

# 14<sup>th</sup> Concawe Symposium

**Carbon-neutrality by 2050:  
What role for the refining industry?**



**27-28 SEPTEMBER**

VIRTUAL EDITION



**WELCOME PACK**

*Moderator:* Alain Mathuren, *Concawe*

*10:00 – 10:10* Welcome & Opening Remarks: Jean-Marc Sohier, *Concawe*

*10:10 – 10:30* Keynote Speech: Luis Cabra, *Concawe*

## Session 1: Adaptation of refineries to contribute to the Green Deal: Technologies

<i>10:30 – 12:10</i>	Thermochemical biofuel conversion processes: Overview & innovative approaches	David Chiaramonti, <i>Polytechnic University of Turin</i>
	Biomass-to-Liquid technologies: Status of recent developments & challenges	Jiří Hájek, <i>ORLEN UniCRE</i>
	<b>Coffee Break</b>	
	Waste-to-Chemicals: A new concept of biorefinery	Giacomo Rispoli, <i>NextChem</i>
	Advanced biofuels from refinery processing of fast pyrolysis bio-oil	Tijs Lammens, <i>BTG Bioliquids</i>

*12:10 – 12:40* Q&As / Panel discussion with the participation of Marta Yugo, *Concawe*

## Session 2: Carbon Capture & Utilisation (e-Fuels) & Circular Economy

<i>15:00 – 17:00</i>	A look into waste to fuels supply chains: From feedstocks to final products	Chris Sim, <i>E4tech</i>
	ProcessForPlanet (HorizonEurope): CCU, waste minimisation and hubs for circularity	Ludo Diels, <i>A.SPIRE</i>
	E-Fuels: A techno-economic assessment of EU domestic production and imports towards 2050	Alba Soler & Patrick Schmidt, <i>Concawe / LBST</i>
	<b>Coffee Break</b>	
	Power-to-Liquids	Alfonso García, <i>Repsol</i>
	Co-processing for refinery integration of biofuels production	Duncan Akporiaye, <i>SINTEF</i>

*17:00 – 17:30* Q&As / Panel discussion with the participation of Tamour Javed, *Aramco*

## DAY 2

September 28, 2021

*Moderator:* Alain Mathuren, *Concawe*

10:00 – 10:10 Introduction

### Session 3: Focus on Aviation and Maritime

10:10 – 11:50	Aviation Deep Dive: Overview and preliminary results	Luca Bertuccioli, <i>E4tech</i>
	Towards a sustainable aviation sector: Key R&D areas	Stephen Dooley, <i>Trinity College Dublin</i>
	Coffee Break	
	Technological, operational and energy pathways for maritime transport to reduce emissions towards 2050	Tim Scarbrough, <i>Ricardo</i>
	Maritime energy transition: Alternative energy carriers and beyond	Jurrit Bergsma, <i>TNO</i>

11:50 – 12:20 Q&As / Panel discussion with the participation of Damien Valdenaire, *Concawe*

### Session 4: Alternative Fuels towards 2050

15:00 – 16:40	Alternative fuels development for diesel engines	Robert McCormick, <i>National Renewable Energy Laboratory</i>
	Sustainable energies and powertrains for road transport	Roland Dauphin, <i>Concawe</i>
	Coffee Break	
	Sustainable bio-feedstock availability in the EU: A look into different scenarios towards 2050	Calliope Panoutsou, <i>Imperial College London</i>
	LCA analysis – Role of fuels & powertrains	Anne Bouter, <i>IFPEN</i>

16:40 – 17:10 Q&As / Panel discussion

17:10 – 17:20 Wrap-up of the Symposium with the participation of Jean-Marc Sohier, *Concawe* and John Cooper, *Concawe*

# MODERATION



**ALAIN MATHUREN**

COMMUNICATION  
DIRECTOR CONCAWE

**Alain Mathuren** holds a law degree at the Université Catholique de Louvain (UCL). Alain is currently Communication Director at FuelsEurope, which he joined in 2009. Previously, he worked for Interel PR & PA as Associate Director for the International Public Relations practice. Alain has 30 years of experience in communication. He first launched a field marketing agency in 1987, which he managed for 17 years before selling it to a French company in 2003. He subsequently joined an advertising agency as Retail Communication Manager and Brand communication Client Director.

