Clean Aviation Partnership

ETNA Webinar
PPPs in HE Cluster 5
4 June 2020

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Clean Sky 2 JU

Clean Sky 2 JU: an open and inclusive PPP

1477 participations (over 900 unique entities)

334
INDUSTRY MEMBERS

420
SMES

>466
GRANTS

373
RESEARCH CENTRES

350
UNIVERSITIES

28
COUNTRIES

110
REGIONS

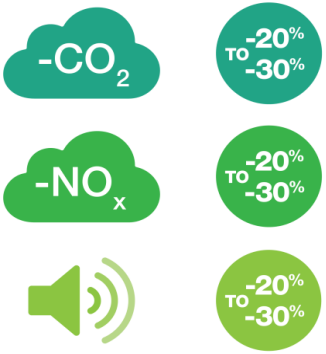
18
MoUs

- Over 60% of the programme's H2020 funding through open calls
- Large SME participation with a high percentage of SMEs being first-time EU FP participants
- Broad geographical spread and widening of aeronautics sector
- Newcomers from other sectors providing key innovation impetus (e.g. automotive)
- An ultra-efficient instrument with running cost < 2.5%
- A PPP delivering on its commitments

Clean Sky JU an efficient and performant EU-wide eco-system

Important gains are being made, but this is not enough!

