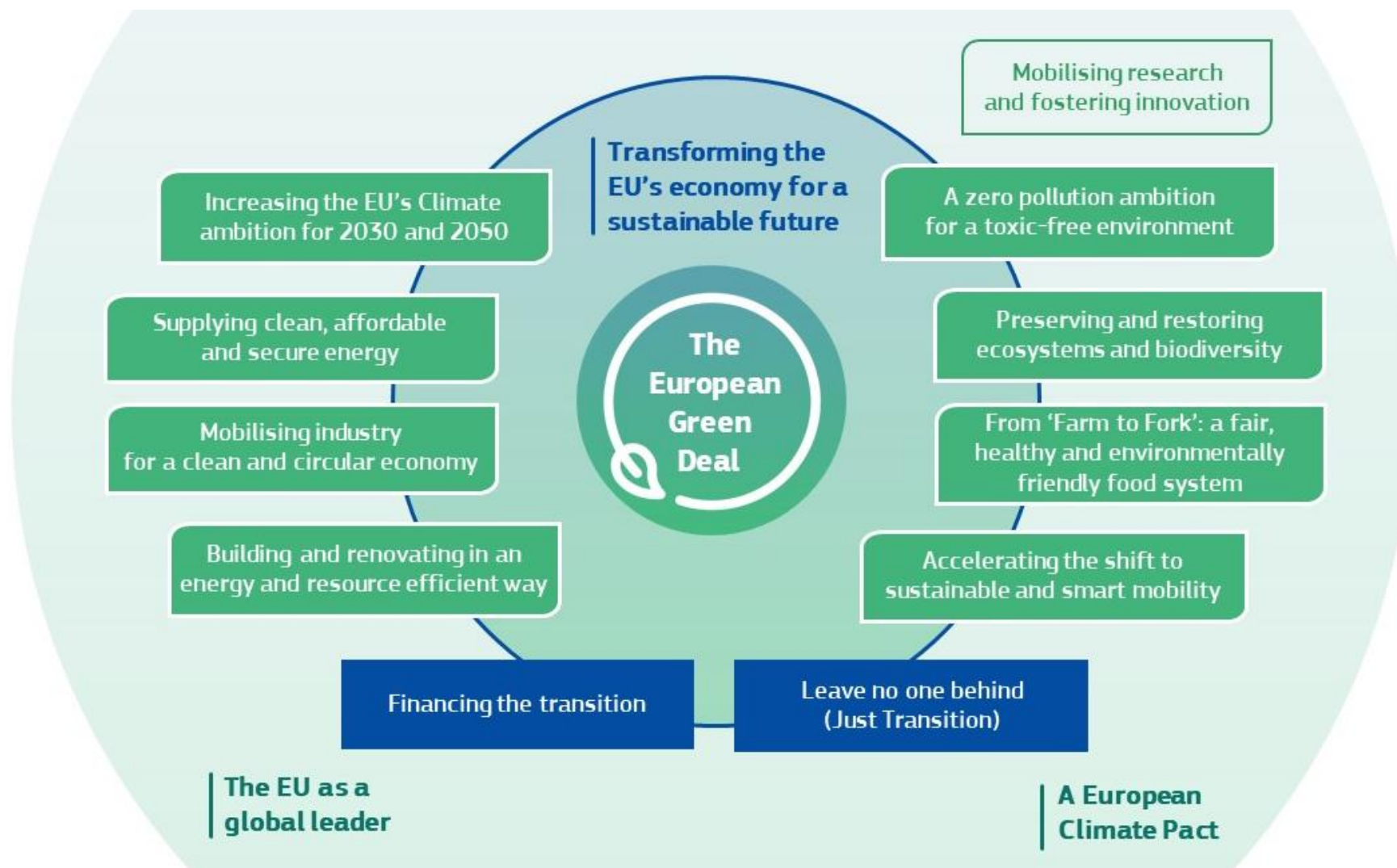




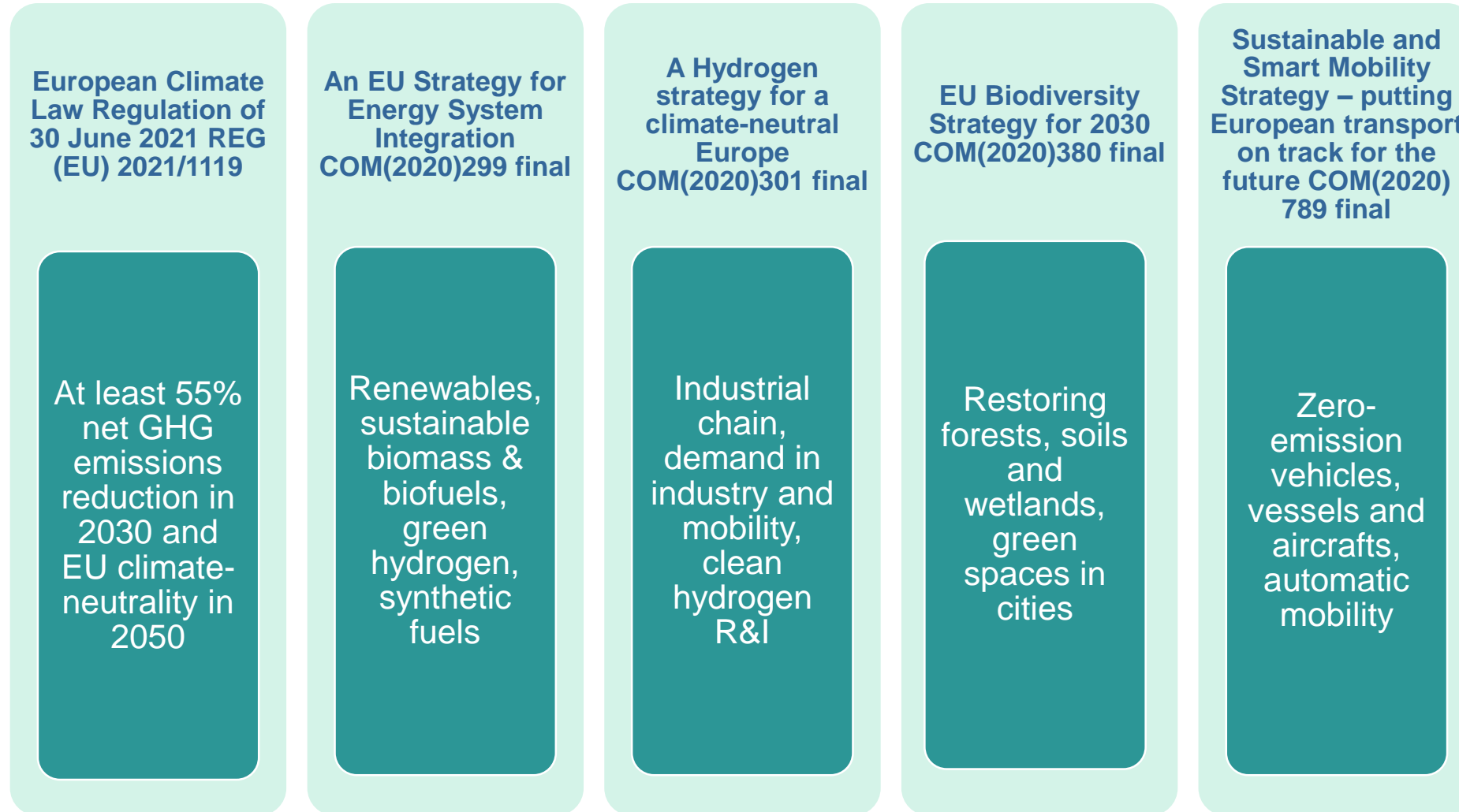
EU policy initiatives promoting sustainable maritime fuels

