

Incentives for biogas/biomethane market uptake

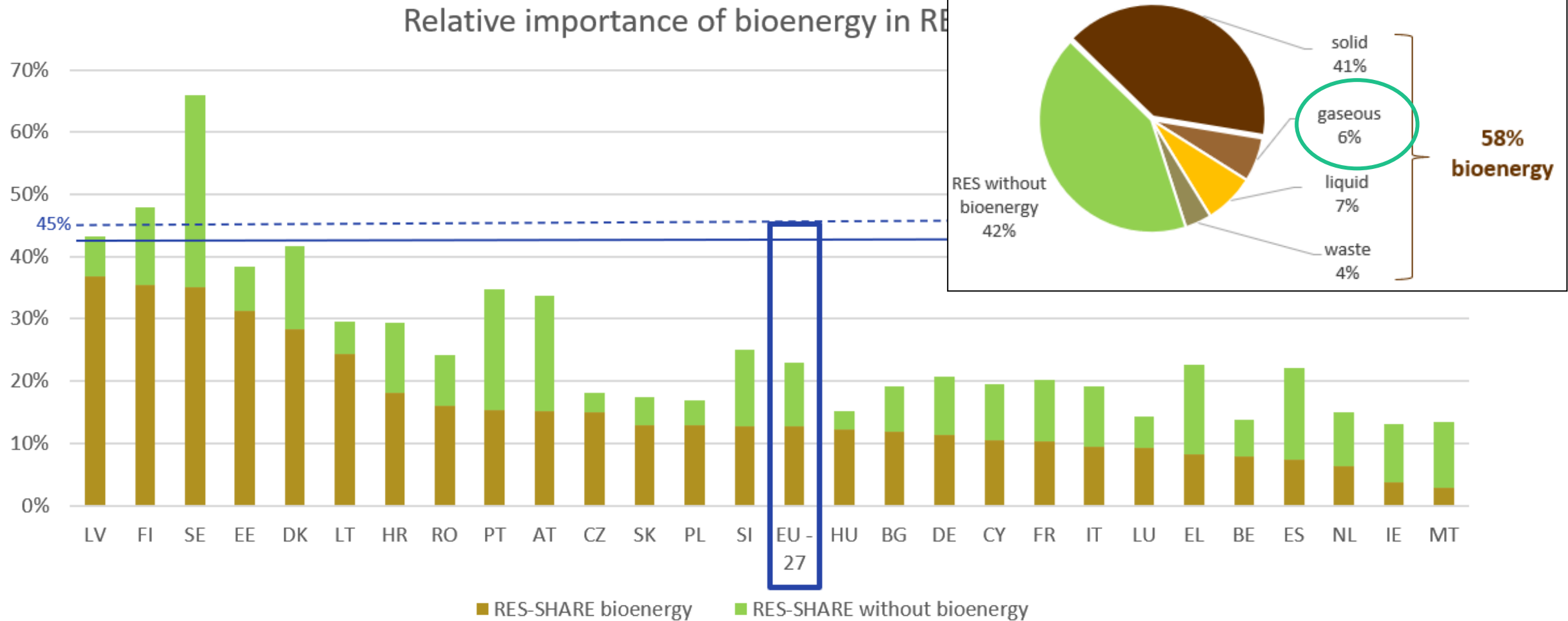
Marco de Benedictis

Unit C2 Decarbonisation and sustainability of energy sources

DG ENER

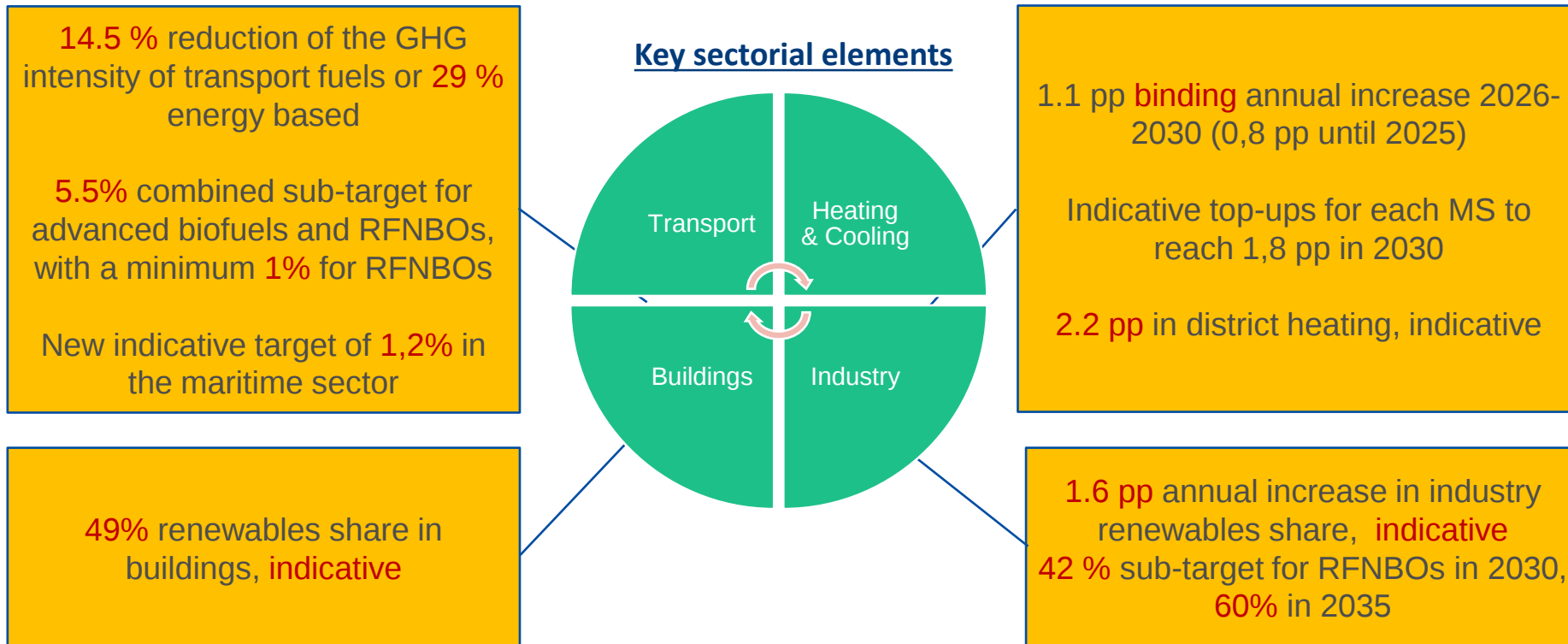
25th March 2025

State of play – bioenergy share in RES



EU Renewable Energy Directive legally binding targets

2030 overall EU binding renewables target: 42.5%, aspiring to reach 45%
doubling the current renewables share (22 % in 2021)



