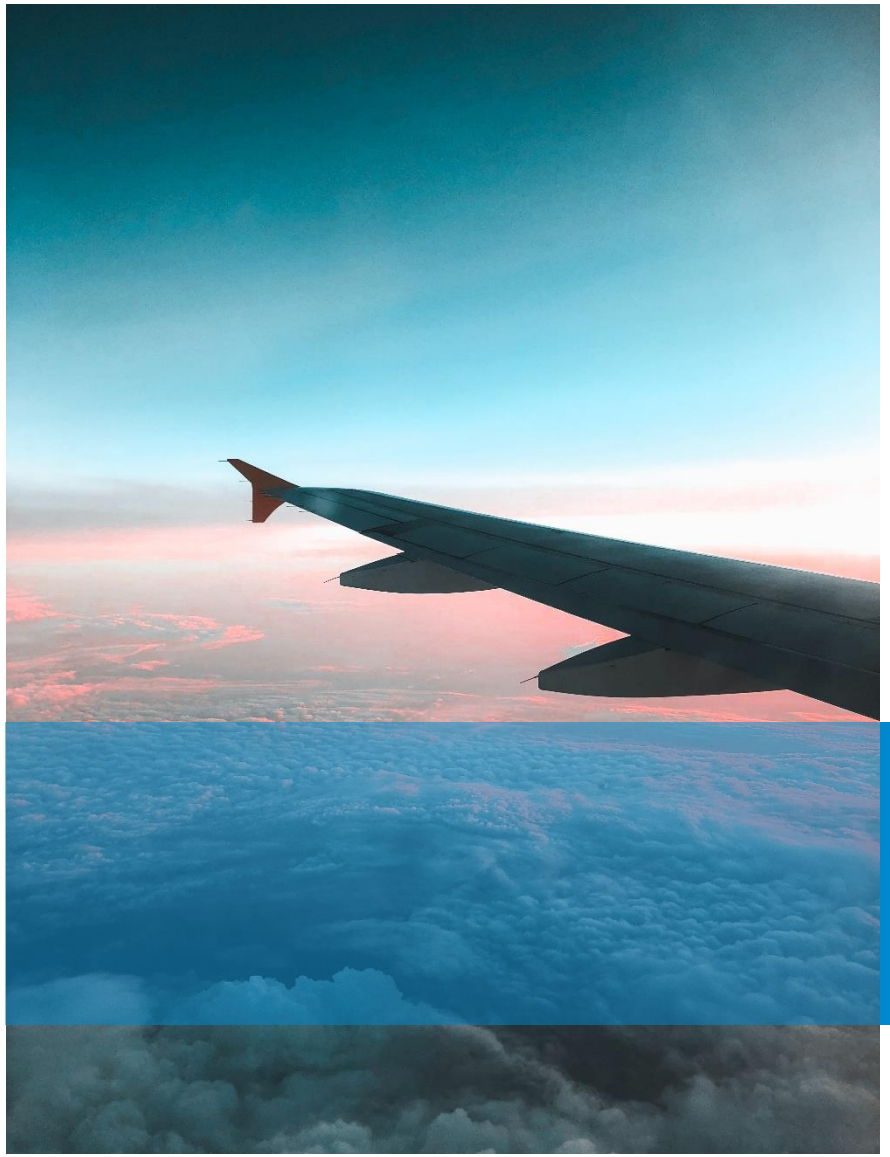


H_2 Platform

SkyNRG – Oskar Meijerink

13 December 2019

SkyNRG

The aviation industry faces 3 challenges

1

Passenger numbers will continue to grow

Passenger numbers are expected to double in the next 20 years to **8 billion passengers** per year

2

Environmental impact of the aviation industry is significant

Without timely action the aviation industry can consume up to **22% of the global carbon budget** in 2050

3

Environmental friendly alternatives are limited

It will take **multiple decades** before serious petroleum alternatives are commercial available

