Renowned speakers will present their results on the following topics:

- Policy, certification, trading and economic aspects of biomethane in Europe
- Established and emerging markets: Germany, Western Europe, Nordic Countries, Eastern Europe, Ukraine and Russia, China
- Biogas upgrading: Comparison of various technologies
- Grid-injection and vehicle fuel
10:00 Registration & welcome coffee

10:30 Chairmen’s welcome and opening address

EUROPEAN FRAMEWORK CONDITIONS, UTILIZATION, CERTIFICATION AND ECONOMIC ASPECTS

10:45 European policy and targets for the production and utilization of biomethane in Europe
• EU Renewable Energy Directive and its implication on biomethane
• Target for energy from biomethane
• Environmental sustainability of biomethane
• Biomethane utilization in the EU
• CEN standards support to biomethane in the market
Dr. (PhD) David Baxter, Project leader, European Commission, Joint Research Centre, Petten, The Netherlands

11:15 Standardization of biomethane specifications for grid injection and use as automotive fuel
• Origin of the mandate and links with the European renewable targets
• Division of work, current stakeholders and strategic approach
• Main parameters under discussion. Need for feedback from the vehicle manufacturers
• Future next steps
Jaime del Álamo, M.Sc., Technical Manager, NGVA Europe, Madrid, Spain

11:45 Economic aspects of biomethane provision – From feedstock to end users
• Cost items along the biomethane value chain
• Costs of raw gas provision using different feedstocks
• Specific costs of biogas upgrading for most relevant upgrading methods
• Costs of biomethane grid injection and transport
Dipl.-Ing. (FH) Michael Beil, Group Manager Gas Upgrading, Injection and Grids, Fraunhofer IWES, Kassel, Germany

12:15 Pieces of the certificate puzzle
• Vertogas certification – National and international
• Building block for international trust
• How can the puzzle be solved?
Drs, Ing. Daniël C. Pol, Commercial Operations, Vertogas B.V. Groningen, The Netherlands

12:45 Lunch

ESTABLISHED AND EMERGING BIOMETHANE MARKETS

14:00 The evolution of the European biomethane market in light of the Green Gas Grids project
• Status of biomethane markets in Western European countries
• Role and function of national biomethane registries
• Importance of coordination and cooperation among national biomethane registries
Dr. Attila Kovács, Board Member, European Biogas Association, Brussels, Belgium

14:20 Experiences and future perspectives of biomethane in Germany from a regulatory perspective
• Biomethane – Political targets and utilization priorities for Germany
• Current legal framework and incentive scheme
• Biomethane – Challenges and future perspectives
Dr.-Ing. Wolfgang Urban, Fellow, Ecologic Institute gGmbH, Berlin, Germany
14:40 Biomethane powering the growth of the NGV market in the Nordic countries
- Overview, biomethane in the Nordic countries
- The case of Sweden – The promotional value of biomethane as vehicle fuel
- Future trends, challenges and opportunities of differing national incentive systems

Dr. Mattias Svensson, Program Manager Gaseous Fuels, Swedish Gas Technology Center, Malmö, Sweden

15:00 Biogas and biomethane markets in Eastern Europe
- Biogas markets in Eastern Europe
- Opportunities and challenges for biogas projects in the region
- Experiences in Eastern Europe taken from the EU projects BiG – East, BiogasIN, UrbanBiogas and BiogasHeat

Dipl.-Ing. Dominik Rutz, M.Sc., Senior Project Manager, Biomass Unit, co-authors: Rita Ramanauskaite, Rainer Janssen, WIP Renewable Energies, Munich, Germany

15:20 The development of Eastern European biomethane markets – Opportunities and challenges in Ukraine and Russia
- Biomass – Potentials for the production of biomethane
- Legal framework conditions, regulations and tariffs
- General economic aspects in the supply of biomethane
- Ecological aspects of the supply and distribution of biomethane
- Opportunities and barriers in the establishment of biomethane-plants

