Rotterdam The Hague Airport

How Rotterdam The Hague Airport is Addressing the Challenge of Reducing Aviation's Environmental Impact

Koen Pouw

Sustainability Advisor

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2. Need for climate action
3. Sustainability & Innovation strategy

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The Hague
Airport

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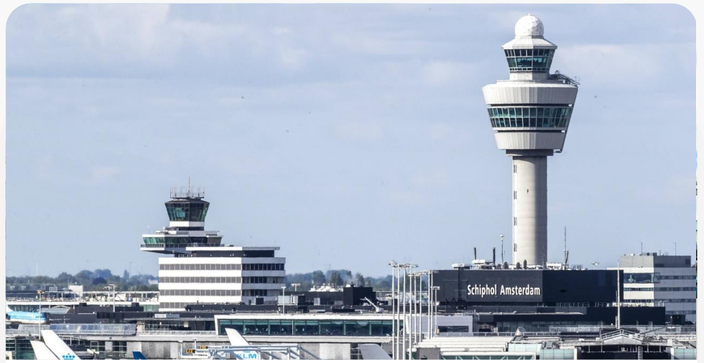
Part of Royal Schiphol Group



Amsterdam Airport Schiphol

Schiphol Group

Regional airports

Rotterdam The Hague Airport

Eindhoven Airport

Lelystad Airport

Maastricht Aachen Airport

International airports

Brisbane Airport

Hobart Airport

JFK (T4) New York

Rotterdam The Hague Airport

Rotterdam The Hague Airport
2023 numbers

Passengers ▲ 5,3%

2.224.278
Per year

81,7%
Occupancy

Air traffic movements

56.480

55.213 98%
1.267 2%

Commercial Aviation
Leisure, Business and VFR

16.530
Air traffic movements

75% Noise contour

General Aviation
Flight lessons and other purposes

27.860
Air traffic movements

1% Noise contour

Business aviation
Privet jets and business

6.310
Air traffic movements

5% Noise contour

Helicopter flights
Medical air assistance and police flights

5.780
Air traffic movements

19% Noise contour

Rotterdam The Hague Airport

Ready for take-off?