# INTRODUCTION

## Welcome & Opening Remarks

**Jean-Marc Sohier** is the ConcaWE Director at the European Petroleum Refiners Association. He graduated Master of Mechanical Engineering from Brussels University (U.L.B.) in 1987 and received a diploma of Management of Business Administration (V.U.B.) in 1989. He started his career at PETROFINA and has held numerous functions in Refining and Petrochemical manufacturing of TotalEnergies among which, successively, General Manager of TOTAL Petrochemicals Feluy, a polyolefin plant, General Manager of TOTAL Antwerp Refinery, Vice President Research and Development for Refining & Marketing and Vice President Manufacturing Methods & Performance for Refining & Chemicals. In his last position, he was Vice President Industry for Africa, Asia and Middle East's Refining & Chemicals. In his current position, Jean-Marc is responsible for the development and the execution of the scientific program of ConcaWE.



**JEAN-MARC SOHIER**

CONCAWE DIRECTOR





## Keynote Speech

**Luis Cabra** is currently Executive Managing Director of Energy Transition, Sustainability, and Technology; and Deputy CEO. He has also been member of Repsol's Executive Committee since 2012. His responsibilities include core areas for the development and implementation of the Company's energy transition strategy such as Technology, Engineering, and Sustainability. He also leads the corporate areas of Procurement, Reserve Control, Insurance, and Corporate Security, as well as strategic company projects, which as of today include the Procurement and the Energy Transition Financing programs.

He was previously Executive Managing Director of Technology Development, Resources, and Sustainability from 2018 to 2020. He participated in the materialization of Repsol's energy transition and decarbonization strategy. Also, he led the Company's Digitalization Program and the consolidation of the Shared Services organization, among other responsibilities.

From 2012 to July 2018, Cabra served as the Executive Managing Director of Exploration and Production. Under his stewardship, the Company doubled its production by integrating the assets and teams from Talisman. He also launched a wide-ranging efficiency program from 2015 to 2017 that turned the Company's exploration and production business into a net cash generator.

He joined Repsol in 1984 as a process engineer at the A Coruña refinery in Spain. Since then, he has held management positions in the Refining, Technology, Engineering, Procurement, and Safety and Environment units. In 2010, he moved to Repsol's E&P division as Executive Director of Development and Production.

Luis Cabra holds a PhD in Chemical Engineering from Complutense University of Madrid and has completed business management studies at the international schools INSEAD and IMD. In addition, he has worked as a head lecturer and associate lecturer at the Complutense University of Madrid and the University of Castilla-La Mancha.

He has also represented Repsol in various international associations, serving as Chairman of the Automotive Fuels Action Group of the European Petroleum Industry Association, Chairman of the European Biofuels Technology Platform, and member of the European Research Advisory Board. In June 2021, he was appointed President of FuelsEurope and Concawe, associations that represent the European refining industry.



**LUIS CABRA**

PRESIDENT CONCAWE

## SESSION 1: ADAPTATION OF REFINERIES TO CONTRIBUTE TO THE GREEN DEAL: TECHNOLOGIES

### Synopsis

The EU Refining industry is embarked on a transformation journey to contribute to the Green Deal goal of reaching climate neutrality by 2050. But which technologies are needed to make this transformation happen? Thanks to the expertise of relevant academia and research institutions' experts as well as licensors and technology providers, the first session of the 14<sup>th</sup> Concawe Symposium will set the scene with some selected examples of how the "fuels of the future" could be produced. The experts will provide insights regarding the state-of-the-art technologies, presenting potential innovative approaches and exploring what opportunities and challenges are emerging within and beyond the adaptation of the refining industrial sites.

