



# Biorefinery Researcher

Issue

1

December 2008

**In collaboration with SUSTOIL and BIOREF-INTEG, 2 Support Action projects funded by the European Commission through the Seventh Framework Programme (June 2008—May 2010)**

## Contents:

Introduction	Page 2	SUSTOIL Advisors	Page 12
BIOREF-INTEG Partners	Page 3	SUSTOIL News	Page 13
BIOREF-INTEG Work Packages	Pages 4-7	General Information	Pages 14-15
SUSTOIL Work Packages	Page 9	Contact	Page 16
SUSTOIL Partners	Pages 10-11		



# Introduction

The aim of SUSTOIL is to develop advanced biorefinery schemes to convert whole EU oil-rich crops (rapeseed, olive and sunflower) into energy (fuels, power and heat), food and bioproducts (chemicals and/or materials) making optimal uses of the side streams generated during farming/harvesting, primary processing (e.g. oil extraction and refining) and secondary processing (e.g. transesterification).

SUSTOIL will integrate the expertise of 23 project partners with the knowledge of an Advisory Board composed of experts from the EU, US and beyond.

Economic, social and environmental costs/benefits of optimal integrated schemes will be assessed and main technological challenges/knowledge gaps will be identified, resulting in recommendations of key activities for future collaborative projects.



This project is led by the [Green Chemistry Centre](#), based at the [University of York](#), in the UK. This support action project is funded by the European Commission through the Seventh Framework Programme (Energy Theme).

SUSTOIL will disseminate the results of the actions via:

1. Our website - [www.sustoil.org](http://www.sustoil.org)
2. A bi-annual newsletter
3. 2 workshops (April 2009 and February 2010)

4. A final dissemination conference, in collaboration with BIOREF-INTEG (May 2010)

The project started in June 2008 and is to finish by May 2010.



*Project Coordinator:*  
Prof. Ray Marriott



*Project Officer:*  
Dr Abbas Kazmi

## WELCOME TO BIOREF-INTEG

It is a great pleasure for me to introduce the first joint BIOREF-INTEG/SUSTOIL Newsletter 2008!

BIOREF-INTEG is a "Coordination and Support Action Project" within the framework of the FP7 programme (Theme Energy). The project is funded by the European Commission from June 2008 until May 2010 and is co-ordinated by the Energy Research Centre of the Netherlands (ECN). It is supported by a further 12 partners from all over Europe who vary from SME'S and industrial partners, to Universities and RTD institutes. Information on each of the partners is available within this newsletter.

The main aim of the project is to develop advanced biorefinery schemes to be integrated into existing industrial fuel producing complexes.

Several biomass processing sectors are considered within the BIOREF-INTEG project to include: sugar/starch (bioethanol), biodiesel, pulp and paper, conventional oil refineries, power production, the food industry and the agrosector.

The identification of innovative biorefinery concepts within this project could be beneficial to the aforementioned sectors by significantly increasing the overall economic profitability, and decreasing the overall environmental impact of their conventional processes.

This newsletter will be published every six months to keep you up to date on project progress, success stories, and other related news on advanced biorefineries.

Enjoy reading!



Hamid Mozaffarian, BIOREF-INTEG Coordinator, ECN



### Project Coordinator

Ir. H. Mozaffarian

Tel: +31 224 56 42 62

Email: [mozaffarian@ecn.nl](mailto:mozaffarian@ecn.nl)