Clean Sky 2 Environmental Objectives



vs. best aircraft in 2014

…while building industrial leadership and ensuring mobility

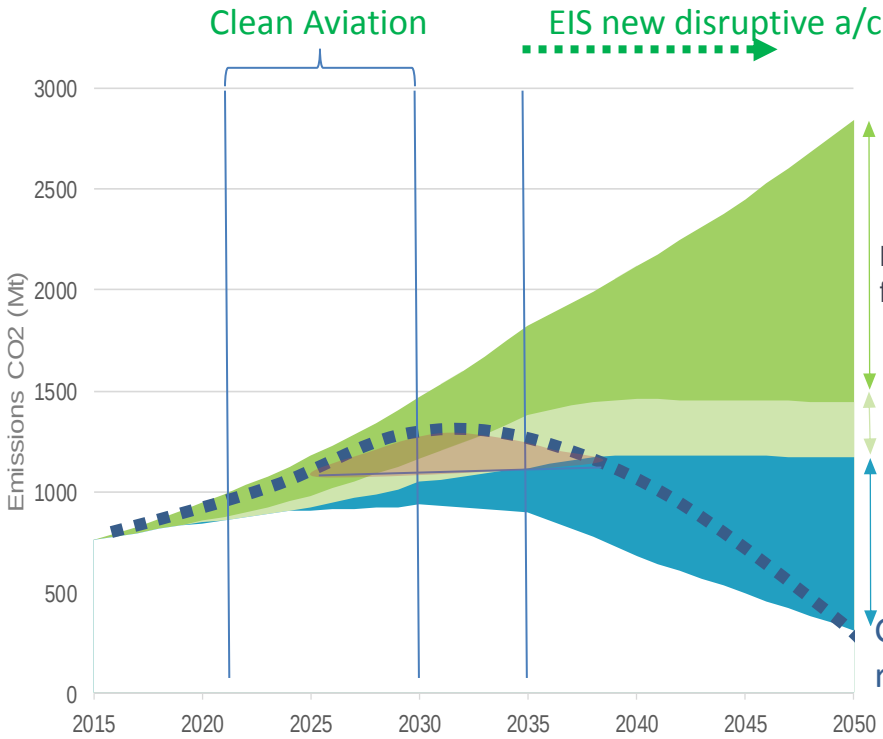
ATAG AIR TRANSPORT ACTION GROUP

IATA

icct THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

The Green Deal: climate neutrality and EU competitiveness

World-wide CO_2 reduction targets and change drivers



Target: climate-neutral aviation for Europe by 2050

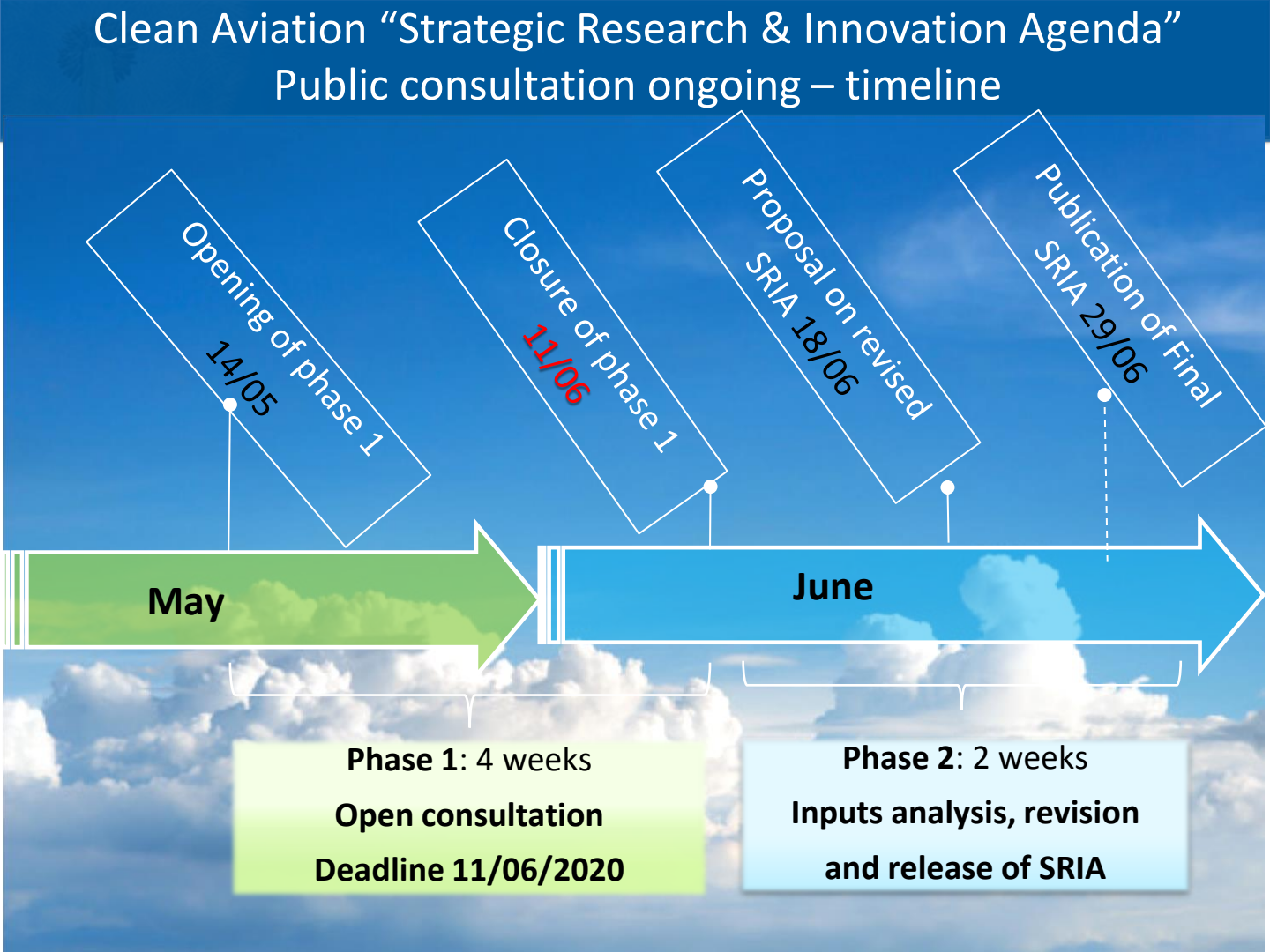
Product areas and emission reduction potential

Aircraft class	Earliest entry-into-service feasibility	Fuel burn reduction through technology	Net emission reduction incl. fuel effect	Current share of air transport emissions
Regional	~ 2035	- 50%	- 90%	~ 5 %
Short-Medium Range	~ 2035	- 30%	- 86%	~ 50%
Long-range	~ 2040	- 30%	- 86%	~ 45%

* SAF = sustainable aviation fuels

Technology enabled CO_2 reduction 30-50% (~90% with SAF*)

Clean Aviation "Strategic Research & Innovation Agenda"
Public consultation ongoing – timeline



Proposed demonstration areas under the “SRIA”

Hybrid electric and full electric architectures

Ultra-efficient aircraft architectures

Disruptive technologies to enable hydrogen-powered aircraft

Disruptive Low Emission Hybrid Electric Regional / Short Range Aircraft

Disruptive Low Emission Short and Medium Range Commercial Aircraft

Zero Climate Impact Short Range Disruptive Concept (e.g. hydrogen powered)