Source: ICAO,"Aviation's share of the 1.5C budget" – Carbon Brief

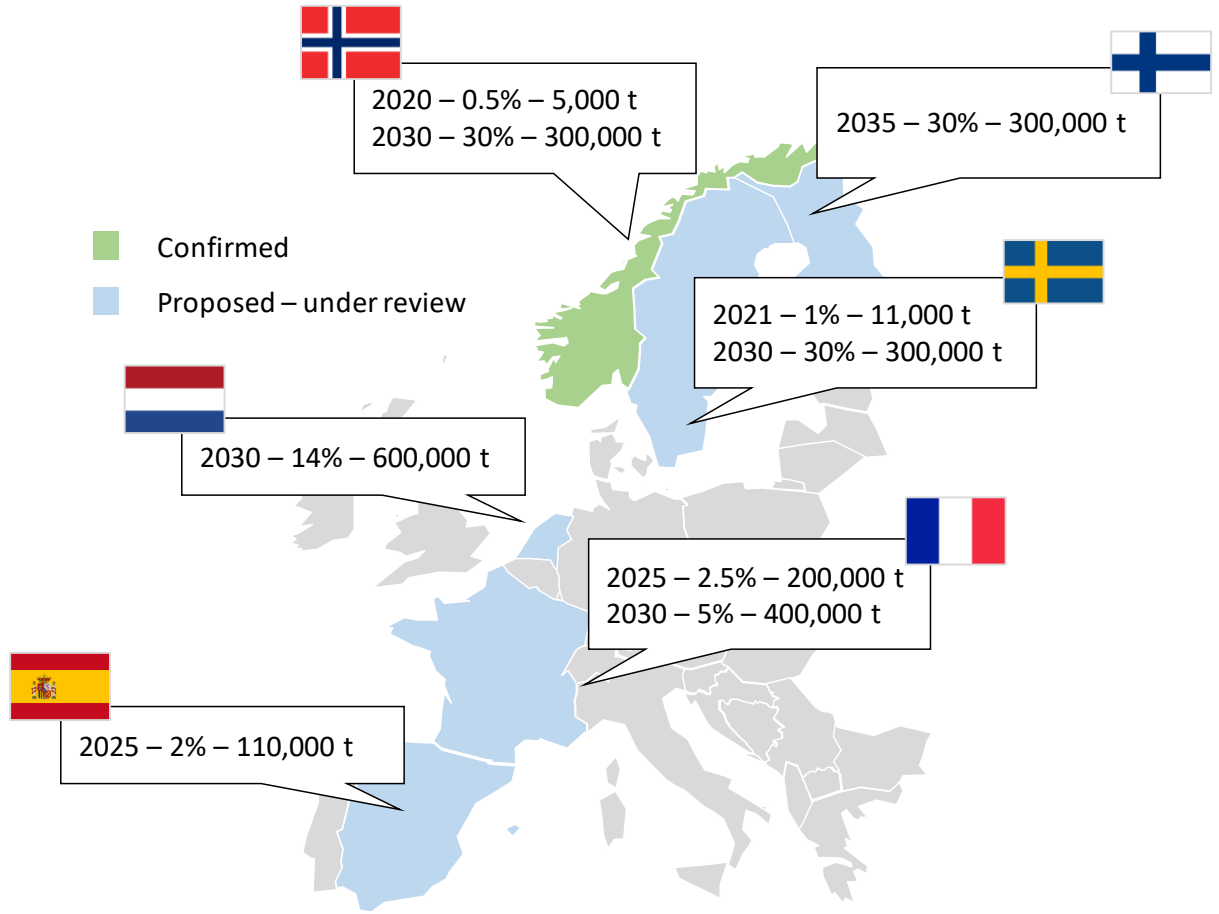
SkyNRG

So far, the SAF market has been voluntary, but change is coming and will stimulate demand

Current jet fuel demand in Europe

	Jet-A1 Fuel Consumption/year (kt)
Belgium	1,400
Netherlands	3,753
France	5,708
Germany	8,429
BE,NL,FR,DE	19,290
Other	12,533
Europe (19 countries)	**31,823**
Mandated SAF in 2030	***2,010***