>50 European destinations

Our top-5

1. Málaga

2. Alicante

3. Faro

4. London City

5. Barcelona

RTM-based

Transavia

TUI

Non-based

British Aiways

Pegasus

Corendon

Sun Express

Freebird

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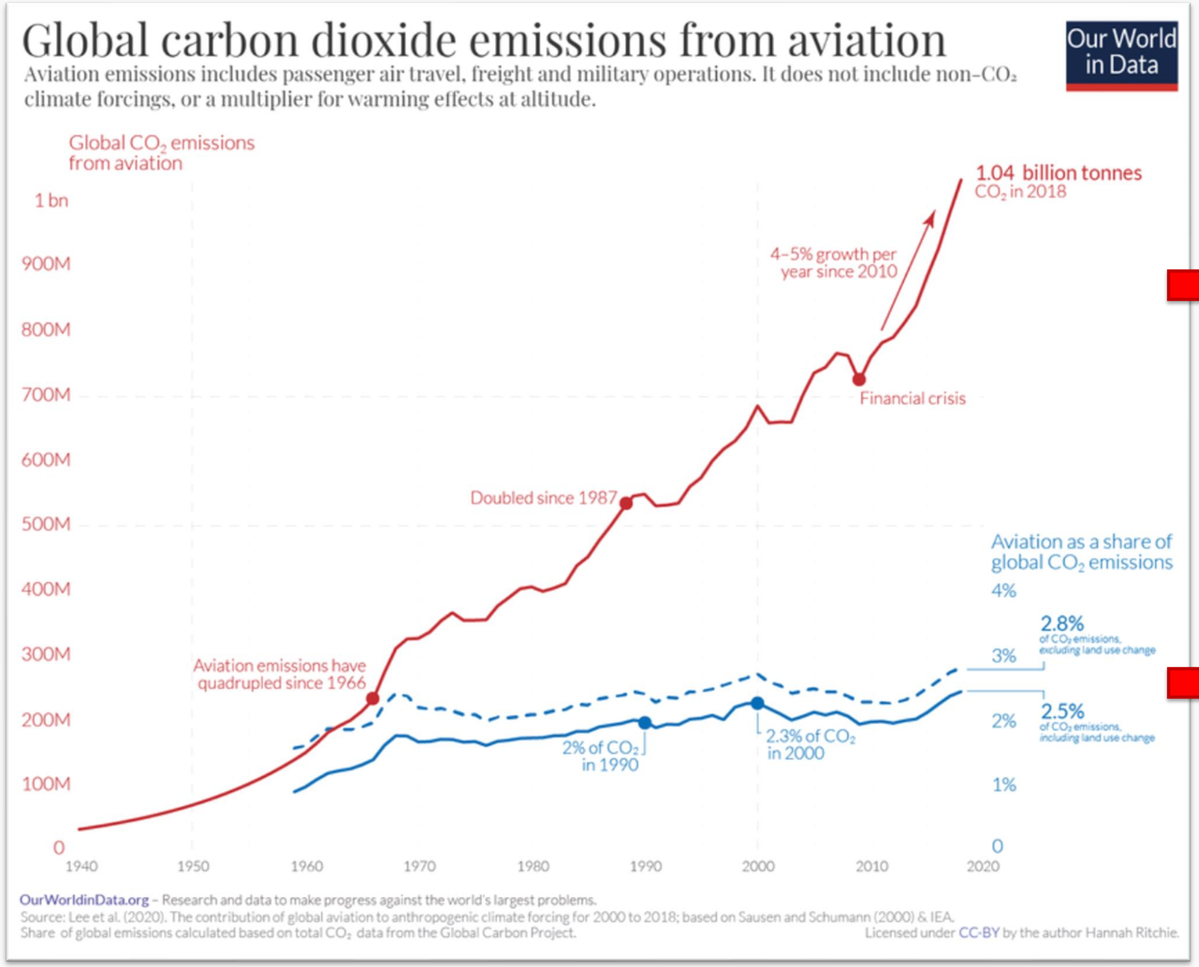
02

Need for climate action

Global aviation emissions



→ **Absolute aviation CO_2 emissions are rising strongly**

→ **Aviation = 2-3% of global CO_2 emissions**

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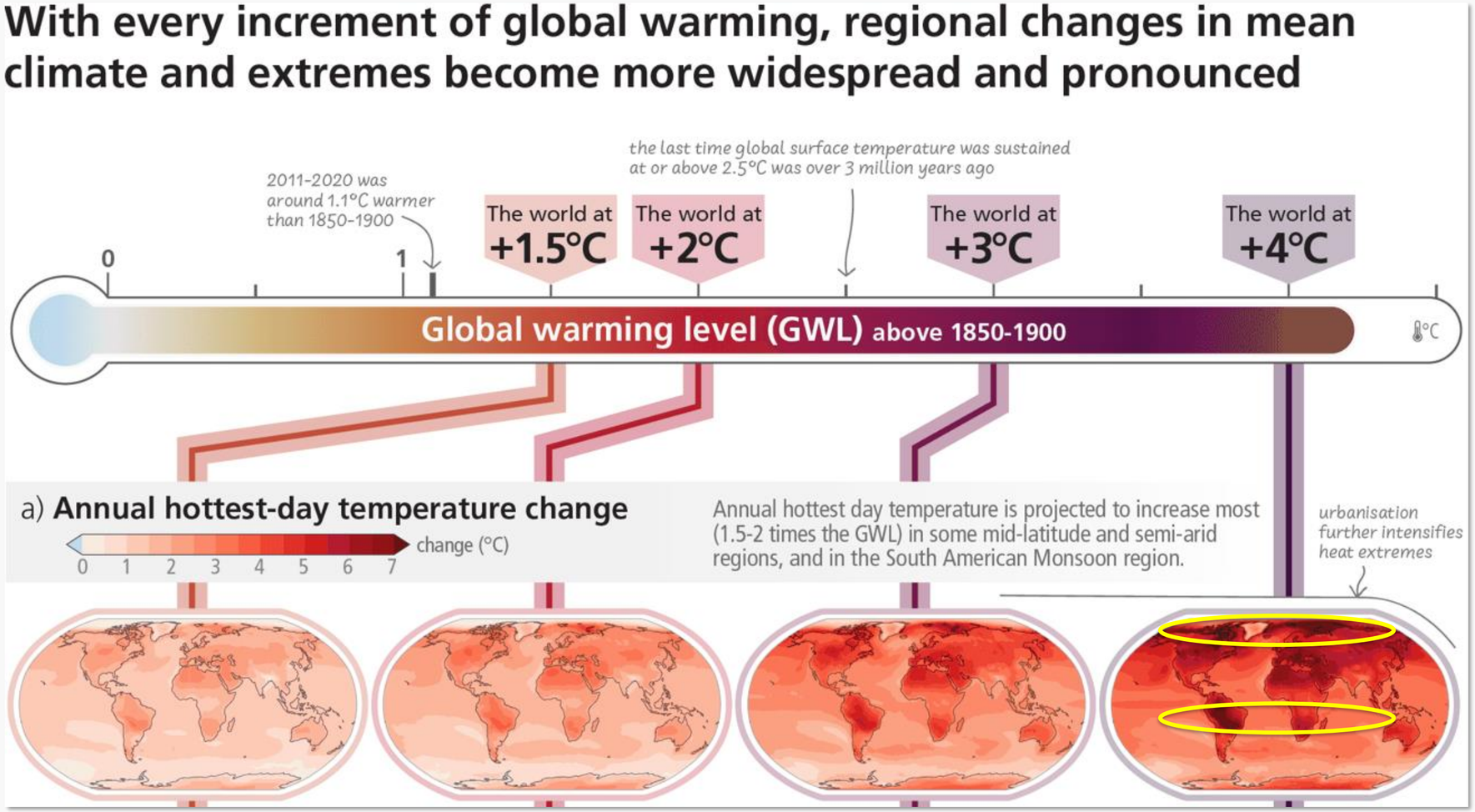
Climate change



