



*European Biofuels Technology Platform – Support for Advanced Biofuels Stakeholders*

## **Report on the 6<sup>th</sup> Stakeholder Plenary Meeting of the European Biofuels Technology Platform**

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*European Biofuels Technology Platform – Support for Advanced Biofuels Stakeholders*

## **Report on the 6<sup>th</sup> Stakeholder Plenary Meeting of the European Biofuels Technology Platform**

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**FINAL DRAFT**

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## PROJECT PARTNERS

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## EXECUTIVE SUMMARY

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The European Biofuels Technology Platform (EBTP) aims to contribute to the development of cost-competitive world-class biofuels value chains and the creation of a healthy biofuels industry, and to accelerate the sustainable deployment of biofuels in the European Union, through a process of guidance, prioritisation and promotion of research, technology development and demonstration.

The Stakeholder Plenary Meeting which was organised by the EBTP-SABS project consortium in cooperation with the EBTP Steering Committee brings together the EBTP stakeholders and people interested in the biofuels sector. The 6<sup>th</sup> SPM Meeting took place on October 14<sup>th</sup>-15<sup>th</sup> 2014, and drew interest to around 140 participants from mostly consultancy companies, research institutes and fuel producers. Participants from 25 different countries (mostly European) contributed to the meeting.

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## LIST OF ABBREVIATIONS

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BtL	Biomass to liquid
CEO	Chief Executive Officer
EBB	European Biodiesel Board
EBTP	European Biofuels Technology Platform
EBTP-SABS	European Biofuels Technology Platform – Support for Advanced Biofuels Stakeholders
e.g.	for example
EU	European Union
EIBI	European Industrial Bioenergy Initiative
iCET	Innovation Center for Energy and Transportation
IEA	International Energy Agency
ILUC	Indirect Land Use Change
ITAKA	Initiative towards Sustainable Kerosene for Aviation
NGO	Non-Governmental Organization
R&D	Research and Development
SPM	Stakeholder Plenary Meeting
UCO	Used Cooking Oil

## 1 Introduction

The 6<sup>th</sup> Stakeholder Plenary Meeting (SPM) took place on October 14<sup>th</sup>-15<sup>th</sup> 2014, and drew interest to around 140 participants from mostly consultancy companies, research institutes and fuel producers. Participants from 25 different countries (mostly European) contributed to the meeting. The following report will summarize the presentations given in each of the 5 Sessions. The meeting is evaluated in



chapter 3, based on a questionnaire which was distributed to the participants. Background information of the conference can be found in the Annex. This includes the agenda, speaker information and the list of participants.

## 2 Summary of the Sessions<sup>1</sup>

### Keynote address:

The keynote address at SPM6 was presented by **Paul Verhoef, Head of Unit, Renewable Energy Sources, European Commission DG Research & Innovation**, stressing that bioenergy is an integral part of the low-carbon economy in Europe.

Mr Verhoef quoted Jean-Claude Juncker, President-elect of the European Commission, who has said Europe needs to "mobilise EUR 300 billion in public and above all private investments over the next three years [...] through the targeted use of the existing structural funds and of the EIB instruments...Renewable energies and their development is a sine qua non if tomorrow's Europe really is going to create lasting, consistent and sustainable locational advantages which are directly comparable with those of other world players."

EU Energy policy priorities include energy security, efficiency and meeting renewable energy targets. Biofuels production and bioenergy production are both predicted to increase year-on-year up to 2020 (bioenergy more rapidly). Development and deployment of innovative advanced biofuels technology is supported in the EU by the SET-Plan (EIBI), Horizon2020, NER300, and the Bio-based Industries JU. However there are several critical issues to address: in particular the regulatory situation, availability of risk funding and analysis of biomass availability. An integrated bio-industry strategy is needed (for both biofuels and bioproducts). R&D is still needed to overcome production technology issues and international cooperation is essential.

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<sup>1</sup> All presentations are available on the EBTP website (<http://biofuelstp.eu/spm6/spm6.html>)

## Session 1: Low carbon transport and energy security - the role of biofuels in a 'low-carbon' energy system

The EU 2030 framework and energy security was presented by **Andreas Pilzecker, European Commission DG Energy**, who stressed the need for Europe to shift away from fuel expenditure (and dependency on imports) to investment in energy. The Commission does not see the need for specific targets for renewable energy in transport post 2020. The focus of policy development should be on 2nd and 3rd generation biofuels and other sustainable fuels. Advanced biofuels are considered part of the 300 billion Euro investment plan. The latest news and information is available from the Renewable Energy pages of the Europa website.

**Ausilio Bauen, E4Tech**, indicated that biofuels could contribute between 12-15% to road transport fuel energy by 2030, but this depends on a shared fuel and automotive industry vision and roadmap.

**Charles Esser, IEA**, explained that growing uncertainty about policy was slowing growth in the biofuels industry in Europe and globally. Other factors are impacting on global biofuels markets, such as the ethanol blend wall in the US, the challenging economic situation in Brazil, policy changes (at home and abroad) in Argentina, and EC policy uncertainty. On the plus side, biodiesel production costs are declining and emerging markets (including Asia and Africa) are expanding rapidly, partly driven by rising oil import bills. Advanced biofuel technologies are currently in the "valley of death", hence long-term policy stability is vital for future growth.

**Heather Hamje, Concawe**, presented the latest JEC Well-to-Wheels Biofuels Study, which (among other goals) aims to clarify the barriers and opportunities relating to the 10% renewable energy in transport target. JEC analysis suggests current installed capacity in Europe is sufficient to cover projected biofuels demand in 2020. Non-conventional (advanced) biofuels production is predicted to 'stabilise' globally over the next 3-4 years and then increase more rapidly from 2019-2020. Various feedstock-to-fuel pathways were presented, showing, as expected, that use of waste oils and cellulosic materials offer potential emissions reductions. However, not all feedstock/technology combinations are equally effective, and a common methodology is essential to compare specific pathways and determine those that offer the most promising energy security and emissions benefits. Heather Hamje of Concawe, presented the latest JEC Well-to-Wheels Biofuels Study, which (among other goals) aims to clarify the barriers and opportunities relating to the 10% renewable energy in transport target. JEC analysis suggests current installed capacity in Europe is sufficient to cover projected biofuels demand in 2020. Non-conventional (advanced) biofuels production is predicted to stabilise globally over the next 3-4 years and then increase more rapidly from 2019-2020. Various feedstock-to-fuel pathways were presented, showing, as expected, that use of waste oils and cellulosic materials offer potential emissions reductions. However, not all feedstock/technology combinations are equally effective, and a common methodology is essential to compare specific pathways and determine those that offer the most promising energy security and emissions benefits.



## Session 2: Europe and beyond - perspectives from the global biofuels industry

The session on global biofuels started with experiences from the UK where the Renewable Transport Fuel Obligation has accelerated development of the biofuels market, and where new initiatives are being introduced to support waste-derived and advanced biofuels. **Jonathan Hood, Low Carbon Fuels, Department for Transport**, UK pointed out that only biofuels that comply with sustainability criteria are currently included in UK targets, but current provisions do not address iLUC, pending a final decision on EU negotiations ongoing since 2012. However, already ~50% of biofuels supplied into UK (2012-2013) were derived from waste feedstocks. A £25m advanced biofuel demonstration competition has been launched to support development of at least one UK facility by 2018.

**Liping Kang, Innovation Center for Energy and Transportation (iCET)** provided an update on background and drivers for development of China's biofuels market and the current state of biofuels governance, as well as global collaborations and suggested areas for action. As in Europe, there are concerns over use of food crops for biofuels. Subsidies for grain-based ethanol will be phased out by 2015. A subsidy for cellulosic ethanol has been introduced. Currently, there are 3 industrial-scale cellulosic ethanol demonstration facilities in China based on corn cob and stalk (one with involvement of Novozymes). There is also research into BtL using agricultural residues as feedstocks. UCO (industrialized since 2006) and Jatropha (demonstration stage) are used as 'medium term' feedstocks for biodiesel production. Cassava and sweet sorghum (industrialised since 2008) are also used as feedstocks for bioethanol (so called 1.5 G). Further details are included in the presentation.

**Raffaello Garofalo, European Biodiesel Board**, discussed the issues raised by lack of consistent tools to trace the origins of biofuels, which he said led to price distortions and fraudulent behaviour. To address this, he proposed an EU-wide certification system (to certify quantity) and a traceability system (to prevent quality fraud). The Register of Biofuels Origination RBO was presented as an initiative to help solve these two issues.

**Don Smith, James McGill Professor and CEO & Scientific Director of BioFuelNet Canada**, provided an update on Biofuels Development in North America. As in other countries (above), there is a growing emphasis on advanced biofuels. In the United States, the largest biofuels producer in the world, currently 89% of biofuel is still derived from grain. The Renewable Fuel Standard (RFS) requires an increase in lignocellulosic ethanol. Commercial-scale advanced biorefineries are operational (or close to), notably: POET-DSM Project Liberty; Abengoa Bioenergy Hugoton Facility; and the DuPont Nevada Facility. The US military (US Navy, Marine Corps and Army) all have set ambitious targets for renewable fuels, and the US DoD has awarded \$210m to three companies to build biorefineries (Emerald Biofuels, Fulcrum BioEnergy and Red Rock Bio). The aim is cost-competitive drop-in biofuels. Biofuels production in Canada is now increasing rapidly (ten fold increase in 10 years). Enerkem is operating advanced biorefineries based on MSW and industrial waste. BioFuelNet - a network of excellence, including universities, researchers and industry partners - is accelerating the development of a thriving advanced biofuels industry in Canada (its aims being similar to those of the EBTP in Europe).

