

# WEBINAR

## Dig Deep!

FRIDAY 23 FEBRUARY 2024

10H – 11H30 AM CET

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## Greening Gas Grids: Navigating Biomethane Grid Connection

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Biomethane Industrial  
Partnership

# Welcome

## Giulia Cancian

*Secretary General  
European Biogas Association*



# Welcome

## Rules of the webinar

- The webinar is recorded and will be shared on EBA Youtube Channel. The slides will be available on EBA website Event section.
- Questions can be written in the Q&A box and upvoted. Most popular questions to be answered.

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

# Agenda

**10:00**

**Welcome**

Giulia Cancian, Secretary General, EBA

**10:05**

**Biomethane Grid Connection today**

Mieke Decorte, Technical Director, EBA

**10:15**

**Enabling Grid access : Introducing the Hydrogen and Decarbonised Gas Package**

Anthony Lorin, Senior Policy Analyst, EBA

**10:25**

**Grid injection checklist: Cost-sharing, gas quality, injection fees**

George Osei Owusu, Technical and Project Officer, EBA

**10:35**

**Quality requirement for Biomethane injection**

José Alfred Lana Calvo, Chair Working Group Gas Quality, Marcogaz

**10h50**

**Optimization of Biomethane Grid injection**

José Catela Pequeno, Lead Subgroup Task Force 4.4, Biomethane Industrial Partnership

**11h05**

**Q&A session and wrap up**

Giulia Cancian, Secretary General, EBA



# Biomethane Grid Connection today

## Mieke Decorte

*Technical Director  
European Biogas Association*



# Biomethane grid connection today

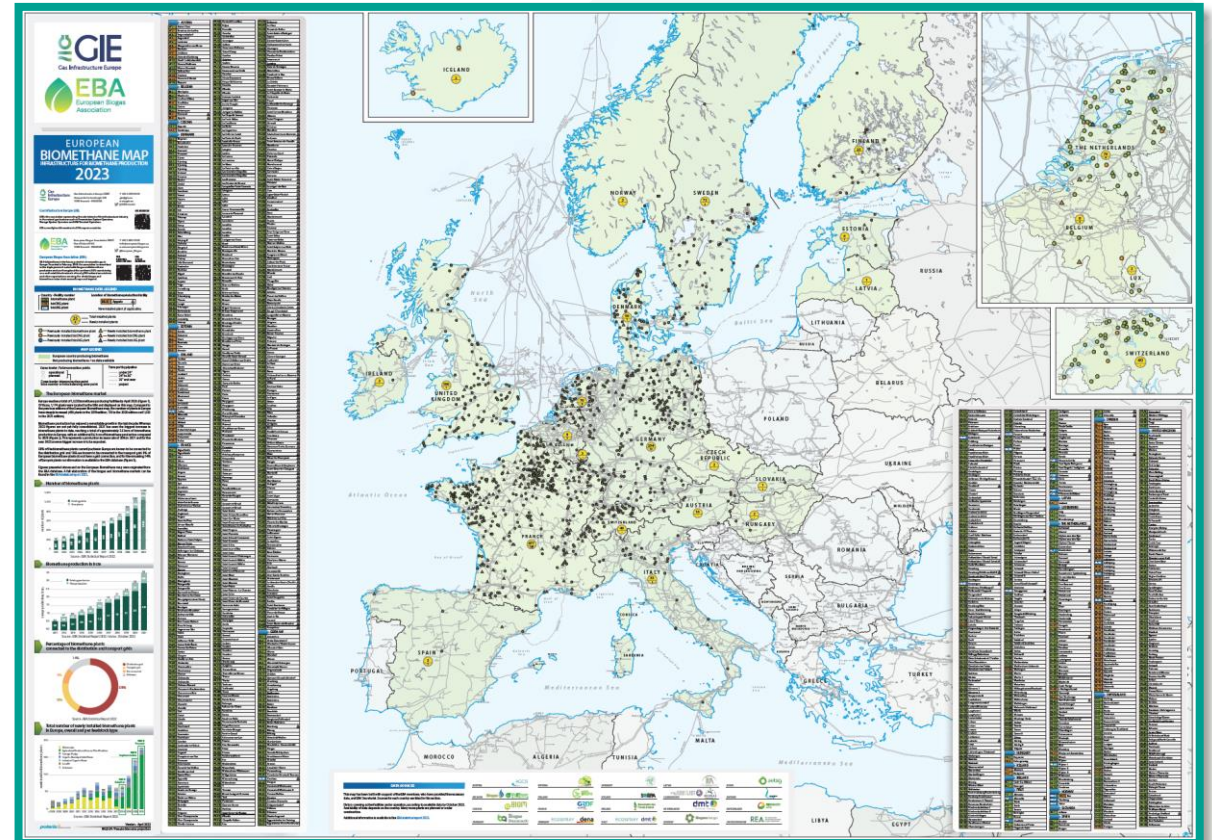
- > **1,400** plants active
- > **1,000** plants are grid connected
- 5,000** new plants to reach 35 bcm

In **24** European countries

- 2018: Belgium and Estonia
- 2019: Czech Republic
- 2020: Ireland, Latvia
- 2022: Slovakia
- 2023: Ukraine and Lithuania

**48 TWh (4.5 bcm)** installed production capacity  
at end of 2022

**44 TWh (4.2 bcm)** production in 2022 (+ 18%  
YoY)



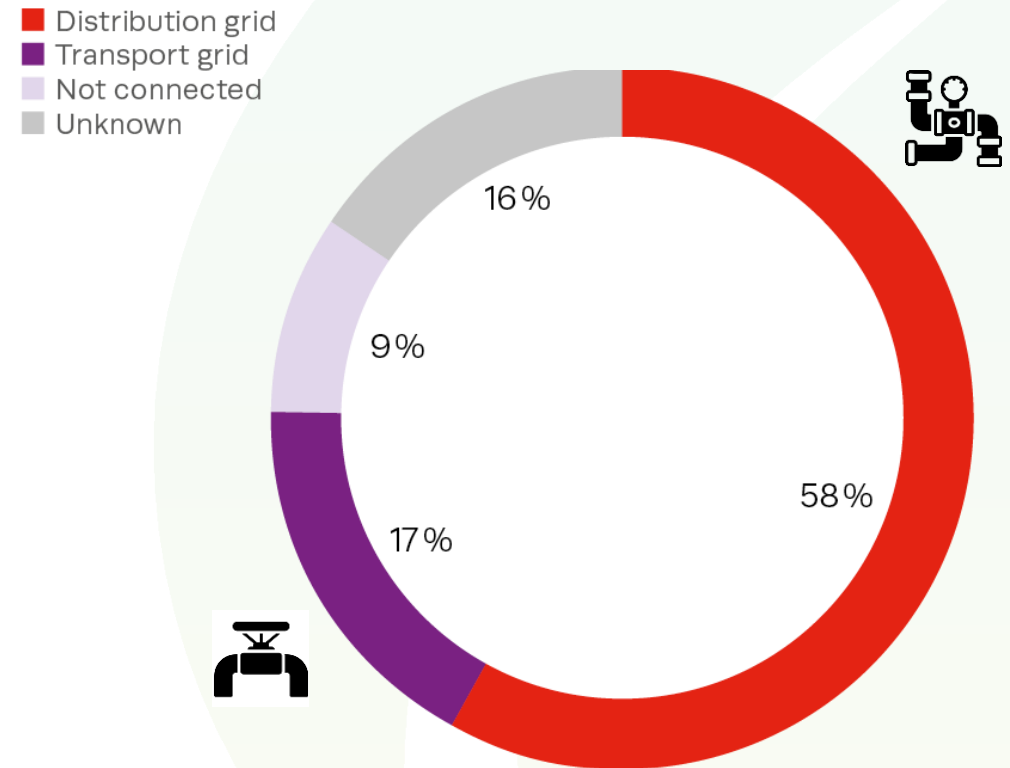
# Biomethane grid connection today

**58%** connected to distribution grid

**19%** connected to transmission grid

- **Transmission grids**, operated by the TSO's
  - High pressure pipelines, suited for larger plants
- **Distribution grids**, operated by the DSO's
  - Lower-pressure, suited for all plants
  - Delivery to homes, business
- **Off-grid**
  - Bio-CNG, Bio-LNG, self-consumption

Different conditions and agreements applicable



# Two types of grids

Differences in type of connection per country influenced by:

