The EU framework and perspectives

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State of the Union 2023

Main achievements

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Over the last year, we have achieved a lot by working together. We've shown resilience, agility and vision in ensuring Europe's prosperity by

- Boosting our energy independence through REPowerEU and countering Russia's energy war against the EU economy
- Accelerating the green transition
- Strengthening the EU's position in the race to net zero through the Green Deal Industrial Plan
- Shaping a human-centred digital transformation in Europe
- Championing European values and interests through Global Gateway investments worldwide
- Strengthening our Single Market and social market economy
- Boosting our competitiveness with the support of NextGenerationEU

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Investing in Europe's prosperity

Regained our energy independence - in 2023, less than **10%** of our total gas imports now come from Russian pipelines.

More electricity produced from **wind and solar** in 2022 than from gas.

NextGenerationEU
€800 billion for the modernisation of our economies in the EU.

Global Gateway
€300 billion invested in sustainable projects around the world, with 90 projects already underway.

New initiatives and laws to speed up the **European Green Deal**, including a plan to make the EU's industry climate neutral.

European Year of Skills 2023 – measures to support workers and businesses.

2023 main initiatives

EUROPEAN GREEN DEAL

- Organise a series of **Clean Transition Dialogues** with the industry to develop an approach for each industrial ecosystem, including agriculture
- Propose a **European Wind Power package** to help alleviate challenges of the EU's wind industry; fast-track permitting even more and improve the auction systems
- Launch **an anti-subsidy investigation** into electric vehicles coming from China
- Launch a strategic dialogue on the **future of agriculture** in the EU

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Ff55: European Parliament and Council agreement

Revision of Renewable Energy Directive II	• Collective binding target of renewables in EU's energy mix to **42,5%** by 2030 **with an indicative top-up of 2.5%** • Indicative target for innovative renewable energy **technology of** at least **5% of newly installed renewable energy capacity** by 2030 • **Advanced biofuels** and **biogas** produced from Annex IX Part A feedstock **AND** renewable fuels of non-biological origin in energy supplied to transport at least **5,5 %** in 2030, of which renewable fuels of non-biological origin at least **1 %** • GHG intensity reduction at least **14,5 %** in 2030 by all renewable fuels and renewable electricity supplied to transport OR **29%** share of renewable energy in final energy consumption in transport • strengthens the sustainability criteria for biomass use for energy, to reduce the risk of unsustainable bioenergy production
Revision of the Effort Sharing Regulation	• EU-wide reduction of **40% by 2030** in the transport, buildings, agriculture and waste sectors compared to 2005
Revision of the Emissions Trading System Directive	• By 2030 reduce sectors' GHG emissions by **62%**, compared to 2005 levels • Carbon pricing for maritime and, aviation from 2026, buildings and road transport (and certain industries) from 2027
Revision of the Land Use Land Change and Forestry regulation	• Increase EU's natural carbon sinks with new EU target of net GHG removals in the LULUCF sector of **310 Mt CO2eq** from 2026 to 2030
ReFuelEU Aviation legislative proposal	• In **2030** SAF at least **6%** of which synthetic aviation fuels average share 1.2% and minimum annual share 0.7**%,** rest being advanced biofuels(**4,8%**) • In **2050** SAF at least **70%** of which synthetic aviation fuels at least **35%,** rest being advanced biofuels (**35%**) • SAF include biofuels from agricultural or forestry residues, algae, bio-waste, UCO, animal fats, and recycled jet fuels from waste gases and waste plastic, as well as synthetic fuels and renewable hydrogen
FuelEU Maritime legislative proposal	• Biofuels, biogas, renewable fuels of non-biological origin and recycled carbon fuels are taken into account to reduce the GHG content of the energy in ships by **2% in 2025, -6% in 2030 and -80% in 2050** from 2020 average of 91.6 gCO2/MJ
CO2 emissions standards	• Cars and vans running on carbon neutral synthetic fuels can be registered after 2035 (recital) • Commission will create a new category of vehicles in an implementing regulation, and present a delegated act to define how these vehicles can contribute to climate neutrality
CO2 emissions standards HDV proposal	• 45% CO2 emission reduction target for new heavy-duty vehicles by 2030 compared to 2019 levels, 65% by 2035 and **90% by 2040**
Revision of the Energy Taxation Directive	• Ongoing

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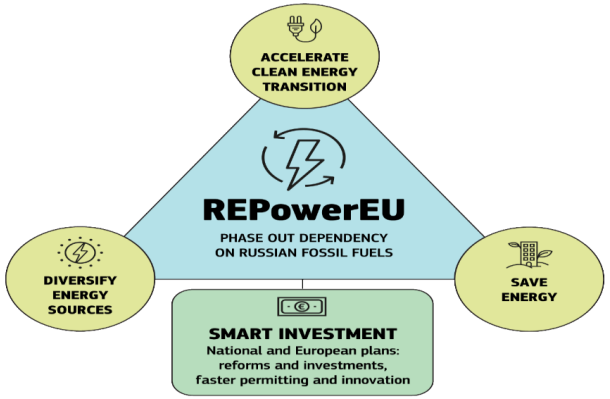
REPowerEU Plan COM(2022) 230 final

Pillar I- Energy savings

- Increased energy efficiency target from 9 to 13%

Pillar II – Diversification of energy supplies

- Secured LNG imports and higher pipeline gas deliveries
- EU Energy platform for voluntary common purchases of gas, LNG, and hydrogen
- EU Energy External Engagement Strategy build long-term partnerships with suppliers



Pillar III – Accelerate roll-out of renewable energy

- Increased RES target from 40 to 45% - massive scaling-up and speeding-up of renewable energy in power generation, industry, buildings, transport

- EU solar strategy to double PV capacity in 2025, install 600 GW in 2030
- EU solar rooftop initiative with legal obligation for all types of new buildings
- Double rate of deployment for heat pumps, integrating geothermal and solar thermal in district and communal heating
- Speed up permitting for major renewable projects, and include in the Renewable Energy Directive recognizing renewable energy as an overriding public interest

- Hydrogen Accelerator for production, infrastructure and storage
  - 10 Mt domestic production and 10 Mt imports in 2030 to to replace natural gas, coal and oil
  - 2 Delegated Acts on definition and production of renewable hydrogen
  - 200 million € additional to support Hydrogen Valleys
  - Complete first Important Projects of Common European Interest by summer

