



Technology Collaboration Programme
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Newsletter IEA Bioenergy Task 37: 10/2024

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Carbon accounting for sustainable biofuels

Sustainable biofuels play an important role in decarbonizing transport. They complement the carbon reductions offered by electric vehicles and other energy efficiency measures in road transport and are expected to play an increasing long-term role in aviation and shipping. However, carbon accounting is of increasing importance in biofuel policies around the world. Large-scale deployment of biofuels, especially crop-based, raises sustainability concerns in some areas, mainly related to land use, net GHG emission balance, and unintended impacts on biodiversity or food prices. These concerns can undermine the credibility of biofuels as a sustainable option, and in some cases pose a barrier to investment and trade. The new study of IEA, prepared in support of Brazil's G20 presidency, examines such complexities and discusses regulatory approaches across regions.

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IEA Bioenergy Webinar – Utilization and storage of captured biogenic CO₂

A number of full-scale BECCUS projects have recently been initiated, with the majority of these

projects being focused on CO₂ storage. Just a few years ago, some of the actors involved in these same projects were more focused on potential utilisation of the captured CO₂ rather than storage. This webinar attempts to shed light on the driving factors behind this shift, by focusing on recent BECCUS deployment in Sweden, the Netherlands and Denmark. IEA Bioenergy initiated a number of BECCS and BECCU inter-task project since 2019, coordinated by IEA Bioenergy Task 40 "Deployment of biobased value chains". The motivation at IEA Bioenergy is to provide guidance on how to realize BECCS and BECCU deployment by 1) presenting examples and describing their successes and challenges, 2) Analyzing crucial aspects for accelerating deployment and showing climate effects and 3) Give support for good governance to adopt and upscale BECCUS. The recent webinar provided background on BECCS, BECCU, biogenic CO₂ and negative emissions; shed light on the status of BECCS and BECCU (project) deployment and highlighted selected case studies from different EU countries.

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Biogas towards 2040 and beyond

A new report by Guidehouse reveals that Europe (EU-27 + UK, Norway and Switzerland) could produce 111 bcm of biomethane by 2040. This potential is made up of 74 bcm anaerobic digestion (67% of the total) and 37 bcm thermal gasification (33% of the total). On top of this, additional potential could be unlocked from novel feedstocks such as crops grown on marginal or contaminated lands, seaweed and digestate, as well as through the application of novel technologies such as hydrothermal gasification and renewable methane. This paper provides a refresh of the 2022 Gas for Climate study, incorporating latest data and insights to update the potential estimates for 2030 and 2050, and turns the focus to 2040 to provide a realistic estimate of how the potential for biomethane production in Europe can continue to develop.

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RNG Breaks Motor Fuel Usage Records In 2023

The Transport Project (TTP) and Coalition for Renewable Natural Gas (RNG Coalition) announced that 79% of all on-road fuel used in natural gas vehicles in calendar year 2023 was renewable natural gas (RNG), surpassing the previous year's record-breaking level. RNG use as a transportation fuel grew 16% over 2022 volumes, up 92% from 2019 levels. TTP and RNG Coalition report that in 2023 a total of 675 million gallons of natural gas were used as motor fuel. Of that, 531 million gallons were from renewable sources.

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RNG: A Swiss army knife for US decarbonization?

Mc Kinsey & Company has published over the recent months a series of excellent reports on renewable energy and decarbonization. One of it is the overview on RNG in the US with all its advantages and bottle necks. It deals with all aspects of energy transition from potential to policy. Corporations and policymakers are embarking on ambitious decarbonization journeys to reduce dependence on fossil fuels. Renewable natural gas (RNG) emerges as an alternative fuel that could contribute to substantial emissions reductions across multiple industries.

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Visibility Kit and RNG Map updates - Get All the Information You Need

Biogas World has recently updated their interactive map of biomethane plants in North America and Europe. The map is excellent for North American plants but incomplete, when it comes to Europe. There is a lot of information behind every plant indicated. When clicking on a location, a short description is popping up. On top, there are plenty of pictures of the plants and - if available – short videos from YouTube.

