



EU R&I Support to Biomethane

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European Commission

DG Research and Innovation

European Commission Work Programme 2025 includes..

Competitiveness

- Competitiveness Compass non-legislative, COM(2025) 30 final

Competitiveness and Decarbonisation

- Clean Industrial Deal non-legislative, COM(2025) 85 final
- Action plan on affordable energy non-legislative, COM(2025) 79 final
- Industrial Decarbonization Accelerator Act legislative, Q4 2025
- EU Start-up and Scale-up Strategy non-legislative, COM(2025) 270 final
- Bioeconomy Strategy non-legislative or legislative, Q4 2025
- Sustainable Transport Investment Plan non-legislative, Q3 2025

Security

- Roadmap towards ending Russian energy imports non-legislative, COM(2025) 440 final/2

Decarbonisation

- European Climate Law amendment, legislative, Q2 2025

Geopolitics

- Joint Communication on a new Strategic EU-India Agenda non-legislative, Q2 2025

Future priority

- Post-2027 Multiannual Financial Framework proposals legislative, EC proposal July 2025



EU policies

European Climate
Law Regulation
&
European Green
Deal and Fit for 55

RED

REFuelEU
aviation

FuelEU maritime

ETS

ESR

ETD

CO2 standards

REPowerEU Plan
COM(2022) 230
final

Biomethane
Action Plan

Biomethane
Industrial
Partnership

Hydrogen and
decarbonised gas
markets package

Renewable
gases

Low carbon
gases
with $\leq 70\%$
GHG emissions
on LCA basis

The Green Deal
Industrial Plan

EU Net-Zero
Industry Act

Sustainable
biogas and
biomethane

Sustainable
alternative fuels
for aviation and
maritime

RFNBOs

Strategic
Technologies for
Europe Platform

Clean technologies
Renewable energy
RFNBOs
SAF (alternative)

Bio technologies

Deep and digital
technologies

Bioeconomy
Strategy

Deploy a
sustainable
European
bioeconomy

Contribute to
Sustainable
Development
Goals

Contribute to
Paris Agreement

COM(2024) 63 final -
Europe's 2040 climate target

reducing EU's net GHG emissions by 90% by 2040



NOT LEGALLY BINDING

Clean Industrial Deal COM(2025) 85 final

The EU's business plan to accelerate decarbonization and competitiveness for European industry by boosting innovation and reinforcing EU resilience

Affordable Energy: economy-wide electrification from 21.3% to 32% in 2030 & 100 GW of renewable electricity capacity installed/year until 2030

- Affordable Energy Action Plan to lower energy costs for business and citizens
- Power Purchase Agreements to tackle volatile prices
- Domestically produced clean energy

Lead Markets : 40% of domestically produced key components of clean tech products on the EU market

- Foster demand for clean products made in the EU by sustainability, resilience and European preference criteria in EU public procurement for strategic sectors
- Product label for carbon intensity to allow businesses to reap a “green premium” and inform consumers

Financing: leverage more than € 100 billion investments for the industrial transition

- Empower Innovation Fund by more synergies between existing funding instruments
- Leverage private investment by amending InvestEU
- Simplified State aid rules for more flexibility to MS

Circularity and Access to Materials: Increase circular material use rate from 11.8% today to 24% by 2030

- Lower prices and higher availability for critical raw materials by joint purchases (EU Critical Raw Material Centre)
- Circular Economy Act to reduce dependencies on primary materials imports

Global Markets and International Partnerships: ensure the largest possible share of the global market for clean technologies worth \$ 2 trillion in 2035

- European companies better access third markets via trade agreements and Clean Trade and Investment Partnerships
- Intensify international and multilateral cooperation to address global overcapacities redirected to EU market

Skills Enhancement : Reduce occupations number requiring specific skills/knowledge for clean transition

- Union of Skills for strategic industries

Simplification

- Speed up permitting for industrial decarbonization projects
- Simplify State aid rules by 2025 to accelerate clean energy roll-out and support industrial decarbonization - **State Aid Framework (CISAF) C(2025) 7600 final**
- Enhance coordination between EU and national policies to reduce red tape and leverage the scale of the Single Market



