

# EBA STATISTICAL REPORT 2023

## Launch webinar



**5 December 2023**  
**10:00 – 11:15 CET**



**Edith Hofer**

Deputy Head of Unit DG  
ENER, European Commission



**Harmen Dekker**

EBA CEO



**Mieke Decorte**

EBA Technical and Project  
Manager



**Marina Pasteris**

EBA Technical and Project  
Officer



**Giulia Cancian**

EBA Secretary General



# Welcome

## Harmen Dekker

*Chief Executive Officer  
European Biogas Association*



# Welcome

## Get the EBA Statistical Report 2023

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



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## Rules of the webinar

- The webinar is recorded and will be shared with participants, as well as the slides.
- Questions can be written in the Q&A box.

For any questions, please contact us at [info@europeanbiogas.eu](mailto:info@europeanbiogas.eu)

# Agenda

## 10:00 Welcome

Harmen Dekker, EBA CEO

## 10:05 Keynote

Edith Hofer, Deputy Head of Unit DG ENER, European Commission

## 10:15 Presentation of EBA Statistical Report 2023

*Moderator: Giulia Cancian, EBA Secretary General*

- **Biogases production volumes in 2022** – Mieke Decorte, EBA Technical Manager
- **Biogases consumption by sector** – Marina Pasteris, EBA Technical Officer
- **Achieving the 35 bcm target: growth rate and biomethane targets** – Mieke Decorte
- **Digestate potential to displace synthetic fertilisers** – Marina Pasteris

## 10:55 Q&A

*Moderator: Giulia Cancian, EBA Secretary General*



**We want to hear from you!**

# Keynote speech

## Edith Hofer

*Deputy Head of Unit DG ENER  
European Commission*



# Presentation of the EBA Statistical Report 2023



**Giulia Cancian**

*EBA Secretary General*



**Mieke Decorte**

*EBA Technical and  
Project Manager*



**Marina Pasteris**

*EBA Technical and  
Project Officer*

# Overview of the EBA Statistical Report 2023



**1** A circular economy with biogases



**2** The biogases market



**3** Growth prospects and innovations



**4** End uses of biogas and biomethane



**5** The economics of biogases



**6** Completing the nutrient cycle with digestate



**7** Country analyses



**We want to hear from you!**



# Biogases production volumes in 2022

Mieke Decorte

*EBA Technical and Project Manager*



# Scope and methodology of EBA's data

	<b>GEOGRAPHICAL SCOPE</b>	EU-27 + Iceland, Norway, Serbia, Switzerland, Ukraine and UK
	<b>DATA INPUTS</b>	National biogas associations National statistical reports Industries present in the respective countries Biomethane map EBA white papers & briefings European research projects
	<b>NOTES ON GRAPHS &amp; STATISTICS</b>	Graphs include figures until end 2022 Bio-CNG and Bio-LNG are counted towards biomethane statistics
	<b>DEFINITIONS</b>	Bcm = natural gas equivalents. Biogas = raw, non-upgraded gas originating from anaerobic digestion Biogases = combined biogas and biomethane

# Billions spent on EU energy crisis in 2022

Protection of EU consumers  
(2021-2022)

€ 195  
billion

> 230 temporary  
national measures

Fossil fuel subsidies

€ 123  
billion

+ 120% relative to 2021  
as crisis response

Gas imports

€ 316  
billion

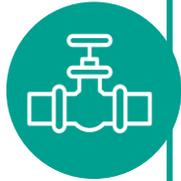
+ 148 % relative to 2021  
1/2 of total energy imports bill

Renewables subsidies

€ 87  
billion

+ 1% relative to 2021

# 97% of EU natural gas consumption was imported



**342 bcm**

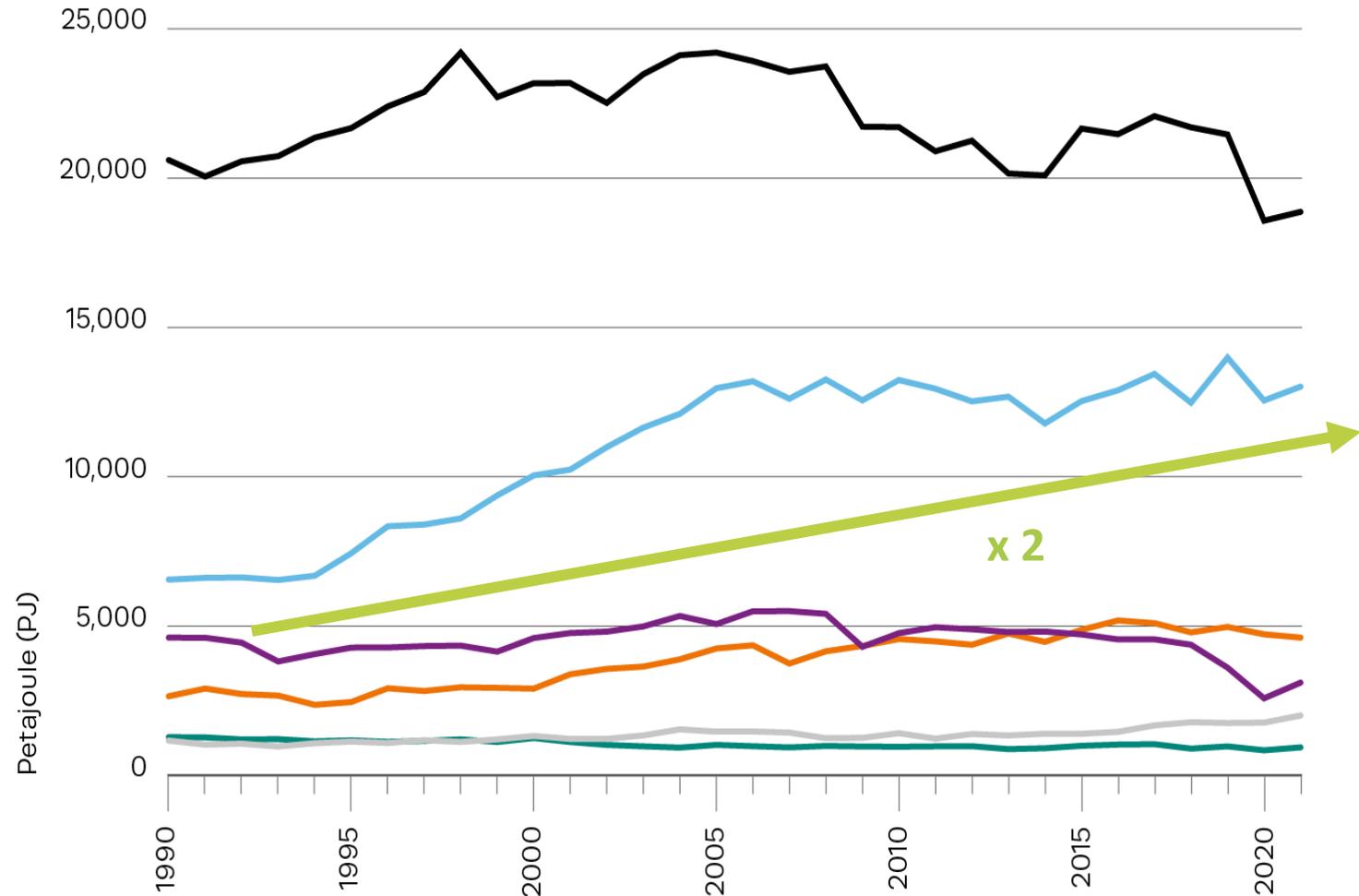
**83% in 2021**

**> 90% in 20 MS**

- Solid fossil fuels
- Natural gas
- Crude oil
- Naphtha
- Gas oil and diesel oil
- Fuel oil

Source:  
Eurostat (online data code: nrg\_bal\_c)