Source: IPCC AR6 Synthesis Report (2023)

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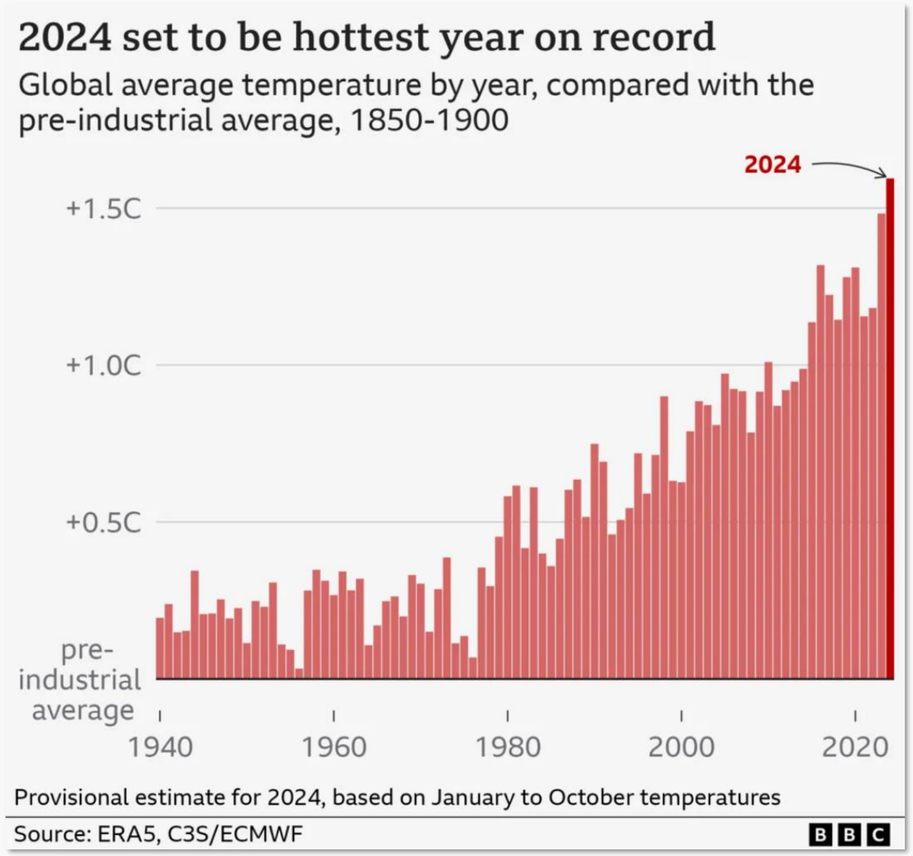
Climate change



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In other words…

We need to drastically reduce CO_2 emissions to limit global warming!