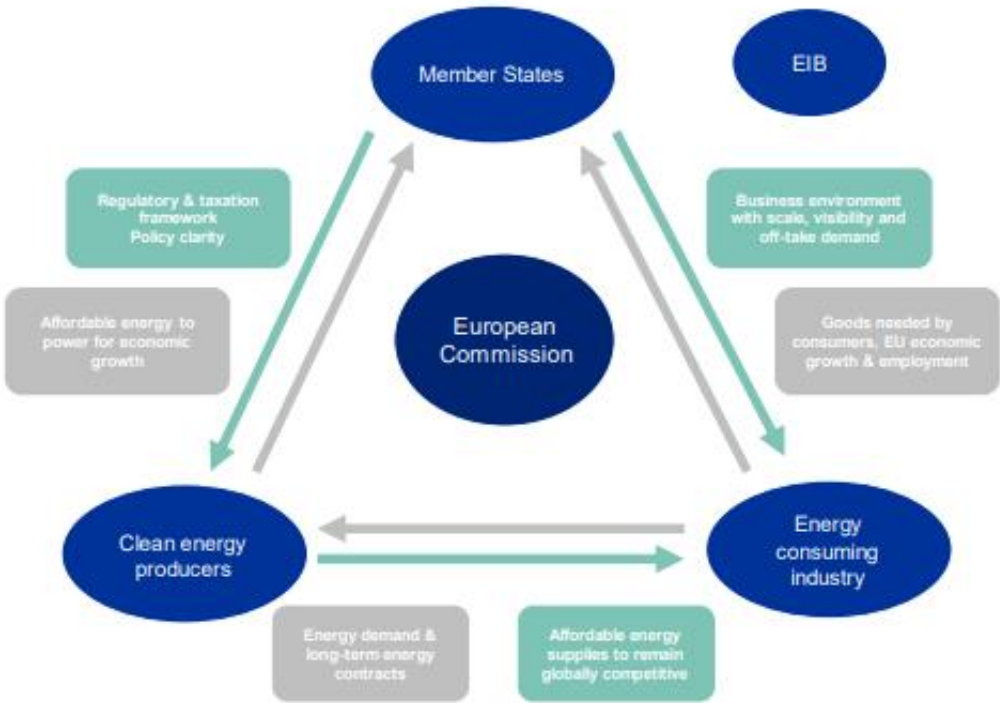
Action Plan for Affordable Energy

COM(2025) 79 final

Pillar III: Attracting investment and ensuring delivery

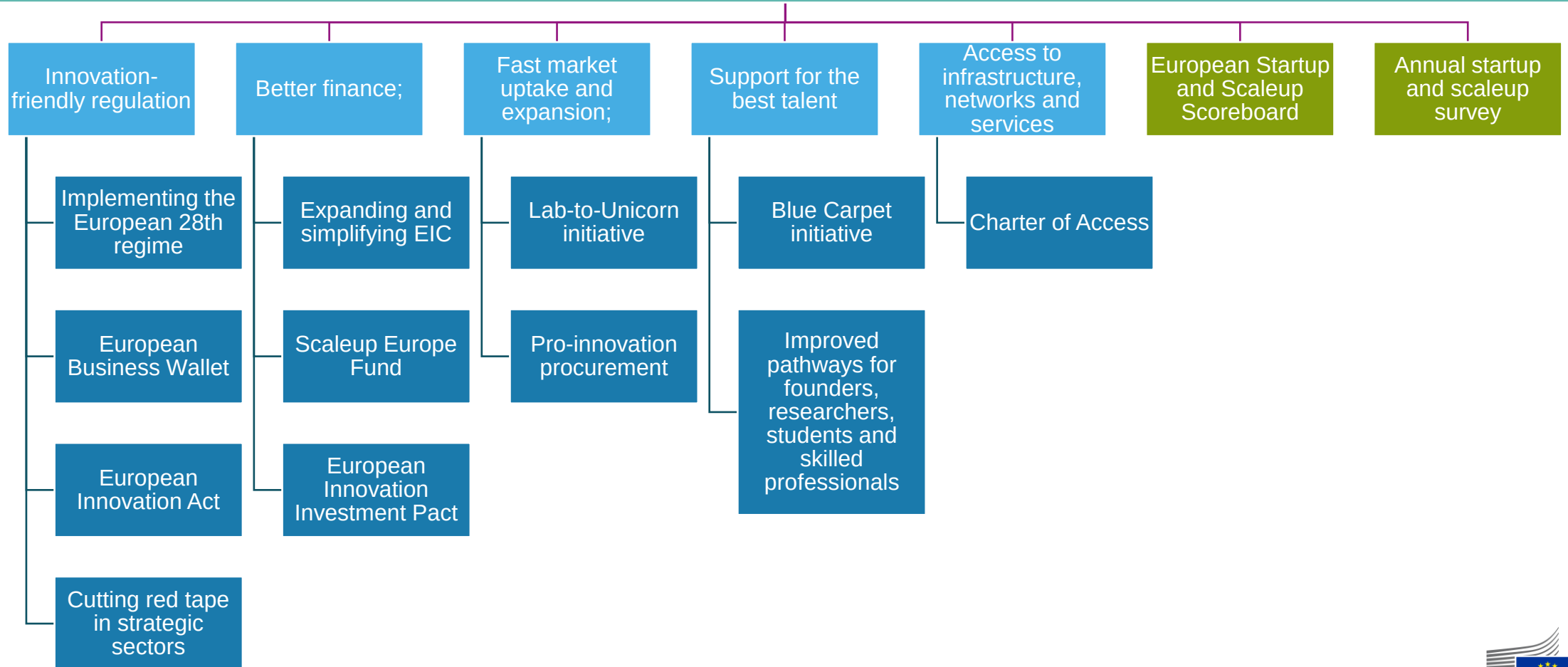
Action 6: Establishing a tripartite contract for affordable energy for Europe’s industry

