Developing the next generation Macro-Algae based biofuels for transportation via advanced bio-refinery processes

Fact Sheet

Project information

MacroFuels

Grant agreement ID: 654010

Project website

Status
Closed project

Start date
1 January 2016

End date
31 December 2019

Funded under:
H2020-EU.3.3.3.1.
H2020-EU.3.3.3.3.

Overall budget:
€ 5 999 892,50

Coordinated by:
TEKNOLOGISK INSTITUT
Denmark

Objective

MacroFuels aims to produce advanced biofuels from seaweed or macro-algae. The targeted biofuels are ethanol, butanol, furanics and biogas. The project will achieve a breakthrough in biofuel production from macroalgae by:

• Increasing the biomass supply by developing a rotating crop scheme for cultivation of seaweed, using native, highly productive brown, red and green seaweeds. Combined with the use of advanced textile substrates these breakthroughs will result in a year round biomass yield of 25 kg seaweeds (wet weight) per m² per year harvested at 1000m²/hr;
• Improving the pre-treatment and storage of seaweed and to yield fermentable and convertible sugars at economically relevant concentrations (10-30%);
• Increasing the bio-ethanol production to economically viable concentrations of > 4% l and;
• Increasing the bio-butanol yield to 15 g./l by developing novel fermenting organisms which metabolize all sugars at 90% efficiency for ethanol and butanol;
• Increasing the biogas yield to convert 90% of the available carbon in the residues by adapting the organisms to seaweed;
• Developing the thermochemical conversion of sugars to fuels from the mg. scale to the kg. scale;
• Performing an integral techno-economic, sustainability and risk assessment of the entire seaweed to
biofuel chain.

MacroFuels will develop technology for the production of fuels which are suitable as liquid fuels or precursor thereof for the heavy transport sector as well as potentially for the aviation sector. The technology will be taken from TRL3 to TRL 4/5.

MacroFuels will expand the biomass available for the production of advanced biofuels. Seaweed does not need fresh water, arable land or fertilizers to grow, which provides environmental benefits, and in addition has a high carbon dioxide reduction potential as well as reduces the demand for natural resources on land. The technology offers many novel opportunities for employment along the entire value chain.

**Field of Science**

/natural sciences/chemical sciences/inorganic chemistry/inorganic compounds

/agricultural sciences/agricultural biotechnology/biomass

/social sciences/economics and business/business and management/employment

/engineering and technology/materials engineering/textiles

/social sciences/social and economic geography/transport

/engineering and technology/environmental engineering/energy and fuels/biofuels

/social sciences/other social sciences/social sciences interdisciplinary/sustainable development

/engineering and technology/environmental engineering/energy and fuels/liquid fuels

/engineering and technology/environmental engineering/energy and fuels

/social sciences/economics and business/economics/sustainable economy

**Programme(s)**

H2020-EU.3.3.3.1. - Make bio-energy more competitive and sustainable

H2020-EU.3.3.3.3. - New alternative fuels

**Topic(s)**

LCE-11-2015 - Developing next generation technologies for biofuels and sustainable alternative fuels
Call for proposal

H2020-LCE-2015-1-two-stage

See other projects for this call

Funding Scheme

RIA - Research and Innovation action

Coordinator

TEKNOLOGISK INSTITUT

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Gregersensvej 1
2630 Taastrup

Denmark

Website
Contact the organisation

Participants (11)

STICHTING ENERGIEONDERZOEK CENTRUM NEDERLAND

Activity type
Research Organisations

EU Contribution
€ 679 216,25

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Website
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STICHTING WAGENINGEN RESEARCH

Activity type
Research Organisations

EU Contribution
€ 994 702,50

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6708 Pb Wageningen

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<th>EU Contribution</th>
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<th>Activity type</th>
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<td>AVANTIUM CHEMICALS BV</td>
<td>€ 550 000</td>
<td>Zekeringstraat 29 1014 Bv Amsterdam</td>
<td>Private for-profit entities (excluding Higher or Secondary Education Establishments)</td>
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<td>THE SCOTTISH ASSOCIATION FOR MARINESCIENCE LBG</td>
<td>€ 727 943,75</td>
<td>Scottish Marine Institute Pa37 1qa Dunbeg Oban</td>
<td>Research Organisations</td>
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<td>SIOEN INDUSTRIES NV</td>
<td>€ 443 012,50</td>
<td>Fabriekstraat 23 8850 Ardooie</td>
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<td>ENVIRONMENTAL RESOURCES MANAGEMENT LIMITED</td>
<td>€ 167 653,75</td>
<td>Saint Mary Axe 33 2nd Floor 33 Ec3a 8aa London</td>
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Activity type
Research Organisations

EU Contribution
€ 339 380

Website

Contact the organisation

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