



# European Biomass Industry Association

# EUBIA

## EUROPEAN BIOMASS INDUSTRY ASSOCIATION

### Open Algae Workshop, 12-11-2014, Brussels





## European Biomass Industry Association



*Supporting Biomass Sector at  
all Levels*

**EUBIA – The European Biomass Industry Association**

*Researching  
for  
Bioeconomy*



**EUBREN - The European Biomass Research Network**



# European Biomass Industry Association

## **President**

Mr Tord Fjallstrom

## **Secretary General**

Mr Giuliano Grassi

## **Project Division**

Mr Andrea Salimbeni  
Ms Valeria Magnolfi  
(External experts and  
associated members)

## **Board Members**

Mr Tord Fjallstrom (Energidalen)  
Mr Peter Helm (WIP)  
Mrs Angela Grassi (ETA)  
Mr Bernd Krautkremer (Fraunhofer)  
Mr Ulf Burman (IVL)  
Mr Harold Wouters (legal expert)

## **Financial & Administration Department**

Ms Enrica Berti

## **Policy & Communication Officer**

Mr Juan Vergara

## **MEMBERS**



**European Biomass Industry Association**

# **EUBIA GENERAL INTRODUCTION**



# BACKGROUND

- EUBIA was established in 1996 as an international non profit association in Brussels, Belgium.
- EUBIA groups together industry, knowledge and research centers and investors, all of them active in the field of biomass.
- Our main objectives are to promote the use of biomass as a renewable energy source, to support the European biomass industries at all levels, to develop innovative bioenergy concepts, and to foster international co-operation within the bioenergy field. (USA-Russian federation-India-China)
- Identification of business opportunities and specific bio-project with acceptable Return of Investment for private investors
- EUBIA is a full member of the steering committee of the G8-GB partnership



## A MULTI-FACETED SUPPORT

### A business facilitator

- Identification of competitive projects
- Markets potentials evaluation
- Creator of Business opportunities
- Technical consultancy



### International Projects developer

- More than 50 EC projects experience
- Coordinator/Partner in technical tasks, policy and market assessment, dissemination

### An information provider & diffuser

- Organizer of workshops, training events
- International conferences supporter
- Policy Measures Position papers
- Dissemination opportunities
- Legal framework barriers identification



# CONCEPT DEVELOPER

- EUBIA promotes bioenergy activities at small, medium and large scale in collaboration with the relevant stakeholders (Industries, local and national authorities, biomass providers, financing institutions, etc).
- In particular, we contribute to identify attractive economic opportunities, to promote modern concepts, commercial technologies and biomass resources supply able to penetrate large energy industrial markets.
- EUBIA has a strategic position within the European and international world Institutions and is an important partner in the EU bioenergy research project which represent the major economical support.
- EUBIA is member of the  steering committee.



# European Biomass Industry Association

## MEMBERSHIP



etaflorence  renewable energies







# European Biomass Industry Association



Lodz University of Technology



**CERTH**

CENTRE FOR RESEARCH & TECHNOLOGY HELLAS



**FREDERICK UNIVERSITY**



universiteit  
hasselt



WROCLAW UNIVERSITY  
OF ENVIRONMENTAL AND LIFE SCIENCES



University of  
Piraeus



Aston University



UNIVERSIDADE  
**NOVA**  
DE LISBOA



**AALBORG UNIVERSITY**



UNIVERSITY of OULU  
OULUN YLIOPISTO



UNIVERSITAT  
DE VALÈNCIA



Consorzio  
Interuniversitario  
REATTIVITA' CHIMICA E CATALISI



## EUBIA CONFERENCES



23° European Biomass Conference and  
Exhibition, Vienna, 1-4 June 2015



19° Biosolids and Organic Resources  
Conference, Manchester, 17-19 November 2014



Africa Energy Indaba Conference,  
Johannesburg, 17-18 February 2015



## The European Biomass Research Network

*The new incoming initiative promoted by EUBIA*

EUBREN consists of the most experienced universities and research centers from the 28 European Union member states to create a new high value network focused on improving research activity on EU biomass sector.