## Imports of selected energy products in EU



# Renewables are EU's biggest energy supplier

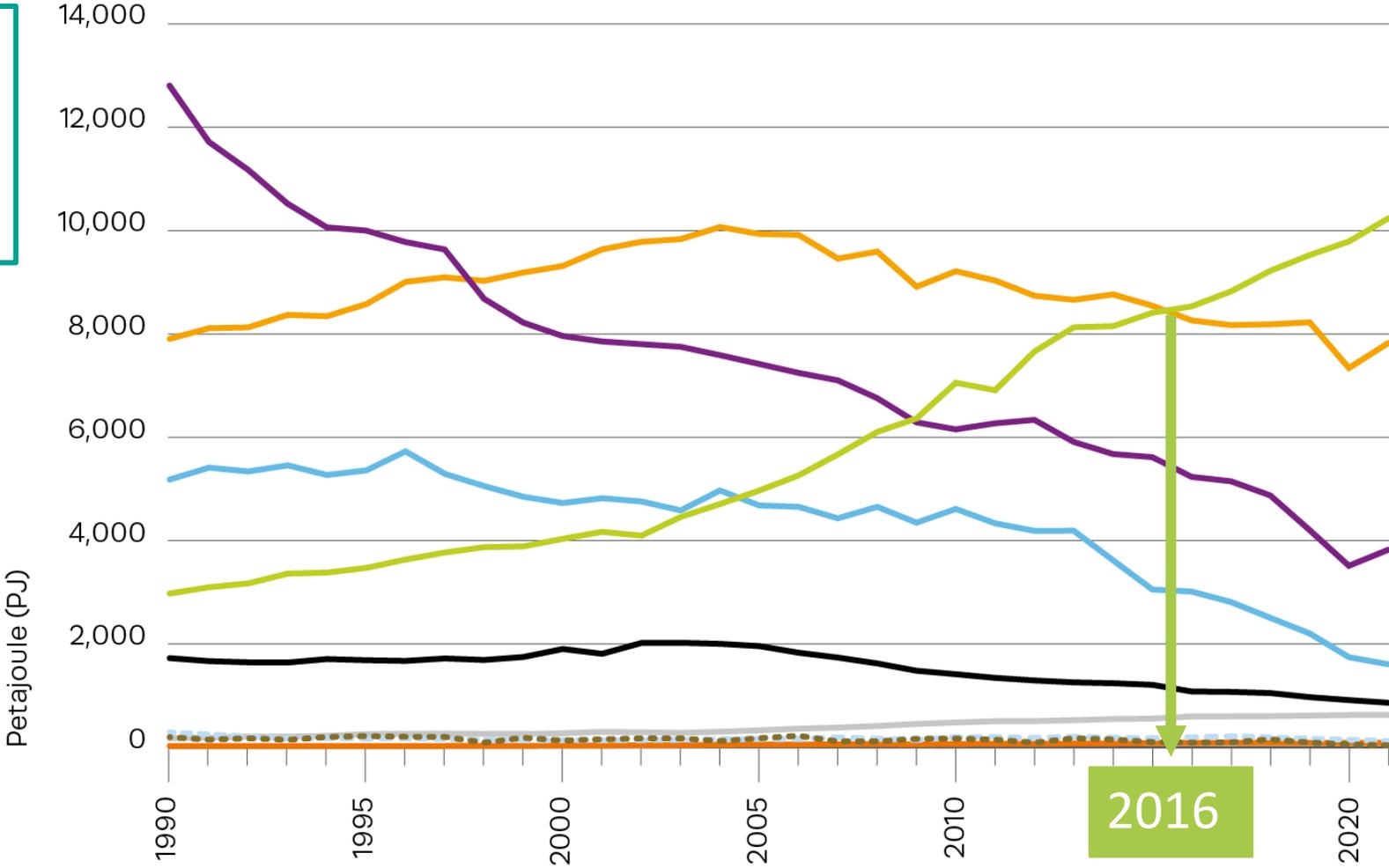


**41% of energy from renewables in 2021**  
 Long-term downward trend for most fuels

- Solid fossil fuels
- Peat and peat products
- Oil shale and oil sands
- Natural gas
- Oil and petroleum products (excluding biofuel portion)
- Renewables and biofuels
- Non-renewable waste
- Nuclear heat
- Heat

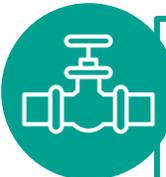
Source: Eurostat (online data code: nrg\_bal\_c)

EU primary energy production

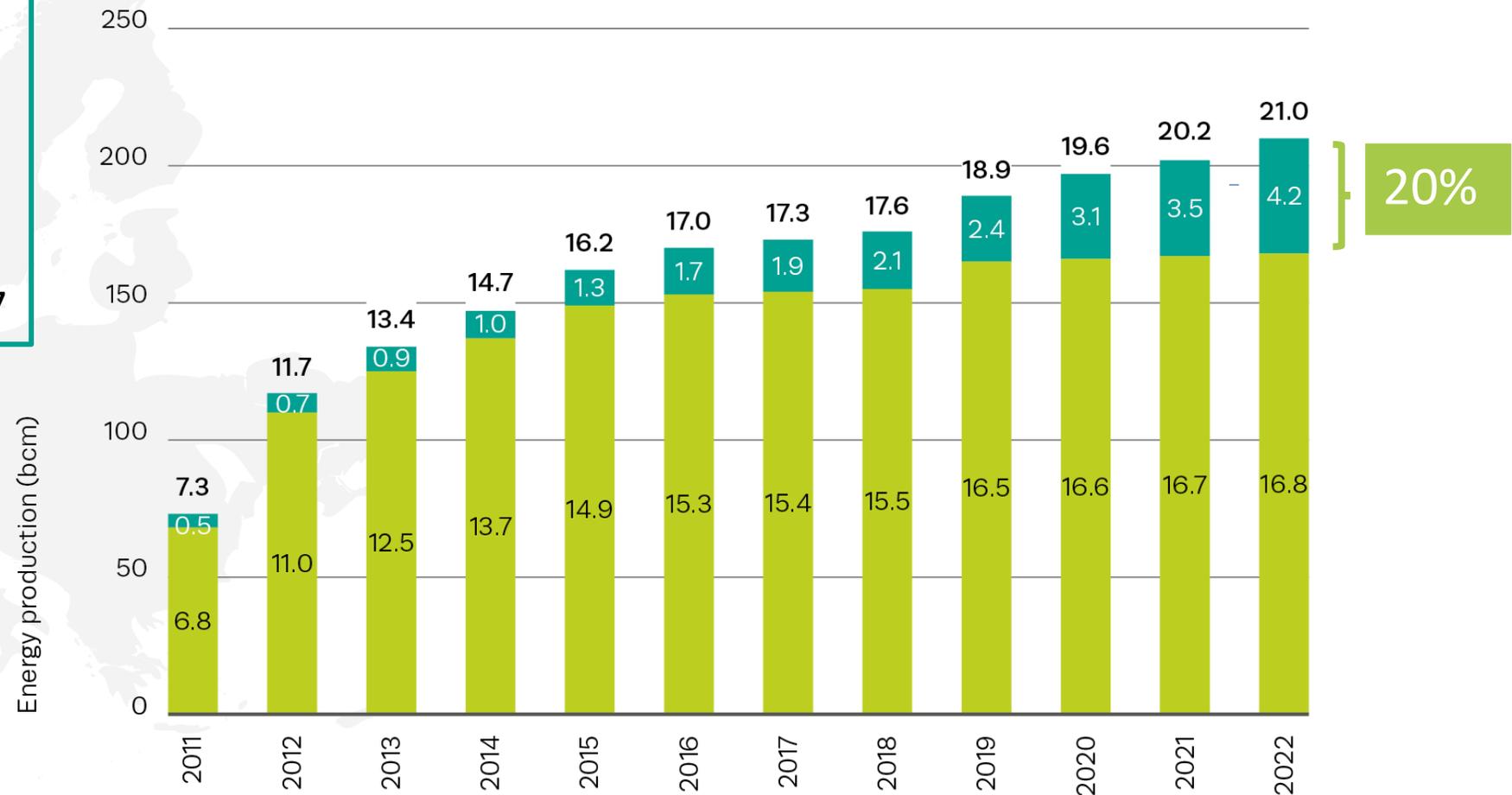


# Europe produced 21 bcm of biogases in 2022

## Combined biomethane and biogas production in Europe

 > gas demand of Poland  
= 6% EU gas consumption

 20% biogases upgraded  
18 bcm produced in EU-27



■ Energy from biogas (bcm)  
■ Energy from biomethane (bcm)

# 18% more biomethane in Europe in 2022



4.2 bcm (3.4 in EU-27)

