

European Biogas
Association

Biomethane, Growth Prospects and solutions for the future

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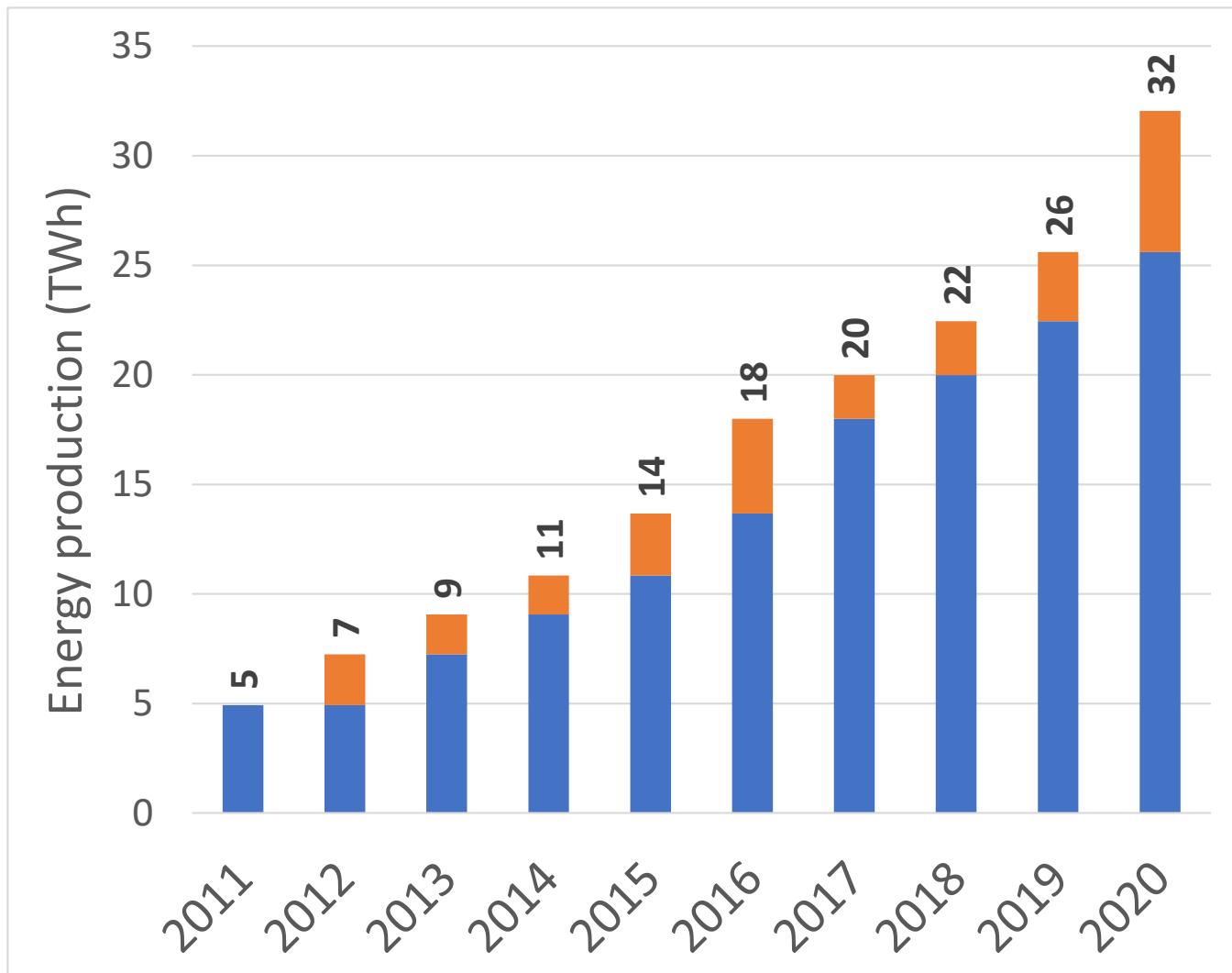