What	A tripartite contract for affordable energy between public sector, including financial institutions, clean energy developers and energy-consuming industry.
How	A broad tripartite contract will: - bring predictability and scaling for energy generators, who will have a secure off-taker for their production, and for energy purchasers, who can benefit from affordable and stable energy supply; - support for the business models of the sector, thanks to the support brought by the Commission, the EIB and the Member States that will enable them to derisk investment and grow. This would include sectoral contracts for certain sectors (e.g. hydrogen, synthetic fuels, batteries, offshore wind, solar, grids).
When	2025
Impact	Increase transparency, visibility and certainty for producers and energy-consuming industry, supporting investment decisions and lowering costs and energy prices



The EU Startup and Scaleup Strategy COM(2025) 270 final

Legislative, policy and financial support measures to support European startups and scaleups, at EU and MS level



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Horizon Europe Strategic Plan 2025-2027

Ensuring more
efficient, sustainable,
secure, and
competitive renewable
and decarbonized
energy supply

R&I activities are needed on
renewable energy generation from
e.g. solar, wind, geothermal,
ocean, hydropower, and
sustainable energy vectors like
biomethane, advanced biofuels,
solar and synthetic renewable
fuels, other

”



Horizon Europe Work Programme

Cluster 5 Climate Energy and Mobility, Destination Sustainable, secure and competitive energy supply, Renewable Energy

Work Programme 2025 adopted May 2025

Work Programme 2026-2027

- In progress
- To be adopted end 2025
- **Clean Industrial Plan Flagship call under Horizon Europe, ~ € 600 million, Q4 2025**
 - Support fit-for-deployment projects
 - Promote next generation of clean tech, clean energy and decarbonized manufacturing in the EU
 - Synergies of Horizon Europe and Innovation Fund, pipeline of projects from R&I to deployment

R&I days 16-17 September in Brussels (more information to come)



