WEBINAR

Dig Deep!

4 December 2024
10h - 11h15 AM CET

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EBA Statistical Report 2024 unveiled: key market trends from the biogas and biomethane industries in Europe

Ana Alcalde
International Energy Agency

Marzia Sesini
Florence School of Regulation

Mieke Decorte
European Biogas Association

Pablo Molina
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Harmen Dekker
European Biogas Association

Gabriella Papa
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Anastasiya Agapova
European Biogas Association

George Osei Owusu
European Biogas Association

Angela Sainz
European Biogas Association

EBA European Biogas Association
AB ABetter Way
EBRO ARMATUREN

Welcome

Ángela Sainz Arnau,
Communication Director, European Biogas Association

Get the EBA Statistical Report 2024

The full report is available for free for all EBA Members and upon purchase for external parties.

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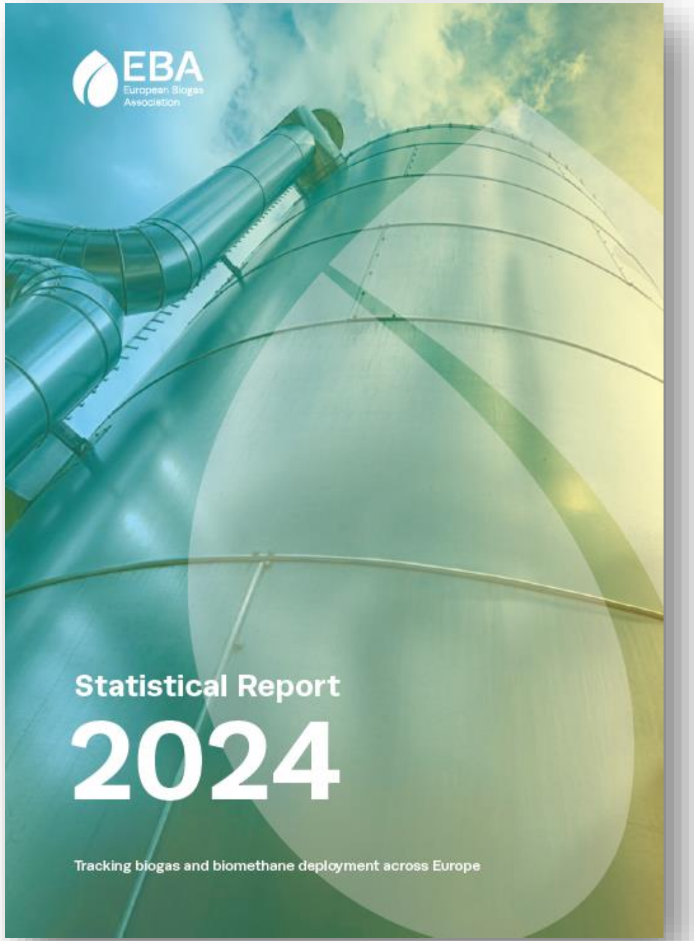

For any questions, please contact us at info@europeanbiogas.eu

Agenda

10:00 – 10:05 Welcome

Ángela Sainz Arnau, Communication Director, European Biogas Association

10:05 – 10:10 Keynote

Harmen Dekker, CEO, European Biogas Association

10:10 – 10:20 Keynote

Ana Alcalde, Energy Analyst, International Energy Agency

10:20– 10:30 Keynote

Marzia Sesini, Research Team Leader | FSR Gas and Hydrogen, Florence School of Regulation

10:30 – 10:55 Highlights from the EBA Statistical Report 2024

- Anastasiya Agapova, Technical and Project Officer, European Biogas Association
- Mieke Decorte, Technical Director, European Biogas Association
- George Osei Owusu, Technical and Project Officer, European Biogas Association
- Pablo Molina, Technical and Project Officer, European Biogas Association
- Gabriella Papa, Technical and Project Officer, European Biogas Association

10:55 – 11:10 Q&A Session

11:10 – 11:15 Conclusion and wrap-up

Ángela Sainz Arnau, Communication Director, European Biogas Association

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European Biogas Association

Keynote

Harmen Dekker

CEO, European Biogas Association

Keynote

Ana Alcalde

Energy Analyst, International Energy Agency

Energy analyst at IEA's Renewable Energy Division, leading biogas and biomethane forecasts and co-authoring reports on carbon accounting and biofuel sustainability. With 18+ years in refining, she specialises in energy efficiency, advanced biofuels, decarbonisation, and renewable energy integration.

The role of biogases in energy transition – Global forecast to 2030

Ana Alcalde, IEA Renewable Energy Division

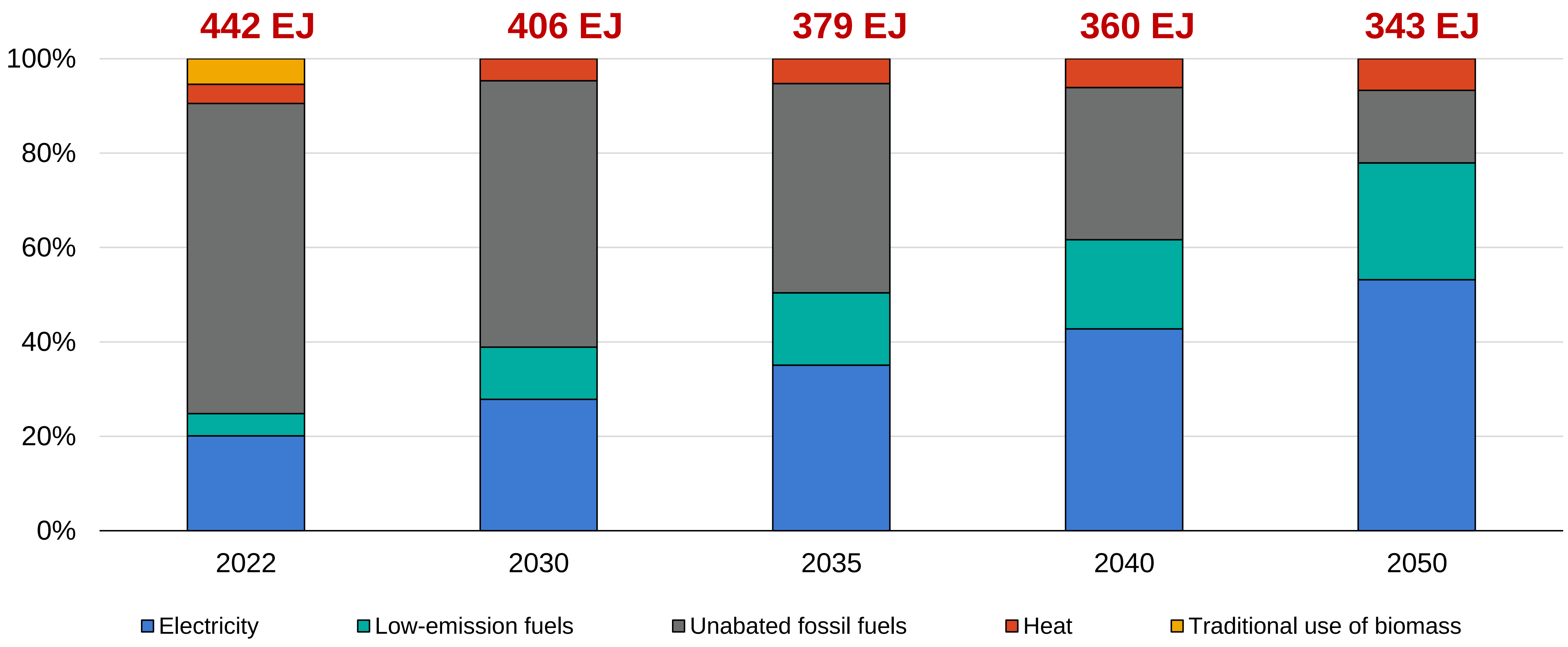
Launch of EBA Statistical Report 2024

Brussels, 4 December 2024

International Energy Agency

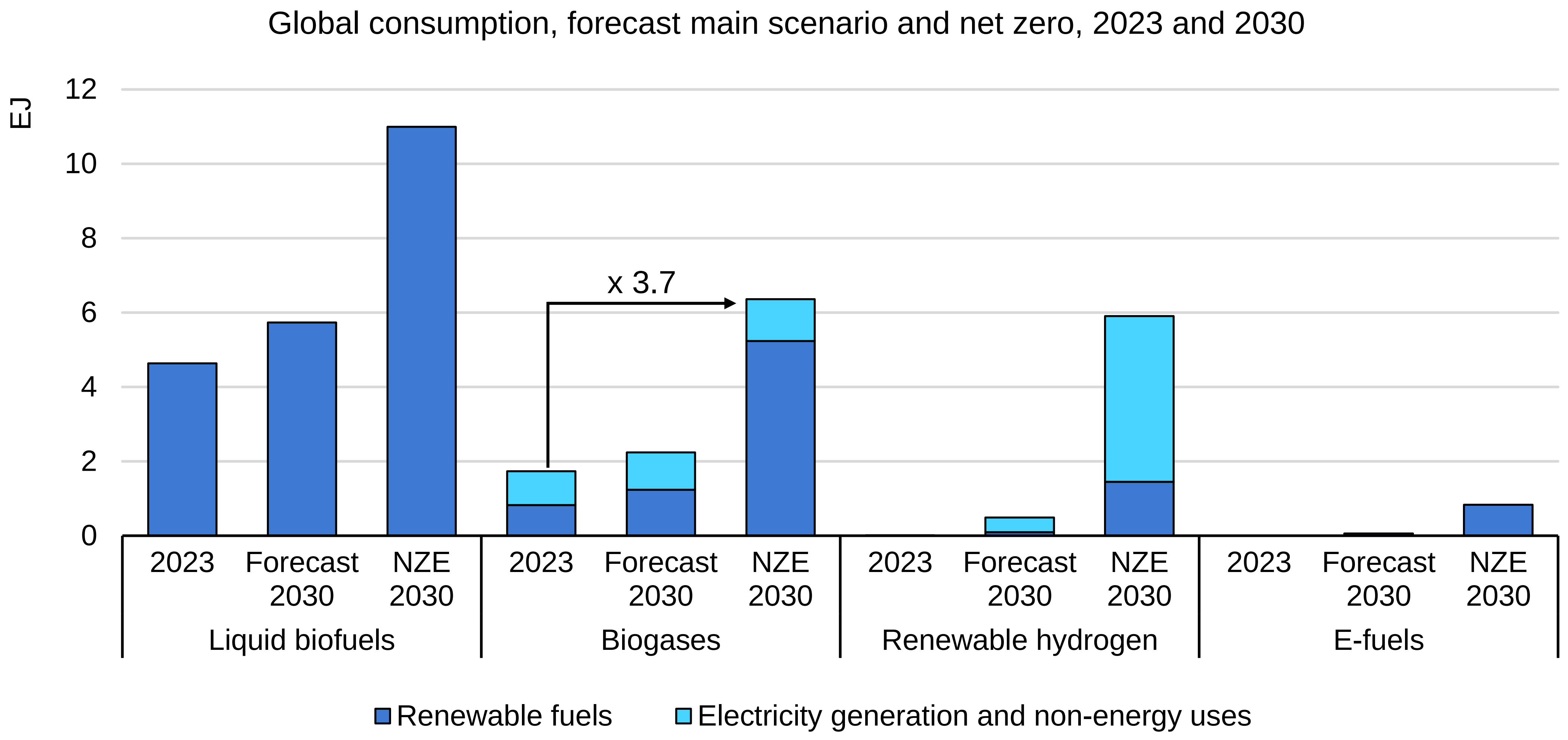
Renewable fuels are a pillar of the energy transition

Total energy consumption, IEA Net Zero Scenario, 2022 to 2050



Sustainable fuels such as biofuels, hydrogen and hydrogen-based fuels provide 85 EJ of energy in 2050 in NZE, equal to global electricity demand today. By 2050 they support one quarter of global energy consumption.