## Session 3: The road to success: steps towards commercial advanced biofuels

A comprehensive overview of advanced technologies in Europe and globally was presented by **Dina Bacovsky, BIOENERGY 2020+**, Austria, covering:

- oleochemical facilities (e.g. Neste Oil, Eni, Diamond Green Diesel, REG Geismar and UPM Biofuels).
- biochemical facilities (e.g. POET-DSM, GanBio, Beta Renewables, Gevo, CTC, INEOS Bio,

Abengoa, Du Pont, Amyris)

- thermochemical facilities (e.h. BioMCN, Fortum, Enerkem, Gotebog Energi)

A number of other thermochemical facilities are in the pipeline (e.g. Sundrop Biofuels, Akwawit, Gulf Coast Energy, Virent, Clearfuels, Solena, CORE Biofuels, Cool Panet, Vanerco, etc). Cellulosic ethanol facilities are also being developed in China (notably, Longlive Bioetchnology and Henan Tianguan Group). Globally, cumulative advanced biofuel production capacities have reached almost 4.5m tons per annum (mainly oleochemical).

It was pointed out that important lessons could be learned from those projects that did not make it through to commercial operation, and from initiatives such as the US DoE biorefinery program.

**Sari Mannonen, UPM Biofuels**, Finland, and **Sören Eriksson, Preem**, Sweden, explained how traditional Paper and Pulp facilities are now being turned into biorefineries, producing biofuels from Tall Oil, and other valuable sustainable bioproducts (bicomposites and biochemicals). A commercial-scale investment at the UPM Lappeenranta Biorefinery has led to the commissioning of production technology for 100,000 tonnes per annum of renewable diesel from wood (~25% of Finland's biofuel target).

It was pointed out that Preem biorefineries emit significantly less carbon dioxide, nitrogen oxides and sulphur oxides than average European refineries. The potential for co-processing of forest-based feedstock was highlighted, with Preem Evolution Diesel including up to 35% renewable content, and the 'same type of hydrocarbons' as fossil diesel. The next step is production of renewable gasoline.

The development of algae for production of advanced aviation biofuels (biojet fuel) was presented by **Dominik Behrendt, FZ Jülich**, Germany. The 7.7m Euro AUFWIND project includes seven partners and will investigate state-of-the-art algae biofuel production at 'small' pilot scale. Challenges include stable and consistent production of algae and extraction of oil. AUFWIND aims for increased oil yield, quicker extraction of bulk biomass, improved stability of the refining process and a standardised comparison of algal species in three parallel reactors..

### **Session 5 - Advanced biofuels end-use for road freight, air and shipping**

The 'Initiative towards Sustainable Kerosene for Aviation' **ITAKA** - a collaborative project on development and testing of biojet fuels - was presented by **Inmaculada Gomez Jimenez**, who highlighted the need to create an efficient biofuel supply chain connecting cultivation and conversion with demand and standards in the airline industry. Production is initially focused on Camelina as a feedstock, and conversion to renewable aviation fuel at the Neste Oil Porvoo Refinery. The project also addresses downstream logistics (blending, transport, storage and airport supply operations), as well as engine and fuel systems testing, and system sustainability.

Fuel and technology alternatives for commercial vehicles were presented by **Nils-Olof Nylund, VTT**, Finland covering European energy use in transport; Vehicle categories; Current state of the art (heavy-duty diesel); Evaluation of alternatives; and use of drop-in fuels in Finland.

The use of biofuels in the marine sector was presented by **Per Stefenson, Stena Teknik**, who highlighted the potential offered by methanol as an alternative shipping fuel, and the challenges of compliance with the Sulphur Emission Control Area rules. Financial and technological aspects of converting ships to methanol were covered, and the results of recent testing were provided in summary. The environmental performance of different marine fuels was compared, and the future potential of biomethanol as a shipping fuel was discussed (currently costs and availability favour fossil methanol).

## Panel discussion on biomass mobilisation and sustainability

The main points arising from the panel discussion have been collated by **Calliope Panoutsou**, Imperial College London, and are included in her presentation on 'biomass mobilisation and sustainability'. It was pointed out that biomass supply is a missing pillar in achieving progress in the energy and non-energy sectors of the European bioeconomy. To maximise the use of Europe's 'natural capital' a coherent and integrated approach is essential combining:

- mobilisation of biomass resources (agri, forestry and wastes) ;
- environmental protection (impacts on soil, land, water and air) ;
- demand-side management (e.g. end-use efficiency, conversion efficiency, cascading biorefinery concepts, 'recycling' of carbon, etc).

To achieve this there needs to be:

- better understanding of inter-disciplinary issues that frame future biomass supply across multiple sectors
- a level playing field for biomass resources irrespective of end markets
- bottom-up analysis and a regional focus on biomass availability studies
- financial and policy support for resource-efficient supply
- placement of sustainable and smart use of resources at the heart of all business, industrial and societal activities
- complementary biomass supply and demand strategies
- building of biorefinery steps into existing bioindustry capacity in Europe

## 3 Analysis of the participants' questionnaire

Within the conference proceedings of the 6th Stakeholder Plenary Meeting a questionnaire was distributed to all participants in order to evaluate the conference via various questions with the overall objective for the Secretariat and partly the SC to receive feedback on the organization and the program. As response the Secretariat has received 56 completed questionnaires after the conference, which makes a quota of approx.43 % in total.

The questionnaire consisted of 8 questions, mixed with closed and open questions. Regarding the organizational part it asked about the overall conference organization and the provided informational material distributed at the registration desk. Concerning the contextual aspect it requested the usefulness of the presentations to the participants organisation, the most interesting session / presentation, the balance between presentations and discussions and the usefulness of the meeting itself to meet and network with other stakeholders. Finally space was given for further comments on the 6th SPM and further conferences/events/meetings in the future of the European Biofuels Technology Platform (please see full questionnaire attached #4).

The **results from the received responses** are presented in the following. In the first instance the participants had the opportunity to evaluate the organization of the event as well as the informational material distributed at the registration desk. The organisation (also including the contact to the stakeholders / user friendly and regular updated website with relevant information on the event) has been rated as "very good" and "good", with a quota of 66 % and 32 % respectively.

Conference material was distributed at the registration desk including an agenda and a speaker brochure listing all speaker CV's and their presentation abstracts. A majority of 50 % evaluated the

distributed conference material “good”, 36 % with “very good” and 14 % with “satisfactory”. No one complained that the content of the conference material was “not satisfactory”. In previous SPM the conference material was distributed in a conference folder and on an USB stick. The received feedback in this context is comparabal to the previous year. In earlier years, the Secretariat has tried to get hold of the presentations before the meeting, but was mostly unsuccessful. Due to this experience, the EBTP-SABS team has decided not to hand out USB sticks this year. Instead, the presentations have been uploaded to the website of the EBTP within one week after the meeting and all participants have been informed.

The usefulness of the presentations or how relevant the presentations have been to the participants work/organisation has been rated “very relevant” with 44 %. For 47 % of the participants the presentations have been rated as “relevant” to their work / organisation, 9 % of participants were only satisfied with the presentations and none of the participants stated that the presentations were not useful at all.

The answers from the participants on the most interesting presentations showed the wide interest of the audience. All session and the panel discussion have been chosen as most interesting. Session 1 ‘Political session – Low carbon transport and energy security’ and Session 4 ‘Biofuels technology advancements’ have been rated most often as the most interesting sessions (each 12 times). Session 5 ‘Advanced biofuels in different applications’ and the Final panel have received the fewest votes. This might be due to the fact that at the end of the conference not all participants have still been present.

From the single speakers no one stood out following the vote cast instead some speakers and their presentations have been named multiple times including Paul Verhoef (EU Commission), Andreas Pilzecker (EU Commission), Petri Lehmus (Neste Oil), Dina Bacovsky (Bioenergy2020+), Raffaello Garofalo (EBB), Sari Mannonen (UPM) and Nils-Olof Nyland (VTT).

In previous SPM the participants have stated that more time for Questions and Answers is needed. The Secretariat has planned for longer Q&A which did not completely work out. At the SPM6 33 % of participants rated the balance between presentations & discussion time as only satisfactory. The balance between presentations & discussion time has been rated as “good” with by 33 % and as “very good” by 31 % of participants. The EBTP Steering Committee suggested to alternate the speaking time between different speakers depending on their topic. For example, shorter speaking time for a project presentation and longer speaking time for more complex topics.

The last SPM was able to increase the networking success and was rated as good and very good 83 % for meeting with other stakeholders (in comparisson at SPM4 40 % voted “satisfactory”). At the SPM6 the network possibility has still received good results. 84 % have rated the the networking possibility as ‘good’ and ‘very good’.

Only 32 % of the participants who returned the questionnaire took part in previous SPM, the rest of participants attended a SPM for the first time. Those who have already participated in previous SPMs stated to 59 % that the variation of topics between the Stakeholder Plenary Meetings was good, 24 % even found the variation of topics very good, whereas 17 % of participants were only satisfied with it. On the background that 68 % have not been to a SPM before the positive feedback will hopefully increase the recognition of the whole platform.