- **Technology Platforms improving research efficiency**
- **Creating valuable consortium for new EC projects**
- **Develop new initiatives, training courses and workshops**
- **Strengthen the cooperation among research centres**
- **Increase the private and public sector cooperation**



## EUBIA Ongoing Projects

### Seventh Framework Programme (FP7)

NEWAPP (Coordinator)	01/2014 12/2016	NEWAPP: research project focusing on hydrothermal carbonization (HTC) of wet biomass residues.
ROKWOOD	01/2013 12/2015	European Regions fostering innovation for sustainable production and efficient use of woody biomass
ORION	08/2012 07/2015	ORganic waste management by a small-scale innovative automated system of anaerobic digestION
ALGADISK	01/2012 12/2014	Increasing the competitiveness of European non-energy algal sector by a novel solution for biomass production

### North West Europe - Interreg

EnAlgae	01/2011 05/2015	Accelerated development of sustainable technologies for algal biomass production to reduce CO2 emissions
BioenNW	01/2012 12/2015	Delivering Local Bioenergy to NW Europe



## EUBIA Ongoing Projects

### Intelligent Energy Programme (IEE)

REC-OIL	05/2012 05/2015	Promotion of used cooking oil recycling for sustainable biodiesel production
Repowermap	04/2012 10/2014	Renewable energies and energy efficiency in YOUR neighbourhood



New Horizon 2020 Funding Programme. EUBIA is focusing on:

- Organic Waste valorization technologies (Manure, ashes, wet residues,..)
- Lignocellulosic biomass fractionation and lignin treatment
- New low emission biomass combustion systems (CLC, CCS)
- Microalgae cultivation, processing and low cost biofuel production
- Biochar production technologies and market potentials



European Biomass Industry Association

## EUBIA Ongoing Projects on Algae Sector

**ALGADISK**  
CO<sub>2</sub> capture and biomass production

**EnAlgae**  
collaborate innovate communicate



Many proposals under negotiation.....



# Why our Interest In Algae Sector

Microalgae are unicellular organisms, with the many impressive capacities:

- Able to grow in different climate conditions
- They represent high quality biomass for several uses:
- Impressive dry biomass yield achievable (up to 40 tons dry per hectare)
- The high CO<sub>2</sub> absorption, the water treatment potential and multiple market penetration opportunities.
- Capacity to be cultivated almost everywhere
- Possibility to be integrated in large scale biorefineries (GHG reduction, waste treatment, etc..)





# Microalgae market opportunities

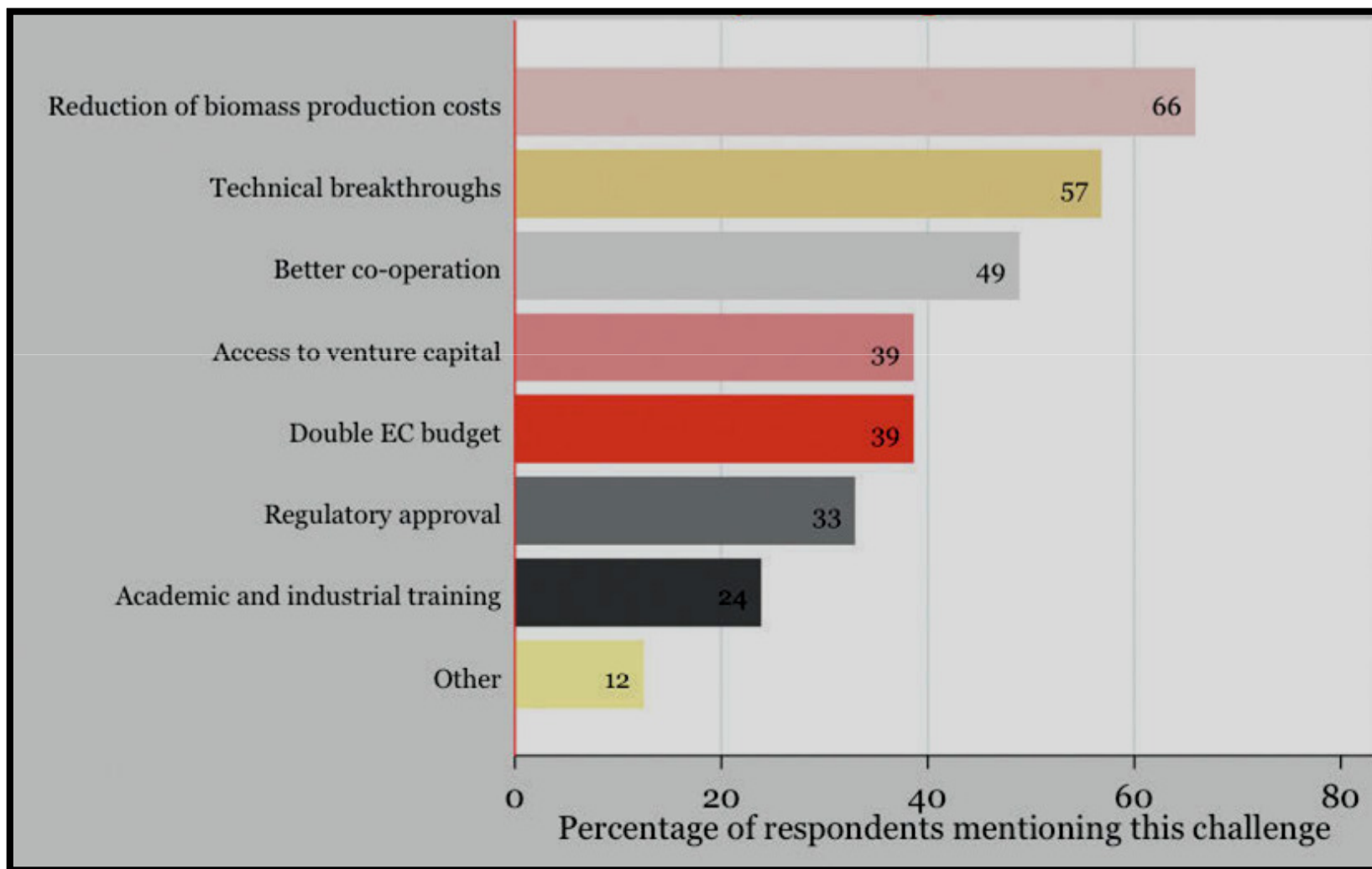
To develop the competitiveness of micro-algae based products, many aspects of their value chain must be improved. Not only the technical and the economic aspects are important, but also the European and national regulations ruling their use play a fundamental role.