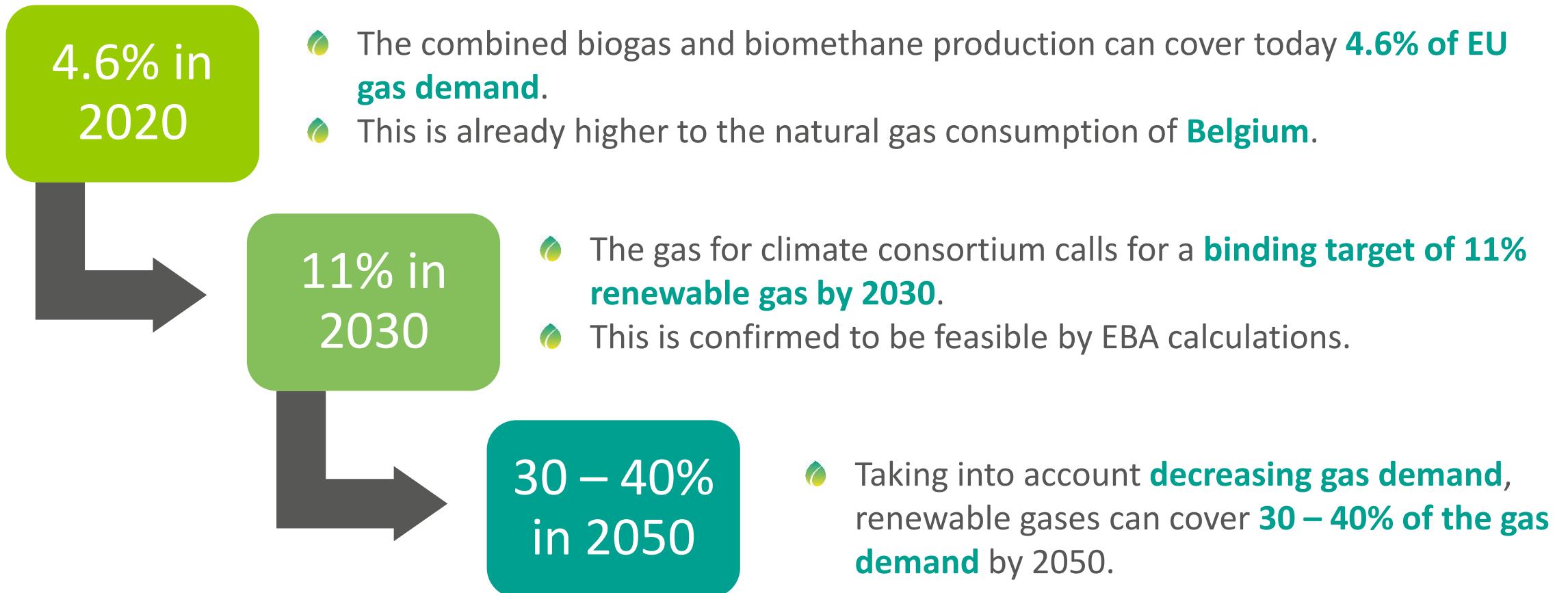
The combined biogas and biomethane production in Europe in 2020 was **191 TWh**.

Especially the **share of biomethane is steeply increasing**. Growth in 2020 was double the growth of 2019.

Biomethane production in TWh



Share of biogas and biomethane in Europe's gas demand



This graph shows the percentage of the gas consumption which could be covered with biomethane **if all biogas were upgraded**.

For several countries significant shares are already reached.

Energinet reports **Denmark already reaches 25%** by October 2021.