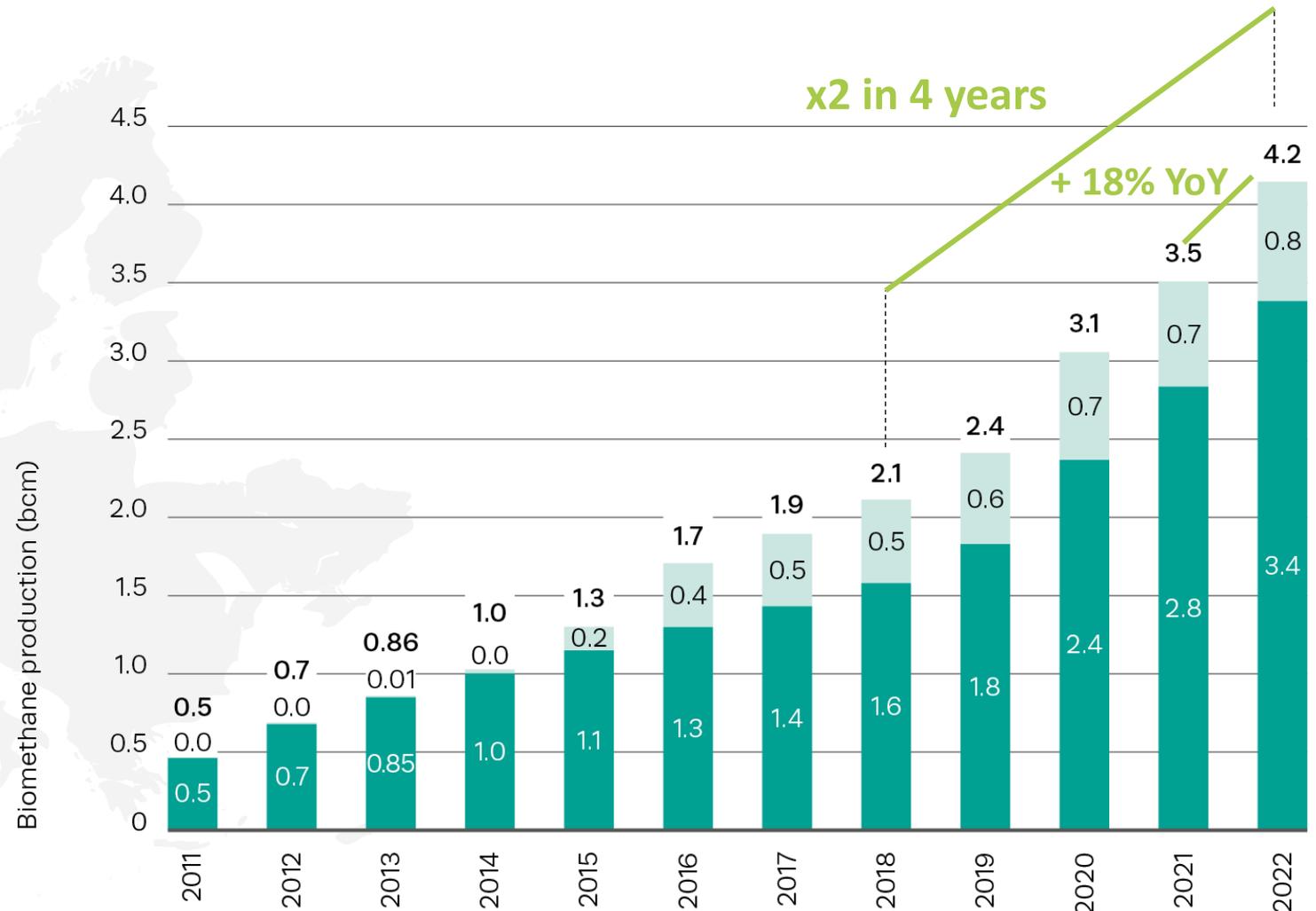
4.5 bcm installed capacity



x2 production since 2018

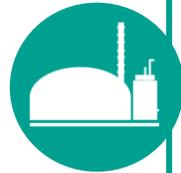
France, Italy, Denmark, UK  
fastest growing countries

## European biomethane production in EU-27 and Europe



■ EU-27  
■ Europe

# Record number of new biomethane plants in 2022



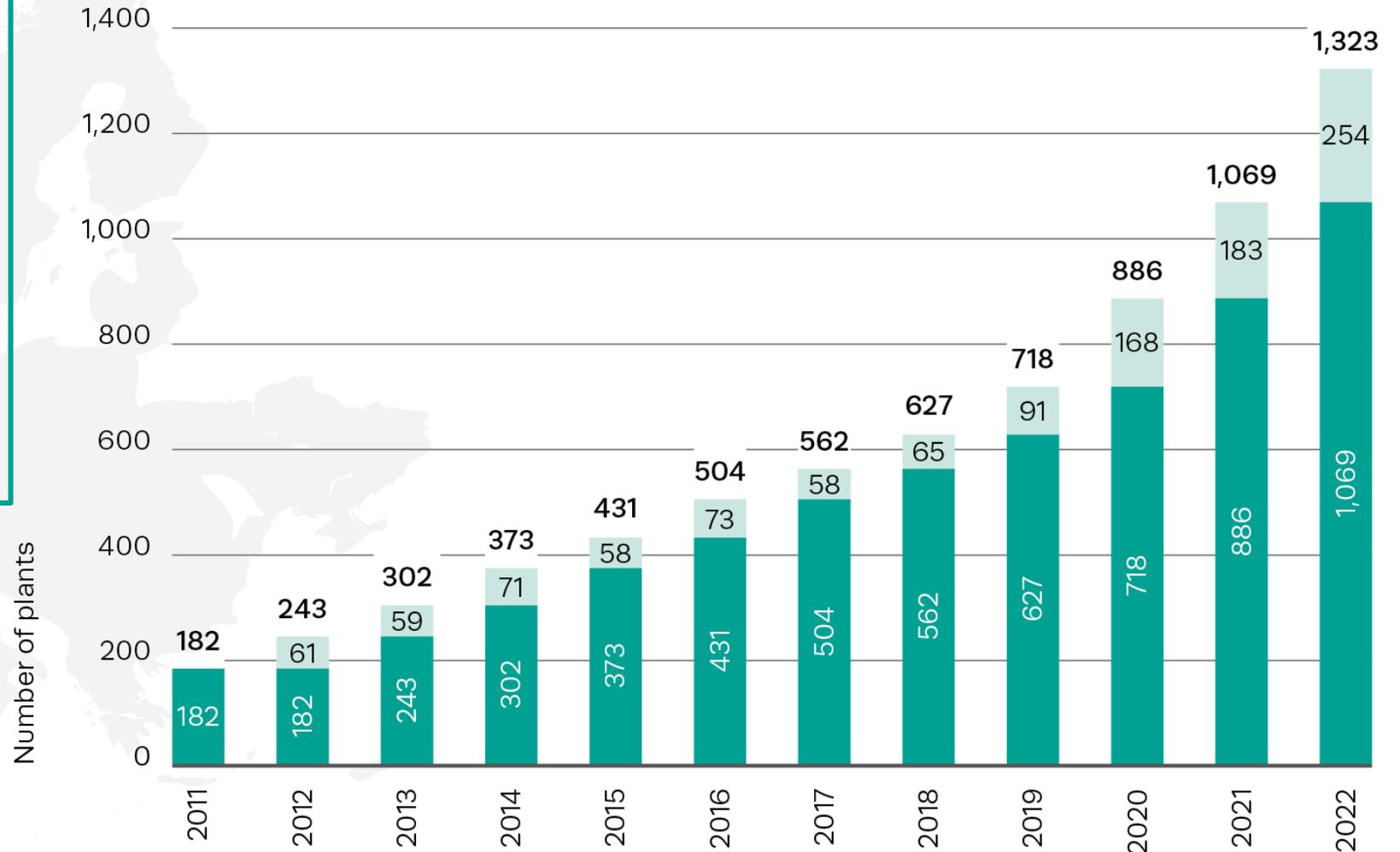
> 250 new plants  
> 1,300 in Europe  
(1,124 in EU-27)