### Thermochemical biofuel conversion processes: Overview & innovative approaches



**DAVID CHIARAMONTI**

POLYTECHNIC  
UNIVERSITY OF TURIN

**David Chiaramonti**, PhD, is a full professor of Energy Systems and Energy Economics at the Polytechnic of Turin and chairs the Renewable Energy COnsortium for R&D (RE-CORD). He authored more than 180 publications and participated to more than 27 EU R&D projects. Member of EUBCE, ISAF, and ICAE Int.Conferences, he was formerly a member of IEA-Bioenergy, Task 34 and Task 39 (Liquid Biofuel), and is today a member of UN-ICAO task force Fuel Transport Group on Alternative Fuels for aviation and ETIP-B. He was the scientific coordinator of the DG Energy Alternative and Renewable Transport Fuel Forum. He currently manages the H2020 projects BIO4A (on Sust.Aviation fuels) and BIKE (on low ILUC feedstock biofuels), and is a member of the Board of the Italian Cluster SPRING on Bioeconomy. He was awarded the Linneborn Prize for outstanding merits in biomass at EUBCE 2017 in Stockholm, and included in the Stanford University list of 2% most cited scientist.



### Biomass-to-Liquid technologies: Status of recent developments & challenges

**Jiří Hájek** has more than nine years of experience in HDS/HCU start-ups and HCU debottlenecking and catalyst management in the largest refinery Czech refinery. Through the experience of managing director of the catalyst production company and recently as CEO of ORLEN Unipetrol centre for research and education, Jiří is now mainly focusing on chemical recycling of waste plastics, advanced biofuels production and green hydrogen introduction on the Czech market.



**JIŘÍ HÁJEK**

ORLEN UNICRE

## Waste-to-Chemicals: A new concept of biorefinery



**GIACOMO RISPOLI**

NEXTCHEM

**Giacomo Rispoli** holds a degree in Chemical Engineering from the University of Rome. He joined NextChem Spa from Eni Group as a Senior executive one year ago. Lately, MyRechemical has been formed to focus on Waste-to-Chemical Technology, of which he is the Chief Executive Officer. During his long career at Eni, Giacomo Rispoli covered many positions such as Refinery Manager (Venice and Gela), Director R&D, Director of Supply and Licensing. During his position as director of R&D, he filed the patent to convert the Venice Refinery into a Bio-Refinery.



## Advanced biofuels from refinery processing of fast pyrolysis bio-oil

**Tijs Lammens** is a senior process engineer at BTG Bioliquids and works on the development of applications for Fast Pyrolysis Bio-Oil, with a primary focus on advanced biofuels. He has almost 15 years of experience in the area of bio-based chemicals and biofuels. Tijs obtained his PhD from Wageningen University and subsequently worked at Shell as a biofuels researcher, at Biomass Technology Group as a consultant, and since 2018 at BTG Bioliquids in his current role.



**TIJS LAMMENS**

BTG BIOLIQUIDS



## Q&As / Panel discussion with the participation of Marta Yugo



**MARTA YUGO**

CONCAWE

**Marta Yugo** is the Concawe Science Executive for Refining Transition. Her responsibilities include providing governance and supervision of Concawe's activities in assessing the economic and GHG emissions impact of emerging technologies, roadmaps and legislation affecting the EU refining sector, the vehicle fleet and the low-carbon economy. Marta has 15 years of experience in the Oil&Gas industry initially as a refining process engineer at Repsol Technology Center and then as a senior Energy and Carbon Analyst before joining Concawe in 2017. As part of her current role, she leads Concawe's Low Carbon Pathways bridging programme providing scientific background regarding the transition of the EU Refining system into the future 2050 net-zero and circular European economy. Among her publications, she is also Concawe's coordinator and main author of the JEC's flagship report: Well-To-Wheels analysis, as an outcome of the collaboration between JRC (EU Commission), EUCAR and Concawe. Marta's holds a bachelor degree in Chemical Engineering and a MSc degree in Refining, Gas and Marketing.