Finally space was provided to give the participants the opportunity for further comments and suggestions on the 6th Stakeholder Plenary Meeting or suggestions regarding future conferences / meetings / workshops of the EBTP. Since this was an open question, some interesting and good

comments and suggestions for further improvement have been received, positive compliments and also good and useful criticism. It was i.e. commented / suggested / asked:

- Address sustainability issues from the perspective of standards and certification
- List of participants could include one line on their area of work
- Perhaps it would be useful to include in the programme a poster presentation
- Please invite somebody from an NGO or a university that deals with land competition (including social aspects) to widen the perspective on biofuels

All received comments and suggestions can be seen in the questionnaire overview of the received responses (Attachment #5).

## **4 Conclusion**

All in all the overall satisfaction of the participants concerning organisational and contextual aspects can be considered as “good” with potential further improvement in detailed aspects. The secretariat has received quite a lot of completed questionnaires, and they included very useful comments / suggestions and also compliments. The EBTP-SABS Team will gladly take all these into account for further improvement in preparing and organising meetings and conferences for the European Biofuels Technology Platform.

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## ATTACHMENTS

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#1 AGENDA .....	VIII
#2 SPEAKERS CVS & ABSTRACTS .....	X
#3 LIST OF PARTICIPANTS .....	XXVI
#4 PARTICIPANTS QUESTIONNAIRE .....	XXX
#5 OVERVIEW ON RESPONSES FROM THE 'PARTICIPANTS QUESTIONNAIRE' ....	XXX !

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October 14<sup>th</sup> 2014

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- 12:30-13:00**            **Registration of participants and coffee**
- 13:00-13:15**            **Welcome address**  
*Tomas Kåberger, Chair of EBTP Steering Committee, Chalmers University of Technology*
- 13:15-13:35**            **Keynote speech by European Commission – Paul Verhoef, DG Research and Innovation**
- 13:35-15:00**            **Session 1 Political session – Low carbon transport and energy security**  
*Moderator: Sandrine Dixson-Declève, Vice-Chair of EBTP Steering Committee, University of Cambridge Institute for Sustainability Leadership (CISL)*
- The EU 2030 framework and energy security**  
*Andreas Pilzecker European Commission, DG Energy*
- A harmonised Auto-Fuel biofuel roadmap for the EU to 2030**  
*Ausilio Bauen, E4Tech*
- IEA perspective of the role of biofuels in a low carbon energy system**  
*Charles Esser, IEA*
- Biofuels on a lifecycle basis**  
*Heather Hamje, Concaawe*
- Q&A
- 15:00-15:30**            **Coffee**
- 15:30-17:00**            **Session 2 Europe and beyond – Outlook and learning from different countries**  
*Moderator: Tomas Kåberger, Chair of EBTP Steering Committee, Chalmers University of Technology*
- Biofuels development in Europe: UK experience of the Renewable Transport Fuel Obligation and policies to promote the development of waste-derived and advanced biofuels,**  
*Jonathan Hood, UK Department for Transport*
- Biofuel experience in China**  
*Liping Kang, Innovation Center for Energy and Transportation (iCET)*
- Is there a better way to incentivise advanced biofuels in the EU?**  
*Raffaello Garofalo, EBB*
- Biofuels development in Canada and the US**  
*Don Smith, BiofuelsNet Canada*
- Q&A
- 17:00-18:00**            **Session 3 Success stories - Biofuels technology-The road so far -lessons learnt from different biofuel plants**  
*Moderator: Kai Sipilä, Co-Chair of EBTP Working Group 2 - Conversion processes, VTT Finland*

**Large scale chemical conversion of oils and residues in Rotterdam**

*Petri Lehmus NesteOil*

**The FUTUROL pilot demonstration on cellulosic ethanol**

*Frédéric Martel, Procethol 2G*

**NER300 project: Maabjerg Energy Concept**

*Niels Henriksen, DONG Energy*

Q&A

**18:00-20:00**      **Cocktail reception & Networking**

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**October 15<sup>th</sup> 2014**

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**09:00-09:30**      **Registration of participants and coffee**

**09:30-09:35**      **Welcome**

**09:35-11:00**      **Session 4 - Biofuels technology advancements**

*Moderator: Markku Karlsson, Vice Chair of EBTP Steering Committee and Vice-Chair of Working Group 1 - Biomass Availability and Supply , Finnish Forestry Industries Federation*

**Overview advanced biofuels technologies**

*Dina Bacovsky, Bioenergy 2020*

**Biorefinery for production of advanced wood-based biofuels**

*Sari Manonen, UPM*

**The use of algae for the production of advanced biofuels**

*Dominik Behrendt, Aufwind FZ Jülich*

**Advanced biofuels and new feedstock's**

*Sören Eriksson, Preem*

Q&A

**11:00-11:30**      **Coffee**

**11:30-12:30**      **Session 5- Advanced biofuels in different applications**

*Moderator Ingvar Landälv, Vice Chair of EBTP Steering Committee and Co-Chair Working Group 2 - Conversion Processes; Lulea University of Technology and Chemrec AB*

**State of the art aviation fuel**

*Inmaculada Gómez, SENASA*

**Fuel and technology alternatives for commercial vehicles**

*Nils-Olof Nylund, VTT Finland*

**The use of biofuels in the maritime sector**

*Per Stefenson, Stena AB*

Q&A

**12:30-13:25**      **Final panel - Biomass mobilisation and sustainability**

**Panelists:**      *Calliope Panoutsou, Chair of EBTP Working Group 1 - Biomass Availability and Supply, Imperial College London (discussion leader), Ausilio Bauen, E4Tech, Luc Pelkmans, VITO, Udo Mantau, University Hamburg, Kai Sipilä, Co-Chair of EBTP Working Group 2 'Conversion processes', VTT Finland*

**13:25-13:30**      **Closing address**

*Tomas Kåberger, Chair of EBTP Steering Committee, Chalmers University of Technology*

# European Biofuels Technology Platform: 6th Stakeholder Plenary Meeting

## Speakers: CVs & Abstracts

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### Welcome

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#### **Tomas Kåberger,**

Chair of EBTP Steering Committee, Chalmers University of Technology



Currently, Tomas Kåberger serves as Professor of Industrial Energy Policy at Chalmers University of Technology where he is also responsible for the collaboration between the university and energy companies, including research on sustainable renewable biofuels with the Preem refinery and collaboration on biomass gasification with Göteborg Energy on the GoBiGas project producing methane. He is also a visiting expert on biofuels at the College of Mechanical and Energy Engineering at Zhejiang University, 2008-2013 extended until 2018. As executive board chairman of Japan Renewable Energy Foundation, Mr Kåberger also spends 25% of his time in Japan. From 2008-2011, he was Director General of the National Swedish Energy Agency responsible for implementing policies as well as funding energy related research, development and demonstration.

### Keynote

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#### **Paul Verhoef,**

European Commission, DG Research and Innovation



Paul Verhoef is currently Head of Unit "Renewable Energy Sources" for DG Research and Innovation of the European Commission. Previously, he was Head of Unit for Research and Innovative Transport Systems at DG Mobility and Transport, and Programme Manager of the EU Satellite Navigation Programmes Galileo and EGNOS.

Paul has had a number of policy functions in the European Commission since 1990 in the areas of space, telecommunications, electronic commerce, and Internet and the EU satellite navigation programmes, and worked as a member of the Cabinet of the responsible Commissioner for Information Society. In his earlier career, he worked for the United Nations in the South Pacific, Eutelsat in Paris, the European Space Agency in the Netherlands, and Philips Electrical Industries of New Zealand.

Paul is from the Netherlands and has a M.Sc Degree in Electrical Engineering.

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## SESSION ONE: LOW CARBON TRANSPORT AND ENERGY SECURITY

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### Moderator:

#### **Sandrine Dixson-Declève,**

Vice-Chair of EBTP Steering Committee, Head - University of Cambridge Institute for Sustainability Leadership (CISL) EU Office



Since 2009, Sandrine Dixson-Declève has run the EU Office of the University of Cambridge Institute for Sustainability Leadership (CISL) and The Prince of Wales's Corporate Leaders Group on Climate Change (CLG) and is a distinguished faculty member of CISL's Executive Programmes. Born in Brussels, but having grown up in California, Sandrine studied international relations at the University of California, Davis and completed an Environmental Sciences Masters with Honours at the Université Libre de Bruxelles. Due to her long standing work on dialogue and conflict resolution between policy makers and business leaders around climate change and progressive business action, Sandrine now also leads a new platform initiated by 14 EU Ministers interested in progressing the concept of Green Growth. Under her leadership, the Green Growth Platform is working with Ministers, MEP's, business leaders, international organizations (OECD, IEA, World Bank, UNFCCC) and European economists to find concrete mechanisms to enhance the development of a low carbon market, jobs, growth and competitiveness across Europe. Prior to 2009, Sandrine ran and worked for consulting and engineering companies in the area of energy and sustainable development and has been the personal advisor to several MEPs, the European Commission, Governments in Asia, Africa and the Middle East, international organizations including OPEC, ADB, OECD, UNEP, USAID and business leaders of large international, European and African companies. She has published numerous articles, book chapters and given presentations on green growth and competitiveness, energy, climate change, transport, conventional and alternative fuel quality legislation as well as on trade & environment. Sandrine recently spoke on TEDx: The Sustainable Future series.

