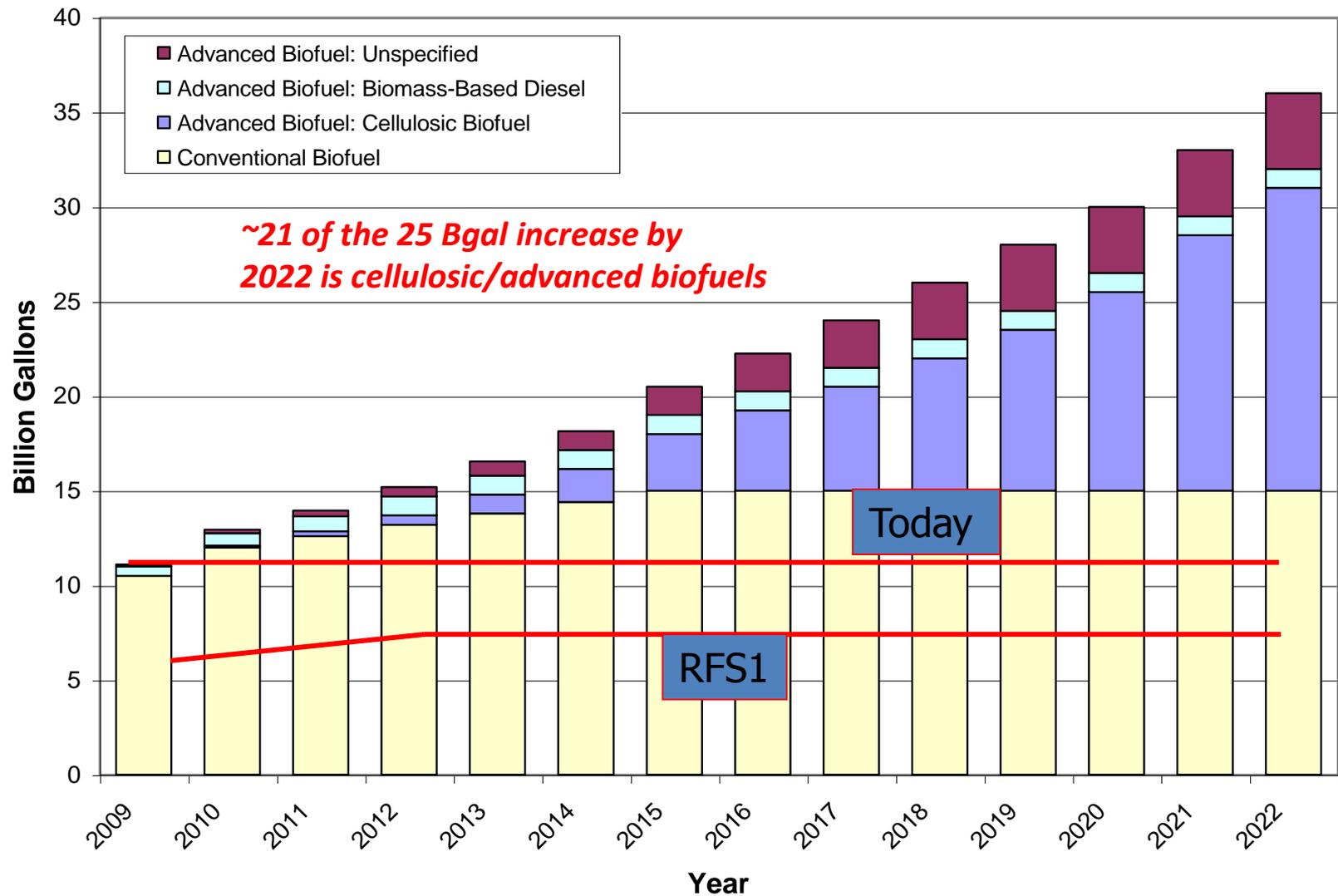
- **Total Renewable Biofuel: 36 Bgal by 2022 (Minimum of 15 Bgal additional)**

- Ethanol derived from corn starch – or any other qualifying renewable fuel
- Must meet 20% lifecycle GHG threshold - Only applies to fuel produced in new facilities

NOTE: Existing biofuel facilities (domestic and foreign) are not required to meet GHG threshold for conventional biofuel category – facilities are “Grandfathered.”



Cellulosic / Advanced Biofuels: Primary Expansion Fuels in RFS-2



Volume Standards as Set Forth in EISA

(Reminder: EPA Sets Standards Each November – These are the standards published in the Act)

Conventional
Renewable
Fuels

+

Total
Advanced
= Total
Renewable
Fuel

Advanced Biomass Based Diesel + Non Cellulosic Advanced + Cellulosic Advanced = Total Advanced

Year	Conventional Renewable Fuels (Grandfathered Or 20% Reduction)	Advanced Biofuel NESTED STANDARDS				Total Renewable Fuel
		Biomass-Based Diesel (50% Reduction)	Non Cellulosic Advanced (50% Reduction)	Cellulosic Biofuel (60% Reduction)	Total Advanced Biofuel	
2008	9.00					9.0
2009	10.50	0.5	0.1		0.6	11.1
2010	12.00	0.65	0.2	0.1	0.95	12.95
2011	12.60	0.80	0.3	0.25	1.35	13.95
2012	13.20	1.0	0.5	0.5	2.0	15.2
2013	13.80	1.0	0.75	1.0	2.75	16.55
2014	14.50	1.0	1.00	1.75	3.75	18.15
2015	15.00	1.0	1.50	3.0	5.5	20.5
2016	15.00	1.0	2.00	4.25	7.25	22.25
2017	15.00	1.0	2.50	5.5	9.0	24.0
2018	15.00	1.0	3.00	7.0	11.0	26.0
2019	15.00	1.0	3.50	8.5	13.0	28.0
2020	15.00	1.0	3.50	10.5	15.0	30.0
2021	15.00	1.0	3.50	13.5	18.0	33.0
2022	15.00	1.0	4.00	16.0	21.0	36.0

2010 Standards as Set By EPA

- **Total Renewable Fuel Standard** - Applying EISA full 2010 RFS2 standard – 12.95 billion gallons
 - Most straightforward interpretation of the Act
- **Biomass-based Diesel Standard** - Final rule combines 2009 0.5 billion gallon biomass-based diesel requirement with 2010 0.65 billion gallon requirement
- **Cellulosic Standard** - Based on updated market assessment – EPA is setting a 6.5 million gallon standard for 2010
 - Process: Each November, EPA sets actual standard for following year
 - Based on EIA's annual production assessment and other market assessments
 - Done by notice and comment
- **Total Advanced Standard** - Maintained at 0.95 billion gallons
 - Expected to be met in 2010 with biomass-based diesel compliance ($0.65 * 1.5 = 0.975$)

RFS2 Volume Standards for 2010

- Presented as Volume and Percentage

Standards for 2010

Fuel Category	Percentage of Fuel Required to be Renewable	Volume of Renewable Fuel (in billion gal)
Cellulosic biofuel	0.004%	0.0065
Biomass-based diesel	*1.10%	*1.15
Total Advanced biofuel	0.61%	0.95
Renewable fuel	8.25%	12.95

**Combined 2009/2010 Biomass-Based Diesel Volumes Applied in 2010*

Renewable Biomass Provisions – Approving Feedstocks

- **EISA restricted where feedstocks can grow and be harvested for use in producing renewable fuels for compliance with the RFS2 program**
 - Planted crops/crop residue from ag land cleared/cultivated prior to Dec. 2007
 - Planted trees/tree residue from nonfederal lands and tree plantations cleared/cultivated prior to Dec. 2007
- **Compliance Options for feedstocks from the Non Agricultural land / Forest land**
 - **All renewable fuel producers using feedstocks from this sector can either**
 - 1: Individually verify and qualify their feedstocks following specific recordkeeping and reporting requirements OR
 - 2: Opt to form and participate in a consortium that employs a third party to conduct a verification program that acts to collectively verify and qualify these feedstocks for RFS2 renewable fuel production
- **Compliance Approach for feedstocks from planted crops / agricultural land**
 - For US produced feedstocks, producers can comply under an aggregate compliance approach
 - For Foreign produced ag feedstocks, rule provides future option for other (non-U.S.) sources of feedstocks to use aggregate compliance if source region can provide sufficient data to support aggregate analysis
 - Otherwise, producers must verify using one of the options applied in the non-ag / forest sector
- **Treatment of Algae**



Renewable Biomass Provisions and Treatment of Algae

- **Renewable biomass** means each of the following (including any incidental, de minimis contaminants that are impractical to remove and are related to customary feedstock production and transport):
(6) Algae.
- **Planted crops** are all annual or perennial agricultural crops from existing agricultural land that may be used as feedstocks for renewable fuel, such as grains, oilseeds, sugarcane, switchgrass, prairie grass, duckweed, and other species (but not including algae species or planted trees), providing that they were intentionally applied by humans to the ground, a growth medium, a pond or tank, either by direct application as seed or plant, or through intentional natural seeding or vegetative propagation by mature plants introduced or left undisturbed for that purpose.