- ☐ A better awareness of the current status of micro-algae production systems for different species and products, describing the most suited for food, feed and bioproducts.
- ☐ The definition of a detailed support programme focused on algae. Defining specific targets on global consumption for algae-based products (biofuels, pharmaceuticals, feed).
- ☐ An overview of risks, risk management and regulatory frameworks governing micro-algae research, production and commercialisation, providing a comparison between the EU and the USA.





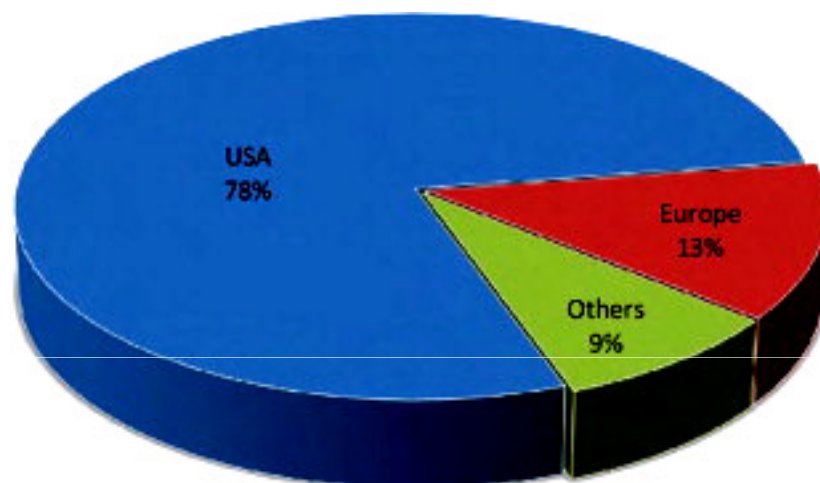
## Microalgae market EU Key Challenges





# Microalgae market opportunities

## Biofuels

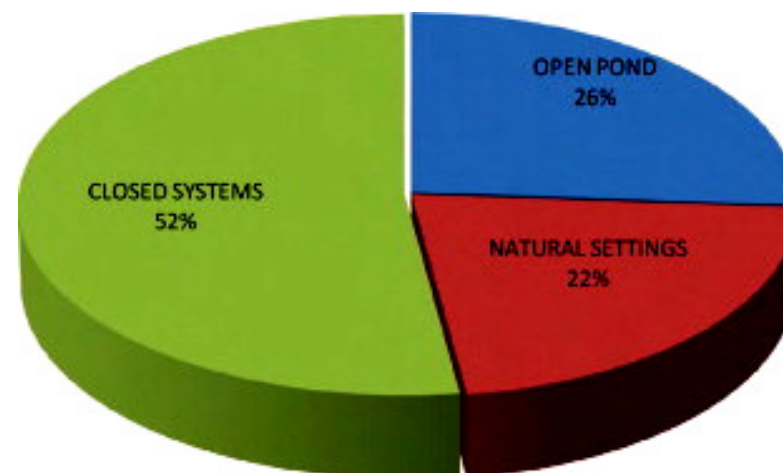


Region-wise percentage of companies around the world producing algal fuels. (EPRI 2013)

***“If algal producers can utilize fatter algae with 60% oil content, they can reduce the size and footprint of algal biofuel, resulting in significant capital and operating costs savings”***

**Present:** 10,000 up to 30,000 litres of oil per hectare annually. With 30-40% oil content.

**Targets:** Algal species with a high triglyceride (TAG) oil content for biodiesel and biocrude production



Worldwide technologies being used for algal biofuel production companies.



## SWOT ANALYSIS OF ALGAE BASED BIOFUELS

### INTERNAL ASPECTS

#### STRENGTHS

Algal-oil processes into biodiesel as easily as oil derived from land-based crops.

Algae are the fastest-growing plants in the world. The per unit area yield of oil from algae is estimated to be 31 times greater than the next best crop palm oil (up to 40,000 lt/ha/yr)

Algae consume carbon dioxide as they grow more than every other type of biomass

Algae can be grown almost anywhere even on sewage or salt water and does not require fertile land or food crops.

#### WEAKNESSES

Difficult to find an algal strain with: high lipid content , fast growth rate, not too difficult to harvest, cost-effective .

Not the same species for different regions.

Still commercially immature technologies and high technical risk.

Extraction and processing still expensive compared to other biofuels.

Large-scale production could present many other drawbacks compared to those found in laboratory experiments



## SWOT ANALYSIS OF ALGAE BASED BIOFUELS

### EXTERNAL ASPECTS

#### OPPORTUNITIES

Possibility of production of other higher value products for commercialization and access other markets

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Subsidies and policies could turn this technology economically feasible

