9th Carbon Dioxide Utilisation Summit

Reykjavik, Iceland

18th & 19th **October** 2017

DAY 1

Wednesday 18th October 2017

08:00 REGISTRATION & COFFEE

09:00 CHAIR'S OPENING REMARKS

09:15 **KEYNOTE PRESENTATION**
Getting the Industry together to Accelerate Market Deployment of CO2 Utilisation

Updates on the creation of a European Association dedicated to CO2 utilisation:

- Scope
- Objectives
- Activities
- Invitation to join membership

Damien Dallemagne
Project Coordinator for the Creation of a European Association dedicated to CO2 Utilisation
GreenWin

SESSION ONE
CO2 Utilisation's Role in a Sustainable Future

10:00

- **The critical role for CO2 utilisation in avoiding dangerous climate change**

Dr. Phillip Williamson
Science Coordinator
Natural Environment Research Council & University of East Anglia

10:30

- **Sustainability Certification of Products deriving from Carbon Dioxide Capture and Utilization**
  - CO2-Feedstock eligible for sustainability certification
  - Sustainability requirements of products based on carbon dioxide capture
  - Biofuels based on carbon dioxide capture and utilization for the European transport sector

Dr Norbert Schmitz
Managing Director
ISCC

11:00 Panel Q&A

11:15 MORNING REFRESHMENTS

11:45 **PANEL DISCUSSION**
Policy & Regulation

- Policy scenarios related to CCUS (carbon capture, use and storage)
- Developing a regulatory framework to support CCU
- Insights and overview of projects to be funded by the EU
- How policy in Europe can influence the business scenario for technologies?
- Updates on CO2 utilisation for fuel, reflected in the Renewable Energy Directive (n*2)

Each panellist will briefly introduce themselves - approx. 5mins, before starting the panel Q&A

Sophie Wilmet
Innovation Manager
Cefic - European Chemical Industry Council

Michiel Stork
Managing Consultant
Ecofys

senior representative
SkyNRG

12:30 **CONFERENCE PRESENTATION**
Life Cycle Assessment of CO2 Utilisation Projects

- Determining the viablity of a CO2 utilisation project
- How to measure this when aiming for innovation?
- Predicting how the final product will behave

Dr.-Ing André Sternberg
Group Leader Of Energy Systems Engineering Group
RWTH Aachen University - Chair of Technical Thermodynamics

13:15 LUNCH

9th Carbon Dioxide Utilisation Summit

Reykjavik, Iceland

18th & 19th **October** 2017

SESSION TWO
CO2 Bio Conversion to Renewables

14:30

- **CO2 recycling by microalgae - A strategy for water and food security**
- Benefits of co-location with CO2 emitters for commercial production of microalgae
- Enhanced production on non-arable land using water- and energy-smart novel cultivation approaches
- Recycling potential for industrial waste waters
- Nitrogen-fixing cyanobacteria as biofertilisers
- Improving agricultural soils

Kirsten Heimann
Director
Essential Aquaculture

14:50

- **Improving performance of CO2 conversion by Microalgae**

Laurent Fourage
R&D Project Manager Phototroph
Total

15:10

- *Presentation title to be announced*

Johan Holstein
Head Of Section Gas Testing & Analysis
DNV GL

15:30

- **Valorisation Carbone Québec – a unique demonstration of CO2 capture and utilisation**

Louis Fradette
Director
CO2 Solutions

15:50 Panel Q&A

16:20 AFTERNOON REFRESHMENTS

For Commercial & Partnership Opportunities, please contact:

Alex Chrikishvili
+48 61 646 7027
alex@acieu.net

SESSION THREE
Electrochemical Reduction of CO2

16:50

- **CO2 electrolysis as key technology for the production of high value chemicals**
- CO2 to high value chemicals
- Powerful electrolysis technology platform
- Using renewable energy

Dr. Klaas Jan Schouten
Program Manager Renewable Chemistries
Avantium

17:10

- **Co-electrolysis-based production of high value products**
- Co-electrolysis is an important enabler for CO2 utilization technologies
- Fischer-Tropsch synthesis allows the production of highly valuable products
- Economic feasibility is only possible for highly integrated, efficient processes

Dr. Matthias Jahn
Head of Department - Chemical Engineering & Electrochemistry
Fraunhofer IKTS

17:30

- **Synthetic fuels from carbon dioxide and renewable electrical energy enabled by compact microchannel reactors**
- Concepts for conversion of carbon dioxide and water into chemical fuels using renewable electrical energy
- Microchannel reactor technology for synthesis gas conversion into liquid fuels
- Process simplification and system integration enabled by compact modular plants

Roland Dittmeyer
Director - Institute of Micro Process Engineering
Karlsruhe Institute of Technology

17:50

- *Presentation title to be announced*

Jan Vaes
Engineering
Hydrogenics Europe

18:10 Panel Q&A

18:40 CLOSE OF DAY ONE

9th Carbon Dioxide Utilisation Summit

Reykjavik, Iceland

18th & 19th **October** 2017

DAY 2

Thursday 19th October 2017

08:30 REGISTRATION & COFFEE

09:00 CHAIR'S OPENING REMARKS

SESSION FOUR
CO2 to Fuels

09:05
- **Technical development and commercialization of CO2 to Methanol**
- Technical and commercial milestones for CO2 to Methanol
- Economic and policy insights for CCU

