Newsletter IEA Bioenergy Task 37: 09/2023

IEA and other reports

Topics:

IEA's Renewable energy market update 2023

Led by solar PV, renewable power growth is surging – driven by the global energy crisis and policy momentum. Global renewable capacity additions are set to soar by 107 gigawatts (GW), the largest absolute increase ever, to more than 440 GW in 2023. This is equivalent of more than the entire installed power capacity of Germany and Spain combined. This unprecedented growth is being driven by expanding policy support, growing energy security concerns and improving competitiveness against fossil fuel alternatives. These factors are outweighing rising interest rates, higher investment costs and persistent supply chain challenges**.** Biofuels avoided the consumption of 2 million barrels of oil equivalent per day (mboe/d) in 2022, equivalent to 4% of global transport sector oil demand. Argentina, India and Indonesia all accelerated biofuel use in 2022. However, while biofuels offered energy security benefits, their prices climbed more quickly than those of gasoline and diesel in many countries. To mitigate increases in transport fuel costs, Brazil, Sweden and Finland delayed planned increases to biofuel blending obligations in 2022.

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The world is falling behind on sustainable energy goals

A new report by the IEA, IRENA, the United Nations Statistics Division (UNSD), the World Bank, and the WHO showed that the current efforts are not enough to achieve the global

goal of ensuring all citizens have access to affordable, reliable, sustainable and modern energy by 2030. This year marks the midway point toward achieving the UN Sustainable Development Goals (SDGs), which includes the targets of achieving universal access to electricity and clean cooking, doubling historic levels of energy efficiency improvements, and substantially increasing the share of renewables in the global energy mix. Key findings of the report show that in 2010, 84% of the world's population had access to electricity. This increased to 91% in 2021, meaning more than a billion people gained access over that period. However, the growth pace of access slowed in 2019–2021. In 2021, 567 million people in sub-Saharan Africa did not have access to electricity. Up to 2.3 billion people still use polluting fuels and technologies for cooking, largely in sub-Saharan Africa and Asia. The use of traditional biomass also means households spend up to 40 hours a week gathering firewood and cooking. Renewable electricity use in global consumption has grown from 26.3% in 2019 to 28.2% in 2020, the largest single-year increase since the start of tracking progress for the SDGs. Biogas is considered as an important source however, covered still a marginal part when compared to the dominant solid biomass.

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e-Workshop organized by IEA Bioenergy, in collaboration with UNIDO

This workshop, which was organized by the IEA Bioenergy Technology Cooperation Programme and the United Nations Industrial Development Organization (UNIDO), aimed to show examples of bioenergy and biofuel related opportunities in developing economies, both for the production of (local) energy and for providing economic, social and environmental co-benefits. It will also provide guidance on tools to accelerate clean energy transitions and improved energy access in emerging economies. Developing countries have a history in the production and use of biofuels as exemplified in countries of Latin America and Asia that produce and export bioethanol and biodiesel. Still, many developing economies rely heavily on 'traditional' bioenergy use for cooking and heating in inefficient and highly polluting devices or open fires. The aim is to phase out these practices and move towards clean cooking and heating appliances, and overall to develop sustainable and circular bioenergy solutions for all energy uses (electricity, heat, fuels). This fits in the goal to fight energy poverty, increase energy security and ensure energy access, which is preferentially broadly based on local renewable energy sources. Generally, biomass is one of the important local renewable energy sources and its sustainable production and use can offer both socio-economic and environmental benefits to local communities. Recordings and slides are available for download.

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Efforts of the European biogas industry to slash methane emissions

The European Biogas Association (EBA), in collaboration with biogas experts, has conducted a review of methane emissions originating from anaerobic digestion (AD) plants to support and advise the industry, European policymakers, and AD operators. This paper provides a solid technical review of occurring emissions, leakage detection and emissions measurement (quantification), mitigation strategies and results from measurement campaigns. Taking into consideration the current policy context and technical background, the EBA has formulated a set of actionable-policy recommendations.