Biomethane and biogas production in relation to the country's total gas demand

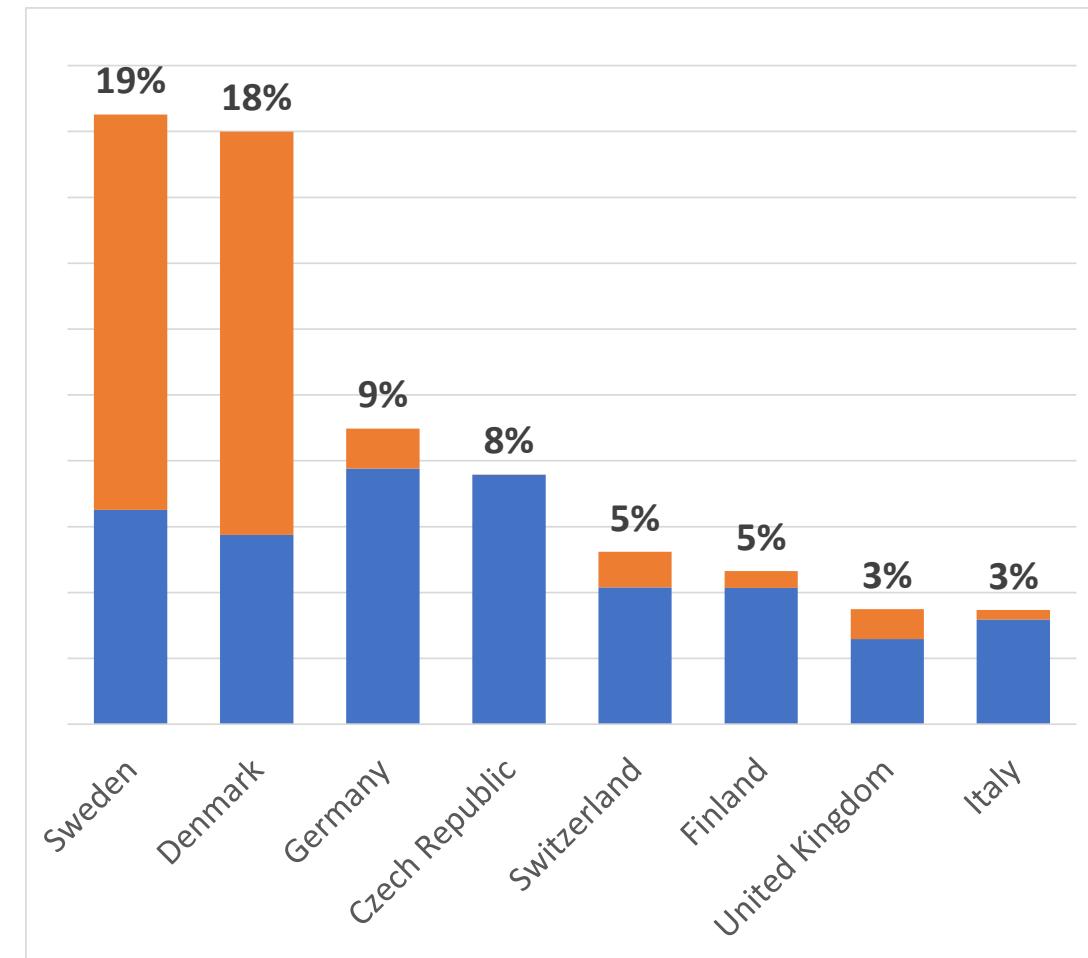
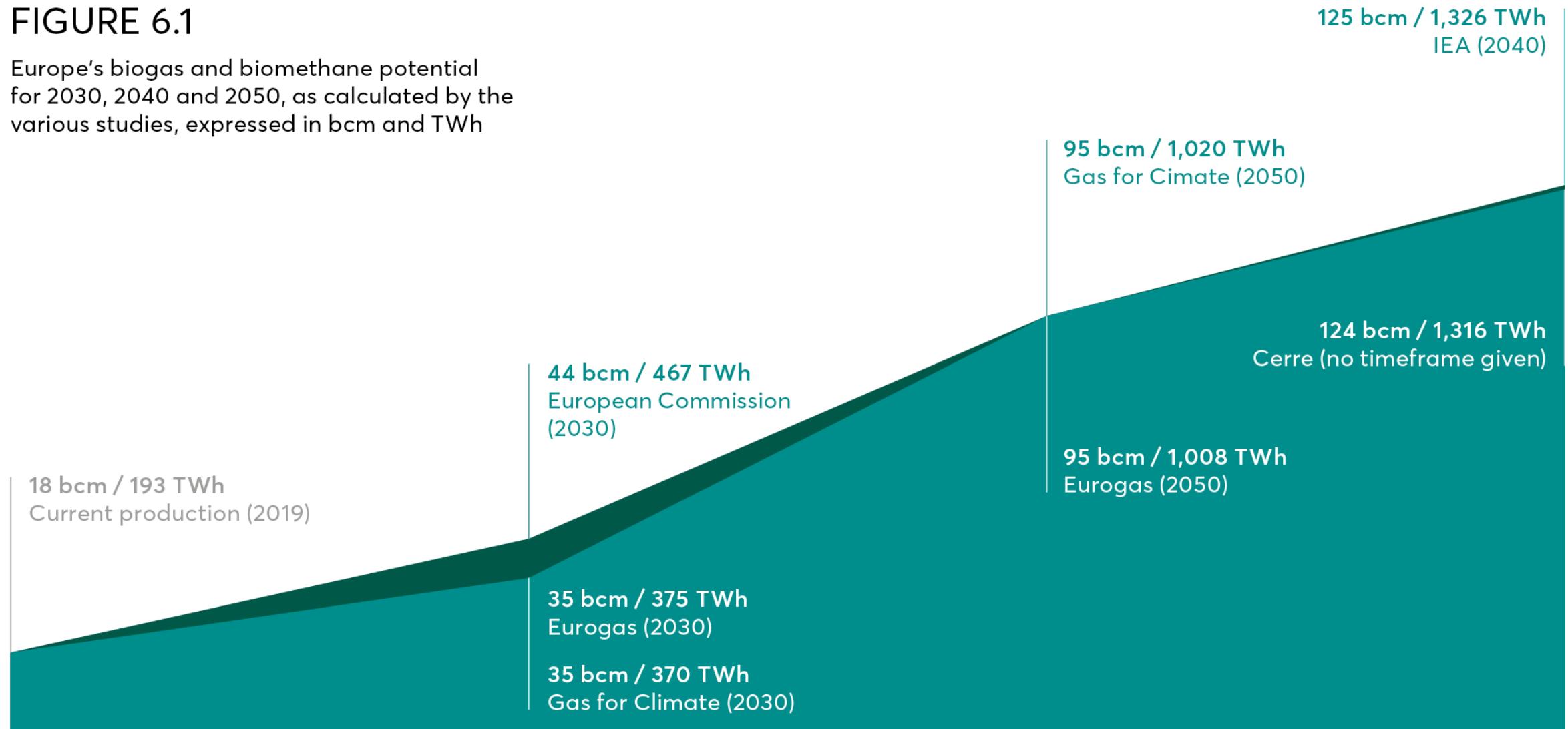