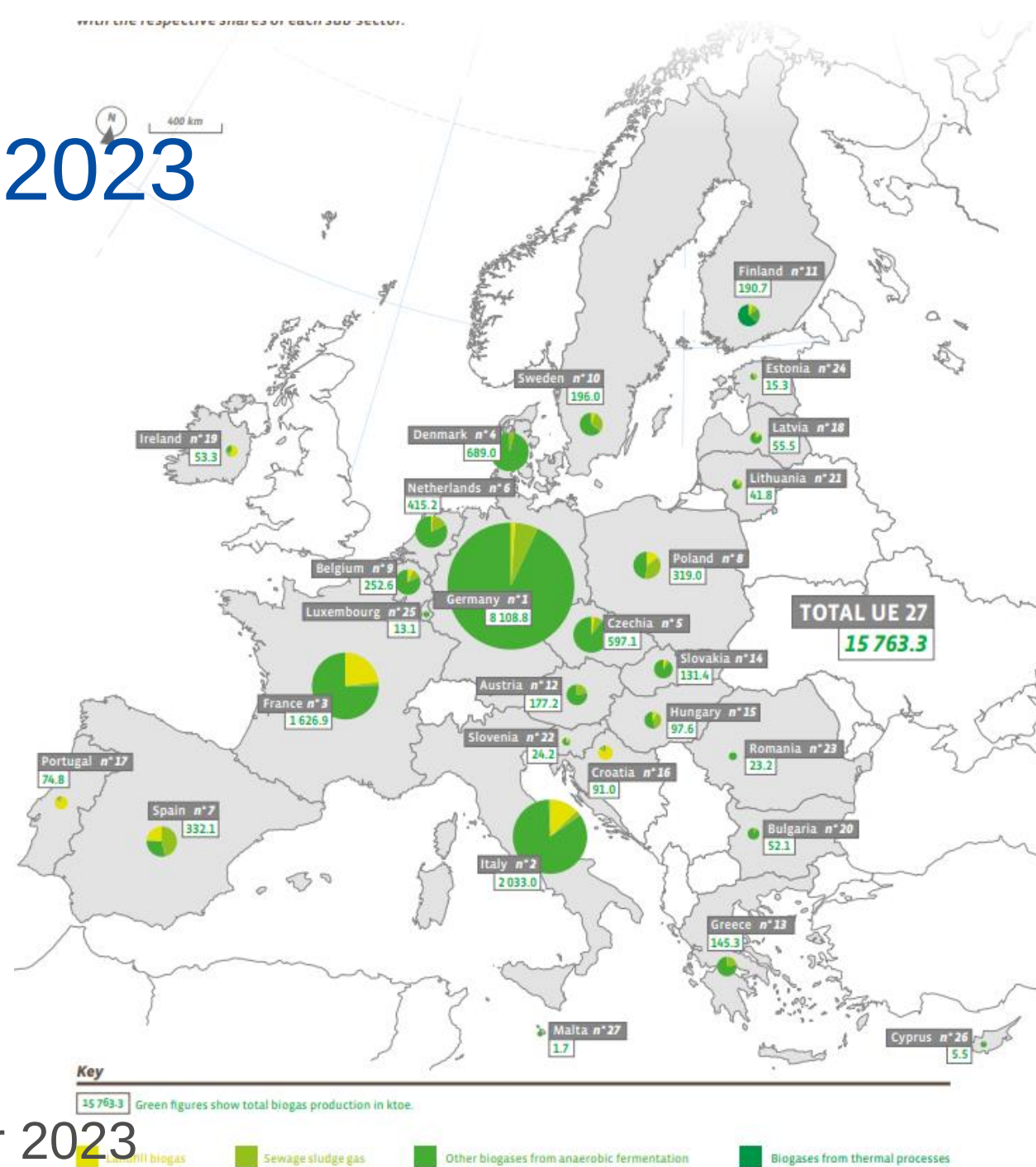
REPowerEU Plan (18 May 2022): scale-up biomethane by 2030

- As a renewable and dispatchable energy source, increasing the production and use of biomethane also helps to address the climate crisis.
- Biogas/biomethane is listed among short to mid-term measures to reduce the dependency on imported natural gas.
- Natural gas consumption is equally distributed between the power sector, industry and residential, in average, but varies across the Member States
- For more: https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/biomethane_en

