



# SUSTAINABLE & SMART **MOBILITY STRATEGY**

## Renewable and Low-Carbon liquid fuels in transport



European Energy Forum  
1 July 2022

# Renewable fuels & Low-carbon fuels: definitions

- **Renewable fuels for transport:**
  - **Biofuels** = liquid fuel for transport produced from biomass
  - **Biogas** = gaseous fuels produced from biomass
  - **Renewable liquid and gaseous transport fuels of non-biological origin** = liquid or gaseous fuels used in the transport sector other than biofuels or biogas, whose energy content is derived from renewable sources other than biomass;
  - **Renewable electricity**
- **Low-carbon fuels:**
  - **Recycled carbon fuels** = liquid and gaseous fuels produced from liquid or solid waste streams of non-renewable origin which are not suitable for material recovery, or from waste processing gas and exhaust gas of non-renewable origin produced as an unavoidable and unintentional consequence of production process in industrial installations;
  - **Low-carbon hydrogen** = hydrogen whose energy content is derived from non-renewable sources, which meets a GHG emission reduction threshold of 70%
  - **Synthetic gaseous and liquid fuels** whose energy content is derived from low-carbon hydrogen, which meet the greenhouse gas emission reduction threshold of 70%

# GHG performance

## Zero- and low- emission (WTW)

Biofuels  
Biogas  
RFNBOs (other than hydrogen)  
Recycled carbon fuels  
Synthetic gaseous and liquid fuels

## Zero-emission (Tailpipe)

Renewable Electricity  
Renewable Hydrogen  
Low-carbon Hydrogen

# Promoting renewable and low-carbon liquid fuels in transport

- **Renewable Energy Directive:** targets for renewable energy in transport, sub-targets for advanced biofuels and RFNBOs
- **RefuelEU Aviation**
- **FuelEU Maritime**
- **Renewable and Low-Carbon Fuels Alliance**

# ReFuelEU Aviation: Main elements of the proposal (1/2)

- **Eligible Sustainable Aviation Fuels (SAF):**
  - Biofuels produced from waste oils and fats, advanced biofuels produced from waste and residues (i.e. from feedstock listed in Annex IX of Directive (EU) 2018/2001),
  - Synthetic aviation fuels (= renewable fuels of non-biological origin).
- **Level of ambition:** gradually increasing shares of SAF, including e-fuels:

Total shares in the fuel mix (in %)	2025	2030	2035	2040	2045	2050
SAF ramp up:	2	5	20	32	38	63
Of which: sub-mandate on e-fuels	-	0.7	5	8	11	28

# ReFuelEU Aviation: Main elements of the proposal (2/2)

- **Scope of application:**

- All air operators flying from EU airports (some exemptions for very low traffic airlines)
- All EU airports (very small airports exempted)
- All aviation fuel suppliers distributing fuel at EU airports.

- **Obligations:**

- On fuel suppliers to distribute SAF in increasing amounts over time
- On airlines to uplift (SAF-blended) aviation fuel at EU airports (anti-tankering measure)
- Reporting for fuel suppliers and airlines.

- **Enforcement:**

- Effective, proportionate and dissuasive penalties to ensure enforcement of obligations on airlines and fuel suppliers. Member States enforce penalties, following methodology prescribed in Regulation.

# FuelEU Maritime: Main elements of the proposal (1/2)

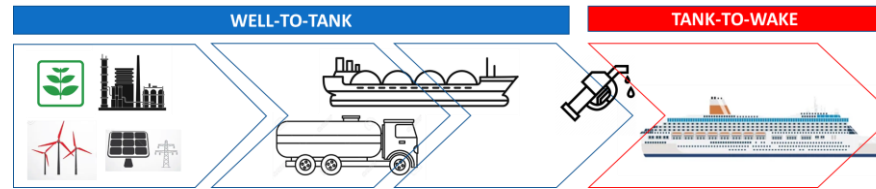
- Focus on **fuel** and on **demand** – **promotion of uptake of renewable and low-carbon fuels** for maritime transport – complement to Energy Efficiency
- Limits on the yearly average **GHG intensity** of the energy used on-board (**CO<sub>2</sub>eq/MJ**)