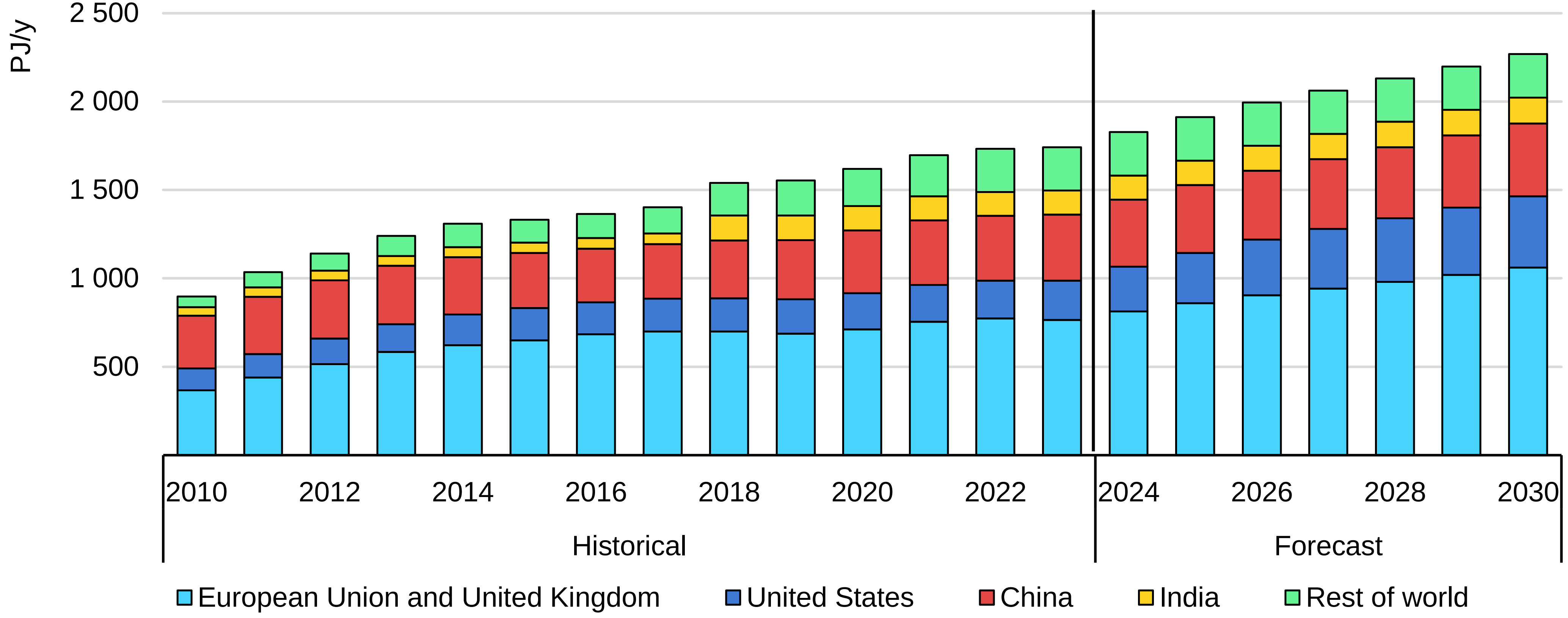
Biogases are key renewable fuels



Demand and supply policies are needed to help stimulate production of sustainable fuels and close the gap to net zero, together with innovation support and coordinated sustainability frameworks.

Biogases growth accelerates through 2030

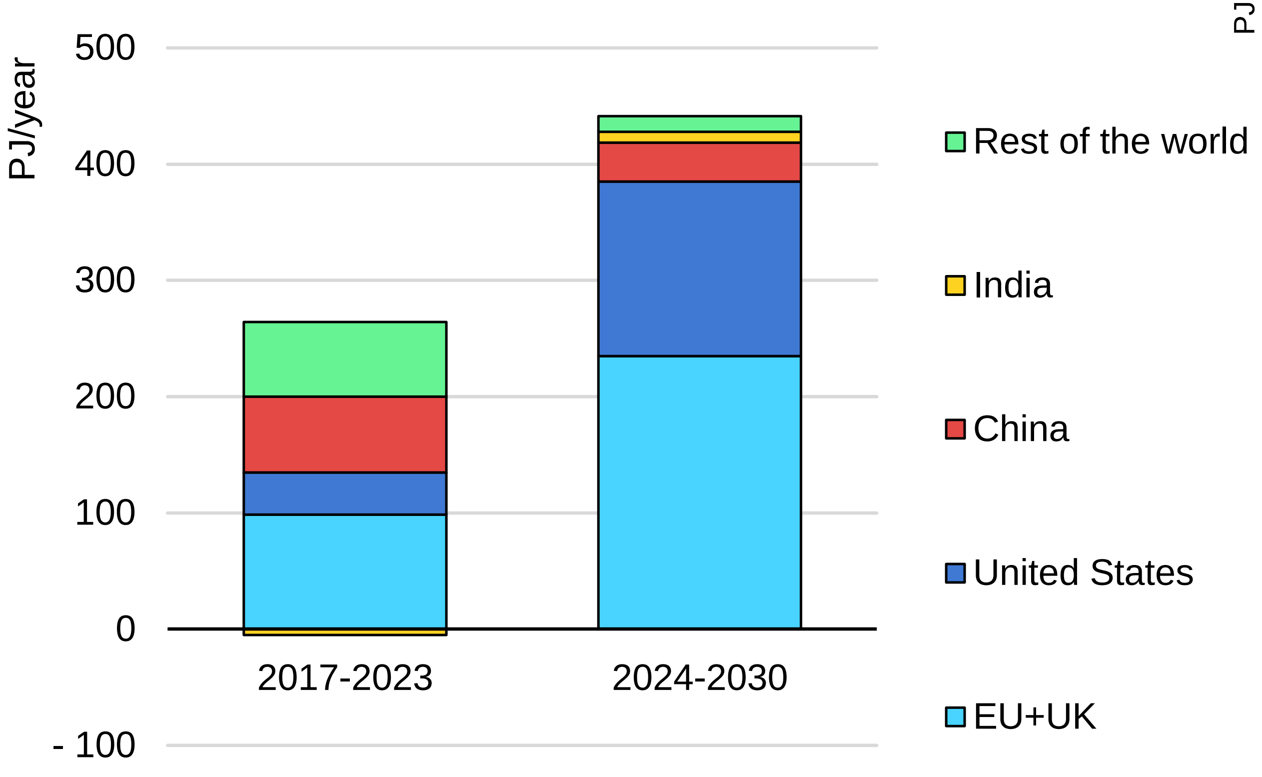
Global production of biogases expected to grow 30% in 2024-2030.



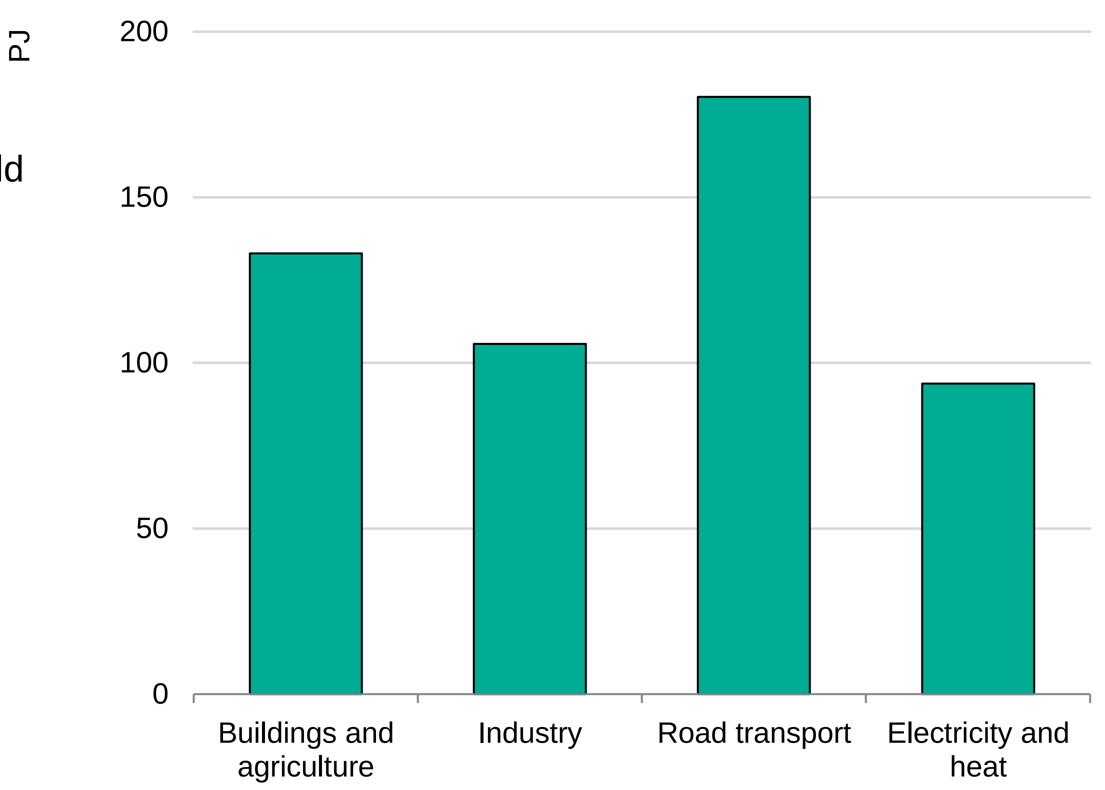
Most growth to come from Europe and US. China and India have ambitious expansion plans but need to grow infrastructure and feedstock supply chains.

