

Registration and other information available at:

<http://www.algalbiomass.org>

Algae Biomass Summit

Algae for Energy

AGENDA & SUMMARY OF SESSIONS

Bell Harbor Conference Center

Pier 66, 2211 Alaskan Way, Seattle, WA

All sessions will be held the International Promenade, unless otherwise noted.

HOSTED BY:



SPONSORED BY:



Harris Group Inc.
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WEDNESDAY, OCTOBER 22, 2008 – (PRE-SUMMIT ACTIVITIES)

1:00p.m. – 5:00p.m.

Boeing Facilities Tour and Future of Flight Exhibit

Boeing buses will shuttle interested Summit participants from the Bell Harbor Conference Center to its facilities at Paine Field in Mukilteo, WA where they can view the Future of Flight Center (<http://www.futureofflight.org/>) and get an inside view of Boeing's wide body airplane production plant. This event is free for Summit participants and their families. Space is limited, and will be filled on a first-come-first-served basis. To reserve, please email Mitzy Gough at mitzy.l.gough@boeing.com or call (206) 766-1023.

4:00p.m. – 6:00p.m.

Registration - Edgewater Hotel Lobby

5:00p.m. – 7:00p.m.

Welcome Reception, Edgewater Hotel – Cascade Room (Second Floor)

THURSDAY, OCTOBER 23, 2008

**** PRESENTATIONS ARE SUBJECT TO CHANGE ****

7:00a.m. – 8:00a.m.

REGISTRATION & CONTINENTAL BREAKFAST

Welcome Address – Mr. John F. Pierce, Member, Wilson Sonsini Goodrich and Rosati, P.C.

8:00a.m. – 9:45a.m.

SESSION 1: A SURVEY OF THE LANDSCAPE – SCIENCE, TECHNOLOGY, ECONOMICS AND FINANCE

Introduction of Speakers, **Mr. Billy Glover**, Chairman of the Board of Directors, Algal Biomass Organization

[Title To Be Determined], **Dr. Mario Tredici**, Past President, International Society of Applied Phycology; Professor of Microbiology, Department of Agricultural Biotechnology, University of Florence, Florence, Italy

Bio-Fuel Production by Marine Microalgae: Conversion of Electric Power Plant Flue Gas to Bio-Diesel and Bio-Ethanol, **Dr. Ami Ben-Amotz**, Senior Scientist, The National Institute of Oceanography (Israel) and Seambiotic Ltd.

[Title To Be Determined], **Mr. Mark Tegen**, CEO, Inventure Chemical

An Engineering and Economic Assessment of Algae Biofuel Production, **Dr. Tryg J. Lundquist**, Professor, California Polytechnic State University; Project P.I., Energy Biosciences Institute

From Sunlight to Gasoline: The Politics of the Energy Mix, **Dr. Jason Pyle**, Chief Executive Officer, Sapphire Energy

9:45a.m. – 10:15a.m.

NETWORKING BREAK

Informal Poster Session

International Promenade Grand Concourse

Researchers and companies that are not giving formal presentations during the Summit will be available informally to discuss their research programs, data, and companies. Information on discounted memberships in the Algal Biomass Organization for Summit attendees will also be available.

10:15a.m. – 12:00p.m.

SESSION 2: RESEARCH AT U.S. GOVERNMENT LABS AND UNIVERSITIES

Overview:

This session will present ongoing activities being carried out in the United States by major governmental research and development organizations and laboratories.