2025	2030	2035	2040	2045	2050
-2%	-6%	-13%	-26%	-59%	-75%

- Maritime operators will need to use an increasing proportion of zero- and low-carbon sustainable fuels, without obligation to use a specific technology or fuel
- **Scope:** ships above 5000 GT, intra-EU traffic + 50% international, EU ports (same as ETS)
- **Additional requirement for Zero-Emission at berth** (OPS and alternative zero-emission technologies) - compulsory as of 2030 for container and passenger vessels (some exemptions up to 2035)

# FuelEU Maritime: Main elements of the proposal (2/2)

- Inclusion of CO<sub>2</sub>, methane and nitrous oxide on a full Well-to-Wake calculation: allows fair comparison of fuels



$$GHGe [gCO_{2eq}] = (WtT (fuel, electricity) + TtW (combustion, slip))$$

- **Flexibility mechanism** via banking and borrowing: surpluses and (small) deficits can be carried over to the next year
- Voluntary and open **pooling mechanism** to reward/ incentivise overachievers and encourage the rapid deployment of the most advanced options
- **Non-compliance** – deterrent financial penalty
- Monitoring and Reporting is based on **MRV approach**, with some additional data (e.g. calculation of Compliance Balance)



# Renewable and Low-Carbon Fuels Alliance

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## General Objectives

- TACKLING THE LACK OF **AVAILABILITY** AND **AFFORDABILITY** OF RENEWABLE AND LOW-CARBON **DROP-IN FUELS** FOR **AVIATION** AND **WATERBORNE** TRANSPORT
- RAPIDLY **BOOST** PRODUCTION, STORAGE AND DISTRIBUTION CAPACITY OF THESE FUELS **WITHOUT COMPROMISING** ACCESS OF OTHER TRANSPORT SECTORS



## Specific Objectives

- ✓ IDENTIFY PRODUCTION PATHWAYS OF FOCUS (*Objective 1*)
- ✓ IDENTIFY **STRONG** AND **WEAK** POINTS IN THE VALUE CHAINS (*Objective 2*)
- ✓ **FOR AVIATION**: CONTRIBUTE TO THE DESIGN OF THE PILOT PROJECT FOR THE EU SUSTAINABLE AVIATION FUELS CLEARING HOUSE
- ✓ **MAP** AVAILABLE FUNDING OPPORTUNITIES and GATHERING ARGUMENTS FOR ADDITIONAL SUPPORT MECHANISMS (*Objective 3*)
- ✓ LAUNCH A **BUSINESS INVESTMENT PLATFORM** (*Objective 4*)
- ✓ Building synergies with accross all transport modes and other alian (*Objective 5*)

## GOVERNANCE

- **GENERAL ASSEMBLY**  
TWO CHAMBERS (AVIATION + WATERBORNE)
- **THEMATIC ROUNDTABLES**
- **SECRETARIAT**
- **STEERING GROUP**  
INCLUDING THE COMMISSION



Alliance will be open to:

- **any company** (regardless of ownership or location)
- EU Member States
- All stakeholder groups registered in the transparency register