Dr. rer. nat. Elena H. Angelova, International Knowledge and Technology-Transfer Eastern Europe, DBFZ Deutsches Biomasseforschungszentrum gemeinnützige GmbH, Leipzig, Germany

15:40 Networking & coffee break

BIOGAS UPGRADING – A COMPARISION OF NEW AND ESTABLISHED TECHNOLOGIES

16:10 Overview: Common biogas upgrading technologies
Dipl.-Ing. (FH) Michael Beil, Group Manager Gas Upgrading, Injection and Grids, Fraunhofer IWES, Kassel, Germany

16:30 Established methods – a learning curve
1. Improved efficiency of Pressure Swing Adsorption (PSA) - Development, performance status 2013 and future prospects
   - Basic process | Targets of improved efficiency | Optimization approaches
   - Current performance range | Future prospects
   Dr.-Ing. Alfons Schulte-Schulze Berndt, Managing Director, Schmack Carbotech GmbH, Essen, Germany

2. Biogas upgrading plants using pressurised water scrubbing
   - Process | Experience | Prospects
   Dipl.-Ing. Ulf Richter, Managing Director, Malmberg Bioerdgastech GmbH, Merseburg, Germany

3. Experience report about biogas upgrading methods – Amine Absorption and Membrane
   - Introduction of both upgrading methods | Field experiences from implemented upgrading methods | Reference projects
   Dipl.-Ing. (FH) Timo Vaske, Sales, MT-BioMethan GmbH, Zeven, Germany

17:00 New developments for biogas upgrading
4. Efficient biogas conditioning using membranes
   - Methane yield up to 99% | Maximum energy efficiency | Grid injection without compression and additional gas drying | Minimized methane leakage
   Dr.-Ing. Goetz Baumgarten, Director SEPURAN, Evonik Industries AG, Marl, Germany, co-author: Dr. Jörg Balster, Norbert Krutzler, Evonik Fibres GmbH, Schörfling, Austria
5. Biogas upgrading with a combined membrane/cryogenic process – Experiences from full-scale plants
   Effects of substrates | Energy consumption | Valorisation of CO2
   Dr. Dipl.-Ing. Emile Martynowicz, Director R&D, Pentair Haffmans, Venlo, The Netherlands

6. OASEgreen – Experience gained in the operation of a very large biogas conditioning plant
   Process | Design according to industrial standard | Biomethane qualities at varying volume flows and CO² contents
   Dipl.-Ing. (FH) Ulrich Trebbe, Head of Process Engineering, BIS E.M.S. GmbH, Cloppenburg, Germany

17:30 Verbio’s Biorefinery Concept
   • A new technology to improve the sustainability
   • Verbiogas – 2nd generation biofuel
   Dr. Oliver Lüdtke, COO Bioethanol/Biomethane, Deputy Chairman of the Management Board, VERBIO Vereinigte BioEnergie AG, Leipzig, Germany

18:00 End of conference day one

Evening Reception
At the end of the first conference day we kindly invite you to our evening reception/get together. Enhance your personal network and use the relaxed and informal atmosphere for deeping talks with other participations and speakers.

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The Association of German Engineers (VDI) is one of the largest technical-scientific associations in Europe. Throughout the years, the VDI has successfully expanded its activities nationally and internationally to foster and impart knowledge about technology-related issues. As a financially independent, politically unaffiliated and non-profit organization the VDI is recognized as the key representative of engineers both within the profession and in public.

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SECOND DAY
TECHNOLOGY OVERVIEW: GRID INJECTION AND VEHICLE FUEL

9:00 Biogas Grid Injection Systems - Overview of concepts throughout Europe
- Facts and figures
- Functions of ‘grid injection systems’
- Various system philosophies
- Costs overview for grid injection systems

Ing. (Bachelor) Addy Baksteen, Business Development Manager, Elster-Instromet b.v., Silvolde, The Netherlands