Compliance Determination from LCA Results

- Modeling accounts for the typical feedstock and fuel production pathway from which significant production and contribution to RFS2 volumes are expected (2022)

- Modeled pathways meeting compliance (0% discount and 30 Year time horizon):

Renewable Fuel Category	Example of Qualifying Renewable Fuel	Allowable D codes
Cellulosic (60% GHG)	Cellulosic ethanol and diesel fuel (Thermal / Biochemical from Stover and Switchgrass)	3 and 7*
Biomass-based diesel (50% GHG)	Biodiesel from soy, wastes oils, and algae	4 and 7*
Advanced biofuel (50% GHG)	Ethanol from sugarcane	3, 4, 5, and 7
Renewable fuel (20% GHG or Grandfathered)	Ethanol and Butanol from corn starch	3, 4, 5, 6, and 7*

- Results extended to same fuel type and feedstock as a modeled pathway (International Application)
 - If agricultural production from a source are significantly different from those modeled and fuel volumes from the source increase, EPA retains the authority to perform a full analysis of the different pathway for compliance determination
- Results extended to other fuel pathways with low risk of not complying:
 - Crop residues such as corn stover, wheat straw, rice straw, and citrus residue providing starch or cellulosic feedstock
 - Forest material including eligible forest thinnings and solid residue remaining from forest product production providing cellulosic feedstock
 - Secondary annual crops planted on existing crop land such as winter cover crops and providing cellulosic material, starch, or oil for biofuel production
 - Separated food and yard wastes, including food and beverage wastes from food production and processing
 - Perennial grasses including switchgrass and miscanthus

Approach Going Forward for Qualifying Additional Fuels Based on Lifecycle Modeling

- **Threshold determinations for certain other pathways were not possible at time of issuance of final rule because sufficient modeling or data was not yet available.**
- **Based on current/projected commercial trends and status of analysis, EPA plans on modeling the following fuel pathways and including determinations in a forthcoming notice.**
 - Grain sorghum ethanol
 - Canola biodiesel
 - Palm oil biodiesel
 - Wood pulp ethanol
- **For other fuel pathways not yet modeled, EPA provides a petition process through which the fuel pathway can be analyzed and provided a compliance determination.**
- **EPA recognizes that the state of scientific knowledge continues to evolve in this area, therefore, the Agency is committing to further reassess these determinations and lifecycle estimates**
 - National Academy of Sciences over the next two years -- evaluate the approach taken in this rule, the underlying science of lifecycle assessment, and in particular indirect land use change, and make recommendations for subsequent rulemakings on this subject

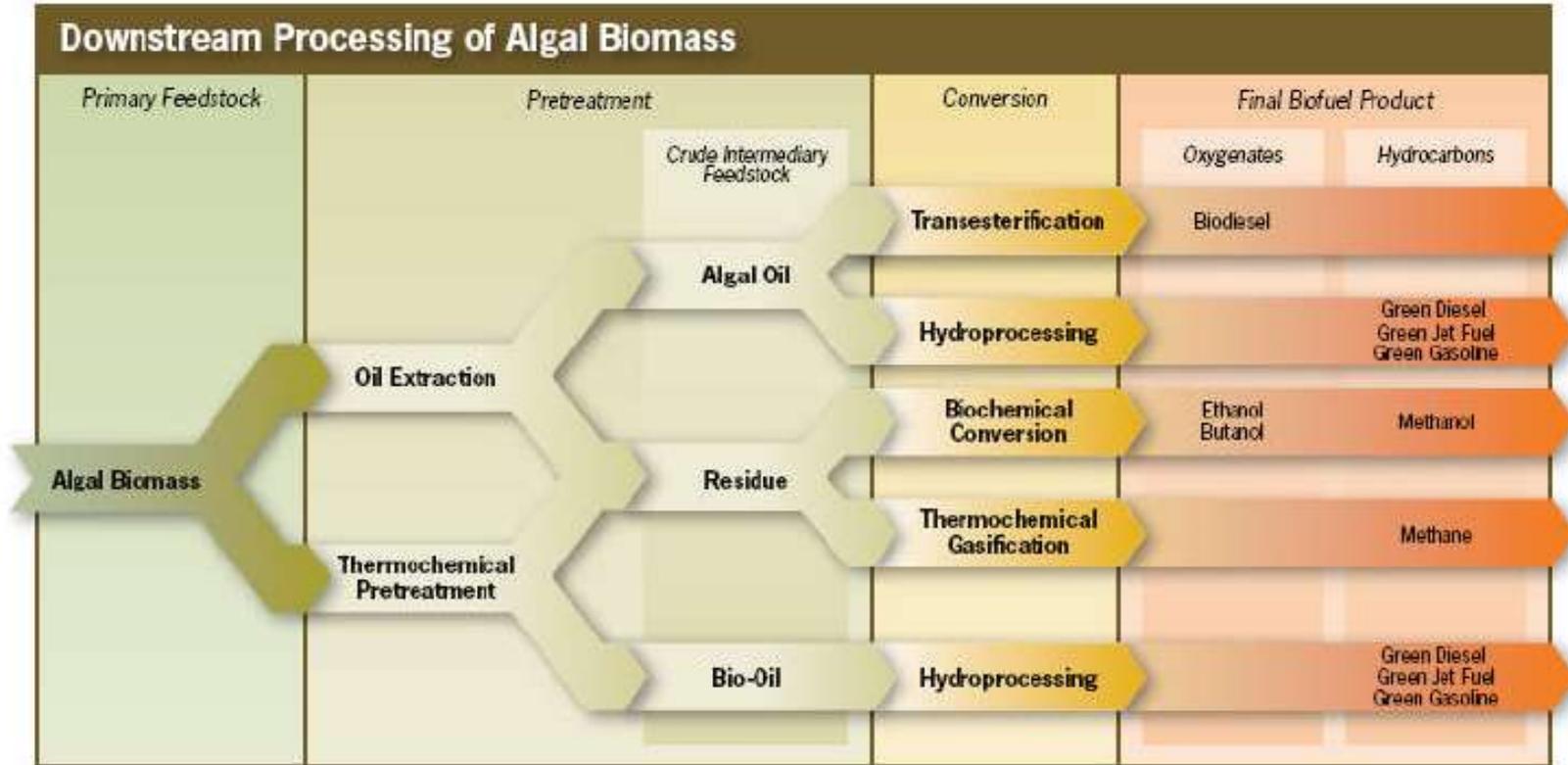
Impacts of the RFS2 in 2022

- Reduce GHG Emissions by 138 MMT – equivalent of 27 million vehicles
- Displace ~7% of petroleum gasoline and diesel consumption
- Increase Net Farm Income by \$13 B
- **Emissions and Air Quality:**
 - Increases in NOx, VOC, ethanol, acetaldehyde emissions
 - Decreases in benzene and CO
 - Emissions and air quality impacts vary by area
- **Antibacksliding: Section 206 of EISA directs the agency to further evaluate potential Air Quality impacts and to mitigate, to the extent possible, any adverse impacts**
- **Comprehensive Environmental Report: Section 204 – First report 2010 – and then every 3 years**

Algal Processing Pathways

(Illustrative)