24 producing countries



>75% plants **grid connected**, most to distribution grid

## Development of number of biomethane plants in Europe



Existing plants  
New plants



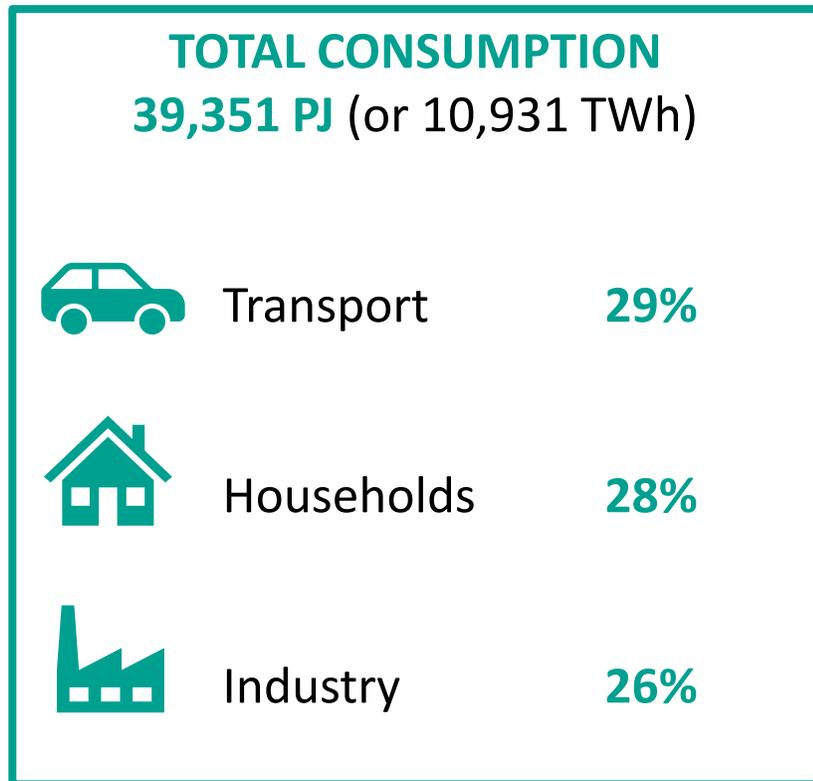
# Biogases consumption by sector

Marina Pasteris

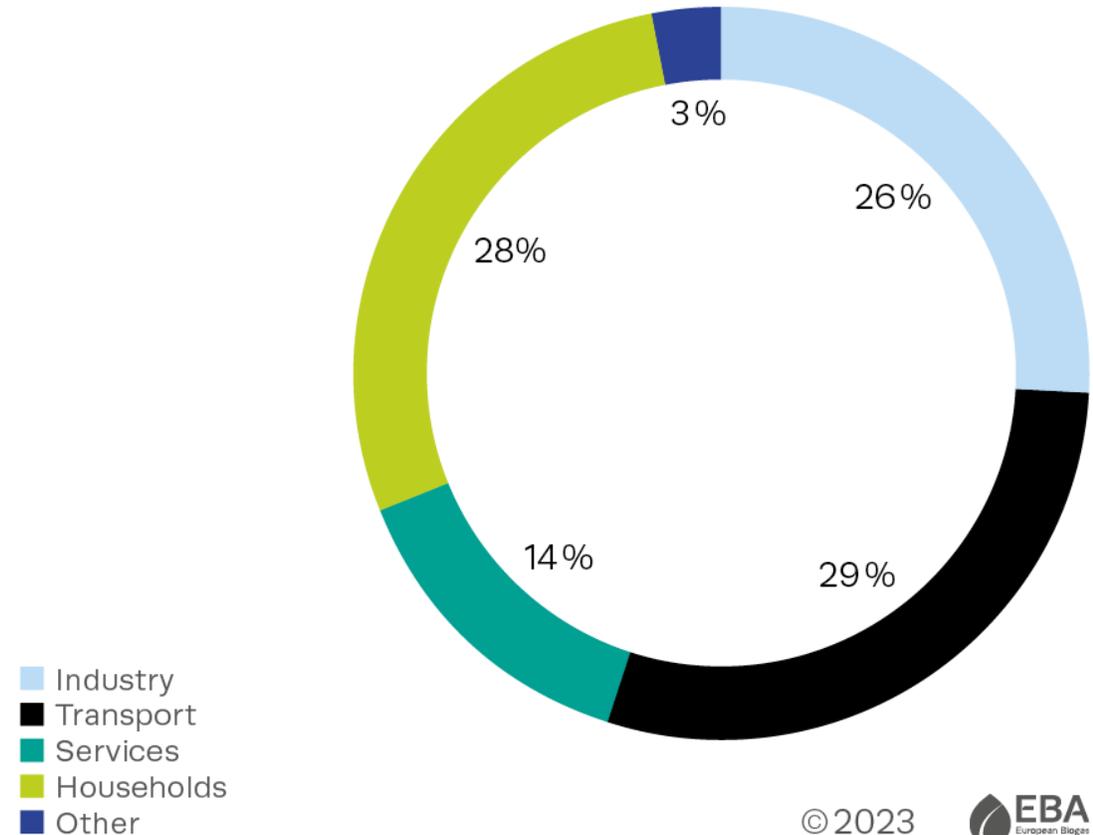
*EBA Technical and Project Officer*



# Final energy consumption by sector in EU



## Final energy consumption EU 2021



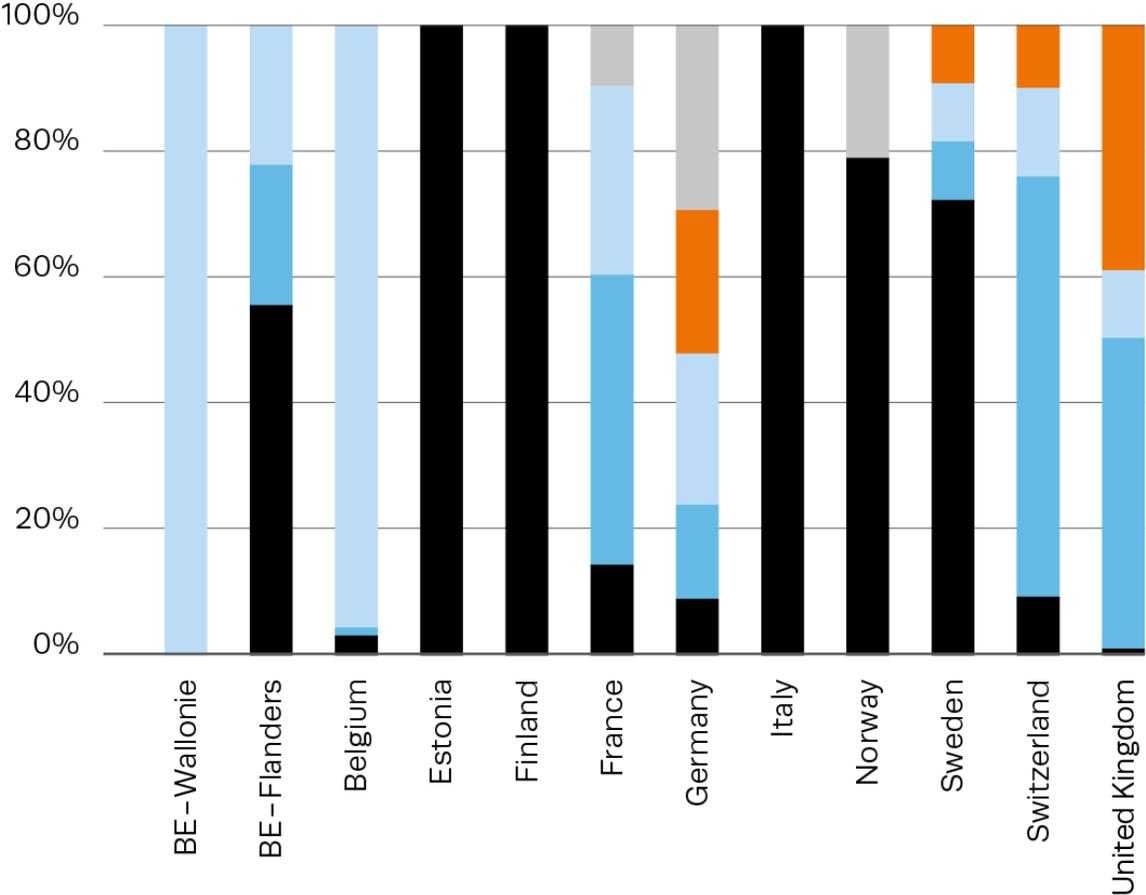
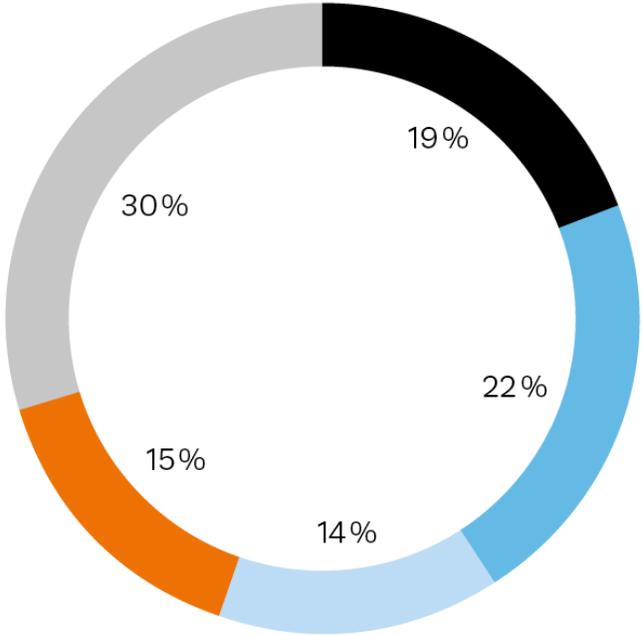
# Biomethane: a versatile low-carbon fuel

