

PUBLIC

# SUSTAINABLE LOGISTICS. SIMPLIFIED.

POWERING THE FUTURE OF LOGISTICS WITH SUSTAINABLE FUELS

23 June 2022

**DHL**

## Introducing our experts...



**Dr. Henrik von Storch**

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Deutsche Post DHL



**Frederik van de Ven**

Global Sustainability Director  
Air France KLM Martinair Cargo



**Kathrin Brost**

Global Head of GoGreen  
DHL Global Forwarding



**Maria Savranska**

Global Marketing Director  
DHL Global Forwarding

## Agenda

### 1. Welcome & Introduction

### 2. Sustainable Fuels in Logistics: where are we today? **Dr. Henrik von Storch**, Team Lead Clean Operations Office, Deutsche Post DHL

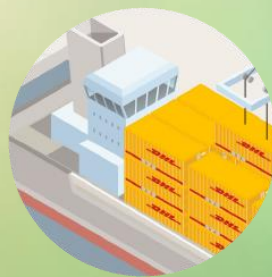
### 3. Sustainable Fuels in Practice **Frederik van de Ven**, Global Sustainability Director, Air France KLM Martinair Cargo

### 4. Sustainable Fuels: the Road ahead **Kathrin Brost**, Global Head of GoGreen DHL Global Forwarding




### 5. Q&A & Wrap up







## The operational perspective on sustainable fuels: Feedstocks define availability and sustainability – the fuel type determines applicability in vehicles and vessels

Fuel type	Fossil Fuels 	Bio Fuels 	Synthetic Fuels 
Applicability	Fuel product		
<b>Drop-in</b> (No modification needed)	<ul style="list-style-type: none"> <li>• Kerosene</li> <li>• Diesel</li> <li>• Gasoline</li> <li>• Heavy Fuel Oil (HFO)</li> </ul>	<ul style="list-style-type: none"> <li>• Biokerosene</li> <li>• Biodiesel</li> </ul>	<ul style="list-style-type: none"> <li>• E-kerosene</li> <li>• E-diesel</li> <li>• E-gasoline</li> </ul>
<b>Non-drop-in</b> (Modification to engine and infrastructure needed)	<ul style="list-style-type: none"> <li>• Hydrogen</li> <li>• LNG / CNG</li> <li>• Methanol</li> <li>• Ammonia</li> </ul>	<ul style="list-style-type: none"> <li>• Hydrogen</li> <li>• Bio-LNG / Bio-CNG</li> <li>• Bio-methanol</li> <li>• Bio-ammonia</li> <li>• Ethanol</li> </ul>	<ul style="list-style-type: none"> <li>• Hydrogen</li> <li>• E-LNG / E-CNG</li> <li>• E-methanol</li> <li>• E-Ammonia</li> <li>• Direct power usage</li> </ul>



