



Dick Benschop

19 September 2019

Airneth Annual Lecture

Towards a sustainable future

**Schiphol**
Group

Vision 2050 (draft)



Connecting the Netherlands

We **safely and seamlessly** operate
the world's **most sustainable** hub and regional airports



Quality of
Network



Quality of
Life



Quality of
Service



Enablers

Safety first

Robust organization

Integral Safety Management System

Select language



Safety in the Dutch Aviation Sector



Roadmap



OVV recommendations



NLR measures



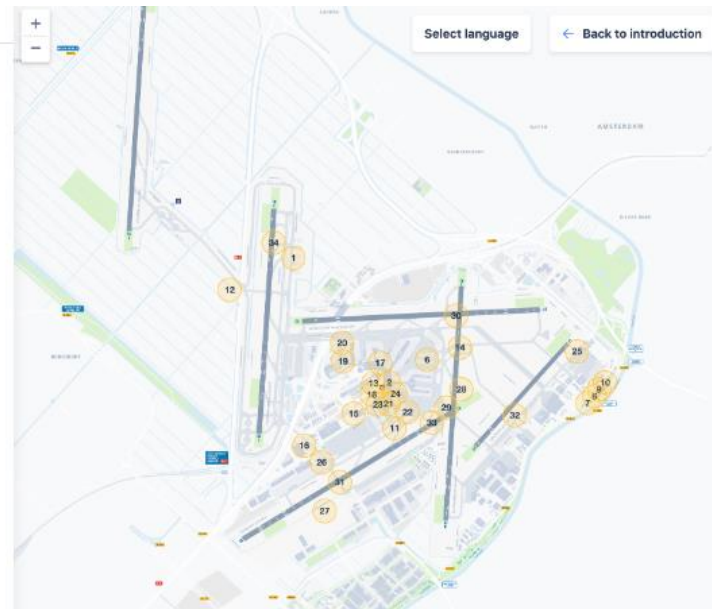