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### Speakers:

#### **Andreas Pilzecker,**

European Commission, DG Energy



Andreas Pilzecker studied agricultural economics at the Universities of Munich-Weihenstephan (Germany), Brussels (Belgium) and Göttingen (Germany). He has worked as a research assistant on international commodity markets, as an economist in an international grain trading company, in general logistics, and as a consultant on farm management. He joined the European Commission in 2005 and has worked since 2007 on bioenergy, currently in DG Energy in particular on aspects related to emissions from biofuels, including indirect Land Use Change.

**The EU 2030 framework and energy security**

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## Heather Hamje,

Science Executive for Fuels Quality and Emissions, Concawe



Heather Hamje did her first degree at Glasgow University in the Department of Chemistry, followed by a D.Phil in Materials Science and Engineering at Oxford University. She has spent over twenty years in the oil industry in the UK and in the US working on fuels and biofuels in the areas of gasoline technology, diesel additives and product development of the full range of distillate products. She is currently the Science Executive for Fuel Quality and Emissions at Concawe, a European-based, oil industry-funded organisation, which does environment-related scientific research and is a member along with JRC and EUCAR of the JEC consortium.

### JEC Biofuels and Well to Wheels analyses

Over the past decade, the JEC Research Consortium has been working together to better understand the complex issues associated with future vehicles and fuels. Much of the Consortium's work has been on vehicle and fuel pathways in the European context, from a 'Well to 'Wheels' (WTW) perspective. Biofuels remain the most challenging alternative fuel to accurately model primarily because of the disposition and accounting of pathway co-products. Other work carried out by the consortium has focused on meeting future European requirements for renewable energy and greenhouse gas (GHG) reduction through the use of biofuels in European market fuels. This presentation brings together the biofuels related findings from recent updates to both these studies.

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## Ausilio Bauen,

Director E4Tech



Dr Ausilio Bauen is a Director of E4tech, a strategic consultancy focused on sustainable energy. He works with industry, investors and governments on a wide range of bioenergy topics and on the development of bioenergy strategies. His work covers techno-economic, environmental, market, business and policy aspects related to bioenergy systems. He is part of the advisory committees for organisations such as the Carbon War Room, Climate Bond Initiative, UK Energy Technology Initiative and UK Automotive Council, and has published widely in journal and books, including two Financial Times energy reports. Ausilio is also a Senior Research Fellow at Imperial College London's Centre for Energy Policy and Technology.

### A harmonised Auto-Fuel biofuel roadmap for the EU to 2030

Policy uncertainty and lack of an industry-wide position on biofuels have led a consortium of international fuel and automotive companies to commission E4tech to provide a vision and a roadmap for biofuels in the EU to 2030. The study provides a bottom-up analysis of what the fuel industry can achieve in terms of sustainable biofuels supply and how this can best be integrated into the vehicle fleet. It shows how a range of biofuels can make a significant contribution towards meeting the EU's renewable energy and greenhouse gas emissions reductions targets for 2020, and contribute further to transport energy in the EU to 2030. At the same time, it underlines the urgent need for a more harmonised and concerted approach on the part of the fuel and auto industries and governments to the development of a sustainable biofuels sector. The study can be found at: [www.e4tech.com/auto-fuel.html](http://www.e4tech.com/auto-fuel.html).

## Charles Esser,

Oil Market Analyst, International Energy Agency



Charles Esser has been an oil market analyst, focusing on non-OPEC supply, in the Oil Industries and Markets Division of the International Energy Agency since July 2013. He was previously a self-employed consultant, doing energy-related projects for various clients in the for-profit and non-profit sectors. Prior to that, he was the energy analyst for the NGO think tank 'The International Crisis Group' in Brussels. Mr Esser has also worked in the U.S. government, both at the U.S. Department of Energy's Energy Information Administration and at the U.S. Department of State. He is a graduate of The Johns Hopkins University – School of Advanced International Studies (SAIS).

### **IEA perspective of the role of biofuels in a low carbon energy system**

This presentation is an overview of the International Energy Agency's outlook for biofuels from this year's Medium-Term Renewable Energy Market Report. It covers biofuels within the overall oil demand picture; the role of policy for the industry; the situation in large producing countries such as Brazil and the US; the biofuels situation in Europe; and advanced biofuels. Finally, it concludes by placing biofuels within the context of the low-carbon pathways for the future. Main concluding bullet points are:

- Shifting policy grounds in established markets undermine medium-term growth in biofuel production
  - Emerging markets continue expanding production as bills for oil import and fossil fuel subsidies rise
  - Advanced biofuels currently in the “valley of death” with promising projects coming forward – will they make it to the market?
  - Stable, long-term policy framework, including clear sustainability guidelines, will be vital for further growth
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## SESSION TWO: EUROPE AND BEYOND – OUTLOOK AND LEARNING FROM DIFFERENT COUNTRIES

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**Moderator: Tomas Kåberger**, Chair of EBTP Steering Committee,  
Chalmers University of Technology

See welcome

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### Speakers:

**Donald Smith**,  
Scientific Director, BiofuelsNet Canada



During his 27 years at McGill, Donald L. Smith has conducted research in the production and physiology of crop plants, with an emphasis on plant-microbe interactions. The work has involved 19 crop species. His research activity has resulted in over 270 publications, eight patents, a spin-off company (Bios Agriculture Inc.) and products applied to ~10 million ha of crop land in 2012. He currently leads the NCE funded (\$12 million per year) BioFuelNet Network, the McGill Network for Innovation in Biofuels and Bioproducts and the Eastern Canadian Oilseed Development Initiative network (AAFC funded at \$2 million per year). He was head of the NSERC Strategic Green Crop Network. He has international collaborations with the US, India, China, Russia and Brazil. Dr. Smith has served as chair of his department, is a founding member of a Canada-US think tank on climate change and agriculture, holds a James McGill professorship and was a New Sun Professor. He served on the NSERC Plant Biology and Food Discovery grant selection committee. Smith is a past recipient of the Young Agronomist Award, and past president and current fellow of the Canadian Society of Agronomy. He holds the largest number of NSERC grants in Canada and, in 2012, was awarded the Queen Elizabeth II Diamond Jubilee Medal for significant contributions to intelligent agriculture.

### Biofuels development in Canada and the US

There is a pressing need to develop renewable and sustainable sources of energy and, as much as possible, these should avoid conflict with food-stream materials. Canada and the US both have biofuel mandates, however, these have been ramping up in the US, and include specifications for advanced biofuels, while they have not been altered for a number of years in Canada. Canada does have considerable potential for a meaningful level of advanced biofuel production and there now is a meaningful level of advanced biofuels development in North America. BioFuelNet Canada is a national research network established to assist the development of a robust, sustainable biofuels sector in Canada and it is likely to play a role in establishing advanced biofuels in Canada.

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## **Jonathan Hood,**

UK Department for Transport



Jonathan Hood recently joined the Low Carbon Fuels division at the UK Department for Transport, working on policy options to help meet the UK's transport target under the Renewable Energy Directive, with a specific focus on gaseous fuels. Jonathan's background is in climate change and low-carbon energy, having studied environmental technologies before joining the UK Department of Energy and Climate Change to work on the UNFCCC negotiations and international low-carbon energy policy development.

### **Biofuels development in Europe: UK experience of the Renewable Transport Fuel Obligation and our policies to promote the development of waste-derived and advanced biofuels**

Under the Renewable Energy Directive, the UK must deliver 10% of its total transport energy from renewable sources in 2020. The UK recognises the importance of biofuels in meeting carbon and renewable energy goals, and through the Renewable Transport Fuel Obligation (RTFO), was the first country in the world to implement mandatory carbon and sustainability reporting for biofuels. The role of waste feedstocks in delivering those carbon savings has been critical, with wastes currently comprising around half of transport energy from biofuels used in the UK. Double-counting has been key to encouraging supply, as well as a clear process for new materials to be added. The UK continues to encourage the use of wastes and residues, and is currently exploring other low-ILUC risk biofuels through advanced technologies, including a £25 million advanced biofuel demonstration competition intended to be run in 2015

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## **Raffaello Garofalo,**

Secretary General, European Biodiesel Board



Mr Garofalo was appointed Secretary General of the European Biodiesel Board (EBB) - i.e. the European federation of biodiesel producers - in May 2002. Previously he worked for four years within FEDIOL, the European Federation of Vegetable Oils Producers, dealing among others, with non-food uses of vegetable oils, which include bio-lubricants, bio-solvents and biodiesel. In 1998 he worked temporarily in the European Commission (DG Agriculture) as well as within the Research Directorate of the European Parliament. After graduating with distinction in Politics in the International Politics Department of the Institut d'Etudes Politiques (Sciences-Po), in Paris, in 1997, he was admitted as a foreign student at the French Ecole Nationale d'Administration (ENA). He obtained a Master's Degree on European Administrative Studies at the College of Europe in Bruges in 1998.

### **Is there a better way to incentivise advanced biofuels in the EU?**

The presentation will focus on the challenges arising from politically important extra-incentives for advanced biofuels and the need to ensure their efficiency, notably by avoiding untrustworthy declarations and frauds.

