

20th International
Conference for
Renewable Mobility



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CityCube Berlin

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20th International Conference on Renewable Mobility

CONFERENCE REVIEW



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At the 20th Conference on renewable mobility, from January 23rd to 24th 2023, everything revolved around latest trends and possible applications for renewable fuels. Under the theme "**Navigators for Sustainable Mobility!**", the Conference was held once again as an in-person event after a two-year break due to Covid-19. In 15 sessions over two days, 75 experts from science, politics and research presented innovative developments relating to climate-friendly mobility of the future that is suitable for everyday use.



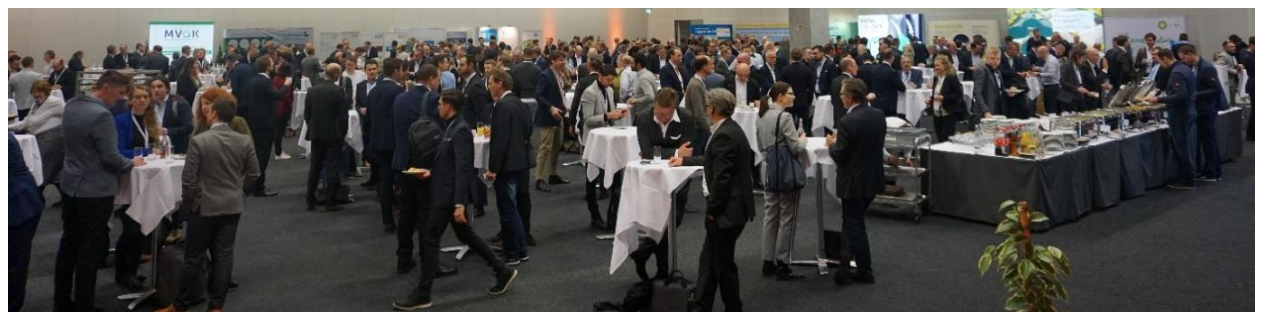
The energy crisis triggered by the war in Ukraine clearly confirms the European dependence, especially Germany's, on fossil gas and oil supplies from Russia, which must be replaced by new supply partners. "This dependence noticeably burdens not only national budgets, but all citizens in the European Union," said the chairman of the German Bioenergy Association (Bundesverband Bioenergie e.V. - BBE), Artur Auernhammer.

Biofuels reduced CO₂ emissions in transport by around 11.1 million tons in 2021. As in previous years, they made by far the largest contribution to reducing greenhouse gas emissions in transport. "With the introduction and gradual increase of the greenhouse gas quota obligation, rigid quota requirements on an energy basis for biofuels were replaced by the efficiency competition initiated by this. This effect, which is desirable from the point of view of resource policy, has the consequence of physically reducing the quantity required to meet the quota obligation. This impact can be seen in the raw material composition of the biofuel quantities charged. The German regulation is therefore a model for the orientation of climate protection policy in transport in other EU member states. Climate protection in transport is inconceivable without biodiesel, bioethanol and biomethane," Auernhammer continues.

The Conference team would like to thank all participants for taking part in the conference and hopes you enjoy reading the Conference review. We look forward to welcoming you again next year to the **21st anniversary of the Conference on renewable mobility in Berlin on January 22nd to 23rd 2024.**

Your Fuel Conference Team





Session 1 – Energy transition in transport between the challenges security of supply and climate change mitigation

Moderation: Stefan Walter, German Bioethanol Producers Association e.V.



Artur Auernhammer, chairman of the BBE board, opened the 20th Conference on January 23rd. In addition to the war in Ukraine, the dominant topic was the announced amendment to the law on biofuels announced by the Federal Ministry of food and agriculture (BMEL) and the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV). "It is incomprehensible that Federal Minister of Agriculture Cem Özdemir in association with Federal Minister of the Environment Steffi Lemke repeatedly questions the importance and thus the future of sustainably certified biofuels from cultivated biomass and plans to lower the upper limit. We reject the announced law change in all clarity," stressed Auernhammer.



In his presentation on "Renewable fuels and alternative drives - framework conditions for innovation and sustainability," Oliver Luksic, Parliamentary State Secretary at the German Federal Ministry for Digital and Transport, emphasized the need for climate-friendly technologies to achieve climate targets in transport. "This is hugely important because not every transport application can be electrified or otherwise efficiently made climate neutral," Luksic said.