Omar Sigurbjornsson
Research Director
Carbon Recycling International

09:25
- **Carbon recycling for innovative fuels and chemicals production**
- Carbon recycling via gas fermentation
- Gas fermentation explained
- Feedstock variability
- Current status commercial projects
- Impact potential

Bjorn Heijstra
Director, Process Validation
LanzaTech

09:45
- **Prospects and sustainability of large-scale CO_2 provision for synthetic jet fuel production**

Dr. Valentin Batteiger
Researcher Future Technologies and Ecology of Aviation
Bauhaus Luftfahrt

10:05
- **Biological methanation in industrial scale – A solution for CO2 and energy storage**

Doris Hafenbradl, PhD
CTO
Electrochaea

10:25
- **CO2 to Methanol - commercial reality?**
- Air Liquide's vision and contributions
- Concepts and economics of small-scale methanol
- Feedstock optionality for green methanol
- Options for hydrogen supply

Ulf Herrlett
VP of Innovation & Development
Air Liquide

10:45 Panel Q&A

11:15 MORNING REFRESHMENTS

SESSION FIVE
CO2 to Chemicals & Materials

11:45
- **CO2: a novel raw material for plastics – saving fossil resources through innovative**
- CO_2: alternative resource for the important element carbon
- Novel technology makes efficient use of CO_2 possible
- CO_2-containing polyol for flexible polyurethane foam as used in mattresses are on the market – further applications are in development: TPU, rigid foam, molded foam, additives or hoses

Christoph Guertler
Head of the Catalysis Program
Covestro

Annika Stute
Project Lead - New C1 Building Blocks
Covestro

12:05
- **Development of a multidimensional valuation model for the integration of CCU-technologies in cross-industrial systems**
- Analyzing different CO_2-based synthesis routes and determine fitting potentials with local infrastructure to use synergies
- Application of Multi-Criteria-Decision-Analysis for complex cross-industrial composite problems
- Development of a universal valuation model for CCU-technologies and the validation by Carbon2Chem

Sebastian Stiessel
M.Sc.
Fraunhofer UMSICHT

12:25
- **Low cost, high current electrolyzers: the key to economic conversion of CO2 to renewable fuels**
- Development of New Electrolyzer capabilities that reduce both Capex and Opex will be discussed
- Low Temp PEM Water Electrolyzers at very high current and low PGM loading
- Low Temp AEM Alkaline Water Electrolyzers at relatively high current and no PGMs
- Low Temp AEM CO2 Electrolyzers with relatively high current

Laura Nereng
Sustainability and Business Development Leader
3M

9th Carbon Dioxide Utilisation Summit

Reykjavik, Iceland

18th & 19th **October** 2017

12:45 • **Catalyst for Change: Converge® Polyols Market Ready**

Peter Shepard
President
Aramco Performance Materials

13:05 Panel Q&A

13:35 LUNCH

14:50 **CONFERENCE PRESENTATION**
Presentation title to be announced

Richard French
Business Development Director
Econic Technologies

15:20 **CONFERENCE PRESENTATION**
Presentation title to be announced

senior representative
Reliance

16:05 CHAIR'S CLOSING REMARKS

16:15 END OF CONFERENCE & NETWORKING REFRESHMENTS

Previous Attendees Include:

Nalco Energy Services | GreenFire Energy | **Ferus Inc.** | Total Research & Energy | **University of Illinois at Chicago** | Phytonix Corporation | **Algae Fuels** | Blue Planet | **US Department of Energy (DOE)**| SABIC |**Volkswagen Group America** |Skyonic Corporation |**Liquid Light**| 3M|BMBF |**E.ON**| Sunfire GmbH | **Arcelor Mittal Innovation**|ACP Polska Sp |**Aqualia** |Audi AG| **Avantium** |Total | **Gas Natural Fenosa Engineering**|TECNALIA | **SINTEF Energy Research** | Iberdrola | **Ecofys** | FOM-institute DIFFER | **ENEA Consulting** | VITO | **IPG Industrial Project Group Srl** | International Energy Agency (IEA) | **Climeworks AG** | Bayer Material Science | **NV GL** | Jagiellonian University | **ETOGAS GmbH** | Five Quarter Energy Limited / **Five Quarter Energy** | PTT Exploration & Production PCL / PTTEP | **DIFFER** | Solvay SA | **TNO** | Energibyen, Skive | **KSLA** | VTT | **GreenField Speciality Alcohols Inc** / GreenField | **RAFAKO S.A.** | Bilfinger Bohr- Und Rohrtechnik GmbH | **Linde AG** | Institute For Energy Technology (IFE) | **The Chemical Coal Processing Institute** | Mitsubishi Hitachi Power Systems Europe GmbH / MitsubishiHitachi PowerSystems | **Borealis Polyolefine GmbH** | ON | **University Of Antwerp** | Joule Unlimited | **Yara Int.** | PTT PLC | **Clariant Produkte (Deutschland) GmbH** | Gas Natural Fenosa | **INHA University** |FCC AQUALIA, S.A. | **Antwerp Port Authority** | Jupiter Oxygen Corporation | **OMV** | Bertrandt Ingenieurbuero GmbH **Chemieanlagenbau Chemnitz GmbH** | GDF Suez | **CCM Research** | BASF New Business GmbH | **Unimore//Protesa** | MARU Teknik AB | **PTT Public Company Ltd** | KH Engineering B.v | **Naviglobe NV** | & Many More...