## SESSION 2: CARBON CAPTURE & UTILISATION (E-FUELS) & CIRCULAR ECONOMY

### Synopsis

This 2<sup>nd</sup> session will cover the opportunities and challenges linked to a selection of emerging technologies to boost circularity within the refining system. It will particularly gather more insights about how Circular Economy and CCU aspects could be integrated into the future refining industry. Aspects such as the need for supply chain creation, pre-treatment and R&D efforts for the development and scale-up of waste-to-products technologies and their integration within the refining sites, including how to make the most of potential synergies with other industries will be introduced and discussed.

### A look into waste to fuels supply chains: From feedstocks to final products

**Christopher Sim** jointly leads E4tech's work on low carbon fuels and chemicals. He has particular expertise in helping oil and gas sector clients with technical, economic and sustainability assessments. These include advanced biofuel and power to liquids production technologies, refinery co-processing of biomass, feedstock sourcing and well-to-wheel greenhouse gas evaluations. He previously worked as a Chemical Engineer for Shell in the Netherlands and Singapore in their Petrochemicals business, where he developed his expertise in the areas of concept development, techno-economic analyses, operations support and competitor analysis studies.



**CHRIS SIM**  
E4TECH



### ProcessForPlanet (HorizonEurope): CCU, waste minimisation and hubs for circularity



**LUDO DIELS**  
A.SPIRE

**Ludo Diels**, Dr. in Chemistry & Biotechnology, is professor emeritus at Antwerp University, and chair of the Advisory & Program Group of A. SPIRE towards the climate neutrality, circularity and competitiveness (Processes4Planet) of the process industrial sectors. He is the chair of the advisory group of the shared research centre Biorizon on bio-based aromatics and is as such strongly involved in the biobased economy in Europe.



## E-Fuels: A techno-economic assessment of EU domestic production and imports towards 2050

**Alba Soler** is currently working for 3 years in Concawe as a Science Associate in the Low Carbon Pathways program, which aims to identify opportunities and challenges for different low carbon technologies, such as e-fuels, to achieve a significant GHG reduction in the manufacturing and use of refined products in Europe. Alba has over 13 years of experience in the refining sector, where she previously worked for Repsol, as a Technology Development & Planning Senior Engineer for 6 years, and as a Process Engineer for 4 years. She holds a degree in Chemical Engineering and a Master in Refining, Petrochemical and Gas.



**ALBA SOLER**  
CONCAWE



## E-Fuels: A techno-economic assessment of EU domestic production and imports towards 2050



**PATRICK SCHMIDT**  
LBST

**Patrick Schmidt** is a senior project manager and partner at the strategy & technology consultancy LBST in Munich, Germany. He is a graduate engineer in the field of electrical engineering. From 2010 to 2015, Patrick was part of the German Transport Ministry's Research Council devising the Mobility & Fuel Strategy of the German Government. Over the past 10 years, Patrick has been analysing options for the integration of renewable power into the energy system and the role of hydrogen and derivatives for a successful energy transition. He has been instrumental in many studies on energy transition in the electricity and transportation sector, lately notably:

- the analytical support provided to the Hydrogen Council's publication on "H<sub>2</sub> Decarbonization Pathways";
- the "E-Fuels Study" commissioned by German VDA (Verband der Automobilindustrie);
- the "PtL for Aviation" for the German Environment Agency (UBA); the EU green hydrogen certification system "CertifHy".



## Power-to-Liquids

**Alfonso García** works at the Repsol Technology Lab, Repsol R&D center in Móstoles (Madrid). Since he first joined in 2012, he played different roles in developing and scaling up processes in the area of refining and chemical primarily. Alfonso is a Chemical Engineer and holds a Master in Energy Management and Instrumentation and Process Control from the ISA (International Society of Automation). Alfonso is currently leading Repsol's R&D program on synthetic fuel production focusing on the engineering, commissioning and R&D program of the announced 50bbd Demonstration Plant for producing e-fuel through Fischer Tropsch route, developed jointly with leading EU technology providers.