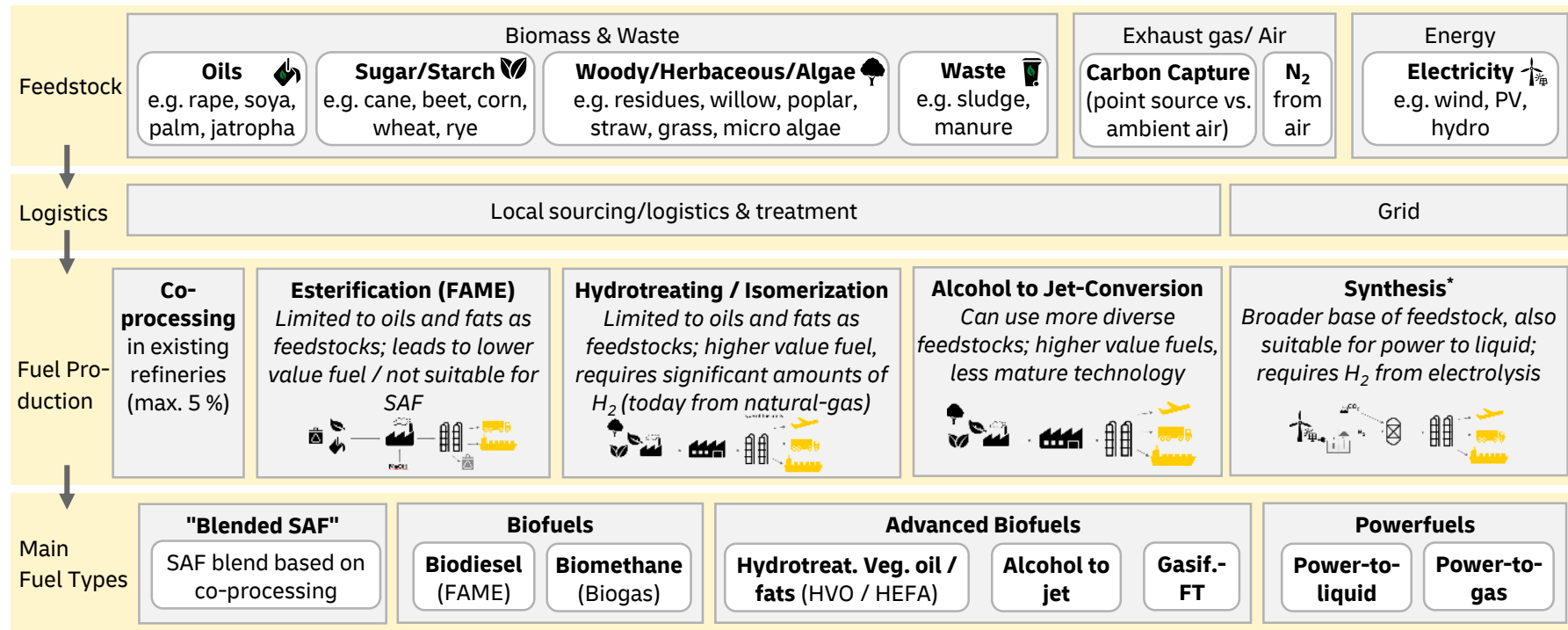
### Key takeaways

- **Different feedstocks** can **produce the same fuel products** (e.g., Diesel, Biodiesel, E-diesel)
- The **fuel origin determines** the fuel type and **sustainability**
- The **physical / chemical fuel characteristics** determines the **applicability**



# The various aspects of sustainable fuels form a complex landscape of energy sources, feedstock used, production technologies and resulting fuel types

Simplified landscape of SF production routes – details cf. Appendix chapter 1



\*Includes Fischer-Tropsch, Ammonia or Methanol Synthesis

## Feedstock focus: Availability of sustainable fuels is determined by three factors – Availability of feedstock, technology readiness and production capacity

### Availability of sustainable energy/feedstock

#### HEFA/HVO/FAME

- Limited to few waste-materials
- Competition with other uses (e.g. HVO/FAME)

### Readiness of technology

- Fully available at scale
- Marginal improvements expected

### Capacity Ramp-up perspective

- Continuous ramp-up to two-digit MT capacity in 2030

#### AtJ & FT

- Several waste materials eligible
- Less competition with other uses

- Proven technologies, demonstration at scale underway

- Subject to successful demonstration facilities exponential growth

#### Power to Liquid (incl. Ammonia)

- Unlimited potential
- Relevant competition with other sectors for green power

- Proven technologies, demonstration at scale expected in 2020's

- In 2020's first demo facilities
- Exponential growth expected after 2030

## Fuel Type Focus: Non-drop-in fuels will be relevant for clean road & ocean transport – in aviation drop-in solutions will remain predominant until 2050

### (Near)-Drop-in Fuels



HVO available in some countries but focus on non-drop-in solutions



HVO/FAME Available and approved for blending in many ocean vessels



Several SAF pathways approved for 50% blending – aiming for 100 %

### Non-drop-in fuels & technologies



Several promising options: Battery-Electric, Bio-CNG/LNG partially available today; H<sub>2</sub> expected towards 2030



For e-fuels focus is on Ammonia and Methanol towards 2030



Focus of decarbonization activities until 2050

No impact Battery-Electric and H<sub>2</sub> aircraft expected for 2030 targets – for 2050 uncertain



