

BIOMETHANE: HOW TO SCALE UP PRODUCTION AND FOSTER INTEGRATION INTO THE NETWORK

European Energy Forum Dinner Debate

EP Strasbourg, 18 October 2022



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INTERNAL



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ENGIE's ambition

Become a European leader in biomethane and bioLNG production



France



Top 3 player
5-6% market share
Average size of facilities 22 GWh/y

~ 0.45 TWh ~ 21

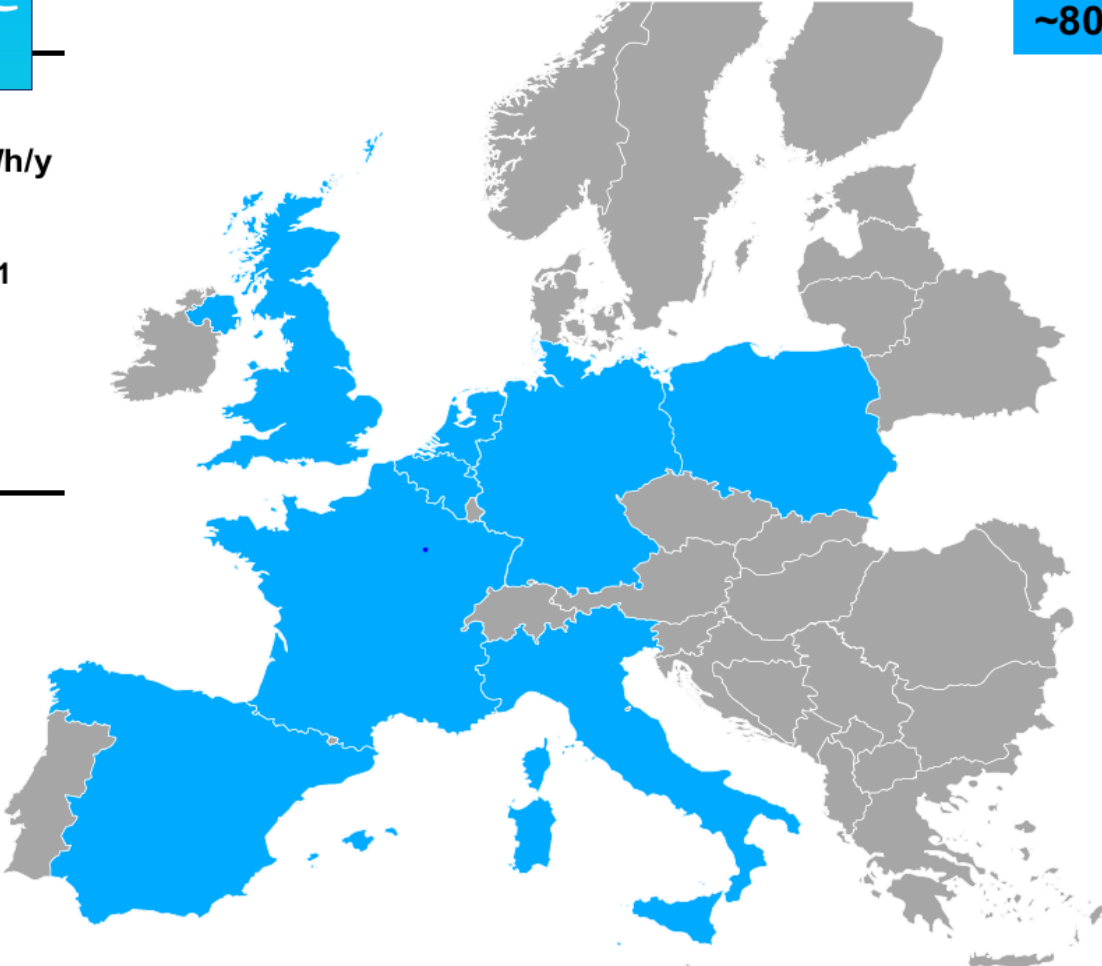
~ 150

Objective: 1 TWh in 2023

Objective

5 – 10 % market share

Pipeline
~800 GWh



UK

Deal Farm



Netherlands

GZI North Star
Renegie



Belgium

Sibiom



Germany

CM Fluids



Poland

Poland 1



Italy



Spain

Projects investigated

Why Biomethane?