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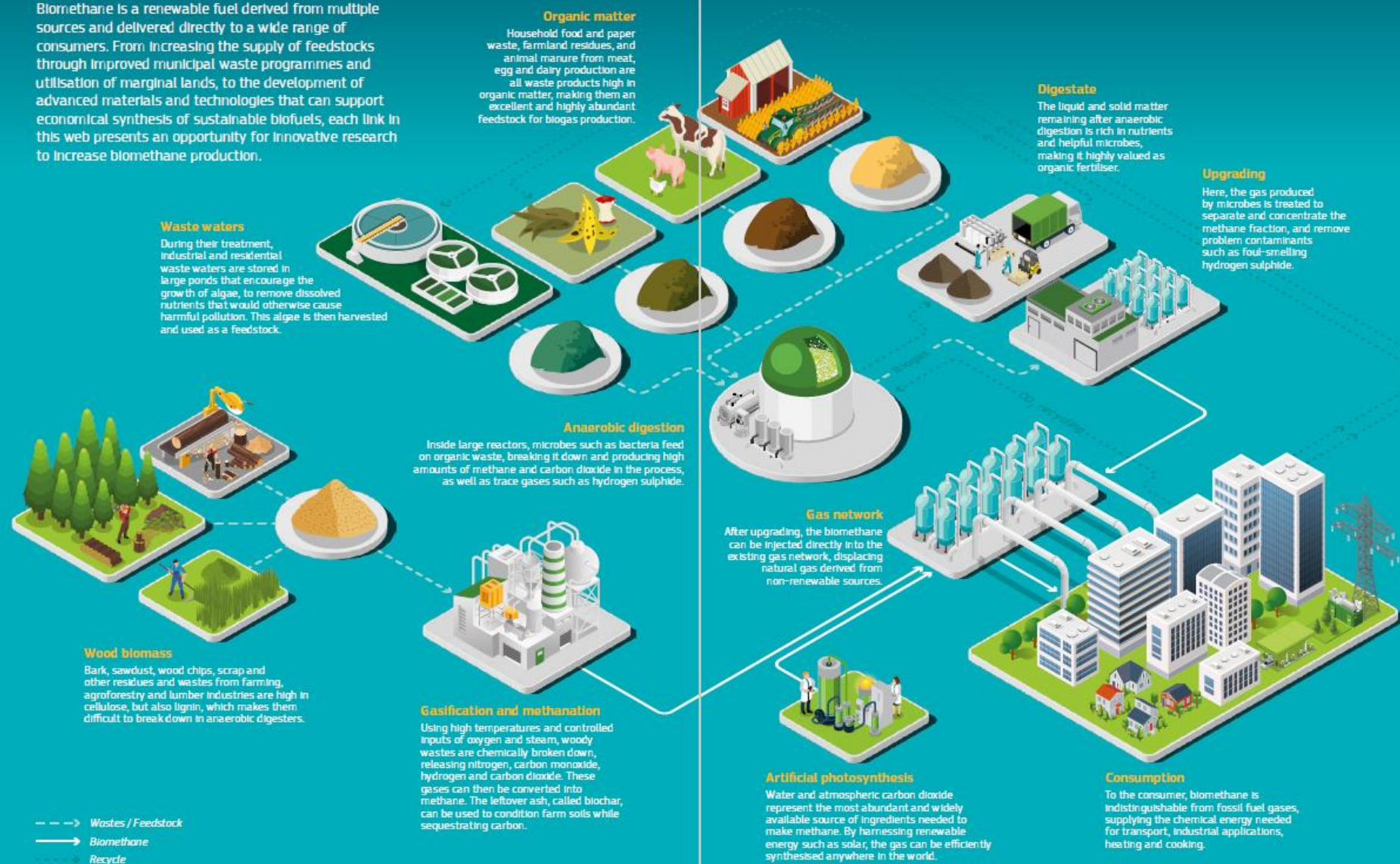
Cluster 5 Work Programme 2021- 2024

Renewable Gases EU projects



Fuelling innovation

Biomethane is a renewable fuel derived from multiple sources and delivered directly to a wide range of consumers. From increasing the supply of feedstocks through improved municipal waste programmes and utilisation of marginal lands, to the development of advanced materials and technologies that can support economical synthesis of sustainable biofuels, each link in this web presents an opportunity for innovative research to increase biomethane production.



Innovative bio-methane production in the EU

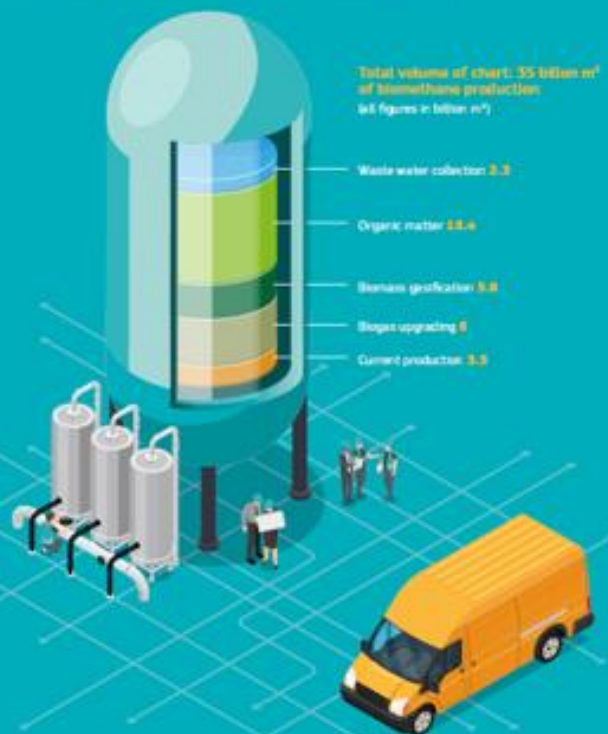


Innovative biomethane production in the EU

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Filling the tank

The REPowerEU initiative has set an ambitious target for Europe's biomethane industry, seeking to increase domestic production to 35 billion cubic metres (bcm) by 2030, reducing dependence on foreign imports of fossil fuels. This tenfold increase over current production will draw from a range of sources. Upgrading all existing biogas facilities to produce biomethane is expected to contribute 8 bcm, while the remainder is generated from increasing the collection and processing of feedstocks such as woody biomass, organic matter and waste water. Innovative technologies will shape the exact contribution of each element to the 2030 target: improvements to gasification technology, for example, could relieve demand for organic material and therefore pressure on farmland.