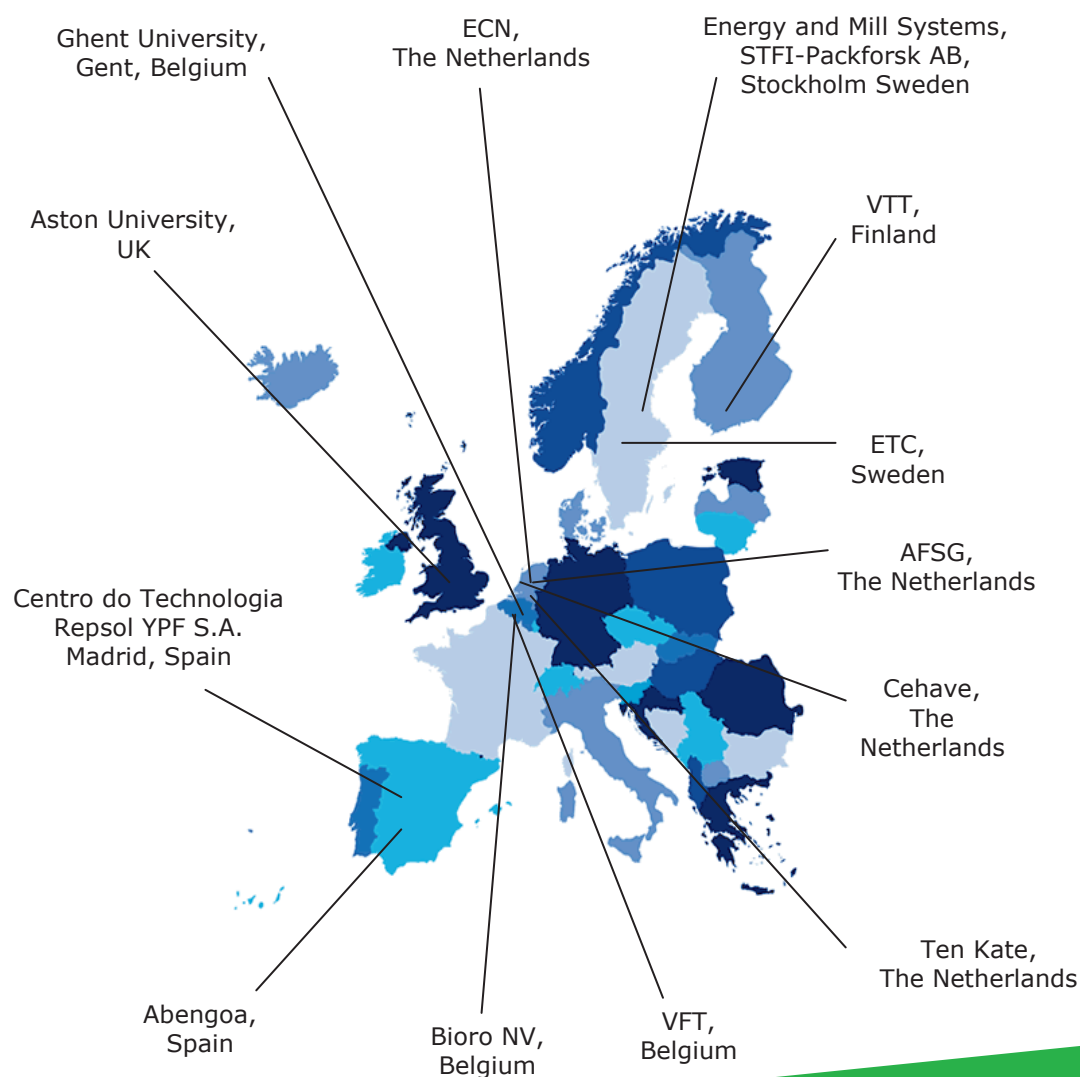


### Project Website

[www.bioref-integ.eu](http://www.bioref-integ.eu)

Development of Advanced **BIOREF**inery Schemes to be  
**INTEG**rated into Existing Industrial Fuel Complexes  
**June 2008 - May 2010**

## BIOREF-INTEG Partners



## Work Package 1: Identification and mapping of existing industrial fuel producing complexes in Europe

The goal of Work Package 1 (WP1) is to identify and map existing industrial fuel producing complexes in Europe that allow

for the integration of biorefinery processes.

The sectors dealt with are: sugar & starch (bioethanol), biodiesel, pulp & paper, conventional oil refineries, power production, the food industry, and the agrosector.

For each sector at least one reference case will be identified as a realistic representative of the sector. The reference case will include a block diagram with overall mass and energy

balances.

These reference cases will be analysed in WP 4 for upgrading to high efficiency, advanced biorefinery schemes co-producing added-value products and fuels.

ECN leads this work package with support from the following partners: ABNT, UGent, Bioro, STFI, ETC, VTT, Aston, Ten Kate, VFT, Cehave, Repsol and AFSG.

### Work Package Leader:

Hamid Mozaffarian

Tel: +31 224 564262

Email: [mozaffarian@ecn.nl](mailto:mozaffarian@ecn.nl)



## Work Package 2: Identification and market analysis of the most promising added-value products to be co-produced with biofuels.

This work package will identify products and materials and/or chemicals that could be co-produced with biofuels to increase the overall financial added-value of the raw biomass used, as well as decrease its overall environmental impact.

The technical potential of materials and chemicals will be identified from literature and patent analysis. Market analysis will be undertaken to identify the market prices and volumes of the materials and chemicals used. This will result in the selection of the most interesting added-value co-products by market sector and by reference to industrial case studies.

Aston leads WP 2, supported by AFSG, ABNT, UGENT, VTT, ECN, and VFT.

### Work Package Leader:

Tony Bridgwater

Tel: +44 0121 204 3430

Email: [a.v.bridgwater@aston.ac.uk](mailto:a.v.bridgwater@aston.ac.uk)



## Work Package 3: Biorefinery-based knowledge import from outside the EC

Work Package 3 (WP3) is concerned with “knowledge import” for advanced biorefineries outside of the EU that could be integrated into existing industrial complexes.

Analysis of conference proceedings, seminars and workshops on biorefineries will be conducted to gather information from the U.S.A, Canada, South America, and Japan.

A workshop will be organised where eminent speakers from outside of the EU will be invited to share their views on the topic of biorefineries. Results from this will be used in WP 4 for the development of the sector-specific advanced biorefinery concepts to be integrated into existing industrial complexes; with the main focus being on fuel production.

AFSG are coordinating the activity in WP 4 and are

supported by the following partners: ABNT, VTT and Aston.

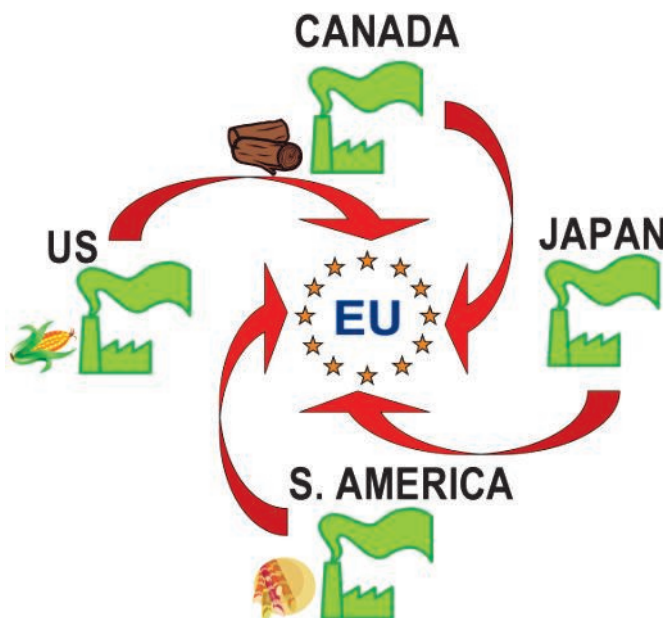
### Work Package Leader:

Mladjan Stojanovic

Tel: +31 (0) 378 7307

Email:

[mladjan.stojanovic@wur.nl](mailto:mladjan.stojanovic@wur.nl)



## Work Package 4: Technical, economic and ecological assessment of advanced biorefinery concepts integrated into existing industrial complexes

The main objective of Work Package 4 (WP 4) is to: Identify opportunities in a variety of market sectors to produce conventional products with

increased market competitiveness by co-producing added-value bioproducts.

The market sectors to be analysed are as follows: Bioethanol, Biodiesel, Pulp/paper, Conventional oil refinery, Power production, Food industry and Agro.