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As algae consume carbon dioxide as they grow, they could be used to capture CO<sub>2</sub> from industrial plants.

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Integrated algae-based biorefinary model could be adopted

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Algae-based fuel properties allow the use in jet fuels

#### THREATS

If future demand for biofuels falls radically this industry could face bankruptcy.

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Market and societal acceptance still unclear

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If genetically modified it could generate regulatory limitations and societal disavowal

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Diffusion difficulties: the large number of competing fuels could delay Algal biofuels to achieve high growth on the basis of cost.



# Microalgae market opportunities

## Cosmetics and biofertilizers

❑ Algae biomass contains not only proteins and lipids. In fact, even if these products are currently representing most of the algae market, further high value bioproducts can be obtained by processing algae in efficient way:

**Pigments.** Food coloration, or pharmaceuticals

**Phenolics (Cosmetics).** Skin care market, emollients, sun protection.

**Nutrients (Biofertilizers).** Recirculation, Nutrient additives

❑ The high quality of algae biomass and the capacity of PBR to be installed everywhere can bring to a general solution which is currently one of the hottest topic for both algae entrepreneurs and researchers: The Algae integrated biorefinery

❑ EUBIA is currently working on this topic, preparing projects and strategies to make algae biorefinery a real competitive solution.



# Microalgae Market Opportunities

## Food & Feed

- ❑ The production of microalgae-based food and feed products from European firms is currently estimated at around 5% of the global market.
- ❑ Currently United States Asia and Oceania dominate the market. Europe can become market leader in micro-algae based products for the food and feed markets in the next decade but needs to focus on specific policy to launch specific targets.
- ❑ The other two most important factors that may contribute to the expected European market position are scientific and technological developments in the field of micro-algae research and in the food and feed market
- ❑ **ALGADISK Project is focusing on improving algae cultivation efficiency**



# Thank you for your attention!

**Andrea Salimbeni**

EUBIA Project Manager

[andrea.salimbeni@eubia.org](mailto:andrea.salimbeni@eubia.org)

Skype: a\_salimbeni