- Vicinity of the grid
- Plant size

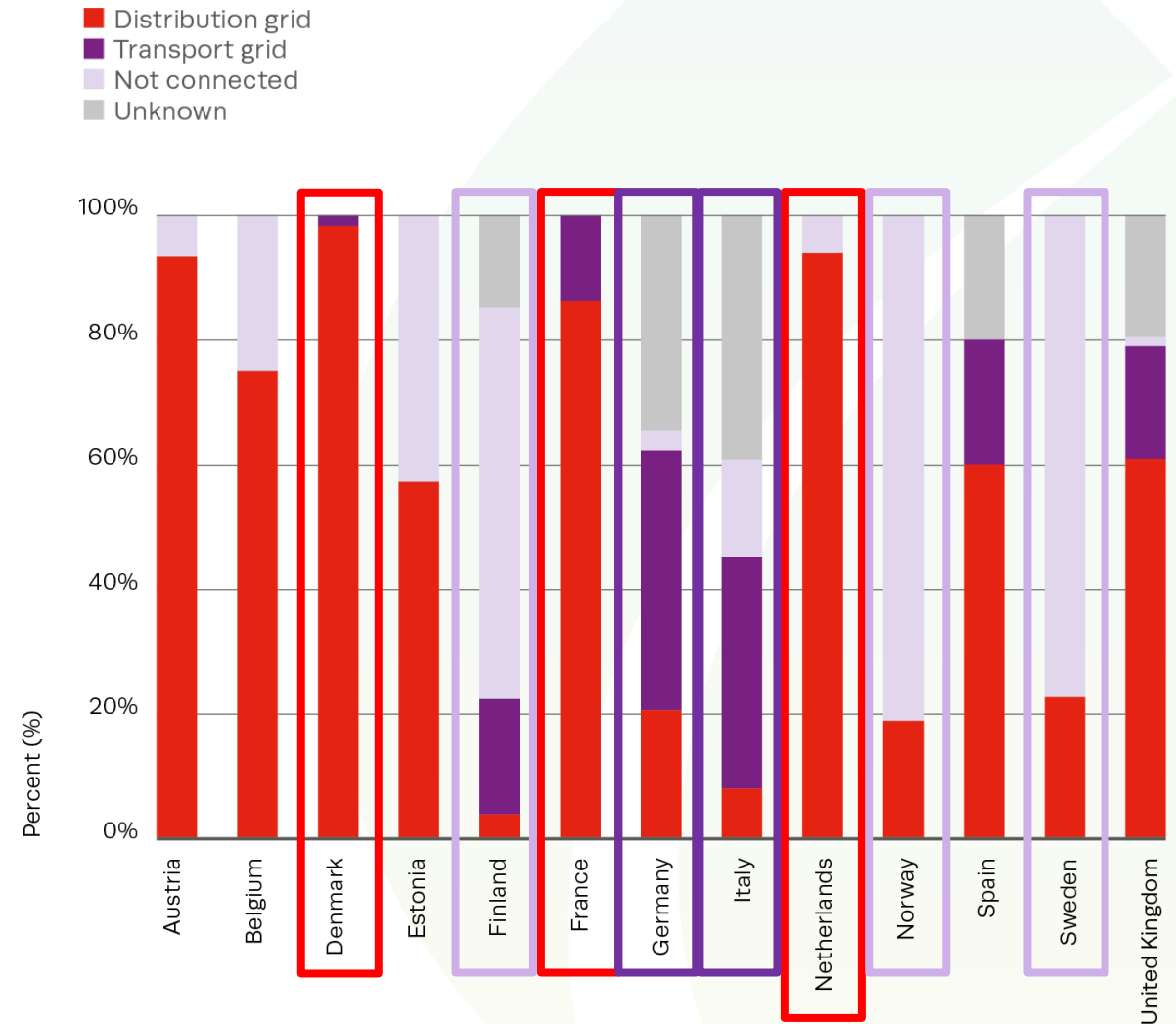


**Distribution grid:** Denmark, France, Netherlands



**Transmission grid:** Germany, Italy

**Off-grid:** Sweden, Norway, Finland



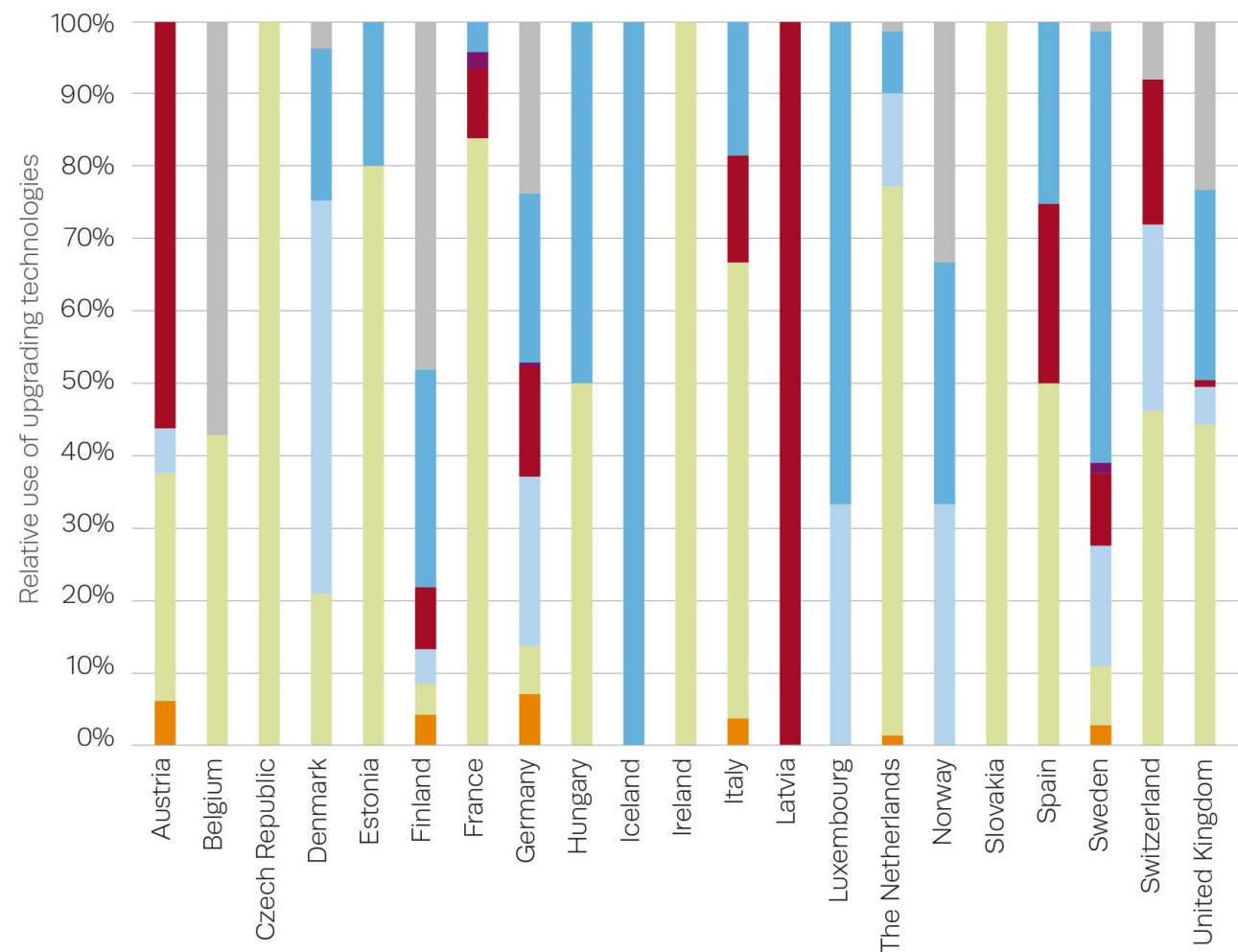
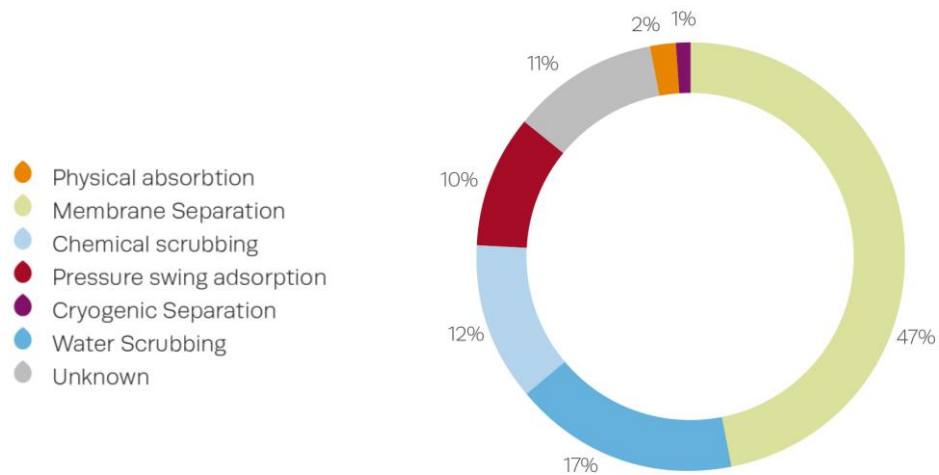


# A range of upgrading technologies

Range of upgrading technologies

➔ different characteristics of the biomethane.

Need for gas quality measurement and metering systems



# Why grid connection regulations?

1. Lack of rules/regulations hinders grid connection
2. Ensure gas quality requirements are met (e.g. different oxygen requirements between countries)
3. Allowing the free trade of gas cross borders
4. Predictability and control of grid connection costs



**Grid connection  
regulations are key to  
ensure fast scale-up of  
biomethane production**



# THANK YOU!

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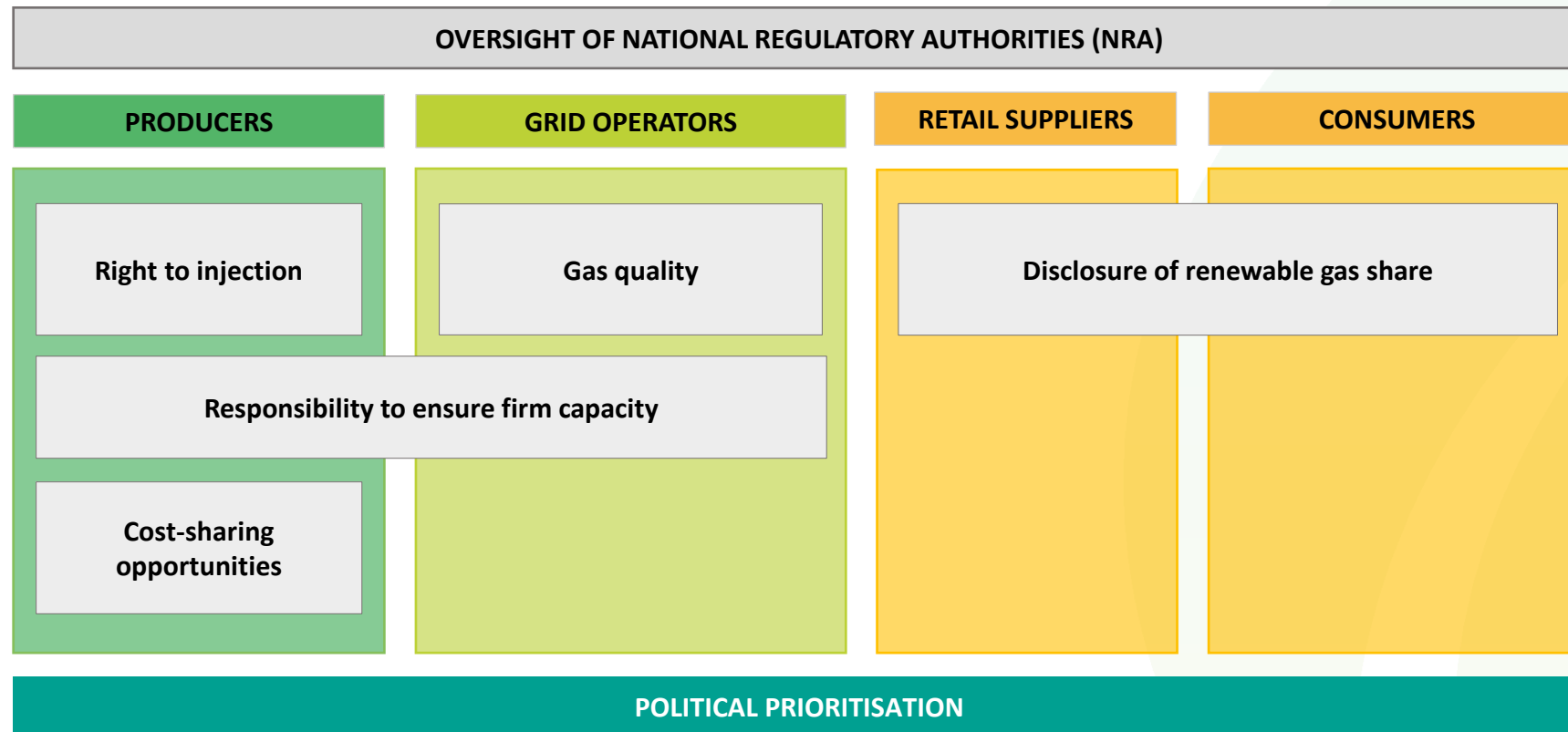
# Enabling Grid access : Introducing the Hydrogen and Decarbonised Gas Package

## Anthony Lorin

*Senior Policy Analyst  
European Biogas Association*



# The new Gas Package brings positive changes for the biomethane value chain





# Biomethane growth will get more visibility through regular reports and the possibility for the EC to make recommendations to Member States

## Target

- ❑ No mandatory target
- ❑ Role of biomethane legitimized in 2 recitals

The *“integration of sustainable biomethane (...) supports the Union's climate objectives and helps to diversify the energy supply”*