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[European Biomethane Map 2024](#)

The European Biomethane Map is a common annual publication by EBA and GIE based on data from their members. Europe has reached an installed capacity of 6.4 billion cubic meters (bcm) of biomethane per year. 81% of the capacity corresponds to plants located in the European Union (5.2 bcm). The EU-27 countries' growth has reached 37%, while the capacity of the non-EU countries analyzed grew by 20% compared to the 2022/2023 dataset. The map features 1,548 biomethane plants. This represents a 32% growth in the number of plants in Europe compared to the previous edition, which featured 1,174 units. Over 80% of the reported biomethane plants are now connected to the gas grid, with nearly half of them (49%) connected to the distribution grid and 14% to the transportation grid. France is one of the countries leading the biomethane scale-up pathway and has nearly doubled its capacity compared to the previous edition of this map.

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[2023 Edition of the French Panorama of renewable gases](#)

Every year, the Panorama of Renewable Gases presents the state of the biomethane sector, the economic and legal framework and the technologies under development (pyro gasification, hydrothermal gasification, power-to-methane, hydrogen) in France. The production in 2023 has increased by 31% compared to the previous year. With 139 newly connected and commissioned biomethane plants, 2023 was a dynamic year. On 31 December 2023, 652 plants were injecting biomethane in France, resulting in an annual production of 11.8 TWh.

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[State of renewable fleets in 2024 in the USA](#)

State of Sustainable Fleets is an annual evaluation of the clean commercial transportation market. Now in its fifth year, the annual Market Brief provides historic data and analysis on leading sustainable technologies for fleets — including electrification, renewable natural gas (RNG) and renewable diesel. According to the *Market Brief*, RNG production continued to grow in 2023 with over 150 new facilities coming online to meet the rising demand from fleets seeking improved sustainability without sacrificing economic viability. The average natural gas vehicle (NGV) fleet used RNG for 70% of its fueling needs by volume in 2023, according to the annual survey, up from 46% the prior year.

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[Listen: RNG Wins Market Share in Heavy-Duty Trucking](#)

Renewable natural gas (RNG) has been one of the fastest low-carbon fuels to reach commerciality in the United States because of its ability to leverage traditional gas infrastructure. RNG has also benefited from recent innovation in compressed natural gas (CNG) engines used in heavy duty trucking. S&P Global experts Tom DiChristopher and Greg Genette join Energy Cents hosts Hill Vaden and Sam Humphreys to discuss RNG's success as a drop-in fuel and how technological innovation and supportive policy are helping to decarbonize commercial transportation.

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[Overview of RNG 2024 in France](#)

A reference document published by France Mobilité Biogaz, the panorama of bioNGV provides a new update on the development of the sector in France and reviews the key figures for 2023, as well as outlining the outlook for the sector, particularly in terms of regulations. With 4,600 GWh of CNG consumed in France (CNG+LNG) in 2023, CNG consumption is up 12% on the 4,118 GWh recorded in 2022. This is less than the 30% observed between 2021 and 2022.

Interestingly, most of this growth was driven by bio-CNG, whose volumes jumped by almost 30% in one year, from 1,065 to 1,350 GWh. Conversely, LNG volumes are stable compared with 2022.

In terms of penetration, bio-CNG now accounts for 39% of CNG consumed, and almost 30% of all CNG, including LNG. This confirms the trajectory set by France Mobilité Biogaz and its members, who aim to increase the share of bioNGV in CNG to 50% by 2025 and 100% by 2033.

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The TCO of RNG-powered truck tractors will be the most competitive in 2030

The Vision'Air study of the Fédération Française de la Carrosserie simulates truck sales by engine type from 2020 onwards. With the explosion in sales of zero-emission trucks, especially battery-powered electrics, they show that biogas will be the most competitive solution for road tractors in 2030 compared with diesel, but also with alternative carbon-free energies. With B7 diesel as the base 100, the TCO of a biogas road tractor would be 14% lower. By contrast, the TCO for biodiesel tractors would be 9% higher, for battery electrics over 25% higher, including public subsidies, and for hydrogen trucks 104% higher, also including subsidies.

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Digestate's contribution to healthy soils

The paper "*Exploring digestate's contribution to healthy soils*" from the EBA examines the multifaceted benefits of integrating digestate into EU agronomic practices. From reducing reliance on costly synthetic fertilizers to promoting effective soil management and restoration, digestate emerges as a key player in addressing mineral imbalances in soils and facilitating efficient carbon capture. The paper dives into the production of digestate, highlighting what happens in the digester and which types of digestate exist. The publication and the contributions of the corresponding webinar can be downloaded for free.