- **Bio methane Action Plan to double the EU bio methane production to 35 billion m^3/y by 2030**
  - **Bio methane Industrial Alliance**
  - **Financial incentives to increase production, also through Common Agricultural Policy**
  - **R&I support to innovative technologies**

- Decarbonize industry by accelerating the switch to electrification and renewable hydrogen
- EUR 225 billion already available in loans under the RRF
- R&I for materials, circularity, bio methane innovative production, solar flagship, hydrogen valleys, Cities Mission, regulatory sandboxes

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Biomethane Action Plan SWD(2022) 230 final

Sustainable **production and use of biogas and bio methane** at EU and national/ regional level and injection of bio methane into the gas grid	Bio methane industrial **partnership/ forum** promoting sustainable production and use
	Bio methane **national strategies** or integrate in **NECPs**
	Broadening the scope of the **fuel supply obligation** in RED
	Participatory **multi-stakeholder engagement**
	Speed up **permitting**
	Co-operation with neighboring and enlargement countries
Incentives for biogas **upgrading** into bio methane	**Reduce the costs** for economic operators
Adaptation and adjustment of existing and deployment of new **infrastructure** for the transport of increased shares of bio methane through the EU gas grid	Regional assessment of **network development**
	Assess **infrastructure challenges**
	Standardization
R&I gaps	Development of **innovative technologies for production**
	Innovative technologies for the upgrade of biogas to bio methane
	Innovative solutions and research on **barriers and integration** of bio methane to the gas grid
	Expansion of the sustainable biomass potential to ensure availability of resources for reaching the bio methane production target
Access to **finance**	Access to **grants and loans**
	Innovation Fund
	Access to **other** financial instruments

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Biomethane Industrial Partnership

BIP Europe

Teaming up to achieve 35 bcm of sustainable biomethane

Task Force 1
National biomethane targets, strategies and policies

Task Force 2
Accelerated biomethane project development

Task Force 3
Sustainable potentials for innovative biomass sources

Task Force 4
Cost efficiency of biomethane production and grid connection

Task Force 5
Research, Development and Innovation needs

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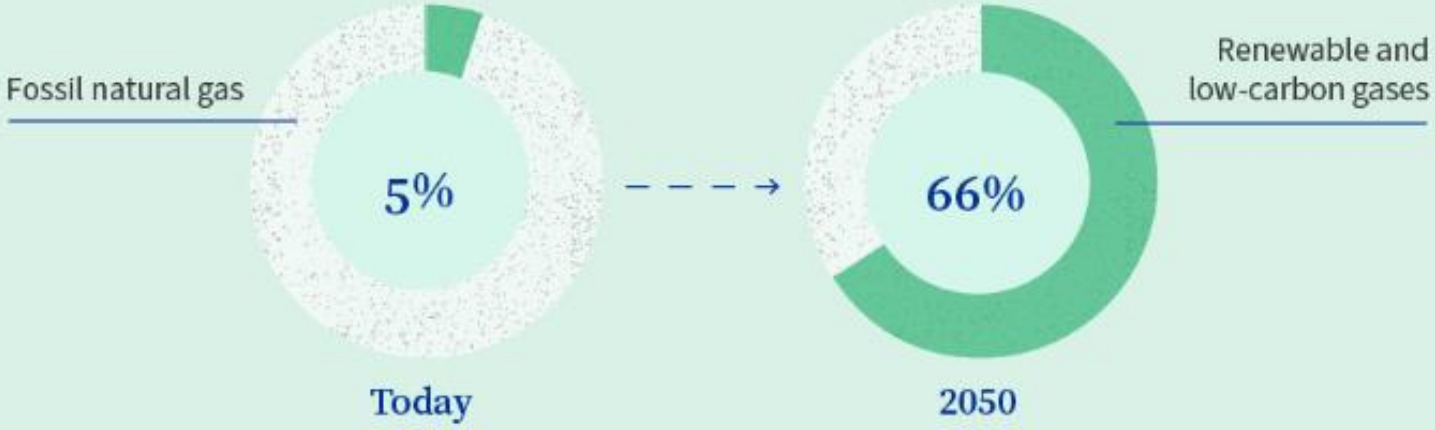
Hydrogen and decarbonised gas markets package

COM(2021) 804 final – The Council's position

The hydrogen and decarbonised gas market package proposes revised and new rules to lower the carbon footprint of the gas market. The goal is to **shift from fossil natural gas to renewable and low-carbon gases and boost their uptake** in the EU by 2030 and beyond.

The package also aims to help **strengthen the security of gas supply** and **reduce dependency** on imported fossil fuels.

Shift to renewable and low-carbon gases



Renewable and low-carbon gases are gaseous fuels with a **lower carbon footprint** than fossil fuels.

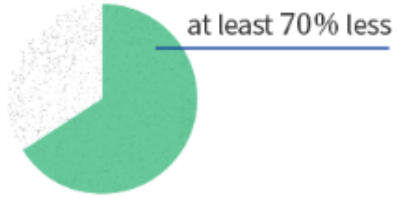
Renewable gases can be produced from:

organic sources

- biogas
- biomethane

non-biological renewable sources (using electricity)

- renewable hydrogen
- synthetic methane



Low-carbon gases are not produced from renewable energy sources but they produce **at least 70% less greenhouse gas emissions** than fossil natural gas across their full lifecycle.

