

Biofuel From Algae Market Potential

<https://marketpublishers.com/r/BD50C7CB4F0EN.html>

Date: September 2012

Pages: 183

Price: US\$ 249.00 (Single User License)

ID: BD50C7CB4F0EN

Abstracts

This comprehensive report provides insight into the global algae biofuels market. Driven by climate change concerns and the rising cost of petroleum-based energy companies and government entities are developing the use of biofuels derived from algae to reduce carbon emissions from power plants and generate renewable transportation fuels.

Algae is one of the most promising sources of biodiesel as it is biodegradable and can be produced using ocean and waste water without depleting fresh water resources.

This report examines the vast global market potential of biofuel from algae. It explores the technology new research and profiles the major players developing this next-generation biofuel.

Soy produces some 50 gallons of oil per acre per year; canola 150 gallons; and palm 650 gallons. But algae are expected to produce 10000 gallons per acre per year and eventually even more.

Algae can double its volume overnight. Up to 50 percent of an alga's body weight is comprised of oil whereas oil-palm trees - currently the largest producer of oil to make biofuels - yield just about 20 percent of their weight in oil.

Algae are the fastest-growing plants in the world. But if it were easy to extract the fuel most of the world's biodiesel would already be made from microalgae grown on nonagricultural land close to coal-fired power plants. It's critical to understand how to select the right algae species create an optimal photobiological formula for each species and build a cost-effective photobioreactor that can precisely deliver the formula to each individual algae cell no matter the size of the facility or its geographical location.

While its potential is vast producing biofuel from algae cost-effectively on a large scale

is tremendously expensive. There are other technological challenges including understanding how to identify oil-rich algae and develop processes for extracting algae oil economically.

Case studies included:

Producing Jet Fuels from Algal Lipids - NREL

Algae Harvesting Advances in New Mexico - CEHMM

Microalgae and Coal

Use of Algae in Maui

Contents

Introduction to Algae
What is Algae?
Algae Classification
Primoplantae/Archaeplastida
Excavata and Rhizaria
Chromista and Alveolata
Types of Algae
Producing Algae
Isolation of Naturally Occurring Algae
Screening Criteria and Methods
Physiology and Biochemistry of Algae
Photosynthesis and Light Utilization
Carbon Partitioning and Metabolism
Algal Carbohydrates
Lipid Synthesis and Regulation
Biohydrogen
Cultivation of Algae
Overview
Role of Photobioreactors
Closed Loop System
Open Pond
Requirements for Algal Cultivation
Background of Algae Usage
Biological Hydrogen Production from Algae
Economics of Biological Hydrogen Production
History of Algae as Fuel
Fuel Production Background
Bioreactor Design Issues
Algal Biotechnology
Overview
Mutagenesis
Selectable Markers
Transformation Methods
Sexual Crossing
Homologous Recombination
Gene Expression Control Elements
RNA Interference (RNAi)

Protein Tagging Technologies
Applications of Biotechnology to Algal Bioenergy
Cyanobacteria
Microalgae
Macroalgae
Introduction to Algal Fuel
Overview
What is Algae Fuel?
Advantages of Algal Feedstocks
Extracting Products from Algae for Processing into Fuel
Introduction
Processes for Lipid Extraction
Cell Rupture
Accelerated Solvent Extraction
Selective Extraction
Subcritical Water Extraction
Supercritical Fluid Extraction
Heterotrophic Production
Challenges Facing the Process
Deriving Fuel from Algae
Biological Concepts
Algaculture
Growing Algae
Harvesting Algae
Improving the Algae Yield
Oil Extraction
Fuel Production
Advantages of Algal Fuel
Challenges
Higher Cost of Producing Fuel from Algae
Converting Algae to Biofuel: Technologies Involved
Overview
Direct Production
Alcohols
Alkanes
Hydrogen
Processing of Whole Algae
Pyrolysis
Gasification

Liquefaction
Supercritical Processing
Anaerobic Digestion of Whole Algae
Converting Algal Extracts
Chemical Transesterification
Biochemical (Enzymatic) Conversion
Catalytic Cracking
Gasoline and Jet Fuel
Final Processing
Fuels Derived from Algae
Biodiesel
Biobutanol
Biogasoline
Methane
Ethanol
Straight Vegetable Oil (SVO)
Ethanol from Living Algae
Market Overview
Algal Fuel in Europe
Algal Fuel in United States
Other Developments
Using Algae for Transportation & Power Generation
Manufacturing of Microalgal Biomass
Investment in the Industry
Benefits of Algae
Combating Climate Change
Energy Security
Purely Aquatic Growth
Use for Transport and Power Generation
CO Sequestration Algae Culture Ponds
Role of Algae in Carbon Capture
Introduction
Unregulated Carbon Marketplace
Regulated Carbon Marketplace
Carbon Networks
Research and Development
Corporate R&D
Research into Algal-Oil Production for Biodiesel
Case Studies

Producing Jet Fuels from Algal Lipids - NREL
Algae Harvesting Advances in New Mexico - CEHMM
Microalgae and Coal
Use of Algae in Maui
Major Players
Algae Fuel Systems
Algae Floating Systems Inc
AlgaeLink
Algenol
Algaewheel
Aquaflow Binomics
Aurora Biofuels
Bio Fuel Systems
Bionavitas
Blue Marble Energy
Cellena
GS CleanTech
GreenFuel Technologies
Iogen Corporation
Inventure Chemical
International Energy Inc
Live Fuels Inc
PetroAlgae
Petro Sun
Sapphire Energy
Seambiotic
Solazyme
Solix Biofuels
Solena Group
Valcent Products Inc
Appendix

I would like to order

Product name: Biofuel From Algae Market Potential

Product link: <https://marketpublishers.com/r/BD50C7CB4F0EN.html>

Price: US\$ 249.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/BD50C7CB4F0EN.html>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:
Last name:
Email:
Company:
Address:
City:
Zip code:
Country:
Tel:
Fax:
Your message:

****All fields are required**

Customer signature _____

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <https://marketpublishers.com/docs/terms.html>

To place an order via fax simply print this form, fill in the information below and fax the completed form to +44 20 7900 3970