Moderator:

Dr. B. Greg Mitchell, Professor, University of California San Diego, Scripps Institution of Oceanography

Update on Algal Biofuel Research at NREL, **Dr. Phil Pienkos**, National Renewable Energy Laboratory

Optimizing Algal Growth in an Open Channel Raceway Pond, **Drs. Varum Boriah** and **Scott C. James**, Sandia National Laboratory

An Overview of Algal Biofuels R&D at Pacific Northwest National Laboratory, **Dr. Michael H. Huesemann**, Research Engineer, Pacific Northwest National Laboratory—Marine Sciences Laboratory

Ongoing Research on Photobioreactor System and Process, **Dr. Qiang Hu**, Director, Laboratory for Algae Research and Biotechnology, Arizona State University

Algal Strain Selection: A Key for Algal Biofuels, **Dr. Feng Chen**, Associate Professor, Center of Marine Biotechnology, University of Maryland Biotechnology Institute

Strategies for Enhancing Algal Yield and Solar Energy Utilization using Advanced Materials and Processes, **Mr. Jeff Muhs**, Executive Director, Utah State University Energy Lab

Establishment of a National Algae Biofuel Project Consortium and Plan, **Mr. Bill Buchan**, CEO, Market Potential, Inc. – NASA Innovative Partnerships

12:00p.m. – 1:00p.m.

LUNCH: ELLIOTT HALL

Informal Poster Session
International Promenade Grand Concourse

1:00p.m. – 1:30p.m.

KEYNOTE SPEAKER: MR. VINOD KHOSLA, KHOSLA VENTURES

Introduction:

Mr. John F. Pierce, Member, Wilson Sonsini Goodrich and Rosati, P.C.

1:30p.m. – 3:00p.m.

SESSION 3: FROM IDEA TO INDUSTRIAL SCALE PROJECT

Overview:

Venture capital and private equity investment in companies pursuing commercial applications for algal-based products has steadily increased over the previous year. This panel will focus on the critical factors that venture capitalists consider when determining whether to invest in a company, including technology and the protection of intellectual property, management experience, business plan, suitable investment exit points, and other important considerations.

Moderator:

Mr. Josh Green, Partner, Mohr Davidow Ventures

Mr. Robert T. Nelsen, Co-Founder and a Managing Director, ARCH Venture Partners

Mr. Jim Long, Venture Partner, Gabriel Ventures

3:00p.m. – 3:30p.m.

NETWORKING BREAK

*Informal Poster Session
International Promenade Grand Concourse*

3:30p.m. – 4:55p.m.

SESSION 4: NON-U.S. ACTIVITIES AND PROGRAMS

Overview:

This session will provide insight into different initiatives, activities and programs exploring the use of algal-based feedstocks for liquid transportation fuels, electricity, wastewater treatment, biofixation of carbon dioxide and other applications outside of the United States.

Moderator:

Dr. Keith Cooksey, Professor of Microbiology, Montana State University

The Carbon Trust's Multi-Million Pound Algae Biofuels Challenge, **Dr. Ben Graziano**, R&D Manager, The Carbon Trust (UK)

Biodiesel Production from Microalgae in Saline Water, **Dr. David Lewis**, Senior Lecturer, School of Chemical Engineering, The University of Adelaide; Leader, Microalgal Engineering Research Group

Ms. Ute Ackermann, Senior Consultant-Life Sciences, VDI/VDE Innovation + Technik GmbH [*Confirmation Pending*]

The Carbon Algae Recycling System (CARS) Project, **Mr. Quinn Goretzky**, Project Manager, Innovations Canada

New Zealand's Experience with Wastewater Treatment Using High Rate Algal Ponds and Potential for Algae Biofuel Production, **Rupert Craggs**, Group Manager, National Institute of Water and Atmospheric Research (New Zealand)

4:55p.m. – 5:00p.m.

WRAP-UP DAY 1 – Billy Glover, Chairman of the Algal Biomass Organization

5:30p.m. – 7:30p.m.

NETWORKING RECEPTION, EDGEWATER HOTEL – OLYMPIC BALLROOM (FOURTH FLOOR)

Friday, October 24, 2008

7:00a.m. – 8:00a.m. CONTINENTAL BREAKFAST – *INTERNATIONAL PROMENADE*

8:00a.m. – 8:05a.m. RECAP OF PREVIOUS DAY – Mr. Tom Byrne, Byrne & Company, Ltd.