Recognition that biomethane will still play a role in *“household consumption”*

## Monitoring of progress

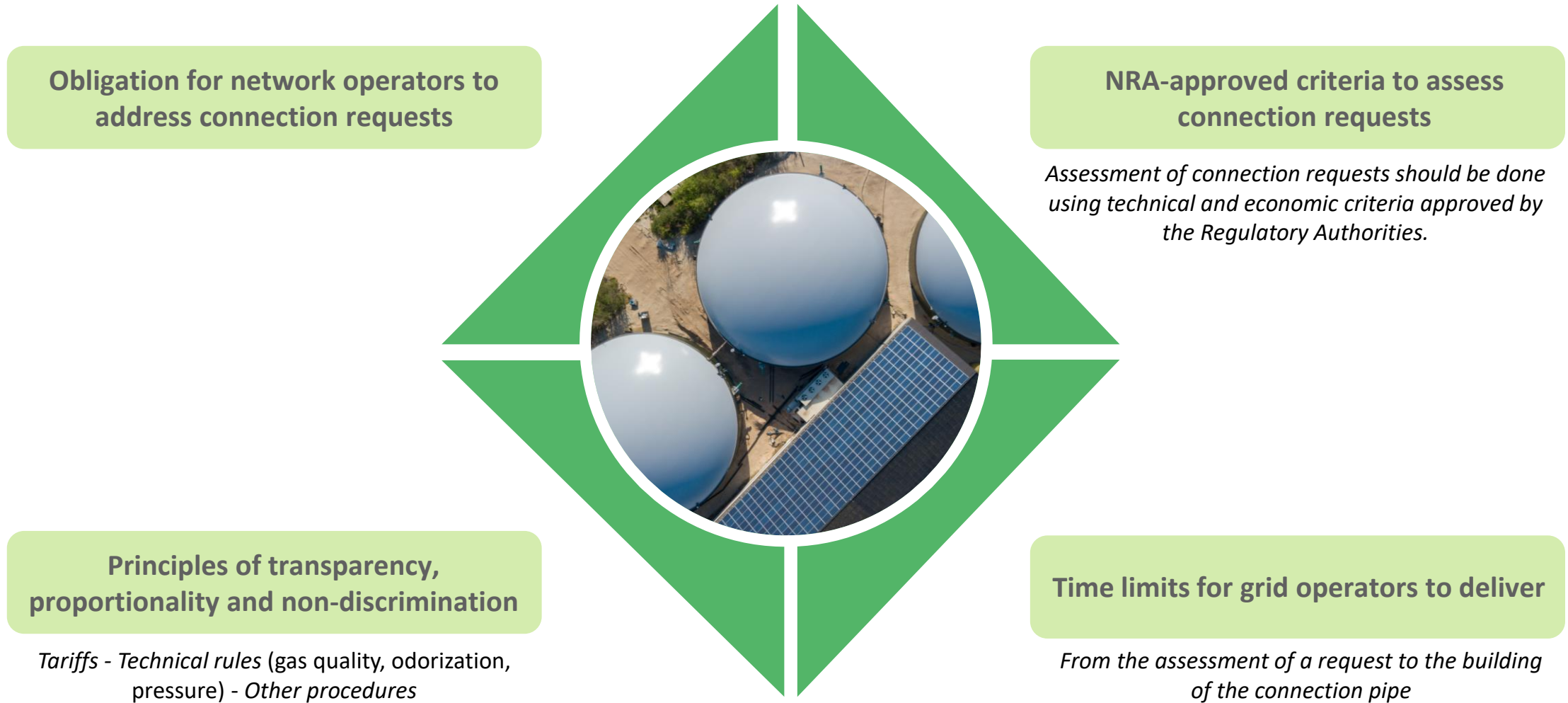
- ❑ Annual report on the quantity of **renewable and low-carbon gas injected** in the gas grid.
- ❑ Progress monitoring of the annual **production** of *“sustainable biomethane”* within the *Supply Adequacy Outlook*.
- ❑ By ENTSG.

## Commission empowered to make recommendations to Member States

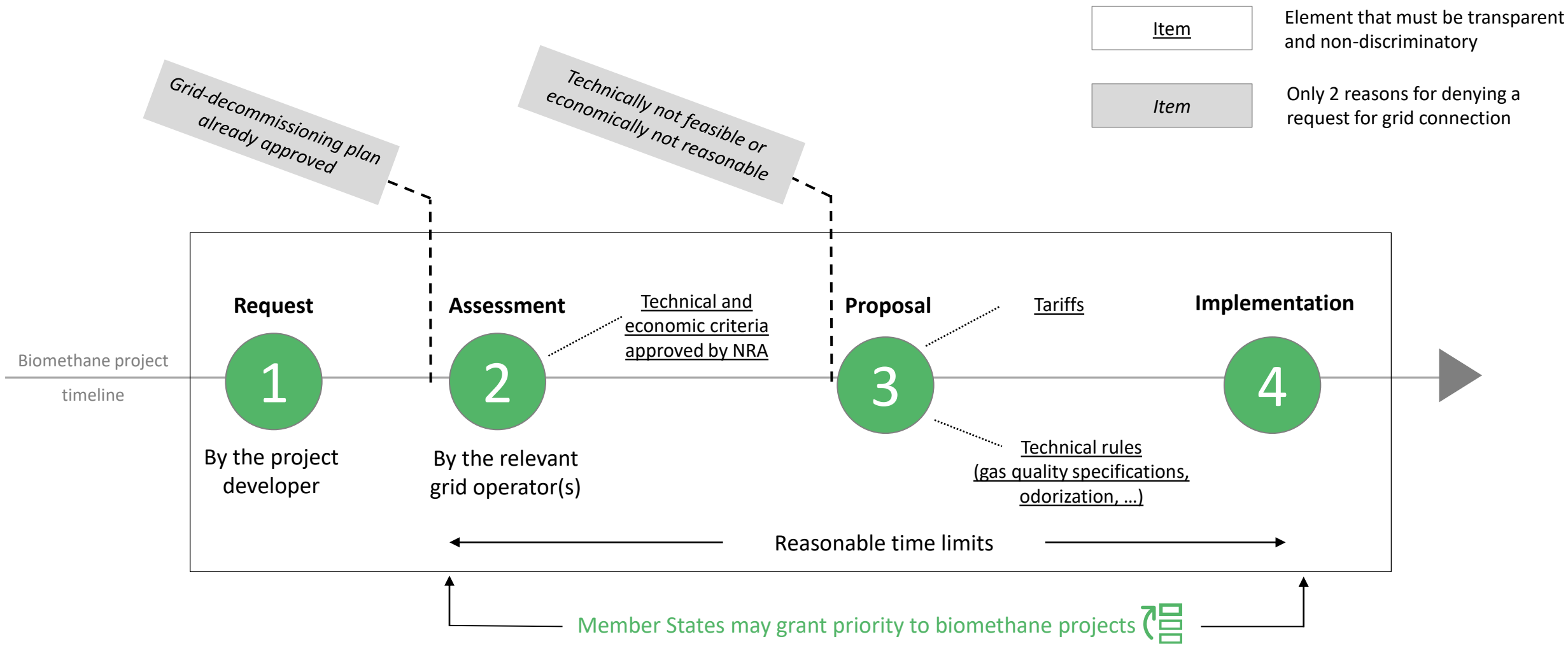
- ❑ **IF** *“Annual production of biomethane is not sufficiently progressing”*
- ❑ **OR IF** the natural gas consumption is not *“sufficiently decreasing in view of the available potential”*.
- ❑ Interpretation to be determined.
- ❑ Member States shall explain in their two-yearly progress report how the recommendations were considered in their national policies.

*“In case both the European supply outlook and the final updated national energy and climate plans show that the annual production is not sufficiently progressing or that the natural gas consumption is not sufficiently decreasing in view of the available potential, the Commission may issue recommendations to the Member States, if necessary to achieve the objectives of the Energy Union, according to Article 34 of the Regulation (EU) 2018/1999”*

# A right to injection will be implemented in all Member States



# The new Gas Package outlines common steps for the right to injection



# Biomethane producers can request continuous injection 24/7 year-round

## Firm capacity by default

- ❑ **Responsibility of TSOs and DSOs to ensure continuous injection** (*“firm capacity”*), including by means of grid reinforcements.

## Cooperation among TSOs and DSOs

- ❑ **Grid operators must cooperate with each other:**
  - ❑ TSO – DSO cooperation
  - ❑ DSO – DSO cooperation
- ❑ The Regulation identifies non-exhaustive list of ways to ensure firm capacity:
  - **“Reverse flow”** from distribution to transmission networks.
  - **“alternatives to reverse flow investments**, such as smart grid solutions or connection to other network operators including direct connection”.

## Conditional capacity under limited number of cases

- ❑ Only 2 reasons are set for *“conditional capacity”*:
  - *“infrastructure safety”*,
  - *“economic efficiency”*.
- ❑ Decisions of TSO/DSO to grant *“conditional capacity”* shall be made *“on the basis of transparent and non-discriminatory procedures”* and under oversight of the NRA.

# Producers may get immediate tariff discounts while the full framework on connection costs will have to be negotiated at national level

## 100% tariff discount

- **On the tariff applied to the volume of gas injected in the gas grid.**
- The Commission shall re-examine the tariff reductions every 5 years.
- Derogation possible (decision by the NRA):

*“the application of discounts (...) is not necessary due to the degree of advancement of the roll-out of renewable gas and low-carbon gas in the Member State concerned or the existence of alternative support mechanisms for scaling up the use of renewable gas or low-carbon gas.”*

## General obligation to provide an “enabling framework”

*Art. 52c, 1. Member States shall provide an enabling regulatory framework for biomethane production facilities in relation to connection fees and costs resulting from their connection to the transmission or distribution networks.*

The framework will have to **take into account**:

- “the need for stable financial frameworks for existing investments”,
- “the advancement of the roll-out of renewable gas and low-carbon gas in the Member State” ,
- “the existence of alternative support mechanisms for scaling up the use of renewable gas or low carbon gas”,
- “the energy efficiency first principle applicable to network development” (Energy Efficiency Directive).



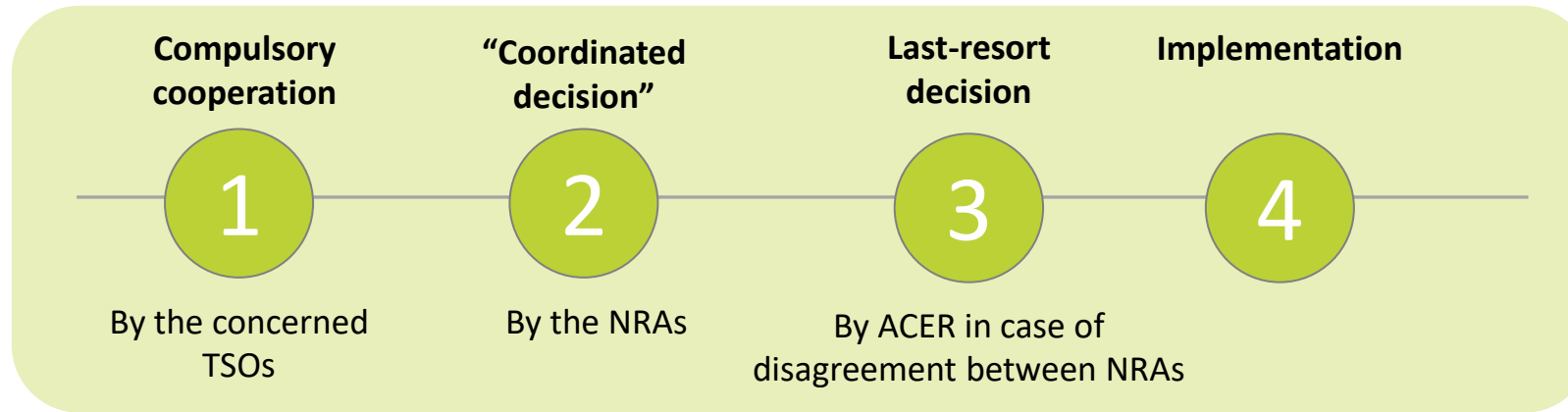
**Each Member State will have to strike a balance between facilitating grid connection of new capacities and the recovery of grid operators' costs through tariffs.**



# Cross-border restriction based on gas quality differences will have to be overcome by cooperation

## Settlement procedure for cross-border gas quality issues

- When an issue on **gas quality difference** arise between two EU countries that leads to a **restriction to cross-border flows** that cannot be avoided by the concerned TSOs.
- A procedure is set out based on the **mandatory cooperation of TSOs**: developing a solution, a stakeholder consultation, a cost-benefits analysis and a breakdown of costs.