Percentage of biomethane used per sector overall and per country

**End-uses depend on country**

Transport 

Heating or electricity 



# Transport: 27 bio-LNG active plants in 2022



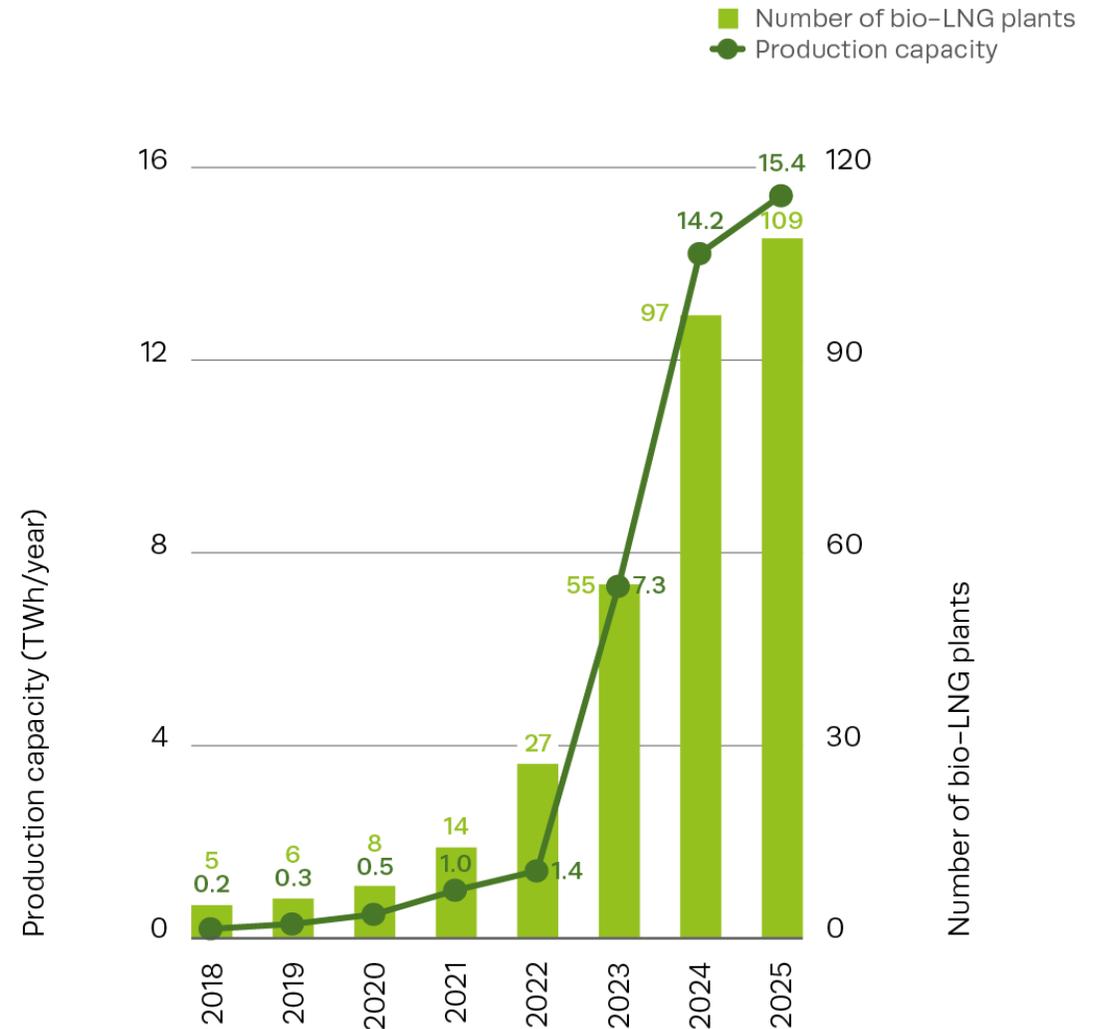
## By 2025:

+109 bio-LNG plants scheduled  
15.4 TWh

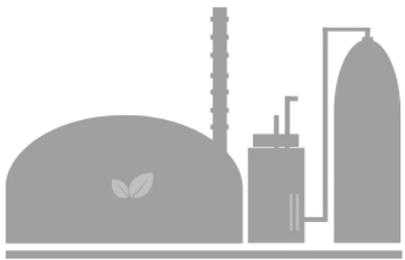


## 10 countries producing bio-LNG

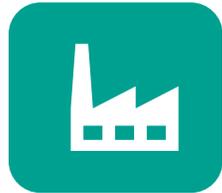
Belgium	Italy
Denmark	Netherlands
Finland	Norway
France	Sweden
Germany	UK



# Biogases for industrial uses, heating & electricity



Biogases accounted for **over 6%** of the renewable electricity produced in the EU-27 2022.  
They also provide **flexibility and storage** for the energy system



Biomethane is well suited to use as a **feedstock** or for **high-temperature industrial process**



Biomethane can complement the electrification of household heating, (i.e. by using **hybrid heat pumps**)  
It is compatible with existing gas-based heating systems which can **save over € 500 billion per year**