8:05a.m. – 9:50a.m. SESSION 5: OPEN-POND PRODUCTION TECHNOLOGIES

Overview: This session will highlight several projects utilizing open pond technologies or a hybrid of open pond and closed photobioreactor technologies for the production of algal biomass.

Moderator: Dr. Joseph C. Weissman, Vice President-Operations, Aurora Biofuels, Inc.

[Title to be Determined], Dr. David Brune, Professor, Clemson University

Sustainable Large-Scale Microalgae Cultivation for the Economical Production of Biofuels and other Valuable Byproducts, Mr. Michael Massingill, Executive Vice President, Kent SeaTech Corporation

Cellana's Production of Renewable Fuels from Marine Microalgae, Dr. Mark Huntley, Chief Science & Technology Officer, Cellana

Open Ponds – Lessons Learned, Mrs. Lissa Morgenthaler-Jones, CEO, LiveFuels, Inc.

Applied R&D for Sustainable Algal-Derived Fuels, Ms. Alina Kulikowski-Tan, Vice President, Carbon Capture Corporation

Microalgae for Energy: Potential and Perspectives, Mr. Ezio Nicola D'Addario, R&D Department Manager, Eni Division R&M

9:50a.m. – 10:15a.m.

NETWORKING BREAK

*Informal Poster Session
International Promenade Grand Concourse*

10:15a.m. – 11:30a.m.

SESSION 6: PHOTOBIOREACTOR PRODUCTION TECHNOLOGIES

Overview: This session will highlight companies utilizing closed systems or photobioreactor technologies for the growth and propagation of algal biomass.

Moderator: Mr. Mark Allen, Co-Founder, A2BE Carbon Capture, LLC

Up-scaling and Yield Extrapolation of Industrial Microalgae Production: A Case Study of an Operational, Commercial Scale Bioreactor System, Dr. Sammy Boussiba, President, International Society of Applied Phycology, Head of the Landau Family Microalgal Biotechnology Laboratory, Blaustein

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Institutes for Desert Research, Ben Gurion University of the Negev

Theoretical Maximum Algae Oil Production, Ms. **Kristina Weyer**, Research Scientist, Solix Biofuels

Continuous Algae Production Technology, Mr. **Dean Tsoupeis**, CEO, Culturing Solutions, Inc.

A Story of Changing Perspectives, Mr. **David Waimann**, CEO, Cequesta, Ltd.

Results of Algal Biomass Growth Using Wastewater Nutrients in an Improved Light-Delivery Photobioreactor, Dr. **Robin Kodner**, Director of Research, Bodega Algae, LLC

11:30a.m. – 11:45a.m.

GUEST SPEAKER: CONGRESSMAN JAY INSLEE (D-WA)

Member, Energy and Commerce Committee

Introduction:

Mr. **Andrew T. Braff**, Attorney, Wilson Sonsini Goodrich and Rosati, P.C.

11:45a.m. – 12:45p.m.

LUNCH – ELLIOTT HALL

*Informal Poster Session
International Promenade Grand Concourse*

12:45p.m. – 2:15p.m.

SESSION 7: HOT TOPICS – STRAIN SELECTION, CO-PRODUCTS AND BIOREMEDIATION

Overview:

Expanding commercial applications for algal-based transportation fuels is highly dependent on strain selection, advances in genetic engineering of strains for resistance, increasing triglyceride or lipid oil yields, and other beneficial purposes, as well as developing markets for co-products and other beneficial processes such as bioremediation.

Moderator:

Mr. **Tyler Krutzfeldt**, Principal, Mont Vista Capital

[Title To Be Determined], Dr. **Heidi Kuehnle**, Founder, Kuehnle AgroSystems, Inc.