The project will undertake a number of tasks to include: modelling and simulation, as well as performing integral technical and environmental

system assessments.

In addition to this, WP 4 will perform financial-economic feasibility studies, provide an overview of innovative biorefinery concepts and prioritise the role of biorefineries.

WP 4 will be lead by VTT with support from: ECN, ABNT, Ugent, Bioro, STFI, ETC, Aston, VFT, Cehave, Repsol and AFSG.

### Work Package Leader:

Contact: Vesa Arpiainen

Tel: +358 20 7225666

Email: [vesa.arpiainen@vtt.fi](mailto:vesa.arpiainen@vtt.fi)



## Work Package 5: Technology deployment

The objective of Work Package 5 (WP5) is to evaluate the maturity of business models for the most promising integrated biorefinery processes.

Tasks associated with this include: the evaluation of the commercial and technical feasibility and a SWOT analysis of different biorefinery schemes; leading to conclusions on the most opportune schemes.

WP5 is scheduled for the second

year of BIOREF-INTEG and will depend on input coming from other work packages.

"A portfolio evaluation model" developed by VFT will also be used in WP5. This model measures the potential reward and risk of a specific project, taking the commercial and technical feasibility into account.

During the first year of the project, the evaluation model will be tailored to the needs of BIOREF

-INTEG.

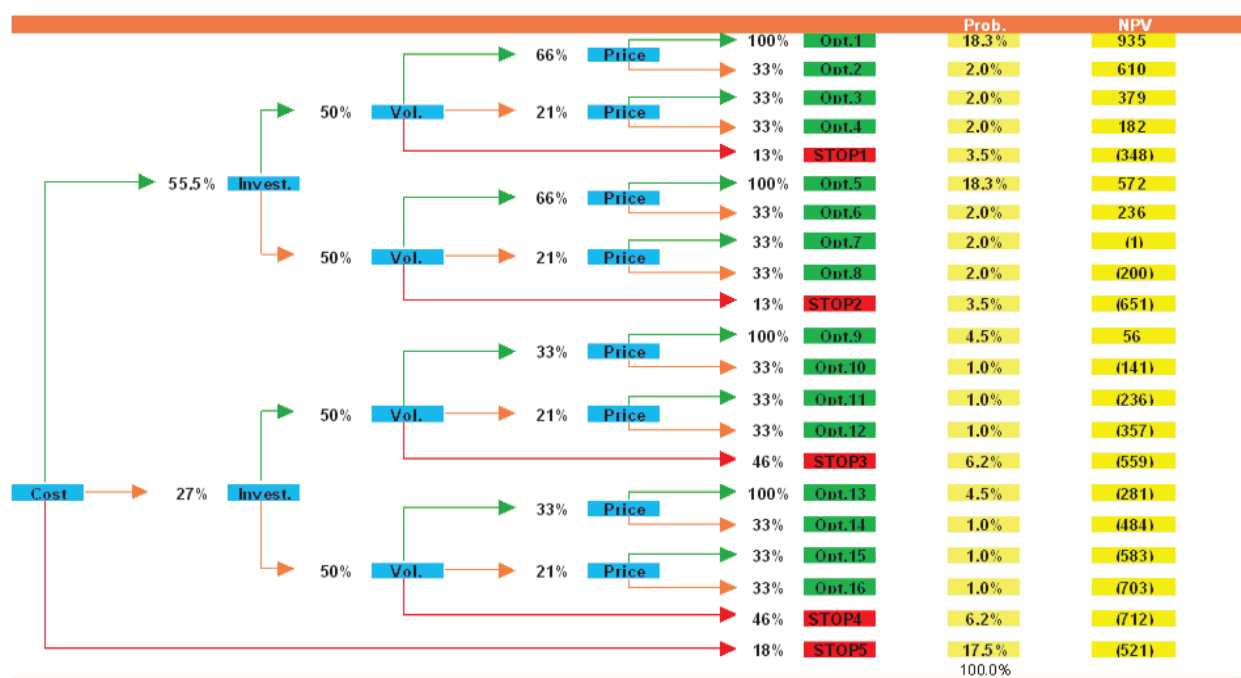
VFT lead activity in WP 5 and are supported by: VFT, AFSG, ABNT, UGent, STFI, VTT, ECN, Aston, Bioro and ETC.

### Work Package Leader:

Philippe Willems

Tel: +32 2 7593310

Email: [phw@value-for-technology.be](mailto:phw@value-for-technology.be)



## Work Package 6: Knowledge Dissemination

Work Package 6 (WP6) will coordinate the general promotion of project results to the European

industrial and R&D community by focusing on communications between the consortium and

stakeholders. It will disseminate policy options to stakeholders and policy makers, as well as general promotion, training and the creation of an advisory board.

WP 6 will coordinate work

on the Bioref-Integ website, newsletters, stakeholder workshops, training courses, publications and general dissemination.

It will be led by Aston with support from: AFSG, ABNT, UGENT, Bioro, STFI, VFT, ECN, Ten Kate, VFT, ETC, Cehave and Repsol.

### Work Package Leader:

Tony Bridgwater

Tel: +44 0121 204 3381

Email: [a.v.bridgwater@aston.ac.uk](mailto:a.v.bridgwater@aston.ac.uk)

**Biorefinery  
Researcher  
Newsletter**

**BiOREF-INTEG**

## Work Package 7: Project Management

Work Package 7 (WP7) is performed by seven separate but strongly interrelated work packages, as presented in the diagram below.

The main objectives of project management are:

- Efficient coordination of the member's contributions and project activities,

- To ensure that all project outputs and member contributions are in line with the proposed objectives by staying in permanent contact with the European Commission,

- Coordination of dissemination activities and implementation plans.