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## Liping Kang,

Clean Transportation Project Manager, Innovation Center for Energy and Transportation (iCET)



Ms. Kang has almost 10 years experiences on biofuel research and project implementation, and serves as a committee expert at China's Technical Committee on Energy Industry Non-food Biomass Feedstock Standardization (NEA/TC24) and China's Technical Committee on the Energy Industry bio-liquid Fuel Conversion Process (NEA/TC22), and is an expert member of Chamber 6 of the Roundtable on Sustainable Biomaterials. Ms. Kang has been engaged in introducing international advanced biofuel standards and policies to China, submitted recommendation paper to decision-makers; she published over twenty papers, reports and reviews related to biofuels, co-wrote the book BIOMASS ENERGY PROJECT with bioenergy experts in China, and owns a patent on ethanol conversation technology. Ms. Kang holds a Master's degree on biofuels from the China Agricultural University, responsible for sustainable fuel, clean vehicle project research and implementation.

### **Biofuels experience in China**

- Biofuels regulatory and market development **background**
  - **Current state of biofuel governance:** policies and instruments
  - **China's unique market** development, challenges and opportunities
  - **Projected trends:** market and governance
  - China and global bio-fuel **exchanges and collaboration**
  - Suggested **areas for action**
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## **SESSION THREE: SUCCESS STORIES – BIOFUELS TECHNOLOGY THE ROAD SO FAR – LESSONS LEARNED FROM DIFFERENT BIOFUELS PLANTS**

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### **Moderator:**

#### **Kai Sipilä,**

Co-Chair EBTP Working Group 2 - Conversion Processes; VTT Finland



Prof. Kai Sipilä currently serves as Senior Advisor at the Technical Research Centre of Finland. In 2006-2013 he was the Vice President of Renewable Energy at VTT. He is a Chair of EBTP Working Group 2 on conversion technologies. He was the EERA Bioenergy Joint Programm Coordinator (2010-2013) and Coordinator of the Network of Excellence in Bioenergy, an EU 6<sup>th</sup> Framework Project (2006-2010). He is the representative of Finland on the Executive Committee of the IEA Biomass Agreement and was 2006 Chairman of the national biofuels implementation committee in Finland. He holds an M.Sc. (Tech) and a Lic. Tech in Chemical Engineering from the Helsinki University of Technology, Finland, and from 1996-2005 was Research Professor in Biomass Conversion Technologies at VTT.

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### **Speakers:**

#### **Niels Henriksen,**

Senior Advisor, New Bio Solutions, DONG Energy Thermal Power A/S



Niels Henriksen is currently Senior Advisor for New Bio Solutions DONG Energy Thermal Power (NBS), a merger of three new bio-businesses (Inbicon, Renescience and Pyroneer) within the field of converting low cost biomass to valuable products. Mr. Henriksen has served DONG Energy (Denmark's largest energy company) for more than 25 years, and was previously involved in coal-based power generation and later in numerous waste and renewable energy technologies. From 2007, he served as an entrepreneur and CEO in the start-up of Inbicon A/S, which included construction of pilot and demonstration facilities, R&D and commercial sales. Today Mr. Henriksen is responsible for medium and long term technology strategy, IPR, and support of regulatory affairs, and has been advisor for Maabjerg Energy Concept concerning funding and concept development. He is also Chairman of the Danish organization Biorefining Alliance and Deputy Chairman of the boards of Inbicon A/S and Renescience A/S.

#### **NER300 project: Maabjerg Energy Concept**

The MEC Biorefinery located in Denmark will be presented and will cover the following topics:

- Concept/history/ownership structure;
- Sourcing and Logistics;
- The ethanol plant/new technology/timeline;
- Remaining issues to be solved.

## **Frédéric Martel,**

General Manager, Procethol 2G



Frédéric Martel is an agriculture engineer with AgroParisTech and holds a PhD in biochemistry and microbiology. Since 2009, he has worked as the General Manager of PROCETHOL 2G and is in charge of the Futurol Project. From 2002 to 2008 he was the Head of R&D, Fractionation Department at ARD (Agro-industrie Recherches et Developpements, Reims, France). From 1999 to 2001 he started-up a Vitamin C plant, using a fermentation process, a joint-venture of Cargill-Cerestar, BASF and Merck (Krefeld, Germany). He previously worked as a R&D engineer at Technical University of Compiègne (Compiègne, France), and prepared his PhD thesis from 1997 to 1999.

### **The FUTUROL pilot demonstration on cellulosic ethanol**

Futurol technology has been developed since 2008 by a consortium of 4 R&D partners (IFP Energies Nouvelles, INRA, Lesaffre and ARD), backed by seven industrial and financial partners (including Tereos and Total). Their expertise covers the whole production chain, from biomass cultivation and transformation, through biocatalyst development and selection, to development and industrialization of fuels and petrochemicals production processes. A company, Procethol 2G, was created, in order to coordinate and provide financial and technical means to the Futurol Project. Futurol's pilot plant is located on Bazancourt-Pomacle biorefinery, near Reims (France). Started-up in 2011, the 5,000 m<sup>2</sup> facility benefits from a unique agroindustrial environment. Futurol technology produces cellulosic ethanol thanks to a compact scheme with few production steps and simplified operations: single-train pretreatment, and one-pot hydrolysis and fermentation. Energy and water management, as well as on-site biocatalysts production and propagation were designed to make Futurol technology cost competitive, in line with 1G bioethanol production costs. Futurol technology has been developed and tested on a wide range of biomasses. This makes the technology suitable for worldwide deployment by processing any locally available resources and by taking advantage of any feedstock opportunities

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## **Petri Lehmus,**

Vice President R&D, NesteOil



Petri Lehmus has worked, since 2011, as Vice President for Research and Development at Neste Oil company, where one of his primary focus areas is to expand the company's raw material base for its proprietary NEXBTL renewable fuel technology. Before this Lehmus worked for more than ten years in the polyolefin industry, where he held various positions in the R&D field. Prior to his position at Neste Oil he worked from 2007 - 2011 as Innovation Centre Manager at Borouge company in the United Arab Emirates and before that as Catalyst and Process Research Manager at Borealis in Finland. Petri Lehmus holds a doctoral degree in Chemical Engineering.

### **Large scale chemical conversion of oils and residues in Rotterdam**

Commercial since 2007, annual production exceeding 2 million tons with currently already 66% of the feedstock waste and residue based, Neste Oil has been successful in building a global renewable fuels business. Feedstock flexibility and high fuel quality have been leading thoughts in the development of the NEXBTL renewable fuels technology. Special focus is given in the presentation to the largest European renewable fuel refinery, the 800 kt/a Rotterdam NEXBTL plant which has been operational since 2011.

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## SESSION FOUR: BIOFUELS TECHNOLOGY ADVANCEMENTS

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### Moderator:

#### **Markku Karlsson,**

Vice Chair of EBTP Steering Committee and Vice-Chair of Working Group 1 - Biomass Availability and Supply , Finnish Forestry Industries Federation



Before retirement, Markku Karlsson was Senior Vice President, Technology at UPM-Kymmene Corporation in Finland. From 1999-2004 he was Senior Vice President in Corporate Technology at Metso Corporation. From 2004 until 2006 he was Vice Chairman of the Academy of Finland, and a member of the board from 2000 until 2003. He has been also a member of the board of the Finnish Forest Research Institute (Metla), a member of the Steering Committee of the European Biofuels Technology Platform, the Advisory committee for the Forest Based Sector Technology Platform, and the CTO Committee of the Agenda 2020 Technology Alliance. He received a D.Sc. (Chem.Eng.) from Åbo Akademi University, Turku, Finland in 1987.

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### Speakers:

#### **Dina Bacovsky,**

Unit Head Biofuels, BIOENERGY 2020+



Dina Bacovsky graduated from Vienna University of Technology with a Degree in Process Engineering. She is Head of the Biofuels Unit at BIOENERGY 2020+ and Secretary of the IEA Implementing Agreement on Advanced Motor Fuels. She also represents Austria in IEA Bioenergy Task 39 “Commercialising Conventional and Advanced Liquid Biofuels from Biomass”, where she is responsible for databases and surveys. Her activities include research, consulting and information exchange on biofuels production and use. Dina Bacovsky has assessed oil and biodiesel quality from 30 different feedstocks, supported the harmonisation of GHG calculations for biofuels in the EU and monitored the development of advanced biofuels production facilities. Her worldwide overview on 2nd generation biofuels demonstration facilities has received much interest in the biofuels community. With her team she carries out research on algae cultivation and processing, and actively engages in information exchange in scientific networks.

#### **Overview advanced biofuels technologies**

Around the world a number of companies pursue projects to develop and deploy advanced technologies for the production of biofuels. A broad variety of raw materials is suitable, multiple conversion technologies are being developed and a range of different fuel products can be marketed. With so many different options, it is hard to keep track of the development of the sector. One of those that give a good overview but also provide some level of technology detail, is IEA Bioenergy Task 39 “Commercializing Liquid Biofuels”. Task 39 has gathered data on more than 100 projects from the technology developers, and provides this data through an online interactive map (<http://demoplants.bioenergy2020.eu>) and a summary report.