Renewable energy source based on **sustainable feedstocks**

Stable energy source, **available when needed**, supports sector integration and system flexibility

Does not need large investment in new infrastructure / appliances



Reduces dependence on fossil fuel imports, **full value chain based in Europe**, potential for massive scale-up

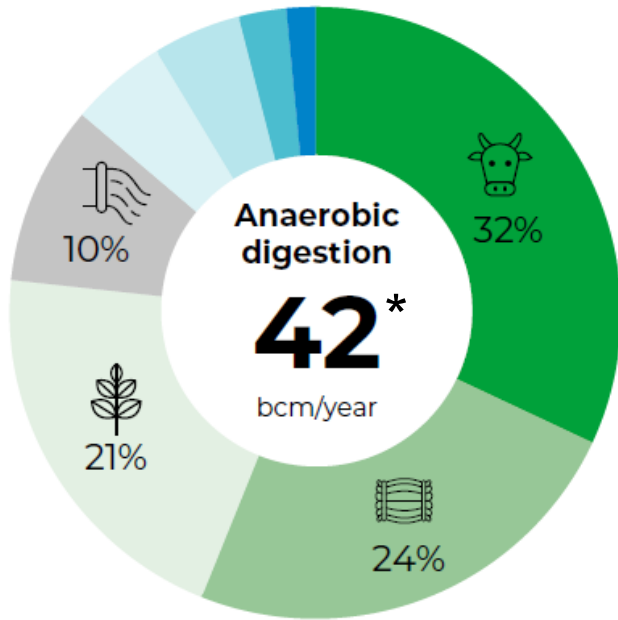
Cost-effective decarbonization solution for heating, industry, transport, power generation

Environmental benefits: sustainable agricultural practices, waste management, reduced dependence on chemical fertilizers, ...

Value creation for the **local economy**, rural development, local employment

Potential to reach RePower target by 2030

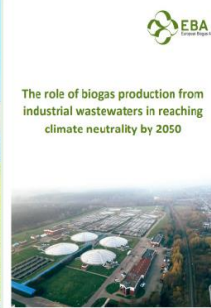
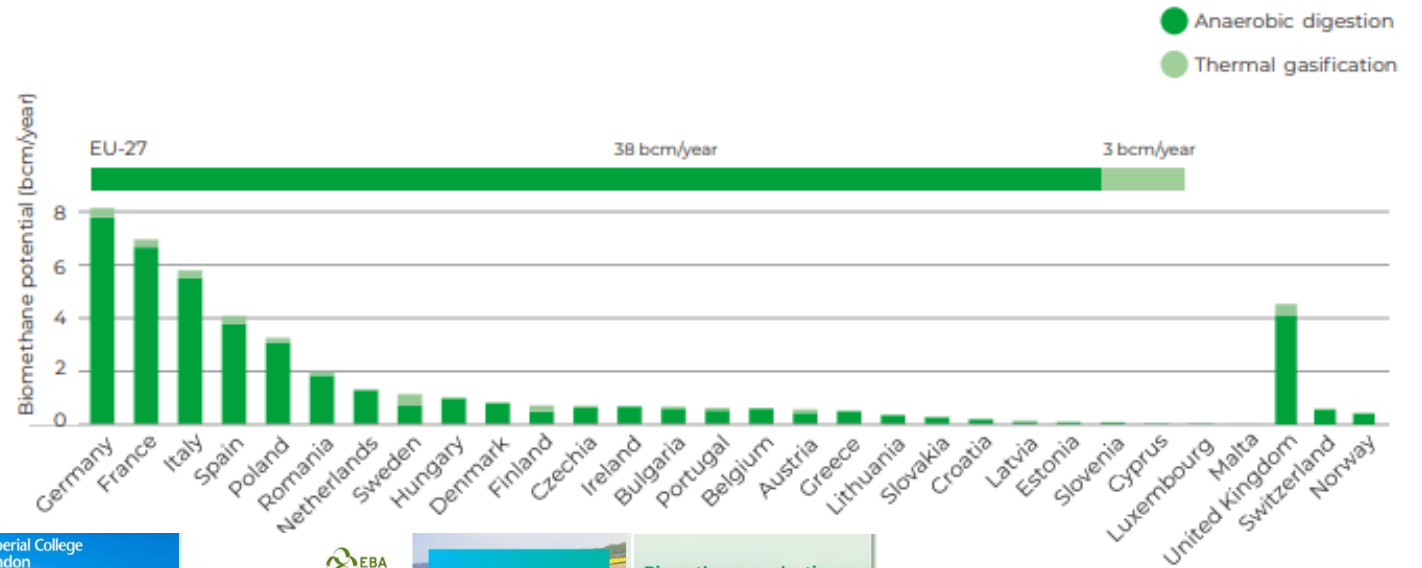
Europe's biomethane potential is spread over many countries and sufficient to achieve the RePower objective of 35 bcm by 2030. The mix of feedstocks relies largely on wastes and residues and does not create competition with food production.