Norbert Lins, Member of the European Parliament, followed with his contribution "Breakthrough of EU legislation for the energy transition in transport?". His conclusion: "Without biofuels, the climate targets in transport cannot be achieved. We need a biofuel policy that makes a fundamental contribution to climate protection and at the same time promotes domestic protein crop production. This increases biodiversity in crops and strengthens regional value creation."



From the German Aerospace Center (DLR), Prof. Dr. Mareike Jipp, who is also co-chair of the expert advisory board "Climate Protection in Mobility", explained the framework conditions for innovation and sustainability regarding renewable fuels and alternative drives. "There are high expectations in society regarding the availability of filling stations with renewable fuels. Car users with high environmental awareness have a higher willingness to pay for renewable fuels. Fuel costs and ranges are most important for purchase decisions," she concluded.



The presentation by John Cooper, Director General of Fuels Europe, focused on energy security in the transport sector: "Europe needs a liquid fuels strategy to manage the transition to renewable sources and feedstocks. The energy transition brings with it a decline in European refining capacity that can only be offset by an increase in imports of refined products. Increasing renewable fuel production requires many types of policy support."



Session 2 – Panel discussion: Consequences of the war in Ukraine: Is security of supply sidelining climate change mitigation?

Moderation: Sonja van Renssen, Editor-in-Chief of Energy Monitor



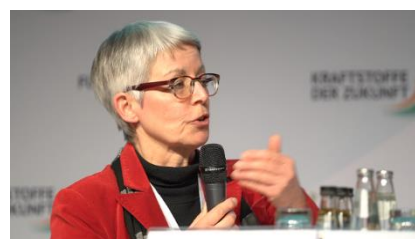
The first session was followed by a panel discussion to debate the role of alternative fuels for the internal combustion engine of the future. The panelists were Dr. Anita Breyer, Ministerial Director at the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV), Dr. Monika Griefahn of the eFuel Alliance e.V., Prof. Dr. Christian Küchen, Fuels and Energy e.V. industry association (en2x), Matti Lehmus, NESTE, Norbert Lins, Member of the European Parliament, and Claus Sauter, VERBIO Vereinigte BioEnergie AG.

Representing the BMUV, Dr. Anita Breyer defended the proposal to lower the cap on biofuels, which drew criticism from the assembled experts. She also stressed that both goals must be achieved: Energy security and climate protection.

"There is a huge potential of renewable energy sources worldwide: With eFuels, we can store, distribute and use them and thus accelerate the green energy transition," said Dr. Monika Griefahn, focusing on the development opportunities in the field of eFuels.

Prof. Dr.-Ing. Christian Küchen mentioned that fifty percent of gas imports from Russia could already be replaced in the short term. "In the long term, however, we need international markets for sustainable fuels," the managing director of en2x was certain.

Matti Lehmus from Neste highlighted: "In the fight against climate change, we don't have a second to lose and we must use every solution available to us. Renewable diesel can reduce greenhouse gas emissions (GHG or CO₂e) by up to 90% over the lifecycle of the fuel compared to fossil diesel. It is therefore important that we also allow the sale of synthetic pure fuels at public filling stations in this country."



Claus Sauter missed a clear and comprehensive strategy for Germany and Europe: "The climate, energy and supply crises have nothing to do with the Ukraine crisis. The Ukraine crisis was only an accelerant. The fact that it has long been 5 past 12 is shown by the massive interventions of the German government in the energy market. At the moment, crisis management rules."



In principle, there was consensus that the measures for achieving the climate targets by 2030 would have to be more ambitious. Long-term planning certainty beyond 2030 was also necessary. All resources and technologies would have to be used for climate protection in the future. Existing production capacities could be used if there was investment security.



Session 3 – Implementation of RED III: How will quota regulations in the EU look in future?

Moderation: Elmar Baumann, German Biofuels Industry Association e.V.



Keith L. Kline of the Climate Change Science Institute & Center for Bioenergy Sustainability said: "Expanding sustainable production and use of bio-based fuels, chemicals, and materials improves the ability to respond to market disruptions." He emphasized the need for better natural resource management to achieve inclusive socioeconomic development goals. "Sustainable biomass is a byproduct of investing in improved land management," he concluded.



Dr.-Ing. Franziska Müller-Langer of DBFZ Deutsches Biomasseforschungszentrum, gemeinnützige GmbH highlighted: "For Germany, it has to be stated that even ambitious measures to reduce the total energy demand require a greenhouse gas quota of > 25% to achieve the climate target."