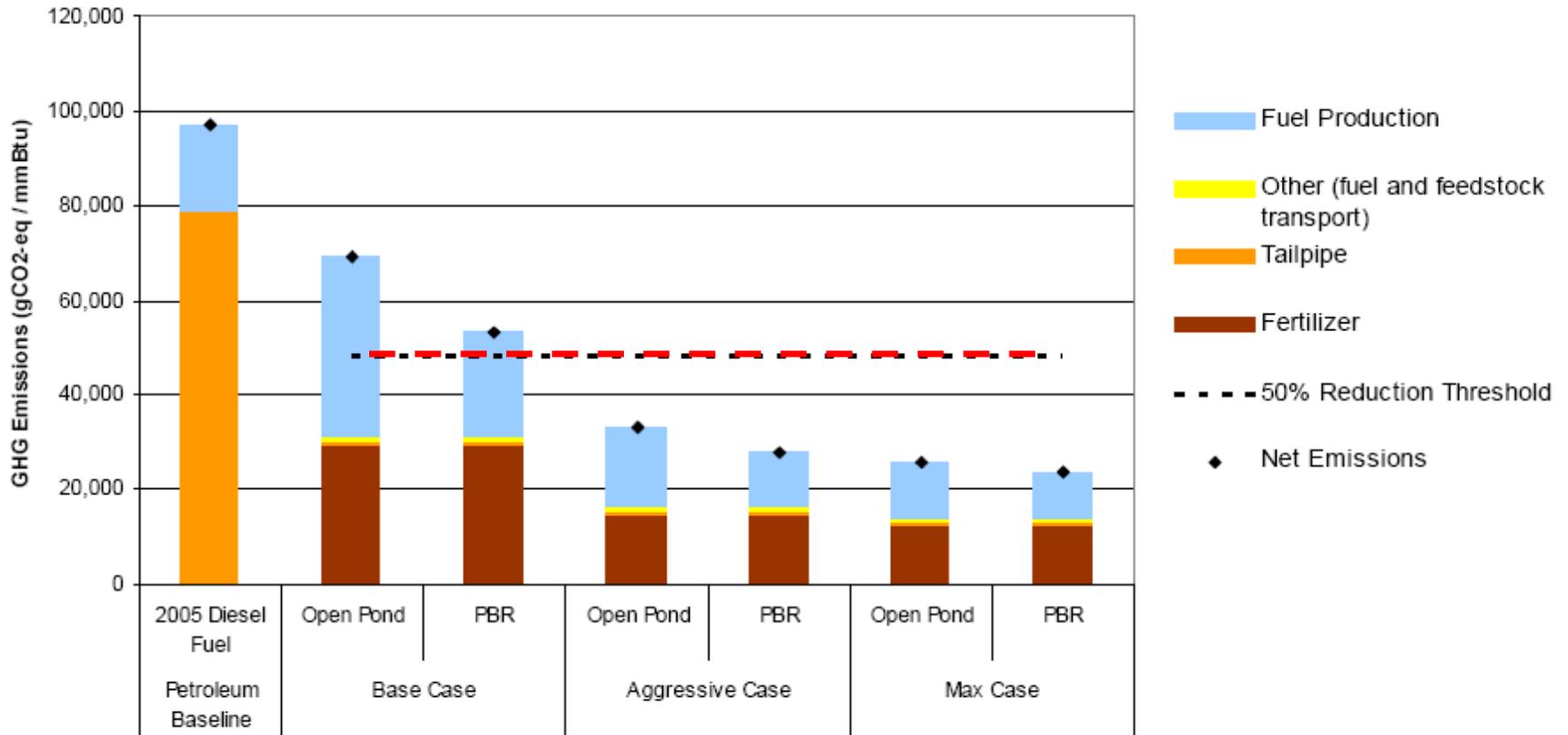
Figure 1.1-6. Pathways for Processing Algal Biomass¹⁴⁶



Source: Ryan, Catie – NRDC "Cultivating Clean Energy: The Promise of Algae Biofuels", Oct 2009

Lifecycle GHG Profile for Algae Biodiesel

**Figure 2.6-8. Results for Algae Biodiesel by Lifecycle Stage
Algae Oil Feedstock**



RFS2 Estimated Production of Algae Based Fuels in 2022

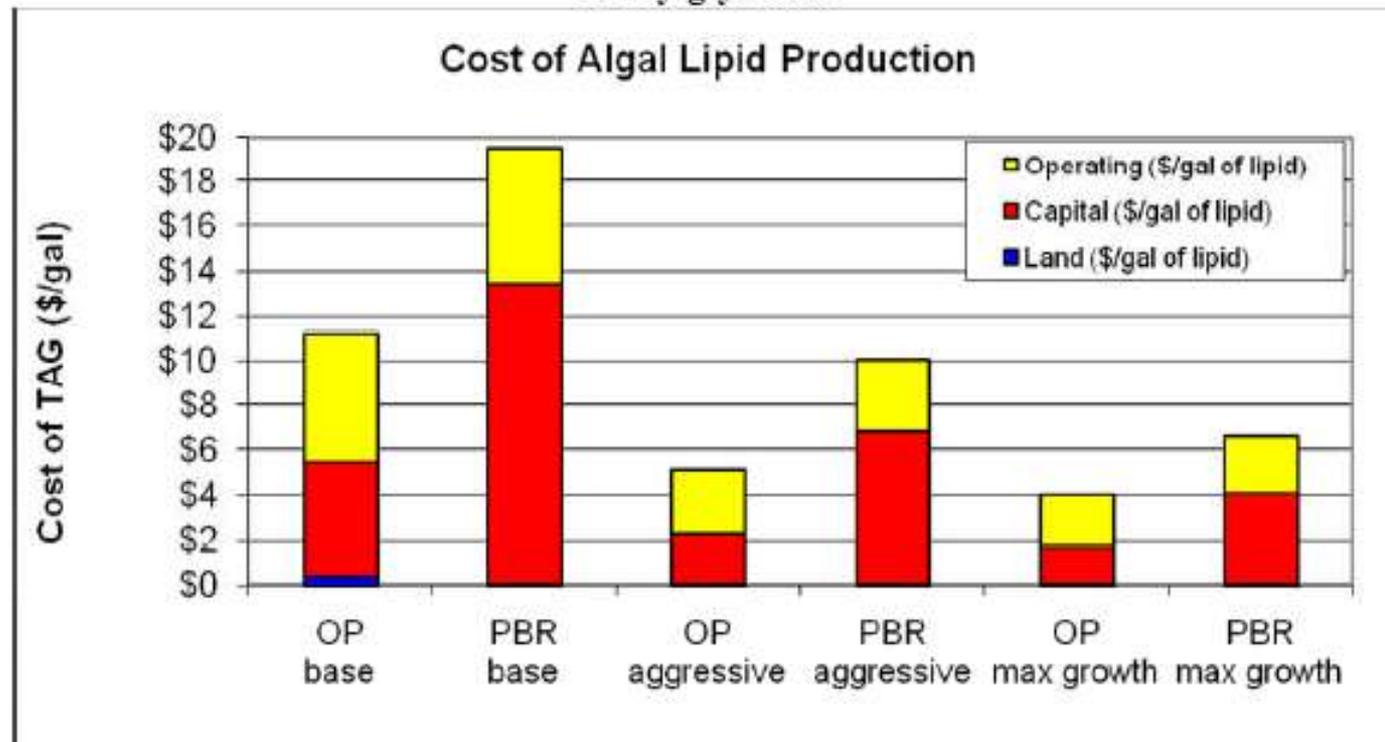
Table 1.1-25.

**Estimated 2022 Biodiesel & Renewable Diesel Volumes
Based on Feedstock Availability (million gallons of fuel)**

Feedstock type	Base catalyzed biodiesel	Acid pretreatment biodiesel	Renewable diesel
Virgin vegetable oil	660	-	-
Corn oil from ethanol production	-	680	-
Rendered animal fats and greases	-	230	150
Algae oil or other advanced source	100	-	-

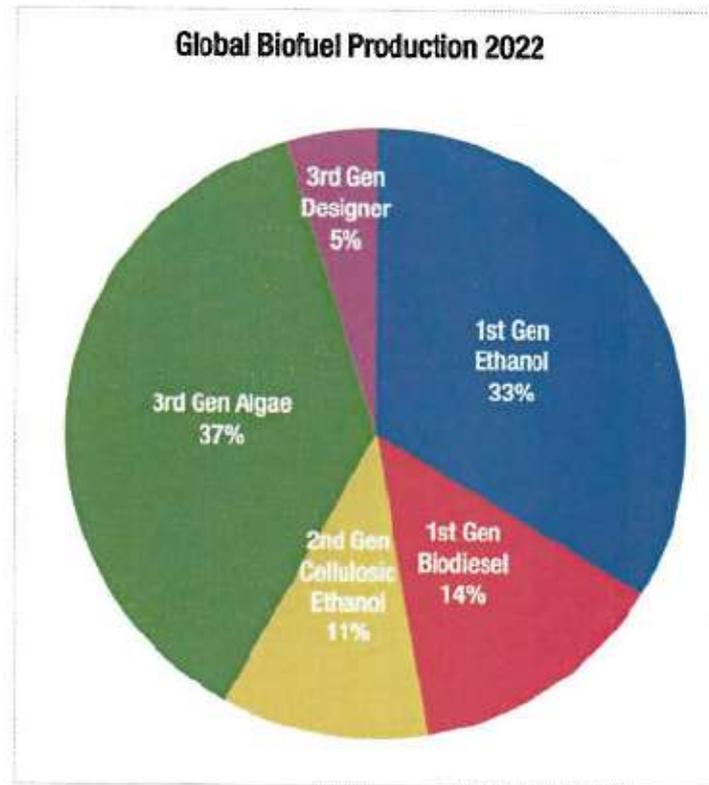
Various Cost Scenarios from RFS2

Cost to Produce 10 MMgal/yr oil at growth rate scenarios developed by NREL for open pond (op) and photobioreactor (PBR) production. TAG = triacylglyceride