* Potential in EU 27 + UK, Switzerland and Norway

- Animal manure
- Agricultural residues
- Sequential crops
- Industrial wastewater
- Permanent grassland
- Biowaste
- Sewage sludge
- Roadside verge grass

Figure 3. Biomethane potential in 2030 per technology and country



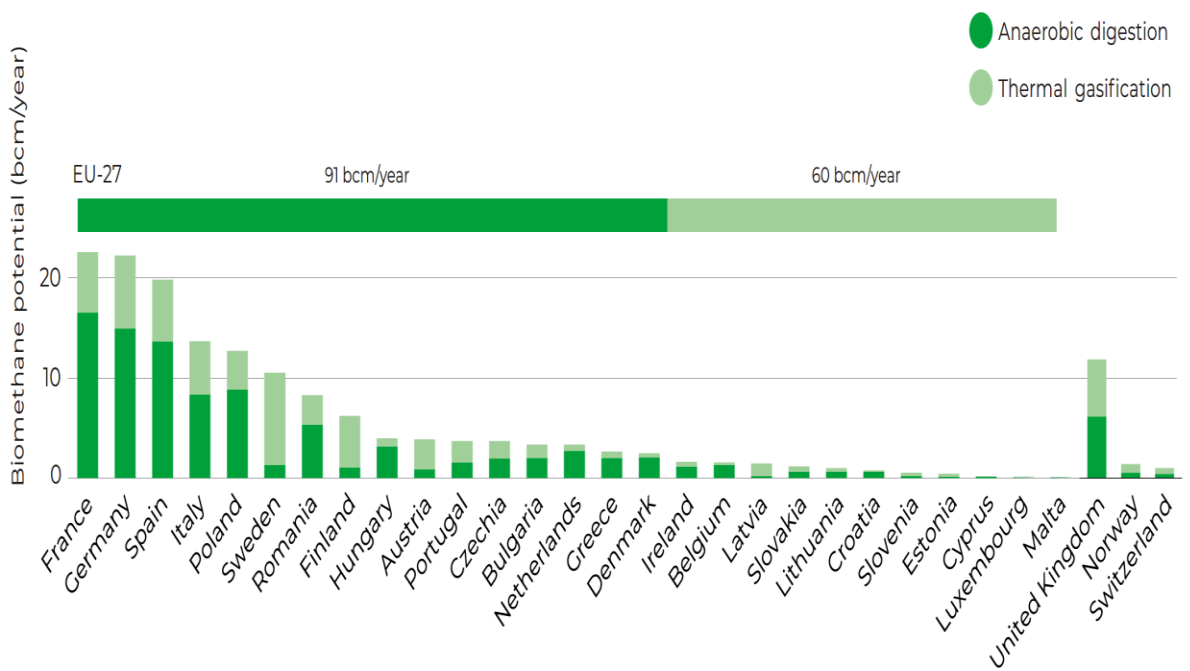
Source: Guidehouse / Gas for climate

How much biomethane can be developed in Europe ?