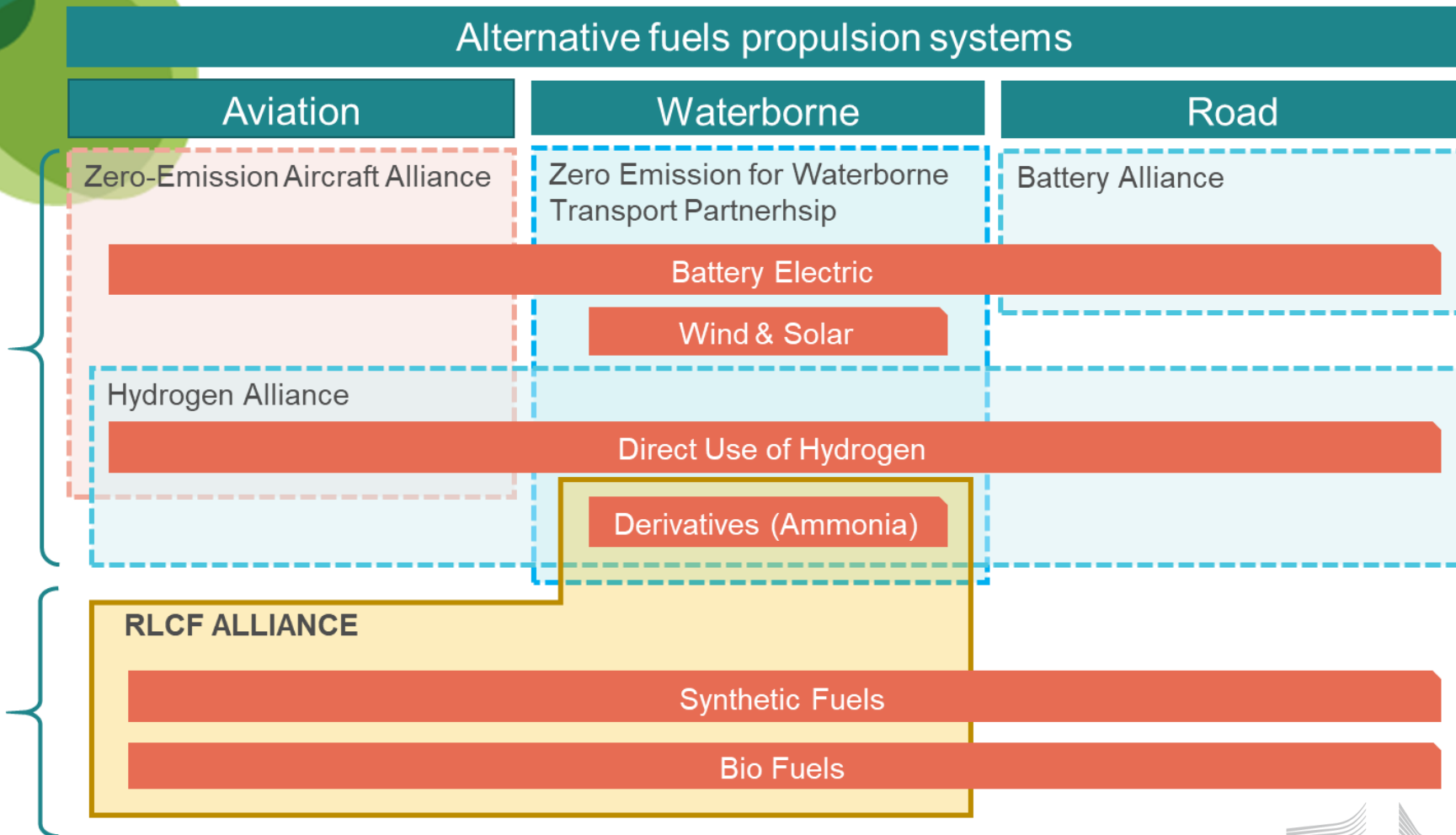
European  
Commission

**Mobility and Transport**

# RLCF Alliance: fuels in focus

Type of fuels	Feedstock / sources	RED II	ReFuelEU Aviation (EC proposal)	FuelEU Maritime (EC proposal)
• Biofuels	Food and feed crop	X		X
	Annex IX A (Advanced biofuels)	X	X	X
	Annex IX B (Used cooking oil, Animal fats Cat 1 & 2)	X	X	X
	Other residues or feedstocks not in Annex IX for biofuel production	X		X
• Renewable Fuels of Non-Biological origin (RFNBO)	Energy content derived from renewable sources other than biomass	X	X	X
• Recycled Carbon Fuels (RCF)	Liquid or solid waste streams of non- renewable origin which are not suitable for material recovery or from waste processing gas and exhaust gas of non-renewable origin which are produced as an unavoidable and unintentional consequence of the production process in industrial installations	X		X
• Other low carbon fuels	Low carbon hydrogen (encompassing fossil-based hydrogen with carbon capture source either as final fuel or as basis for production of synthetic fuels)			X (IA needed)

# RLCF Alliance in context



# Thank you for your attention

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