2022 Global Biofuel Production: One Projection

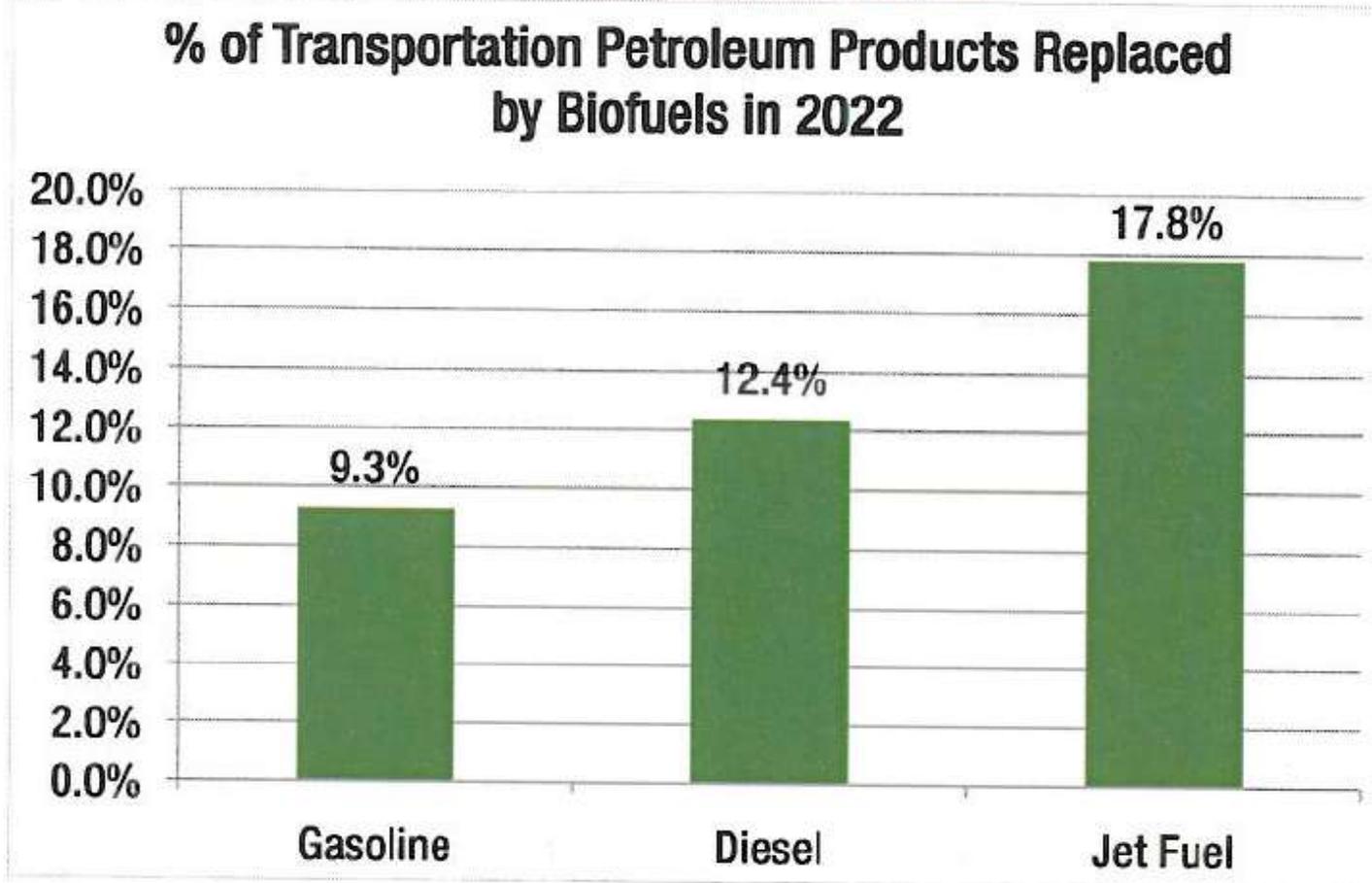
FIGURE 1-3: GLOBAL BIOFUEL PRODUCTION IN 2022, IN BILLIONS OF GALLONS



Source: The Prometheus Institute

Projected Global Mix?

FIGURE 1-4: % OF GLOBAL TRANSPORTATION PRODUCTS DISPLACED BY BIOFUELS IN 2022



Source: The Prometheus Institute



Questions?



- For Additional information:
<http://www.epa.gov/otaq/renewablefuels/index.htm>
 - Includes Factsheets
 - RFS2 Rulemaking Package
 - Preamble
 - Regulations
 - Regulatory Impact Analysis
 - Links to Other Information
 - Frequently Asked Questions
- Send new questions to: EPAFuelsPrograms@epa.gov



EXECUTIVE DIRECTORS REPORT

Mary Rosenthal
ABO Executive Director

The Algal Biomass Organization promotes the development of viable commercial markets for renewable and sustainable commodities derived from algae.

www.algalbiomass.org

THIS IS OUR MISSION

The Algal Biomass Organization promotes the development of viable commercial markets for renewable and sustainable commodities derived from algae.

[LEARN MORE](#)

OUR MEMBERS >




IN THE NEWS >



03.07.10

News Headline Here

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh erat euismod tincidunt ut laoreet dolore magna aliquam erat volutpat... [read more](#)



03.07.10

News Headline Here

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh erat euismod tincidunt ut laoreet dolore magna aliquam... [read more](#)

[SEE ALL NEWS](#)

EVENTS >



03.07.10

Event Name Here

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh erat euismod tincidunt ut laoreet dolore magna aliquam erat volutpat... [read more](#)



03.07.10

Event Name Here

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh erat euismod tincidunt ut laoreet dolore magna aliquam... [read more](#)

[SEE ALL EVENTS](#)

THIS IS WHO WE ARE

LOREM IPSUM DOLOR

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut vero enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

1 | CONTACT



Agave
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat.

LOREM IPSUM DOLOR

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut vero enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.



FINANCIAL REPORT

Thomas Byrne

Treasurer of the Board of Directors

The Algal Biomass Organization promotes the development of viable commercial markets for renewable and sustainable commodities derived from algae.

www.algalbiomass.org

2009 INCOME STATEMENT

Total Revenues: \$280,316.97

Total Expenses: (\$198,334.02)

Net Income: \$ 81,982.95



CASH FLOW SUMMARY

Cash Balance 01/01/2009	\$ 51,615.62
2009 Revenues	\$ 280,316.97
2009 Expenses	(\$ 198,334.02)
<u>2010 Pre-paid Memberships</u>	<u>\$ 11,195.00</u>
Cash Balance 12/31/2009	\$144,793.57

2009 BALANCE SHEET

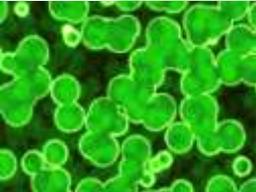
AS OF DECEMBER 31, 2009

ASSETS



Checking Account	\$ 14,680.23
Savings Account	<u>\$ 130,113.34</u>
Total Assets	\$144,793.57

LIABILITIES and CAPITAL



Total Liabilities	\$ 11,195.00
Total Capital	<u>\$133,598.57</u>

Total Liabilities and Capital \$144,793.57



EVENTS COMMITTEE

Thomas Byrne, Committee Chairman

The Algal Biomass Organization promotes the development of viable commercial markets for renewable and sustainable commodities derived from algae.

www.algalbiomass.org

NYC FINANCIAL SUMMIT

Thursday, May 13, 2010
Flatotel
135 West 52nd Street
New York, NY

This new, one-day conference will focus on investment strategy as it relates to the algal biomass industry
--from fuel to feed to nutrition.





Confirmed Speakers include:

- ❖ John Ravis, TD Northbank, N.A.
- ❖ Doug Kirkpatrick, formerly of DARPA
- ❖ John Mizroch, currently of Wilson Sonsini Goodrich & Rosati, formerly with the DOE
- ❖ Richard Wilson, Applied Chemical Technologies
- ❖ Ben Cloud, XL Renewables
- ❖ John Pierce, Wilson Sonsini Goodrich & Rosati
- ❖ Tom Byrne, Byrne & Company Limited
- ❖ Doug Cameron, Piper Jaffrey
- ❖ Karl Seitz, Heliae
- ❖ Doug Jamison, Harris & Harris Group
- ❖ Bill Lese, Braemer Energy Ventures
- ❖ Chris Cassidy, USDA

More to be announced soon.....