In progress

Completed

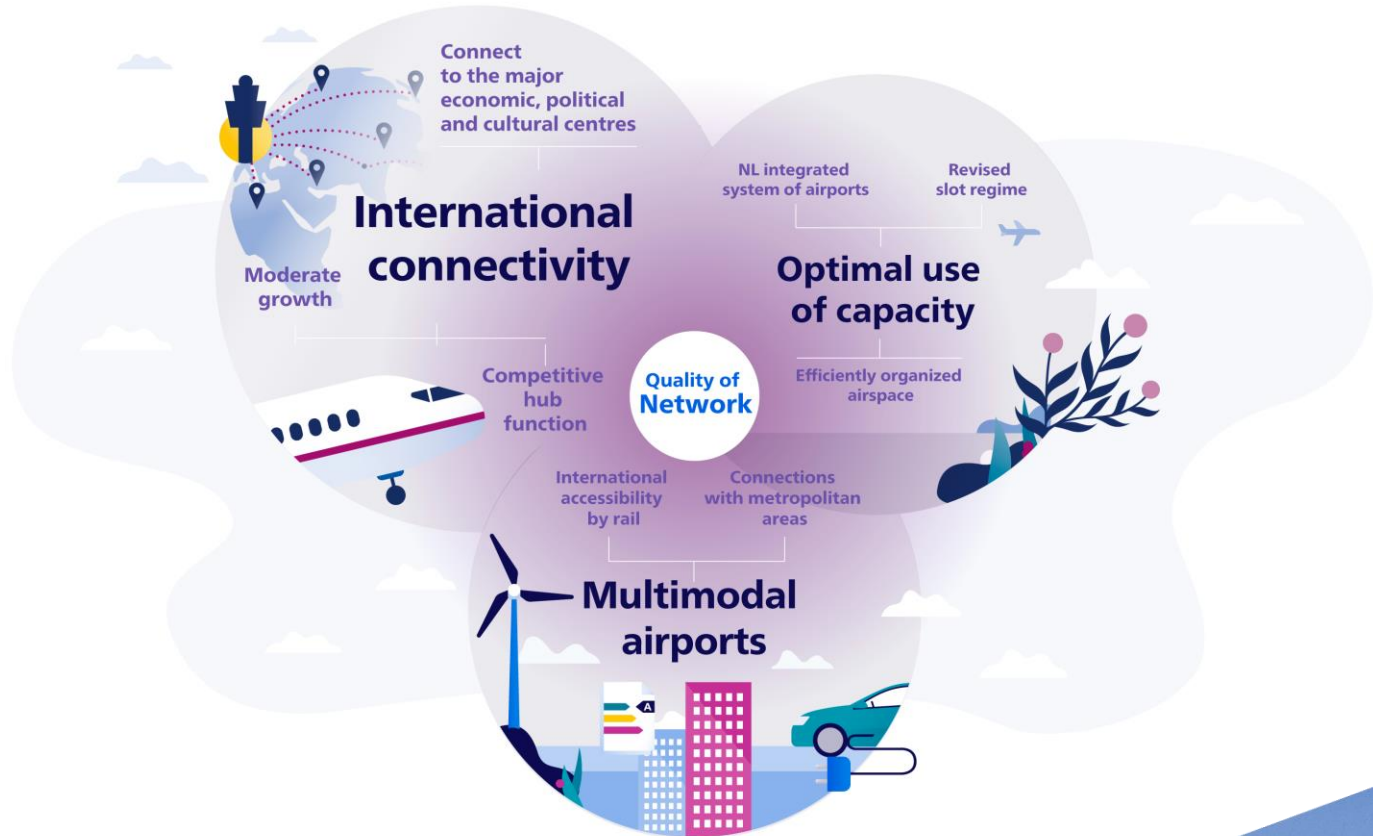
Archive

Filters

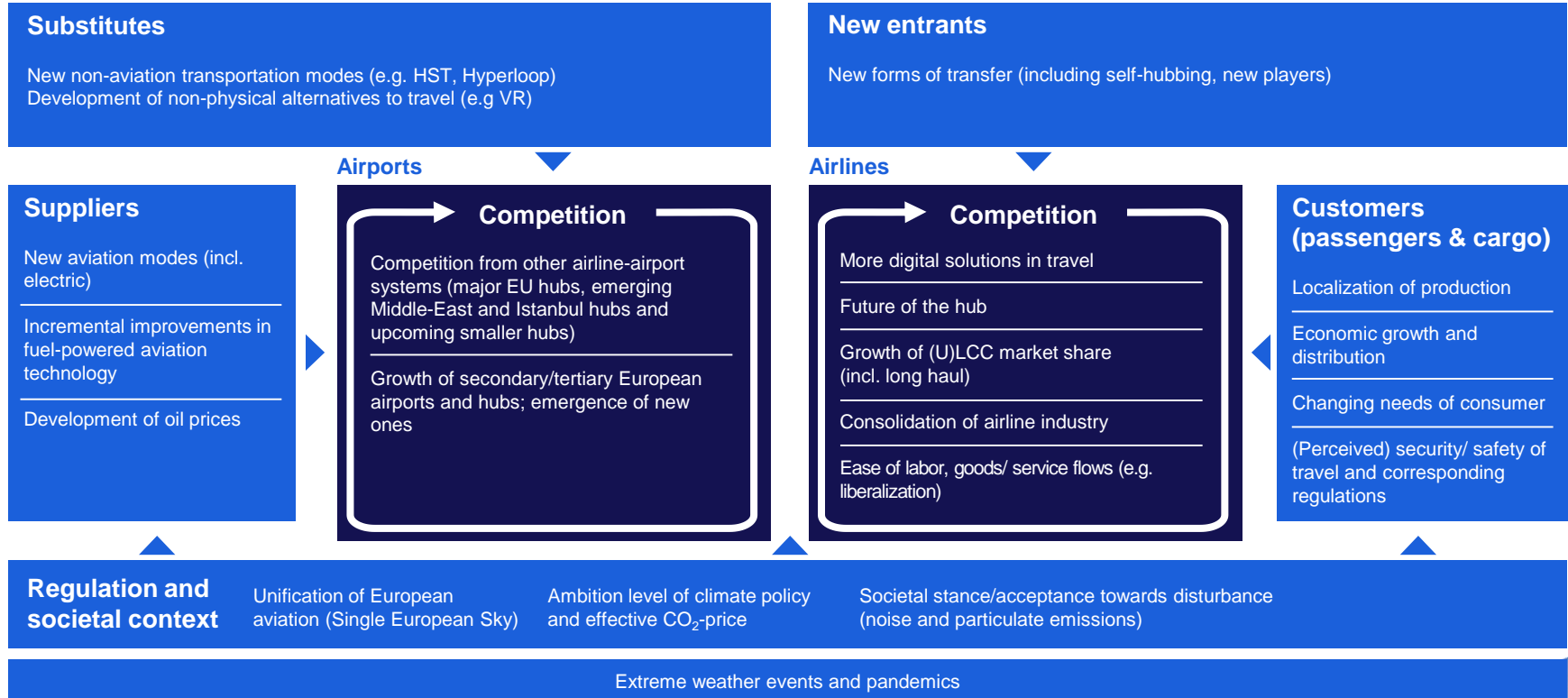
1. Uniform platform extension
3. Revising naming of taxiways
4. Deviations by ground handling staff
5. Converging runway use
7. Trajectory prediction
8. Navigation technology
9. Improved entry to the Schiphol Terminal Manoeuvring Area
11. Check pushback procedure online
12. Follow the Greens
14. Runway status lights
15. Building a new pier
16. Completion dual taxiway system
17. Ground handling adverse weather procedure