EU member states agreed on the **Council's position** ('general approach') on the proposed rules in March 2023, with a view to negotiations with the European Parliament

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The Green Deal Industrial Plan

Built the industrial capacity for the clean technologies that make up the Green Deal

A predictable and simplified regulatory environment

- Quick deployment of manufacturing capacity
- Critical Raw Materials Supply
- Affordable and sustainable energy

- Net-Zero Industry Act
- Promote regulatory sandboxes
- Electricity Market Design reform

Enhanced skills

- Green and digital skills

- European Skills Agenda, Partnership for Skills

Faster access to funding

- National and EU funding

- InvestEU, REPowerEU, Innovation Fund, State aid Temporary Crisis and Transition Framework, a European Sovereignty Fund

Open trade for resilient supply chains

- Diversified access to critical inputs

- Free Trade Agreements, Critical Raw Materials Club, Clean Tech/ Net-zero Industrial Partnerships

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EU Net-Zero Industry Act: Making EU the home of clean tech industries

Scale up in the EU net-zero technology manufacturing to provide **at least 40%** of its annual deployment needs for strategic net-zero technologies by 2030

- Simplifying the regulatory framework for net-zero technologies
- Scaling up manufacturing of net-zero technologies
- Fostering competitive and resilient European net-zero industry

Strategic net-zero technologies that are commercially available or soon to enter the market, and have significant potential for rapid scale-up

- Solar photovoltaic and solar thermal
- Onshore wind and offshore renewables
- Batteries and storage
- Heat pumps and geothermal energy
- Electrolysers and fuel cells
- **Sustainable biogas/ biomethane**
- Carbon capture and storage
- Grid technologies

Other net-zero technologies are also supported

- **Sustainable alternative fuels technologies**
- Advanced technologies to produce energy from nuclear processes, small modular reactors, related best-in-class fuels

Actions to stimulate investment into net-zero technologies

Net-Zero Strategic Projects	Priority projects essential for reinforcing the resilience and competitiveness of the EU net-zero industry
CO2 injection capacity target	CCS projects, notably by enhancing availability of CO2 storage sites
Facilitating access to markets	Sustainability and resilience criteria in procurement procedures and auctions of renewables
Enhancing skills	Net-Zero Industry Academies for training and education
Cutting red tape and accelerated permitting	Lower administrative burden and simpler and faster permitting notably for strategic projects
Attracting investment	Net-Zero Europe Platform and Hydrogen Bank
Innovation	Regulatory sandboxes for innovation

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Strategic Technologies for Europe Platform

Boost investments in critical technologies in Europe	Deep and digital technologies	
	Clean technologies	Renewable energy; electricity and heat storage; heat pumps; electricity grid
		RFNBOs; sustainable alternative fuels; electrolyzes and fuel cells;
		CCS, CCUS,; energy efficiency; hydrogen; water purification and desalination; advanced materials; extraction and processing of critical raw materials
	Bio technologies	
Reinforce, leverage and steer EU funds – existing and new – to investments in the EU, and in skills	InvestEU, Innovation Fund, Horizon Europe, EU4Health, Digital Program, European Defense Fund, Recovery and Resilience Facility, and cohesion policy funds.	€3 billion for InvestEU, resulting in €75 billion of investments
		€0.5 billion to Horizon Europe, plus €2.13 billion of redeployment and use of decommitments resulting in €13 billion of investments
		€5 billion to Innovation Fund, resulting in €20 billion of investments
		€1.5 billion to European Defense Fund, which could result in up to €2 billion of investments
	STEP is expected to result in up to **€160 billion** of new investments	Reprioritization of Cohesion Policy funds as higher pre-financing and co-financing leads to €18.9 billion available for every 5% of reprogramming
		An additional flexibility under RRF can lead to further €30 billion for sovereignty investment

Contributing EU programmes (europa.eu)

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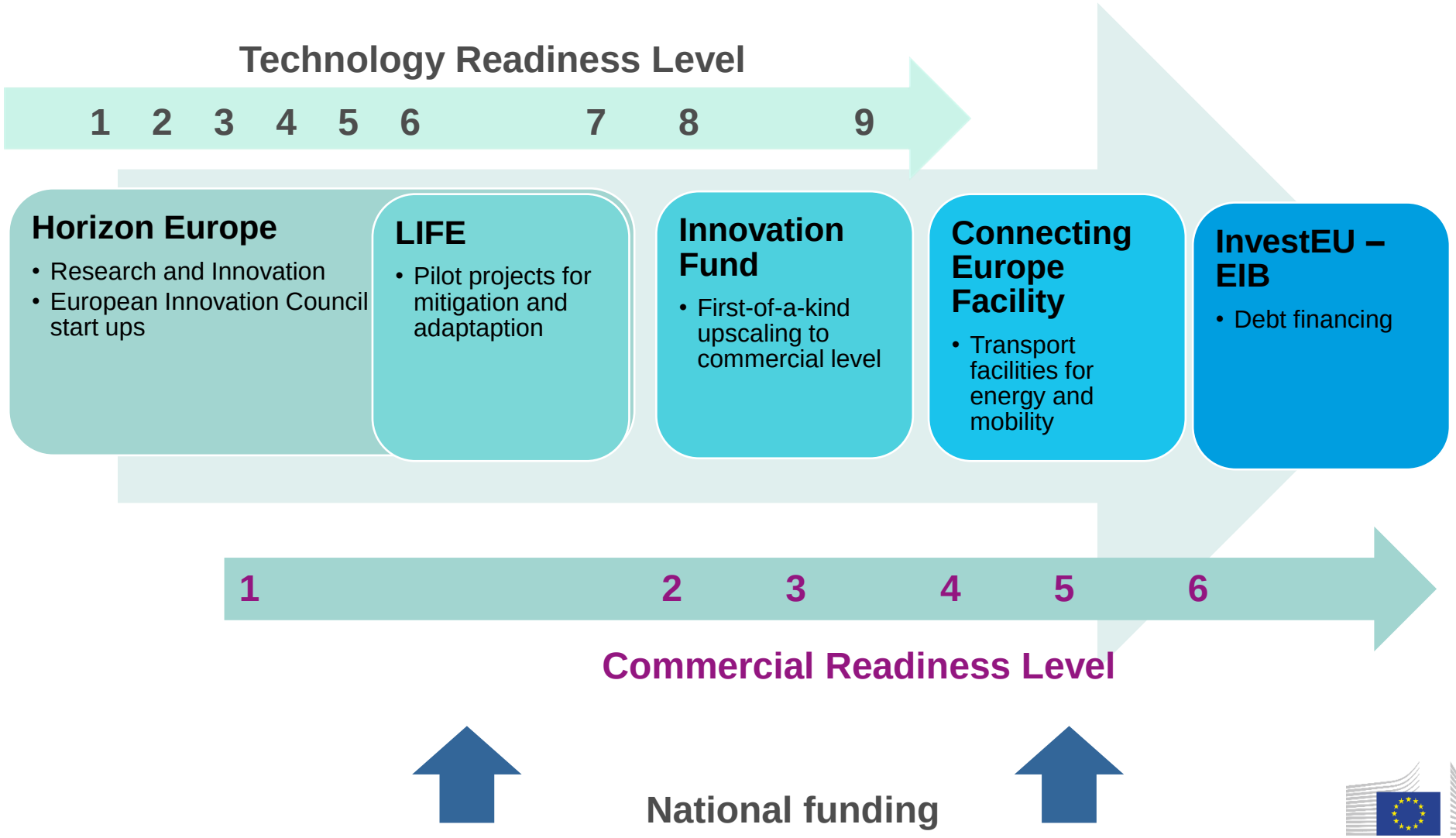
EU Funding Programmes