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Global biomethane market assessment 2023

According to CEDIGAZ's Annual Report on Global Biomethane, the global biomethane or renewable natural gas (RNG) industry grew by 23% in 2022, with production increasing from 6 billion cubic meters (bcm) in 2021 to 7.4 bcm in 2022. The market is expected to expand

significantly over the coming decade and beyond, and it has the potential to surpass 100 bcm by 2030 if appropriate policies and regulations are implemented. Biomethane has become a crucial component of global energy and climate policies in 2022.
Three major drivers have converged to propel the sector to new heights: energy security concerns due to Russia's war against Ukraine and the global energy crisis, the urgency to address climate change which is accelerating decarbonization policies, and a focus on methane emissions reduction. These drivers have led to new incentivizing policies such as the REPowerEU plan in Europe, the Inflation Reduction Act in the US, the Metano Zero plan in Brazil, or the recently announced GOBAR-Dhan scheme in India, stimulating investment the RNG sector. The biomethane sector has seen unprecedented investment, with deals in the billions of dollars. European energy majors led the way with BP, Shell, and TotalEnergies acquiring US Archaea ($4.1 billion), Danish Nature Energy ($2 billion), and Poland's Polska Grupa Biogazowa, respectively. Financial investors, such as US funds and asset managers, were also active, creating dedicated biomethane business units. Goldman Sachs launched Verdalia Bioenergy to invest $1 billion in European biomethane projects. Macquarie Capital launched Aerogy, and BlackRock acquired Vanguard Renewables for $700 million. These investments highlight the recognition of biomethane's attributes, exponential growth, and status as a key decarbonization method for the future.
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New Biomass Atlas of the Austrian Biomass Association

The Austrian Biomass Association publishes the Bioenergy Atlas Austria 2023 with the most important facts and figures as well as project reports on bioenergy in Austria and in the federal states. Biomass is the most important renewable energy source in Austria with a share of 55 percent, and in Styria its contribution among renewables is as high as 70 percent. In the medium term, bioenergy could even overtake oil and natural gas as the most important energy source nationwide." In Carinthia, bioenergy is already the most widely used energy source, accounting for 34.5% of gross domestic energy consumption. In the Bioenergy Atlas, the Austrian Biomass Association presents scenarios in which biomass use could be increased from just under 250 PJ at present to 450 PJ by 2045. Great potentials lie above all in the use of agricultural biomass, such as miscanthus, short rotation coppice, farm manure, grain, corn and rapeseed straw, and landscape management hay.
More (in German)

EBA/GIE Biomethane Map 2022-2023 published

The 2022-23's edition of the Biomethane Map showcases the most recent and available data on Europe's biomethane plants**.** It was produced by the European Biogas Association (EBA) and Gas Infrastructure Europe (GIE). The map has been built with the support of EBA members, who have provided the necessary data available by October 2022. Europe reached a total of 1,322 biomethane-producing facilities by April 2023. These 299 new plants represent nearly 30% more than the ones reported in the previous edition of this map in 2021. Compared to the earlier editions of the map, the number of plants in Europe has steeply increased: 483 plants in the 2018 edition, 729 in the 2020 edition and 1,023 in the 2021 edition. Europe is already producing over 3.5 bcm of biomethane. This represents a production increase rate of 20% in 2021.
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EU's CO2 Heavy-Duty Vehicles proposal fails to recognize biomethane

In February, the European Commission published its proposal to review Regulation EU 2019/1242 setting CO2 emission performance standards for new heavy-duty vehicles in the EU. This piece of EU legislation is fundamental for the decarbonization of the heavy-duty

segment and for supporting the development of all the technologies contributing to the shift towards zero- and low-emission mobility. As acknowledged by the European Commission, the decarbonization of the transport sector will have to rely on multiple and complementary solutions to reduce its GHG emissions while responding to all mission profiles. Sustainable and renewable fuels, such as biomethane, are part of the current alternatives to cut down emissions, given their readiness and compatibility with existing vehicles and refueling infrastructure.
The European Biogas Association prises the increased ambitions of the proposal, but regrets the choice of the Commission not to recognize the contribution of renewable fuels, including biomethane, to the decarbonization of the sector. The EU executive body has missed the opportunity to provide a strong positive signal to the biomethane value chain by setting stringent targets at tailpipe without providing a mechanism to factor in the contribution of renewable fuels in reducing overall CO_2 emissions across the vehicle's lifecycle.
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EBA's new factsheet: Biogas beyond Energy