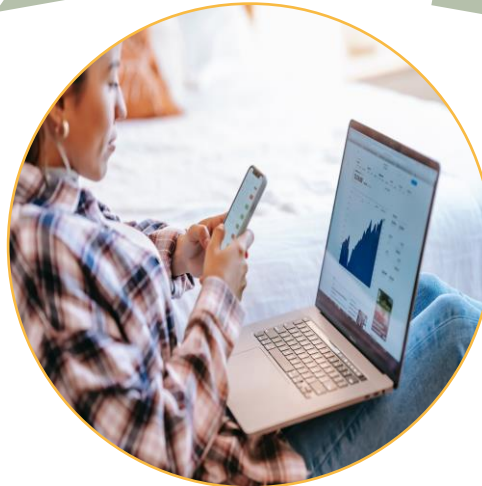
### Gas quality specifications

- **In case of lack of appropriate standards** for the *“cost effective integration of large volumes of biomethane in the existing natural gas system”*...
- **The European Commission is empowered to act as a last resort** by adopting common specifications for biomethane injection.
- The official CEN process remains the first and main standardisation pathway.

# Renewable gases will be visible on consumers' bills, contributing to general public awareness

## Share of renewable gas supplied to customers

- **The share of renewable gas purchased by the final customer will have to be disclosed by retail suppliers.**
- *"In case of a mixture the supplier shall provide the same information separately for different categories of gas".*
- Retail suppliers shall back their claims by using **Guarantees of Origin**.



## Disclosure about the mix of the supplier

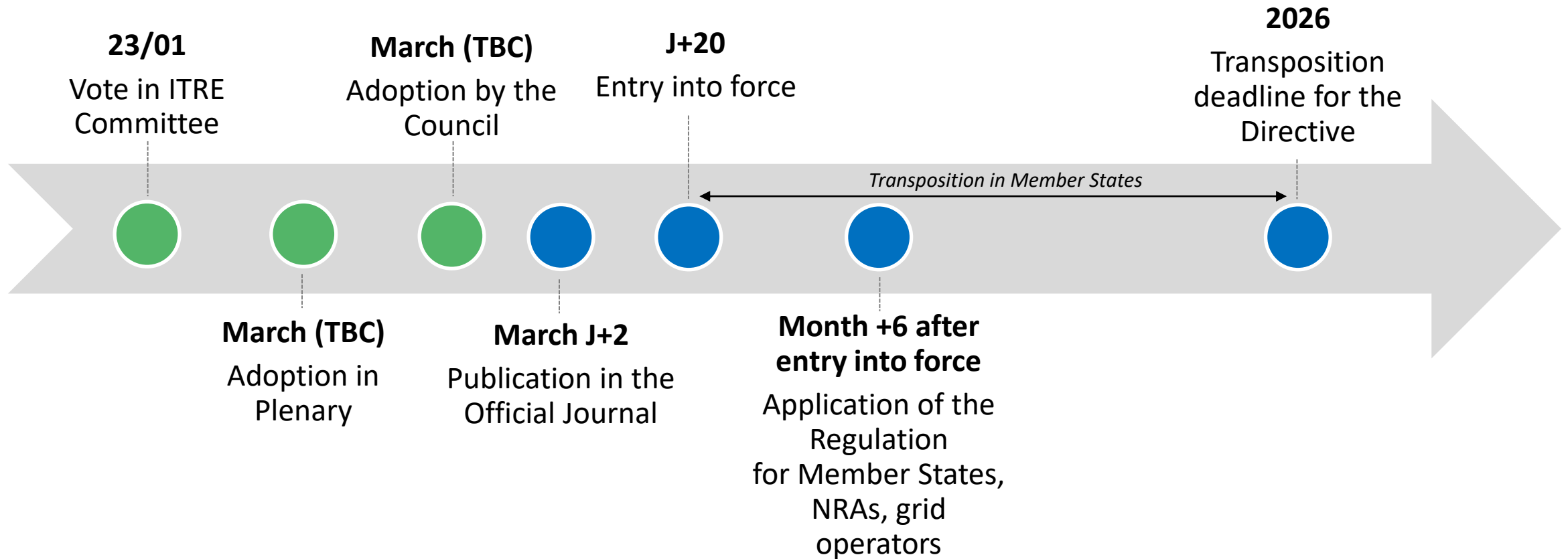
Suppliers shall inform customers along with their bills about:

### **A/ Share of renewable gas + Share of low-carbon gas**

- In their national supply mix
- At the level of the supplier if active in several Member States

**B/ "Information on the environmental impact, in at least terms of CO2 emissions" resulting from the gases supplied by the supplier over the preceding year.**

# The Gas Package will be implemented by Spring 2026





# THANK YOU!

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# Grid injection checklist: Cost-sharing, gas quality and injection fees

**George Osei Owusu**

*Technical and Project Officer  
European Biogas Association*





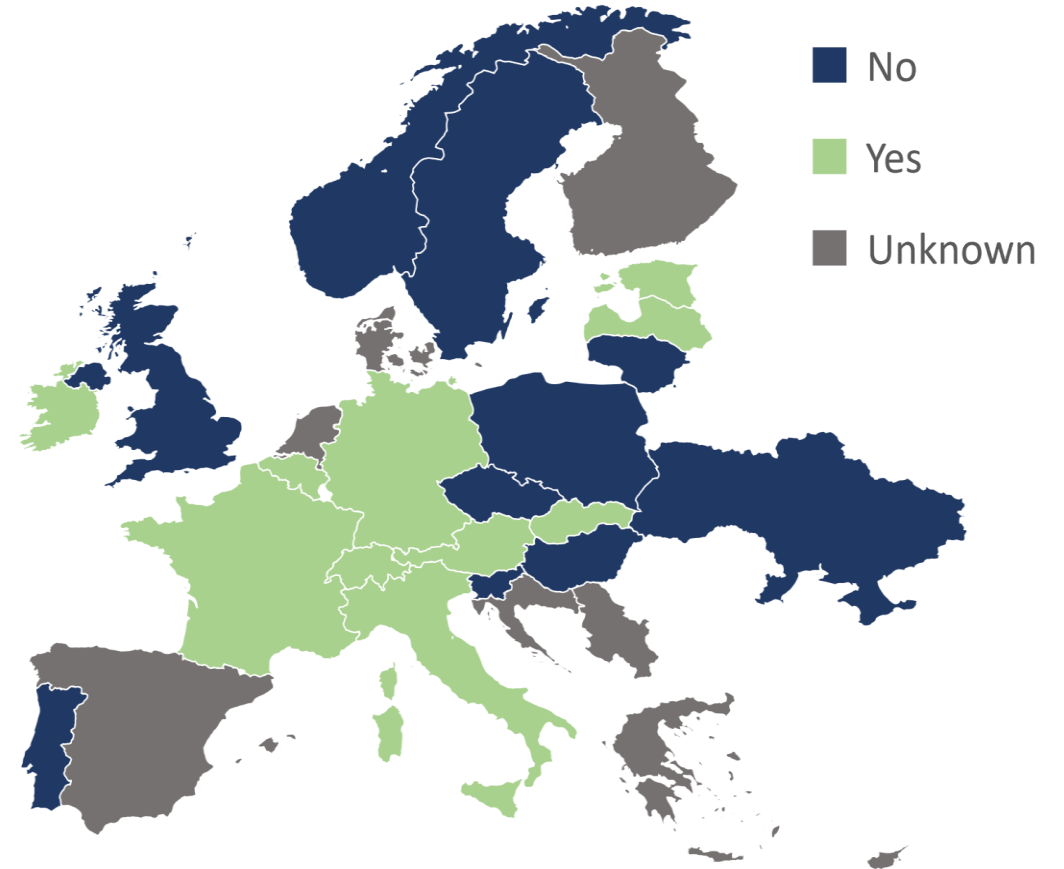
# Grid Connection – Cost Sharing

## Grid connection cost covers

1. Cost for injection station.
2. Cost for constructing gas pipelines to injection points.

Depends on several factors:

- Location, size and capacity of the plant,
  - The extent of coverage of the existing infrastructure of the network.
- 
- Applicable in 10 countries.
  - 10 countries do not share connection cost.
  - 8 countries - situation is unknown.



*Distribution of Grid connection cost shared in Europe*

# Grid Connection – Cost Sharing

France – Grid operators (either TSO or DSO) takes 60%. Investment limit of 600 000€.

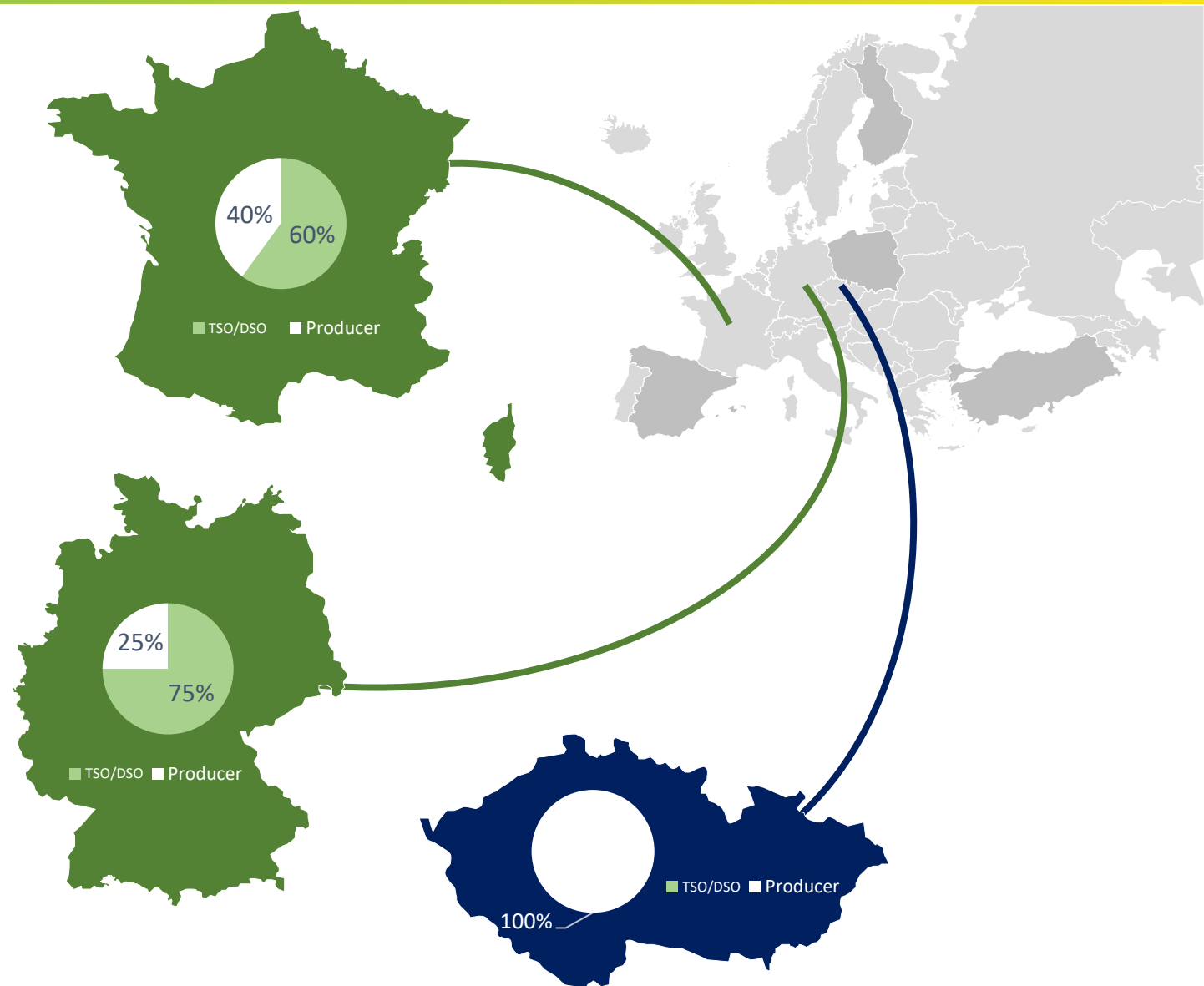
- Reinforcement Investment/Additional Volume of injected biomethane

Germany – Biomethane producer takes 25% of the construction cost and the grid operator takes 75%.