NYC FINANCIAL SUMMIT

Registration:

ABO Members: \$600.00

Non-members: \$750.00

For more information or to register, visit

www.algalbiomass.org/events



2010 ALGAE BIOMASS SUMMIT

Tuesday, September 28 –
Thursday, September 30

JW Marriott Desert Ridge Resort
Phoenix, Arizona

A Pre-Conference 101 seminar and local area tours are being sponsored by Arizona State University on **Monday, September 27th**.



2010 ALGAE BIOMASS SUMMIT

Call for Abstracts

Submissions of abstracts
are being accepted for the following areas:

- ❖ Panel Discussions
- ❖ Oral Presentations
- ❖ Posters

For a list of topics and to submit an abstract,
please visit the ABO website.

Abstract submission deadline is July 1, 2010.

Sponsorship Opportunities

Sponsorship, exhibiting and advertising opportunities will be available at the 2010 Algae Biomass Summit.

If you are interested learning more about these opportunities, please contact Mary Rosenthal, ABO Executive Director, or watch the ABO website for information that will be posted soon.





MEMBERSHIP DEVELOPMENT COMMITTEE

Mark Allen, Committee Chairman

The Algal Biomass Organization promotes the development of viable commercial markets for renewable and sustainable commodities derived from algae.

www.algalbiomass.org

MEMBERSHIP DEVELOPMENT

- Membership Growth
- Value Creation



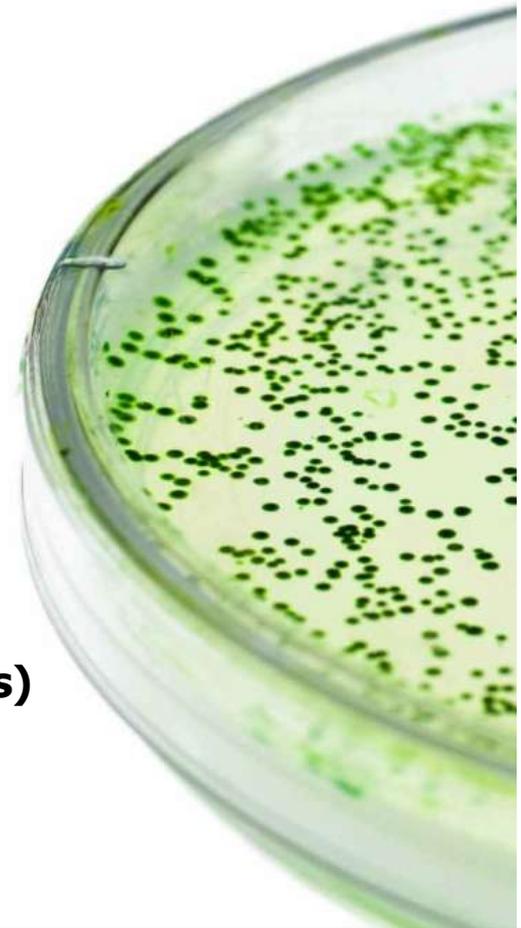
2009 MEMBERSHIP GROWTH

- **Platinum Members - 60%**
- **Gold Members - new membership level**
- **Corporate Members - 100%**
- **Individual Members - 25%**
- **Academic Members - 100%**
- **Student Members - 200%**



MEMBERSHIP STRUCTURE

- **Platinum Member - \$10,000**
- **Gold Member - \$5,000**
- **Corporate Member - \$2,000**
- **Individual Member - \$500**
- **Academic / Education Member - \$100**
- **Student Member - \$50 (Non-Voting Status)**



PLATINUM & GOLD MEMBERS



Platinum Members



Gold Members



MEMBERSHIP BENEFITS



LEVEL	BENEFITS
Platinum	<ul style="list-style-type: none"> • Logo listed on website • Logo listed on all ABO materials as a platinum member • Five invitations to the annual Algae Biomass Summit (ABS) VIP dinner • Recognition as a Platinum member at the ABS • 3 complimentary registrations to the ABS (\$3,000 value) • Discount to first early bird level of the ABS for up to 5 registrations at the early bird level (up to a \$2,500 value) • Speaking opportunity at the ABS Summit • Preferred committee assignment as noted as available by the ABO bylaws • General membership benefits, e.g. use of ABO logo • Participation in members only events • Voting rights as per bylaws
Gold	<ul style="list-style-type: none"> • Logo listed on website • Logo listed on all ABO materials as a gold member • Two invitations to the annual ABS VIP dinner • One complimentary registration to the ABO Summit (\$1000 value) • Discount to first early bird level for up to 3 registrations to ABS (up to a \$1500 value) • Preferred committee assignment • General membership benefits, e.g. use of ABO logo • Participation in members only events • Voting rights as per bylaws

Corporate Members







Advanced Lab Group
Algaeventure Systems
Air Transport Association
Aquatic Energy
Aurora Biofuels
Battelle
BC Hydro
Bellona Foundation
Bioalgene
BioProcess Algae
Canadian Pacific Algae
Cellana
Continental Airlines
DAF Corp
Donald Danforth Plant Science Center
Earthrise Nutritionals

Electric Power Research Institute
Endicott Biofuels, LLC
FedEx Express
Green Power Conferences
Harris Group Inc.
Imperium Renewables, Inc.
International Air Transport Association
Kent BioEnergy
Kuehnle AgroSystems
Kimberly-Clark Corporation
Kuraray
LiveFuels
Mars Symbioscience
Martek Biosciences
Mortenson Construction
MTU Aero Engines GmbH

Neste Oil
OriginOil
PetroAlgae
Philadelphia Renewable Energy
POS Pilot Plant
Renewable Energy Group
Renewed World Energies
Sapphire Energy
Siemens
Solazyme, Inc.
SRS
Stoel Rives LLP
Synthetic Genomics
US Biofuels
Waste Management

Supporting Organization Members

Biotechnology Industry Organization

European Algae Biomass Association

Phycological Society of America

Membership Benefits



LEVEL	BENEFITS
Corporate	<ul style="list-style-type: none"> • Logo listed on website • Listing on the all ABO materials as a corporate member • One invitation to the annual ABS VIP dinner • Discount to first early bird level for up to 2 registrations at the early bird level to ABS (up to a \$1,000 value) • General membership benefits, e.g. use of ABO logo • Participation in members only events • Voting rights as per bylaws
Individual	<ul style="list-style-type: none"> • General membership benefits, e.g. use of ABO logo • Participation in members only events • Voting rights as per bylaws
Academic	<ul style="list-style-type: none"> • General membership benefits • Participation in members only events • Voting rights as per bylaws
Student	<ul style="list-style-type: none"> • General membership benefits • Participation in members only events

VALUE CREATION



- **Full Time Executive Director**
- **Highly Valued Annual Summit - 2010 Bigger and Better**
- **Enhanced Member Benefits at Platinum & Corporate Level**
- **New Gold Level Membership**
- **Committee Participation & Efforts in Interest of Membership**
- **Member Opportunities on the "Hill"**
- **News Letters**
- **Media Engagement**
- **2010 Financial Summit - May, 13 - New York City**
- **Launch of New Website**



PEER REVIEW COMMITTEE

John Benemann, Committee Co-Chairman
Keith Cooksey, Committee Co-Chairman

The Algal Biomass Organization promotes the development of viable commercial markets for renewable and sustainable commodities derived from algae.

www.algalbiomass.org

PEER REVIEW REPORT



- Chair: Keith E. Cooksey, Montana State University,
- Co- Chair John Benemann, Benemann Associates.
- Aim : Vet submissions for posting to the ABO website to make sure they are accurate and fulfill goals of the organization.
- Postings so far have mostly been reviewed by KEC and /or JB.

PEER REVIEW REPORT



- An editorial Board of 15 members exists but there has been so little activity from the ABO membership that they have not been used extensively.
- Plans: Ask the membership what they want posted, but stay in the guidelines already agreed upon, i.e., no unsubstantiated claims or plain advertising are appropriate.
- Continue to review and provide links to externally-refereed publications.

PEER REVIEW REPORT

- Networking was a stated objective of the ABO Summit meetings.
- This could be incorporated into the web site with potential for providing contacts and information exchange between the industrial and academic members of ABO.