Genetic Technology Breakthrough Offers Promise for Long Term Increase in Yield of Algae Oil, Mr. **Tom Todaro**, Chief Executive Officer, Targeted Growth

Macro-algal (Seaweed) Biomass: An Attractive Biofuel, Dr. **Amir Neori**, Associate Researcher, Israel Oceanographic and Limnological Research, National Centre for Mariculture

Macroalgae Bioremediation and Conversion to Energy Through a Proprietary Cellulosic Fermentation System, Mr. **Kelly Ogilvie**, CEO, Blue Marble Energy

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Opportunity and Assessments of Commodity Chemical Feedstocks from Algae, **Dr. Steven Gluck**, Scientist, Dow Chemical, Environmental Technology Center

Algal Biomass for Food and Feed, **Mr. Ben Cloud**, President & Chief Executive Officer, XL Renewables

2:15p.m. – 2:45p.m.

NETWORKING BREAK

*Informal Poster Session
International Promenade Grand Concourse*

2:45p.m. – 3:45p.m.

SESSION 8: COMMERCIAL AVIATION AS A MARKET

Overview:

While a small percentage of overall global petroleum use, the aviation industry provides an organized, high-impact market for algal-based jet fuel, whether JP-8 or JET-A.

Moderators:

Mr. Billy Glover, Managing Director for Environmental Strategy, Boeing Commercial Airlines
Mr. Sebastien Remy, Head of Alternative Fuels Research Programs, Airbus

Mr. Graham Ellis, Business Manager, - Renewable Energy & Chemicals Group, UOP, a Honeywell Company

Dr. David Hazlebeck, Program Manager, General Atomics

Mr. Gerald Grinstein, Former Chairman and Chief Executive Officer, Delta Airlines

3:45p.m. – 4:30p.m.

SESSION 9: ALGAE AND SUSTAINABILITY: WHAT ARE THE ISSUES?

Overview:

Biofuels have been heralded as environmental alternatives to petroleum use; however, as major policy issues such as land and water use, "food vs. fuel", and lifecycle energy use have taken center stage, the image of agricultural biofuel feedstocks has lost some of its luster. This session explores how leaders in socio-economic and environmental sustainability fields view algal-based biofuel feedstocks, whether such feedstocks may be in for the same environmental challenges and what the industry can do to mitigate such challenges, and what those in the algae industry need to know about market access when pursuing projects in developing economies.

Introduction:

Mr. John F. Pierce, Member, Wilson Sonsini Goodrich and Rosati, P.C.

Moderator:

Mr. Denis Hayes, President, Bullitt Foundation

Mr. Nathanael Greene, Senior Policy Analyst, Natural Resources Defense Council

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Mr. Patrick Mazza, Research Director, Climate Solutions

Ms. Charlotte Opal, Head of the Secretariat, Roundtable on Sustainable Biofuels (Switzerland) *[Confirmation Pending]*

4:30p.m. – 5:00p.m.

CLOSING OF SUMMIT

"The Future of Microalgae Biofuels," Dr. John Benemann, Benemann Associates

Closing Remarks – Mr. Tom Byrne, Byrne & Company, Ltd.

5:00p.m. – 5:30p.m.

ALGAL BIOMASS ORGANIZATION INFORMATIONAL MEETING

Chair: Mr. Billy Glover, Chairman of the Board of Directors, Algal Biomass Organization

Members and prospective members of the Algal Biomass Organization are encouraged to attend this meeting where information will be provided on current and future initiatives, member committees, organizational structure, membership benefits, platform development for purposes of legislative advocacy and public relations, and how directors of the Algal Biomass Organization are nominated and elected. This is the meeting to attend for anyone interested in shaping and promoting this developing industry.

5:30p.m. – 7:00p.m.

ALGAL BIOMASS ORGANIZATION RECEPTION – ODYSSEY MARITIME MUSEUM

(Open to all attendees of the Algae Biomass Summit and their families)

Poster Presentations

The following individuals have been selected to present information on their completed or ongoing research, projects, technology developments, or business ventures that are relevant to the algal biomass industry. Information will be conveyed through posters displayed in the International Promenade Grand Concourse. Attendees can view the posters and speak with the presenters at their leisure during lunch and the many networking breaks during the Summit.