- Biomethane producer pays for extra distance.

Czech Republic - No cost for TSO/ DSO.

- Biomethane producer can sell to Grid operators.



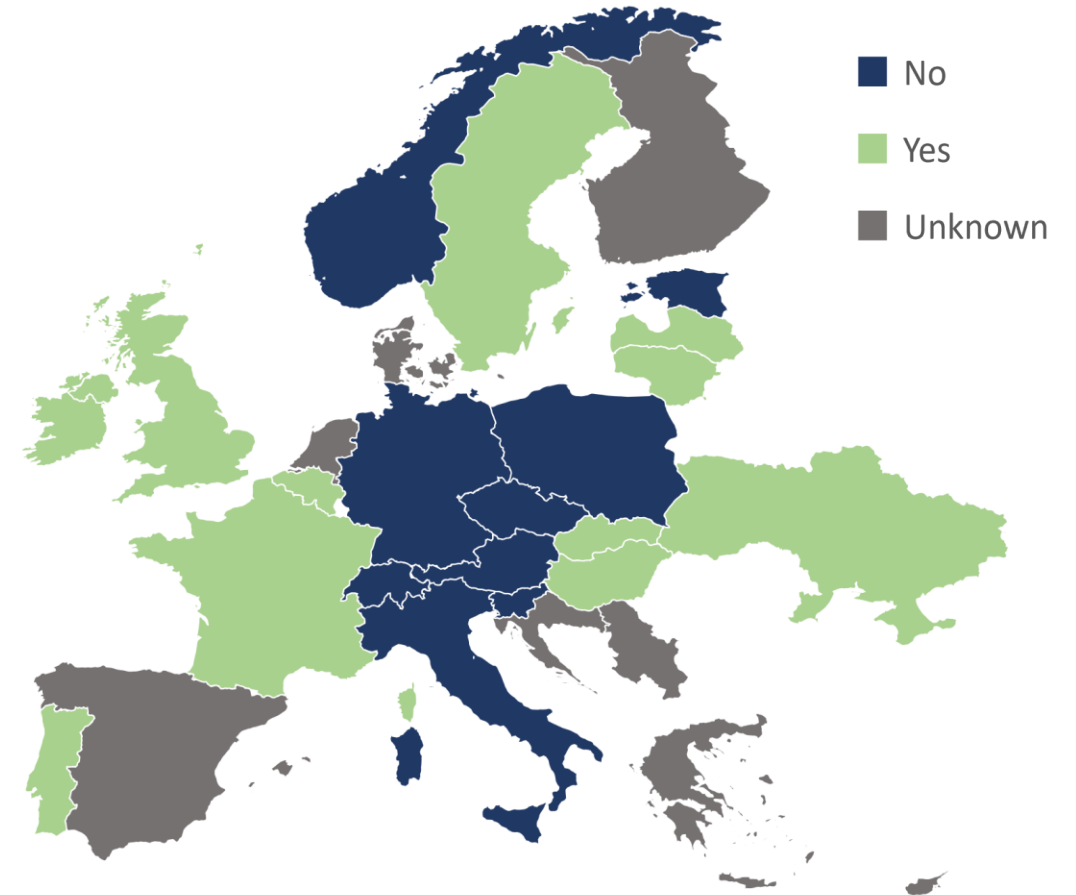
# Grid Connection – Injection Fees

Injection fee charges related to:

- Installation and maintenance of metering and measurement systems.
- Grid access charges.
- Costs for ensuring gas quality.

Injection fee applicability:

- Applicable in 11 countries.
- 9 countries do not have injection fees.
- 8 countries – situation unknown.



### Distribution of Grid connection injection fee in Europe

# Grid Connection – Injection Fee

## France

- Skid rental (exploitation & maintenance)
- Gas quality metering and odourisation.

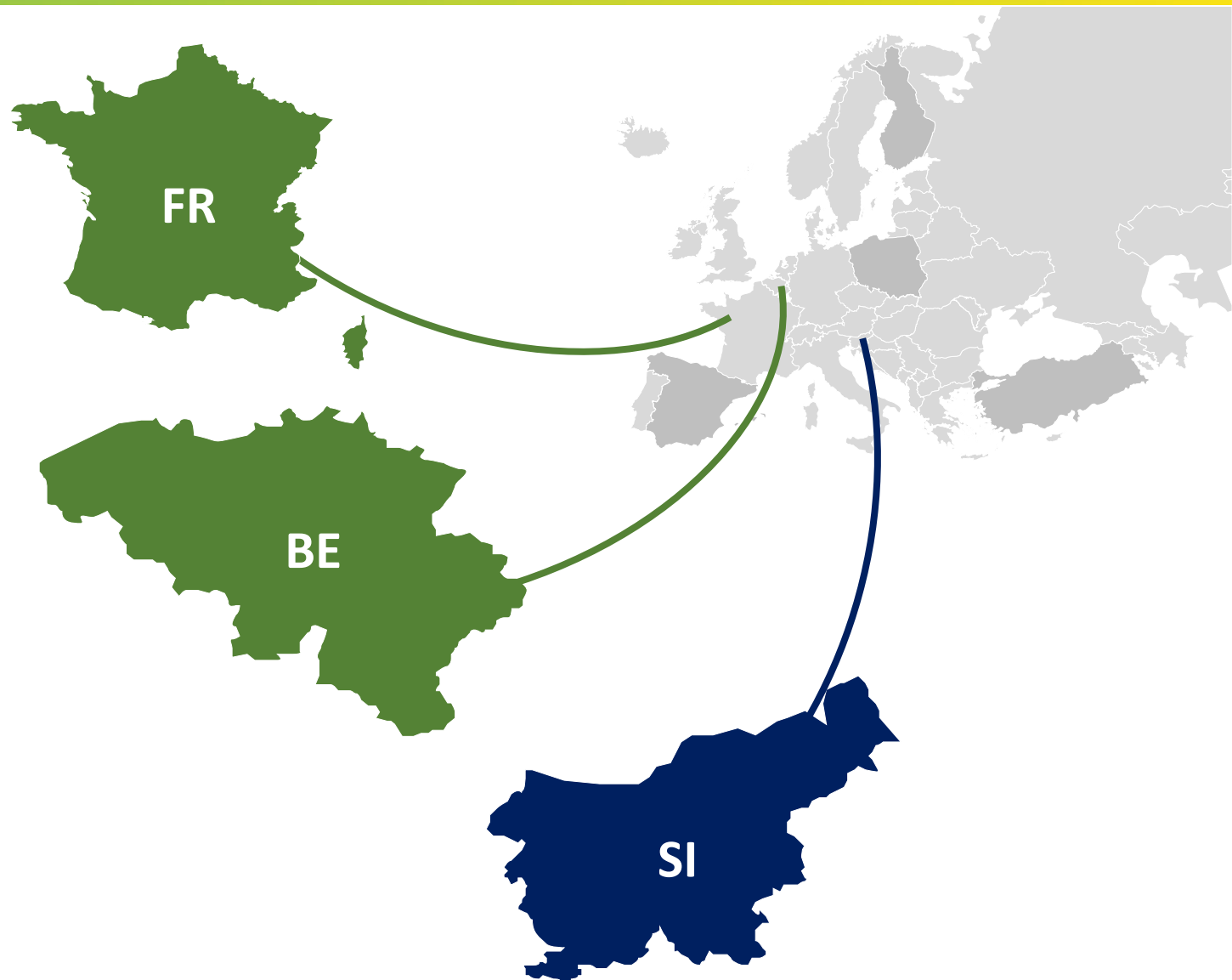
DSO: approx. 15k€ /trimester i.e. 45k€/year

TSO: approx. 450k€ for injection skid installation

Belgium – Wallonia average injection fee 1 €/MWh injected with a cap of 50,000€ per year

- Flanders tariff is determined by the VREG (Flemish gas market regulator) and amounts to ±€0.64/MWh.

Slovenia - No legal regulations regarding the costs of entering the distribution system.

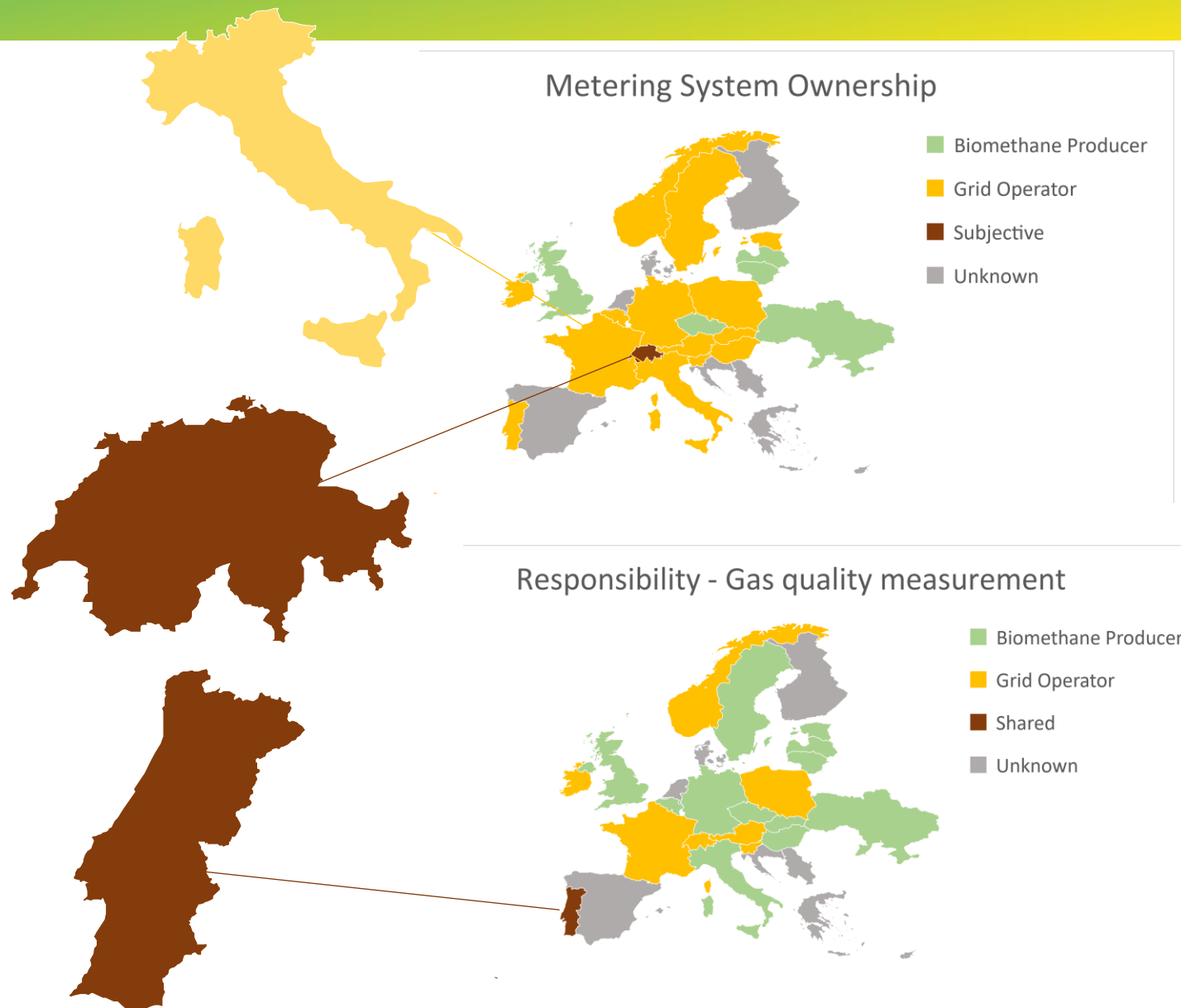


# Grid Connection – Gas Quality and Metering System

Italy – Gas quality measurement – Biomethane producer  
Metering System – Grid Operator, **transferable on request.**

Switzerland - Gas quality measurement - **Grid Operator.**  
Ownership of metering system **depends on agreement.**

Portugal - Shared responsibility for monitoring the quality of the biomethane injected.