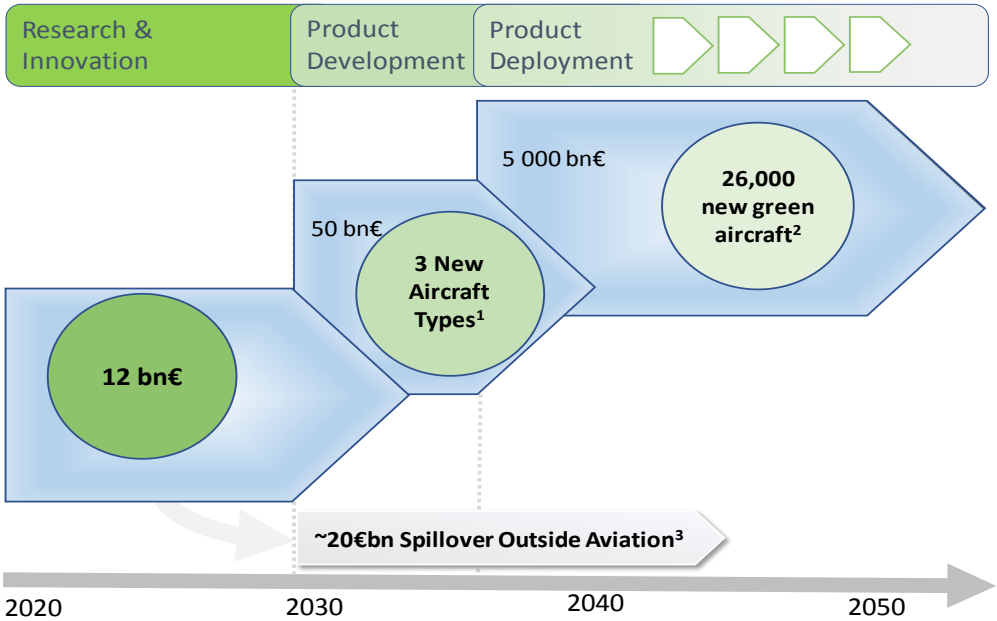
Zero Climate Impact Long Range Disruptive Concept

Flight demonstration in Clean Aviation and impact by 2035

Development of disruptive technology options

Focused research & innovation for maximum impact

Impact dimension of Clean Aviation

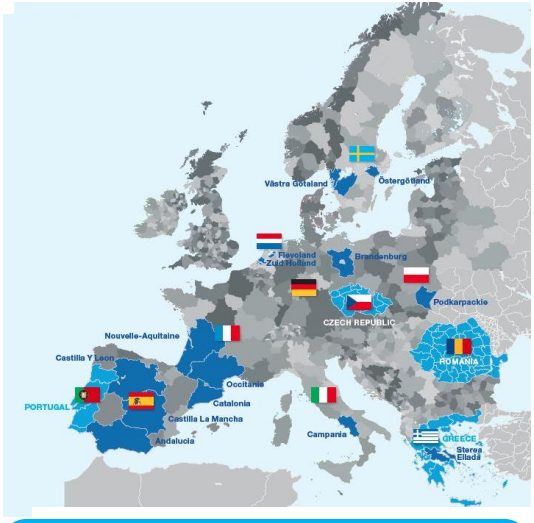


1 – Based on Aircraft Development 15bn€ per type
2 – Estimated on basis of Airbus GMF 2028-2037:
37,400 new a/c scaled to 2035-2050 in order to reflect larger baseline in 2035. 50% market share assumed.
3 – Estimate based on 12€bn investment in aviation R&T over 10 yrs. Value at 2020 NPV.

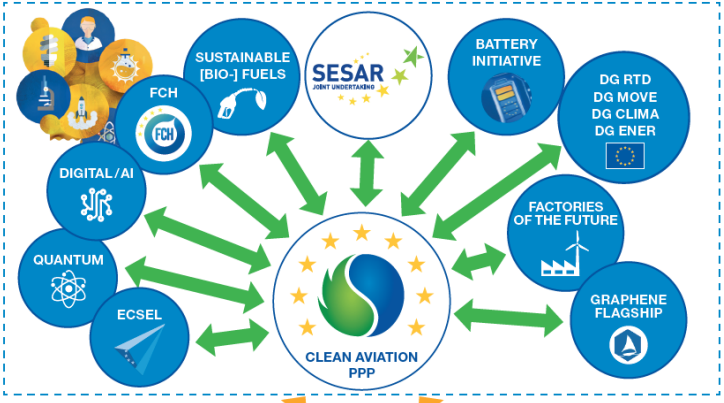
Research & innovation will trigger huge further investments

Synergies through an Innovation Architecture

Horizon 2020



Horizon Europe



National R&I Programmes

European Structural Investment Funds

CS2 ESIF Synergies: > 50 m€
(plus projects at national level aligned via CS members)

x10

HE PPP synergies level of ambition: ~ 3 000 m€
(via an **Innovation Architecture**)

Maximising synergies across Europe is essential

Key implementation challenges for Clean Aviation

#	what	required measures
1	Clear programme priorities	Agreement on balance between early impact with max. possible benefits and max. breakthrough potential with later EIS*
2	Link between upstream & demonstrator research	Closest alignment in order to avoid complexity
3	Synergies with other EU & Member States programs	Innovation architecture with common and complementary technical roadmaps
4	Financials & regulations	Adequate HE funding, competitive funding rates to keep the programme attractive for all, maximise the agility & efficiency of the Joint Undertaking (Article 187 TFEU)

* EIS = entry-into-service

A lean framework for an effective Partnership

Private stakeholder's Shared Vision and Commitment for the proposed Clean Aviation Partnership

A Shared Vision: climate-neutral aviation by 2050