WP7 is coordinated by ECN and

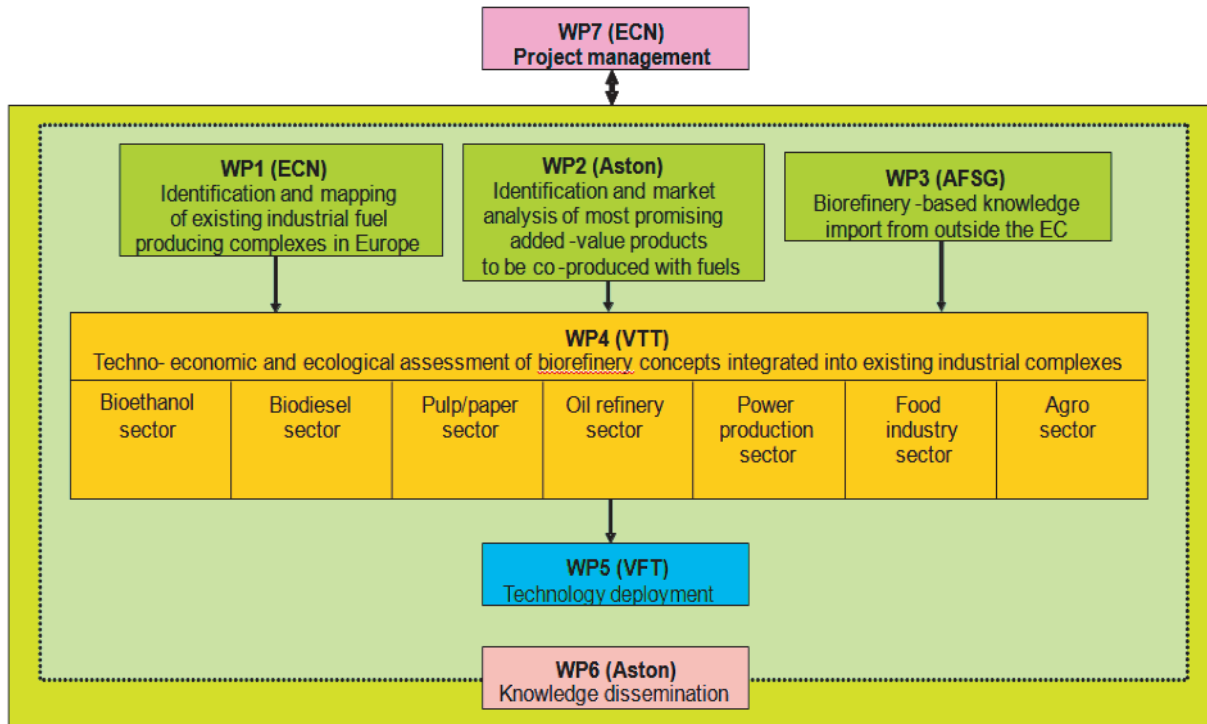
supported by the following partners: ABNT, UGent, Bioro, STFI, ETC, VTT, Aston, Ten Kate, VFT, Cehave, Repsol and AFSG.

### Work Package Leader:

Hamid Mozaffarian

Tel: +31 224 564262

Email: [mozaffarian@ecn.nl](mailto:mozaffarian@ecn.nl)



## Summary of Contact Details for Work Packages

### Work Package 1: Identification and mapping of existing industrial fuel producing complexes in Europe

Contact: Hamid Mozaffarian, ECN  
Tel: +31 224 564262  
E-mail: [mozaffarian@ecn.nl](mailto:mozaffarian@ecn.nl)

### Work Package 2: Identification and market analysis of the most promising added-value products to be co-produced with biofuels

Contact: Tony Bridgwater  
Tel: +44 (0)121 204 3381  
Email: [a.v.bridgwater@aston.ac.uk](mailto:a.v.bridgwater@aston.ac.uk)

### Work Package 3: Biorefinery-based knowledge import from outside the EC

Contact: Mladjan Stojanovic  
Tel: +31 (0) 317 48 73 07  
Email: [mladjan.stojanovic@wur.nl](mailto:mladjan.stojanovic@wur.nl)

### Work Package 4: Technical, economic and ecological assessment of advanced biorefinery concepts integrated into existing industrial complexes

Contact: Vesa Arpiainen  
Tel: +358 20 7225666  
Email: [vesa.arpiainen@vtt.fi](mailto:vesa.arpiainen@vtt.fi)

### Work Package 5: Technology deployment

Contact: Phillippe Willems  
Tel: +32 2 7593310  
Email: [phw@value-for-technology.be](mailto:phw@value-for-technology.be)

### Work Package 6: Knowledge Dissemination

Tony Bridgwater  
Tel: +44 0121 204 3381  
Email: [a.v.bridgwater@aston.ac.uk](mailto:a.v.bridgwater@aston.ac.uk)





Developing advanced biorefinery schemes to convert whole EU oil-rich crops into energy, food and bioproducts. This will make optimal use of the side streams generated during farming/harvesting, primary processing and secondary processing.