**ALFONSO GARCÍA**  
REPSOL

## Co-processing of waste materials into industrial sites



**DUNCAN AKPORIAYE**

SINTEF

**Duncan Akporiaye** is the Research Director of the Process Technology Department of SINTEF Industry and works in applied research on catalysis, process chemistry and High Throughput Technology. He is involved in aspects of research developments from lab through to commercialization. Duncan holds extensive experience as a board member and project leader in national, international, as well as EU programs. He subsequently worked at SINTEF as Vice President for Research and Acting Executive Vice President before taking his current position as Research Director. Duncan holds a PhD in Physical Chemistry from the University of Manchester and published over 70 publications in peer-reviewed journals.



## Q&As / Panel discussion with the participation of Tamour Javed

**Tamour Javed** is part of the Saudi Aramco Transport Technologies R&D team located in Dhahran, Saudi Arabia. He joined Aramco after completing his Ph.D. in Mechanical Engineering in 2016 at the King Abdullah University of Science and Technology, Saudi Arabia, in the field of combustion chemistry related to fuels and automotive applications. Tamour also holds a Bachelor's degree in Automotive Engineering from Politecnico di Torino, Italy. Tamour is involved in various R&D roles related to the development of sustainable transport technological solutions, assessment of technology economics and business cases, and transport and climate policy analysis. More recently, Tamour is involved in Aramco's R&D program on low climate impact fuels, where he is leading a project related to the establishment of a demonstration plant for green H<sub>2</sub> and CO<sub>2</sub>-derived synthetic fuels (aka, e-fuels) production in Saudi Arabia.



**TAMOUR JAVED**

ARAMCO

## SESSION 3: FOCUS ON AVIATION AND MARITIME

### Synopsis

This 3<sup>rd</sup> session will look at the challenges ahead of the most hard-to-abate sectors, aviation and maritime transport. It will provide a unique understanding of future low carbon pathways and the aircrafts and ships (and related fuels!) of the future! The future towards a low carbon international aviation and maritime sector is thrilling, this session will therefore provide a unique opportunity to understand different scenarios on how the future demand (after COVID-19 pandemic and down to 2050!) and how the combination of both aircraft/vessel technologies and fuel related opportunities are essential to contribute to reduce future emissions. A session deep diving into opportunities, challenges/barriers as well as key R&D areas.

### Aviation Deep Dive: Overview and preliminary results



**LUCA BERTUCCIOLI**

E4TECH

**Luca Bertuccioli** has over 20 years of professional experience in the energy and aerospace sectors. At E4tech he has oversight for complex modelling and novel technologies and works on hydrogen and fuel cells, sustainable fuels for aviation and road transport, system-level topics, and low carbon energy technologies. Prior to joining E4tech, he worked at United Technologies (now Raytheon Technologies) corporate research center.



### Towards a sustainable aviation sector: Key R&D areas

**Stephen Dooley** is Associate Professor of Energy Science in the School of Physics, Trinity College Dublin and an interdisciplinary engineering scientist of a chemical bias dedicated to fundamental research in clean energy technologies. Prior to this he held independent academic appointments in Chemical & Environmental Sciences at the University of Limerick, held postdoctoral and professional research staff appointments in Mechanical & Aerospace Engineering at Princeton University, and worked as a Thermal Fluids Technical Specialist at Cummins Engine Company, UK. Prior to all of that, Stephen obtained his BSc (Chemistry) and PhD (Physical Chemistry) at the National University of Ireland, Galway. Stephen's principle contributions have been in interpreting and exploiting the mechanisms of chemical reactions occurring in fuel and feedstock conversion devices (gas turbines, reciprocating engines, gasifiers, biofuel synthesis, fuel additive design) to improve the clean and efficient operation, techno-economic viability, and/or fundamental comprehension of issues limiting to same.