Source data: Directorate-General for Research and Innovation, European Commission

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Investing in a greener future

Through the Horizon 2020 and Horizon Europe programmes, the EU has invested tens of millions of euros in targeted research to grow Europe's biomethane industry over the last decade. The 17 projects below represent more than €75 m of EU funding, distributed across more than 180 research organisations, public bodies, and SMEs. These grants were awarded through three mutually synergistic streams: Research and Innovation Actions (relating to exploratory scientific research and prototype development), Innovation Actions (relating to demonstrating, large-scale product validation and market replication), and Coordination and Support Actions (relating to accompanying and market uptake measures).

Through investments such as these, Horizon Europe works to strengthen the impact of research and innovation, boosts European competitiveness and growth, and helps deliver on ambitious targets for climate, energy and the economy in line with the European Green Deal and the REPowerEU priorities.



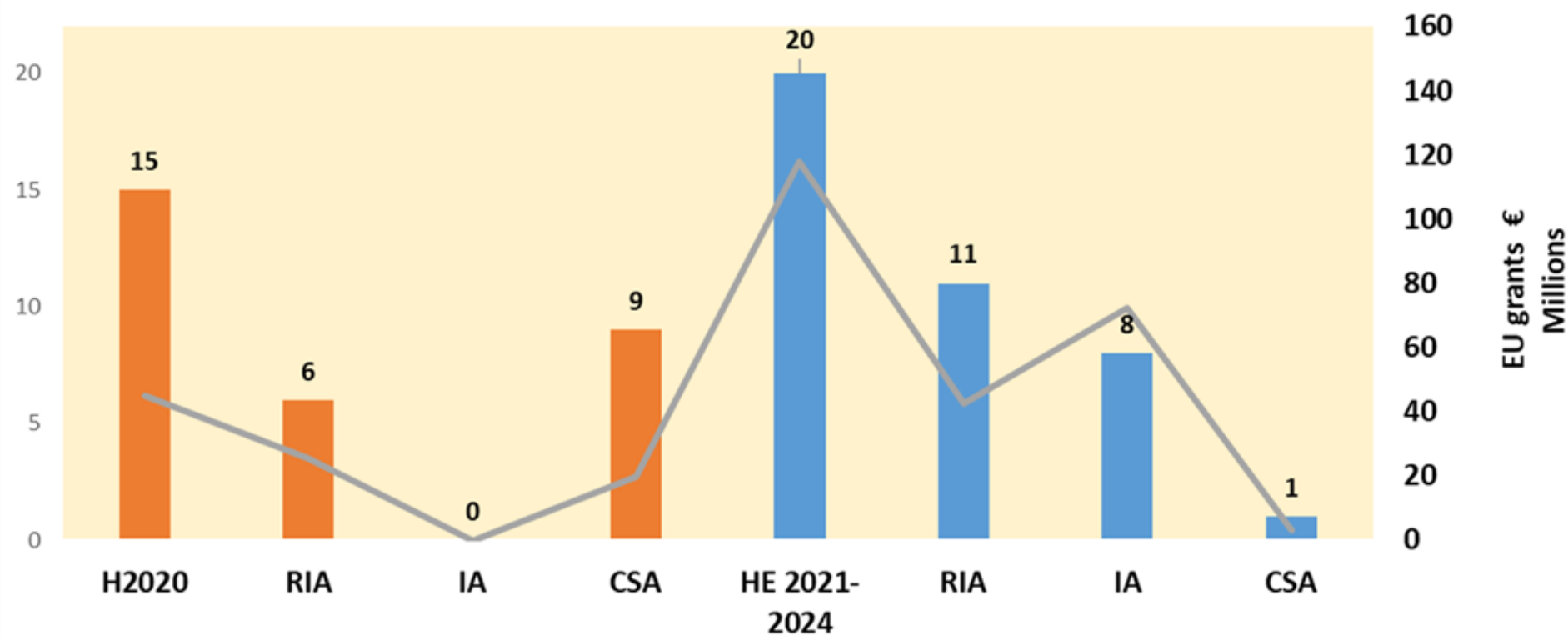
Grants in million €

Coordination and Support Actions
Research and Innovation Actions
Innovation Actions