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Funding

Next Generation EU	**€800 billion** temporary recovery instrument
Multiannual Framework including Horizon Europe	**€1,074 trillion** long-term budget for 2021-2027 - **€ 320 billion** for climate actions (2021-2027)
Innovation Fund	With revision of EU ETS the fund is increased to **€47 billion** for 10 years adding **€200 million** allowances for buildings and transport and allowances via the Carbon Border Adjustment Mechanism
LIFE	€ **5.45 billion**, (2021-2027)
InvestEU	**€ 26.2 billion** through EIB to leverage **€ 372 billion**
	InvestEU for Research and Innovation : With an EU budgetary guarantee of **€6.6 billion**, the Research, Innovation and Digitization is expected to leverage an estimated **€90 billion** of R&I investments
	Market-based finance for the exploitation and scale-up of European R&I
Horizon Europe	**€95,5 billion** for 2021-2027 including €5.4 billion from NGEU temporary recovery instrument
	Cluster 5 - Climate, Energy and Mobility: **€15,1 billion** for 2021-2027 including **~ € 9 billion** for EU Partnerships CET P, Waterborne, Clean aviation and **~ € 1,5 billion** for EU Missions Climate, Oceans, Cities, Soil
	Innovative Europe (European Innovation Council) : **€13,6 billion** for 2021-2027 for support to innovations with breakthrough and disruptive nature and scale up potential that are too risky for private investors (70% of the budget earmarked for SMEs)

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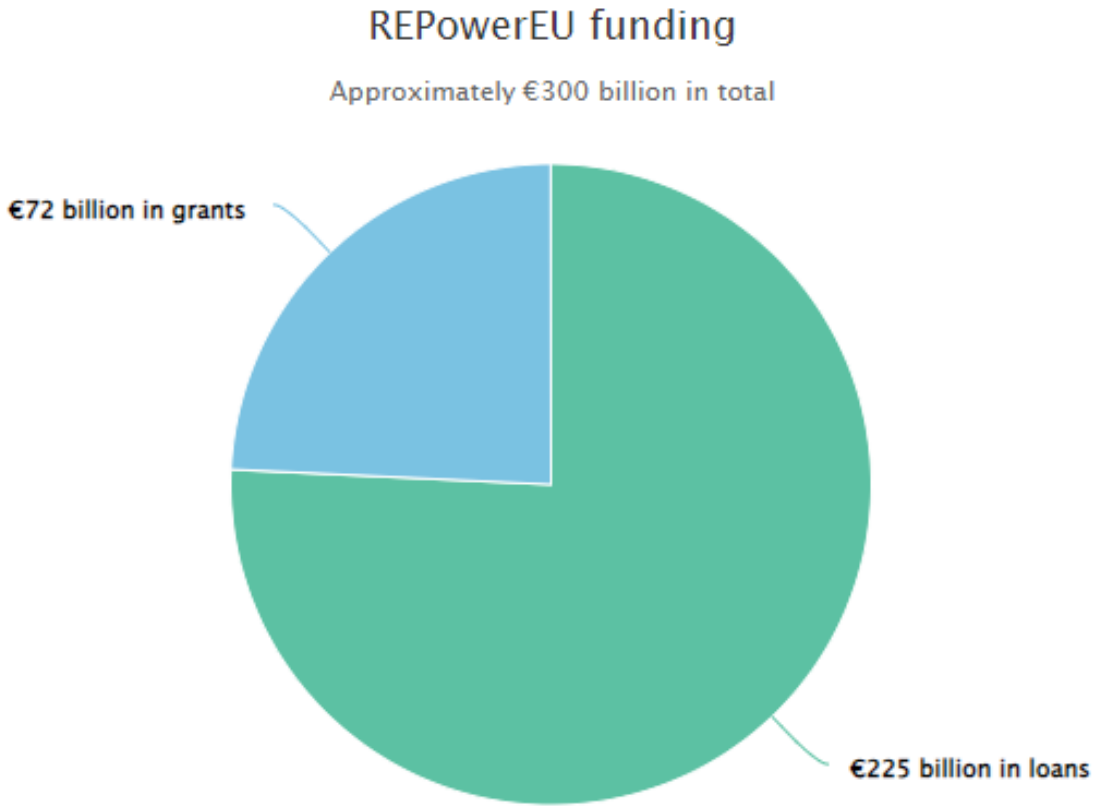
Financing REPowerEU

Recovery and Resilience Facility (RRF):

- 95% to clean energy transition (speeding & scaling up)
- €10 billion in missing links for gas and LNG and up to €2 billion for oil infrastructure



Other sources:

- Cohesion Policy funds
- European Agricultural Fund for Rural Development
- Connecting Europe Facility
- Innovation Fund
- National and EU funding in support of REPowerEU objectives
- National fiscal measures
- Private investment
- The European Investment Bank

Next steps

- New national REPowerEU chapters under updated RRF
- Boosting industrial decarbonization
- New legislation for faster renewables roll-out
- Investments in energy infrastructure and interconnections
- Regulatory measures to increase energy efficiency
- A modern regulatory framework for hydrogen, and a hydrogen accelerator

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Innovation Fund 2023

The third call for large-scale projects total grants amount to more than € 3.6 billion and will support 41 projects