Dr Maria Georgiadou
Senior Expert
European Commission
DG Research and Innovation

The European Green Deal

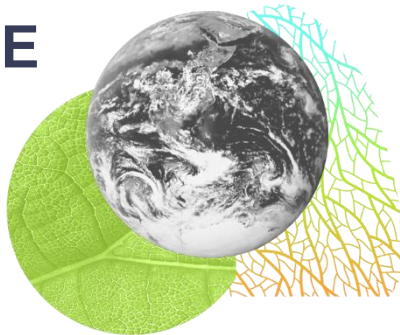


European Climate and Energy Policy

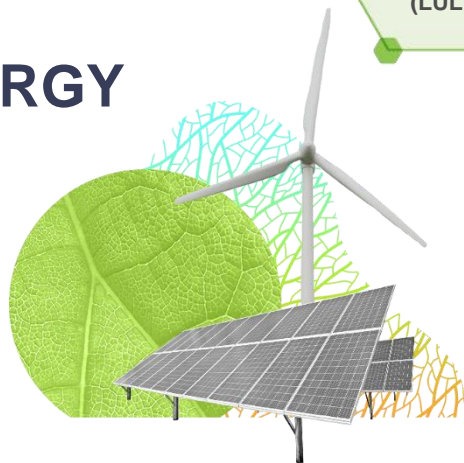


Delivering on the “Fit for 55” commitment

CLIMATE



ENERGY



TRANSPORT



TAXATION AND TRADE



“Fit for 55” package

Revision of Renewable Energy
Directive II

- Collective binding target of renewables in EU’s energy mix to **40%** by 2030
- **Advanced biofuels** and **biogas** produced from Annex IX Part A feedstock in energy supplied to transport at least 0,2 % in 2022, 0,5 % in 2025 and **2,2 %** in 2030, renewable fuels of non-biological origin at least **2,6 %** in 2030
- GHG intensity reduction at least **13 %** in 2030 by all renewable fuels and renewable electricity supplied to transport

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 **61%**, compared to 2005 levels
- Carbon pricing for maritime, aviation, buildings and road transport from 2026

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 **5%** of which synthetic aviation fuels share at least **0.7%**, rest being advanced biofuels(**4,3%**)
- In **2050** SAF at least **63%** of which synthetic aviation fuels at least **28%**, rest being advanced biofuels (**35%**)

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 **-6% in 2030 and -75% in 2050** from the 2020 average

Revision of the Energy Taxation
Directive

- Exemptions for renewable electricity, renewable fuels, advanced biofuels/ bio liquids/ biogas/ biomass fuels

NOT LEGALLY BINDING

REPowerEU: Joint European action for more affordable, secure and sustainable energy COM(2022) 108 final

Increase the resilience of the EU's energy system by controlling energy prices, securing gas storage and reduce dependency on fossil fuel imports by ramping up the production of biomethane and hydrogen, decarbonizing industry and increasing renewable energy use

Speed up **renewables permitting** to roll-out renewable projects and grid infrastructure improvements

More rooftop **solar panels, heat pumps and energy savings** to reduce our dependence on fossil fuels, making our buildings more energy efficient

Diversify **gas supplies**

Double the EU **biomethane** goal to produce **35 billion cubic meters** per year by 2030

A **Hydrogen Accelerator** to develop infrastructure, storage facilities and ports, and provide additional **15 million tones** renewable hydrogen (5 Mt domestic and 10 Mt imported)

Decarbonize industry by accelerating the switch to electrification and renewable hydrogen and enhancing our low-carbon manufacturing capabilities

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

Fusion

Fission

Joint
Research
Center

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

Horizon Europe

Cluster 5, 'Climate, Energy and Mobility'

Destination - Sustainable, secure and competitive energy supply

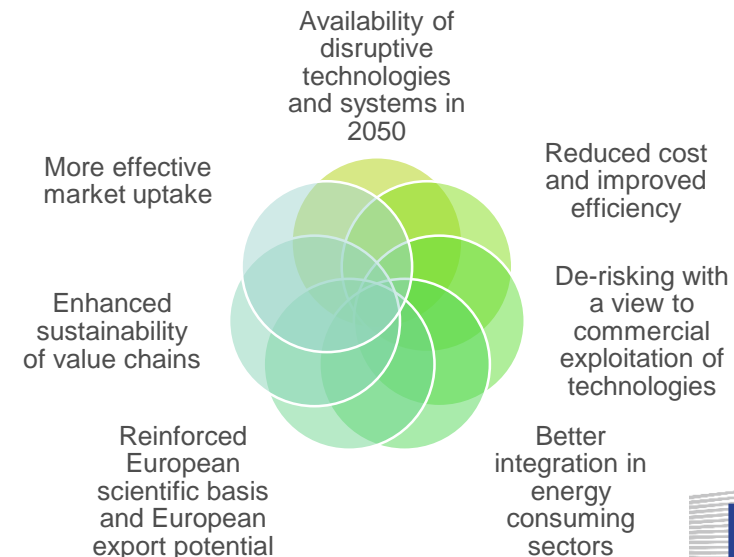
More efficient, clean, sustainable, secure and competitive energy supply through new solutions for smart grids and energy systems based on more performant renewable energy solutions

- Fostering the European global leadership in affordable, secure and sustainable renewable energy technologies
- Energy systems, grids and storage
- Carbon capture, utilization and storage (CCUS)
- Cross-cutting and leveraging more public and private investments in clean energy systems

Renewable energy technologies

provide major opportunities to replace or substitute carbon from fossil origin in the power sector, in heating/cooling, transportation, agriculture and industry