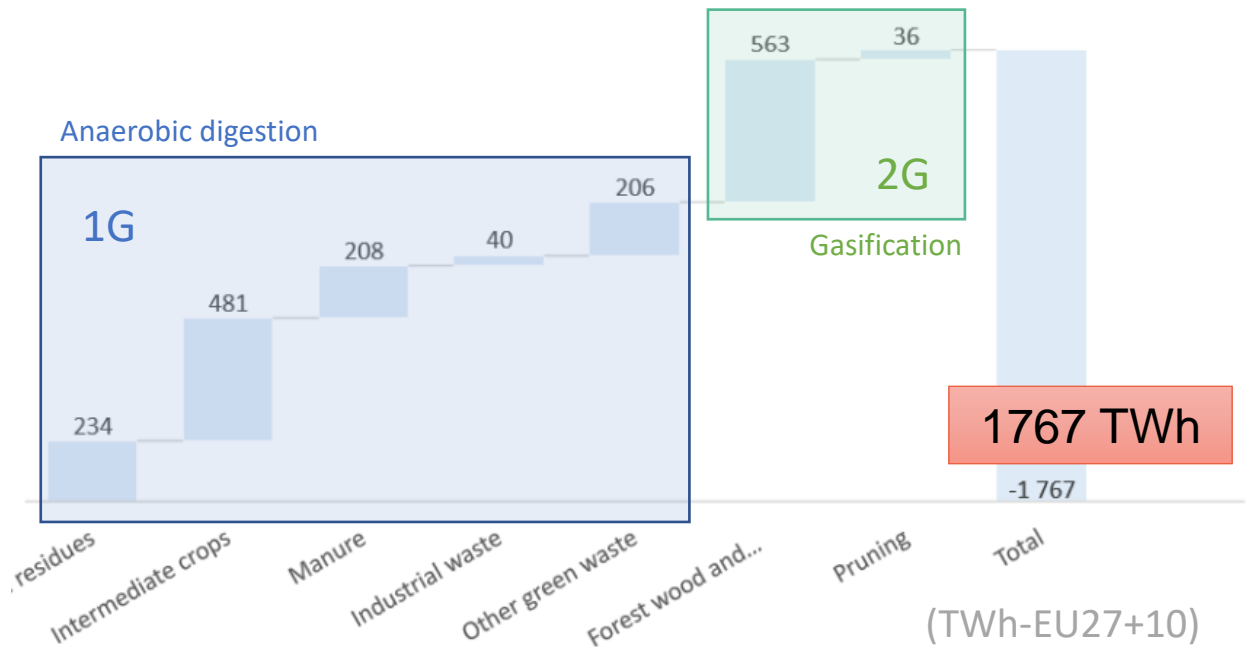
Potential by geography

Potential by feedstock

Figure 2. Biomethane potential in 2050 per technology and country



ENGIE – Geographical analysis of biomethane potential in Europe in 2050 (2021)