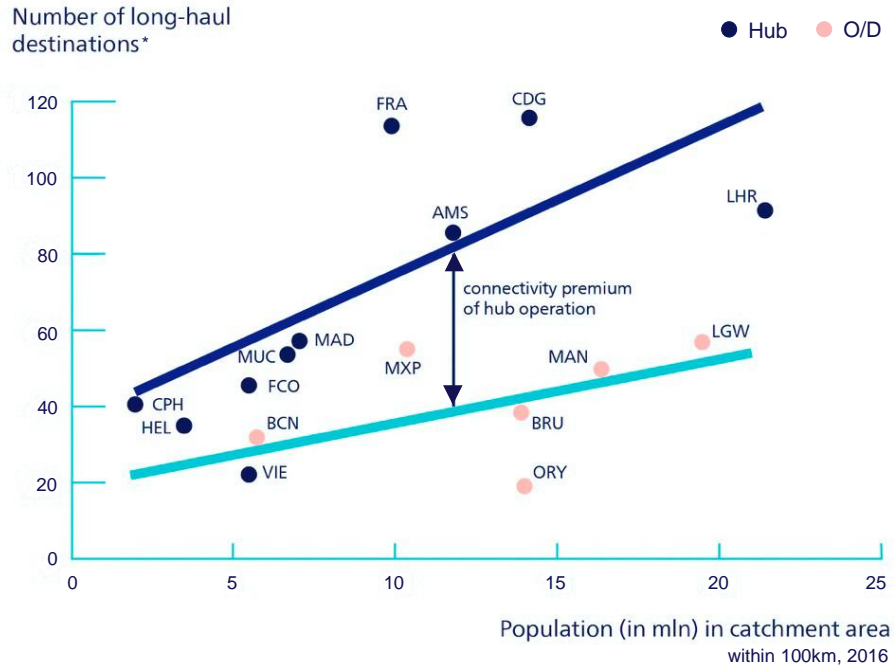
Quality of Network



Trends and developments that shape our future



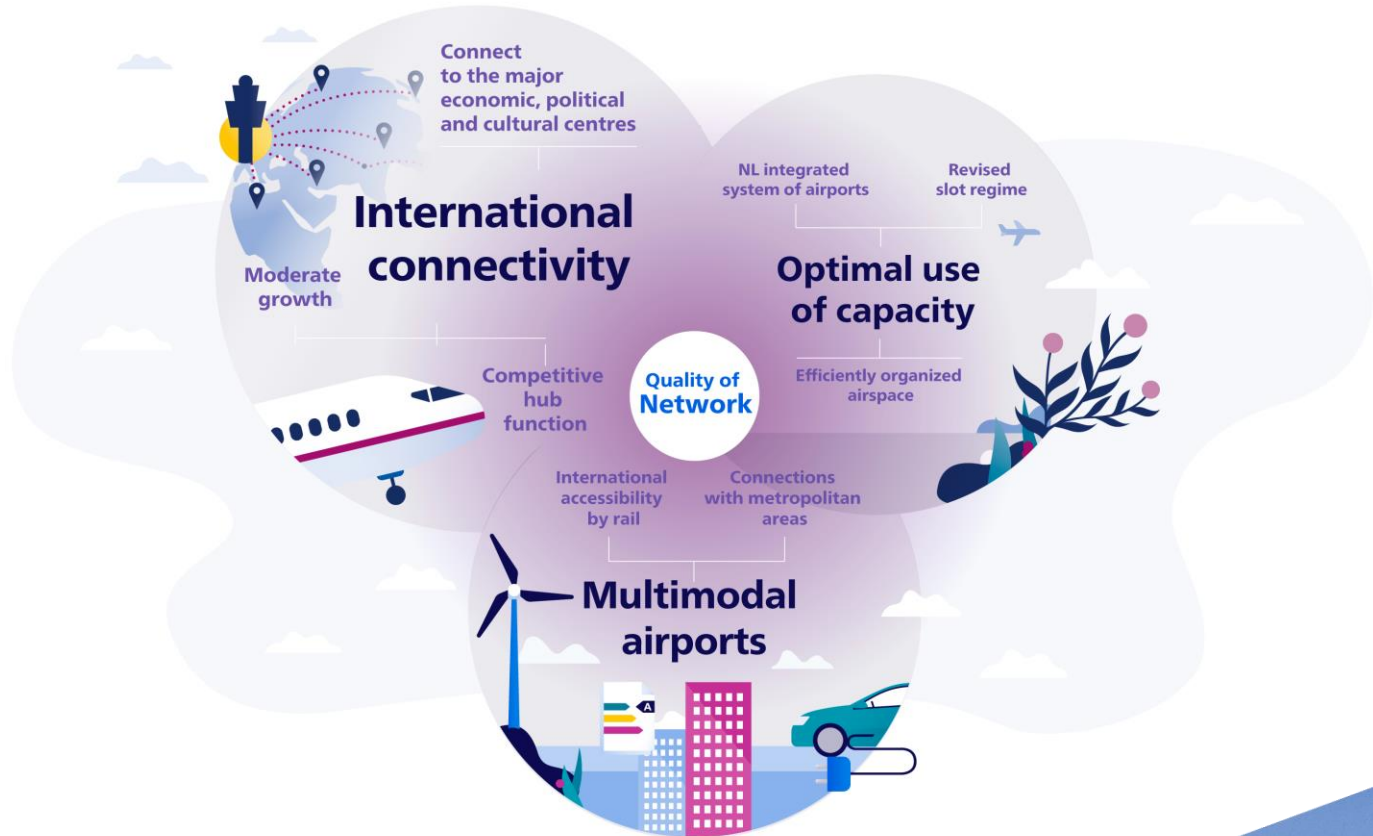
Hub generates a connectivity premium



Bron: IATA PAX-IS; SEO; OAG, CBS; MGI CityScope

* Passenger scheduled flights for calendar year 2017. Long haul: above 6 hours

Quality of Network



Quality of Life



Quality of Life



- Zero waste 2030
- Resource efficiency
- Sustainable resources

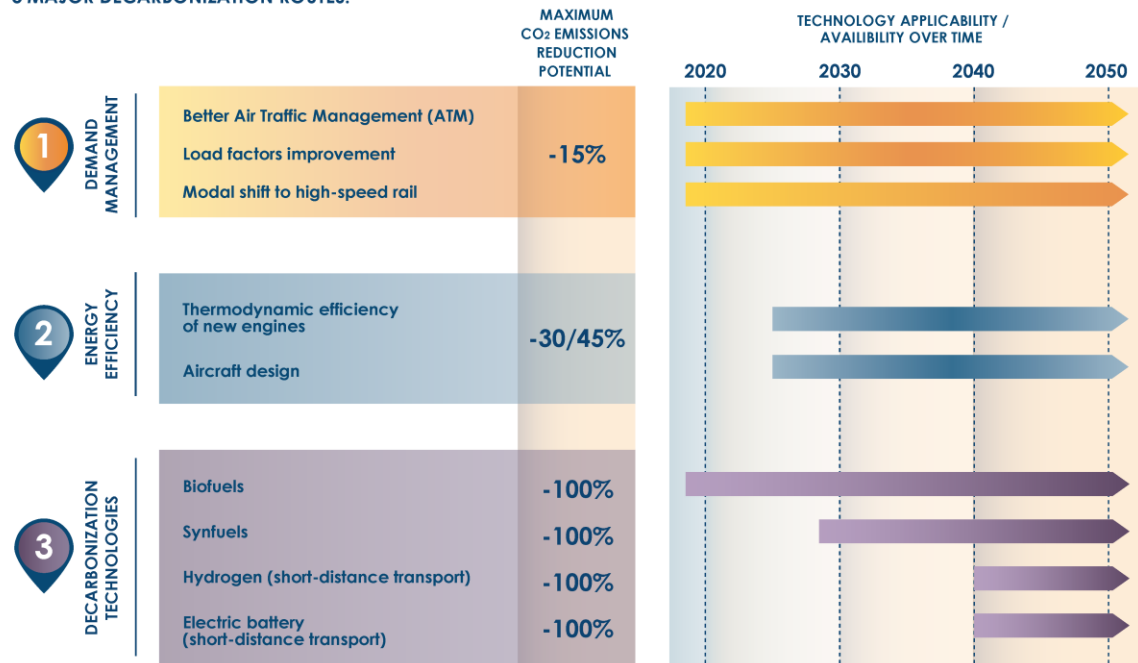
- Climate neutral
- Net-zero emissions by 2030
- Energy efficiency

Energy Transitions Commission: it is technically possible and economically feasible to decarbonize aviation



Mission possible in aviation: 3 major decarbonization routes

REACHING NET-ZERO CO₂ EMISSIONS FROM AVIATION IS POSSIBLE BY COMBINING
3 MAJOR DECARBONIZATION ROUTES:



Mission possible in aviation: top actions needed

TOP 3 ACTIONS TO ACCELERATE THE TRANSITION FOR...



INNOVATION

- Improve airframe and engine efficiency
- Drive down the cost of sustainable biofuels
- Drive down the cost of synthetic fuels



POLICY

- Create a "green fuel" mandate imposing an increasing percentage of zero-carbon fuels reaching 100% by 2050
- Create fuel taxes of about US\$100 per tonne of CO2 applied at full rate to domestic flights and with reduced rates to international flights
- Tighten sustainability standards on biofuels, based on lifecycle carbon analyses and assessments of other environmental impacts



INDUSTRY/BUSINESSES

- IATA: increase ambitions of IATA roadmap to aim for zero emissions by mid-century
- Airport and airlines: create a coalition to secure a large-scale supply of cost-competitive sustainable biofuels
- Airlines: develop a "green flight" offer at a premium price in coordination with major travel agencies and corporate consumers of air travel

Source: Energy Transitions Commission (2018). Mission Possible

What do we do?

