



ICAO EUR/NAT and ACI EUROPE

REGIONAL GREEN AIRPORTS SEMINAR

**Hosted by the Ministry of Transport
Republic of Kazakhstan**

Emerging Trends and Future Directions in Green Aviation The Airport Enabling Role



ICAO



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What's up to Airports to support Green Aviation targets?

- Green aviation focuses on reducing aviation's environmental footprint by minimising greenhouse gas emissions, noise pollution, and energy consumption.
- Aviation contributes 2-3% of global carbon emissions, with a projected increase unless mitigation measures are adopted.
- The EU is leading efforts toward sustainable aviation through regulations, research, and funding initiatives, aiming for carbon-neutral aviation by 2050, now aligned with ICAO at world level.
- SEA Milan Airport, as most of EU major airports has recently designed its high-level strategy to select and plan Scope 3 emission reduction actions. A challenge for airports is planning a realistic airport contribution to reduce aircrafts' emissions, the main part of Airport Scope 3 emissions, effectively supporting the Aviation Industry NetZero 2050 target.

Key Emerging Trends in Green Aviation

Sustainable Aviation Fuels (SAF): Production of biofuels and synthetic fuels is expanding, with Europe setting blending mandates.



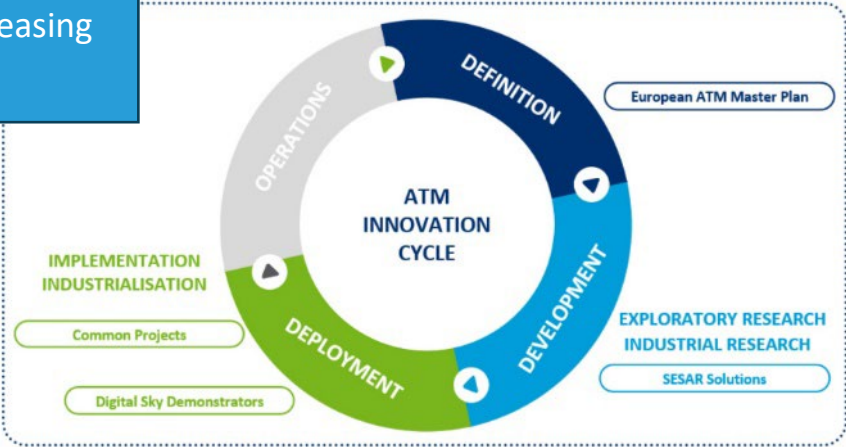
Hydrogen-Powered Aircraft: European initiatives are pioneering hydrogen as a future zero-emission energy source for aviation.



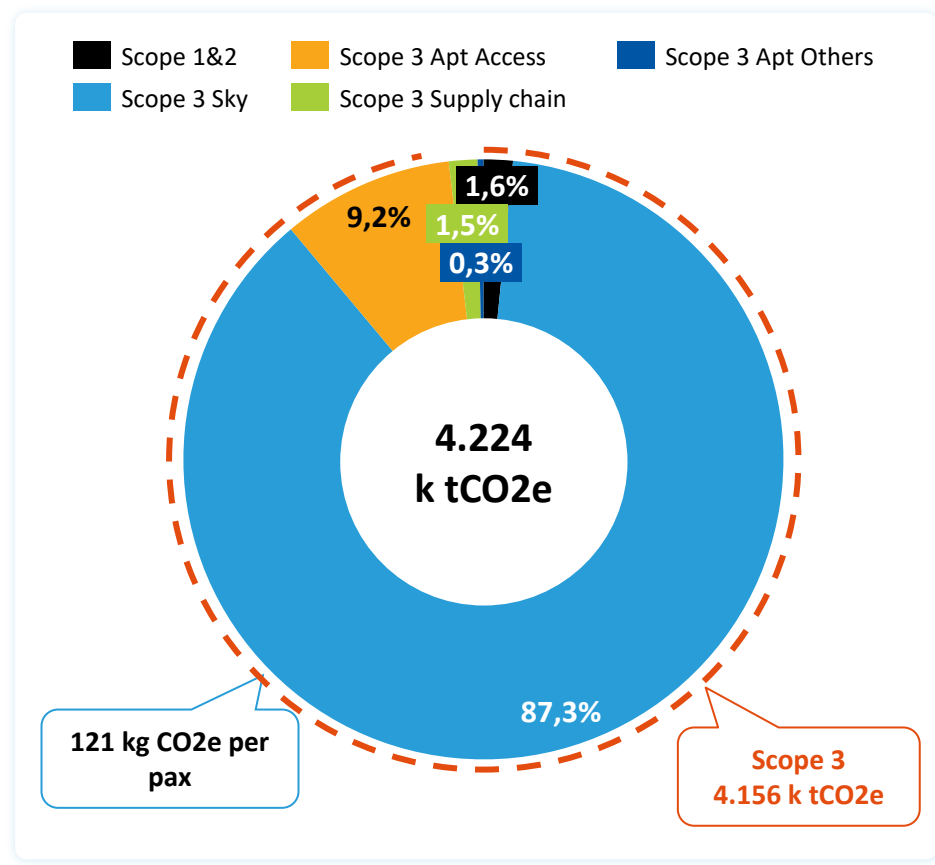
Electric and Hybrid-Electric Aircraft: Investment in battery technology and hybrid systems aims to reduce fuel dependency.