Biogases growth accelerates through 2030

Global production growth of biogases by country/region



Biogas and biomethane growth over 2024-2030



Most growth to come from Europe and US. China and India have ambitious expansion plans but need to grow infrastructure and feedstock supply chains. The road transport sector leads the growth of biogases over 2024-2030.

Thank you

Keynote

Marzia Sesini

Research Team Leader | FSR Gas and Hydrogen, Florence School of Regulation

Research Team Leader, specialising in energy security, decarbonisation, and renewable gas. She has held roles at Snam, Bocconi University, and the Oxford Institute of Energy Studies, with a Ph.D. from Imperial College London.

Highlights from the EBA Statistical Report 2024

EBA Technical Team

Biogases within the EU energy and fertiliser landscape

Anastasiya Agapova (EBA)

EBA
European Biogas Association

A solution for the EU's dependence on imported energy products and fertilisers

98% of EU natural gas consumption imported

43% of the EU's primary energy comes **from renewables**, the highest share.

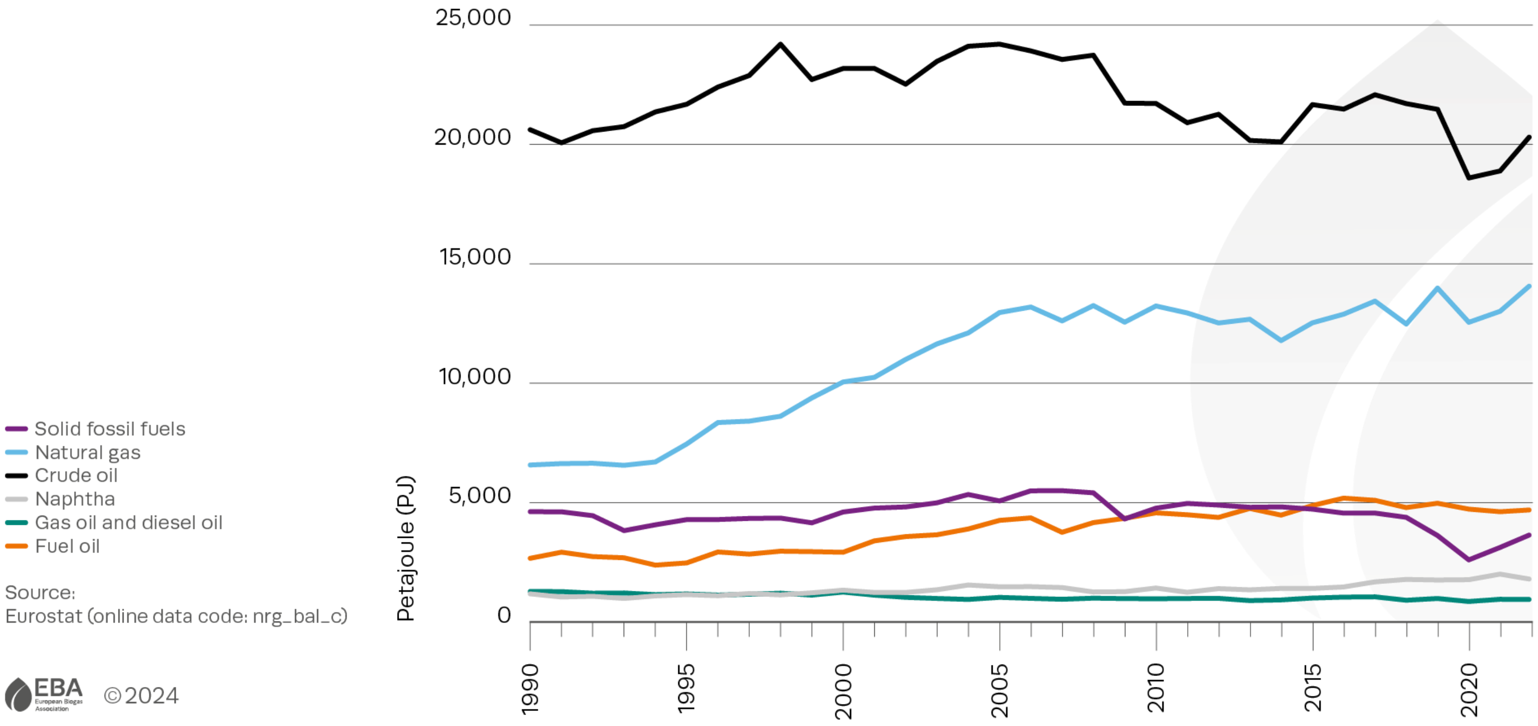
Natural gas consumption remains stable.

Share of renewable energy in total energy consumption increased to **12%**.

22 Mt of fertilisers imported in the EU

51 Mt of synthetic fertiliser produced in the EU (2023)

Imports of selected energy products in the EU (PJ), 1990-2022



Source:
Eurostat (online data code: nrg_bal_c)

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22% of energy subsidies allocated to renewable energy

€ 390 billion — **TOTAL ENERGY SUBSIDIES**

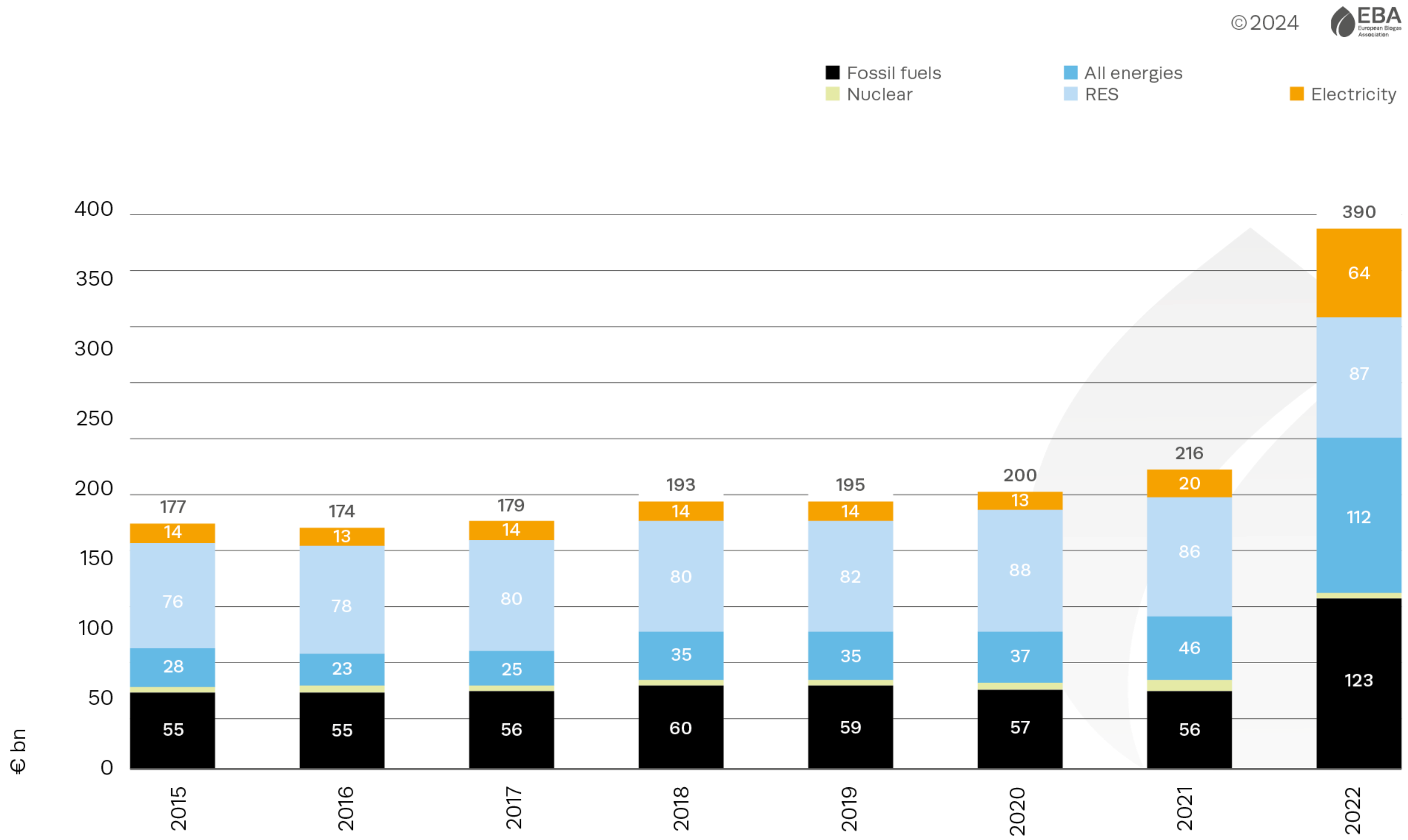
€ 123 billion — **FOSSIL FUEL SUBSIDIES**
31% of total subsidies

€ 87 billion — **RENEWABLE SUBSIDIES**
22% of total subsidies

- €15 billion for biomass

While bioenergy delivers 59% of renewable energy in the EU, it only receives 17% of renewable energy subsidies

Energy subsidies (€ bn) by energy source, 2015-2022



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The biogases market in Europe

Mieke Decorte (EBA)