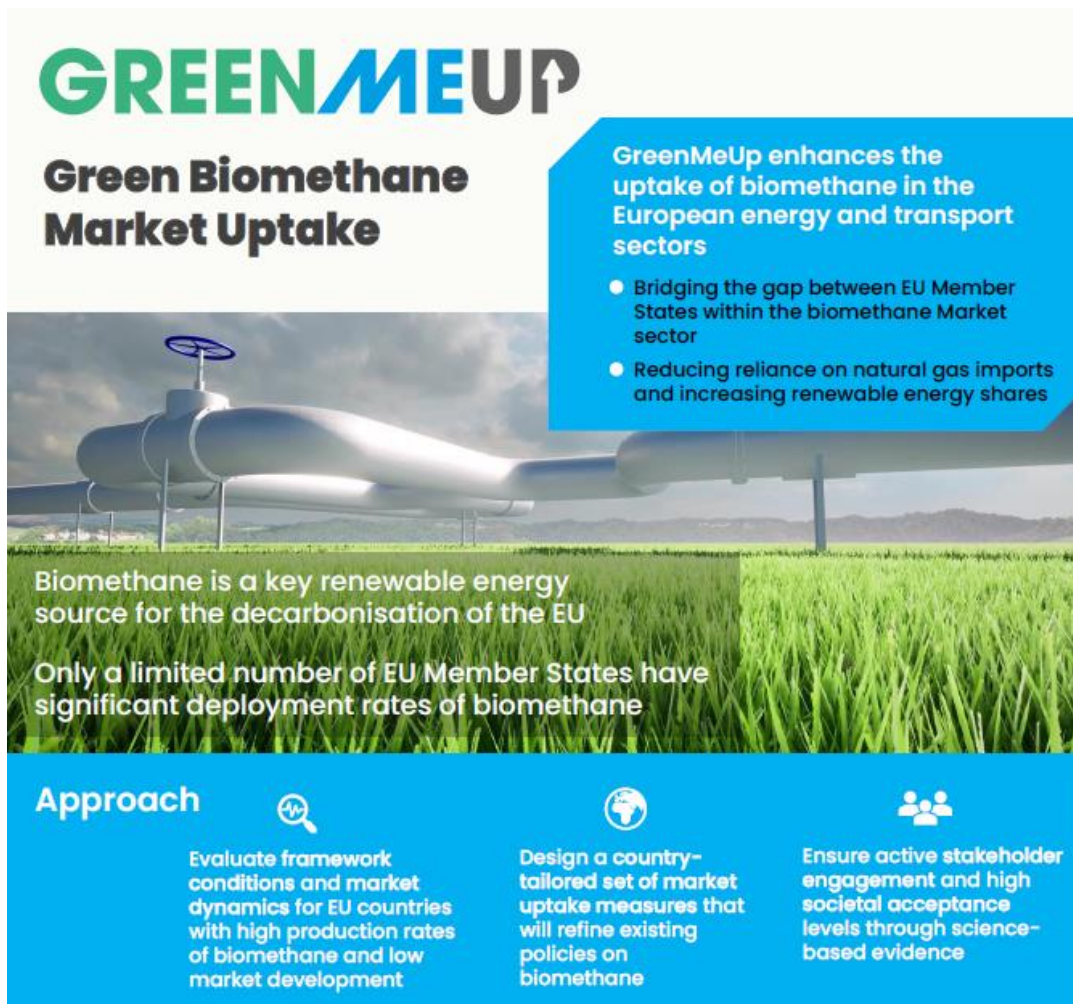


# GreenMeUp Project

More information on project:  
[GreenMeUP – Enhancing the uptake  
of biomethane in Europe  
\(greenmeup-project.eu\)](https://www.europeanbiogas.eu/wp-content/uploads/2024/02/GreenMeUp-Variations-in-Natl.-Grid-Connection.pdf)

Read the full report here:  
[https://www.europeanbiogas.eu/wp-  
content/uploads/2024/02/GreenMeUp-  
Variations-in-Natl.-Grid-Connection.pdf](https://www.europeanbiogas.eu/wp-content/uploads/2024/02/GreenMeUp-Variations-in-Natl.-Grid-Connection.pdf)

[Results – GreenMeUP \(greenmeup-  
project.eu\)](https://www.europeanbiogas.eu/wp-content/uploads/2024/02/GreenMeUp-Variations-in-Natl.-Grid-Connection.pdf)



**GREENMEUP**

**Green Biomethane  
Market Uptake**

GreenMeUp enhances the uptake of biomethane in the European energy and transport sectors


- Bridging the gap between EU Member States within the biomethane Market sector
- Reducing reliance on natural gas imports and increasing renewable energy shares

Biomethane is a key renewable energy source for the decarbonisation of the EU

Only a limited number of EU Member States have significant deployment rates of biomethane

**Approach**

- Evaluate framework conditions and market dynamics for EU countries with high production rates of biomethane and low market development
- Design a country-tailored set of market uptake measures that will refine existing policies on biomethane
- Ensure active stakeholder engagement and high societal acceptance levels through science-based evidence



**VARIATIONS IN NATIONAL  
REGULATIONS WITH  
RESPECT TO BIOMETHANE  
GRID CONNECTION**

**GREENMEUP**

European Union flag logo

# EBA Policy Dashboard – Access to full information and Maps

## Grid Connection Dashboard

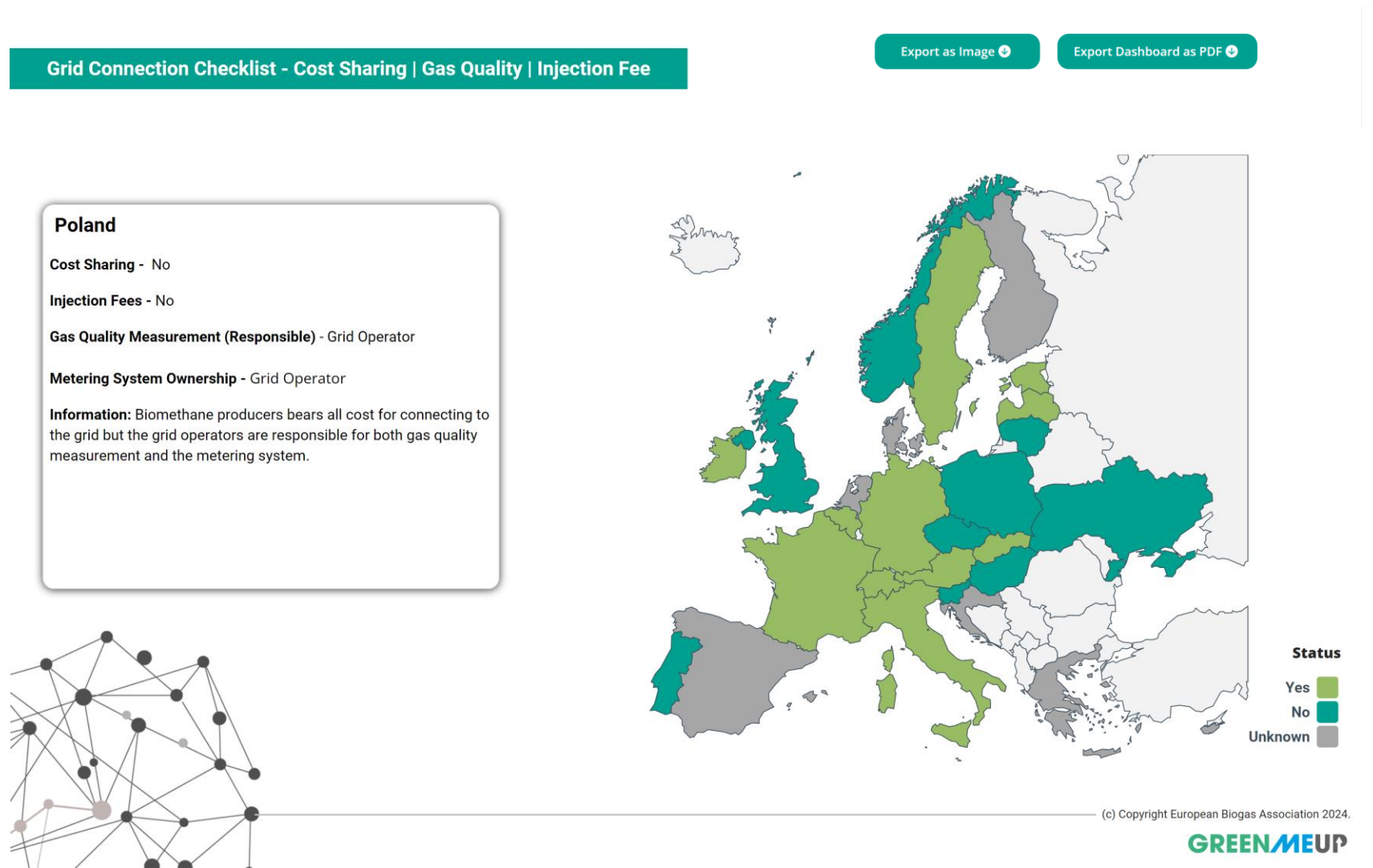
Access the Dashboard here:

[EBA \(europeanbiogas.eu\)](https://europeanbiogas.eu)

Available for EBA Members.