Algal Biomass Organization

Public Relations Review

Public Relations

- Overview of role of PR for ABO
- Social/new media & renewable fuels
- PR action snapshot
- 2010 PR for ABO



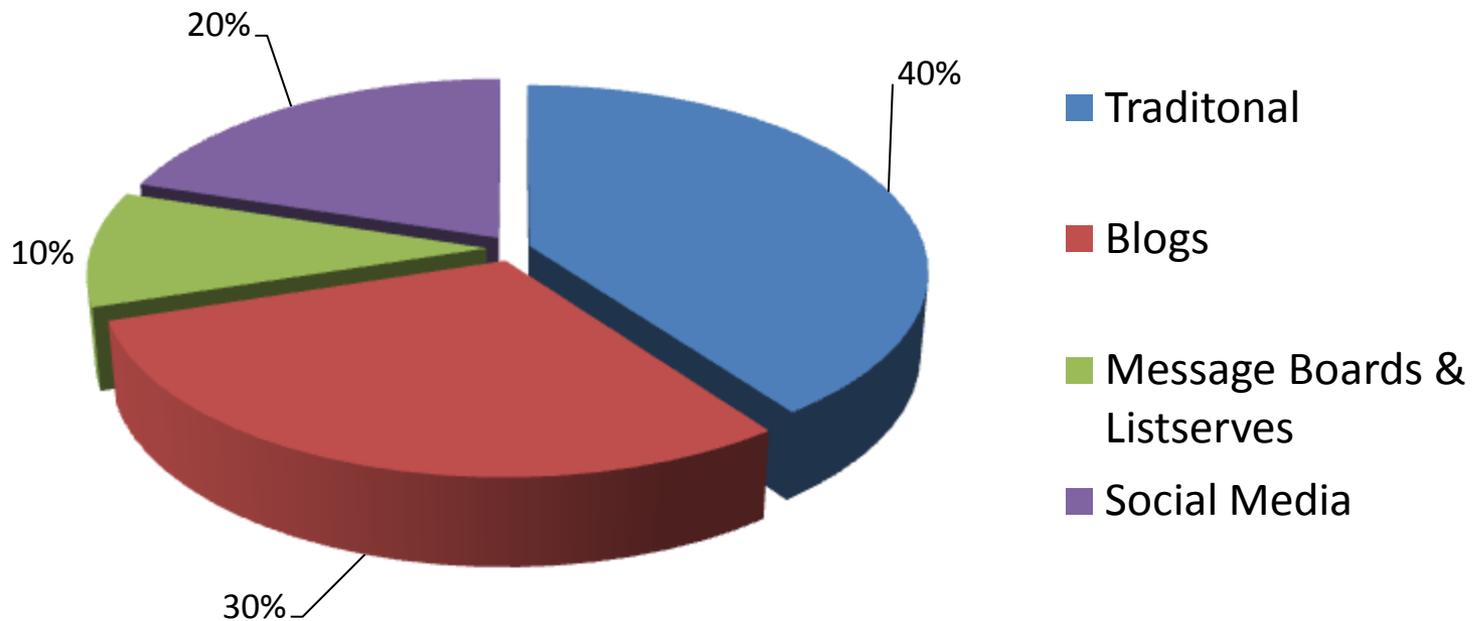
Public Relations

- Two primary goals
 - Raise awareness of mission of ABO to support membership & director recruiting
 - Participate/shape discussion of algae industry to influence policy initiatives developed by Government & PR Committee





Coverage of biofuels by media type (October-March 2010)



Snapshot - Reactive



“Algae fuel worse than Corn Ethanol”

ABO Response



- Gov't & PR committee convened
- Crafted key controlling messages
- Drafted comprehensive rebuttal
- Identified media who had covered study
- Identified key media who had not yet covered study
- Issued rebuttal via newswire
- Sent to key media
- Secured interviews with key media
- Tracked continuing coverage of story

Impact - Continued



The New York Times

“Biofuel Companies Attack Algae Study”

BIOMASS
MAGAZINE

“ABO questions University of Virginia study”

GREEN CAR ADVISOR
News and Commentary on Environmental
Automotive Trends and Technologies

“Algae Industry Blasts Study, Says Authors Lacked Experience and Used Old Data”

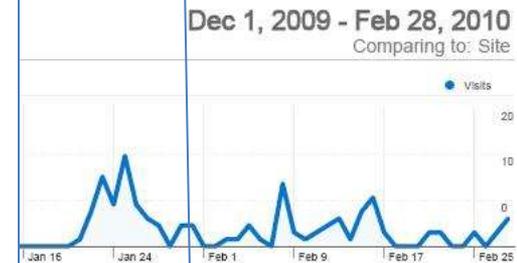
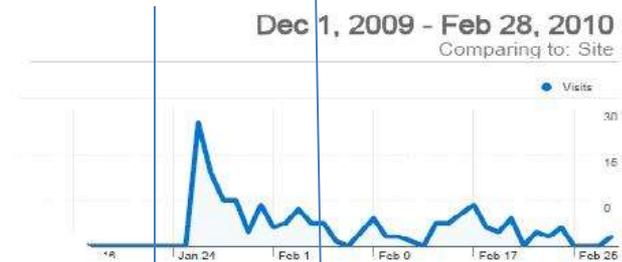
BiofuelsDigest
The world's most widely read biofuels daily

“Algal industry says ES&T algal lifecycle study completely off the mark”



Green Inc.

Energy, the Environment and the Bottom Line



Impact - Review



- 13 news outlets covered the story on within 72 hours
- 60 percent updated story with comment from ABO
- 12 new outlets carried story based on ABO & industry response
- Coverage analysis shows response clearly undermined credibility of the study
- Coordinated additional response from EABA and Consortium strengthened our core position

PR in 2010

- Reactive outreach is only part of PR program
- Actively engaged with media on topics related to legislation, issuing comments/statements on key bills, amendments, etc.
- Media increasingly turning to ABO as source of industry information
 - How you can help



Our Favorite Article



United Press International
March 4, 2010

“The U.S. Congress is coming under increased lobbying pressure from the Algal Biomass Organization, a non-profit organization devoted to promoting the development of viable commercial markets for renewable and sustainable commodities derived from algae.”



GOVERNMENT & PUBLIC RELATIONS COMMITTEE

Dale Smith, Committee Co-Chairman

Tim Zenk, Committee Co-Chairman

The Algal Biomass Organization promotes the development of viable commercial markets for renewable and sustainable commodities derived from algae.

www.algalbiomass.org

Government & Public Relations Committee



- **Bill Glover – Boeing (Dale Smith proxy) – Co-Chair**
- **Tim Zenk – Sapphire – Co-Chair**
- **Andy Braff – WSGR**
- **Tom Byrne – Byrne & Co.**
- **Matthew Frome – Solazyme**
- **Jennifer Holmgren – UOP/Honeywell**
- **Gary Hopper – General Atomics**
- **Greg Mitchell – Scripps**
- **Frank Prautzsch – Raytheon**
- **Todd Taylor – Fredrikson & Byron**
- **Bob Walsh**
- **Open**
- **Open**

Committee Focus:

Support ABO mission to advance commercial markets for algal biomass by shaping public policies to advance algal biomass energy solutions, especially fuels





3 Public Policy Goals:

1. Financial parity with other biofuel feedstocks:

- tax incentives
- subsidies
- other direct funding & financial benefits

2. Regulatory parity:

- CO2 “beneficial reuse” value recognized as significant part of carbon reduction strategies
- treat algae genetic engineering, growth, production & use similarly to other biofuel feedstocks and carbon capture technologies – new agricultural/aquacultural energy crop

3. Renewable Fuel Standard (RFS) parity:

- RFS 16Bgal cellulosic carve-out in advanced biofuel mandate
- all non-cellulosic biofuels compete for RFS 5Bgal threshold

Strategies & tactics

- **Strategically engage with targeted elected officials, policymakers & policy influencers**
 - Educate on industry progress
 - Educate on issues
 - propose specific initiatives and legislation
- **Leverage collective & individual influence of ABO members**



Shaping Policy

- **April 2009 – Annual Mtg – Congress/agency visits**
- **Summer 2009 – input to DOE Nat’l Algal Biofuels Tech Roadmap**
- **Fall 2009**
 - **ABO testimony on status of algae-based fuels (U.S. House Agriculture Subcommittee on Conservation, Credit, Energy, and Research)**



Shaping Policy (cont.)

- **Fall 2009 (cont.)**
 - **Public policy elements of Sustainability for Algae Industry closing session at annual Summit**
 - **D.C. “Algae Day” -- take case for algae-based energy solutions to D.C. media & policymakers in Washington**
 - **Media briefing**
 - **Capitol Hill briefing**
 - **Congressional climate/energy staffers**
 - **NGOs**
 - **Congressmen Bilbray (R-CA) & Inslee (D-WA) – U.S. House Algae Energy Caucus.**



Shaping Policy (cont.)