EBA
European Biogas Association

22 bcm of biogases are produced today in Europe

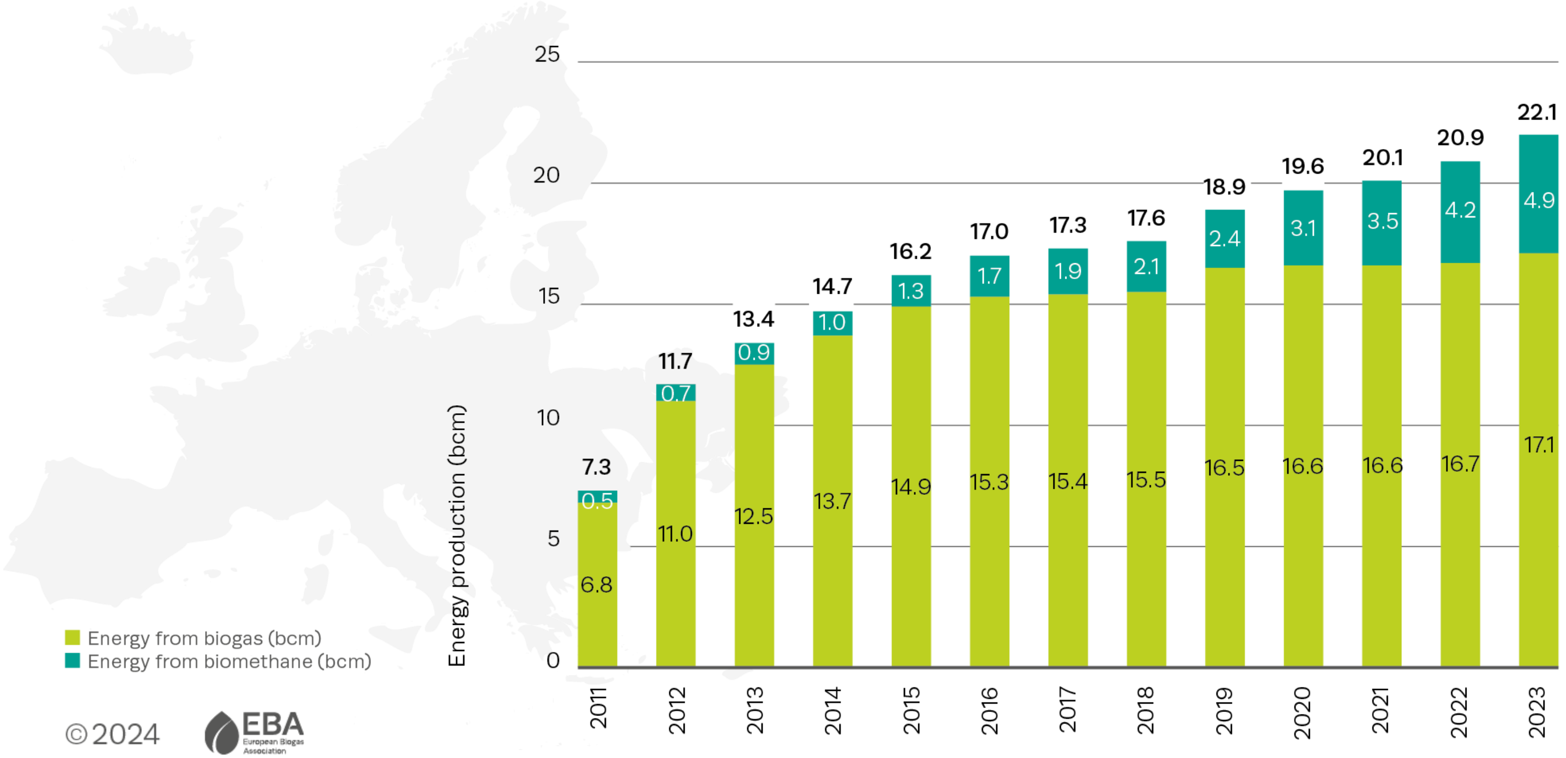
Combined biomethane and biogas production in Europe

= Gas consumption of Belgium, Denmark and Ireland combined

= 7% EU gas consumption in 2023

19 bcm of combined production in EU-27

Combined biomethane and biogas production in Europe (bcm)



Biggest growth on biomethane production to date

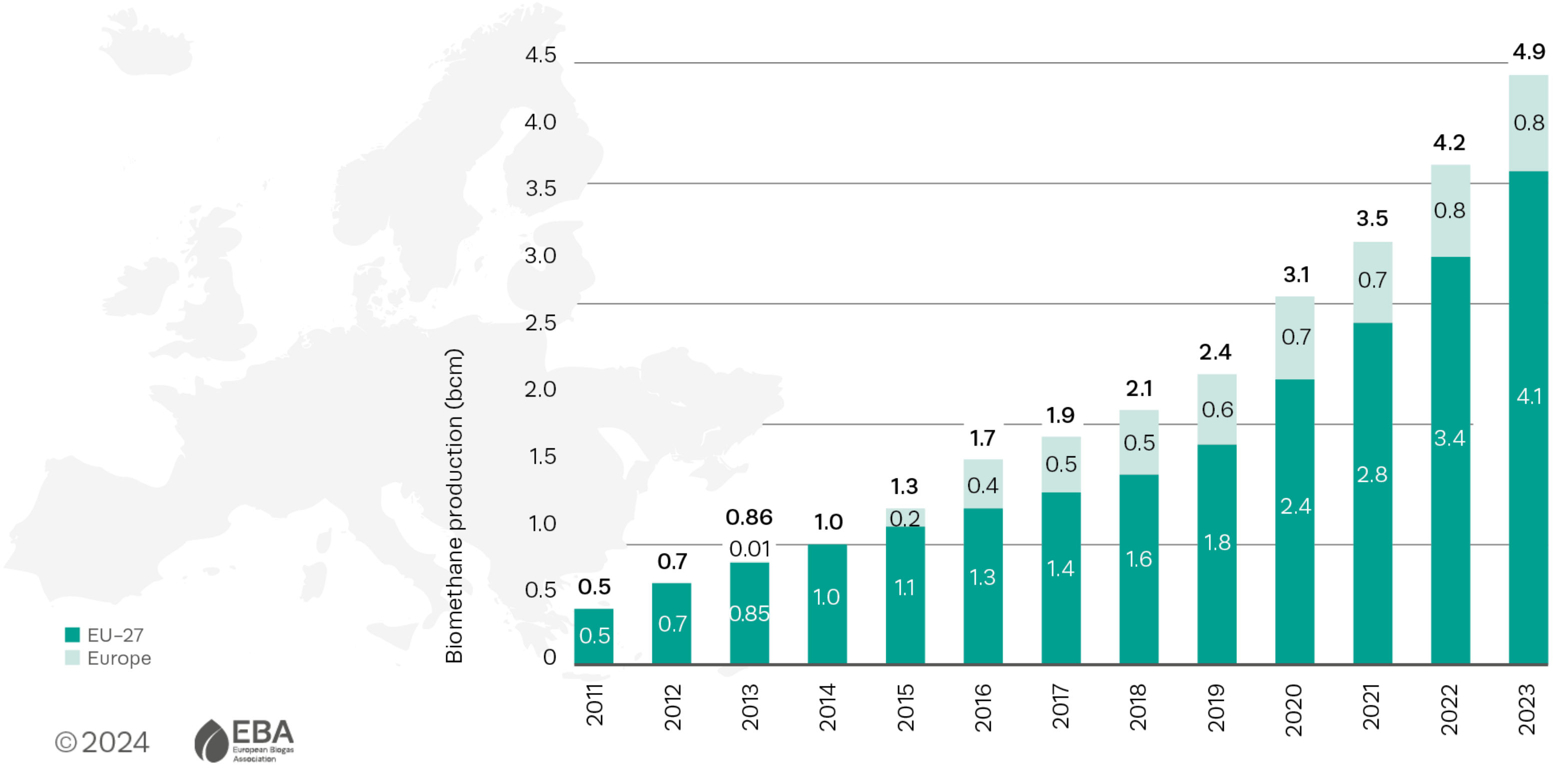
In 2023: 4.9 bcm biomethane production (4.1 bcm in EU-27)

- 18% YoY growth in Europe
- 21% YoY growth in EU-27

In Q1 2024: **6.4 bcm biomethane installed capacity**

Italy, France, Denmark, and the UK are leading the production and scale-up of biomethane

Biomethane production in the EU-27 and Europe (bcm)



› 200 new biomethane plants in 2023

Development of number of plants in Europe

In 2023:

- **1,510 biomethane plants in Europe**
- **1,324 biomethane plants in EU-27**

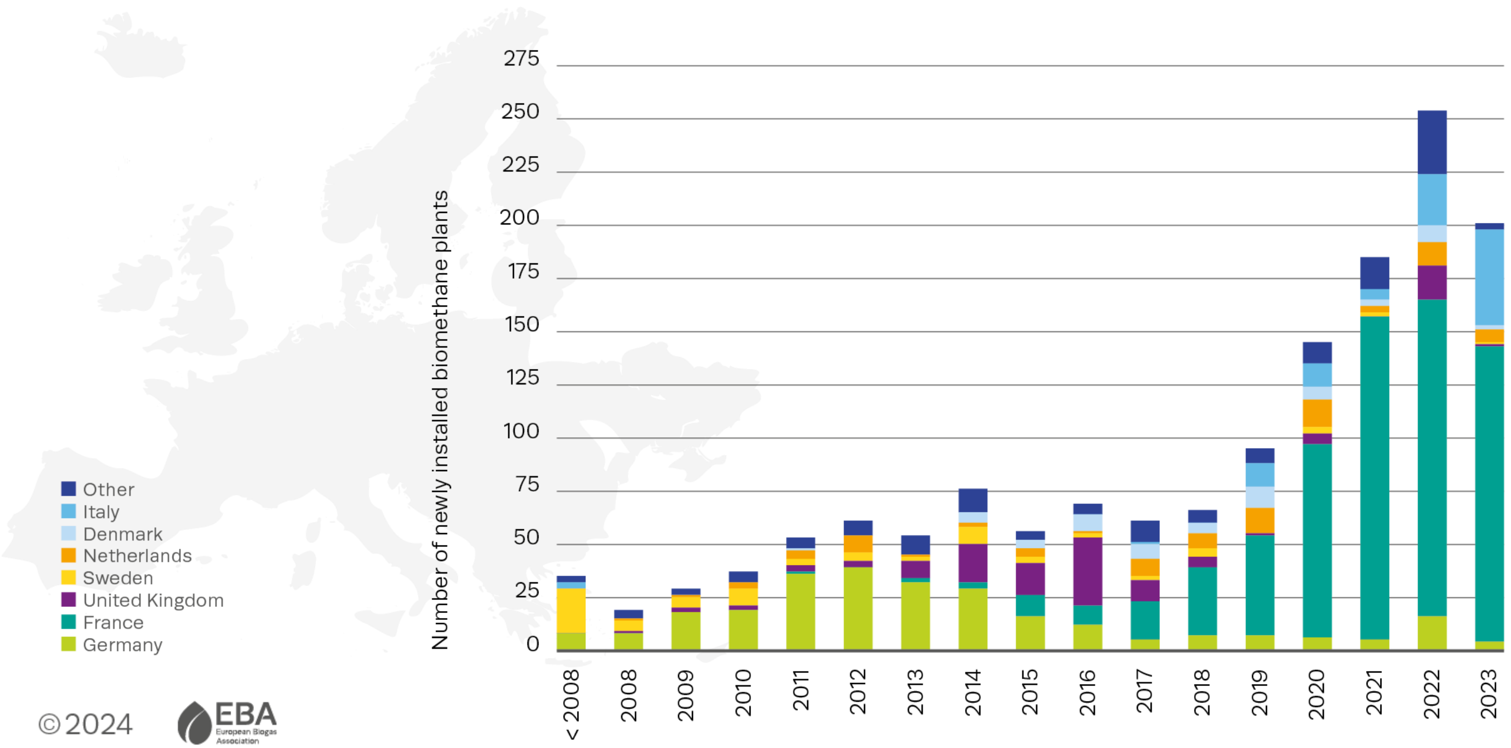
25 biomethane-producing European countries.