Source data: cordis.europa.eu



Horizon grants in Renewable Methane 163 million €; 35 projects



Number of projects per programme and instrument



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Project acronym	Project name	Brief Abstract	End product	Technology	Feedstock
ALFA	Scaling up the market uptake of renewable energy systems by unlocking the biogas potential of agriculture and livestock farming	ALFA supports 50 livestock farmers in six EU countries in installing biogas systems by analysing local livestock value chains and providing them with a series of demand-driven financial, business and technical support services	Biogas	Anaerobic digestion	Residues from agricultural and feedstock farming
BIOMETHAVERSE	Demonstrating and Connecting Production Innovations in the BIOMETHane uniVERSE	In the BIOMETHAVERSE demonstrators, CO ₂ effluents from anaerobic digestion or gasification and other intermediate products will be combined with renewable hydrogen or renewable electricity to increase the overall biomethane yield. All demonstrated production routes consider a circular approach for energy and material use.	Biomethane	5 pathways investigated: 1. In-situ and Ex-Situ ElectroMethanoGenesis 2. Ex-situ Thermochemical/catalytic Methanation 3. Ex-Situ Biological Methanation 4. Ex-Situ Syngas Biological methanation 5. In-situ Biological Methanation	All types of feedstocks
BIOSTAR2C	Removing Technical Barriers to Biomethane STAndardisation Phase 2C	BIOSTAR2C aims to remove the barriers that impede biomethane introduction into gas networks and vehicles. Project work will help ensure that biomethane injection costs are optimised and will increase confidence in investing in biomethane production and injection.	Biomethane	Technical barriers identified by CEN/TC 408	Biogas & biomethane
CarbonNeutralLNG	Truly carbon neutral electricity enhanced synthesis of liquefied natural gas (LNG) from biomass	CarbonNeutralLNG delivers truly carbon-neutral bioLNG by harnessing low-cost renewable electricity in a proposed hybrid process that combines chemical catalytic with biological methanation and electromethanogenesis to directly convert the electrical current to methane via anaerobic respiration in microbes	Liquefied Natural Gas (LNG) from biomass	Sorption enhanced e-gasification, additively manufactured "Chemical Catalytic Raw Methanation" and a "Biological Methane conditioning" by means of biological methanation and electro-methanogenesis	Biomass residues (not further specified)
GrenMeUp	Green biomethane market uptake	GreenMeUp facilitates the wider market uptake of biomethane in the European energy and transport sectors by strengthening the market in countries with slow development rates.	Biomethane	Anaerobic digestion + upgrading & thermal and hydrothermal gasification	All types of feedstocks (depending on the target country)
HYFUELUP	Hybrid biomethane production from integrated biomass conversion	HYFUELUP demonstrates a flexible pathway for efficient and cost-effective biomethane production through thermochemical technologies combined with renewable hydrogen	Biomethane	Innovative thermochemical processes to be demonstrated: 1. sorption-enhanced gasification coupled with syngas or flue gas clean-up 2. fluidised-bed methanation of either syngas or flue gas with the dynamic addition of hydrogen	Dried digestate sludge with lignocellulosic materials (woody biomass, namely wood and forestry waste)
Metharen	Innovative biomethane system integration boosting production while managing renewable energies intermittency	METHAREN aims to demonstrate a cost-effective, innovative, more sustainable and circular biomethane production system enabling renewable energy sources intermittency management by improving: i) the biogas plant efficiency; ii) flexibility and energy management for RES integration; iii) the circularity approach for sustainable production and iv) innovative business models and adapted policies	Biomethane	Combination of gasification, methanation and a reversible combination of gasification, methanation and a reversible SOEC system (SOEC) system	Biowaste
SEMPRE-BIO	Securing domestic production of cost-effective biomethane	SEMPRE-BIO project develops novel and cost-effective biomethane production solutions and pathways, setting up three European biomethane innovation ecosystems (Belgium, Spain and France).	Biomethane	Different technologies are addressed: pyro-biomethanation (syngas biomethanisation), proton exchange membrane electrolysis (PEMEL), biomethane upgrading by solid cryogenic, etc.	Novel feedstock for biomethane (non-digestible biomass, e.g. woody biomass)
VALUE4FARM	Sustainable renewable energy VALUE chains for answering FARMers' needs	VALUE4FARM aims to revolutionise farming practices and drive the defossilisation of agriculture by matching the energy needs of local farmers with three renewable-based local value chains centred around biogas	Biomethane, REN	Intercooled regenerative reheat gas turbine cycle, flameless combustion, oil-free Organic Rankin Cycle loop with a microturbine expander	Residual streams