Advanced Air Traffic Management (ATM): Improvements in ATM reduce flight distances and delays, decreasing emissions.

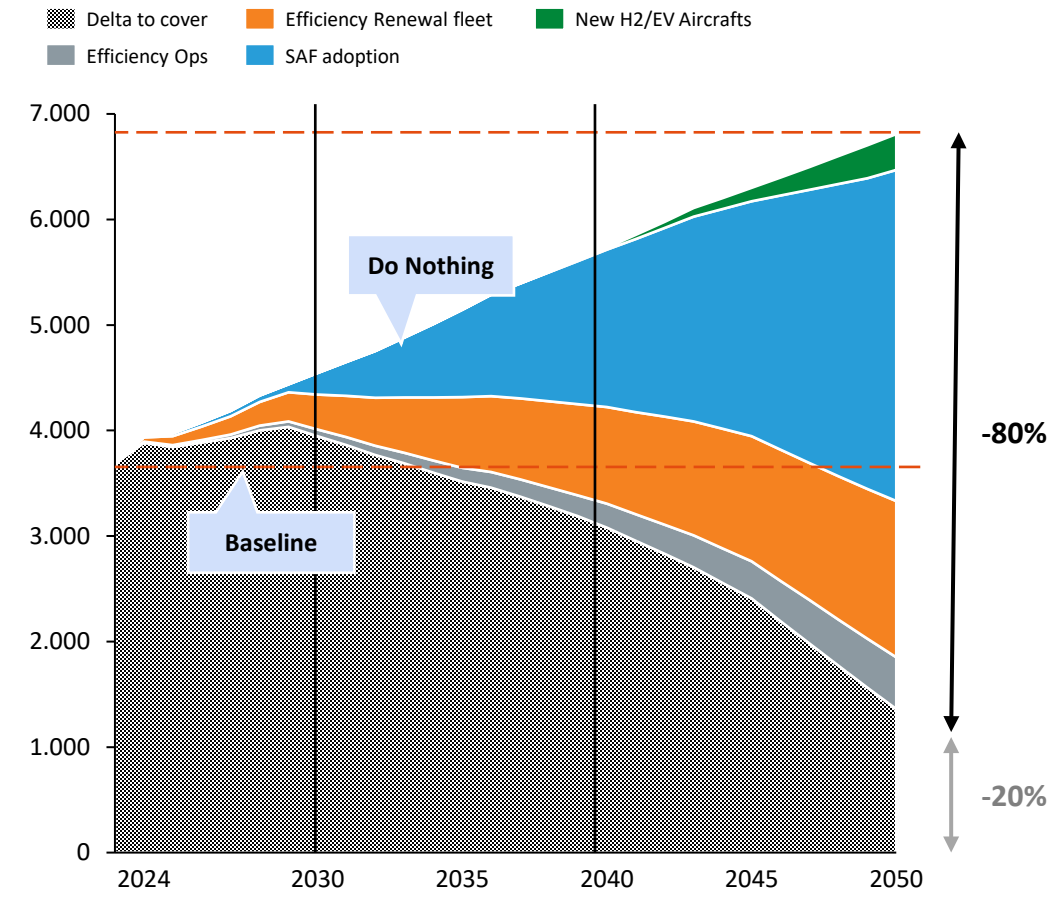


What's up to Airports ? SEA...