# Achieving the 35 bcm target: growth rate and biomethane targets

Mieke Decorte

*EBA Technical and Project Manager*

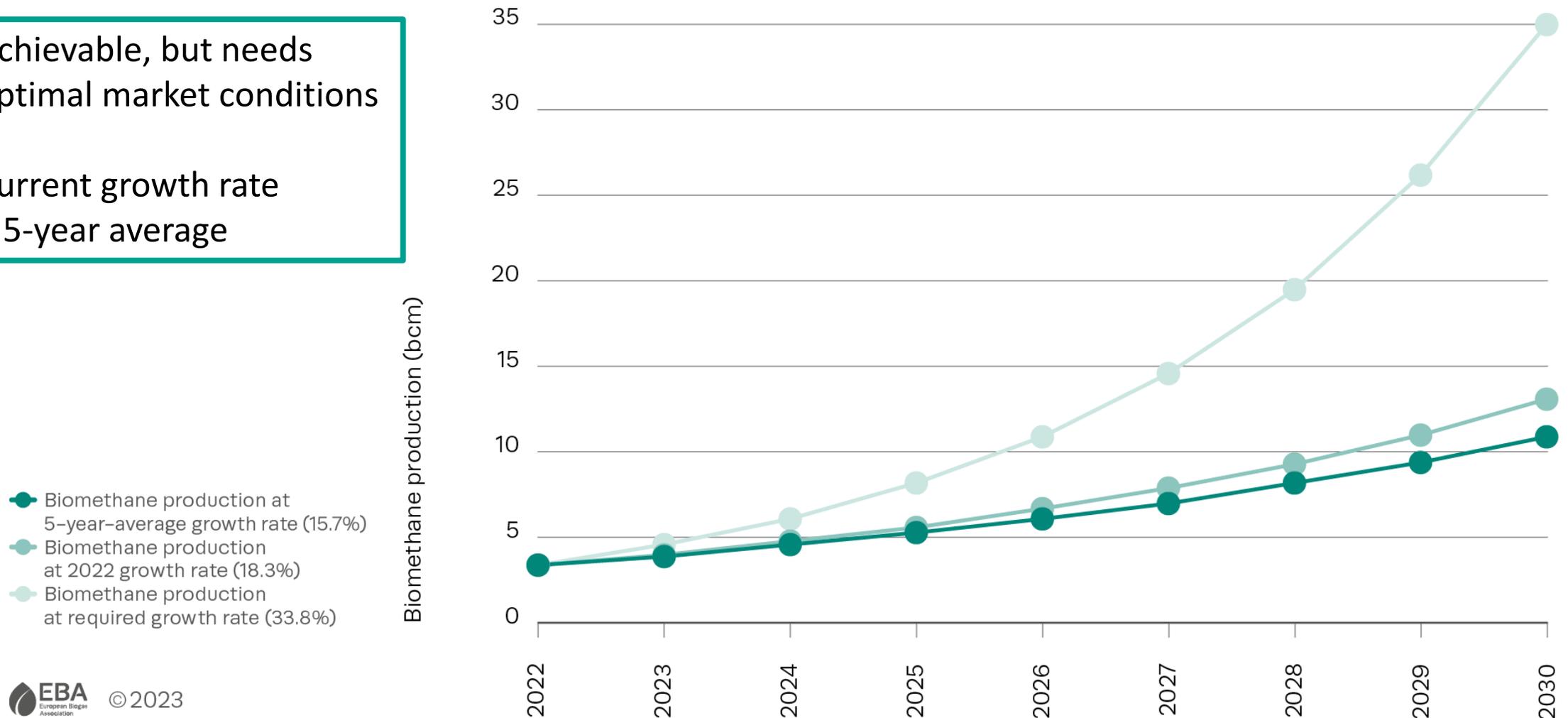


# 30% annual growth required to reach 35 bcm

Achievable, but needs optimal market conditions

Current growth rate > 5-year average

Achieving the 35 bcm target: current growth rate version required growth



# Biomethane targets per Member State

## Governance of the Energy Union

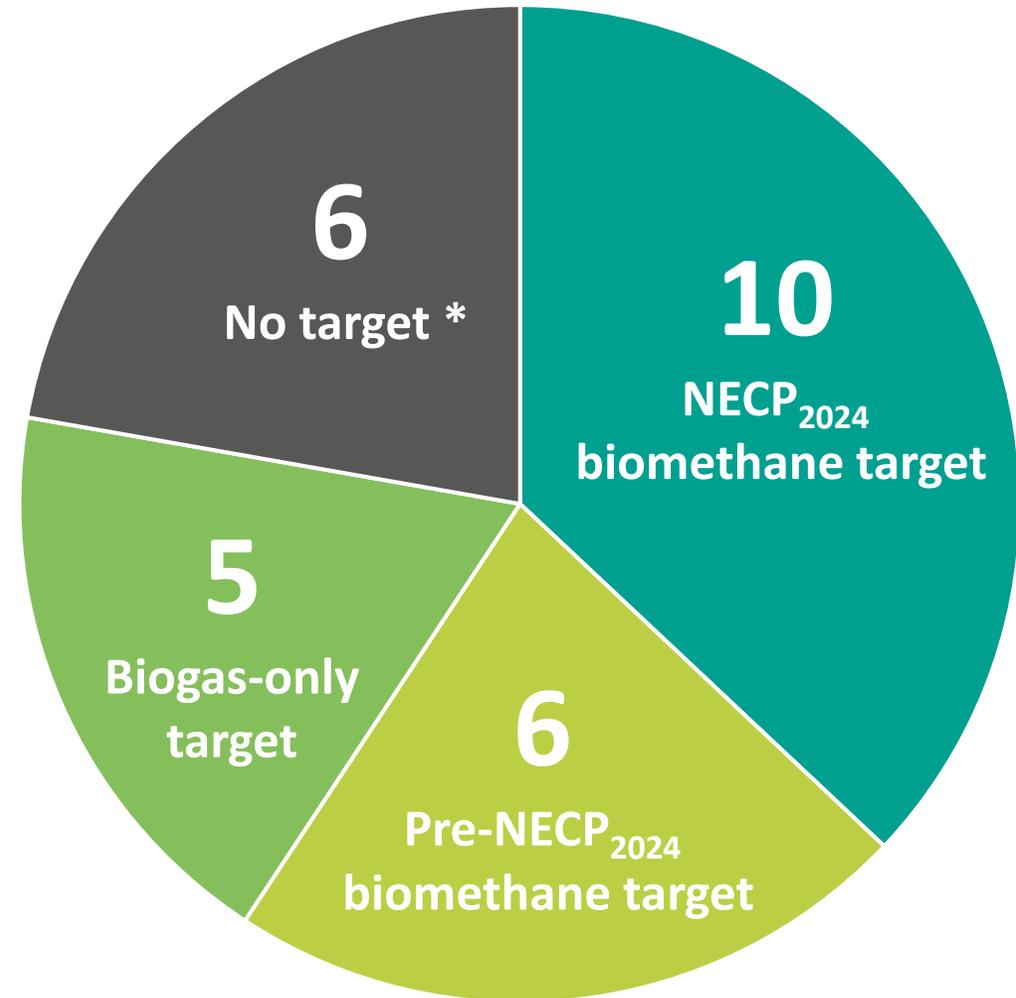
Legal requirement to develop **National Energy and Climate Plans (NECPs)** to outline climate and energy goals

### Expectations December 2022:

Guidance EC encourages including component on biogases and biomethane in NECP updates

June 2023: Deadline for NECPs update

November 2023: 22 NECPs submitted



\* Belgium, Bulgaria, Germany, Hungary, Portugal, Romania

# 22 draft updated NECPs are published

## NECPs with 2030 biomethane target

Czechia	<b>0.5 bcm</b>
Denmark	<b>1.8 bcm</b> 100% green gas in grid
Estonia	<b>0.04 bcm</b> (380 GWh)
France	<b>4.15 bcm</b> (44 TWh)
Greece	<b>0.2 bcm</b> (2.1 TWh)
Italy	<b>5.7 bcm</b>
Lithuania	<b>0.13 bcm</b> (1.4 TWh)
Netherlands	<b>2 bcm</b>
Slovakia	<b>0.3 bcm</b>
Slovenia	<b>0.05 bcm</b> (480 GWh)

**TOTAL 15 bcm**

## pre-NECP 2030 biomethane target (but no NECP target)

Austria	<b>0.39 bcm</b> (50% renewable gas target)
Finland	<b>0.38 bcm</b> (4 TWh)
Ireland	<b>0.58 bcm</b> (5.7 TWh)
Latvia	<b>0.09 bcm</b> (10% fossil natural gas)
Poland	<b>0.99 bcm</b> (50% renewable gas target)
Sweden	<b>0.94 bcm</b> (10 TWh)