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Analysing the contents of waste bags collected from households

The Ecorecyclage SA plant is a dry digester for the anaerobic digestion of organic waste and produces biogas and natural fertilizers in the form of pressed juice and compost. The presence of undesirables in the input leads to contamination of the organic fertilizers produced on site. To identify their origin, this study analyses the concentration of foreign bodies in compostable and non-degradable plastic bags delivered together with household biowaste from five randomly selected municipalities. This enables the assessment of the main source of unwanted substances and to determine the importance of compostable bags in the waste separation. 80% of non-degradable plastic bags are contaminated with undesirable substances (not including the bag itself). Only 20% of the compostable bags contain unwanted waste. This is four times less than in conventional fossil plastic bags. Plastic bags contain seven times more unwanted waste than compostable bags. In particular, the authors concluded from the results that wholesalers could make a significant contribution to reducing foreign matter in organic waste if they only sold biodegradable bags at the checkout.

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Effects of RED III on the biomethane market in Germany

Biogaspartner of Germany has analyzed the impact of the increased sustainability requirements from Article 29 of RED III on the German biomethane market. Compliance with the new sustainability requirements affects the majority of existing biomethane CHP (combined heat and power) plants. The generation of biomethane in existing plants is still dominated by the use of cultivated biomass, even if the proportion of waste and residue-based substrates has increased in recent years.

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[New study on the environmental impacts of compressed biomethane](#)

An analysis by the Italian National Research Council (CNR) in partnership with IVECO confirms bio-CNG as the optimal solution for waste collection – the perfect example of “well-to-wheel” circular economy. The reference scenario for the study was the Italian market, characterised by a widespread distribution of CNG refuelling stations due to the large number of methane-powered vehicles. The results of the study reveal the potentially decisive role of compressed biomethane for the decarbonization of the transport sector in the Waste business. compressed biomethane can lead to a reduction in GHG of up to 96% compared to diesel, and a reduction in nitrogen oxide emissions of up to 72%.

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[2nd EBA Investment Outlook on Biomethane](#)

The European biomethane sector will receive an injection of €25 billion in private investments by 2030, according to a European Biogas Association (EBA) analysis released today. This represents a 30% increase compared to last year estimates. The 2nd edition of the Biomethane Investments Outlook forecasts €2.1 extra billion investments in the pipeline, but yet to be allocated. The projected investments by 2030 will result in the installation of 950 new biomethane plants across Europe, alongside the 1,300 facilities already operational. This will add 6.3 billion cubic meters (bcm) of biomethane capacity annually to the continent, which could contribute to avoiding nearly 29 million tons of CO₂ emissions each year, providing renewable energy to 5 million European households year-round, and producing 830 thousand tons of fertiliser annually. Investments will be mostly located in Denmark (€3.6 billion), Poland (€3.4 billion) and Italy (€2.4 billion). In the case of Denmark, the share of biomethane in the gas grid is close to 40% and there are plans to increase this production to substitute 100% of the gas demand before 2030.

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[UK biogas industry is set to overtake nuclear as a green energy provider in 2029](#)

In its 2023 Energy Outlook report, the IEA projects that worldwide green gas will grow by between 8% and 22% a year to 2030. Biogas and biomethane might be the smallest part of the bioenergy supply chain in the IEA analysis, but it is recognized to play a growing role in sustainable energy. In particular, the report highlights a sizable global potential of around 300 billion cubic meters for biogas and biomethane production from agricultural residues and wastes near major pipelines. According to ADBA, based on current growth rate - and as a result also of investments from major players such as BP, TotalEnergies and Shell - the AD and biogas industry in the UK is tipped to overtake nuclear in the UK by 2029.

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[Mobilizing Methane Action at Open Dumpsites and Landfills](#)

During the first half of 2024, the Global Methane Initiative (GMI) Biogas Subcommittee hosted a four-part workshop series: *Mobilizing Methane Action at Open Dumpsites and Landfills*. This workshop series was developed in partnership with Environment and Climate Change Canada, the International Solid Waste Association, and the United States Environmental Protection Agency, and focused on exploring policies, technologies, and tools and resources, aimed at reducing methane emissions from municipal solid waste. For more information on each webinar in the series, please visit the event pages.

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