CO2 Emission Simulation – Airlines

Cumulated values, k tCO2e, 2024-2050



What's up to Airports ? SAF...

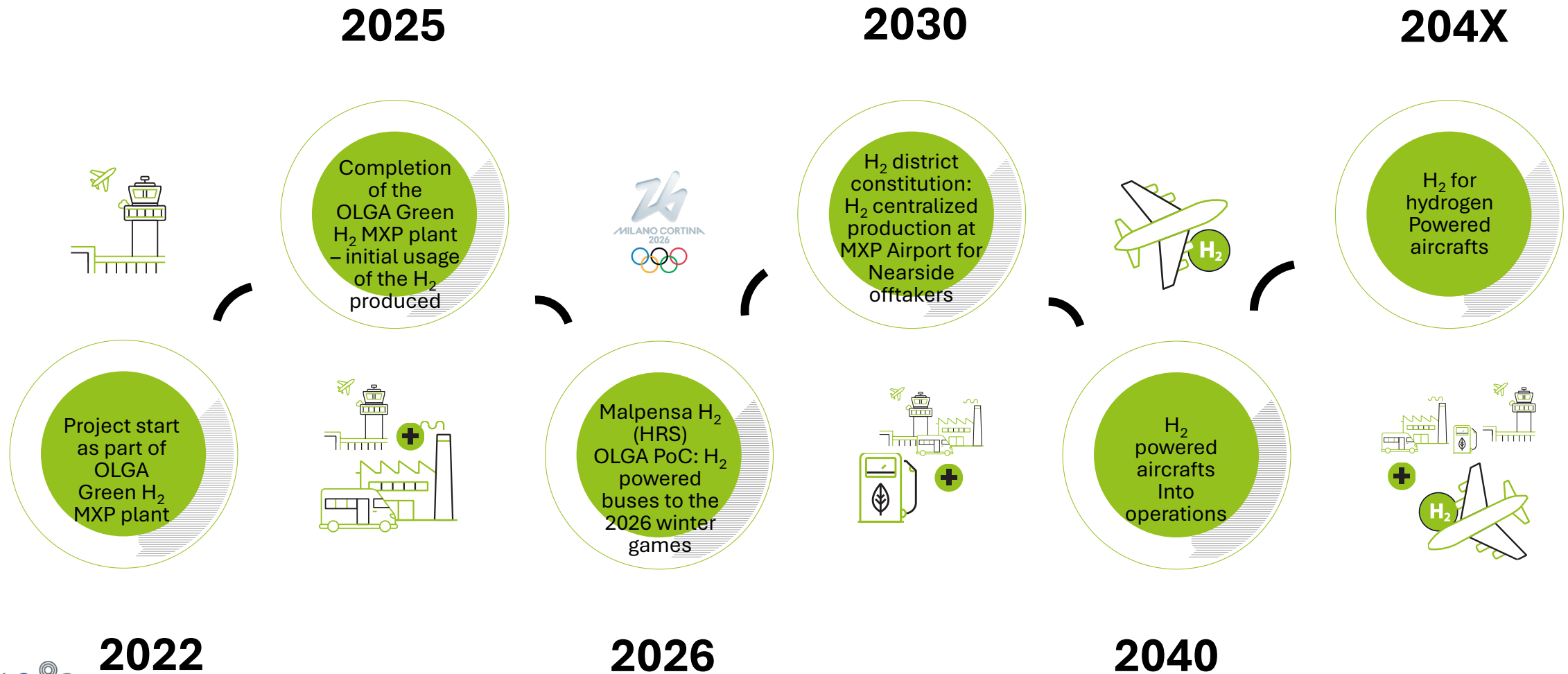
SAF supporting programs: 2023



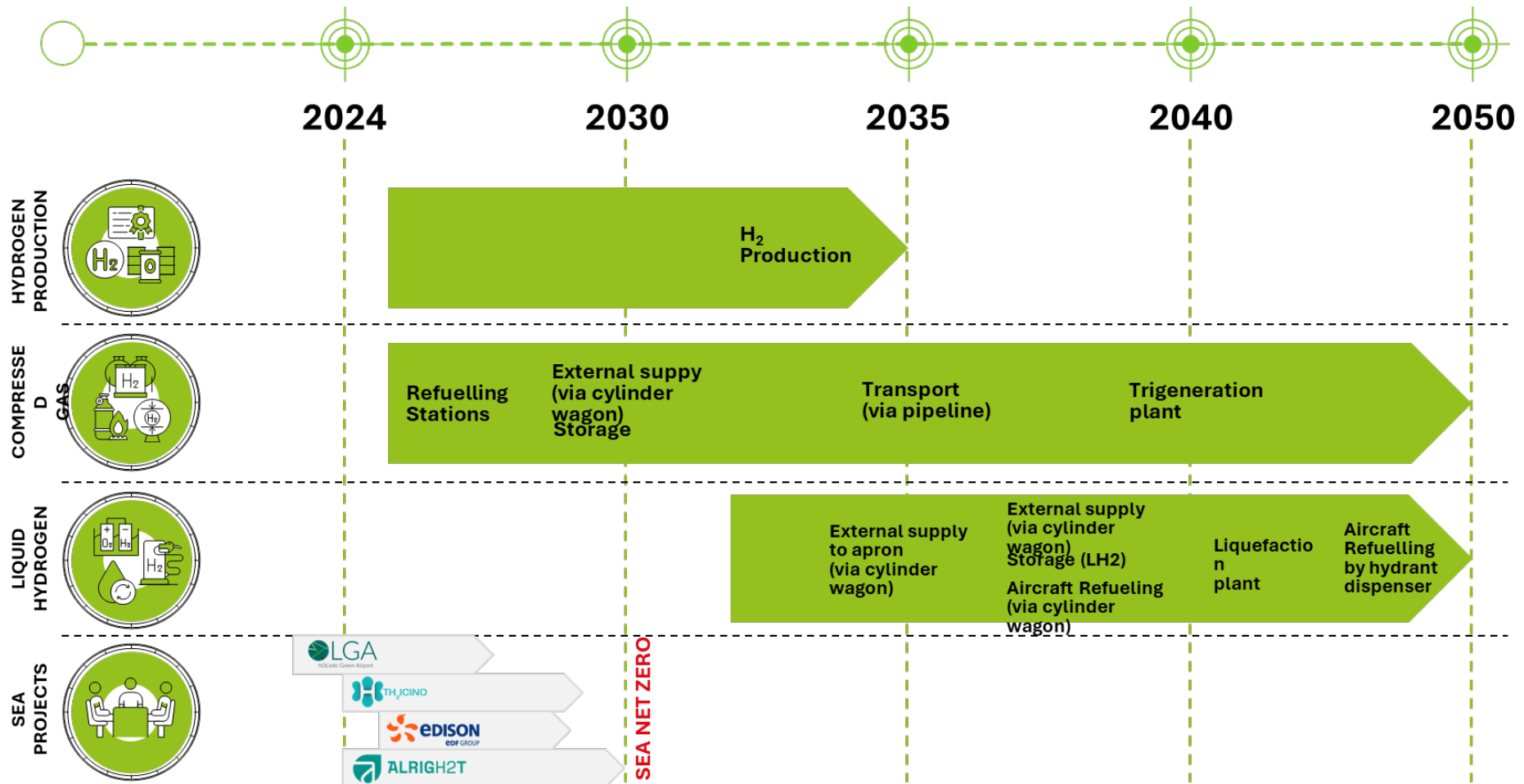
SAF supporting programs: 2024

	LHR	AENA*	AMS*	DUS	SWE	BRU	SEA
SAF Incentive (€/t)	535	500	400	250	n/a	1,000	800
e-SAF Incentive (€/t)	No	1,000	1,000	No	No	1,000	n/a
SAF Incentive type	50% SAF premium price gap	Fixed	Fixed	Fixed	50% SAF premium price gap	Up to 80% SAF premium price gap	Fixed
Subsidy CAP	Not specified	n/a	Not specified	€100k/y r./airline	Based on share of traffic	€200k/year/airline	n/a