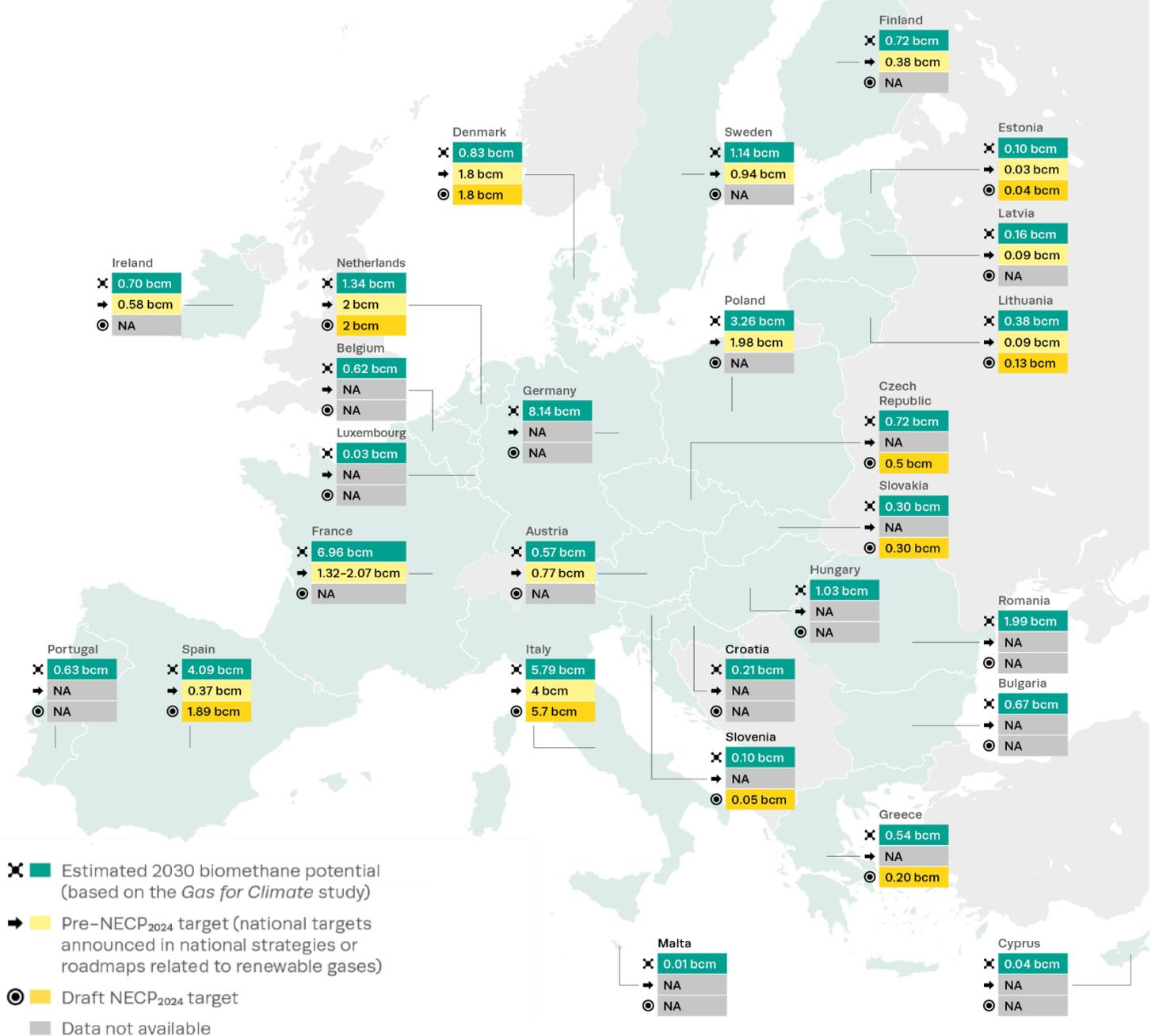
**TOTAL 3.4 bcm**

# Anticipated 2030 biomethane production

## Methodology

1. Draft updated NECP<sub>2024</sub> target
2. Pre-NECP<sub>2024</sub> target
3. Current production

**20.2 bcm**



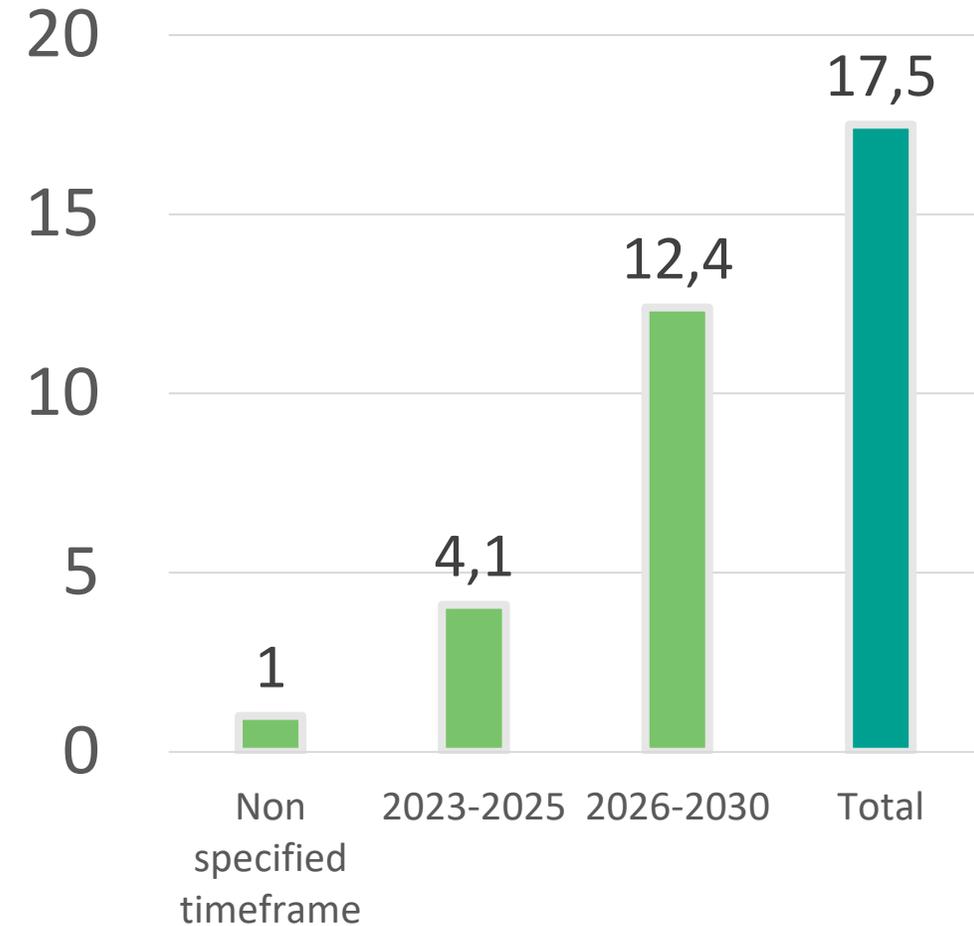
# € 18 billion investments for biomethane

## 1<sup>st</sup> EBA Investment Outlook for biomethane

Based on voluntary survey of investors

Almost 18 billion planned by end of 2030

Faster pace on 2<sup>nd</sup> half of this decade





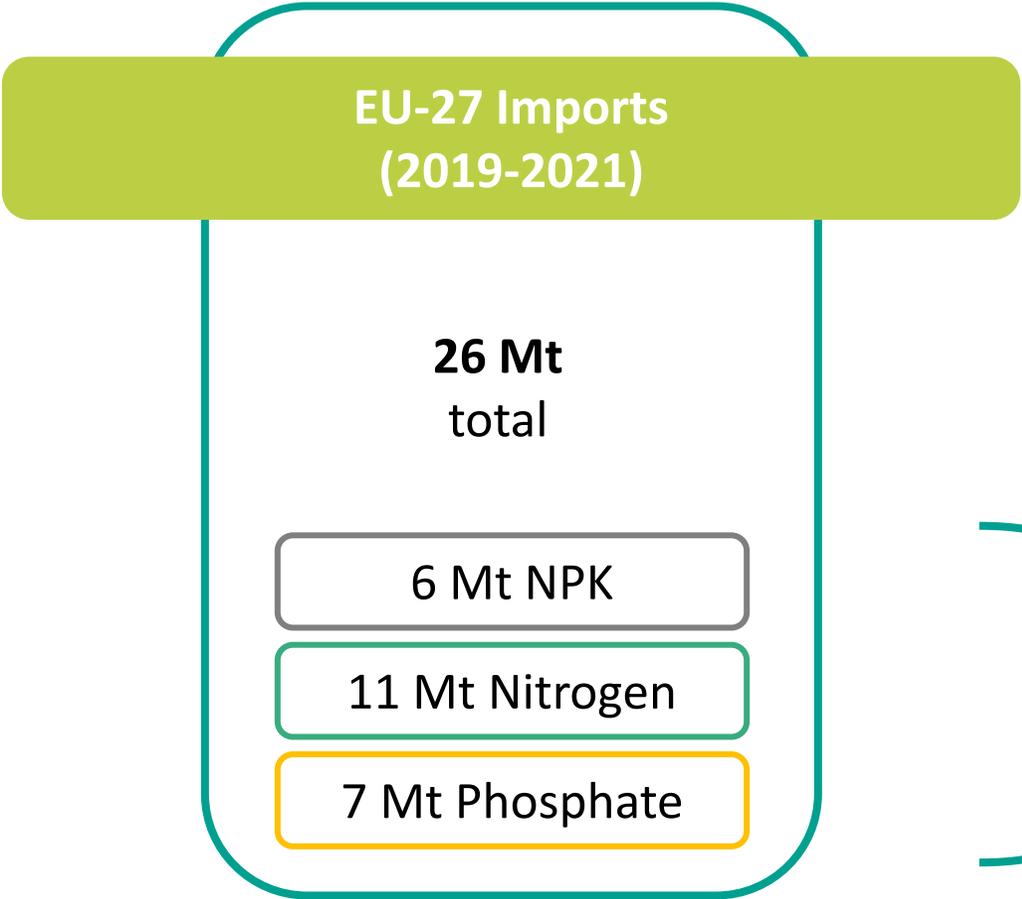
# **Digestate potential to displace synthetic fertilisers**