Green Chemistry Centre of Excellence,  
University of York

Tel: +44 (0)1904 434549

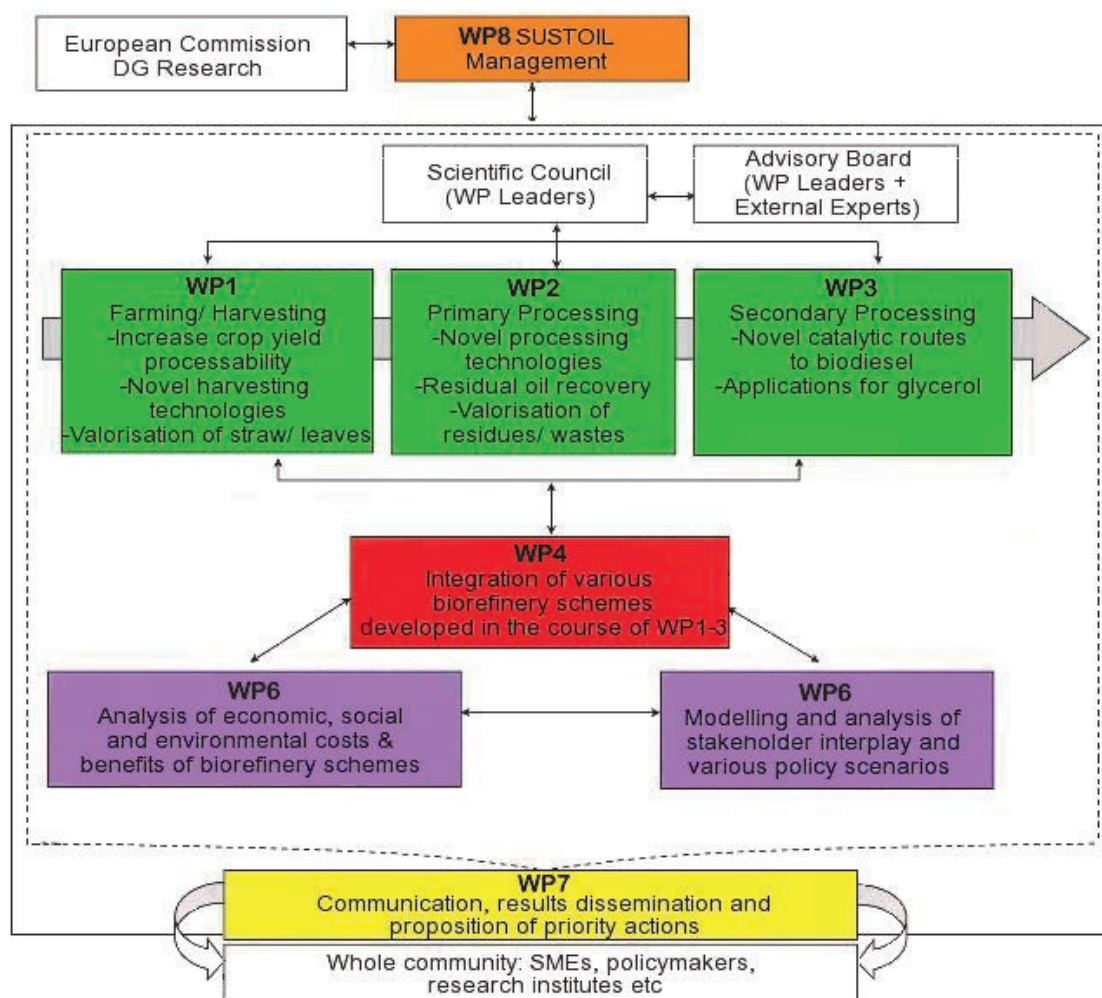
Fax: +44(0)1904 432705

Email: [info@sustoil.org](mailto:info@sustoil.org)

Web: <http://www.SUSTOIL.org>

June 2008—May 2010

# SUSTOIL Work Packages



**WP1** (led by [FORTH](#)) will identify opportunities to improve the oil-rich crop growing / harvesting stage (e.g. increase yield/area, use of novel harvesting and pre-treatment technologies, conversion of cropping by-products into valuable energy and chemical products).

**WP2** (led by [Agrotechnology and Food Innovations BV](#)) will identify opportunities to improve the oil-rich crop primary processing stage (e.g. most promising technologies to extract and refine vegetable oil, recover residual oil and convert by-products into energy and chemical products).

**WP3** (led by the [University of Pannonia](#)) will identify opportunities to improve the oil-rich crop secondary processing stage (e.g. novel route to biodiesel, novel technologies to refine and purify

glycerine, conversion of glycerol into valuable energy and chemical products).

**WP4** (led by [University of York](#)) will develop advanced biorefinery schemes integrating the information gathered through WPs 1-3 concerning the different stages of the supply chain and will investigate the potential of incorporating these into existing vegetable oil processing plants.

**WP5** (led by the [University of Manchester](#)) will ascertain the sustainability of the various developed schemes through a full life cycle assessment and computational modelling of the economic, social and environmental costs and benefits. This will enable the short-listing of the most promising schemes.

**WP6** (led by the [University of Foggia](#)) will develop various policy scenarios to understand any potential environmental, economic and policy constraints the bioenergy and biorefinery sector could face within a sustainable development framework.

**WP7** (led by the [University of York](#)) will disseminate the knowledge and results arising from SUSTOIL via this website, a biannual newsletter, 2 workshops and a final dissemination conference.

**WP8** (led by the [University of York](#)) is devoted to SUSTOIL coordination and management and will perform the legal, contractual, financial and administrative management of the project

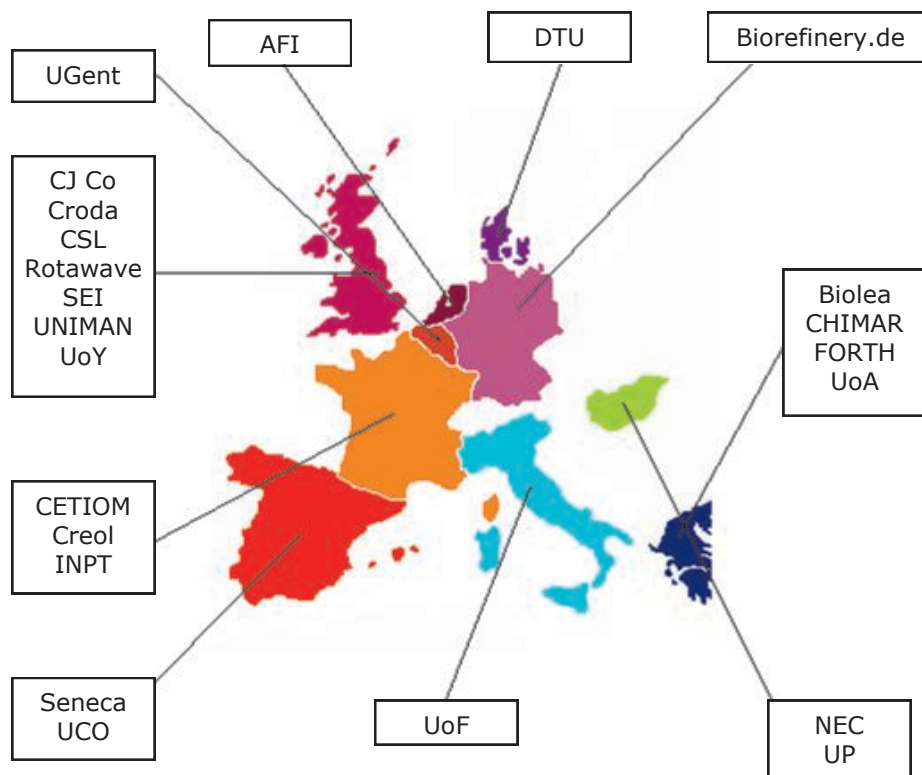
# SUSTOIL Partners

SUSTOIL will integrate the expertise of 23 project partners with the expertise of an Advisory Board composed of experts from the EU, US and beyond.