Advanced renewable fuels, including synthetic and sustainable advanced biofuels, needed to provide long-term carbon-neutral solutions for the transport and energy-intensive industrial sectors



Horizon Europe - Work Programme 2021-2022

Climate, Energy and Mobility - Destination 3 Renewable Energy

Renewable fuels Topics

- Hybrid catalytic conversion
- Carbon negative biofuel production
- Algal and non-biological renewable fuel technologies
- Bio methane production
- Viable advanced biofuel production
- Value chains for renewable fuels
- International cooperation for scale-up of sustainable biofuels
- Renewable energy technologies in agriculture and forestry for energy and waste needs
- Renewable energy carriers from variable renewable electricity and carbon emissions
- Coupling solar fuel technologies to other renewables
- Artificial photosynthesis technologies

Bioenergy Topics

- Micro-CHP and hybrid heating systems
- Large-scale CHP technologies from biogenic residues and wastes
- Industrial and low-emission combustion and gasification from biogenic residues and wastes
- Renewable energy carriers for heating
- Direct integration of renewable energy into chemical process energy

Other actions

- Studies on development of industrial capacity for drop-in advanced biofuels, pre-commercial procurements for commercial cargo-shipping and aviation advanced biofuels, prizes for development of renewable energy systems

HORIZON-CL5-2022-D3-02-08

Demonstration of complete value chains for advanced biofuel and non-biological renewable fuel production

Demonstrate innovative and cost effective sustainable value chains for advanced biofuels or synthetic renewable fuels of non-biological origin (other than for hydrogen as a final product), over the entire cycle from feedstock to end use (IA, EUR 20 million, Opening 26 May 2022, Deadline 27 Oct 2022)

HORIZON-CL5-2022-D3-03-02

Best international practice for scaling up sustainable biofuels

Foster international cooperation to develop best practices and concepts along the entire value chain for accelerating the scale-up of sustainable biofuels worldwide (RIA, EUR 9 million, Opening 6 Sep 2022, Deadline 10 Jan 2023)

HORIZON-CL5-2022-D3-03-07

Development of algal and renewable fuels of non-biological origin

Develop and improve algal and/or non-biological renewable fuel technologies (other than for hydrogen as a final product), through developing synthetic pathways including biological, biochemical, thermochemical, electrochemical processes or combinations of them (RIA, EUR 15 million, Opening 6 Sep 2022, Deadline 10 Jan 2023)

Enabling climate neutral, clean, smart, and competitive waterborne transport

HORIZON-CL5-2022-D5-01-04

Transformation of the existing fleet towards greener operations through retrofitting (ZEWT Partnership)

(IA, EUR 16 million, Opening 02 Dec 2021, Deadline 26 Apr 2022)

Implemented through the Co-programmed European Partnership on 'Zero Emission Waterborne Transport' (ZEWT)

Demonstrated retrofitting solutions for sea-going and inland navigation vessels in operation.

Retrofit solutions to reduce GHG emissions that are developed and ready to deploy. The target is to achieve a GHG emissions reduction of at least 35% compared to the original design.

Retrofit solutions involving climate neutral fuels making vessels GHG emission free. These solutions are expected to have a significant R&I content going beyond a simple exchange of fuels through minor technical adaptations.

Establishment of an up-to-date catalogue of suitable solutions for a wide variety of ship types and operation scenarios

Mission Innovation 2.0

Launched on 2 June 2021, supports in the next decade action and investment in research, development and demonstration to make clean energy affordable, attractive and accessible to all this decade and accelerate progress towards the Paris Agreement goals and pathways to net zero

Innovation Platform: Insights, Collaborate, Accelerate

Innovation for International Sustainable Aviation Fuel: forge global partnerships for sustainable and cost-effective strategies for Sustainable Aviation fuels, **co-lead India**, USA, participants **EU**, CN, NL, DK

Materials for Energy

The Innovation Community on Affordable Heating and Cooling of Buildings

MI Call series

Missions: Bring together dynamic and delivery-focused, high ambition alliances between countries, corporations, investors and research institutes

Integrated Bio refineries, launched 4 April 2022, co-lead **India**, NL, participants **EU**, BR, CA, UK
Accelerate commercialization of integrated biorefineries, to replace 10% of fossil-based fuels, chemicals and materials with bio-based alternatives by 2030

Green Powered Future

Zero Emission Shipping

Clean Hydrogen

Carbon Dioxide Removal

Urban Transitions

Net-Zero Industries



Thank you!

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