## **Sari Mannonen,**

Director, Sales & Marketing, UPM Biofuels



Sari Mannonen is Director, Sales & Marketing for UPM Biofuels based in Helsinki, Finland. Representing and promoting the business, she is responsible for defining and leading UPM Biofuels international activities including negotiating sales and partnership contracts. Sari's contact groups include technology suppliers in biofuels sector, investors, reporters, EU and national decision makers, NGOs and financial audiences. Sari has over 15 years' experience in leading global sales & marketing, customer management, customer strategy & business relations as well as business development in different global businesses. Sari graduated from Helsinki University and holds a Ph.D. in biochemistry. Sari's background also includes research and development in the biotech field.

### **Biorefinery for production of advanced wood-based biofuels**

UPM is building the world's first commercial scale wood-based biorefinery in Lappeenranta, Finland. During the last few years UPM has made progress with remarkable R&D work and important investments for developing sustainable wood-based biofuels. The investment of EUR 150 million in the Lappeenranta biorefinery is done without any public investment grants. The biorefinery will start production in autumn 2014 and will produce approximately 100,000 tonnes of renewable diesel each year. UPM BioVerno diesel is a unique Finnish innovation reducing greenhouse gas emissions significantly compared to fossil diesel. As a drop-in fuel, it can be used in any diesel engine – car, bus or truck - without modification.

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## **Dominik Behrendt,**

Project leader, Institute for Plant Sciences, Forschungszentrum Jülich



Dominik Behrendt leads the "algal technology group" at the Institute for Plant Sciences, Forschungszentrum Jülich as project team leader. Responsibilities include AUFWIND, an algae-to-jetfuel project beyond laboratory scale. His tasks are coordination of the consortium and operations of 1500m<sup>2</sup> algae photo-bioreactors. Prior to joining Forschungszentrum Jülich he was a CEO at a start-up company and worked for CMT, a dedicated grant management team at RWTH Aachen University. Dominik obtained his PhD from RWTH, specialising in protein engineering. He graduated from Heidelberg University in biology and pursued his research at University of California, Berkeley.

### **The use of algae for the production of advanced biofuels**

- Aviation fuels from algae
  - The project AUFWIND
    - First experiences regarding the construction of the reactors, operating, cultivation and processing of algae
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# Sören Eriksson,

Preem



Sören Eriksson has 30 years' experience in the oil business, where he has engaged in many different areas including acquisition of companies, and product and refinery development. Today he works in business development, mainly in two areas: development of new renewable fuels; and following European political decisions in order to inform strategic development decisions. He graduated from the Royal Institute of Technology in Stockholm, Sweden with a degree in Master of science Chemical engineer in 1977.

## **Advanced biofuels and new feedstocks**

- Uncertainty on political decisions regarding the possibility for renewables in Europe, especially forest-based ones
- Preem's experiences in making diesel out of the rest product, crude tall oil, from the pulp industry
- Other possibilities for future production of fuels based upon lignin and pyrolysis oil, converted in an oil refinery to hydrocarbons.

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## SESSION FIVE: ADVANCED BIOFUELS IN DIFFERENT APPLICATIONS

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### Moderator:

#### **Ingvar Landälv,**

Vice Chair of EBTP Steering Committee and Co-Chair Working Group 2 - Conversion Processes; Lulea University of Technology and Chemrec AB



Ingvar Landälv, since 2013, has worked as senior project manager at Lulea University of Technology. Between 1997 and 2012 he was engaged in the development and commercialization of Chemrec's black liquor gasification technology, serving as Chief Technology Officer. In this capacity he took the initiative to convert the pulp mills to biorefineries thus making them producers of syngas-based fuels / chemicals in addition to the base product, paper pulp. He graduated in 1975 with a MSc in Physics & Chemistry. He has more than 30 years' experience of process R&D, design, engineering, construction and operation of gasification based process plants based on oil, coal and biomass as feedstock. He holds a number of patents in the area of energy integration in gasification based processes.

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### Speakers:

#### **Inmaculada Gómez,**

Environmental Expert, SENASA



Inmaculada Gomez is the Project Coordinator of ITAKA. She has a PhD in Environmental Sciences with over 10 years' experience, and has been an environmental expert at the Observatory of Sustainability in Aviation of SENASA, since its creation in 2007. She was involved in the creation of the Spanish Initiative for aviation biofuels (Bioqueroseno.es), is member of the working group for alternative fuels of ACARE and the CAEP Alternative Fuels Task Force. Before working at SENASA she was professor of Environmental Economics and Landscape planning, and worked on several research projects.

#### **State of the art aviation fuel**

Until recently the aviation sector has not been strongly involved in the establishment of renewable energy policies & regulations. Aviation fuels have not been specifically addressed, however they may be counted towards the fulfilment of targets reported by Member States (MS) or be accounted for in parallel schemes like the Emission Trading System (ETS). However, the technology of biofuels for aviation is progressing thanks to the cooperation of the different stakeholders, and ITAKA is a good example of that collaborative work.

ITAKA is a collaborative project in the EU aiming to support the development of aviation biofuels in an economically, socially, and environmentally sustainable manner. ITAKA is addressing challenges at European level in two main areas:

- Development of commercial scale production and study implications of large-scale use.
- Research on sustainability, economic competitiveness and technology readiness.

## Nils-Olof Nylund,

Chair of EBTP Working Group 3 - Product Distribution and End Use, Research Professor, D.Tech, VTT Finland



Nils-Olof Nylund has a Doctor of Technology degree in mechanical engineering (internal combustion engines) from Helsinki University of Technology. He is currently Research Professor for Energy Use in Transport and Engine Technology at VTT Technical Research Centre of Finland. He is manager of the Finnish research programme TransSmart on smart and sustainable mobility. He has been working with alternative fuels since 1979, and has been the Finnish delegate to IEA Advanced Motor Fuels (AMF) since 1990. Since 1998, he has been either Chairman or Vice Chairman of AMF. In addition, he also has been the EUWP Vice Chairman for Transport since 2007.

### Fuel and technology alternatives for commercial vehicles

The presentation will discuss the state of conventional technology for commercial vehicles (the benchmark) and alternative fuels and powertrains for commercial vehicles. Remembering that “one size doesn’t fit all”, the presentation tries to point out what are the main challenges for various alternative technologies and what applications make most sense for alternative technologies:

- Current state of conventional technology
  - Liquid biofuels
  - Gaseous fuels
  - Electrification
  - Fuel cell vehicles
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## Per Stefenson,

Marine Standards Advisor, Stena Rederi AB



Per Stefenson graduated at CTH in Gothenburg, Sweden as a Naval Architect, M.Sc, in 1981. He has worked as Marine Standards Advisor at Stena Rederi AB since 2009, following standards and regulations development within international organizations such as IMO and EU. He also coordinates the company’s RTD projects including the efforts to test Methanol and other alternative fuels inline with new sulphur regulations. Per has previous experience as project manager from SSPA (maritime consultants) and the Swedish Maritime Administration where he was Head of Research and Technical Development. Per has also served as Marine Engineer in the Royal Swedish Navy, specializing in naval craft light-weight design.

**The use of biofuels in the maritime sector** In 2015, new emission limits will enter into force in designated emission control areas, which include the Baltic Sea. By 2020 the whole of Europe and by 2025, at the latest, the whole world will require ships to radically reduce their sulphur emissions. At a time when shippers and shipowners are deeply concerned about how to comply with these new, stricter, emission limits, methanol provides the answer to several challenges: the vision to uphold shipping as the cleanest mode of transport, to limit the emissions of SO<sub>x</sub>, NO<sub>x</sub> and particulates, as well as CO<sub>2</sub>, and to be able to do so safely, practically, and with a realistic economic cost and benefit. Methanol can be produced from natural gas, from forestry biomass or, ultimately, by solar-, wind- or geo-generated hydrogen and captured CO<sub>2</sub>. The sources are diverse and interesting, leaving room for further innovation. With this as background the presentation will highlight on some technical

developments and results from the ongoing project to convert a large Ro-Pax ship to operate on methanol.

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## **FINAL PANEL: BIOMASS MOBILISATION AND SUSTAINABILITY**

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### **Moderator: Calliope Panoutsou,**

Chair of EBTP Working Group 1 – Biomass Availability and Supply  
Imperial College London



Dr Calliope Panoutsou is a member of the Bioenergy Group within the Centre for Environmental Policy (Imperial College London) and is the Chair of the EBTP Working Group on Biomass availability and supply within the European Biofuels Technology Platform. Her work assignments focus on supply, logistics & economic analyses of biomass value chains, market & policy analyses and assessment of sustainability for bioenergy systems. She has coordinated several EU projects involving multi-disciplinary research on bioenergy. She also acts as expert in EU bioenergy, biofuels and agriculture committees. She holds a PhD from Aston University.

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### **Luc Pelkmans,**

Project Manager, VITO



Luc Pelkmans is a biomass project manager at VITO, the Flemish Institute for Technological Research. In his 19 years at VITO he has gained expertise on alternative motor fuels, biofuels, bio-energy and biomass applications, both in European projects (ESTO, PREMIA, Biofuel Cities, ELOBIO, BioBench, Biomass Policies, S2BIOM, BioTrade2020+) and in studies for Belgian and Flemish governments. His main focus is currently on policy-oriented studies, project implementation and sustainability analysis, with a broadening focus towards biobased economy. Luc is the Belgian representative in IEA Bioenergy Task 40 (Sustainable Bioenergy Markets and Trade), where he coordinated a number of international studies on sustainability of biomass. Since 2013, he has also been the Belgian ExCo member of IEA Bioenergy.