**STEPHEN DOOLEY**

TRINITY COLLEGE  
DUBLIN



## Technological, operational and energy pathways for maritime transport to reduce emissions towards 2050



**TIM SCARBROUGH**  
RICARDO

**Tim Scarbrough** is the business area manager at Ricardo for environmental policy. Since completing degrees of MSci Physics and MSc Environmental Technology from Imperial College London, Tim has been leading and delivering technoeconomic policy assessments as an environmental consultant for 14 years. Tim has carried out EU and UK impact assessments of environmental maritime policy, including most recently for the European Commission's 'Fit For 55' policy package assessing the potential inclusion of the maritime sector in the EU Emissions Trading System. With colleagues at Ricardo, Tim has evaluated the possibilities for decarbonising the maritime sector using alternative fuels, beginning with the seminal study 'Sailing on Solar' in 2019 assessing green ammonia. That study led to further fuel pathway analyses and a wider number of case studies, the latest of which are published with the Getting to Zero Coalition. This has built on his experience of techno-economic assessments of fuel and technology pathways and roadmaps for the maritime sector in relation to air quality and climate mitigation. And finally, Tim led the re-development of the UK ship emission inventory using minute-by-minute ship-tracking AIS data; outputs which are now used for the British Government's official emissions reporting, including to UNFCCC. Tim has worked with several ports to develop their emissions inventories and their air quality strategies. Clients from the World Bank, GIZ and academic institutions have sought his expertise in maritime emission inventory development.



## Maritime energy transition: Alternative energy carriers and beyond

**Jurrit Bergsma**'s key focus is on the maritime energy transition, aimed at shaping the techno-economic transition pathway. For the past five years, he has fulfilled the role of Business Developer and now Business Development Manager for sustainable shipping. There, he initiates and supports together with global stakeholders key ecosystems for the acceleration of technology or regulation development related to sustainable shipping on behalf of TNO. Examples are the Green Maritime Methanol consortium and MAGPIE. This role is combined with a part-time PhD Researcher function at the Delft University of Technology, to analyze the fundamental processes behind the ongoing transition. Before, he earned an MSc degree in Marine Technology at the Technical University of Delft with a specialization in innovation management.



**JURRIT BERGSMA**  
TNO



## Q&As / Panel discussion with the participation of Damien Valdenaire



**DAMIEN VALDENAIRE**  
CONCAWE

**Damien Valdenaire** joined Concawe in 2016 as a Science Executive for the Refining Technology at Concawe. He has been involved with Concawe since 2014 as he was at that time a TOTAL Member Company representative. Previously, he spent his 18-year career in the refining industry within TOTAL. He held a variety of process Engineering, Planning, Economics and Managerial positions in four different sites in the TOTAL group, in Belgium, England and France, before moving to TOTAL Refining & Chemical in Brussels as Senior Refining Strategy Analyst. In his current position, Damien has led the studies regarding the impact of Regulations on the EU refining industry (product quality, CO<sub>2</sub> intensities of refined products, ETS, etc.) and contribute in projects such as the future of refining in a "low carbon economy". He is also participating and representing Concawe into international workgroup such as IPIECA, IOGP, OGCI and in the ESSF (European Sustainable Shipping Forum). Damien holds a Master Degree in Chemical Engineering from National Institute of Applied Sciences in Toulouse (France).



## SESSION 4: ALTERNATIVE FUELS TOWARDS 2050

### Synopsis

The closing session of the Symposium will feature key presentations followed by a panel discussion, where relevant speakers will share with the audience the main R&D areas for future fuel development as well as a roadmap for the road transport towards 2050 conducted by the EU technology platform ERTRAC. In addition, the session will focus on key questions such as the availability of sustainable feedstock to produce these alternative fuels, and if so, how significant their role can be to contribute to reducing GHG emissions?

### Alternative fuels development for diesel engines

**Robert L. McCormick** is a Senior Research Fellow in the Fuels and Combustion Science group at the National Renewable Energy Laboratory. This group's research is focused on biofuels properties and fuel-engine interactions including biofuel quality and quality specifications, compatibility with modern engines, combustion chemistry, pollutant emissions effects, and leveraging fuel properties for the design of more efficient engines. Bob has a PhD in Chemical Engineering. Before joining the National Renewable Energy Laboratory in 2001 he was a research professor at the Colorado School of Mines. He has co-authored over 130 peer-reviewed technical articles and is a Fellow of SAE International.