Key Messages

- Biomethane and other renewable gases play a **key role to meet Europe's RePower ambitions**: to replace 20% (up to 60% with H2) of 2021 Russian gas imports and achieve decarbonization targets.
- To trigger a rapid scale-up of biomethane production, **clear and stable regulation is needed. The 35 bcm target needs to be anchored in EU legislation** (RED or Gas Package) **and National Energy and Climate Plans** (NECPs). This requires capital investments of ~80 bn€ for ~5000 additional biomethane plants.
- Europe has **sufficient sustainable potential** that is not in competition with the production of food and feed. (Hydro-)thermal gasification is about to unlock new feedstock or make a better use of biomass.
- The revision of **RED and Gas Package is a unique opportunity to generalize best practices of biomethane production** (certification, permitting, support schemes, favor gas production over cogeneration or biofuel) **and integration** across Europe ("right to inject", network planning based on regional mapping of potentials).
- **Biomethane shall not split the internal gas market. Guarantees of Origin and a properly designed Union Database** are important to create a well-functioning market and set international standards.
- Biomethane should benefit from funding under the **Recovery and Resilience Facility (RePowerEU Chapter)** and other financing opportunities.
- Newly-created **Biomethane Industrial Partnership (BIP) is a critical forum to fast-track actions** and ensure consistency with related legislation (taxonomy, farm & waste policies, EU ETS, hydrogen).

APPENDIX



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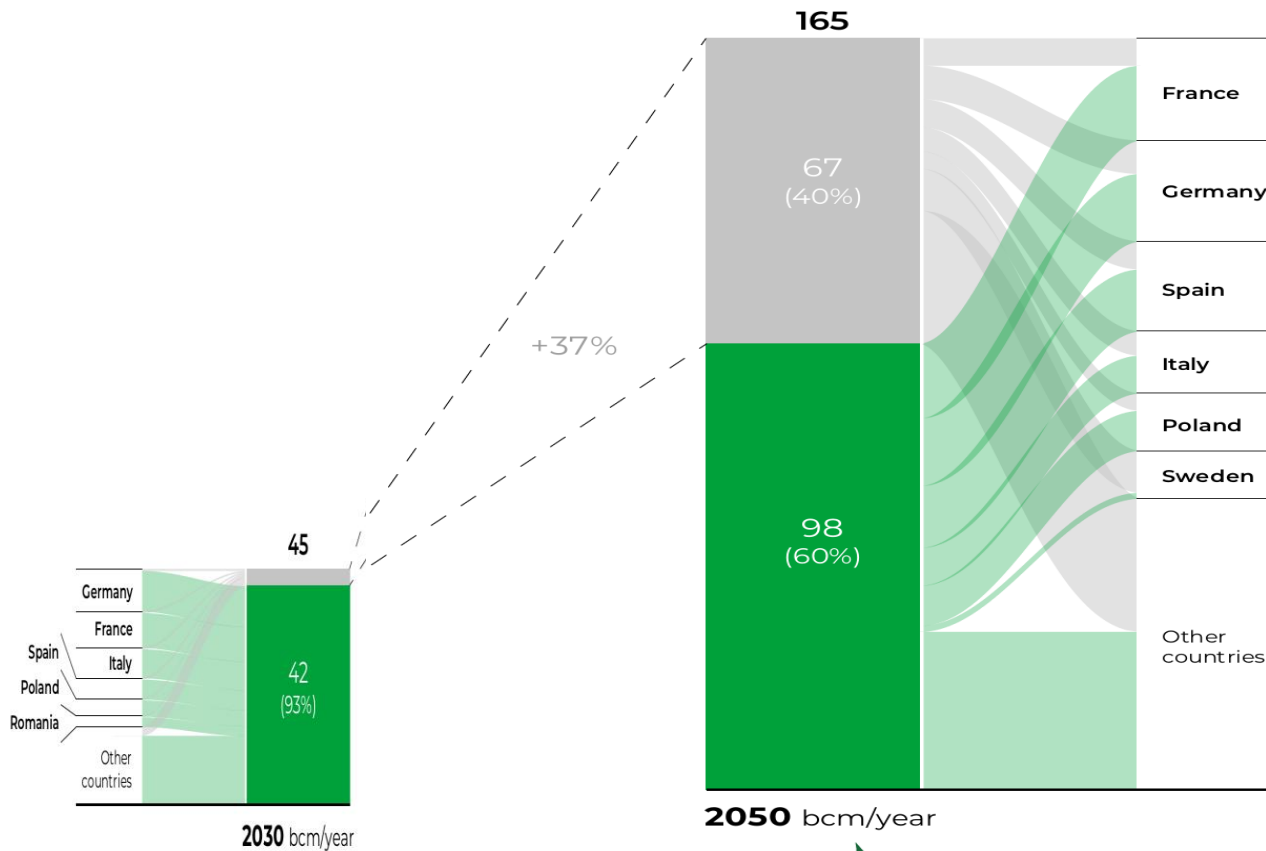