Economic, social and environmental costs benefits of optimal integrated schemes will be assessed and main technological challenges/ knowledge gaps will be identified.

Resulting in recommendations of key activities for future collaborative projects.

The map below shows where the partners are located-



## Our Partners

1. Agricultural University of Athens, Greece
2. BioCentrum-DTU, Denmark
3. Biolea, Greece
4. Biorefinery.de GMBH, Germany
5. Central Science Laboratory, UK
6. CETIOM, France
7. Charles Jackson & Co Ltd, UK
8. Chimar Hellas SA, Greece
9. Creol, France
10. Croda International PLC, UK
11. FORTH, Greece
12. INP Toulouse, France
13. Nógrádi Erdökémia Co, Hungary
14. Rotawave Ltd, UK
15. Seneca Green Catalyst SL, Spain
16. Stockholm Environment Institute, UK
17. University of Cordoba, Spain
18. University of Foggia, Italy
19. University of Ghent, Belgium
20. University of Manchester, UK
21. University of Pannonia, Hungary
22. University of York (Coordinator), UK
23. Agrotechnology and Food Innovations BV, The Netherlands

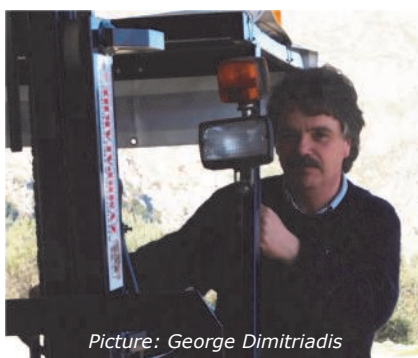
# Featured SUSTOIL Partners



*Our Art is Organic Olive Oil*

**BIOLEA** is a family owned/operated company, incorporated in Jan 1997 and based in Greece. They cultivate the family owned estate of olive orchards to produce cold pressed organic extra virgin olive oil using the traditional extraction method.

In order for BIOLEA to achieve its objectives, while at the same time being accountable to its clients, the company is greatly interested and directly involved in all stages of planning and implementing recycling, waste management and exploring possibilities of energy co-generation through waste utilization.



Picture: George Dimitriadis

## Role in the project:

Biolea will be involved in WP4 and will assess the opportunities and challenges associated with the potential incorporation of biorefining schemes developed through WP1-4 into its existing oil production plant.



**CHIMAR HELLAS** is a Greek SME, provider of innovative industrial technology for the resin & wood-based panel industries in all continents. CHIMAR develops in house and licenses know-how for the production of formaldehyde-based resins and resin additives and the application of said products in the manufacturing of

particleboard, fibreboard, plywood, oriented strand board and laminating papers.

CHIMAR also undertakes the engineering, construction and operation of plants producing formaldehyde, urea formaldehyde pre-condensate (UFC), formaldehyde resins and resin additives.

## Role in the project:

CHIMAR will be involved in WP3 and will assess the application of glycerol in adhesives for wood panels, by using the experience they gained from various lignocellulosic materials.



**Nógrádi Erdokémia Co.** is a 100% Hungarian private-owned company. No. of employees is less than 100, exceeding 75% 'blue collared workers'. The distillery works in 3 shifts, loading from the warehouses in 2 shifts. The factory area is around 31,000 sqm. Total storage capacity in tanks is ca. 2 Million litres. Total production is about 10,000 tons. Annual turnover is within €7.5-8 Million.

## Role in the project:

NEC will be involved in WP3 and will work closely together with UP (University of Pannonia) to carry out a technical-economic assessment of the production of triacetin from crude glycerol.



**Rotawave** was established in the UK in 2002 as an SME. The company specializes in the creation and development of new technology for producing added value products and energy from a wide variety of solid organic wastes and low value feedstocks. The new technology is based on continuous feed, flexible microwave processes. Current business activities include the treatment and recovery of valuable products from drilling mud's from oil feeds.

## Role in Project:

Rotawave will make available both human and capital resources including access to continuous, industrial pilot and full scale processes.

Rotawave will carry out a techno-economic assessment of their novel and innovative microwave/infrared continuous feed processor as a clean and high throughput technology for the recover of residual oil from rape and sunflower meal (WP2).