"Digitizing GHG quota trading and making it significantly easier for participating companies is something we are working on together with our customers and partners," said Dominik Tristl and Jan Röstel of q-bility GmbH in their presentation titled "From theory to practice: pitfalls and solutions to respond to stricter GHG reduction provisions".



Zoltan Elek of Landwärme GmbH emphasized that the current design for electricity as a compliance option for the GHG quota does little more to protect the climate in transport and provides little incentive to ramp up e-mobility. "It would be better to allow renewable electricity to be used as charging power in a practical way and at the same time promote the expansion of renewables," he pleaded.



This year, the Young Scientist Award was presented to Kaatje Bout and Eliane van Boxtel of Delft University of Technology for their Eco-Runner - the world's most efficient hydrogen city car. The two will present their project in more detail at the 21st Conference.



Session 4A – E-Fuels: The journey is the reward – progress in R&D projects

Moderation: Dr.-Ing. Franziska Müller-Langer, DBFZ German Biomass Research Centre, gemeinnützige GmbH



Dr.-Ing. Juliane Prause from the German Aerospace Center (DLR) opened the session with a presentation on the roadmap for the energy transition in transport. According to this, the massive expansion of renewable energies in transport is necessary.



From the Technical University of Munich, Prof. Dr.-Ing. Jakob Burger provided insights into the current state of research and development of oxygenate fuels. Synergies between biomass and e-fuels are possible, according to research findings.



In his presentation, Karl Hauptmeier, Norsk e-Fuel AS, emphasized that the conditions for e-fuels have changed drastically in recent years: "A Europe-wide sub-quota for e-fuels for aviation and the expiration of free ETS certificates for the aviation industry are just two examples."



Dr.-Ing. Ralph Uwe Dietrich, German Aerospace Center (DLR), felt that the future transportation system would need to maximize mileage on electricity, as well as e-fuels would bring efficiency losses that would be difficult to justify.



Benedikt Gerber from eQuota explained in his presentation on the "Bridge to green transformation: trade green fuels, e-fuels and CO₂ reductions digitally" that eQuota GmbH as a service provider offers to automate the process between producer and seller as far as possible.



Session 4B – Bioethanol

Moderation: Christine Kroke, German Bioethanol Producers Association e.V.



Prof. Dr. Thomas Garbe, Volkswagen AG, focused his presentation on E20 and regenerative fuels as a complementary strategy to electromobility. "The specification of E20 fuel must both ensure technical safety in operation and create potential for future developments," he urged.



"The use of E20 fuels in gasoline engines can not only have the well-known advantage of lower particulate emissions, but also show a positive effect on CO₂ emissions," said Prof. Dr.-Ing. Markus Jakob of Coburg University of Applied Sciences in his presentation titled "Effect of E10 and E20 derivatives in WLTC using a gasoline vehicle with variable compression".



Nikki Sjulander, from the Estonian University of Life Sciences, explained in the presentation titled "Origin, effects and control of lignocellulosic inhibitors in bioethanol production" that the use of biomass is definitely a challenge for the industry due to its complexity and diversity.



"Rapid reduction of greenhouse gas emissions, especially in the transport sector, is only possible through a combination of different approaches, including advanced biofuels," emphasized Dr. Nikolas Jacobsen, Clariant Products (Germany) GmbH.



Session 4C – Biofuels and renewable fuels in agriculture and forestry

Moderation: Prof. Dr. Peter Pickel, John Deere GmbH & Co. KG



The head of the test rigs at the Technology and Support Centre (TFZ), Dr. Johannes Ettl, explained that modern agricultural and forestry machinery could also be operated reliably and, moreover, with low emissions using biofuels: "If policymakers set the right incentives, more agricultural and forestry machinery with sustainable drives can come onto the market in the short term and thus achieve the climate protection targets in agriculture."



"It is not the engine that causes CO₂, but fossil fuels. DEUTZ engines are ready for renewable, CO₂-neutral fuels," said Markus Winkler of Deutz AG in his presentation "DEUTZ engines for use of biofuels and renewable fuels in mobile machinery."



Dariusz Dembowski, Kaldem ATS Alternative Treibstoffsysteme GmbH, emphasized in his presentation that the first steps in the approval processes have already been taken: "Approvals for tractors, other agricultural machinery and trucks up to 7.5 t are still in the approval process."



"In the future, we will see a variety of solutions that achieve the zero emissions goal while enabling farmers to feed the world. The discussion on how to achieve the ambitious emissions targets should be open to technology to enable both sustainability and productivity," was the plea from Leonard von Stillfried of AGCO GmbH.