FIGURE 6.1

Europe's biogas and biomethane potential
for 2030, 2040 and 2050, as calculated by the
various studies, expressed in bcm and TWh



Apart from total potentials, most potential studies provide a distinction between feedstock types.

Not all studies consider all feedstock types.

When the averages per feedstock type are summed up, the total biomethane potential reaches **1,673 TWh**.

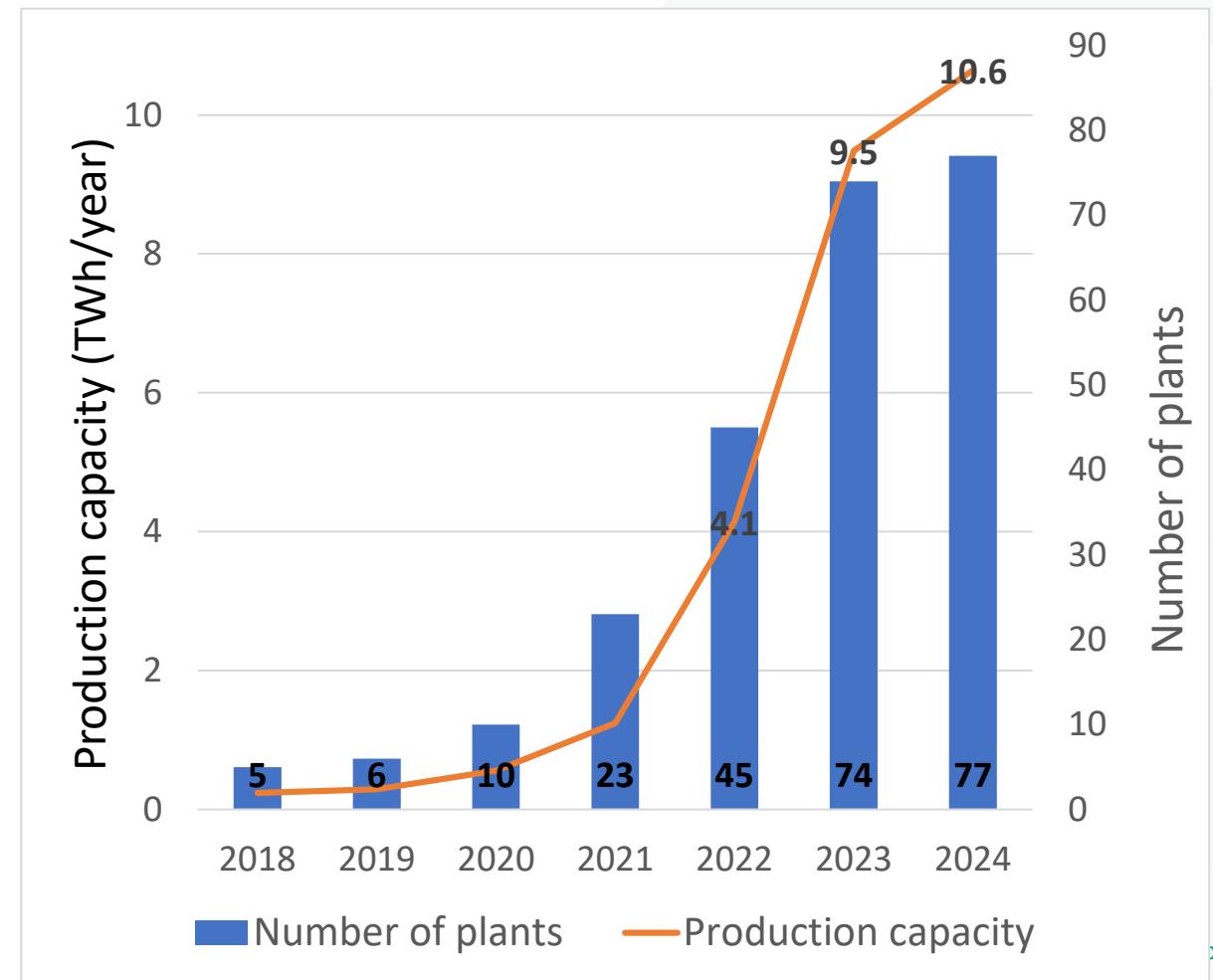
	Calculated potential per feedstock type by various studies (TWh)					
	GfC	IEA	Cerre	UGhent	EBA working group wastewater	Average
Sequential crops	434	456	/	487	/	459
Agricultural residues	53		537	/	/	295
Manure	159	393	185	/	/	246
Food waste	21	216	/	/	/	119
Industrial wastewater	/	/	/	/	142	142
Sewage sludge	2	57	/	/	/	30
Gasification	350	204	594	/	/	383
Total	1,020	1,326	1,316	487	142	1,673

