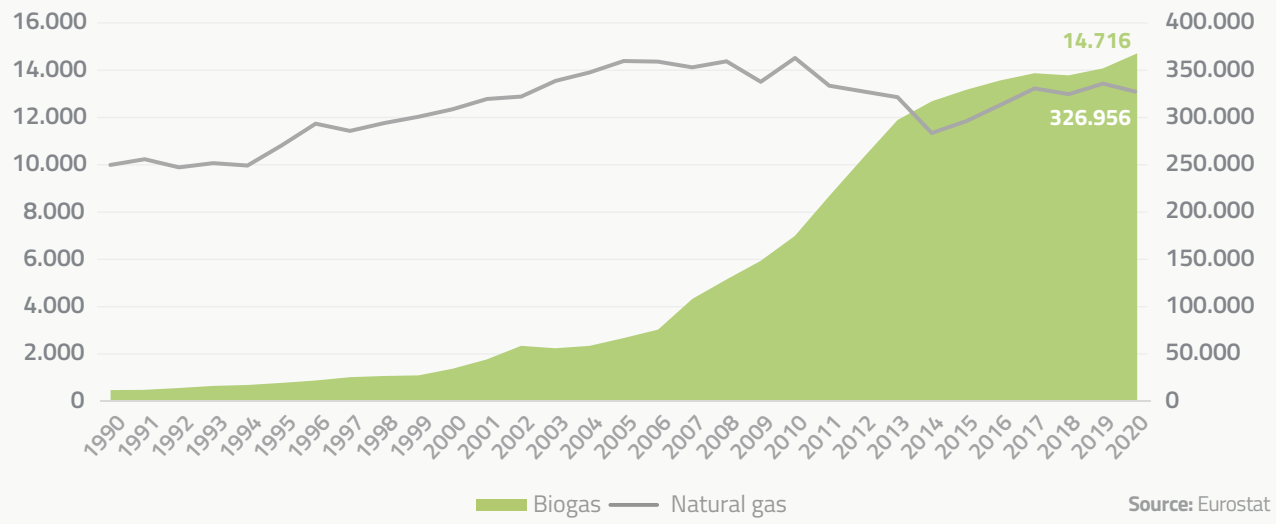
BIOGAS

The REPowerEU Plan – the European Commission's response to the hardship and global energy market disruption caused by Russia's invasion of Ukraine – imparts a new sense of urgency to the energy transition: not only must Europe correct its trajectory in order to become climate neutral by 2050, but it must also disentangle itself from imports from unreliable partners. The Plan includes a 35bcm target for biomethane as a substitute for approximately 20% of current Russian gas supply. In 2020, the combined production of biogas and biomethane amounted to 18bcm (15bcm of biogas and 3bcm of biomethane). Biogas is a versatile renewable fuel that can be used to produce heat or electricity. When upgraded to biomethane, it can also be injected into the existing gas grid or used as a transport fuel. Sustainable biogas production also reduces methane emissions from manure and landfilling, and limits dependency on mineral-based fertilisers while increasing material efficiency. This aspect is of particular importance today when considering recent fertiliser shortages and price increases. Despite these positive steps forward in the recognition of the bioenergy sector, the EC strategy still lacks a clear target for solid biomass on top of those for biogas and biomethane.

Evolution of the gross inland energy consumption of biogas and natural gas (right axis) in the EU27 (in ktoe)

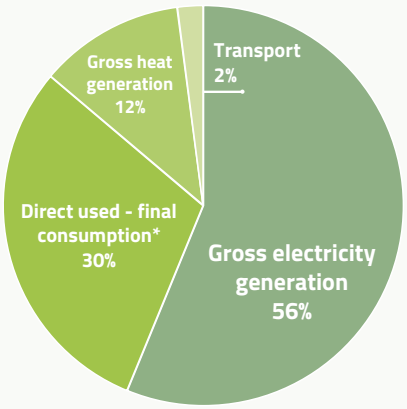


Source: Eurostat

A Proven and Growing Industry

The European biogas market continues to grow – in 2019-2020 it grew at a rate of 4,52% with biomethane production growing by 25% in 2020. To meet the EU indicative target of 35bcm in 8 years' time, the sector will need to continue growing at a faster pace; and for this to happen, simple market access rules and eased permitting will be key. Although the majority of biogas – 56% – is currently being used for electricity generation (thereby providing further flexibility to the grid), a growing share is greening transport and gross heat generation. Upgrading to biomethane and grid injection provides a cost-effective way to decarbonise gas networks and increase EU energy sovereignty.