Following the Guidehouse report on "Biogas beyond Energy" (Newsletter 06/2023), EBA started a campaign on the topic with a total of six fact sheets on Energy system integration; Regenerative agriculture; Transport; Heating; Industrial uses and Sustainability. The first three have been published already. They show that biogases are the cheapest and most scalable form of renewable gas available today. They are a dispatchable energy carrier and as such can be deployed to balance intermittent renewable energy generation. Moreover, biomethane can directly substitute natural gas and it can be stored and deployed across the whole energy system, using existing gas infrastructure and end-use technologies. Additionally, biogases are well placed to deliver significant, long-term socio-economic benefits, thereby supporting the transition to a more sustainable and circular economy.
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German Biogas Journal: Country reports

Apart from a focus on biogas upgrading, the most recent English edition of the Biogas Journal from the German Biogas Association includes some interesting country reports from four countries. The main article covers the starting phase of biogas development of Senegal. A first, large scale biogas plant has been installed on a waste water treatment plant. However, the large potential for biogas application lies in small scale systems, allowing farmers to produce enough energy to cook their meals.
Another country report from Israel covers exactly this topic by presenting a small scale, family sized biogas digester providing enough gas to cook for two hours. This is a real blessing in countries or regions like South Sudan, Somalia or northern Kenya. It means that anyone wanting to cook no longer has to laboriously search for combustible wood, which is purloined from trees that are already rare in these (semi-) arid regions. The light weight digesters made of polypropylene, to which water is added. They have a filler neck for introducing biomass, as well as an outlet allowing the biogas produced in the bag to feed to nearby gas cooker. Case stories from Canada and Denmark are completing the series.
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Hydrogen production with biohydrogen

The European Biogas Association, in collaboration with biogas experts, is launching a white paper on the sustainability, affordability and accessibility of biohydrogen to support its production and use in Europe. Insights are provided as to the place of biohydrogen within total hydrogen production, the technologies available to produce biohydrogen, the ways in which biohydrogen contributes to the decarbonizing of Europe's hydrogen production, the

economics of biohydrogen and the readiness of the markets to facilitate its commercialization. Taking into consideration the current policy context as well as the technical background, the paper concludes by making recommendations for an EU regulatory framework to support the production and use of biohydrogen.
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Good-by Diesel – hello LBG

Across Europe, liquefied natural gas (LNG) is already increasingly being used as a fuel for heavy-duty transport. LNG engines can also burn liquefied biomethane (liquefied biogas, LBG), which increases CO2 reduction to as much as around 74 percent, as a Swiss research team has shown. For the study, the interdisciplinary research team at OST relied on a so-called well-to-wheel analysis. This means that not only the direct emissions from the operation of trucks were examined, but also the emissions caused, for example, by the production and transport of the various types of fuel studied. The environmental benefits of switching to LBG are demonstrated by the studies. In a field trial, project partner Krummen Transport imported liquefied biogas from Italy to fuel gas-powered trucks operated by Lidl in Switzerland. The project demonstrated that the entire process from purchasing and importing the fuels to using them in everyday retail logistics can already be implemented in reality today. However, the research partners also encountered hurdles during the field test that are currently preventing the widespread use of LBG in Switzerland. In addition to the current limited production capacities for LBG in Europe and higher costs compared to LNG, there are also regulatory hurdles. For example, the exemption from mineral oil tax provided by law for biofuels has not yet been achieved in practice because the relevant ecological evidence provided is not accepted or can only be provided at too great an expense.
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Panorama 2022: France's RNG sector challenges Europe

For the third consecutive year, the AFGNV (French Gas Vehicle Association) is releasing its annual overview of RNG in France. This panorama shows that, despite Europe's stagnation, this ready-to-use alternative fuel, which is highly effective in decarbonizing mobility, is set for sustained growth in 2022. If CNG sales are rising, it's because more and more compatible vehicles are on the road, and the refuelling network is expanding. In fact, the network has already exceeded European and national targets, comprising 650 stations by the end of 2022, including 350 private establishments reserved for the captive fleets of local authorities or transport companies. A total of 301 stations were open to the public, with 224 CNG (48%), 169 RNG (36%) and 77 LNG (13%) fuelling points. Benefiting from the Crit'Air 1 sticker that gives access to low-emission zones, and up 12%, 34,243 CNG/bioNGV vehicles were on the road at the end of February 2023. Among them, a minority of light vehicles, with just 2,730 passenger cars (8%) but 9,810 commercial vehicles (29%). The latter are just ahead of trucks (9,634 units, 28%) These figures do not include refuse collection vehicles and other specialized vehicles, which accounted for 4,286 units, or 12% of the total. The balance is made up of 5,764 buses (17%) and 2019 coaches (6%).
More (in French)