The most recent additions are:

- Portugal (2022)
- Lithuania and Ukraine (2023)

› 85% connected to gas grid, mainly distribution grid

Number of new biomethane plants in Europe each year, 2008 - 2023, overall per country



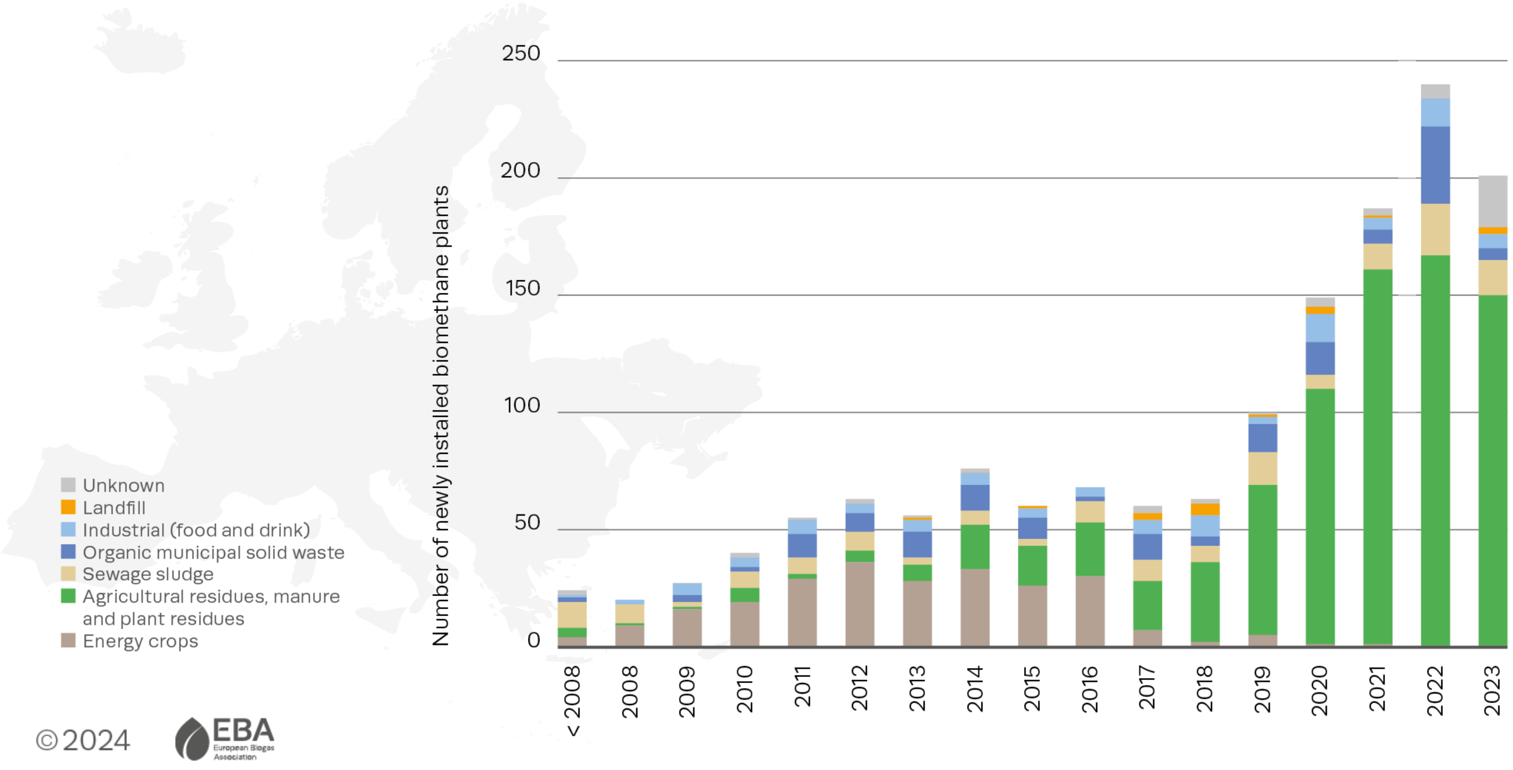
Transition towards sustainable feedstocks

Utilisation of feedstock delivering the best GHG savings

Since 2020, no new plants were established to run on energy crops as main feedstock.

Instead, new plants are being built to run on agricultural residues, organic municipal solid waste, sewage sludge and industrial waste.

Number of new biomethane plants in Europe per feedstock type, 2008 - 2023



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Socio-economic impacts of biogases value chain

>250,000

JOBS IN 2023

70,000 direct and 170,000 indirect

500,000

JOBS IN 2030

1.8 million

JOBS IN 2050

15,000 COMPANIES

INVESTMENTS IN THE EUROPEAN BIOECONOMY

Solid **EU VALUE CHAIN**

CLEAN TECH leadership

SUSTAINABLE GROWTH

RURAL DEVELOPMENT

According to EBA's investment outlook, at least 25 billion € will be invested in Europe's biomethane by 2030. This generates an **additional benefit of 12 billion € yearly** to the European economy.

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Growth prospects and biogas potential

George Osei Owusu (EBA)

EBA
European Biogas Association

Growth prospects for biomethane towards 2030

Accelerated growth needed to reach 35 bcm target by 2030

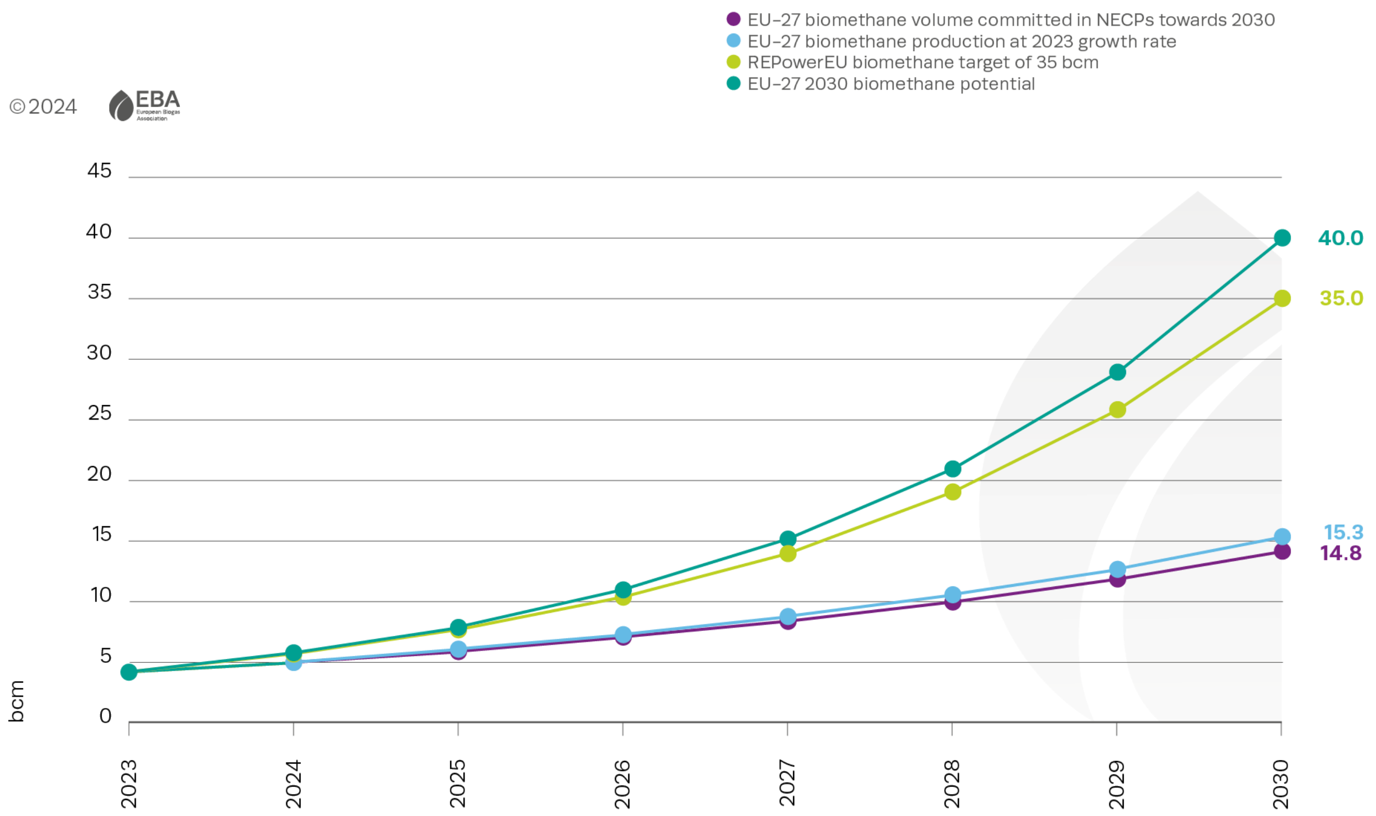
Current biomethane growth rate of 21%

- Close to the biomethane volumes committed in the NECPs towards 2030

Optimal market and regulatory conditions: essential for sustained growth.