**Marina Pasteris**

*EBA Technical and Project Officer*



# European dependence on fertiliser imports



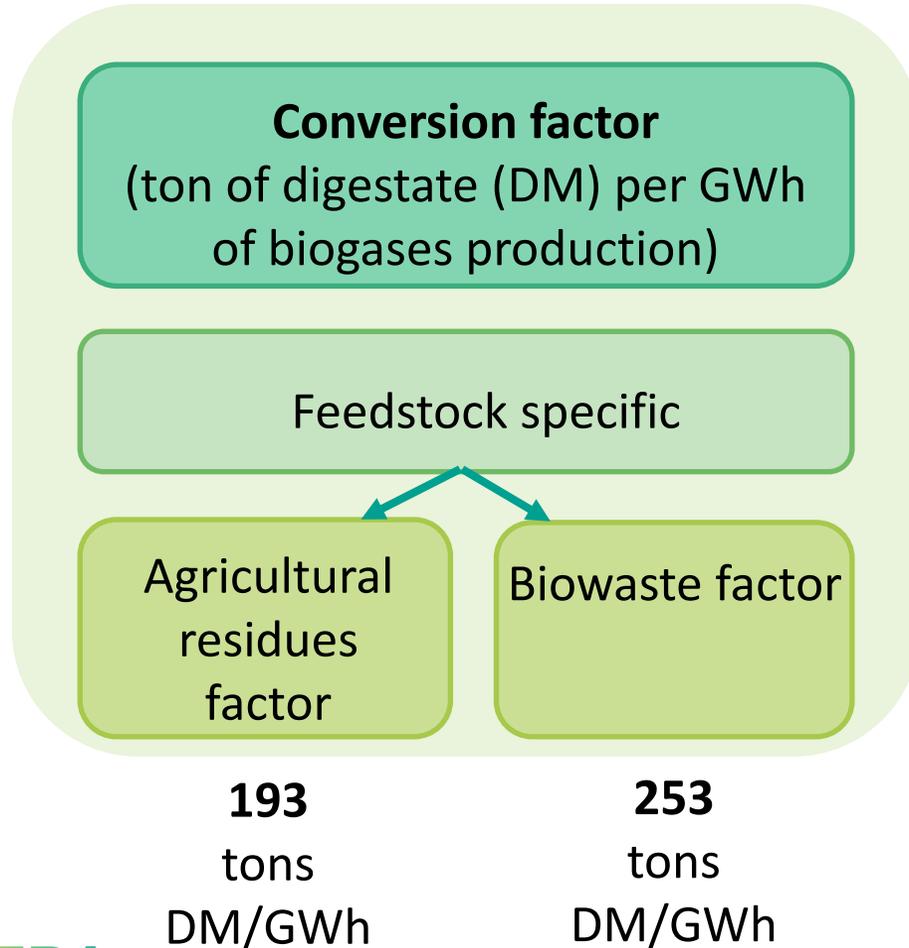
Which corresponded to...

- 30% N-fertilisers
- 68% P-fertilisers
- 85% K-fertilisers

of total EU-27  
consumption of fertilisers

# How much digestate is Europe producing?

Consultation with  
EBA members & experts



Calculation  
total digestate  
production  
in Europe



Calculation  
synthetic fertiliser  
displacement  
potential  
(N, P, K)



# Digestate offers an alternative to synthetic fertilisers



**31 Mt (DM)**  
digestate produced  
Europe, **2022**

Digestate can already displace:  
**15%**

**Nitrogen-based fertilisers**  
(N demand in EU-27: 11.1 Mt/year)

**11%**

**Phosphorus fertilisers**  
(P demand in EU-27: 2.8 Mt/year)

**6%**

**Potassium fertilisers**  
(K demand in EU-27: 3.1  
Mt/year)



GHG reduction potential when displacing  
synthetic N-fertilizers with digestate

**10 Mt**  
**of CO<sub>2</sub> equivalent**  
**in 2022**

**Natural gas** is the main feedstock and  
energy source to produce **synthetic**  
**fertilisers**

The replacement of 15%  
of **synthetic nitrogen fertilisers** with  
digestate could save today around  
**2 bcm of natural gas**

# European digestate production



**Most common end-use:**  
directly applied biofertilizer

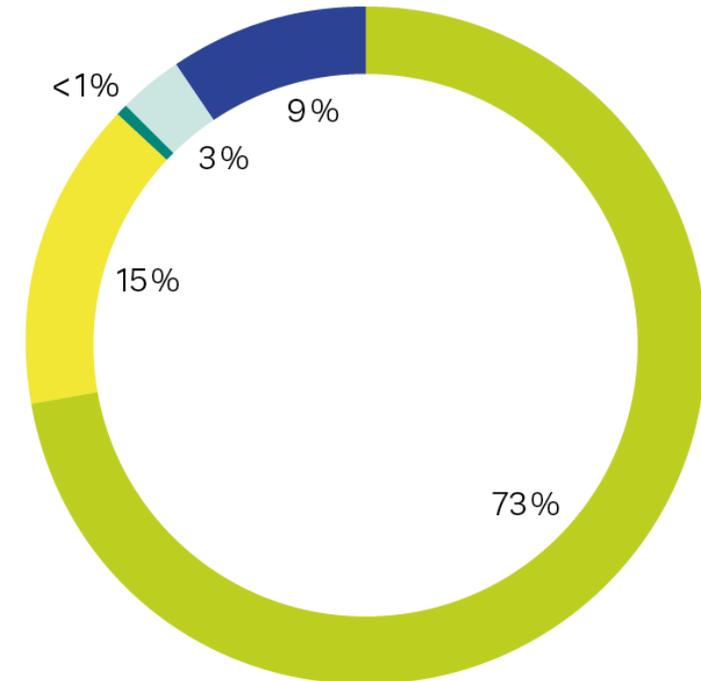


**Mostly non-separated digestate**  
Austria, Denmark, Germany, Poland,  
Slovakia, Sweden, and Ukraine



**Mostly liquid digestate**  
Serbia, Croatia, Slovenia, UK,  
Switzerland and Belgium

## Digestate end-uses in Europe



- Usage as a biofertiliser (direct)
- Usage as a biofertiliser (after upgrading)
- Biological processing (nitrification/denitrification)
- Exported
- Other usage

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# Digestate valorization routes

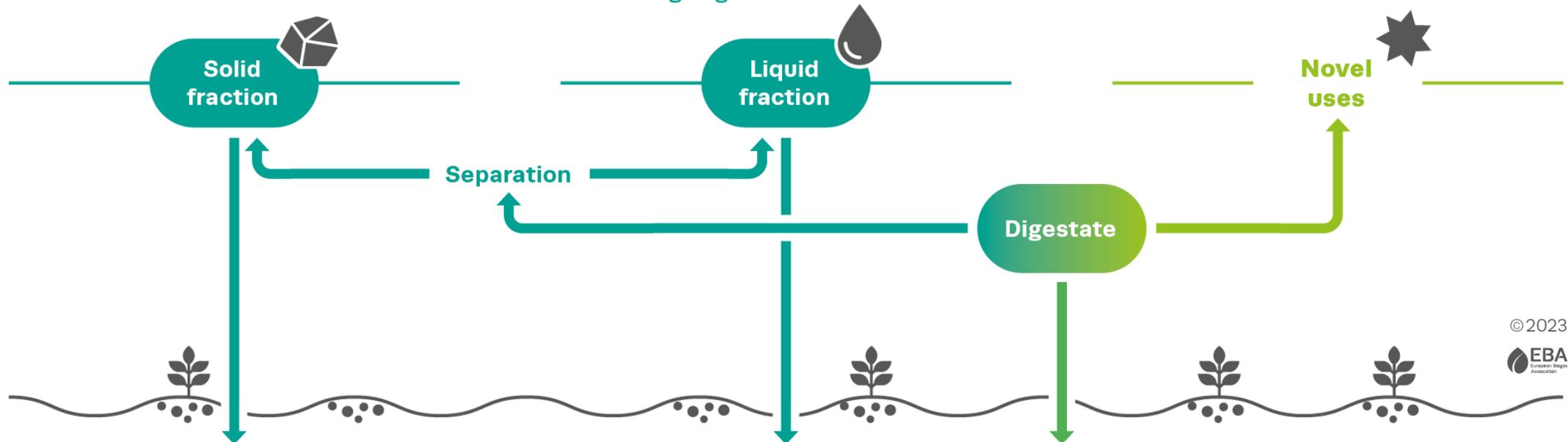
## Nutrient recovery char, hydrochar, biofuels

- Pyrolysis
- Gasification
- Hydrothermal carbonization

- Membrane filtration
- Reverse osmosis
- Evaporation
- Ammonia stripping and scrubbing
- Struvite precipitation
- Microalgae growth

## Range of different value added products

- Insects cultivation
- Pretreatment agent
- Substrate for microbial fuel cells
- Medium for hydroponics
- Production of volatile fatty acids (VFAs)
- Bio stimulants



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# Q&A session

Please write your questions  
in the Q&A box

Moderated by  
*Giulia Cancian, EBA Secretary General*





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