Gross final energy consumption from biogas by end-use in EU27 in 2020 (in %)



* In agriculture, industry, commercial, households & others.

Source: Eurostat

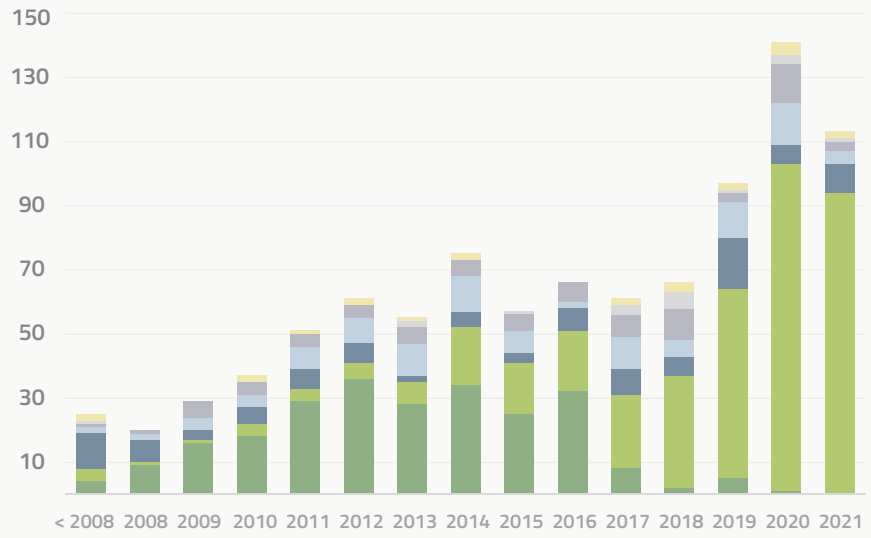
Biogas: the circular bio-economy hub

Streams of materials previously regarded as waste, including from industrial processes, water management and agriculture, can be channeled through biogas digesters and converted to renewable energy, nutrient-rich organic fertiliser, carbon capture and novel materials.

Feedstock utilised in biogas generation varies greatly by country, with new plants increasingly employing manure and other residues, food waste, wastewater and sewage sludge. Starting in 2023, the EU will mandate separate collection of biowaste, which will increase the amount of food waste available for biogas generation.

Biomethane: Greening the Gas Grid and the Transport Sector

Once biogas impurities are removed, its upgraded form (biomethane) has the same characteristics as fossil natural gas and can be used in the transport sector or injected into the gas grid. Biomethane production has more than doubled in the past five years, and last year grew at an annualised rate of 25%. To reach the 35bcm target, 5.000 new plants should start operation in the next eight years and the annual growth should be stable at 28%.



Evolution of newly installed biomethane plants per main feedstock

- Unknown
- Landfill
- Industrial Organic Waste from e.g. Food and Beverage Industries
- Organic Municipal Solid Waste
- Sewage Sludge
- Agricultural Residues, Manure, Plant Residues
- Energy Crops

Source: European Biogas Association EBA

Recommendations

1. Avoid retroactive changes in the renewable energy directive sustainability criteria, allowing for legal certainty for operators.
2. Anchor the 35bcm biomethane target to binding EU legislation along with national indicative targets, and apply a regional approach to build in local needs and specificities.
3. Set harmonised rules facilitating injection of biomethane into existing gas networks, based on a clear right-to-inject, appropriate technical specifications for grid connections and cost-sharing between network operators.
4. Apply a life-cycle emissions approach across sectors to capture the true impact of energy use along the value chain. All EU policies should be aligned in the Fit for 55 Package to equally promote all sustainable fuels and their respective infrastructure.
5. Member States must implement separate bio-waste collection as soon as possible and reinforce their strategies aimed at energy and materials recovery in their waste treatment. Higher quality waste streams will allow for increasing circularity in the bioeconomy, with environmental and socioeconomic benefits.