Session 4D – Advanced alternative fuels – From research to practice

Moderation: Prof. Dr. Thomas Willner, Hamburg University of Applied Sciences (HAW Hamburg)



Matthias Spöttle from the Federal Ministry of Digital and Transport (BMDV) presented the four pillars of the BMDV Renewable Fuels Funding Program at the Conference. The funding guideline for the development of regional fuels has already come into force.



Marko Janhunen, UPM, spoke about the prospects of what role advanced biofuels can play in reducing emissions in the transport sector. He said UPM believes that the key aspects of future fuels are based on three R's: Renewable, Residual and Regenerative. EU and member state policies should focus on enabling, not restricting, defossilization through truly sustainable biofuels, he said.



Prof. Dr.-Ing. Jörg Sauer, who conducts research at the Institute of Catalysis Research and Technology (IKFT) at the Karlsruhe Institute of Technology (KIT), emphasized the key role of methanol in the production of fuels: "Green methanol is becoming the key component of sustainable mobility. It can be produced from different raw materials in a global division of labor and refined into locally required fuels and chemical products in consumer countries. The potential for technology development is enormous."



Dr. Armin Günther, Air Liquide Global E&C Solutions, introduced CO₂ as a valuable raw material in his presentation. "CO₂ from fossil resources is considered the main cause of global warming. Decarbonization of all sectors is therefore a top priority. CO₂ can also be considered a valuable feedstock because CO₂ to methanol (CCU) is commercially available and easily scalable."



"Application-specific, low-emission propulsion concepts are necessary for the success of the transport turnaround. Green methanol will play a crucial role in this," opined Fabio Voit of the Research Institute for Water Management and Climate Future at RWTH Aachen University (FiW) e.V. "The sustainability of e-fuel has already been extensively proven. Now it's a matter of setting the framework for a market ramp-up."



Session 5A – Fuel research

Moderation: Prof. Dr. Jürgen Krahel, Ostwestfalen-Lippe University of Applied Sciences (TH OWL)



Prof. Dr.-Ing. Georg Heinrich Klepp, Institute for Energy Research at the Ostwestfalen-Lippe University of Applied Sciences, said: "Machine learning and artificial intelligence methods will enable us to develop and use the fuels of the future."



Björn Noack, Robert Bosch GmbH, and John Cooper, FuelsEurope, called for transparency at the pump. "Only when it is clear what is in the fuel and how much CO₂ I save, the value of renewable fuels becomes visible," they analyzed in their presentation "Digital Fuel Twin for fuels – Visibility of carbon footprint at the fuel pump - today!"



On the application of biodiesel in current car and commercial vehicle fleets, Dr. Richard Wicht of AGQM Biodiesel e.V. reported, "We will continue to have an internal combustion engine fleet and biodiesel is part of the solution for climate-friendly mobility."



"The overall goal of REDIFUEL is to enable the use of different biomass feedstocks for an ultimate renewable EN590 diesel biofuel," said Simon Eiden of TEC4FUELS GmbH in his presentation "Investigation of the system compatibility of the novel synthetic fuel REDIFUEL."



"For the energy transition in the transport sector, a significantly increasing share of alternative and innovative drives and fuels is required," emphasized Sebastian Feldhoff from OWI Science for Fuels gGmbH in his presentation titled "Studies on diesel fuels with high renewables content".



Session 5B – Biomethane as a fuel

Moderation: Dirk Bonse, German Biogas Association e.V.



Dr. Olaf Rumberg, EON Gas Mobil GmbH, opened the session with his presentation "BIOCNG Customer Solution". He argued that CO₂ reduction in transport needs different solutions. BIOCNG is certainly one of them, according to the expert.



From the Berlin Waste Management AöR, Wilhelm Winkelmann emphasized under the title "Biomethane as fuel from municipal biowaste - refueling in waste collection vehicles" that fuels from biowaste are not in competition with food production. In Berlin, 50% of the waste collection fleet (165 trucks) run on biomethane from private household waste.



Karin Naumann, German Biomass Research Centre gGmbH, presented the pilot plant for synthetic biogas, which processes biogenic residues, by-products and waste into methane for a sustainable transport sector. In this process, production with green hydrogen from 100% renewable electricity showed greenhouse gas savings of 78%, Naumann said in her report.