- Coherent planning of biomethane potential
- Faster permitting procedures

EU-27 biomethane growth curves towards 2030



Biomethane investments

€27 Billion
earmarked to be invested in biomethane

6.3 bcm
of added biomethane capacity in Europe by **2030**

950
biomethane plants to enter operation in the next **5 years**

Denmark, Poland and Italy are top countries for planned investments

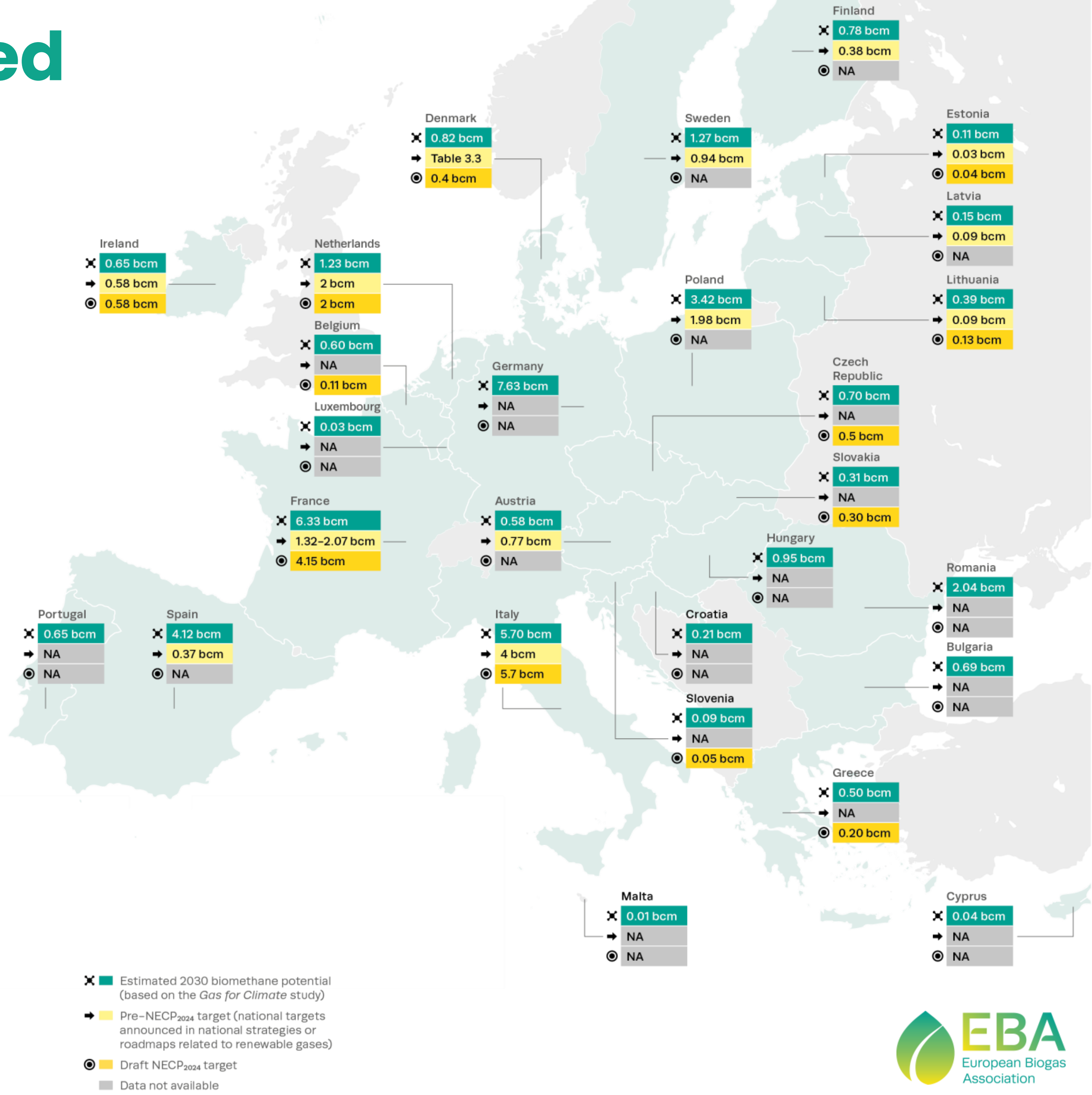
NECPs 2030: Is the planned growth ambitious?

Anticipated 2030 biomethane production

18 countries have a biomethane and/or a biogas target

13 countries have a biomethane-only target

15 bcm: Total volume of biomethane committed towards 2030



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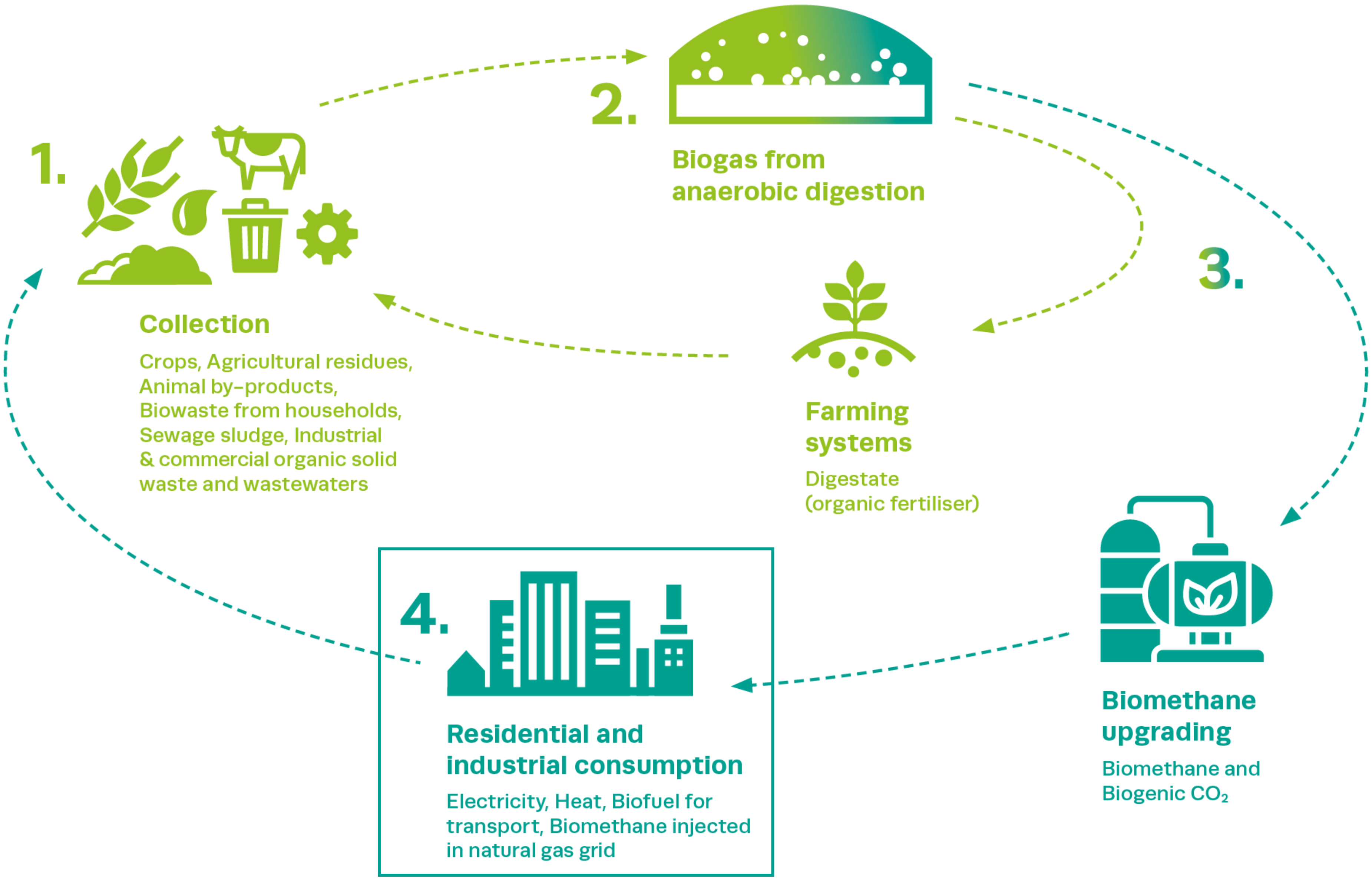
End uses of biogas and biomethane

Gabriella Papa and Pablo Molina (EBA)

European Biogas Association

A circular economy with biogases



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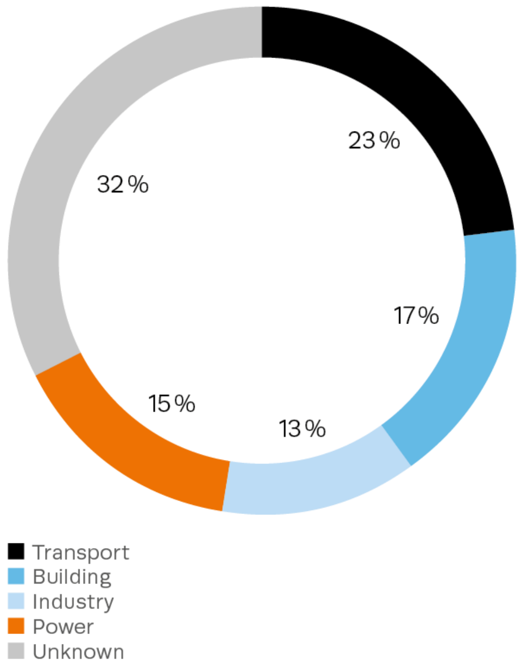
Biomethane: a versatile renewable fuel

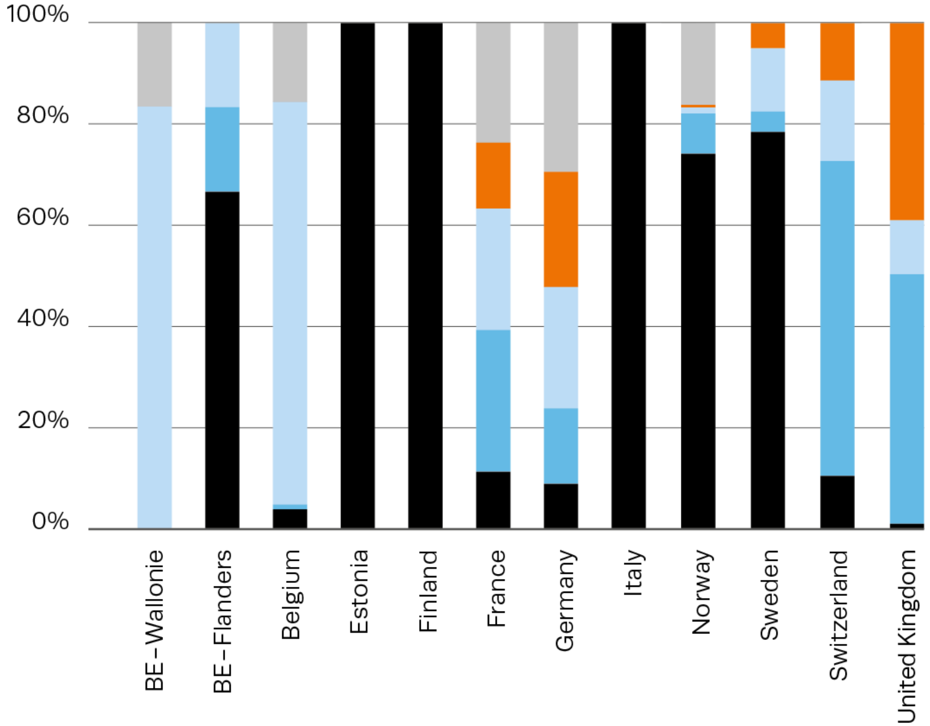
End-uses depend on country

Transport

Heating or electricity

Percentage of biomethane production used in different sectors overall (left) and per country (right)