## Other Dashboards available:

- Guarantee of Origins
- Biomethane Targets
- Support Schemes





# THANK YOU!

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# Quality requirements for Biomethane injection

**José Alfred Lana Calvo**

*Chair Working Group Gas Quality, Marcogaz  
European Biogas Association*







Technical Association of the European Gas Industry

# Quality requirement for biomethane injection

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José A. Lana, Chairman of the WG Gas Quality

EBA webinar, *Greening Gas Grids: Navigating Biomethane Grid Connection* – 23/02/2024

# Natural gas quality in Europe

## 🔥 *Natural gas quality is a right of each country in Europe*

- 🔥 *Each country defines its qualities requirements*
  - 🔥 *There are slight differences between countries*
- 🔥 *This has work well in the past and only minor issues have appeared in the trading of natural gas between countries.*

## 🔥 *Anyway, European Commission wanted the highest harmonization possible amongst European countries*

- 🔥 *Mandate M/400 launched in 2007*
- 🔥 *Publication of EN16726:2015: **Gas Infrastructure. Quality of Gas. Group H***
  - 🔥 *The standard was published without Wobbe index or calorific value ranges for natural gas*
  - 🔥 *Oxygen requirement was quite strict to protect sensitive gas users*
  - 🔥 ***The application of a standard is voluntary**, except a regulation impose it*
- 🔥 *EN16726 is currently under revision*



# Biomethane quality in Europe

🔥 *Biomethane quality is a right of each country in Europe*

🔥 *Each country defines its qualities requirements, in line with natural gas ones*

🔥 *Anyway, European Commission wanted the highest harmonization possible amongst European countries*

🔥 *Mandate M/475 launched in 2010*

🔥 *Publication of EN16723-1:2016: Natural gas and biomethane for use in transport and biomethane for injection in the natural gas network – Part 1: Specifications for biomethane for injection in the natural gas network*

🔥 *There were agreement that common parameters with natural gas (S, O<sub>2</sub>, CO<sub>2</sub>, ...) shall be the same than in EN16726:2015*

🔥 *Only parameters specific for biomethane (Si, CO, NH<sub>3</sub>, ...) were defined*

🔥 *EN16273-1 has been confirmed by CEN up to 2026*

🔥 *There is a working group in CEN/TC408 collecting information for a future revision*

# Biomethane specification for injection in Europe

Each country defines its own quality requirements, in line with natural gas ones

Depending on the country is a National regulation or a company specification or ...

MARCOGAZ compiled specifications for biomethane injection in Europe

Document dated 2019 with the requirement in 12 EU countries

Available in [MARCOGAZ website](https://www.marcogaz.eu)

It will be updated in 2Q-2024 with information in 14 EU countries

Requirements are different from country to country

Only in Sweden, specification is referred to EN16723-1:2016

Wobbe index is defined in 10 countries

Some countries differentiate between H or L natural gas

Gross Calorific Value is defined in 8 countries


Some countries differentiate between H or L natural gas

Relative density is defined in 8 countries

All countries define values for sulphur components, CO<sub>2</sub> and O<sub>2</sub>

Different from country to country

Other minor components/traces (CO, NH<sub>3</sub>, Cl/F, BTEX, ...) are defined depending the country



WG\_GQ-187-BiomethaneSpecificationsForInjection

5/02/2019

Quality values required by legislation in some countries in Europe  
for biomethane injection into natural gas network  
(Revision 5<sup>th</sup> February 2019)

	FR	NL <sup>4</sup>	ES	SE	DE	CH	AT	IT	DK	GB <sup>2</sup>	BE	CZ
GCV (kWh/m <sup>3</sup> )	9.5 – 10.5 (L) 10.7 – 12.8 (H)		10.23-13.23		8.4-13.1	10.7 – 13.1	9.9-12.8	9.71-12.58			9.52 – 10.75 (L) 10.81 – 12.79 (H)	Value ± 1% of average GCV in gas network for last month at the place of injection (general range for gas network is 9.4-11.8)
W <sub>i</sub> (kWh/m <sup>3</sup> )	12.5 – 13.06 (L) 13.64 – 15.70 (H)	43.46-44.41 MJ/m <sup>3</sup>	13.368-16.016		11.0 – 13.0 (L) 13.6 – 15.7 (H)	13.3 – 15.7	13.5-15.5	13.14-14.54	14.1-15.5	13.82 – 15.05	12.19 – 13.03 (L) 13.65 – 15.78 (H)	
Relative density	0.555-0.70		0.555-0.70	0.555-0.7	0.55-0.75	0.55 – 0.70		0.555-0.7	0.555-0.7		0.555-0.70	
Reference conditions: Combustion / volume	0 <sup>o</sup> C / 0 <sup>o</sup> C, 103.25 kPa	25 <sup>o</sup> C/ 0 <sup>o</sup> C, 103.25 kPa	0 <sup>o</sup> C/ 0 <sup>o</sup> C, 103.25 kPa	15 <sup>o</sup> C/ 15 <sup>o</sup> C, 103.25 kPa	25 <sup>o</sup> C/ 0 <sup>o</sup> C, 103.25 kPa	?	?	15 <sup>o</sup> C/ 15 <sup>o</sup> C, 103.25 kPa	25 <sup>o</sup> C/ 0 <sup>o</sup> C, 103.25 kPa	15 <sup>o</sup> C/ 15 <sup>o</sup> C, 103.25 kPa	25 <sup>o</sup> C/ 0 <sup>o</sup> C, 103.25 kPa	15 <sup>o</sup> C/ 15 <sup>o</sup> C, 101.325 kPa
GCV <sup>6</sup> (MJ/m <sup>3</sup> , 15/15)	32.4 – 35.9 (L) 36.5 – 43.7 (H)		34.8 – 45.1		28.7 – 44.7	38.5 – 47.2 <sup>5</sup>	32.4 – 46.1 <sup>5</sup>	35.0 – 45.3			32.5 – 36.7 (L) 36.9 – 43.7 (H)	33.8 – 42.5
W <sub>W</sub> <sup>6</sup> (MJ/m <sup>3</sup> , 15/15)	42.7 – 44.6 (L) 46.6 – 53.6 (H)	41.23 – 42.13	45.5 – 54.5		37.6 – 44.4 (L) 46.4 – 53.6 (H)	47.9 – 56.5 <sup>5</sup>	40.6 – 55.0 <sup>5</sup>	47.3 – 52.3	48.2 – 55.8	49.0 – 54.10	41.6 – 44.5 (L) 46.6 – 53.9 (H)	

WG\_GQ-187-BiomethaneSpecificationsForInjection.docx

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1/5

# Impact of specification/standards for biomethane injection

## 🔥 *Main quality requirements impact*

- 🔥 *Wobbe index should not be a problem*
  - 🔥 *Less upgrading needed when L natural gas*
- 🔥 *Gross Calorific Value should not be a problem*
  - 🔥 *Addition of propane is/was made in some countries to increase GCV for facilitating billing process*
- 🔥 *Relative density should not be a problem*
- 🔥 *Oxygen: normally different level for transmission and distribution grids*

## 🔥 *Oxygen requirement is recognized as the main barrier for biomethane injection into natural gas grid*

- 🔥 *This mainly affects to high pressure transmission pipeline*
  - 🔥 *The ones connected to sensitive users, as underground gas storages*
  - 🔥 *The ones connecting countries with different oxygen requirement*
    - *The maximum level is different from country to country*
- 🔥 *Medium/low pressure distribution pipeline accepts higher amount of oxygen*
  - 🔥 *Normally, only if a flow reverse station to transmission pipeline exists, oxygen could be a problem*
- 🔥 *Values are normally between 0.001/0.01% to 1% (one country allows up to 3%) if no sensitive users*

# Oxygen requirement in EN16726, applied to EN16723-1

## 🔥 EN16726:2015

- 🔥 Quite restrictive
- 🔥 0.001% by default
- 🔥 Up to 1% if not sensitive users connected
  - 🔥 No definition of what is a sensitive user

## 🔥 Draft EN16726, version under comments

- 🔥 Change in the approach, *less restrictive*
- 🔥 1% by default
- 🔥 0.001% if sensitive users connected
  - 🔥 *Final figures should be still agreed by CEN/TC 234/WG11*
- 🔥 Publication expected in 2025

Parameter	Unit	Limits based on standard reference condition 15 °C/15°C		Limits based on normal reference condition 25°C /0°C (for information)		Reference standards for test methods <sup>d</sup> (informative)
		Min.	Max.	Min.	Max.	
Oxygen	mol/mol	not applicable	0,001 % or 1 % (see below)	not applicable	0,001 % or 1 % (see below)	EN ISO 6974-3, EN ISO 6974-6, EN ISO 6975
	At network entry points and interconnection points the mole fraction of oxygen shall be no more than 0,001 %, expressed as a moving 24 hour average. However, where the gas can be demonstrated not to flow to installations sensitive to higher levels of oxygen, e.g. underground storage systems, a higher limit of up to 1 % may be applied.					

Parameter	Unit	Limits based on standard reference condition 15 °C/15 °C		Limits based on normal reference condition 25 °C/0 °C (for information)		Reference standards for test methods <sup>f</sup> (informative)
		Min.	Max.	Min.	Max.	
Oxygen	mol/mol	not applicable	1 % or 0,001 % for sensitive users (see below)	not applicable	1 % or 0,001 % for sensitive users (see below)	EN ISO 6974-3, EN ISO 6974-6, EN ISO 6975
	<p>In the gas infrastructure the mole fraction of oxygen shall be no more than 1 %. However, if it can be demonstrated that a gas with oxygen content can flow to installations sensitive to oxygen, e.g. underground gas storage, a maximum limit down to 0,001 %, expressed as a moving 24 hour average, at those exit point shall be applied, unless there is no technical need (for most applications a level of e.g. 0,01 % or higher is sufficient). The evaluation of the applicable level shall be done by an assessment process.</p> <p>If the technical need for a low oxygen limit is not confirmed within the required assessment process, then higher oxygen concentrations can be agreed on. The evaluation of the applicable level shall be done by a case-by-case analysis for the grid that is influenced by the oxygen content based on concrete input e.g. from requester for gas injection, gas infrastructure operators and relevant end-users.</p> <p>NOTE 2 0,01 % is equal to 100 ppm and 0,001 % is equal to 10 ppm.</p>					



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Thank you!

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# Optimization of Biomethane Grid injection

## José Catela Pequeno

*Lead Subgroup Task Force 4.4  
Biomethane Grid Connection Optimization  
Biomethane Industrial Partnership*







# Optimization of Biomethane Grid injection

**EBA Webinar  
Greening Gas Grids: Navigating  
Biomethane Grid Connection**

José Catela Pequeno

BIP Task Force 4 .4

February 23<sup>rd</sup>, 2024



# Biomethane Industrial Partnership



RePowerEU

**Doubling the EU ambition for biomethane** to produce 35 bcm per year by 2030, in particular from agricultural waste and residues.