# SUSTOIL Advisors

Members	Description
Dr Geraint Evans, National Non-Food Crops Centre United Kingdom	Technology Transfer Manager specialising in biofuels and biorefineries
Melvyn Askew, Census-Bio United Kingdom	Ex Head of Agriculture and Rural Strategy at Central Science Laboratory, UK Co-ordinator of IENICA project
Dr Elizabeth Milsom, Royal Society of Chemistry, UK	Environment and Energy Policy Manager
Prof. Larry Johnson Iowa State University, United States	Director of Iowa State's Centre for Crop Utilization Research
Prof. Andrew Proctor, University of Arkansas, United States	Lipid and adsorption chemistry; vegetable oil processing – removal of non-triglycerides and use of biosilicates
Prof. Ian Graham, Centre for Novel Agricultural Products, UK	Centre for Novel Agricultural Products (CNAP) and EPOBIO
Prof. Charles Perrings University of Arizona, United States	Environmental, resource and ecological economics
Dr Kostas Triantafyllidis Aristotle University of Thessaloniki Greece	Catalytic and enzymatic conversion/upgrading of biomass towards fuels and chemicals.
Dr Hosein Shapouri United States Department of Agriculture United States	Economist with the Office of Energy Policy and Office of the Chief Economist
Dr Hans Grundberg Processum Biorefinery Initiative AB, Sweden	Research and Development
Dr Martin Patel, Utrecht University The Netherlands	Life Cycle Assessment (LCA) Coordinator of the BREW Study
Dr Hamid Mozaffarian, Energy Research Centre (ECN), The Netherlands	BIOREF-INTEG coordinator
Heinz-Joachim Belt, Solvay SA, Belgium	Research and Development
Prof. Tony Bridgwater, Aston University, UK	Head of Bioenergy Research Group (BERG), Leads the SuperGen Biomass Project, Bioenergy Consortium Project and Thermalnet
Prof. Neil Hewitt, University of Ulster, UK	Director of Centre for Sustainable Technologies
Bob Saunders, BP Biofuels, UK	Biofuels Policy Consultant and Chair of the BSI committee on Liquid Fuel Specification
Prof. Dermot Roddy, Newcastle University, UK	Director of the Sir Joseph Swan Institute
Christophe Luguel, Competitiveness Cluster IAR, France	Head of International Affairs, BIOREFINERY EUROVIEW Coordinator
Felipe Campos C. Coutinho, PETROBRAS, Brazil	Process Engineer, Research & Development Centre
Dieter Herzog, The Dow Chemical Company, Germany	Global Portfolio Leader, Ventures & Business Development
Prof. Dr Rob van Haren, University of Groningen, The Netherlands	Director Kiemkracht and chair product innovation and knowledge transfer, Agribusiness

# SUSTOIL Workshop

**Foggia, Italy. 22nd -  
26th April 2009**

Deputy's Office for the Economic  
Activities, Energy, and European  
Policies



**Location:**  
Council Board  
Hall ("Sala del  
Consiglio"),  
Provincia di  
Foggia,  
Via Paolo,  
Telesforo  
n. 25 71100,  
Foggia, Italy

## Schedule

*Wednesday 22nd April*

Arrival

*Thursday 23rd April*

Morning- Work Package 1:

Discussion and Presentations

Afternoon- Work Package 2:

Discussion and Presentations

*Friday 24th of April*

Morning- Work Package 3:

Discussion and Presentations

Afternoon- General Discussion,

Scientific Council meeting on

Resolutions, Future Actions....

*Saturday 25th of April*

A coach tour of the area

*Sunday 26th of April*

Depart

The aim of the workshop is to  
discuss the progress and findings  
of the featured work packages  
(WP1, WP2 and WP3). It is only  
open to partners, but it will be  
opened to relevant people in the  
region of Foggia.

In order to register, please email  
[info@sustoil.org](mailto:info@sustoil.org). There are  
limited places, so register early.  
More information can be found  
on our [website page](#).



## Featured Advisor

**Bob Saunders — BP Biofuels,  
United Kingdom**

I graduated as a chemical  
engineer and the  
early portion of my  
career was spent in  
various operational  
roles in BP crude oil  
refineries in the UK  
and Rotterdam.

After nearly 20  
years in refineries I  
switched career  
direction to work in  
the marketing arm  
of BP in technical roles. These  
included providing technical  
support to customers, facilitating  
the global fuels technology  
network and developing the  
international R&D programme.

Returning to the UK business,  
using my knowledge and  
expertise I took up advocacy  
post mainly in the UK but making  
a significant contribution  
supporting the European teams.



This led to a secondment  
working for the UK Government  
in the DTI covering downstream  
oil issues. Returning to BP I have  
been deeply involved in the

Biofuels business again  
in an policy role and  
representing BP in  
numerous forums. I am  
still involved in  
developing transport fuel  
specifications and chair  
the BSI liquid fuels  
committee.

Recently I have also  
taken the chair as the  
BSI committee  
developing Biomass sustainability  
standards.



## SUSTOIL Web Site is Live



### Statistics to Date:

- ⇒ Over 1,700 visitors
- ⇒ An average of 7 visitors per day
- ⇒ Over 11,000 pages have been viewed
- ⇒ Our visitors are from 20 different countries.
- ⇒ 48% of visitors are from the UK
- ⇒ 52% of visitors are from the rest of the world including, USA, Greece, Australia and China.

Our new website can be found at  
<http://www.sustoil.org>

Our dedicated intranet system for  
all project partners is also live.  
Please sign yourself up to take full  
advantage of this service-  
<http://www.york.ac.uk/res/sustoil/Pages/Login.html>

# General News



Led by Professor Tony Bridgwater, the **BioEnergy Research Group (BERG)** at Aston University is one of the largest University based research groups in thermal biomass conversion in the world. Research is focused on thermal processing technologies to include:

- Pyrolysis for production of liquid, gas and charcoal
- Gasification for production of gas for use as fuel, for production of hydrogen, or for synthesis of transport fuels and chemical
- Combustion for production of heat that can be used for heat and/or power production

In addition to BERG's involvement with BIOREF-INTEG, the group is also an active academic partner in a number of UK and European Bioenergy projects:

**SUPERGEN** - The SUPERGEN Bioenergy Consortium is a UK project led by Aston University which carries out research into all steps in the bioenergy chain from production of biomass to delivery of a useful and valuable energy product.

**PyNe** - The Biomass Pyrolysis Network is a global network of active researchers and developers of fast pyrolysis, looking into scientific and technological developments in pyrolysis and related technologies for the production of liquid fuels,

electricity and chemicals. **Bioenergy Network of Excellence (NoE)** - is a European group of eight leading bioenergy institutes integrating RD&D activities to create a Virtual Bioenergy R&D Centre that will contribute to a competitive bioenergy market in Europe.

**BIOENERGY** - The BIOSYNERGY project aims to use BIOMass for SYNthesis processes and enERGY production by the application of innovative, fully integrated, synergetic biorefinery concepts, using advanced fractionation and conversion processes, and combining biochemical and thermochemical pathways.