Transport: 59 bio-LNG active plants in Europe

Biomethane's contribution to transport decarbonisation

14 EU countries producing bio-LNG

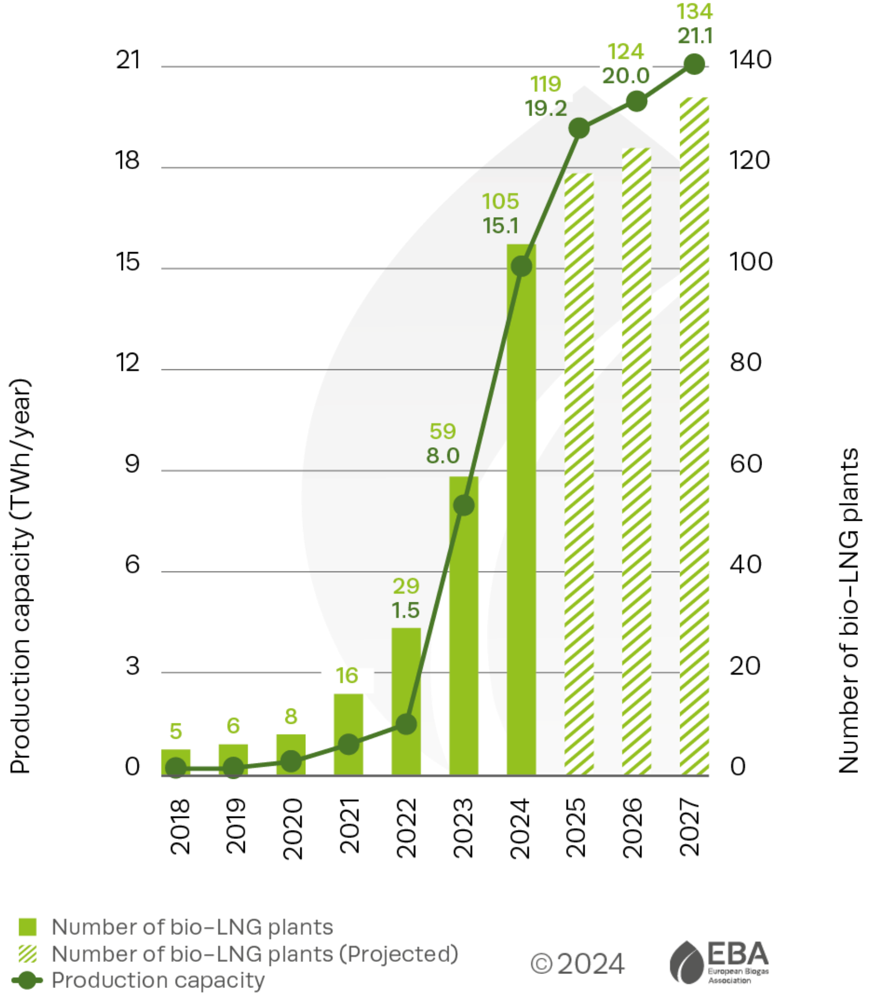
- Belgium, Denmark, Finland, France, Germany, Italy, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland and the UK.

105 additional bio-LNG plants expected by 2027

- Set to add an extra 13.1 TWh/year of production capacity

80% of the bio-LNG produced in Europe is used or planned to be used for road transport

Current and future development of the number of bio-LNG plants and production capacity (TWh / year)



Bio-CO_2 potential from biogas and biomethane production

29 Mtonne today

46 Mtonne by 2030

145 Mtonne by 2040

215 Mtonne by 2050

Today, CO_2 as feedstock is mainly from fossil origin, obtained from the production of synthetic fertilisers, which is highly energy-intensive. CO_2 is a needed input to produce chemicals, fuels, food and beverage products or construction materials, among others. **Replacing fossil CO_2 by a sustainable and circular alternative such as bio-CO_2** leads to a **negative emissions footprint** which is not possible in the production of CO_2 from fossil origin.

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Mapping bio-CO_2 plants in Europe

Biogases' contribution to the biogenic CO_2 industry

25 bio-CO_2 plants in Europe

- Producing 189 ktonne of biogenic CO2/year

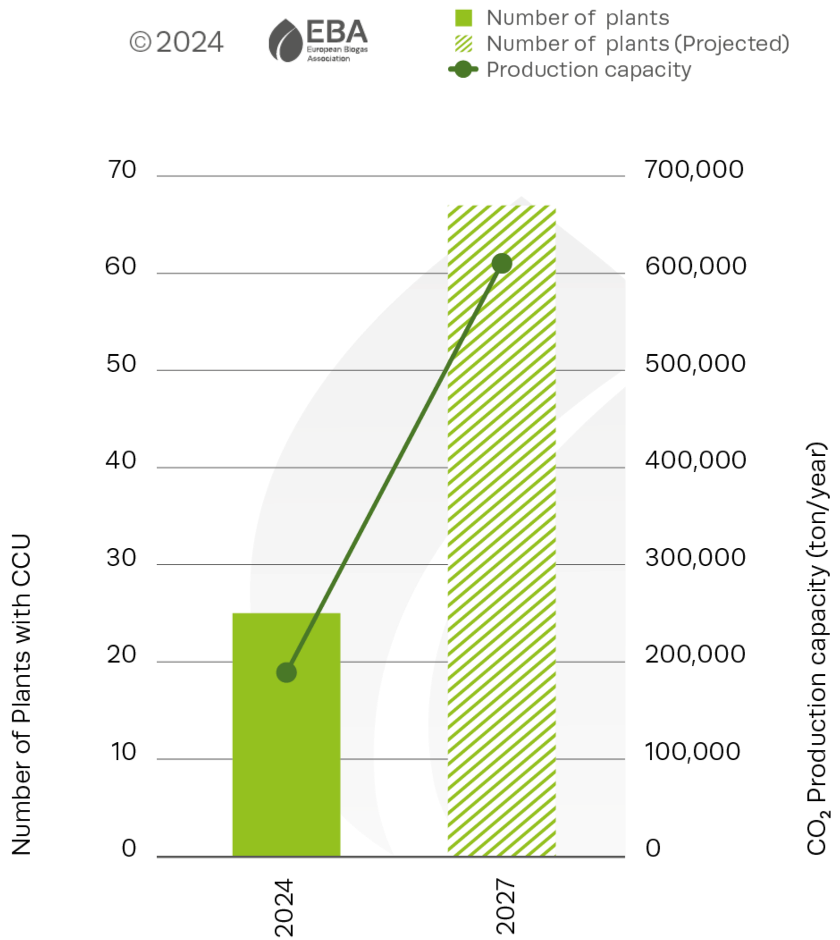
42 additional bio-CO_2 plants expected by 2027

- Set to add 421 ktonne of biogenic CO2/year

66% of plants use or will use agricultural residues

Several European countries are developing support schemes to promote CCU and CCS.

Current and future development of the number of plants with CCU and CO_2 production capacity (t / year)



Country analyses

Mieke Decorte (EBA)

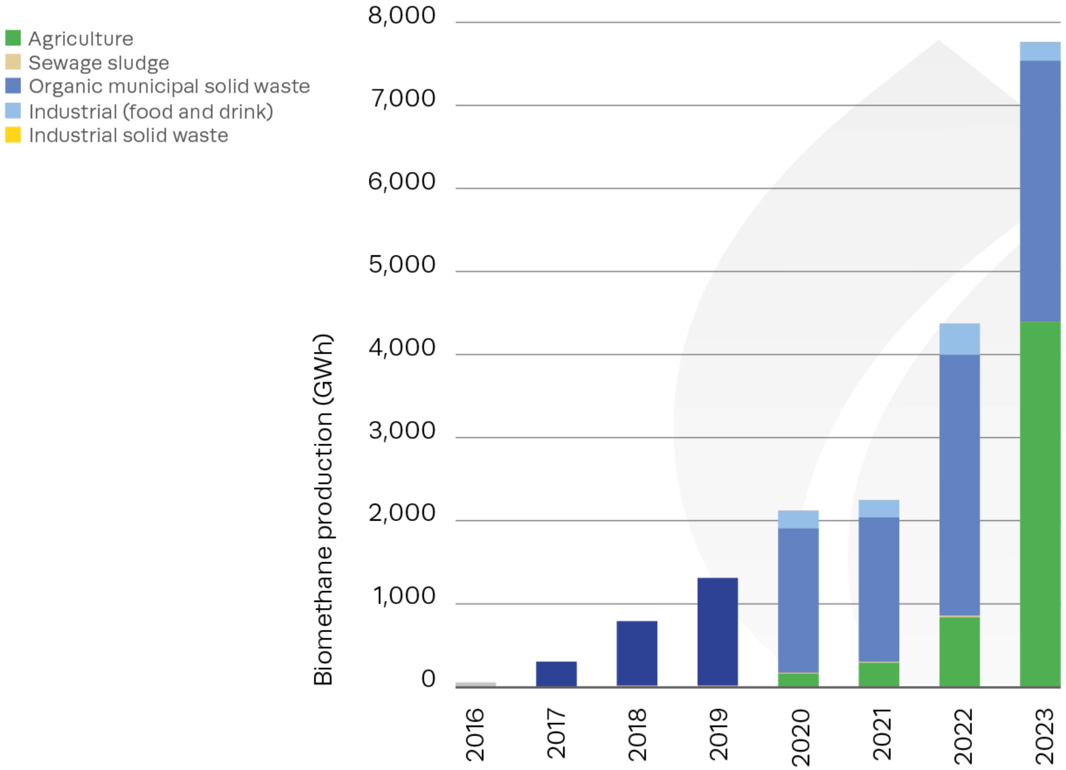
EBA
European Biogas Association

Fastest-growing biomethane countries in 2023

Italy

- 78% YoY growth rate
- 735 m³/h
- Biomethane Decree of 2018 and 2022

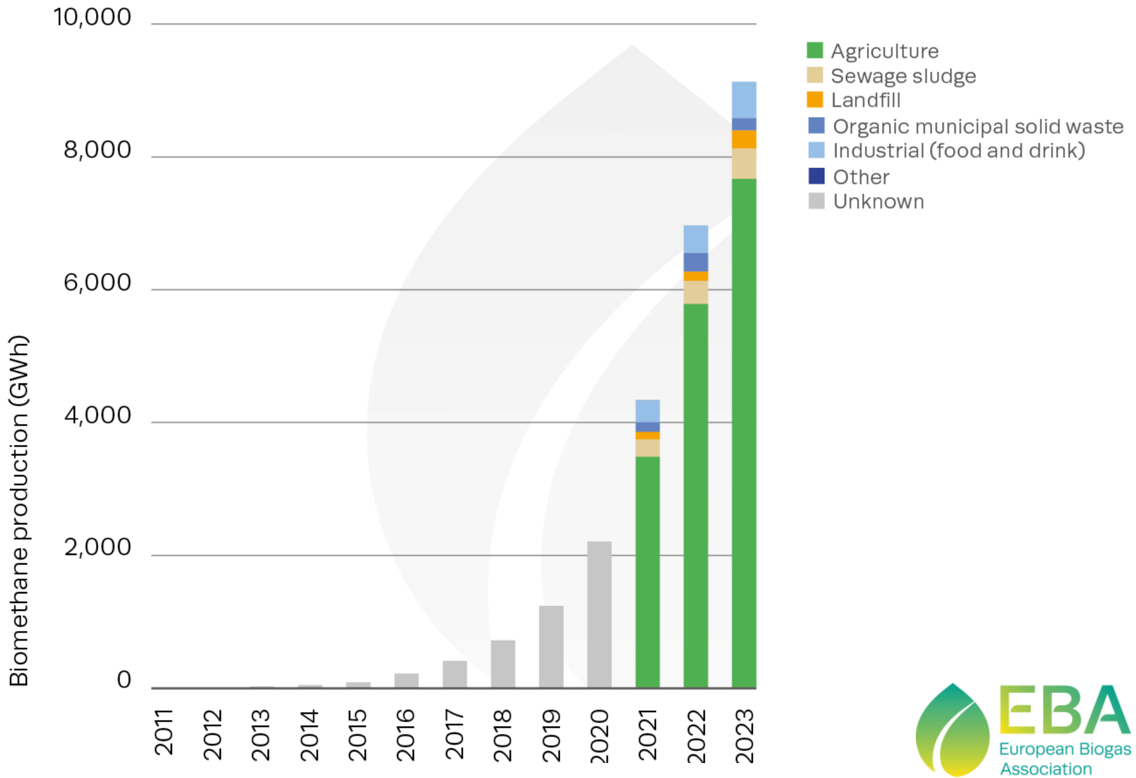
Development of biomethane production (GWh)



France

- 31% YoY growth
- 197 m³/h
- FiTs scheme and Biomethane Production Certificates (BPCs)

Development of biomethane production (GWh)



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Ready to discover more?