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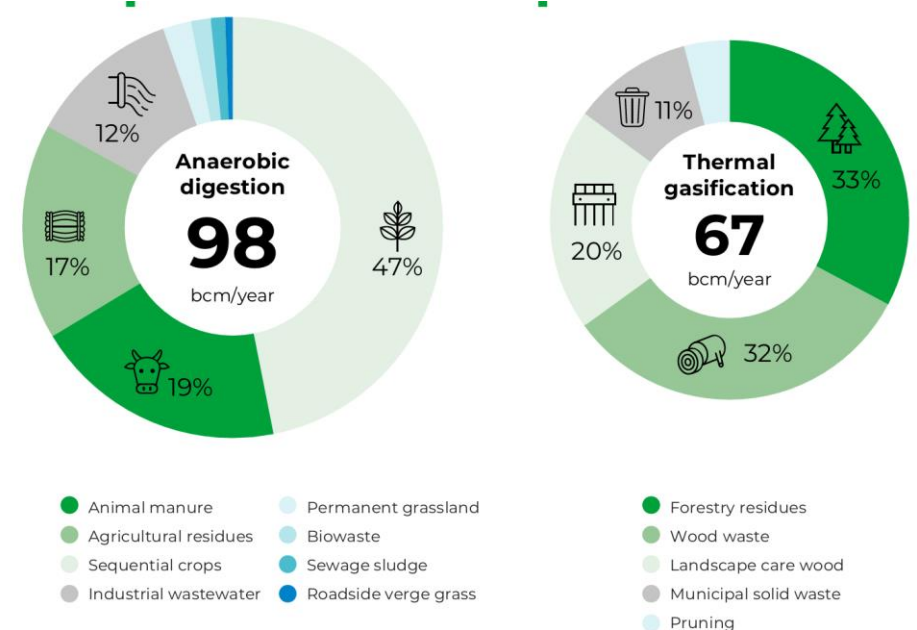


How much biomethane can be developed in Europe ?