Smart and sustainable action plan

Main goal is to **reduce CO₂ emissions from aviation originating in the Netherlands to the 2005 level in 2030** by:

- Optimising flight paths and procedures
- Incentivising use of cleaner aircraft via airport charges
- Greater utilisation of sustainable aviation fuel
- Radical fleet renewal
- Use of international train services and other sustainable modalities for short distances
- Working towards emission-free airports
- A swift and sustainable journey to and from the airport



What do we do?

Climate Agreement Sustainable Aviation

- ICAO emission targets for international aviation (2% fuel efficiency / year)
 - Carbon-neutral growth from 2020
 - Reduce CO2 emissions from aviation with 50% to the 2005 level in 2050
- Targets Smart and Sustainable action plan
- Bring ICAO targets in line with Paris Agreement – towards net-zero emissions
- Sustainable aviation fuels, hybrid electric propulsion, fleet renewal, ground operations
- But... no funding

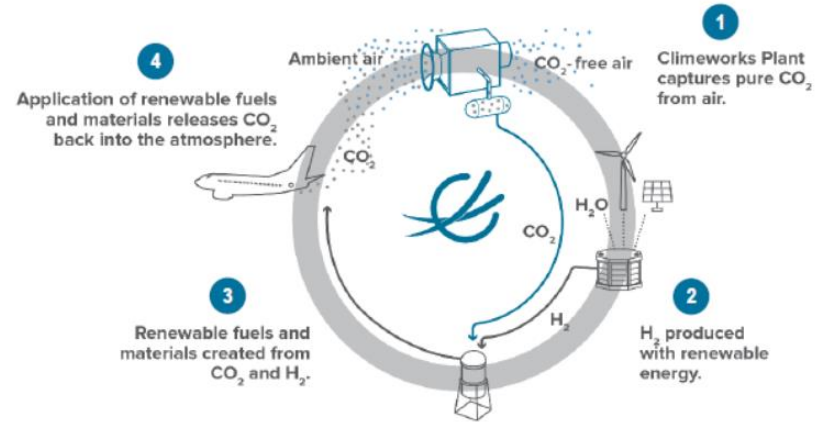


Our investments

Renewable Jet Fuel from DAC Plant

- Study to realize funding for a pilot plant for the production of synthetic kerosene at Rotterdam-The Hague Airport

RENEWABLE SYNFUEL PRODUCTION



Source: Climeworks, capturing CO_2 from air

Our investments

Bio fuel from waste streams plant

- Schiphol invests € 2 million in design phase; construction and off-take by a.o. KLM, SkyNRG and SHV Energy
- Expected operational year: 2022
- Plant capacity: 75.000 ton bio kerosene per year
- Expected CO2 reduction: 270.000 ton per year

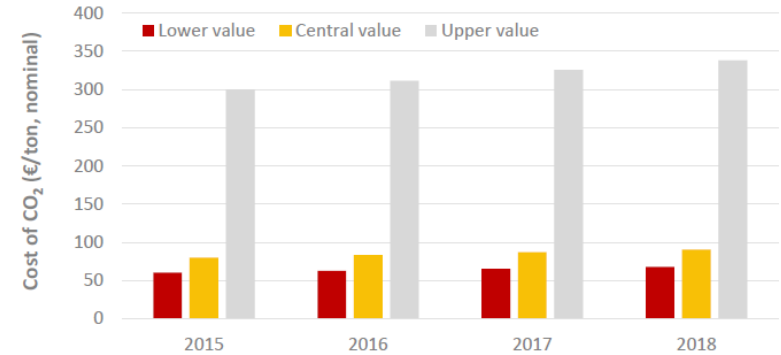


[Click to play SkyNRG video](#)

Policy framework

- ICAO – Paris Agreement
 - New target for aviation: net-zero by mid century
- Internalisation of external costs
- EU-ETS
- Carbon price effects sensitivities

Cost of CO₂-emissions in a 2°C scenario



Source: Analysis SEO based on CE Delft (2017)