Mieke Decorte (EBA)

28 country profiles

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New data on gasification and methanation plants


2 The biogases market 36

public-private partnerships, are essential for realising the full potential of this market. As the global push towards renewable energy and sustainability intensifies, biomass and waste gasification will play a crucial role in the transition to a cleaner and more resilient energy future.

In 2023, according to EBA database[15], there were 162 gasification plants in Europe using biomass and organic waste as feedstocks. As this report focuses on gases produced from organic materials, gasification plants using non-organic waste, such as plastic and old tires, are not included in the inventory. Germany is the leading country regarding the number of plants (38%). Finland and Italy share second place in terms of number of installations (18 each). Figure 2.22 shows plant distribution across European countries. The majority (68%) of existing gasification plants are reported to be at TRL 8 and above, which represents commercial facilities.

There was significant plant building … late 2000s and early 2010s. T… a response to the … in 2008–200… targ…

for renewable energy production after the RED implementation, making investments in biomass gasification technology more attractive. Furthermore, the introduction of carbon pricing mechanisms, such as the EU Emission Trading System (ETS), created financial incentives for reducing greenhouse gas emissions. The EU Waste Framework Directive was adopted in 2008, and emphasised waste management practices, including energy recovery from waste. Biomass gasification was promoted as a clean alternative to fossil fuels, thus benefiting from these regulatory frameworks. The series of crises in the early 2020s put a constraint on building new projects, but there are signs of renewed vitality in the se…

Most gasification plants (85%) … in a cogeneration uni… products rem… able…

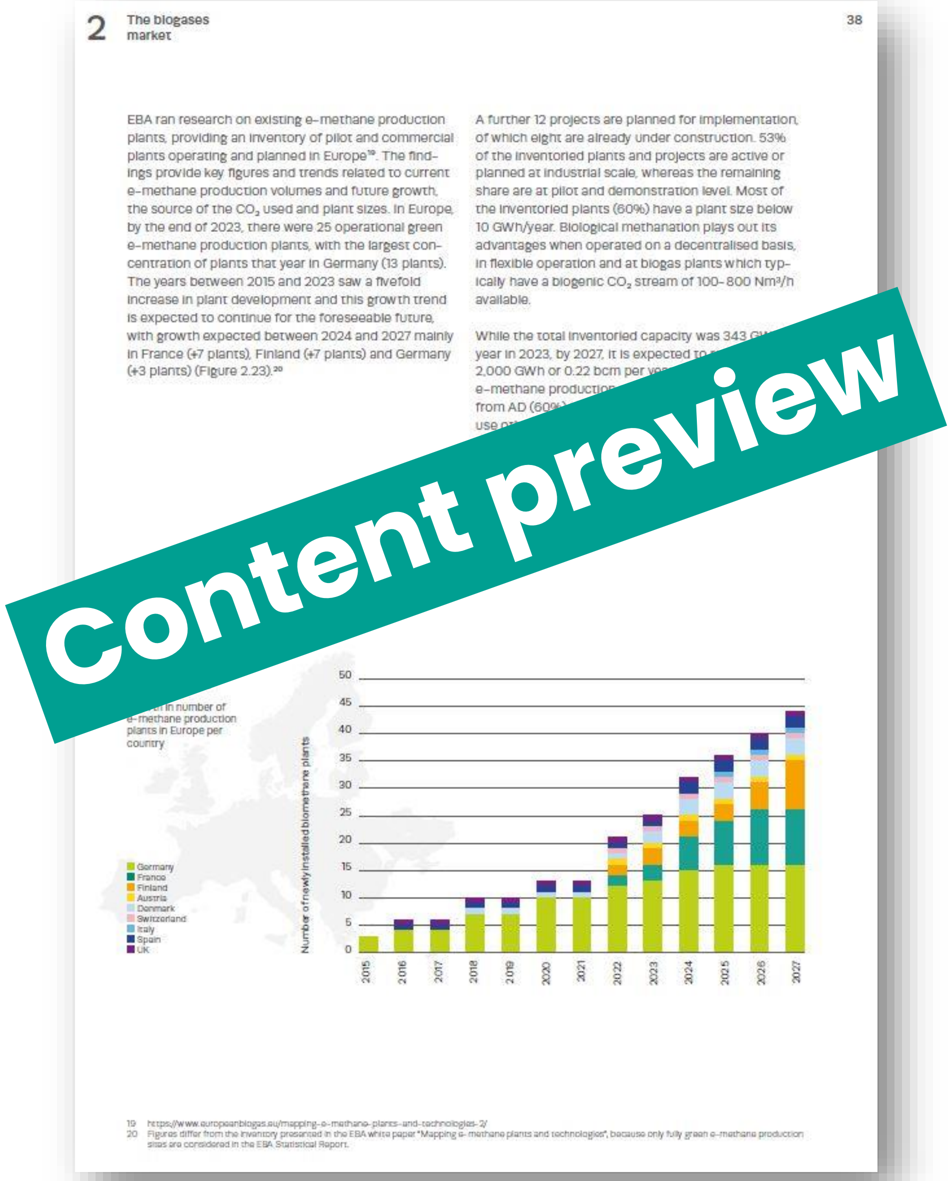
… biomass gasifica- … the form of lignocellulosic … orestry and agricultural residues. … ms contribute around 7%. The remaining … nts use mixed feedstock sources.

…gure 2.22

Number of gasification plants per European country in 2023

15 Data for the gasification plants was sourced from the IEA Task 33 database, peer-reviewed research publications and contributions from EBA members.

Content preview


2 The biogases market 38

EBA ran research on existing e-methane production plants, providing an inventory of pilot and commercial plants operating and planned in Europe[19]. The findings provide key figures and trends related to current e-methane production volumes and future growth, the source of the CO_2 used and plant sizes. In Europe, by the end of 2023, there were 25 operational green e-methane production plants, with the largest concentration of plants that year in Germany (13 plants). The years between 2015 and 2023 saw a fivefold increase in plant development and this growth trend is expected to continue for the foreseeable future, with growth expected between 2024 and 2027 mainly in France (+7 plants), Finland (+7 plants) and Germany (+3 plants) (Figure 2.23).[20]

A further 12 projects are planned for implementation, of which eight are already under construction. 53% of the inventoried plants and projects are active or planned at industrial scale, whereas the remaining share are at pilot and demonstration level. Most of the inventoried plants (60%) have a plant size below 10 GWh/year. Biological methanation plays out its advantages when operated on a decentralised basis, in flexible operation and at biogas plants which typically have a biogenic CO_2 stream of 100–800 Nm³/h available.

While the total inventoried capacity was 343 GW… year in 2023, by 2027, it is expected to … 2,000 GWh or 0.22 bcm per ye… e-methane production… from AD (60%)… use o…

…e in number of e-methane production plants in Europe per country

19 https://www.europeanbiogas.eu/mapping-e-methane-plants-and-technologies-2/
20 Figures differ from the inventory presented in the EBA white paper "Mapping e-methane plants and technologies", because only fully green e-methane production sites are considered in the EBA Statistical Report.

Content preview

We want to hear from you!

Insert your question(s) in the Q&A

Conclusion and wrap up

Ángela Sainz Arnau
Communication Director, European Biogas Association

Conclusions

Regulatory stability and long-term planning to boost competitiveness and reach climate goals.

Simplification to cut red tape and accelerate the sector growth.

Technology-neutrality to strengthen EU's leadership on all clean technologies.

Local investments: triple security effect on food, energy and clean tech manufacturing.

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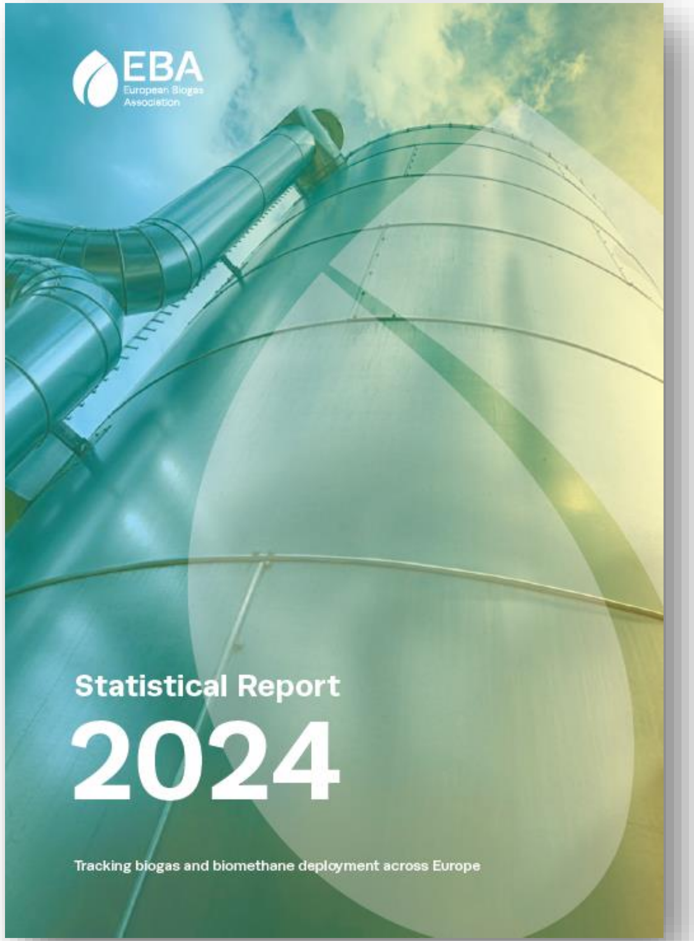

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Diversifying biomethane production: Gasification potential unlocked

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