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Sustainability & Innovation Strategy

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Roadmap Sustainability Strategy

Milestones

Sustainable Airport

2030 Zero Emission Zero Waste

Fossil-free Aviation

2030 Emissions 2030 = level 2005

Communities

Improved relationship with local community

Rotterdam The Hague Airport

At the airport: energy positive and zero emissions in 2030

Renewable energy 14 MWp

- 37.000 panels in 7,7 ha along runway
- 3x energy demand of airport

Electric ground equipment

- 45% in 2024 up to 100% in 2030

Fossil free fuel HVO100

- Exclusively available for non-electric GSE and heavy duty equipment
- Reduction of 89% CO2

Electric taxi

- 100% electric taxi from RTHA

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Towards a circular economy, zero waste in 2030

Sustainable materials

- Wooden construction
- Measuring embodied carbon

Reuse of materials

- Taxiway renovation
- Recycled asphalt (50% smaller footprint)

In the terminal

- Waste separation
- Data-driven material flow management

Food & Beverage

- Buy locally & offer biological and plant-based food options

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Airport Carbon Accreditation

✓ RTHA is among first 10 airports worldwide to be accredited at the highest Level 5

Rotterdam The Hague Airport has:

- Reduced scope 1 and 2 emissions by more than 90% since 2010
- Fully aligned its carbon footprint with GHG Protocol guidelines – including scope 3 (upstream & downstream)
- A sustainability & innovation strategy which is considered as sufficient to reduce absolute CO_2 emissions, including aviation emissions. This aligns with the Paris Agreement, Net Zero target of Destination 2050 and Dutch national ambitions
- Committed to absolute emission reduction

airport carbon accredited
LEVEL 5

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Addressing the elephant in the room…
90% of RTHA’s carbon footprint is from kerosene combustion

Besides our efforts to make the airport more sustainable, most impact can be made by decarbonizing the flying itself!

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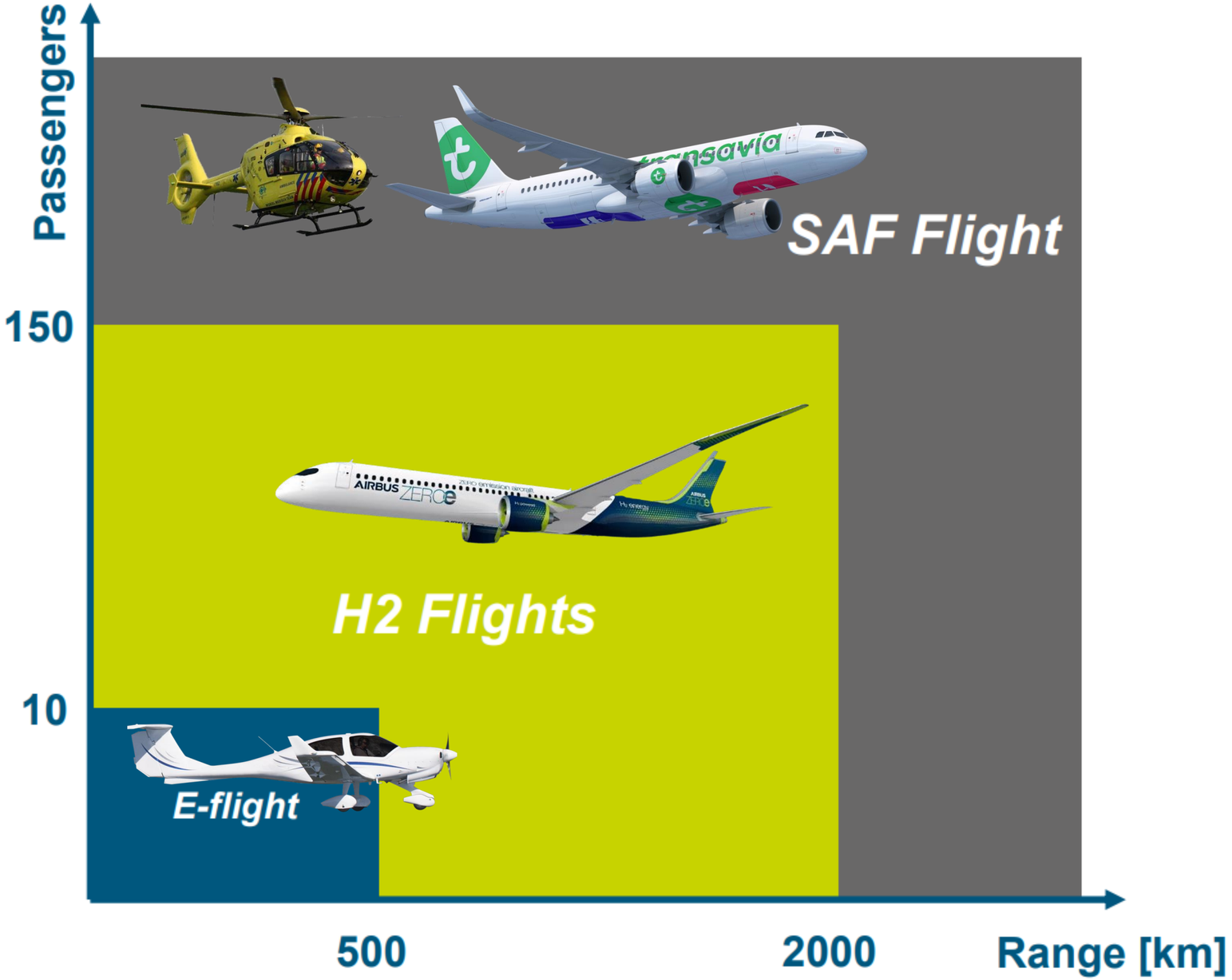