Biogas and biomethane advances

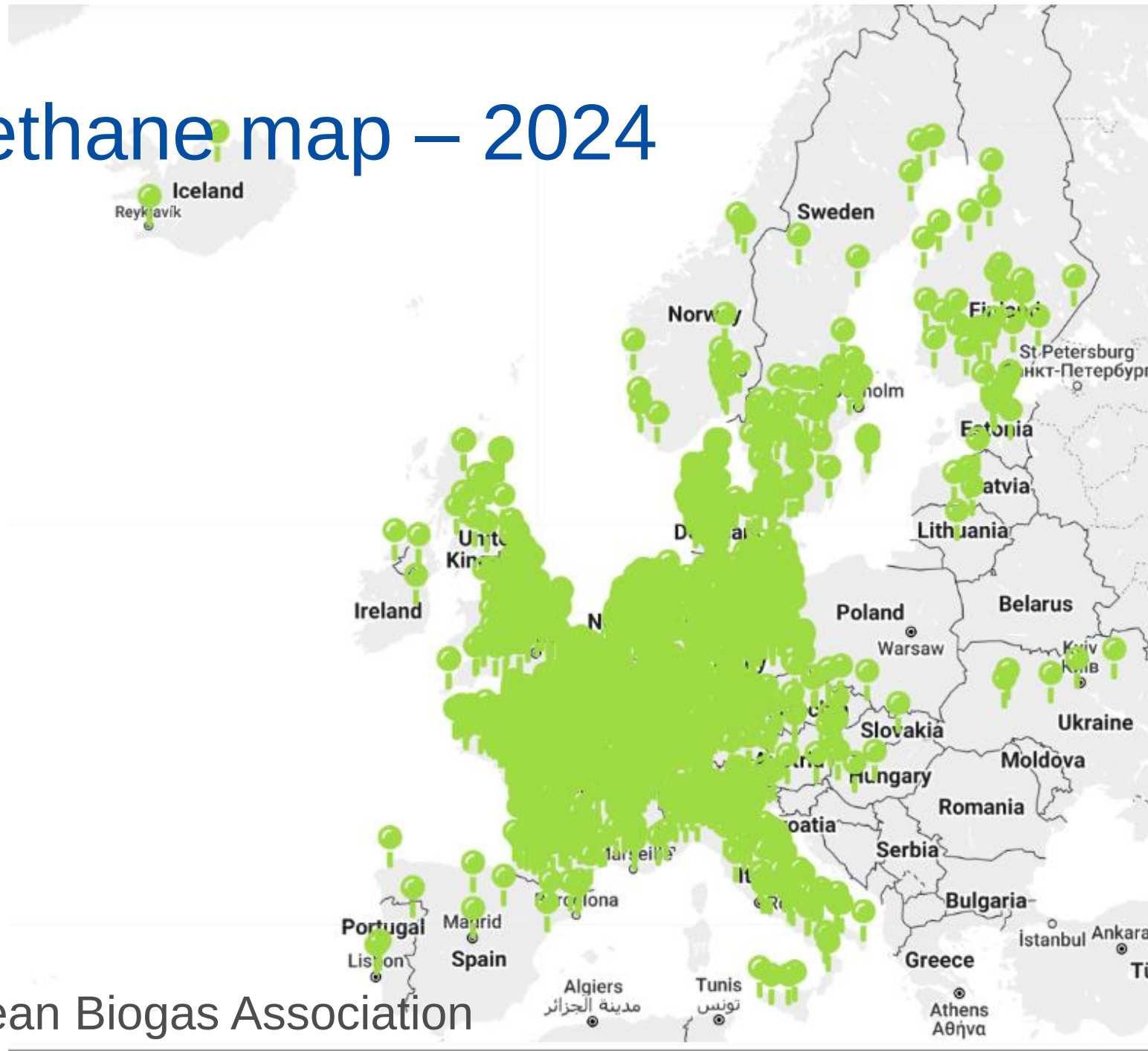
- Eurostat reports 18.7 bcm produced in 2022, with 2.77 bcm injected in the natural gas grid and 0.17 bcm used in transport. +1 bcm increase over a year.
 - biomethane is produced in 16 MS.
 - 95% of biomethane production is concentrated in 6 MS.
- Member States have communicated cumulative 30-32 bcm biogas and biomethane target in the National Energy and Climate Plans drafts (February 2024)
- According to the industry, there is €25 billion investment mobilisation by September 2024 with the first molecules of sustainable biomethane, from those investments, visible in the energy system in 2026-2027.
- Permitting time is assessed to 4+ years.

Biogas map – 2023



- Source: Biogas barometer 2023

Biomethane map – 2024



- Source: European Biogas Association

Biogas and biomethane (bCH₄) market uptake can be supported with a combination of:

1. Financial support

- a. Aimed towards existing biogas/biomethane plants
- b. Aimed towards new investments

2. Non-financial support

- a. synchronising policies along the bCH₄ production chain (agriculture, waste management, environmental protection and clima), reflected in Annex VI, RED and beyond
- b. Efficient permitting process

Starting point

INFORMATION FROM EUROPEAN UNION
INSTITUTIONS, BODIES, OFFICES AND AGENCIES

EUROPEAN COMMISSION

COMMUNICATION FROM THE COMMISSION

Guidelines on State aid for climate, environmental protection and energy 2022

(2022/C 80/01)

Financial support: Aimed towards existing investments

- Retrofitting schemes aimed to:
 - increase the conversion efficiency from feedstock to biogas: two-phase or multi-phase digestion, biochar, electrolysis, electrokinetic decomposition, pre-treatments of feedstock
 - capturing biomethane leakages: covering feedstock to prevent decay and GHG emissions, covering digestate, valves, pipes, upgrading units
 - Expanding bCH₄ leakages measures to facilities below the threshold (art29, REDIII)
 - replacing CHPs with upgrading units for biomethane OR with CHPs of larger capacity with storage (grid balancing)
 - keeping the existing bCH₄ facilities operational beyond the existing contracting period / expiration of subsidy scheme
- Expected outcome: more biogas without expanding the feedstock base, fast visibility in RES-shares, lowest cost bCH₄