Potential by geography



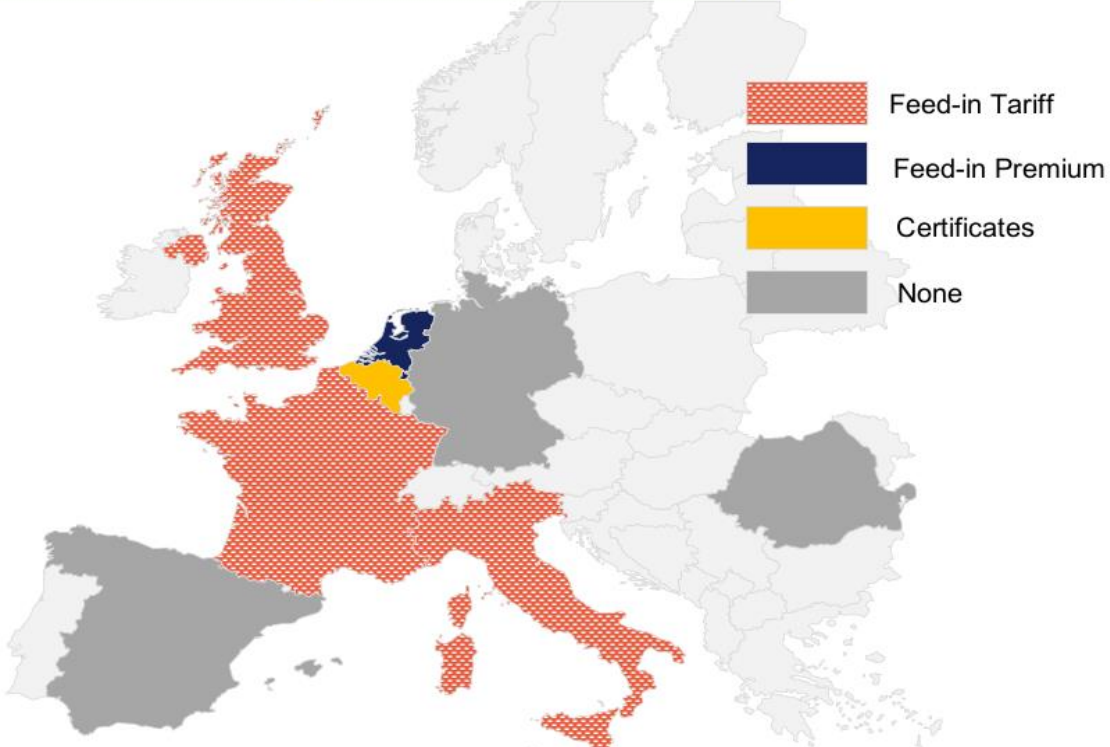
Potential by feedstock



Challenges for the development of biomethane production

Regulation & cross-border trading

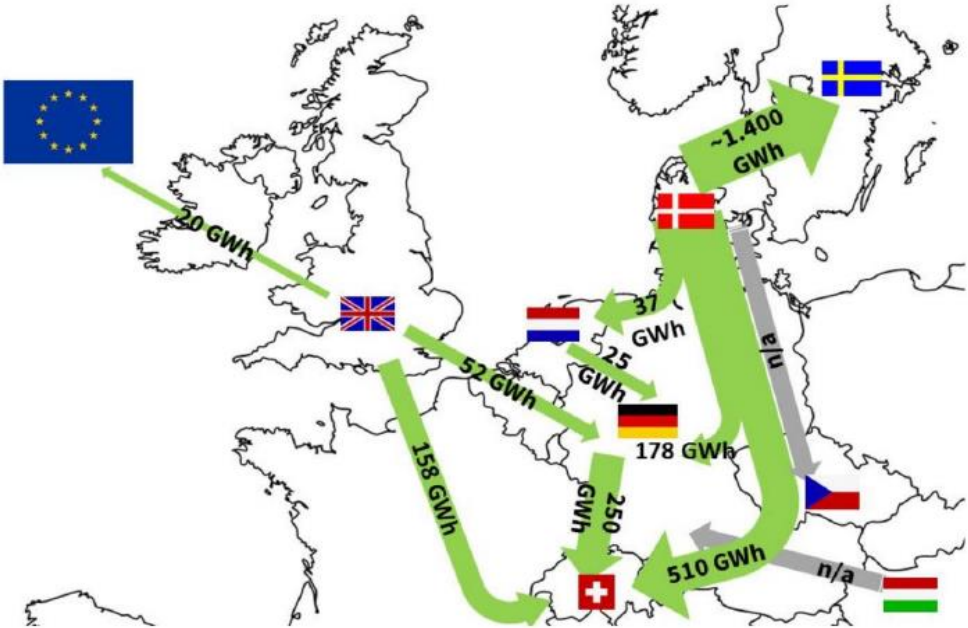
Challenges to overcome as support schemes are not aligned in all countries, with still a deep need for a harmonized cross-border trading scheme across Europe



Support schemes in place with the biggest impact for the development of biomethane, excl. GoO

- The support that biomethane deserves as the most readily available renewable gas is not always there

DENA – Branchenbarometer Biomethan 2021 (2021)



Need to design and implement a European market for biomethane

- 2020: ~2 600 GWh cross-border trading of different types of certificates