Sustainable aviation fuels, battery-electric & Hydrogen aviation

All needed and present at Rotterdam The Hague Airport

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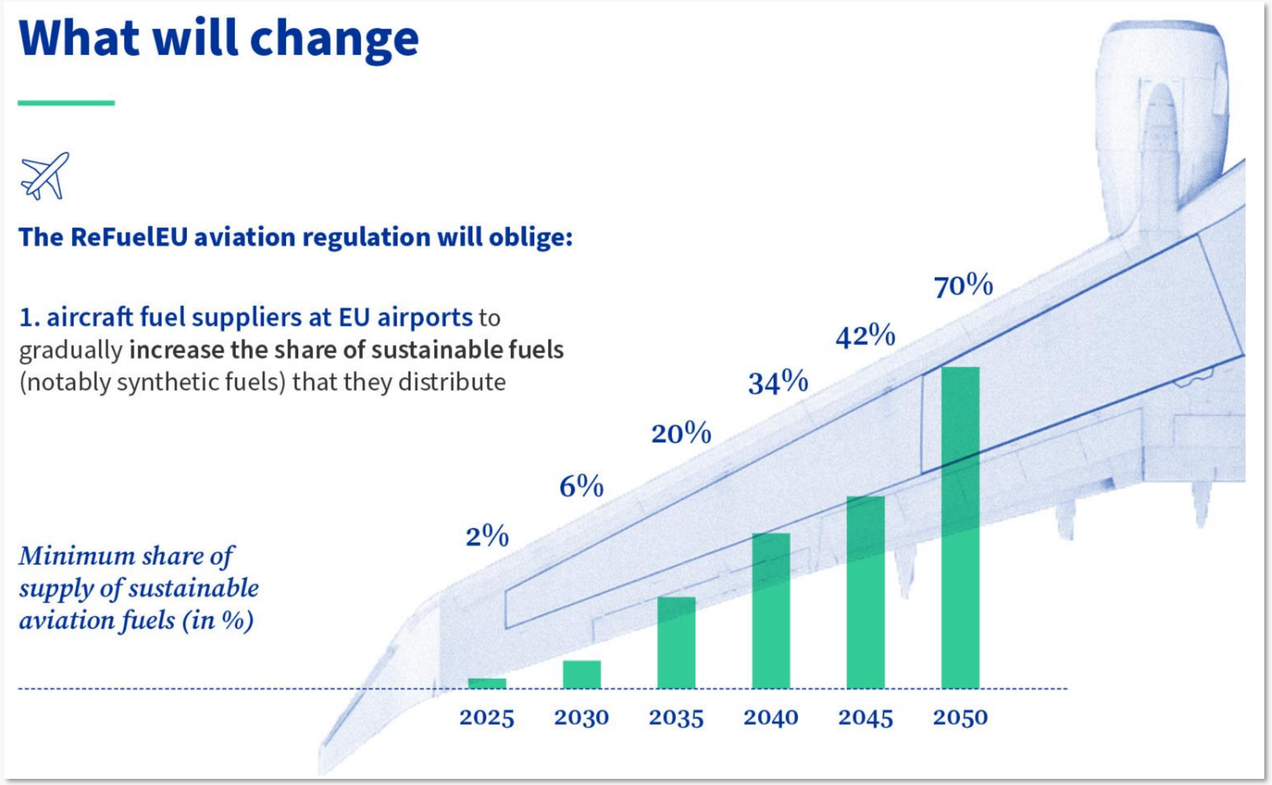
Sustainable Aviation Fuel (SAF)
Decarbonizing today's aircraft