Dependency on natural gas imports from Russia



High energy prices



Addressing the climate crisis



Significantly raise the utilization of biomethane with an ambition target of **35 bcm by 2030**

The **BIP** is an industrial partnership in which policy makers, industry and other stakeholders team up with the goal to support the **35 bcm target**

Energy from biomethane (bcm)



## Task Force 1

Guidelines to develop national biomethane targets, strategies and policies

## Task Force 2

Scale up best practices and overcome barriers to speed up investments in new biomethane projects

## Task Force 3

Identify EU-wide potential for innovative (additional) biomass sources

## Task Force 4

Insight into best practices for efficient and low-cost biomethane production and grid injection

## Task Force 5

Current status of R, D&I in biomethane production

## Task Force 6

Will work to contribute to unlock biomethane production in Ukraine

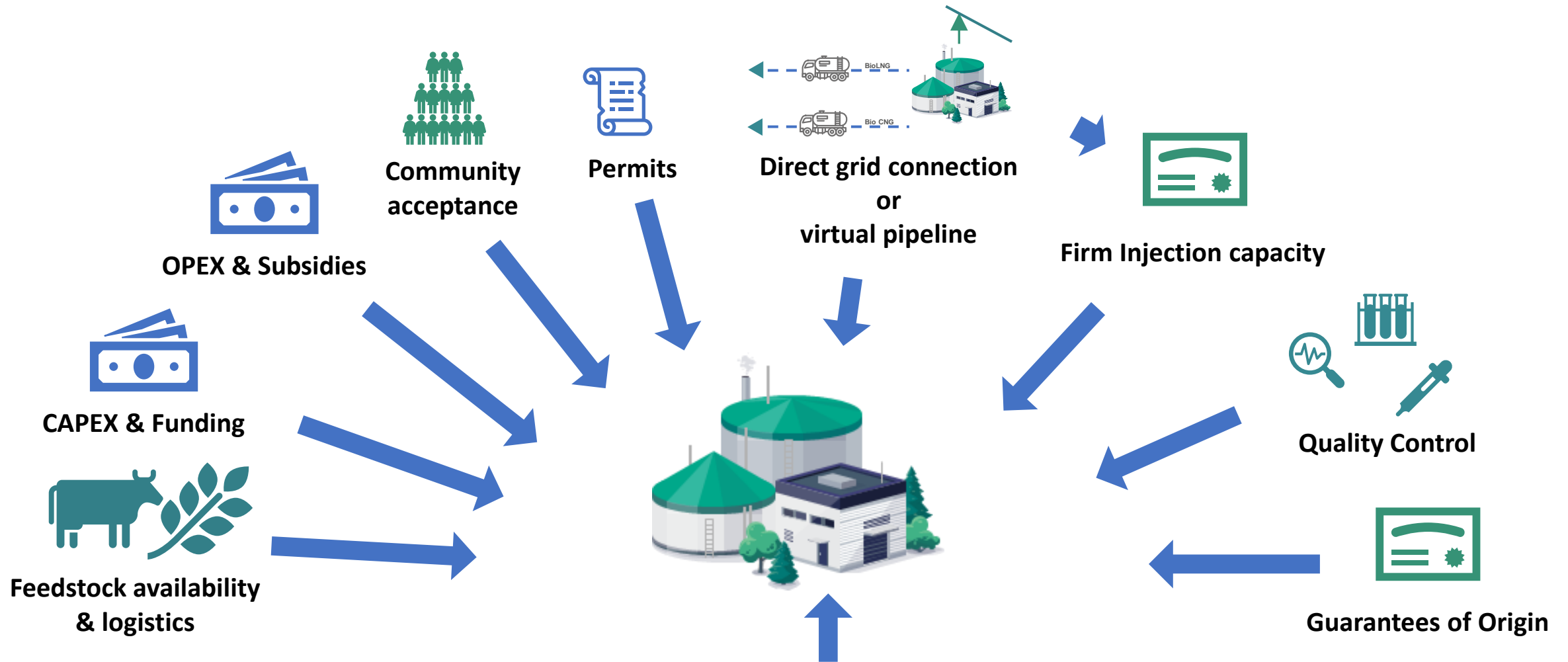


## Task Force 4.4 –

*Optimizing the costs associated with biomethane grid injection and the necessary grid reinforcement, encompassing reverse flow technology and grid extensions*



# Components of a biomethane project



# Factors influencing BioCH<sub>4</sub> grid injection



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**Network availability & reception limits**

**Right to connect & Regulatory Framework**

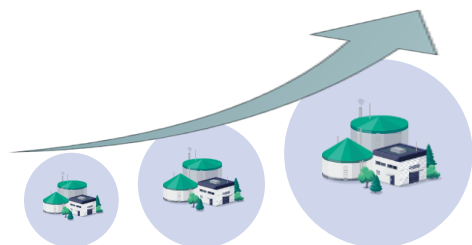
**Planning to boost biomethane injection**

**Connection solutions**

**Firm injection capacity attribution**

**Biomethane quality control**

# Network availability & reception capacity



Plant size tend to increase due to environmental, efficiency and technological requirements



Plants tend to be located farther away from the network



Increasingly expensive connections

Insufficient reception capacity

Unfeasible connection



# Right to connect and Regulatory Framework



Obligation to evaluate connection requests is legally/regulatorily established in most EU countries

Connection is guaranteed only in a few countries and is associated with long term network planning

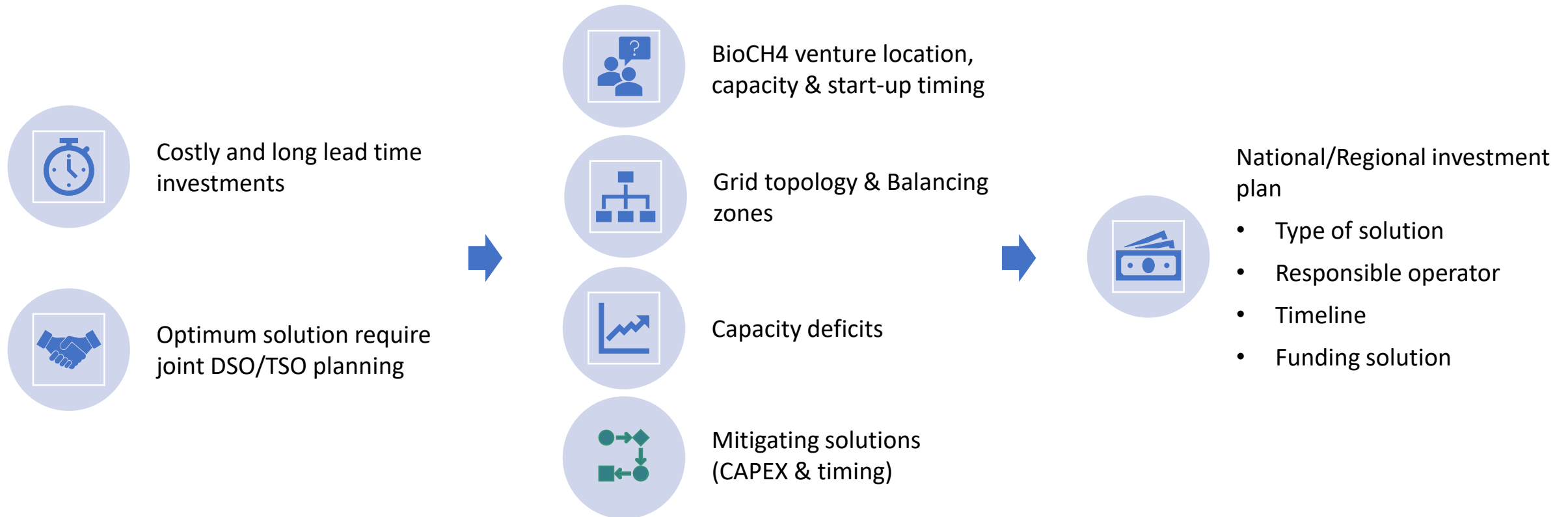


Cost of connection usually borne by biomethane project promoter

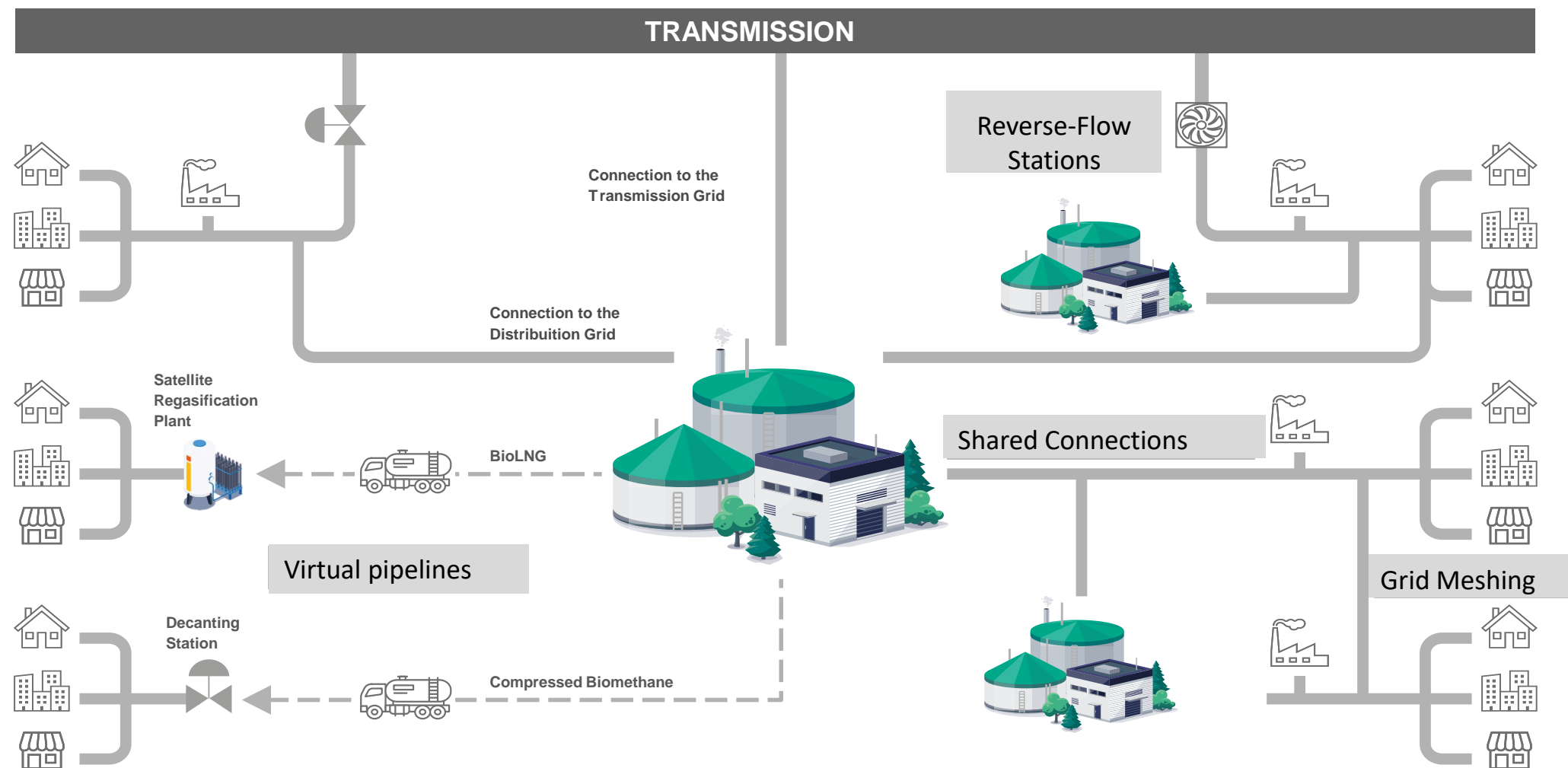
Cost-sharing mechanisms are common in countries with fast increase in the number of plants connected

Funding of measures to boost grid reception capacity and feasibility thresholds

# Planning to Boost grid capacity



# Boosting Grid Capacity - Solutions



# Biomethane Quality Control

## Quality Control



**Different requirements for TSO and DSO**

**Country requirements similar**

**Traditionally based in Gas Chromatography + H<sub>2</sub>O + H<sub>2</sub>S**

**New technics emerging at lower CAPEX and OPEX**

**OIML approval on the way**

**An opportunity to reduce the cost of the Gas Entry Units**

**We want to hear from you!**

**Insert your question in the Q&A &  
upvote your favorite question(s)!**

# WEBINAR

**Dig Deep!**

Understanding Digestate  
Nutrient Cycle, Soil Quality, Energy Resilience

**THURSDAY 28 MARCH 2024**  
**10H – 11H30 AM CET**

[info@europeanbiogas.eu](mailto:info@europeanbiogas.eu)  
[www.europeanbiogas.eu](http://www.europeanbiogas.eu)







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**BIOGASES: THE PRAGMATIC PATHWAY TO CLIMATE-NEUTRALITY**

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