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### **Udo Mantau,**

University of Hamburg



Udo Mantau ([www.holzwirtschaft.org](http://www.holzwirtschaft.org)) is a university professor in Forest Economics at the Centre of Wood Science at the University of Hamburg. Before his university career he was leading a market research department in a marketing company of the C. Bertelsmann concern. As a researcher, he has been working in the field of market research, resource economics and marketing for many years. Major projects in recent years dealt with regional capacities of the wood industry in Germany and Europe (EUwood, EFSOS II), biomass potentials and trade flows. He developed the Wood Resource Balance which is today commonly used to give a total view on the potential and consumption of wood resources and a wood flow analysis that demonstrates the CO<sub>2</sub> interactivity between forest, material and energy uses and allows the calculation of sectorial cascade factors. He is a consultant in the fields of forest products, construction and resources.

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**Ausilio Bauen,**

E4Tech

Please see Session 1

**Kai Sipilä,**

EBTP WG 2, VTT Finland

Please see Session 3

List of Participants

## European Biofuels Technology Platform

### 6th Stakeholder Plenary Meeting

14th-15th October 2014

ActionAid	Laura Sullivan	Belgium
aireg e.V.	Lukas Rohleder	Germany
APAG	Klaus H. Nottinger	Germany
APRE	Enrico Mazzon	Belgium
ArcelorMittal	Carl De Maré	Belgium
Argent Energy	Dickon Posnett	UK
Arizona Chemical	Anna Holmberg	Sweden
AUFWIND	Dominik Behrendt	Germany
Axens	Michel Bloch	France
BBSRC	Michael Booth	UK
BDI BioEnergy International AG	Martin Ernst	Austria
Bellona Europa	Jonas Helseth	Belgium
Bellona Europa	Marika Andersen	Belgium
BHL Rimbunan Teknologi Sdn Bhd	Michael Bashorun	Malaysia
Biochemtex	Piero Cavigliasso	Italy
Biochemtex	Sandro Cobror	Italy
Bioenergy 2020	Dina Bacovsky	Austria
Bioenergy 2020	Nikolaus Ludwiczek	Austria
BiofuelsNet Canada	Don Smith	Canada
Biomass Research	Hans Langeveld	Netherlands
BioRefining Alliance	Anne Grete Holmsgaard	Denmark
BirdLife Europe	Trees Robijns	Belgium
BP Alternative Energy Intl Ltd	Jo Howes	UK
BP Oil International	Marta Chrusch	UK
Brazilian Sugarcane Industry Association	Mariá Almeida Aranha	Belgium
bse Engineering Leipzig GmbH	Christian Schweitzer	Germany
BTG Biomass Technology Group BV	René Venendaal	Netherlands
Bunge EMEA	Andreas Sommer	Belgium
Cargill	Marta Zuluaga Zilbermann	Belgium
CEA	Juliette Imbach	France
CEEP	Jaroslav Cendrowski	Belgium
CENER	Goizeder Barberena	Spain
Central European Initiative	Giorgio Rosso Cicogna	Italy
Central European Initiative	Peter Canciani	Italy
Chalmers University of Technology	Tomas K5berger	Sweden
CHINA MISSION TO THE EU	Haigang Song	Belgium
Clariant	Gloria Gaupmann	Germany
Climate-KIC Central Hungary	Miklos Gyalai-Korpos	Hungary
Concawe	Heather Hamje	Belgium
CPL Press	Roger Coombs	UK
CVR - Center for Waste Valorization	Jorge Araújo	Portugal
Daimler EU Corporate Representation	Silke Conrad	Belgium
Danish Agricultural Council	Tobias Gräs	Belgium
DGEC	Vivien Isoard	France
Dong Energy A/S	Niels Henriksen	Denmark
Dong Energy A/S	Niels Ole Knudsen	Denmark
Downstream Fuel Association	Federico Cellurale	UK
DuPont	Ana Maria Bravo	Belgium
E4Tech	Ausilio Bauen	UK
EBTC	Vittalkumar A. Dhage	India
Egmont Institute	Tania Zgajewski	Belgium

List of Participants  
**European Biofuels Technology Platform**  
 6th Stakeholder Plenary Meeting

14th-15th October 2014

eni	<b>Alessandra Borella</b>	Belgium
<b>ETA Florence Renewable Energies</b>	<b>Angela Grassi</b>	Italy
ETOGAS GmbH	<b>Roland Doll</b>	Germany
EUBIA	<b>Juan Elías Vergara Míguez</b>	
EUCAR	<b>Alessandro Coda</b>	Belgium
EUREC / InteSusAI Project	<b>Vinicius Valente</b>	Belgium
Eurideas Linguistic Services	<b>Corina Ionescu</b>	Belgium
EuropaBio	<b>Claire Gray</b>	Belgium
European Biodiesel Board	<b>Amandine Muskus</b>	Belgium
European Biodiesel Board	<b>Marion Zosi</b>	Belgium
European Biodiesel Board	<b>Anouk van Grinsven</b>	Belgium
European Biodiesel Board	<b>Raffaello Garofalo</b>	Belgium
European Commission, DG AGRI	<b>Andreas Gumbert</b>	Belgium
European Commission, DG AGRI	<b>Marc Fleureck</b>	Belgium
European Commission, DG Energy	<b>Andreas Pilzecker</b>	Belgium
European Commission, DG Energy	<b>Kyriakos Maniatis</b>	Belgium
European Commission, DG Research and Innovation	<b>Paul Verhoef</b>	Belgium
European Commission, DG Research and Innovation	<b>Thomas Schleker</b>	Belgium
European Commission, DG Research and Innovation	<b>Christiane Bruynooghe</b>	Belgium
European Commission, EASME	<b>Emilio FONT DE MORA</b>	Belgium
European Commission, JRC	<b>Jorge Cristobal-Garcia</b>	Italy
European Court of Auditors	<b>Céline Ollier</b>	Luxembourg
European Court of Auditors	<b>Davide Lingua</b>	Luxembourg
f3 The Swedish Knowledge Centre for Renewable Transportation Fuels	<b>Ingrid Nyström</b>	Sweden
Finnish Forestry Industries Federation	<b>Markku Karlsson</b>	Finland
Fitroleum Biochemicals GmbH	<b>Cesar Jorge Aguiari</b>	Austria
Fitroleum Biochemicals GmbH	<b>Ralf Lattouf</b>	Austria
FNR - Agency for Renewable Resources	<b>Britta Müller</b>	Germany
FNR - Agency for Renewable Resources	<b>Birger Kerckow</b>	Germany
Fondazione Politecnico di Milano	<b>Cinzia Ceccarelli</b>	Italy
FUNDACION CIDAUT	<b>Luis Antonio NIETO DE LA FUENTE</b>	Spain
GAMA aero	<b>Josh Chaloner</b>	Belgium
Gen9	<b>Derek Potter</b>	UK
German Biomass Research Center	<b>Karin Naumann</b>	Germany
Ghent University	<b>Sebastian Verhelst</b>	Belgium
IACS	<b>Astrid Grunert</b>	Belgium
IDAE	<b>Carlos Alberto Fernández López</b>	Spain
Ideal Station for biodiesel Manufacturing firm	<b>Ibrahim Farouk Gad</b>	Jordan
IEA	<b>Charles Esser</b>	France
IFPEN	<b>Jean-Francois Gruson</b>	France
IFPEN	<b>Pierre Porot</b>	France
IINAS	<b>Uwe R. Fritsche</b>	Germany
IMDEA Energy	<b>Carolina Garcia</b>	Spain
Imperial College	<b>Calliope Panoutsou</b>	UK
Innovation Center for Energy and Transportation	<b>Liping Kang</b>	China
Institute for European Environmental Policy	<b>Silvia Nanni</b>	Belgium
Interel European Affairs	<b>André Paula Santos</b>	Belgium
ITAKA	<b>Inmaculada Gómez</b>	Spain
Kreab Gavin Anderson	<b>Torsten Laksafoss Holbek</b>	Belgium