BioOstrand Biorefinery Östrand – The first commercial deployment of solid biomass-and-power-to-Sustainable Aviation Fuels technology line-up, Sweden	Biorefinery Östrand AB	Design, build and operate the world's first large-scale biorefinery to produce renewable Sustainable Aviation Fuels (SAF) and naphtha, and deploy a breakthrough Anything-to-Liquid (XTL) pathway, solid biomass gasification and Fischer-Tropsch synthesis with an electrolysis utilising 100% renewable energy in a world-leading commercial scale biorefinery.
IRIS Innovative low caRbon hydrogen and methanol productIon by large Scale carbon capture, Greece	MOTOR OIL	Production of ultra-low carbon hydrogen and methanol with the integration of point-source carbon capture on its current Steam Methane Reforming unit, electrolytic H2 production and a catalytic process of high selectivity. The captured CO2 will be combined with green electrolytic H2 to produce e-methanol. The process will reduce the refinery's carbon footprint.
eM-Rhone electro-Methanol-Rhône, France	Elyse Energy	Produce e-methanol using renewable hydrogen production from electrolysis with renewable energy and carbon capture and utilization by Cryocap™ technology from a cement plant
Columbus Columbus: combination of captured "fatal" CO_2 from lime production with green H2, to produce carbon-neutral synthetic e-methane, Belgium	ELECTRABEL	Demonstrate a first-of-a-kind new integrated process: capture CO_2 emissions from an oxycombustion lime kiln and combine it with green hydrogen produced by electrolyzes to produce e-methane.
GREEN MEIGA Green Methanol in Galicia, Spain	IBERDROLA CLIENTES	It consists in an integrated plant with i) a hybridised H2 production system comprising alkaline, proton-exchange membrane (PEM), solid oxide electrolyser cell (SOEC) and SOEC co-electrolysis systems), ii) an integrated e-methanol production system, and iii) an advanced CO_2 capture system integrating enzyme-based and direct air-capture technologies
TRISKELION Green Methanol manufacturing from CO_2 Spain	Forestal del Atlántico, S.A	Hydrogen is produced via electrolysis with electricity from additional renewable sources (wind farm in the immediate vicinity of the project facilities). The CO_2 is captured from an existing co-generation plan, after it has been transformed to make its capture viable.
GAP FFI Holmaneset -Green Ammonia Production to fill the GAP in Europe's energy supply, Norway	FFI-NOR	Renewable ammonia production plant in Norway, using an electrolyser powered by surplus renewable energy from the grid. The ammonia will be supplied by ship to domestic and European markets
GRAMLI Green Ammonia Linz, Austria	VERBUND	integrate a PEM-electrolyser with ammonia production facilities, powered by renewable energy from the grid to produce hydrogen. The project will follow the electricity grid's emission intensity, with the facility's operation timed to use more electricity when the share of renewable electricity is high
E-fuel Pilot Innovative and cost-efficient production process for PtL using industrial off-gases, Norway	Nordic Electrofuel AS	Demonstrate a competitive production of syncrude (liquid hydrocarbons), based on renewable energy, water, and CO/CO_2 from industrial off-gases of a Ferro/Silicon-Manganese plant. Itwill use transformation processes like FT (Fischer–Tropsch process), reversed water gas shift and alkaline electrolysis, combined with an innovative syngas solution

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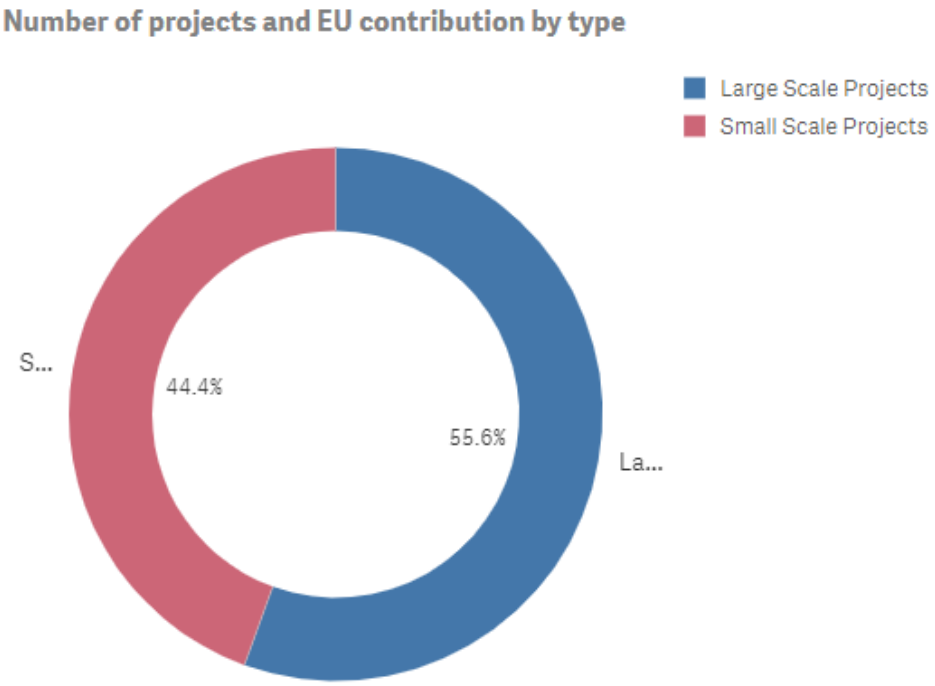
Innovation Fund signed projects

Project acronym	Project title	EU contribution	Project location countries
		553,856,288	
AIR	Production of sustainable methanol as raw ma...	97,000,000	Sweden
Beccs Stockholm	Bio-Energy Carbon Capture and Storage (BEC...	180,000,000	Sweden
BIOZIN	Conversion of waste and residue BIOmass fro...	75,000,000	Norway
ECOPLANTA	Reduction of CO2 emissions in methanol prod...	106,379,783	Spain
FirstBio2Shipping	First Bio-LNG to Marine Shipping	4,336,058	Netherlands
HySkies	HySkies: A partnership to develop Sustainable...	80,200,000	Sweden
LK2BM	Conversion of a pulp mill lime kiln fuel source t...	4,488,046	Portugal
SOL	Sugar Oil as sustainable marine fueLs	4,000,000	Netherlands
W4W	Waga 4 World	2,452,401	Spain



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EU Publications

- https://op.europa.eu/en/publication-detail/-/publication/c4651f9b-eaf2-11ed-a05c-01aa75ed71a1/language-en
  - video Innovative Biomethane for REPowerEU – A Cordis info Pack - YouTube
  - 💡 How can the #EU reduce its... - EU Science & Innovation | Facebook
  - https://twitter.com/EUScienceInnov/status/1655551077368963074?s=20
  - https://twitter.com/HorizonEU/status/1657314740698243073?s=20

CORDIS results pack on renewable fuels - Publications Office of the EU (europa.eu)