- ReFuelEU Aviation has been adopted, meaning fuel suppliers will start blending a minimum of 2% SAF in 2025 towards 6% in 2030
- At RTHA, airlines have committed to already blend 2% SAF on a volunatary basis in 2024
- Dutch Aviation Industry has set itself a target of 14% SAF in 2030, instead of 6% (ReFuelEU) – getting to 14% remains a tough challenge. More airline commitment is needed.



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Battery-electric aviation
Introducing electric aircraft at RTHA

- RTHA is involved in the TULIPS project, focusing on battery-electric aviation
- We have installed an EASA-certified charging facility
- We have performed a demonstration for unattended charging
- NLR’s Pipistrel Velis Electro aircraft has been made available to our local flight club to gain experience with electric aviation
- Electric aircraft are exempted from airport fees until 2025
- 50% of general aviation movements could be electric in 2030

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Hydrogen aviation
H_2 as a fitting alternative for RTHA

H_2 opportunities at Rotterdam are big. Most of the airport's current routes, **medium- or short-haul**, could be served by future H_2 aircraft.

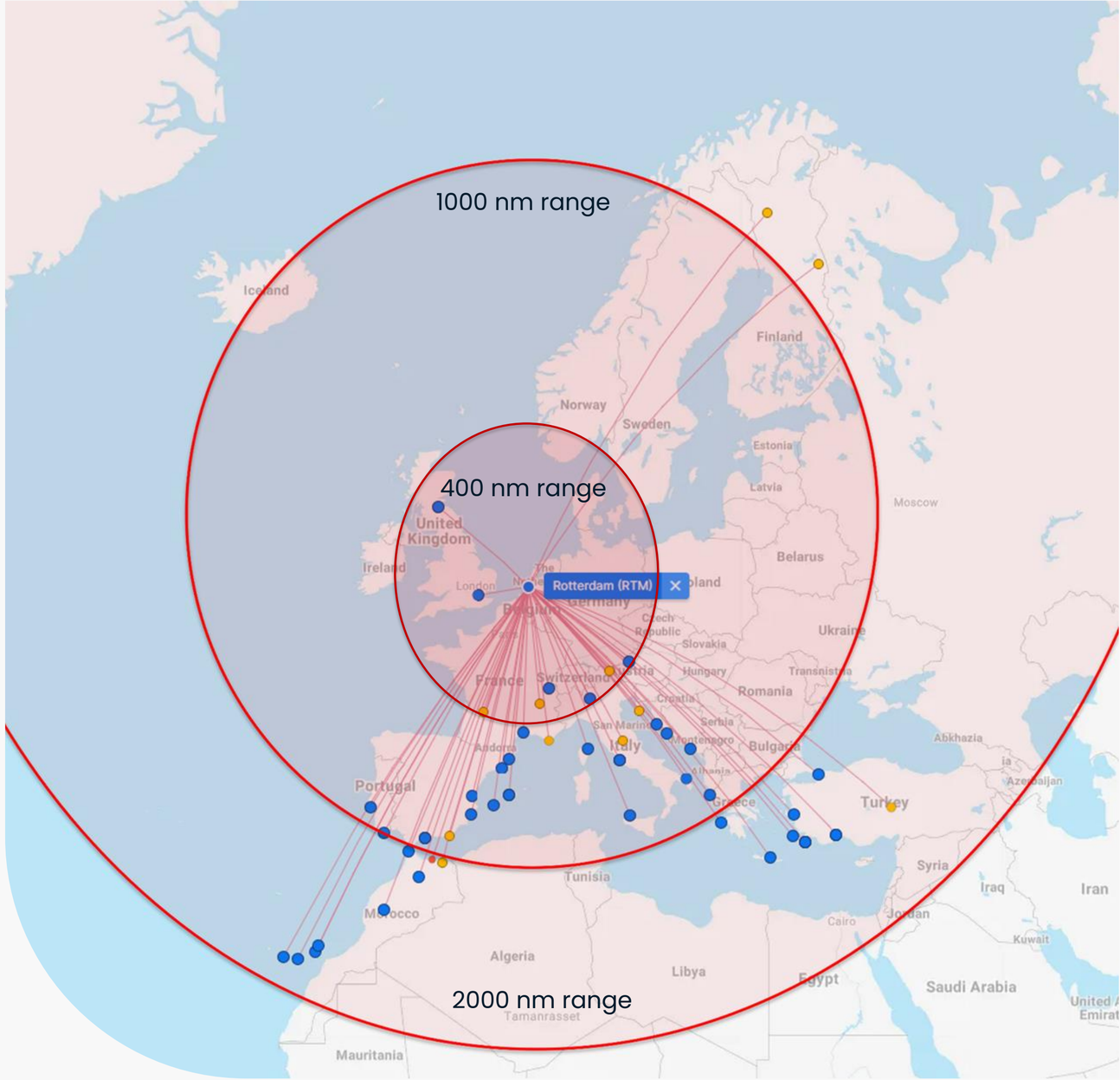
CONSCIOUS AEROSPACE

- Turboprop aircraft
- > 30 passengers
- 400 nm range

ZEROe AIRBUS

- Turboprop aircraft
- < 100 passengers
- < 1000 nm range

- Turbofan aircraft
- < 200 passengers
- < 2000 nm range



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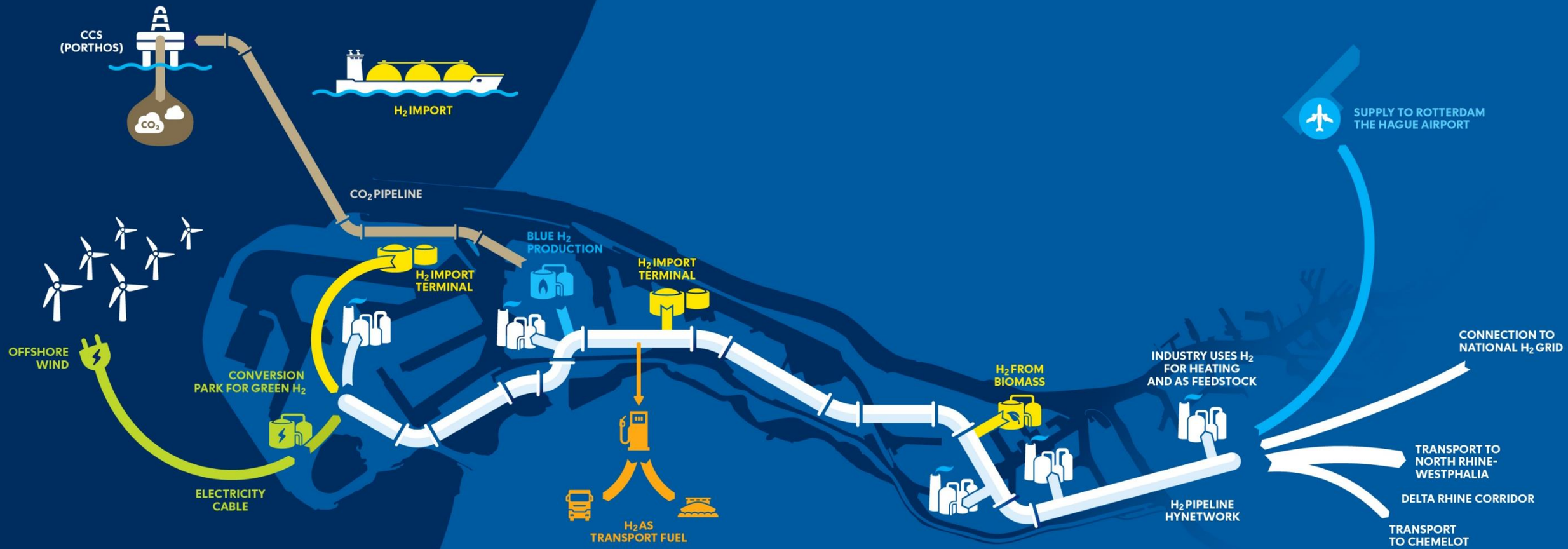
Our backyard:
Port, university & hub airport