9:30 Natural gas and biomethane within the context of the future fuel mix
- Overview on strategic developments of CNG-infrastructure in Europe
- Technology overview filling stations for CNG and biomethane
- Overview on passenger cars, busses and heavy duty vehicles for CNG and biomethane
- Economic aspects of biomethane as vehicle fuel (filling stations, storage, fleets)
- Local value added by changeover of municipal (bus) fleets to CNG or biomethane

Michael Schaarschmidt, Head of Product Management, erdgas mobil GmbH, Berlin, Germany

10:00 Off-gas treatment technologies: thermal and catalytic oxidation and low calorific value gas burners
- Legal framework conditions (German technical instructions on Air Quality Control & Energy Grid Feeding Act)
- Off-gas conditions of different biogas upgrading processes
- Off-gas treatment technologies
- Selection criteria for a suitable off-gas treatment system

Dipl.-Ing. Ernst Luthardt, Sales Manager, YIT Germany GmbH, Aachen, Germany

10:30 Networking & coffee break

BEST PRACTICE EXAMPLES

11:00 Using waste and sewage to produce the world’s cleanest combustion fuel for vehicles
- Plant design concept and presentation
- Current and future development of biomethane as a vehicle fuel
- Operational experience

Eric Zinn, M.Sc., Biogas Development Engineer, Göteborg Energi AB, Göteborg, Sweden

11:30 Performance of biomethane plants - A field report
- Definition of benchmarks
- Generation of benchmarks
- Energetical efficiency
- Ecological efficiency

Dipl.-Ing. Daniel Kruckelmann, Manager Energy Engineering, co-author: Dipl.-Ing. Ulrich Nettelnbreker, agri.capital GmbH, Münster, Germany

12:00 Biowaste methanisation and grid injection of biomethane – The experience of Lille Metropole
- The global waste collection system in the metropolitan area
- Introduction of the organic recovery center: treated waste; end products: compost and biogas
- Biogas upgrading
- Grid injection, report on three years of injection
- Optimization of biogas production

Engineer Paul Huguen, Organic Recovery Center, Lille Metropole Communauté Urbaine, Lille, France

12:30 Lunch
NEW DEVELOPMENTS, TECHNOLOGIES & MARKETS

13:30 Production & supply of Bio-LNG for the commercial vehicle sector
- Cash and carbon savings for commercial vehicles
- Strategic plan for UK nationwide refuelling infrastructure network
- Overview of current UK market status
- Benefits of Bio-LNG as a low carbon commercial vehicle fuel
Doug Leaf, Commercial Development Manager, Gasrec Ltd., United Kingdom

14:00 Power to Gas
- Overview power to gas technology
- Energy balances of power to gas systems
- Using off-gas-streams of biogas upgrading plants as CO₂-source
- Experiences with direct methanation using raw biogas as CO₂-source
Dr.-Ing. Bernd Krautkremer, Division Director Bioenergy System Technology, Fraunhofer IWES, Kassel, Germany

14:30 Two-step-biogas-production under pressure
- Process basis
- Challenges and opportunities
- Description of the test facility
- First results
- Future perspective
Dipl.-Phys. Anna-Maria Wonneberger, Wissenschaftliche Mitarbeiterin, DVGW – Forschungsstelle am Engler Bunte Institut des Karlsruher Instituts für Technologie (KIT), Karlsruhe, co-authors: Dr.-Ing. Frank Graf, DVGW-Forschungsstelle, Dr. agr. Andreas Lemmer, Landesanstalt für Agrartechnik und Bioenergie, Hohenheim, Germany

15:00 Biomethane a new driver for the Chinese biogas sector
- Chinas’ biogas policy drivers
- The biogas and biomethane potential and market in China
- Ongoing large scale biogas demonstration projects
- New support programs to apply super large biogas plants in China
- Targets of the Sino-German Biogas cooperation
Univ.-Prof. Dr. phil. habil. Bernhard Raninger, Project Director, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH & China University of Petroleum, co-author: Prof. Dr. Hongjun Zhou, China University of Petroleum, Beijing, New Energy Research Institute, Beijing, P.R.China

15:30 Closing remarks of chairmen

15:45 End of conference
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