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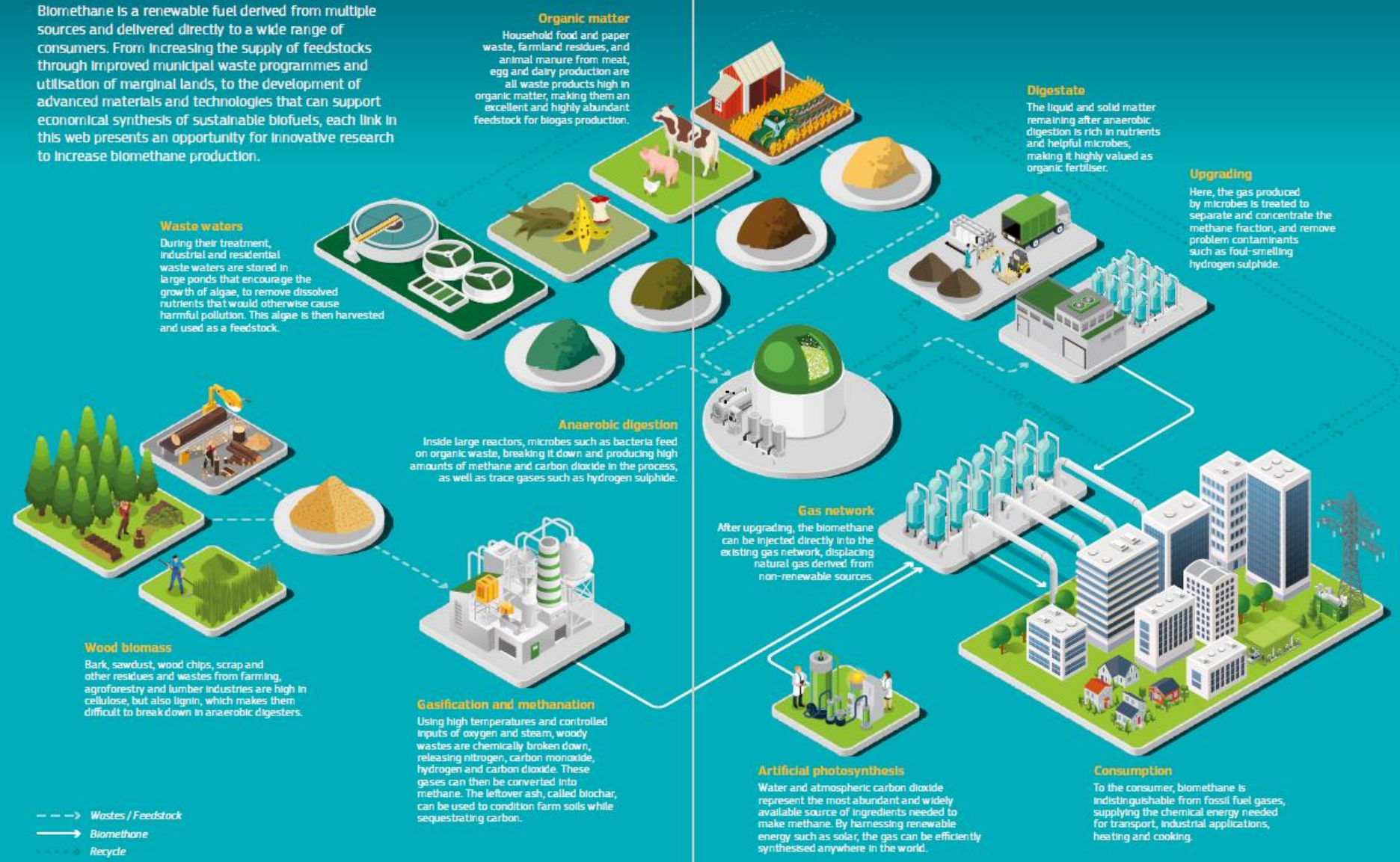
Fuelling innovation

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 Biomethane for REPowerEU | A Projects Info Pack by CORDIS

Innovative bio-methane production in the EU

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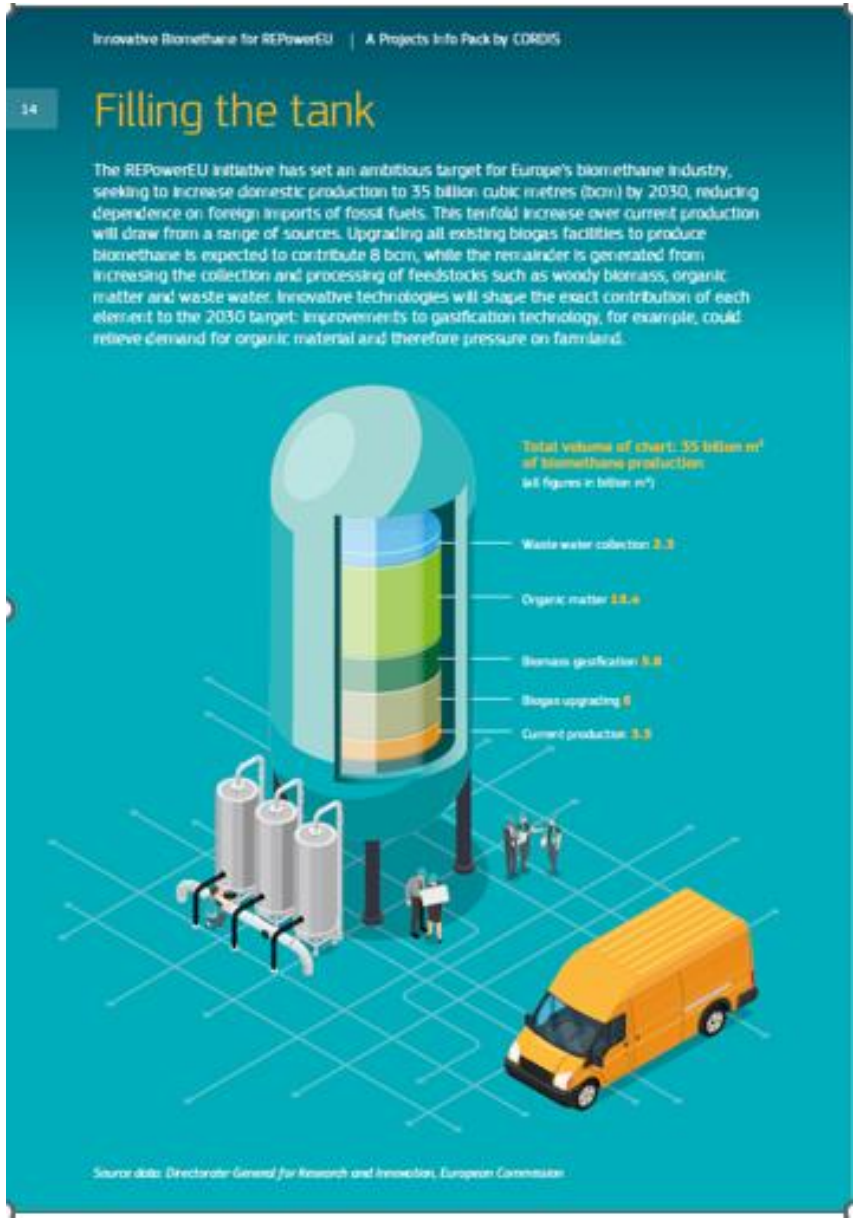
Innovative biomethane production in the EU