Mario Männlein of Iveco Magirus AG closed the packed session by presenting a corporate perspective on biomethane as the key to climate-friendly mobility. He highlighted, "We are thus prioritizing the development of BioCNG and LNG for heavy-duty transport."



Session 5C – Biofuels and renewable fuels in shipping

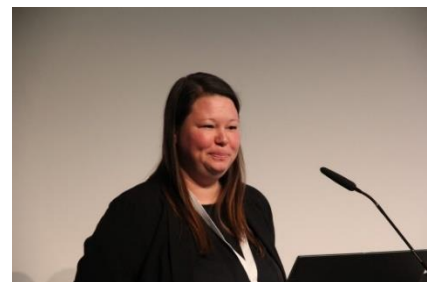
Moderation: Prof. Dr.-Ing. Bert Buchholz, University of Rostock



Prof. Dr.-Ing. Wolfram Gottschalk, IAV GmbH, examines maritime biofuels for emissions and efficiency during operation. "Sustainable diesel fuels from biowaste will make a rapid contribution to reducing maritime CO₂ emissions," is the expert's assessment.



On policy frameworks and research approaches for sustainable marine fuels, Dr. Fanny Langschwager of the University of Rostock contributed. "Biofuels can help to significantly reduce emissions in the maritime sector," she expressed her conviction.



Stefan Fahrholz from Carnival Maritime GmbH explained in his presentation "Climate change mitigation in shipping – Setting sail for LNG and synthetic fuels? The cruise industry's perspective" that fossil fuels in the cruise industry should be reduced to zero by 2050, with the help of energy efficiency technologies and the use of biofuels and hydrogen fuels in new and existing ships.



"It makes sense to replace fossil fuels with renewables - also for economic reasons. The possibilities for decarbonization through bioenergy, especially biogas, are predominantly underestimated," said Prof. Dr. Martin Wittmaier from the Institute for Energy and Circular Economy at Bremen University of Applied Sciences.



Session 5D – Biofuels from waste and residues

Moderation: Detlef Evers, Waste-Based Fuels Association for Medium-sized Businesses e.V.



Janos Kincses from Electraplan Termelő Kft spoke on the topic of plastic waste processing into new fuels. According to his analysis, there will be huge amounts of plastic waste in the EU that will have to be recycled for a long time to come. Electraplan Termelő from Hungary offers a solution after long research.



Manfred Baumgartner of BDI BioEnergy International GmbH presented his company's RepCAT technology. The technology is an important milestone for the biodiesel industry, he said, because it can handle the worst raw material qualities. High levels of free fatty acids, large impurities and even feedstock with poor settling properties could be processed. A perfect picture for the circular economy, he concluded.



"Protect your brand, your customers, your supply chain, society and the environment with a fuel safety program from Tracerco," appealed Dr. Thomas Burns of Tracerco in his presentation titled "Fuel security taggants to prevent biofuel adulteration."



"Challenges in the analytics of new advanced feedstocks" was the title of the presentation by Fabian Schmitt of Tecosol GmbH. He spoke on the topic from wood to tall oil to fatty acids as a feedstock for biodiesel production.



Thorsten Dunker of Nexxoil GmbH closed the session with his presentation entitled "A new process for the production of fuels from contaminated used fats". In it, he presented a new process for generating fuels from contaminated used fats. "We can process heavily contaminated waste grease, and the energy yield is very good at nearly 90%."



Session 6A – Energy industry – Green hydrogen

Moderation: Werner Diwald, German Hydrogen and Fuel Cell Association e.V.



Burkhard Hoffmann of the Foundation for Environmental Energy Law gave a presentation on the EU Commission's delegated act for hydrogen use in the transport sector: "The delegated act is likely to have a strong impact on the general legal framework for hydrogen. However, the current delays and uncertainties are hampering investment decisions and the overall market ramp-up."



From the German Association of the Gas and Water Industry e.V., Dr. Dietrich Gerstein presented the possibility of pipeline-based supply of hydrogen refueling stations. "Synergies can be leveraged via pipeline-based supply of H₂ refueling stations and hydrogen can be provided efficiently," he said confidently.



The fact that the production of CO₂-negative hydrogen from biogenic residues is already possible and economical today was highlighted by Leon Müller-Noell, BtX energy GmbH, in his contribution entitled "Dark fermentation".



"Hydrogen can be produced sustainably by using wastewater and residual materials. Wastewater streams from the food industry, such as wastewater from breweries, sugar, or starch industries, proved to be particularly suitable," said Juliana Rolf from Münster University of Applied Sciences.