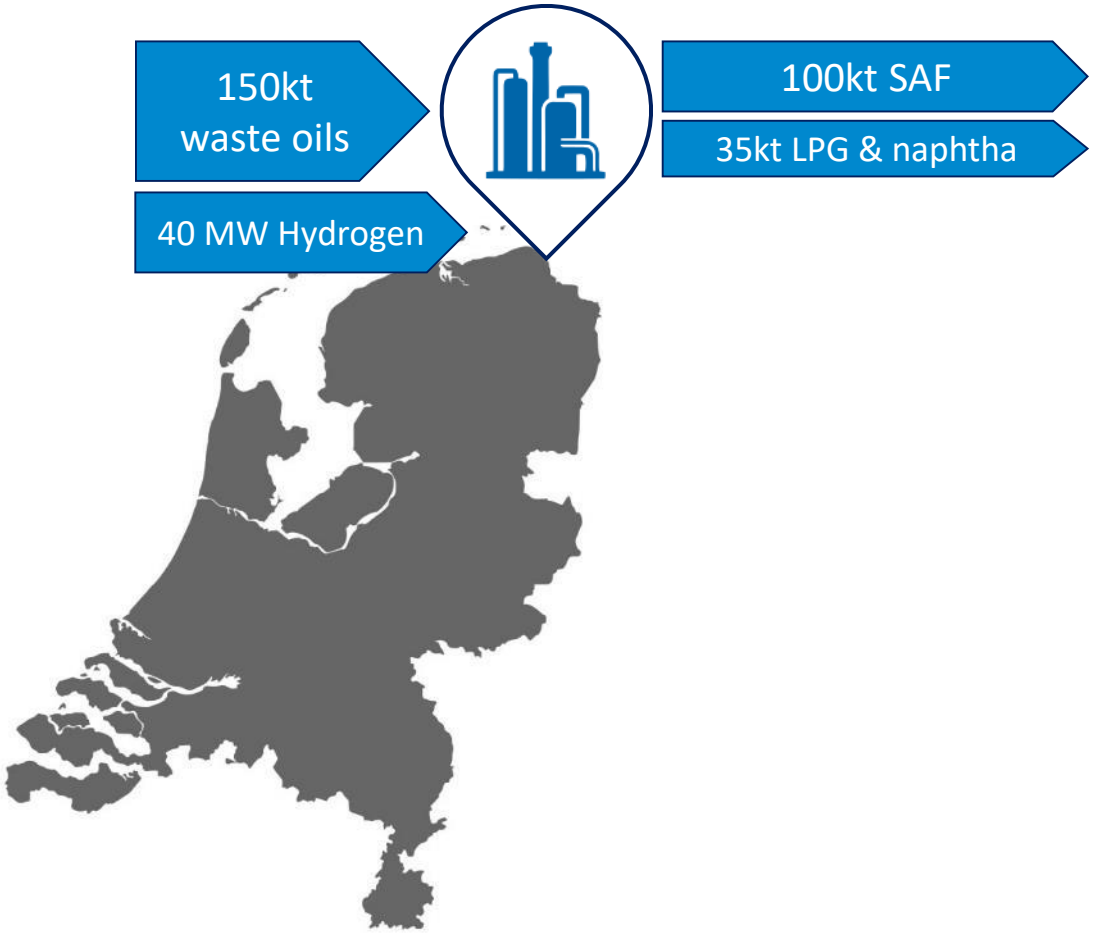
European SAF mandates



SkyNRG

Project DSL-01: The first dedicated sustainable aviation fuel production unit, in the world

Production process



Characteristics

- Delfzijl, The Netherlands
- 100 kton SAF per year
- CO_2 reduction: 85%
- Capex: 250M euro
- Start production: 2022
- Project Partners:

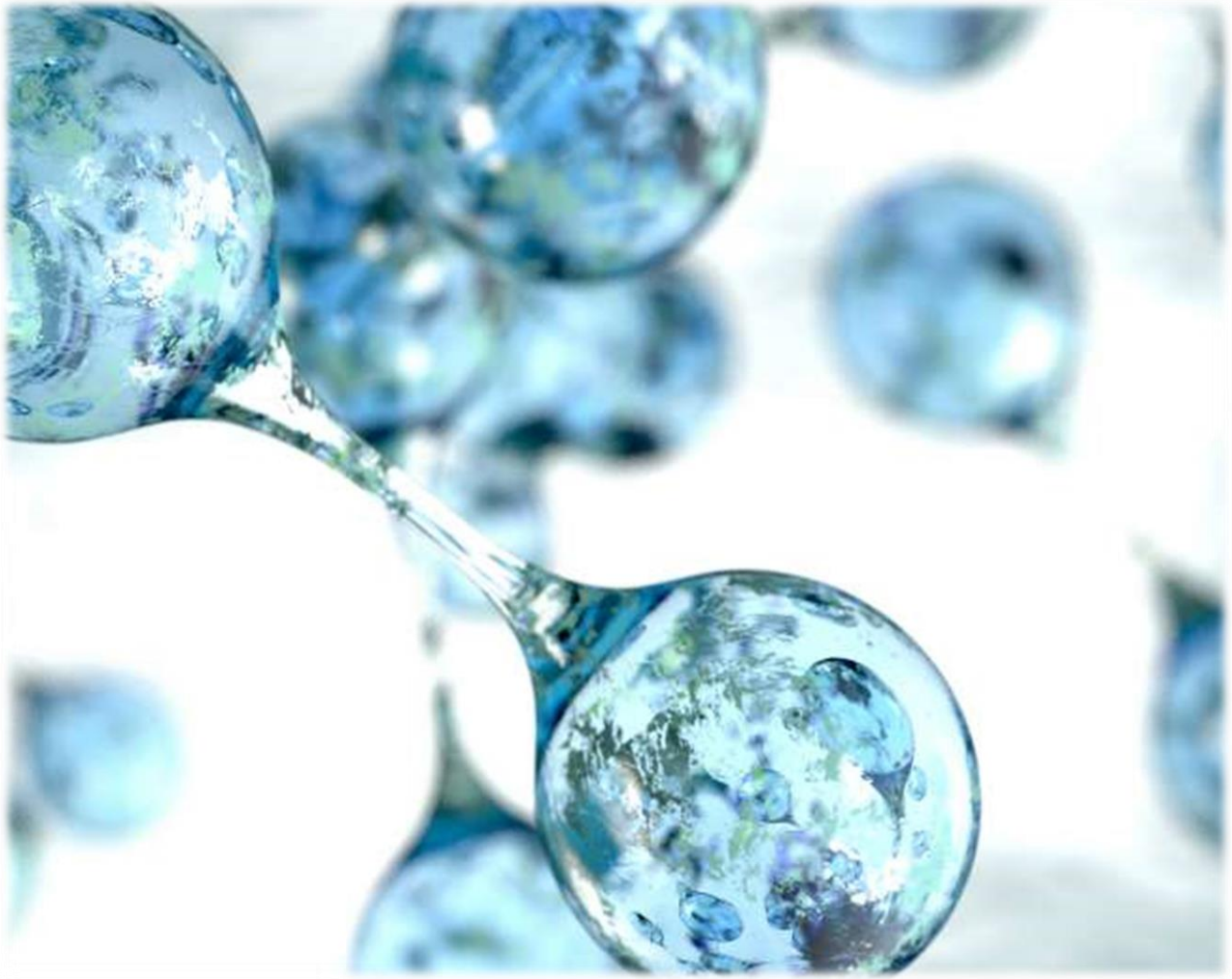
SkyNRG, KLM, SHV ENERGY, Shell, Climate-KIC, Schiphol Amsterdam Airport, NOM, GROElfonds Investeert in Noord-Groningen, Nouryon, gasunie, GRONINGEN SEAPORTS, HALDOR TOPSØE, Susteen, ARCADIS, TechnipFMC

SkyNRG

Hydrogen is essential for the sustainability profile of SAF, but policy is hampering the development

Policy issues

- H_2 is a key input for many SAF pathways
- Current RED policy works on a threshold basis, this does not stimulate the uptake of renewable hydrogen beyond the threshold
- For future pathways, like Synthetic SAF, we need even more H_2. The total renewable wind capacity on the North Sea ~10 GW would be enough to produce 50% of Schiphol's jet fuel volume
- More ambitious sustainable electricity scale-up is vital for the H_2 development



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