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Renewable Fuels H2020 projects

From biomass residues and waste to drop-in aviation fuels

The transport sector guzzles liquid fuels. Hydrothermal liquefaction to produce feedstock-flexible advanced biofuels could slash global emissions.

HyFlexFuel - Hydrothermal liquefaction: Enhanced performance and feedstock flexibility for efficient biofuel production

COORDINATED BY
Bauhaus Luftfahrt, Germany

H2020

Advanced process makes biodiesel greener, cheaper and competitive

Four newly developed technologies enhance the efficiency and effectiveness of biodiesel production from waste biomass through a biomethanol route.

CONVERGE - CarbON Valorisation in Energy-efficient Green fuels

COORDINATED BY
The Polytechnic University of Milan, Italy

H2020

From domestic sewage waste to your gas tank: advanced biofuels from sewage

Naturally renewable, carbon-rich biogenic waste is turned into drop-in fuels for transport in the first industrial-scale demonstration of the process and product.

TO-SYN-FUEL - The Demonstration of Waste Biomass to Synthetic Fuels and Green Hydrogen

COORDINATED BY
Fraunhofer Society for the Advancement of Applied Research, Germany

H2020

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HORIZON EUROPE

EURATOM

SPECIFIC PROGRAMME: EUROPEAN DEFENCE FUND

Exclusive focus on defence research & development

- Research actions
- Development actions

SPECIFIC PROGRAMME IMPLEMENTING HORIZON EUROPE & EIT*

Exclusive focus on civil applications

Pillar I
EXCELLENT SCIENCE

- European Research Council
- Marie Skłodowska-Curie
- Research Infrastructures

Pillar II
GLOBAL CHALLENGES & EUROPEAN INDUSTRIAL COMPETITIVENESS

Clusters

- Health
- Culture, Creativity & Inclusive Society
- Civil Security for Society
- Digital, Industry & Space
- Climate, Energy & Mobility
- Food, Bioeconomy, Natural Resources, Agriculture & Environment

Joint Research Centre

Pillar III
INNOVATIVE EUROPE

- European Innovation Council
- European Innovation Ecosystems
- European Institute of Innovation & Technology*

WIDENING PARTICIPATION AND STRENGTHENING THE EUROPEAN RESEARCH AREA

- Widening participation & spreading excellence
- Reforming & Enhancing the European R&I system

EURATOM

- Fusion
- Fission
- Joint Research Center

* The European Institute of Innovation & Technology (EIT) is not part of the Specific Programme

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WP 2023-2024: EU policy objectives

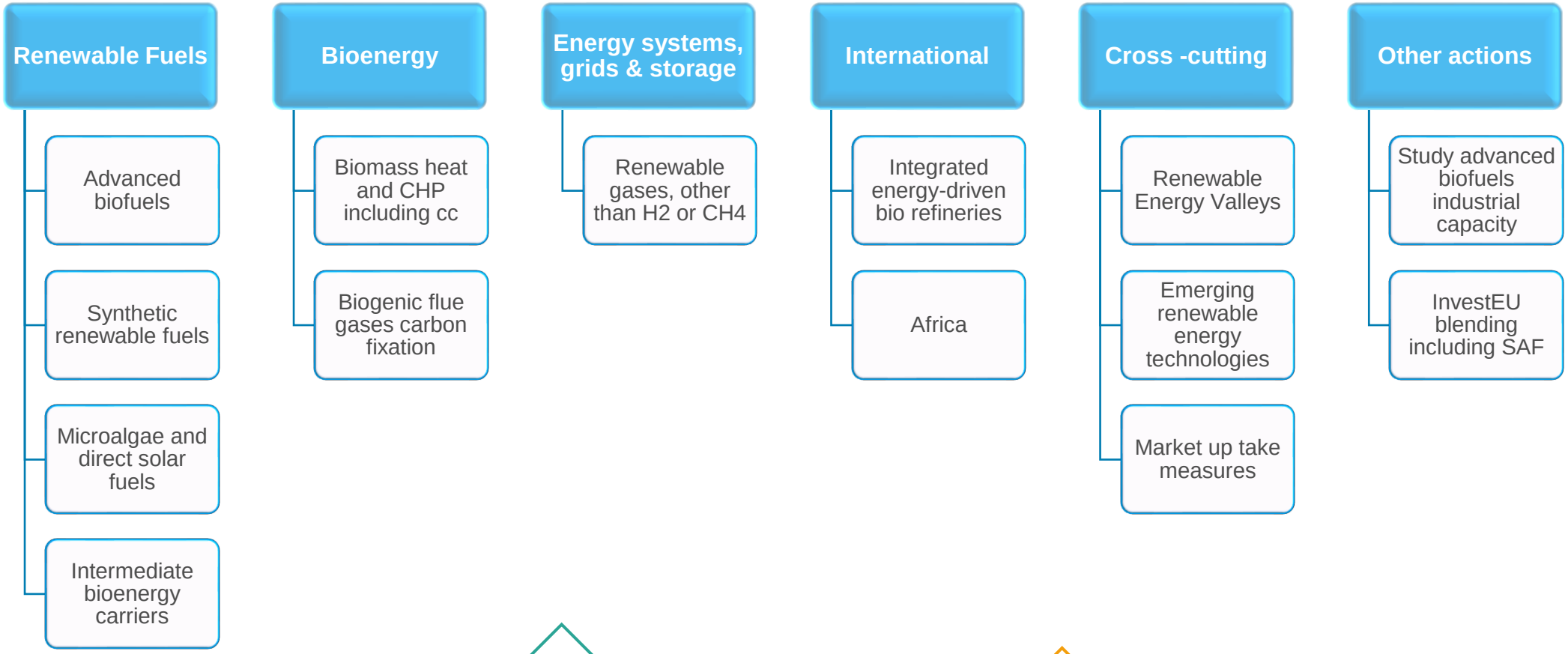
European Green Deal	• Great majority of topics contribute to Green Deal objectives and initiatives in energy and transport/mobility
Developing an economy that works for people	• Many topics address industrial competitiveness, training and skills, business models and standardisation
Europe fit for the digital age	• Half of all topics foster IT- (and data-) driven solutions
Stronger Europe in the world	• Many topics call for international cooperation, e.g. in the context of Mission Innovation or EU-Africa cooperation
New push for European democracy	• String focus on citizen engagement and mainstreaming of social sciences and humanities (SSH) across many topics