Financial support: Aimed towards new investments

- Schemes can differ by facility size, feedstock and end-use as well as maturity and size of bCH₄ market.
- Size: larger units need less CAPEX/kWh but more OPEX than smaller units
- Feedstock: agri-food feedstock, sewage sludge, municipal biodegradable waste → different treatments, different stakeholders, different price per Nm³ → can be normalised with non-financial support.
- End-use: different conditions in Article 29 (10)
- Expected outcome: deployment of sustainable feedstock to increase energy security and reach energy-climate targets

Financial support: Aimed towards new investments

- Production support
 - Feed-in tariff, feed-in premium, tenders, CAPEX support, contracts for difference
- Demand side incentives:
 - GHG intensity targets, EU-ETS, biomethane consumption mandates, renewable energy mandates, tax incentives
- https://bip-europe.eu/wp-content/uploads/2024/04/BIP-TF1_Biomethane-incentives-and-their-effectiveness-Final.pdf

Currently, it takes **3 to 6 years to develop new biomethane projects**, where the **construction part itself lasts about 1-1.5 year**. Shortening the permitting time, while keeping the projects' quality and sustainability, is crucial to achieve 35 bcm



BIOMETHANE INDUSTRIAL PARTNERSHIP

BIOMETHANE INCENTIVES AND THEIR EFFECTIVENESS

FEB 2024 // PREPARED BY TASK FORCE 1

Non-financial support: concerted policies

- Feedstock: agri-food feedstock, sewage sludge, municipal biodegradable waste → different treatments, different stakeholders, different price per Nm³ → can be normalised with non-financial support.
- Examples: differentiating financial support schemes by facilities as well as conditions:
 - likely under public governance (e.g. waste water treatment facilities, municipal waste etc.)
 - Private investments by industry (large) and farmers (small),
 - Energy communities (small – medium)

Non-financial support: concerted policies

- Feedstock & DIGESTATE: agri-food feedstock, sewage sludge, municipal biodegradable waste → different treatments, different stakeholders, different price per Nm³ → can be normalised with non-financial support.
- Examples: digestate application as a local source of nutrients, liquid part depleted for nitrogen for fertigation in the times of droughts, differentiate digestate by feedstock (financing scheme) and simplify application.
- Examples: biogenic CO₂ utilisation practice – application for agro-food produce preservation – link with other financial schemes
- **Outcome:** reduction of intensity of the financial support per unit of bCH₄, achievements of several targets from NECPs and NIRs, Scope 3 emissions...

Non-financial support: efficient permitting

- BIP has identified that the longest period in permitting is the one occurring at the local community level
- Differentiate permitting procedures by type of feedstock/ ownership / size...
- Examples:
 - Identifying “hot spots” for biomethane injection with biogas potential
 - Zoning approach
 - Template/guide for permitting
 - Single point for permitting/one stop shops – ManagEnergy call!
 - Use existing networks (e.g. Covenant of Mayors) to deploy feedstock under public facilities

Non-financial support: EU funded projects

- Use the financial instruments available -> Plenary session CA-RES
- 9 Horizon biogas/biomethane projects on-going

Project Number	Project Acronym	CORDIS link
101069357	Photo2Fuel	https://cordis.europa.eu/project/id/101069357
101084066	CarbonNeutralLNG	https://cordis.europa.eu/project/id/101084066
101084148	HYFUELUP	https://cordis.europa.eu/project/id/101084148
101084200	BIOMETHAVERSE	https://cordis.europa.eu/project/id/101084200
101084288	METHAREN	https://cordis.europa.eu/project/id/101084288
101084297	SEMPRE-BIO	https://cordis.europa.eu/project/id/101084297
101084405	CRONUS	https://cordis.europa.eu/project/id/101084405
101147442	Fuels-C	https://cordis.europa.eu/project/id/101147442
101147737	Bio-MeGaFuel	https://cordis.europa.eu/project/id/101147737
101172766	EffiTorch	https://cordis.europa.eu/project/id/101172766

Conclusions

- bCH₄ is the most expensive renewable energy carrier if framed only through financial support schemes for newly built plants, looking at energy content of bCH₄ only.
- bCH₄ market uptake needs specific mix of financial and non-financial support schemes to optimise the public investments, quantity of biogas and its end-use.
- There is good practice examples among the MS to be shared, adjusted to the national specificities.

Thank you



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