The Bio-LNG production capacity by **2024**, considering only confirmed plants, adds up to **10.6 TWh per year**.

With this volume, almost **25,000 LNG trucks** can be fuelled year-round.

In comparison, NGVA expects increase in LNG trucks from **12,000 today** to **280,000 by 2030**.

Number of Bio-LNG plants and Bio-LNG production capacity by 2024



Infrastructure for the future: reverse flow facilities

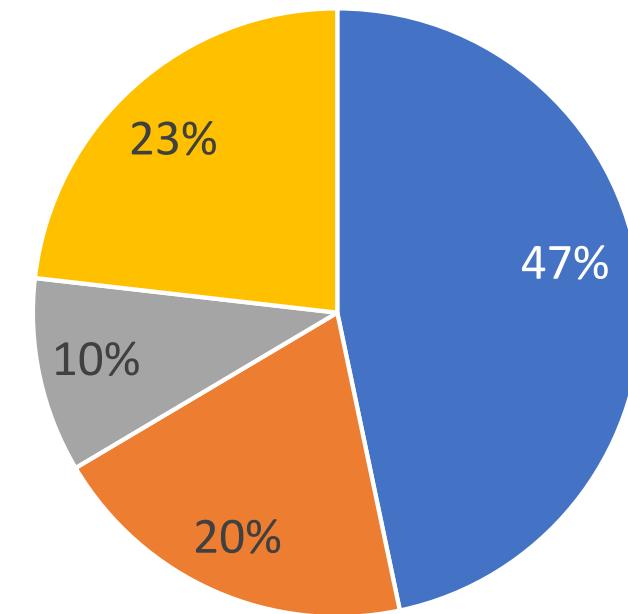
A transition is taking place from **centralised gas production** to a **decentralised approach**.

Most biomethane plants are connected to the distribution grid.

If too much biomethane is injected in the low-pressure distribution grid, **reverse flow facilities** will compress the biomethane and inject it into the high-pressure transport grid.

There are **11 facilities operational**, 23 under development and 16 feasibility studies announced.

Share of biomethane plants connected to distribution and transport gas grid in 2020.



■ Distribution grid ■ Transport grid
■ Not connected ■ Unknown

Infrastructure for the future: smart gas grids

Biomethane has a **slightly different composition** than natural gas.

Smart gas grids can measure in **real time the gas composition**.

The end users in turn can **adjust their gas application devices** to the gas composition delivered.



Infrastructure for the future: synergies with hydrogen

Biomethane can cover **30 – 40% of gas demand** by 2050. The remaining part could be covered with **green hydrogen**.

Green hydrogen can be **mixed** to some extend with methane, but when large volumes become available, a **separate grid** will be necessary.

It is thus important to develop a vision on how **biomethane and hydrogen will integrate with each other**.

- 👉 Bio-hydrogen production from biomethane in rural areas
- 👉 Combining hydrogen with raw biogas to increase the methane yield



Redesigning the biogas business model

Due to an **improper basis of comparison**, biomethane is often **perceived as not cost competitive**.

Producers only get rewarded for the energy they produce.

Other **societal benefits are undervalued in terms of economic value**.

These additional societal benefits need to be translated into **market signals**, which will put renewable gas production on the correct **level playing field**.

It will in turn stimulate the plants to **optimize those services**.





EBA statistical report 2021

- To be published by November
- Free for EBA members
- For sale for non-members