New European Bauhaus

European Commission

Horizon Europe Work Programme 2023-2024

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



The European Green Deal

REPowerEU:

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Renewable Fuels	HORIZON-CL5-2024-D3-01-03	Demonstration of improved intermediate renewable energy carrier technologies for transport fuels	IA, 10 M per project, opens 12 September 2023, closes 16 January 2024
	HORIZON-CL5-2024-D3-02-02	Development of next generation synthetic renewable fuel technologies	RIA, 3 M per project, opens 17 September 2024, closes 21 January 2025
	HORIZON-CL5-2024-D3-01-04	Improvement of light harvesting and carbon fixation with synthetic biology and/or bio-inspired/ biomimetic pathways for renewable direct solar fuels production	RIA, 4 M per project, opens 12 September 2023, closes 16 January 2024
Bioenergy	HORIZON-CL5-2024-D3-01-05	Development of carbon fixation technologies for biogenic flue gases	RIA, 4 M per project, opens 12 September 2023, closes 16 January 2024
Energy systems, grids and storage	HORIZON-CL5-2023-D3-03-02	Integration of renewable gases, other than hydrogen or methane, and which have not access to gas grids and interfacing with electricity and heat sectors	IA, 6 M per project, opens 4 May 2023, closes 10 October 2023
International	HORIZON-CL5-2024-D3-02-03	Development of smart concepts of integrated energy driven bio-refineries for co-production of advanced biofuels, bio-chemicals and biomaterials	RIA, 3.5 M per project, opens 17 September 2024, closes 21 January 2025
Cross- cutting	HORIZON-CL5-2024-D3-01-10	Next generation of renewable energy technologies	RIA, 3 M per project, opens 12 September 2023, closes 16 January 2024
	HORIZON-CL5-2024-D3-02-10	Market Uptake Measures of renewable energy systems	CSA, 2 M per project, opens 17 September 2024, closes 21 January 2025
Other actions		Study on how to mobilize industrial capacity building for advanced biofuels	other action, 0.5 M, 2nd quarter 2023
		Contribution to InvestEU blending operation under the Green Transition product (including Sustainable aviation fuels)	Indirectly managed action through EIB, 100 M, as of 1st quarter 2023 and 1st quarter 2024

CET Partnership Joint Call 2023

- 30+ Countries: EU MS + ACs + International Partners, 50+ Funding Partners Funding Agencies & Ministries,13 Coordination Units, Coordinators: Austrian Ministry of Climate Action Swedish Energy Agency ,
- Annual Joint Calls for RTDI Projects 100 – 130 Mio €/a 2021 – 2027
- 10 Call modules of which:

5. Hydrogen and renewable fuels

Objectives	To accelerate the development of technologies for hydrogen and renewable fuels to facilitate their use in ”hard-to-abate” carbon sectors and to serve flexibility and sector coupling needs in the energy system.
Topics	Technological development, demonstration, and deployment of renewable and synthetic fuels production, including hydrogen and energy storage
Activities	Targeting technological solutions for end users
Stakeholders	Research organisations, Universities, Companies, Public organisations, NGOs
TRLs	Final TRL = 5–9

- Call launch event 13 September 2023 Public - online

European Commission

Mission Innovation 2.0 - Integrated Biorefineries Mission

Launched 4 April 2022

Develop and demonstrate innovative solutions to accelerate the commercialization of integrated biorefineries, with a target of replacing 10% of fossil-based fuels, chemicals and materials with bio-based alternatives by 2030

23 September 2022: Launch of the Integrated Biorefineries Mission Innovation Roadmap

Members will (a) promote research, development, and innovation across the biorefining supply and value chain, (b) advance pilot-scale demonstration projects for sustainable biorefining technologies, and (c) collaborate with industry and standards-setting organizations to support regulatory development for these new products

The Co -Leads	**India**: (Department of Biotechnology, Ministry of Science and Technology, Gov of India
	Netherlands: Ministry of Economic Affairs and Climate Policy
Members	Brazil, Canada, European Commission, United Kingdom
The Knowledge Partners	IEA, IEA Bioenergy (Task42), HLCAC, Nova Institute (Germany), CEM, Biofuture Initiative

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Mission Integrated Biorefineries - Actions

3 Pillars	Research and Development	New products	Workshops with Industry: **June 2023 1st Webinar, July 2023 2nd Webinar** Joint Research new products: **Q3-Q4 2023** formulate call
		Improved efficiency	Support efficiency improvement:: consortia for proposals to EU call
	Pilots and Demo	Showcase results	Legislation and regulations: **end 2023** report
		Learn and Improve	Integrated biorefinery business plan: **mid 2023** report Standards
	Market and Policies	Sustainability	Collaboration with CEM Biofuture Campaign
		LCA and Carbon accounting	Collaboration with CEM Biofuture Campaign and UN LCA Initiative
Bioresources in Missions and Initiatives	CEM Biofuture Initiative CEM Biofuture campaign with industry MI SAF Platform MI CDR/ BiCRS MI Zero Industries	Availability, Sustainability New Feedstocks Carbon Sequestration Fuels/ Chemicals SAF Carbon Storage Zero emission industries LCA	

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Thank you!

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