Agencia de
Sutokoni

Biomethane Action Plan & Industrial Partnership Task Force R&I Reports



BIOMETHANE INDUSTRIAL PARTNERSHIP

INNOVATIVE TECHNOLOGIES FOR BIOMETHANE PRODUCTION

REVIEW OF THE CURRENT STATE OF THE ART

NOV 2023 // PREPARED BY TASK FORCE 5

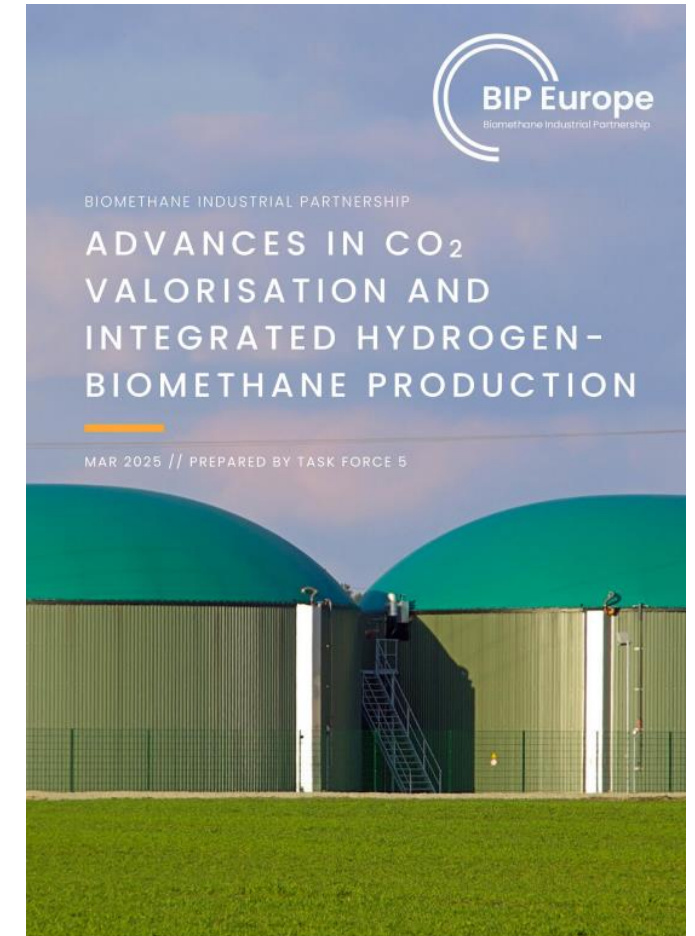
<https://bip-europe.eu/downloads/>



BIOMETHANE INDUSTRIAL PARTNERSHIP

IMPROVING DIGESTATE VALORISATION: NOVEL TECHNOLOGIES & RESEARCH NEEDS

SEPT 2024 // PREPARED BY TASK FORCE 5



BIOMETHANE INDUSTRIAL PARTNERSHIP

ADVANCES IN CO₂ VALORISATION AND INTEGRATED HYDROGEN- BIOMETHANE PRODUCTION

MAR 2025 // PREPARED BY TASK FORCE 5



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Cluster 5 Work Programme 2025

Renewable Fuels



Per topic

Per project

HORIZON-CL5-2025-04-D2-08: Coordinated call with India on waste to renewable hydrogen	RIA	10M€	5M€
HORIZON-CL5-2026-02-D3-01: Large-scale production of liquid advanced biofuels and renewable fuels of non-biological origin	IA	33M€	11M€
HORIZON-CL5-2026-02-D3-02: Competitiveness, energy security and integration aspects of advanced biofuels and renewable fuels of non-biological origin value chains	RIA	8M€	4M€



HORIZON-CL5-2025-04-D2-08

EU-India cooperation on waste to renewable hydrogen innovation

Rationale

- R&I seen as a priority by the **EU-India Trade and Technology Council's Working Group on Green and Clean Energy Technology**
- Benefits from improved **sustainability, safety, affordability**, and exchange of **R&I experience** in biogenic waste hydrogen production