## European Biofuels Technology Platform

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Leeds University	Hu Li	UK
Linde AG	Josef Sporer	Germany
Low Carbon Vehicle Partnership	Jonathan Murray	UK
Luleå University of Technology	Ingvar Landälv	Sweden
Luleå University of Technology	Joakim Lundgren	Sweden
Methanol Institute	Eelco Dekker	Netherlands
Ministry of Economic Development	Nezir Myrtaj	Kosovo
Ministry of Economy	Tomasz Pańczyszyn	Poland
Ministry of Infrastructure and Environment	Thorsten Wege	Netherlands
MLex	Laurel Henning	Belgium
Monaghan Biosciences Ltd	Michael Crossin	Ireland
NEN Energy	Ortwin Costenoble	Netherlands
Neste Oil	Petri Lehmus	Finland
NISSAN MOTOR MANUFACTURING	Keita Nakazumi	Belgium
Novozymes	Nour Amrani	Denmark
PANGEA - Partners for Euro-African Green Energy	Kerry O'Donoghue	Belgium
Partners for Innovation BV	Peter Vissers	Netherlands
Polish Technology Platform for Biofuels	Krzysztof Bajdor	Poland
Polish Technology Platform for Biofuels	Krzysztof Biernat	Poland
<a href="http://PPO.eu">PPO.eu</a> IVZW	Martina Hülsbrinck	Belgium
PREEM	Sören Eriksson	Sweden
Procethol 2G	Frédéric Martel	France
Provincial secretariat for energy and mineral resources	Branislava Zubic	Republic of Serbia
Provincial secretariat for energy and mineral resources	Nedeljko Sljivanac	Republic of Serbia
Renewable Energy House	Greg Arrowsmith	Belgium
RSB	Sébastien Haye	Switzerland
Safran	Nicolas Jeuland	France
SanAntonio Communications	Roland-Jan Meijer	Belgium
Science business	Eanna Kelly	Belgium
Shell	Grahame Buss	UK
SINTEF Energi AS	Judith Sandquist	Norway
South African Embassy	Vinny Pillay	Belgium
Sratas Advisors, Hart Energy	Kristine Bitnere	Belgium
Stena AB	Per Stefenson	Sweden
Stratas Advisors	Aida Gonzalez Palomino	Belgium
Swiss Federal Office of Energy	André Odermat	Switzerland
Toyota Motor Europe	Dorothee Lahaussis	Belgium
Transport & Environment	Pietro Caloprisco	Belgium
UK Department for Transport	Jonathan Hood	UK
UNDP Ukraine	Volodymyr Lyashchenko	Ukraine
University of Agronomic Sciences and Veterinary Medicine	Ana Elisabeta Daraban	Romania
University of Applied Science Biberach	Heike Fruehwirth	Germany
University of Bologna	Andrea Monti	Italy
University of Cambridge, Institute for Sustainability Leadership	Sandrine Dixson-Declève	Belgium
University of Florence	David Chiaramonti	Italy
University of Hamburg	Udo Mantau	Germany
University of Perugia	Franco Cotana	Italy
UPEI	Alessandra De Zottis	Belgium
UPEI	Yvonne Stausboll	Belgium

UPM Biorefining	<b>Sari Mannonen</b>	Finland
Valmet	<b>Lars-Åke Lindström</b>	Sweden
Valmet	<b>Mats Arnberg</b>	Sweden
Valmet	<b>Francois Lambert</b>	Sweden
Vayro Ltd	<b>Yehuda Miron</b>	Israel
VITO	<b>Luc Pelkmans</b>	Belgium
Volvo Global Trucks Technology	<b>Anders Røj</b>	Sweden
VTT	<b>Kai Sipila</b>	Finland
VTT	<b>Nils-Olof Nylund</b>	Finland
Wageningen UR - Food and Biobased Research	<b>Rene van Ree</b>	Netherlands
WIP Renewable Energies	<b>Dominik Rutz</b>	Germany
WIP Renewable Energies	<b>Rainer Janssen</b>	Germany
	<b>Gianluca Cavalaglio</b>	Italy
	<b>Constantinos Avgoustou</b>	Cyprus
	<b>Daniel Seron</b>	Netherlands
	<b>Magnus Marklund</b>	Sweden
	<b>Maia Milusheva</b>	Belgium
	<b>Ondrej Masek</b>	UK
	<b>Peter Koncz</b>	Hungary

***The European Biofuels Technology Platform***

**6<sup>th</sup> Stakeholder Plenary Meeting**

**14<sup>th</sup>-15<sup>th</sup> October 2014, Brussels**

**Diamant Conference & Business Centre**

**Participant Questionnaire**

(please drop it off at the registration desk)

**1. Please rate the organization of the event**

very good     good     satisfactory     not satisfactory

**2. How useful was the provided information material?**

very useful     useful     satisfactory     not satisfactory

**3. How relevant / useful were the presentations to your work / your organization?**

very relevant     relevant     satisfactory     not satisfactory

**4. Which presentation / session was the most interesting to you?**

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**5. Was the balance good between the presentations & discussion time?**

very good     good     satisfactory     not satisfactory

**6. Did you find the event useful for meeting other biofuels stakeholders?**

very good     good     satisfactory     not satisfactory

**7. Did you take part in previous EBTP Stakeholder Plenary Meetings?**

yes in \_\_\_\_\_     no

**If yes, how do you find the variation of selected topics?**

very good     good     satisfactory     not satisfactory

**8. Please add comments on this event or suggestions regarding future conferences / meetings / workshops of the European Biofuels Technology Platform**

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**Thank you for your participation!**

## Overview on responses from the 'Participants Questionnaire'

### 1. Please rate the organization of the event.

Very good: 66 %  
Good: 32 %  
Satisfactory: 2 %  
Not satisfactory: 0 %

### 2. How useful was the provided information material?

Very good: 44 %  
Good: 47 %  
Satisfactory: 9 %  
Not satisfactory: 0 %

### 3. How relevant / useful were the presentations to your work / your organization?

Very good: 44 %  
Good: 47 %  
Satisfactory: 9 %  
Not satisfactory: 2 %

### 4. Which presentation / session was the most interesting to you?

- Final panel - Biomass mobilisation and sustainability; Session 5: Advanced biofuels in different applications
- VTT
- Session 1 and final panel
- Session 4
- Session 5 - Advanced biofuels in different applications
- Petri Lehmus
- 1st presentation on day 2 (Bioenergy 2020+)
- All sessions were excellent!
- "Biofuels experiences in China" (Liping Kang) and "Is there a better way to incentivise advanced biofuels in the EU?" (Garofalo)
- Interesting views from Don Smith, Biofuels Net Canada
- Preem + UPM + P. Verhoef + A. Pilzecker + Neste
- good mix
- Can't choose one session - single presentations in each session.
- VTT / Nylund
- "Overview of advanced biofuels technologies", Dina Bacovsky
- Political session
- Session 3 and 4. To better understand issues ..(?).. Advanced fuels.
- Session 1 and 4
- Session 2 presentation 3: some good points and a very important subject, interesting discussion
- Pilzecker
- several
- all
- Each presentation gave sth near to my understanding of biofuels - R. Garofalo, Session 5, Dia Bacovsky
- Session 1 and 4
- "IEA perspectives on the role of biofuels in the low carbon energy" and "Is there a better way to incentivise advanced biofuels in the EU?"
- 3
- Session 4: Biofuels value chains - Technology advances
- all

- all
- Paul Verhoef + Preem
- For me session 1 and 2 have been more interesting to me due to the focus on policy in my work
- Session 4, presentation: "Biorefinery for production of advanced wood-based biofuels" Sari Mannonen
- Neste, UPM
- "Large-scale chemical conversion of oils and residues in Rotterdam" and session 4
- Presentation on EU policies
- Pilzecker
- Session 2
- Session 1 / 3 / 4
- EC presentations + those of non-EU (meaning IEA, experts from abroad)
- most of them - the combination of policy-makers and commercial companies
- session 1
- futurol project

**5. Was the balance good between the presentations & discussion time?**

Very good: 32 %  
 Good: 33 %  
 Satisfactory: 33 %  
 Not satisfactory: 2 %

**6. Did you find the event useful for meeting other biofuels stakeholders?**

Very good: 34 %  
 Good: 51 %  
 Satisfactory: 15 %  
 Not satisfactory: 0 %

**7. Did you take part in previous EBTP Stakeholder Plenary Meetings?**

Yes: 32 %  
 No: 68 %

**If yes, how do you find the variation of selected topics?**

Very good: 24 %  
 Good: 59 %  
 Satisfactory: 17 %  
 Not satisfactory: 0 %

**8. Please add comments on this event or suggestions regarding future conferences / meetings / workshops of the European Biofuels Technology Platform**

- It could be some separated sessions on different panels where the discussions would be concentrated on specific subjects and interactive debates (thematic workshops).
- List of participants could include one line on their area of work
- For me more on the technology less on EU politic!
- Address sustainability issues from the perspective of standards and certification.
- I commend the platform on their excellent organisation
- Sorry to say, but a warmer room!
- Room too chilly first day. Best stakeholders meeting so far. Suggestion: Please include pyrolysis oil + upgrading in the overviews + next conferences.
- Balance between presentation and discussion: A little rushy in the first day.
- A great event for information and networking. A slight increase in discussion time and networking possibilities (breaks) would be welcome (but no radical changes).
- More discussion time especially in political session. More speaker from big players: Novozymes, DSM, Beta Renewables, Clariant, etc.; More attendees from the Commission and other policy makers.

- Policy framework to 2030; Agreed fuel roadmap to 2030 + beyond.
- Directions to the venue could have been clearer to someone not familiar with Brussels - perhaps include a map of the metro and tramway networks. Thank you too! :-)
- I would like to join one of the working groups
- Sometimes time for questions from the panel was limited.
- Location to be thought about more easy access from transport options (3 metro lines from Eurostar seems to many)
- Last panel should have been moderated 1 question at the time rather than placing a slide of 10 issues and having panelists answering all at once as monologue! Lunch at the end of 2nd day would have been nice...
- no comments
- Perhaps it would be useful to include in the programme a poster presentation, for instance during cocktail reception / networking to improve exchange of ideas and add another instrument to increase effectivity.
- Presentation of "TRUE" Biorefinery systems
- Please invite somebody from an NGO or a university that deals with land competition (including social aspects) to widen the perspective on biofuels
- Uneven level of the presentations. Some are for people who doesn't know anything about biofuels.
- session moderators need to prepare more controversial questions to elucidate/make clearer view of the points in debate / more confrontation with other parts of the world should be brought in. For example to bring us policy-makers in order to understand where they proceed and to lit some debates about the differences, this should be broadened to Asia, South America. Thanks for your efforts!!!