Session 6B – Biomethane international

Moderation: Jörg Fischer, EnviTec Biogas AG



John Cosmo Dwelle, Landwärme GmbH, criticized that after a year of war in Ukraine, far too little has happened to promote renewable and domestic energy security. "Biomethane and bio-LNG are available, and there is a lot of untapped potential in this country as well," he said.



"A wide variety of industrial plants can become bio-refineries - supplying themselves as well as other sectors with green energy," predicted Florian Siebert of bmp greengas GmbH in his presentation titled "There's more to it than slurry, manure and organic waste bins - Using production waste to generate fuel-grade biomethane".



Benedikt Bender from the Energy System Engineering OWI Science for Fuels gGmbH was of the opinion that autothermal reforming processes with pure oxygen to treat biogas are a solid basis for methanol synthesis to produce a liquid energy storage.



The session was concluded by Jörg Fischer, EnviTec Biogas AG, who presented BioLNG as the best option for emission reduction in heavy-duty transport. He spoke on the topic of "Driving the transport revolution with biofuel from Germany".



Session 6C – Biofuels and renewable fuels in aviation

Moderation: Dr.-Ing. Franziska Müller-Langer, DBFZ German Biomass Research Centre, gemeinnützige GmbH



Nils Bullerdiek from the Hamburg University of Technology spoke on the verification and accounting of Sustainable Aviation Fuel (SAF): "Proper reporting and accounting mechanisms are an integral part of an SAF supply system. So far, they exist mainly in the form of pilot projects or resource-intensive basic concepts. Harmonized and comprehensive reporting and billing mechanisms are essential for the progressive integration of SAF into daily flight operations."



Korinna Jörling, NOW GmbH, noted in her presentation "The regulatory framework for sustainable aviation fuels (SAF) in the EU and Germany" that 2023 will be a crucial year for climate protection in aviation: "In 2023, the regulatory course will be set in the EU for the ramp-up of sustainable aviation fuels."



"Further growth of the SAF market requires policy support to create demand certainty for investment," highlighted Jonathan Wood of Neste. He saw the expansion of SAF as a shared responsibility. All sustainable feedstocks would be needed to achieve the required SAF volumes, Wood concluded.



Sofia Chrysafi, BP Europa SE, stressed that SAF are expected to play the biggest role in decarbonizing aviation in the future: "Policies will be a key driver of SAF demand. Therefore, a stable regulatory framework is needed until at least 2035 to ensure investment certainty."



Session 6D – International biofuel trade

Moderation: Torsten Weidemann, German Bioethanol Producers Association e.V.



Cornelius Claeys, Stratas Advisors, LLC, emphasized in his presentation on demand outlook for renewable transportation fuels that the HVO market may be more vulnerable than initially apparent due to its rapid growth. This is due to demand-side risks and feedstock shortages, he said.



In his presentation "Did the Ukraine war squeeze European biofuel production margins?", Sean Bartlett of Quantum Commodity Intelligence highlighted, among other things, the impact of the war on the price development of grain, oil and ethanol.



Jinlei Feng of the International Renewable Agency (Irena) provided an overview of global trade in liquid biofuels. "Bioenergy trade has triggered the development of certification schemes. However, further policies and measures are needed to ensure sustainability and maximize benefits," the trade expert assessed.



"Rapid capacity expansion in the U.S. may dramatically alter established biofuels trade flows. At the same time, the current global UCO trade on which Europe depends appears to be at risk," according to the analysis by Monika Rajoria, S&P Global. Her presentation was dedicated to "Potential changes in global HVO & UCO trade flows".



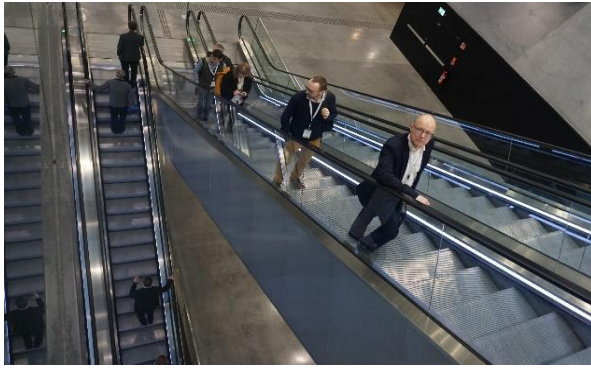


IMAGE REFERENCES

Page 1 onwards

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