**ROBERT MCCORMICK**  
NATIONAL  
RENEWABLE ENERGY  
LABORATORY



### Sustainable energies and powertrains for road transport



**ROLAND DAUPHIN**  
CONCAWE

**Roland Dauphin** is the Science Executive for Fuels Quality and Emissions at ConcaWE, the scientific body of the European refining industry. He holds an MSc from the Ecole Polytechnique in Paris and an MSc in engine engineering at IFP School. He started at IFP Energies nouvelles in Engine Technology and became project leader in Fuel / Engine Matching. In 2016, he joined TOTAL as fuel scientist, where he developed racing fuels and biofuels. He also provides courses on engines and fuels at IFP School. Since 2019, he coordinates the research programs in the fields of fuels quality and emissions at ConcaWE and co-chairs ERTRAC's Energy & Environment working group.

## Sustainable bio-feedstock availability in the EU: A look into different scenarios towards 2050

**Calliope Panoutsou** is a Senior Research Fellow in the Centre for Environmental Policy at Imperial College London, the Chair of Biomass Availability and Supply in the European Technology and Innovation Platform for Bioenergy and a member of the Scientific Committee of the Bio-Based Industries Joint Undertaking. Her work integrates natural sciences with economic and socio-economic approaches and policy analysis. She is currently leading research on understanding the needs for new biomass policy interventions and how these can be integrated to climate and energy policies in Green Deal in four Horizon 2020 projects. She has given advice for biomass, bioenergy and biofuels to the International Energy Agency; UNDP, World Bank and the Joint Research Center (JRC) of the European Commission.



**CALLIOPE PANOUTSOU**  
IMPERIAL COLLEGE  
LONDON



## LCA analysis – Role of fuels & powertrains



**ANNE BOUTER**  
IFPEN

**Anne Bouter** is an 11-years experienced Research Engineer specialised in environmental assessments applied to a wide range of topics. She holds an engineering degree from a top tier engineering school in France: Montpellier SupAgro, and is specialized in agricultural sciences and environmental assessments. After working for PwC in France and a start-up company at EPFL in Switzerland on life cycle assessment (LCA), Anne joined the Economics and Technology Intelligence department at IFPEN in January 2013 for her dual competence in LCA and biomass management. Since 2016, she has specialised in the field of transport and mobility to assess the environmental solutions of the future and foster understanding of their related impacts.

# WRAP-UP OF THE SYMPOSIUM

**Jean-Marc Sohier** is the Concawe Director at the European Petroleum Refiners Association. He graduated Master of Mechanical Engineering from Brussels University (U.L.B.) in 1987 and received a diploma of Management of Business Administration (V.U.B.) in 1989. He started his career at PETROFINA and has held numerous functions in Refining and Petrochemical manufacturing of TotalEnergies among which, successively, General Manager of TOTAL Petrochemicals Feluy, a polyolefin plant, General Manager of TOTAL Antwerp Refinery, Vice President Research and Development for Refining & Marketing and Vice President Manufacturing Methods & Performance for Refining & Chemicals. In his last position, he was Vice President Industry for Africa, Asia and Middle East's Refining & Chemicals. In his current position, Jean-Marc is responsible for the development and the execution of the scientific program of Concawe.



**JEAN-MARC SOHIER**  
CONCAWE DIRECTOR



**JOHN COOPER**  
CONCAWE  
DIRECTOR GENERAL

**John Cooper** was appointed Director-General, FuelsEurope and Concawe, in April 2015. He started his career in the motor industry working on future powertrains, and after three years, moved to BP Downstream, where he has 27 years of experience. His previous role was as Director, Renewables Strategy Downstream, leading BP's commercial compliance strategy for renewables regulation. He has also had business leadership roles in aviation fuels and lubricants, transport energy policy, and fuels technology in the UK and USA, and has represented the UK fuels industry at the UK Automotive Council Technology Group. He holds a BA in Engineering from Cambridge University.

**Concawe**

Boulevard du Souverain 165  
B-1160 Brussels, Belgium  
Telephone: +32 (0)2 566 91 60  
[info@concawe.eu](mailto:info@concawe.eu)  
[www.concawe.eu](http://www.concawe.eu)