HYDROGEN CONNECTION TO ROTTERDAM THE HAGUE AIRPORT



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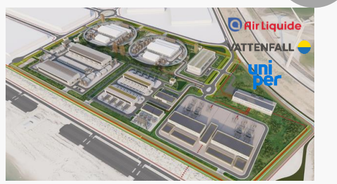
Port of Rotterdam, ‘Europe’s H_2 Hub’

Rotterdam hosts Europe’s largest port and introduces a large-scale H_2 network. This network is based on:

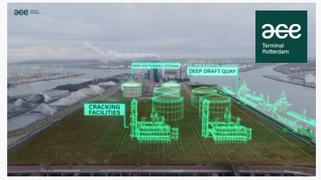
1. H_2 production (wind energy)

5% in 2050

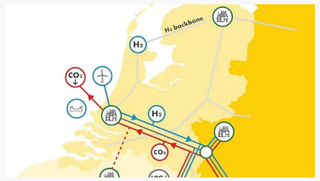


2. H_2 import and storage

95% in 2050



3. H_2 transport (pipeline, road, rail and barge)



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Our innovation areas with the focus on H_2 developments at airports

...are key for hydrogen to be successful

- H_2 airport operations
- H_2 storage at airports
- H_2 supply to airports
- H_2 refueling
- H_2 fire safety (training)
- H_2 ground operation tests
- H_2 safety studies
- H_2 commercialization

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Projected H_2 aircraft at our airport

2023 2024 2025 2026 2027 2028 2029 2030

TULIPS
- NLR Hydra 2 drone
- LH_2 turnaround

AeroDelft
- Sling 4 aircraft
- GH_2 and LH_2

nlr
- NLR Living Lab Electric Flight
- Range extenders under wings

TU Delft
- Cessna Skymaster
- Retrofitted with a H_2 combustion engine

ZEROAVIA
- Zeroavia ZA600 powertrain on Cessna Grand Caravan
- Mobile refuelling and demonstration flights

H2FLY
- LH_2 aircraft and mobile LH_2 refuelling demonstration
- Testbed for LH_2 developments

CONSCIOUS AEROSPACE
- Dutch national programme - powertrain conversion to LH_2
- Retrofit of a DeHavilland Dash 8

Needed H_2 infrastructure

≈ 10 kg

≈ 350 kg

> 3500 kg

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Concluding
Significant challanges ahead

- Climate change is causing increased global warming, with the 1.5 degree Paris limit starting to disappear on the horizon
- Extreme climate impacts are already happening today, affecting vulnerable communities the most - climate action is more urgent than ever

- Rotterdam The Hague Airport is taking action to eliminate its own emissions (scope 1 and 2)
- Together with our partners we continue the work to reduce scope 3 emissions and – most importantly – decarbonize aviation to ensure a more sustainable future of worldwide connectivity
- This poses significant challanges and requires deep and bold commitment from all players in the aviation industry

We know what we need to do, let's walk the talk!

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Thank you.

Contact

Koen Pouw | Sustainability Advisor

koen.pouw@rtha.com

www.linkedin.com/in/koen-pouw-494786190