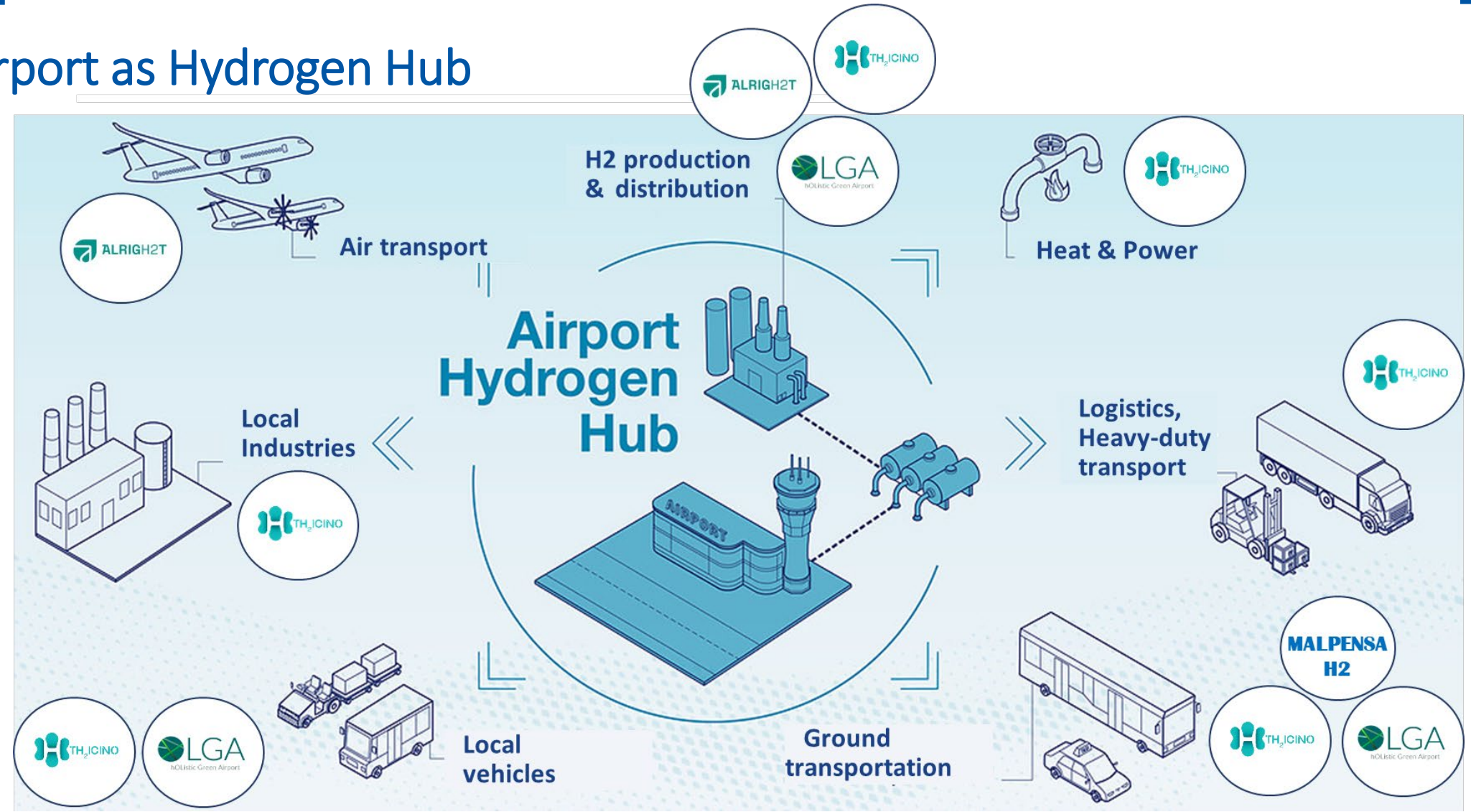
What's up to Airports ? Hydrogen... The view of our roadmap



What's up to Airports ? Hydrogen... The view of our roadmap



Airport as Hydrogen Hub



**H2
MOBILITY**

E - MOBILITY

H2 AVIO

**GREEN
ENERGY**

The Strategy | Collaboration with Stakeholders

SAF


SAF – contributing to policies and EU/National Planning



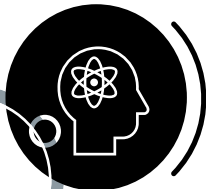
Refueling and Logistics Coordination Facility


- Established in 2022, the alliance development and adoption of Sustainable Aviation Fuels (SAF) within the aviation sector:

Enhancing Sustainability



Fostering Innovation





Facilitating Regulatory Frameworks


- Stakeholder Engagement
- Pilot Project
- Supply Chain Development
- Monitoring and Evaluation




National Observatory on SAFs


- In 2019, Enac established a “**National Observatory on SAFs**” with the aim of creating a **roundtable** participated by institutions:

Decarbonization of Aviation



Collaboration with Stakeholders

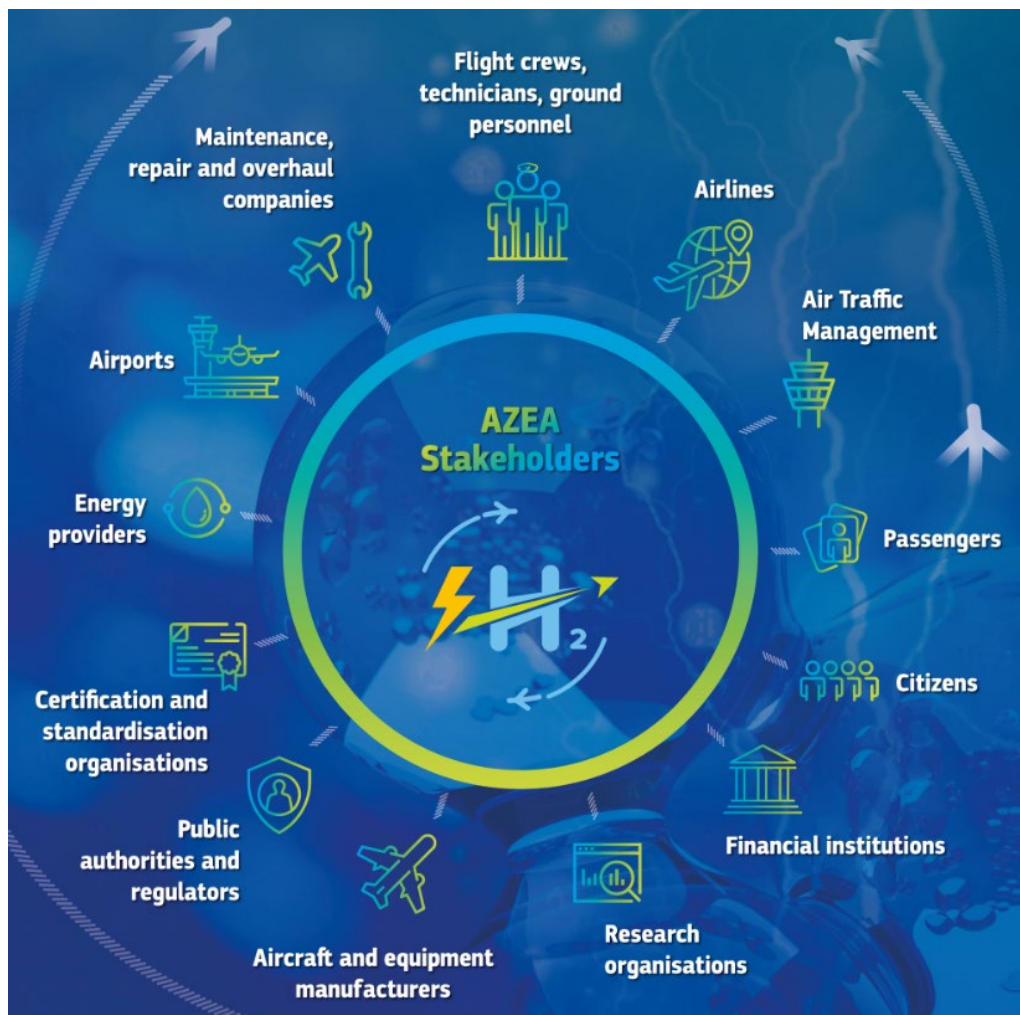




Development of a National Roadmap

- 1. Roadmap for SAF: ENAC is developing and regulatory frameworks.
- 2. Stakeholder Workshops
- SAF implementation.
- Pilot Projects
- Regulatory Framework Development:
- Research and Innovation Support
- Monitoring and Reporting

Active Support for Institutions – EU Level



A flagship experience is AZEA (Alliance for Zero-Emission Aviation):

SEA is leading the WG Aerodromes with ACI Europe to co-create the EU roadmap to zero-emission aircraft (Electric, H2 and H2 Hybrid electric).



ACI Europe AZEA WG participants: never run alone!



Active Support for Institutions – National Level



Airports' contribution to the Italian national transition





Urban Air Mobility: Sustainable Accessibility... tomorrow



Thank You