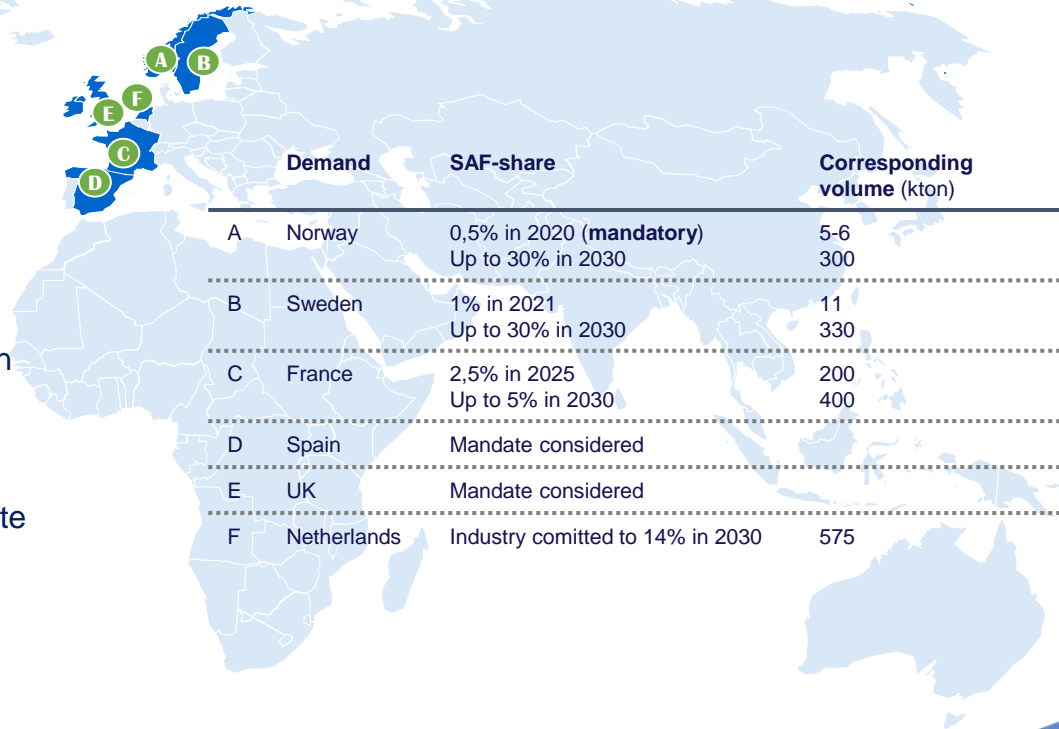
Illustration for various KLM-routes from Schiphol, 2018

Route	Distance (km)	Fuel (l per return pax)	CO ₂ -emissions (kg per return pax)	Ticket price (€ per return)	CO ₂ -price (€ per return passenger)			Price increase/ demand decrease
					Lower	Central	Upper	
Amsterdam – New York	6,106	363	908	750	61	82	307	8-41%
Amsterdam – Santiago (longest KLM route)	13,246	707	1,846	900	125	166	624	14-69%

Source: Analysis SEO

Policy framework: internalisation of external costs essential

- Support CORSIA and ETS; strengthen ETS
- **Taxation?**
 - Ticket tax
 - Kerosene tax
- Proceeds should be used for innovation and deployment
- **Fuel mandates?**
 - Sustainable aviation fuel mandate
- Role of passengers and companies
 - Offsetting programs
- **Maintain a level playing field!**



A map of Europe with six countries highlighted in blue and labeled with letters A through F in green circles: A (Norway), B (Sweden), C (France), D (Spain), E (UK), and F (Netherlands).

	Demand	SAF-share	Corresponding volume (kton)
A	Norway	0,5% in 2020 (mandatory) Up to 30% in 2030	5-6 300
B	Sweden	1% in 2021 Up to 30% in 2030	11 330
C	France	2,5% in 2025 Up to 5% in 2030	200 400
D	Spain	Mandate considered	
E	UK	Mandate considered	
F	Netherlands	Industry comitted to 14% in 2030	575

International advocacy: net-zero aviation by mid century