- **Helping raise algae's profile in D.C.**
- **Industry wins:**
 - **\$78M DOE grants totaling nearly to Nat'l Alliance for Advanced Biofuels & Bioproducts and Nat'l Advanced Biofuel Consortium**
 - **\$125M stimulus funds through DOE Integrated Biorefinery Program algae fuel production companies**
 - **\$50M USDA Biorefinery Assistance Program loan guarantee**



Shaping Policy (cont.)

- **Educate/advocate key legislation in U.S. Congress:**
 - **S. 1250 – Renewable Fuels Act of 2009**
 - Sponsored by Sen. Bill Nelson (D-FL)
 - Expands cellulosic biofuel definition to include algae fuels
 - Cover algae fuels under cellulosic biofuel producer credit & special allowances for cellulosic biofuel plant property.
 - **HR 4168 – Algae-based Renewable Fuel Promotion Act of 2009**
 - Companion bill to S. 1250
 - Sponsored by Rep. Harry Teague (D-NM)
 - **HR 3460**
 - Sponsored by Rep. Brian Bilbray (R-CA)
 - Amend Clean Air Act to include algae fuels in RFS and cellulosic biofuel producer credit.



U.S. Policy Developments/Opportunities

- **EPA Feb 2010 Final Rule on RFS-2**
 - **Recognized algae biodiesel & renewable diesel reduce GHG emissions by at least 50%**
 - **Classifies algae biodiesel & renewable diesel as advanced biofuel under Energy Independence and Security Act of 2007**
 - **Major step toward establishing algae fuels in national renewable fuels portfolio.**



U.S. Policy Developments/Opportunities (cont.)

- **U.S. Administration**
 - While continuing to support 1st/2nd gen biofuels, focus shifting to 3rd gen “drop in” transportation fuels as “direct replacements for petro fuels,” = algae fuels
 - To expedite, created President’s Biofuels Interagency Working Group – EPA, USDA & DOE – partner with industry to provide regulatory, financial, and R&D support
 - **USDA is lead agency**
 - primary jurisdiction over regulatory oversight and development of “superior genetic biofuels feedstocks”
 - Potential benefit for GMO algae fuel companies due to agency’s historic expertise in regulating genetically modified agricultural crops
 - ?? EPA jurisdiction on algae GMO ??



U.S. Policy Developments/Opportunities (cont.)

- **Biomass Research & Development Act of 2000**
 - requires cooperation and coordination in biomass R&D between USDA & DOE
 - Biomass Research & Development Initiative (BRDI) – solicitation for biomass research issued jointly by the USDA & DOE
 - Biomass R&D Board – co-chaired by DOE/USDA – responsible for coordinating Federal activities to promote biobased fuels/products
 - Biomass R&D Technical Advisory Committee – help guide BRDI & coordinate/accelerate all Federal bio-based products and bioenergy R&D – approximately 30 individuals from industry, academia, state government



G&PR Committee Next Steps

- **Maintain current scope/focus strategies/tactics**
- **Support agricultural policy paradigm**
- **Find strategic ways to work more with other bio and petro fuels networks**
- **Be prepared to answer ABO position on cap/trade**
- **Take advocacy work to the next level**
 - **ABO staff/consultant resources**
 - **More consistently active committee members**
 - **Create action-oriented subcommittee structure**
 - **Add significantly more ABO participants into subcommittee structure**
- **Post May 15 Committee interim leadership plan**



Government & Public Relations Committee

Thank You!!

**for allowing me to be a part of
ABO's amazing work**







BYLAW & GOVERNANCE COMMITTEE

Mark Allen, Committee Chairman

The Algal Biomass Organization promotes the development of viable commercial markets for renewable and sustainable commodities derived from algae.

www.algalbiomass.org

Changes to Bylaws Since April 2009: September 28, 2009 Consent

- 
- **AMENDMENT #1: Clarification of Terms for Directors Appointed to Fill Vacancies**
 - Number of Director Positions: Bylaws authorize up to 15 Directors. Specific number is set by resolution of the Board.
 - Original Number of Directors: Eight (8) Directors were appointed in the Articles of Incorporation.
 - Increase for 2009 Annual Meeting: Board passed a resolution on December 28, 2008, setting this number at eleven (11), and those positions were filled by election of the Members at the last Annual Meeting.

Changes to Bylaws Since April 2009: September 28, 2009 Consent



- Second Increase in Directors: In order to provide broader representation to producers on the Board, a resolution was passed by unanimous written consent on September 28, 2009, increasing the number of directors from eleven (11) to the full fifteen (15) authorized by the Bylaws.
- Bylaws Silent on Term: The prior Bylaws addressed terms for Directors appointed to fill a vacancy resulting from resignation or removal but did not specifically address terms for directors appointed to fill a “vacancy” due to an *increase* in the number of directors.

Changes to Bylaws Since April 2009: September 28, 2009 Consent

- 
- **Amendment**: Clarifies the manner in which vacancies are filled and the terms for Directors appointed to fill a vacancy.
 - ***Vacancy Due to Resignation or Removal***:
 - Filled by a majority vote of the then-existing Directors.
 - A Director appointed in this manner carries out the term of his/her predecessor.
 - ***Vacancy Due to Increase In Number of Directors***:
 - Filled by a majority vote of the then-existing Directors.
 - A Director appointed in this manner serves a term determined by the Board by resolution BUT the term: (1) cannot exceed 2 years; and (2) must end on a May 15. These rules facilitate an evenly staggered Board with terms ending at the same time regardless of how an individual came to be a Director.

Changes to Bylaws Since April 2009:

September 28, 2009 Consent

- 
- **AMENDMENT #2: Establishment of Executive Director as an Officer of the ABO**
 - Mary Rosenthal was hired as Interim Executive Director in June, 2009, and became Executive Director in October, 2009.
 - Amendment makes the position of Executive Director an official “officer” position under the Bylaws and broadly defines the Executive Director’s authority and responsibilities.
 - Perform all duties incident to the office of Executive Director.
 - Perform all duties as assigned to him/her by the Board or other officers from time to time.
 - Grants authority to sign deeds, mortgages, contracts, etc. binding the corporation up to an amount established by the Board (\$10,000 individually and \$25,000/calendar month in the aggregate).

Pending Changes to Bylaws: March [], 2010 Consent

- **PENDING AMENDMENT #1: Chairpersons of Committees**
 - Background:
 - The Bylaws establish 7 standing committees and provide for temporary committees to be established by resolution of the Board.
 - Only Directors can currently serve as chair of Committees.
 - Pending Amendment:
 - To provide additional flexibility and opportunities for Member involvement, it has been proposed that any member of the Committee may serve as chair, and such chair shall be appointed by the Board.
 - Additional clarification on the term of such chairperson



Pending Changes to Bylaws: March [], 2010 Consent

- **AMENDMENT #2: Vacancies on Committees**
 - Background:
 - The Bylaws require a minimum number of positions on each committee be filled by Directors. This is Washington law, and Committees exercise the power of the Board on certain matters.
 - The Bylaws did not specifically address vacancies on committees of Director-Members.
 - Amendment:
 - Clarifies that the Committee may *recommend* Non-Director Members to the Board for appointment to a Committee (but Board need not follow the recommendation).
 - Clarifies that the Board fills vacant Director-Member positions on Committees by resolution and appointed Director-Member serves on the Committee until his/her term as Director expires.



Pending Changes to Bylaws: March [], 2010 Consent

- **AMENDMENT #3: Chairperson and Vice-Chairperson of Board**
 - Background:
 - The Bylaws are silent on the positions of Chairperson and Vice-Chairperson of the Board.
 - The Board appointed Bill Glover to serve as its Chairperson when the ABO was formed in 2008.
 - Pending Amendment:
 - Formalizes the positions of Chairperson and Vice-Chairperson in the bylaws.
 - The procedure for electing a Chairperson and Vice-Chairperson, and the duties, terms, resignation, removal, etc. are established by resolution.
 - The pending action by written consent addresses these issues.





TECHNICAL STANDARDS COMMITTEE

Mark Allen, Committee Chairman

The Algal Biomass Organization promotes the development of viable commercial markets for renewable and sustainable commodities derived from algae.