**Contact:**  
[Professor Tony Bridgwater](#)



## Biorefinery Publications

[SUSTOIL—WP 6: Modelling Stakeholder Interplay and Policy Scenarios for Biorefinery and Biodiesel Production](#)  
November 2008

[Biorefineries - Industrial Processes and Products Status Quo and Future Directions](#)  
Wiley 2006

[Introduction to Chemicals from Biomass](#)  
Wiley 2008

[Comparative economics of biorefineries based on the biochemical and thermochemical platforms](#)  
Biofuels, Bioproducts and Biorefining, 2007

Please visit our Publications page



## Joint Call Biorefinery 2009

Launched on the 3<sup>rd</sup> of September 2008, the Joint Call involves four research themes under the 7<sup>th</sup> Cooperation Framework Agreement (FP7) and two Commission Directorates-General, DG RTD (Research) and DG TREN (Transport and Energy).

This call will fund projects converting biomass into energy and value-added bio-products and materials in a biorefinery; it was also hope to expand the research on this subject.

The projects to be funded are expected to address the entire value chain, include thermo- and bio-chemical technologies; they will also deal with environmental impacts and policies.

It uses a two-stage proposal submission procedure and a total of 57 M€ from the four budgets is available for a few larger projects:



### - Sustainable Biorefineries (55 M€)

Development of technologies for the entire value chain from biomass production, logistics and pre-treatment to conversion (thermo-chemical and biochemical technologies) of different types of biomass feedstock into bio-based products and energy. Assessment of the environmental, economic and social sustainability.

### - Enhancing exchange of information, synergies and cross-fertilization between on-going biorefinery projects (2 M€)

Co-ordination and support action

Each topic addresses four themes of the FP7 Cooperation Specific Programme-



- ⇒ Environment
- ⇒ Food, agriculture and fisheries, biotechnology
- ⇒ Nanotechnologies, Nanosciences, new production technologies, materials
- ⇒ Energy

SUSTOIL and BIOREF-INTEG are very much in support of this initiative which will be vital to the development of the fast growing and multi disciplinary area of biorefineries. Click [here](#) for more information.



# Green Chemistry Centre of Excellence

The Green Chemistry Centre of Excellence is currently involved in a range of research projects including those that involve pure "discovery orientated" research, 1:1 collaborations with companies which can be directed at short term focussed projects or on quite broad green chemistry targets, and multi-partner supply chain consortia designed to provide complete solutions to major industrial challenges.



Our industrial collaborators cover a multitude of sectors including chemicals, pharmaceuticals, retail, farming, paints, floor coverings, furniture and personal care products.

## Current projects include:

- The physical and chemical modification of polysaccharides including the new Starbon materials
- Switchable starch based adhesives for new recyclable carpet tiles
- The use of microwaves to assist chemical reactions and for the activation of biomass
- The extraction of valuable chemicals from agricultural and electronic waste streams using low environmental impact technologies including supercritical fluids
- The construction of general purpose boards from low value agricultural by-products and combustion ashes

- The use of biofuel and other biorefinery products and by-products including fermentation broths as feedstocks for chemical synthesis
- The design of novel clean synthesis routes to important chemical intermediates including amides and polymers

## Contact-

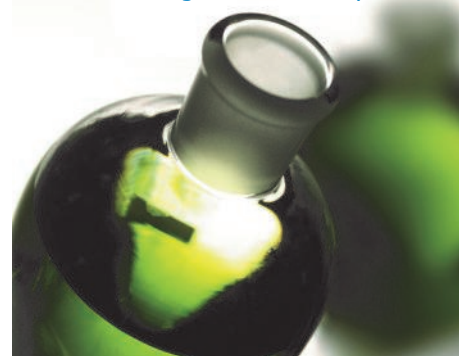
### Professor James Clark

Director

Tel: 01904 432559

Email:

[James.Clark@greenchemistry.net](mailto:James.Clark@greenchemistry.net)



# BIOSYnergy

The objective of the BIOSYNERGY project is to contribute to the cost effective use of biomass especially lignocellulose and residues; by the development of integrated production technology for biomass derived chemicals, transportation fuels and energy from lab-scale to demonstration at pilot-scale.

The aim is to develop innovative, fully integrated, synergetic biorefinery concepts, using advanced fractionation and conversion processes, and combining biochemical and thermochemical pathways.

The project is a collaborative effort of 17 partners from industry, R&D institutes and universities from 10 EU countries and is financially supported by the European Commission through its sixth Framework Program.

The main fields for technology development in the project are:

- developing innovative technologies for physico-chemical fractionation of major European biomass feedstock's including wheat straw, and wood chips for further processing;
- developing new thermo-chemical conversion strategies and advanced biochemical conversion techniques for the production of transportation fuels

and intermediate products such as butanol, phenolics and furfural to serve as platform chemicals for the synthesis of value-added chemicals;

- designing downstream processes for synthesising value-added chemicals and fuels;
- implementing and demonstrating selected technologies at pilot scale.

The project began in 2007 and Hans Reith, Project Coordinator is pleased with the progress so far... "The topic is complex but we have a very professional

project team comprising R&D institutes and companies who are at the forefront of innovation in the field of biofuels production and advanced biorefineries"

For information please visit the website [www.biosynergy.eu](http://www.biosynergy.eu).

## Contact

Hans Reith

[reith@ecn.nl](mailto:reith@ecn.nl)





SUSTOIL  
Green Chemistry Centre of Excellence  
Chemistry Department  
University of York  
Heslington  
York  
YO10 5DD

Tel: +44 (0)1904 434549  
Fax: +44(0)1904 432705  
Email: [info@sustoil.org](mailto:info@sustoil.org)

Web: <http://www.SUSTOIL.org>



Hamid Mozaffarian, BIOREF-INTEG Coordinator  
Energy Research Centre of the Netherlands (ECN)  
Business Unit "Policy Studies"  
PO Box 1  
1755 ZG Petten  
The Netherlands

Tel: +31 224 564262

Email: [mozaffarian@ecn.nl](mailto:mozaffarian@ecn.nl)

Web: <http://www.bioref-integ.eu>