Dr. Alexander S. Beliaev

Senior Staff Scientist, Biological Science Division, Pacific Northwest National Laboratory

Binary-Culture Approaches for Engineering Biofuel Production in Microalgae

Dr. Joanne Belovich

Professor, Chemical & Biomedical Engineering, Cleveland State University

A Novel Gravity-Based Photobioreactor with Dewatering Function

Dr. Jay Burns

Chief Algae Scientist, Bionavitas

Increased Algae Production Utilizing Light Immersion Technology™: Potential Application to Bioremediation

Dr. Rose Ann Cattolico

Professor of Marine Molecular Biology, University of Washington

Development of Oleaginous Algal Strains

Mr. R. Cameron Coates

*Graduate Student, Scripps Institution of Oceanography
University of California, San Diego*

[Title to Be Determined]

Mr. Jeff Collier

Product Development Manager, Energy Derived

Developing Energy Efficient Algae Production Systems

Dr. Keith E. Cooksey

Research Professor of Microbiology, Montana State University

Algal Biofuels: Where We Came From and Where We Should Go

Dr. Joel Cuello

Associate Professor, Department of Agricultural and Biosystems Engineering – The University of Arizona

Energetics and Economic Feasibility of Aquacultural Algae Photobioreactors and Novel Greenhouse Growing Systems

Dr. Al Darzins

Group Manager/Principal Researcher, National Bioenergy Center, NREL

Establishment of a Bioenergy-Focused Microalgae Strain Collection Using Rapid, High-Throughput Methodologies

Dr. Joe Dragavon

Department of Chemistry, University of Hull (U.K.)

Sustainable Process Integration and Algae Biomass Markets Diversification: Multi-faceted Research Goals for a Harmonized R&D

Mr. Kevin Drumm

Director of Business Development, Solution Recovery Services

Economic Feasibility of Oil Extraction and Purification from Algae Biomass

Dr. Mark Edwards

Professor, Arizona State University

American Green Independence with Green Solar

Poster Presentations (Cont.)

Mr. David Giorgi

Chief Executive Officer, OptiSwitch Technology Corporation

Application of Electroporation for Lipid Extraction from Microalgae

Mr. Sam Hill

President, Bodega Algae, LLC

New Venture Commercialization of Algae-based Clean Energy Technologies

Dr. Alexandra Holland

University of Washington

The Importance of Strain Selection Using Batch Cultures: Development of a Robust Methodology to Estimate Large-Scale Algae Biomass and Lipid Productivities

Dr. Jean Francois Jenck

President, Algosource Technologies

Biosequestration of CO₂ by Microalgae: Towards Industrial Process Integration

Mr. Glen Meier

Research & Development Manager, Renewable Energy Group, Inc.

[Title to Be Determined]

Dr. Ann Mescher

Associate Professor, Department of Mechanical Engineering – University of Washington

Profiles of Solvent-Extracted Lipids from Algae

Dr. K.Y. Simon Ng

*Professor of Chemical Engineering and Materials Science
Wayne State University*

An Internally Illuminated Photobioreactor for the Cultivation of Algae: Simulations and Property Evaluation

Dr. Jean Peccoud

Associate Professor, Virginia Bioinformatics Institute at Virginia Tech

[Title to Be Determined]

Dr. Ron Putt

Assistant Research Professor, Auburn University

Open Pond Algalcultural Technology for the Southeastern United States

Mr. Jim Sears

President and Chief Technology Officer, A2BE Carbon Capture, LLC

The "Ten Essentials" for an Algae Industry

Dr. Tedora Rutar Shuman

Associate Professor, Seattle University

*Undergraduate Students Design Photobioreactors and Demonstrate Accelerated Growth of *Botryococcus Braunii* with CO₂*

Mr. Vincent Toepoel

Consultant – Technology & Alternative Fuels, International Air Transport Association

Airline Future Fuel Needs and Actions

Mr. Ian Woertz, M.S.

Research Engineer, Cal Poly State University

Lipid Productivity of Algae Grown on Dairy and Municipal Wastewaters for Biofuel Feedstock