Gaps covered

- Develop **innovative technologies** to produce renewable hydrogen from **biogenic wastes**
- Increase **resource efficiency** (C to H yield), reduce/generate negative **GHG emissions, environmental footprint** and **production cost**
- **Improve** regional and local **feedstock** supply cost, mobilization and pre-treatment, as well as **post-treatment technologies**
- Increase EU-India **cooperation** through **coordinated research activities** in e.g., optimizing conversion & separation, developing new catalysts, sustainability assessment, technoeconomic feasibility, safety aspects, process modeling



HORIZON-CL5-2026-02-D3-01

Large-scale production of liquid advanced biofuels and renewable fuels of non-biological origin

- **Large scale production** of ready-to-deploy advanced biofuels and/or RFNBOs, engaging feedstock developers & suppliers, technology developers, fuel suppliers, end users, national bodies, public or private funding authorities
- Production from various **EU sustainable** biomass feedstocks and/or non-biological origin feedstocks
- Real-size feedstock impact on **plant design**, increasing energy density/homogenization/ standardization
- LCA of **production route, reference cases** for ready-to-build, revamp/reuse, operate full-scale plants / existing demos
- **Exploitation** for strong investment and full value chain business case, commercial plant **economic viability**, permitting, **funding**, one **local economic business** case, impact on environment and climate



HORIZON-CL5-2026-02-D3-02

Competitiveness, energy security and integration aspects of advanced biofuels and renewable fuels of non-biological origin value chains

- Assess **energy security** and **industrial competitiveness** aspects of value chains for advanced biofuels and RFNBOs, in view of the new global situation
- Detailed value chain **analysis** and development of **future scenarios**, macroeconomic modelling, and DSS
- **R&I actions** to improve energy security and industrial competitiveness, **implement** R&I and new standards
- Coordinate efforts for **win-win integrated solutions** engaging all relevant stakeholders
- **Multidisciplinary issues** in renewable fuel production, carbon removals, CO2 trading & valorization, sustainable farming, fuel standardization, trade-off/synergies of carbon farming and LCA





HORIZON EUROPE

INFO DAYS

CLUSTER 5
**CLIMATE, ENERGY
& MOBILITY**

6 May 2025



[Events | The research and innovation community platform](#)

General guidance and resources

- F&T portal <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/support/helpdesks>
- HE WP General Annexes
- [HE Programme Guide](#)

European Commission | Funding & tender opportunities
Single Electronic Data Interchange Area (SEDIA)

SEARCH FUNDING & TENDERS ▼ HOW TO PARTICIPATE ▼ PROJECTS & RESULTS WORK AS AN EXPERT SUPPORT ▼

Support overview
Guidance & Manuals
FAQs
Helpdesk & Support Services
Support videos

11 items found

General Process Flow
An introduction to the Funding & Tenders Portal IT tools: Business process flow

HORIZON EUROPE CYBERSECURITY
How to enable 2-step verification for your EULogin account
2-step verification for the Funding & Tenders Portal

FUNDING & TENDERS PORTAL
Roles and Access Rights in the Funding & Tenders Portal

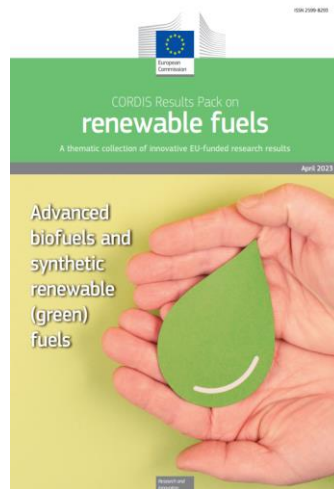
HORIZON EUROPE EXPERTS
How to evaluate Open Science

Funding & Tenders Portal
How to assign Legal Signatories (LSign) & Financial Signatories (Fsign) for your organisation

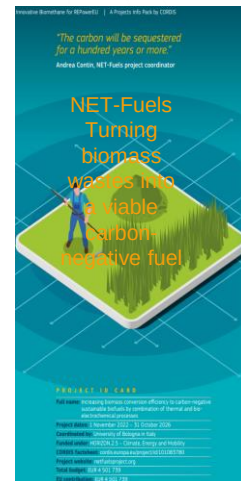
Funding & Tenders Portal
How to assign Project Legal Signatories (PLSign) & Project Financial Signatories (PFSign) for your project/contract



European



[CORDIS results pack on renewable fuels](#)



[Innovative biomethane for REPowerEU](#)

Thank you!

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<http://ec.europa.eu/horizon-europe>

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