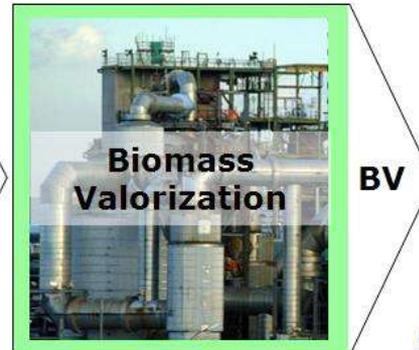
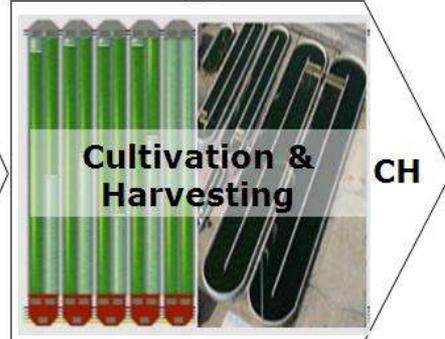
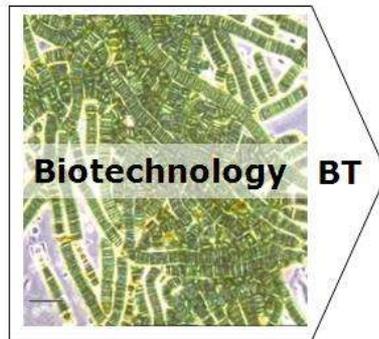
www.algalbiomass.org



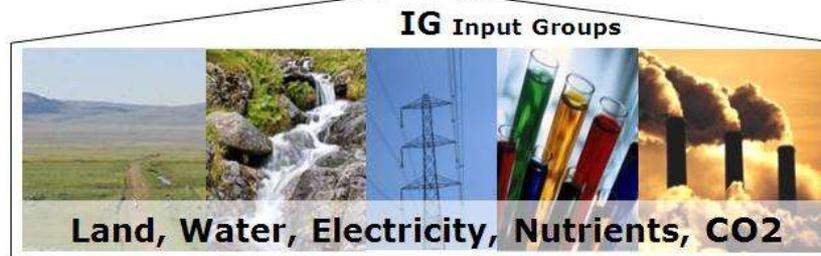
Committee Mission Set by ABO Bylaws

- Develop and advocate industry standards and best practices
- Liaise with Members, Standards Organizations, and Government
- Facilitate information flow between industry stakeholders
- Review ABO technical positions and recommendations
- Undertake special projects as directed by the ABO Board

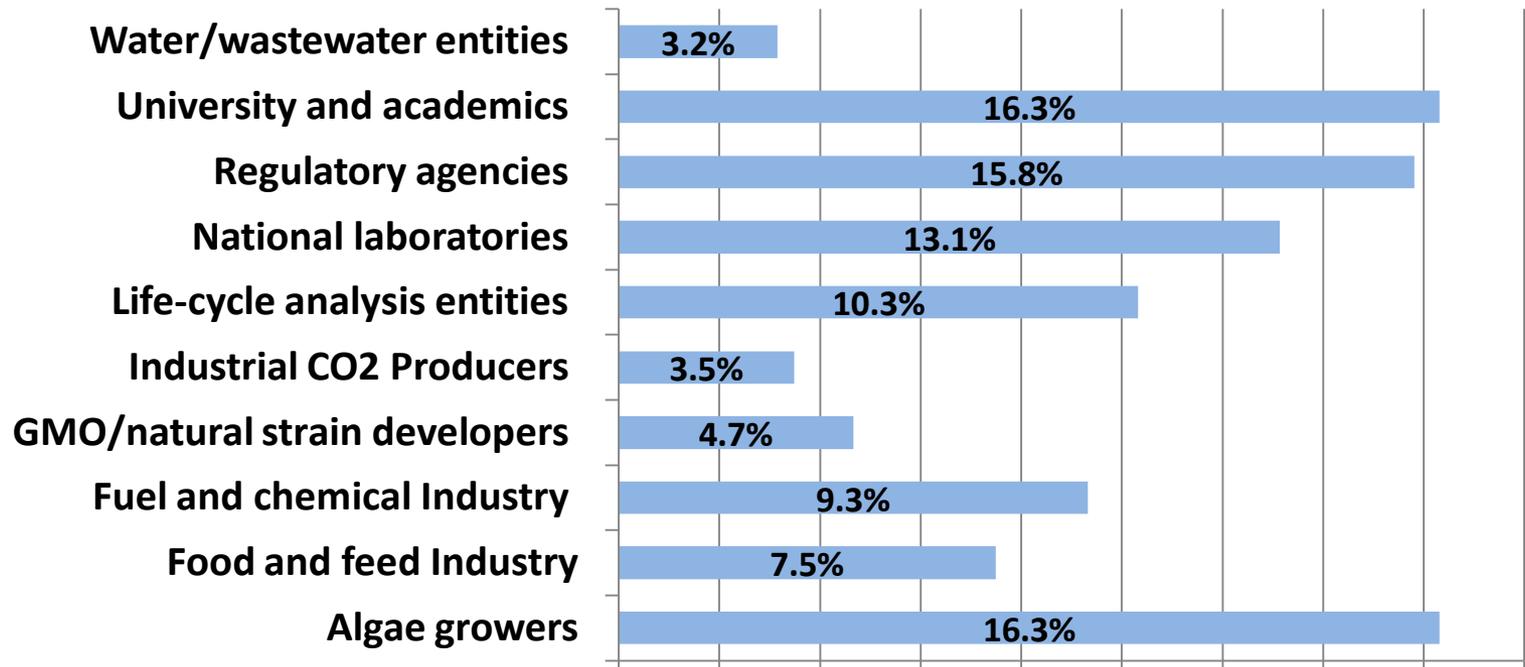
TECHNICAL STANDARDS - STRUCTURE



- Jobs**
- Fuels**
- Plastics**
- Chemicals**
- Animal Feed**
- Nutraceutical**
- Carbon Capture**
- Soil Amendment**
- Water Remediation**



PARTICIPANT POLL ABS 09 ON STANDARDS



Responses from ABS 09 Poll Question: **“What industry segments should be involved in developing technical components of sustainability standards for algae biomass”**



- **Jim Sears**, President and CTO - A2BE Carbon Capture LLC Committee Chair
- **Dr. Laurie Locascio**, Chief of Biochemical Science Division - NIST
- **Harrison Dillon**, President and CEO - Solazyme Inc.
- **Dr. Phil Pienkos**, Applied Bio Supervisor - NREL
- **Dr Ron Pate**, Principal Member Technical Staff - Sandia National Labs
- **Adonis Neblett J.D.**, Patent Attorney - Fredrikson & Byron
- **Dr. Keith Cooksey**, Research Prof. Dept of Microbiology - Montana State University
- **Dr. Rose Ann Cattolico**, Professor of Algal Biology - University of Washington
- **Brice Freeman**, Project Manager Environmental Controls - EPRI

COMMITTEE ACHIEVEMENTS - PAST YEAR



- Expanded Committee Membership Approved by ABO Board 3/18/10
- Member Volunteers Recruited from Industry, Academia, and Labs
- Updated Mission Approved by ABO Board 1/13/10
- ABS 09 Sustainability Panel Recruitment, Position Paper, Survey
- Released ABO Position Statement on Life Cycle Assessment
- Technical Standards Presentation at World Biofuels Markets 09
- Initial Purpose, Overview and Taxonomy Posted on ABO Site

TECHNICAL STANDARDS 2010 PRIORITY TASKS



- Develop Committee Consensus on Goals, Processes and Products
- Propose Standardized Definitions Covering Common Industry Metrics
- Recommend Best Practices for Measuring and Estimating the Metrics
- Maximize Collaboration and Adaptation of Existing Standards
- Structure and Chair a Technical Standards Session at ABS 2010
- Develop and Review Technical Position Briefs as Required by Board



BOARD OF DIRECTORS NOMINEES

The Algal Biomass Organization promotes the development of viable commercial markets for renewable and sustainable commodities derived from algae.

www.algalbiomass.org

BOARD OF DIRECTOR NOMINEES



- **Mr. Mark Allen** (incumbent)
A2BE Carbon Capture, LLC
- **Mr. Billy Glover** (incumbent)
The Boeing Company
- **Mr. John Benemann, Ph.D** (incumbent)
Benemann Associates
- **Mr. Thomas Byrne** (incumbent)
Byrne & Company Limited
- **Mr. Keith Cooksey, Ph.D.** (incumbent)
Montana State University
- **Dr. B. Greg Mitchell** (incumbent)
University of CA San Diego, Scripps Institution
- **Mr. Joel Murdock**
FedEx Express
- **Mr. Frank Prautzsch**
Raytheon Company
- **Dr. Herminia Rodríguez**
University of Sevilla, Spain



LUNCHEON SPEAKER

Representative Harry Teague, New Mexico

The Algal Biomass Organization promotes the development of viable commercial markets for renewable and sustainable commodities derived from algae.

www.algalbiomass.org



CLOSING REMARKS

Billy Glover, Chair of the Board of Directors

The Algal Biomass Organization promotes the development of viable commercial markets for renewable and sustainable commodities derived from algae.

www.algalbiomass.org