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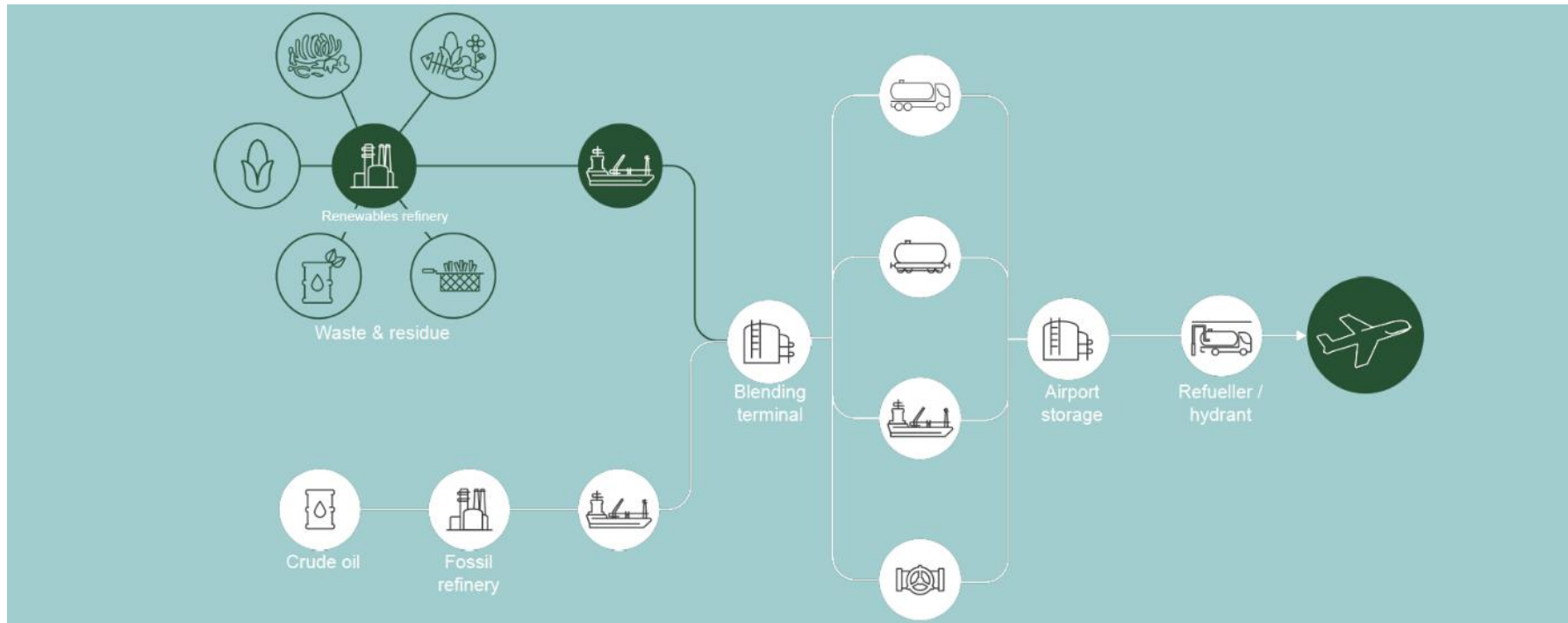


# AFKL CARGO SAF PROGRAMME

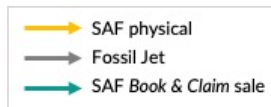
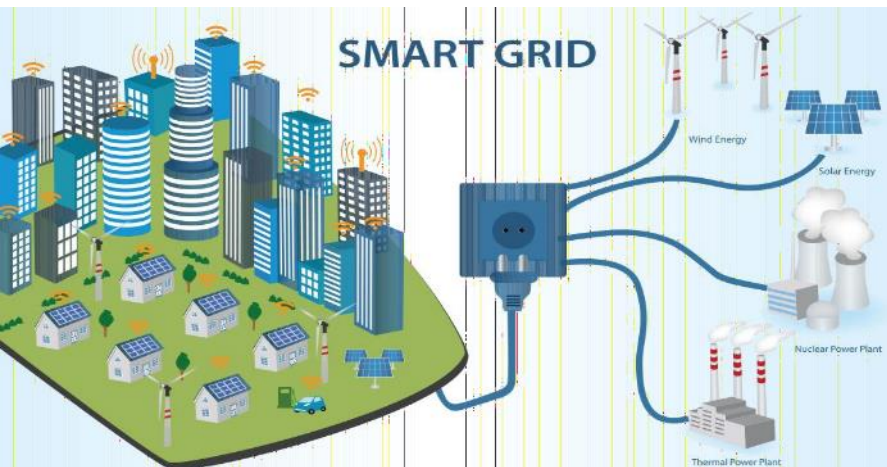
- 1 Supply chain of SAF vs Book & Claim
- 2 SAF Supply & Demand
- 3 SAF premium



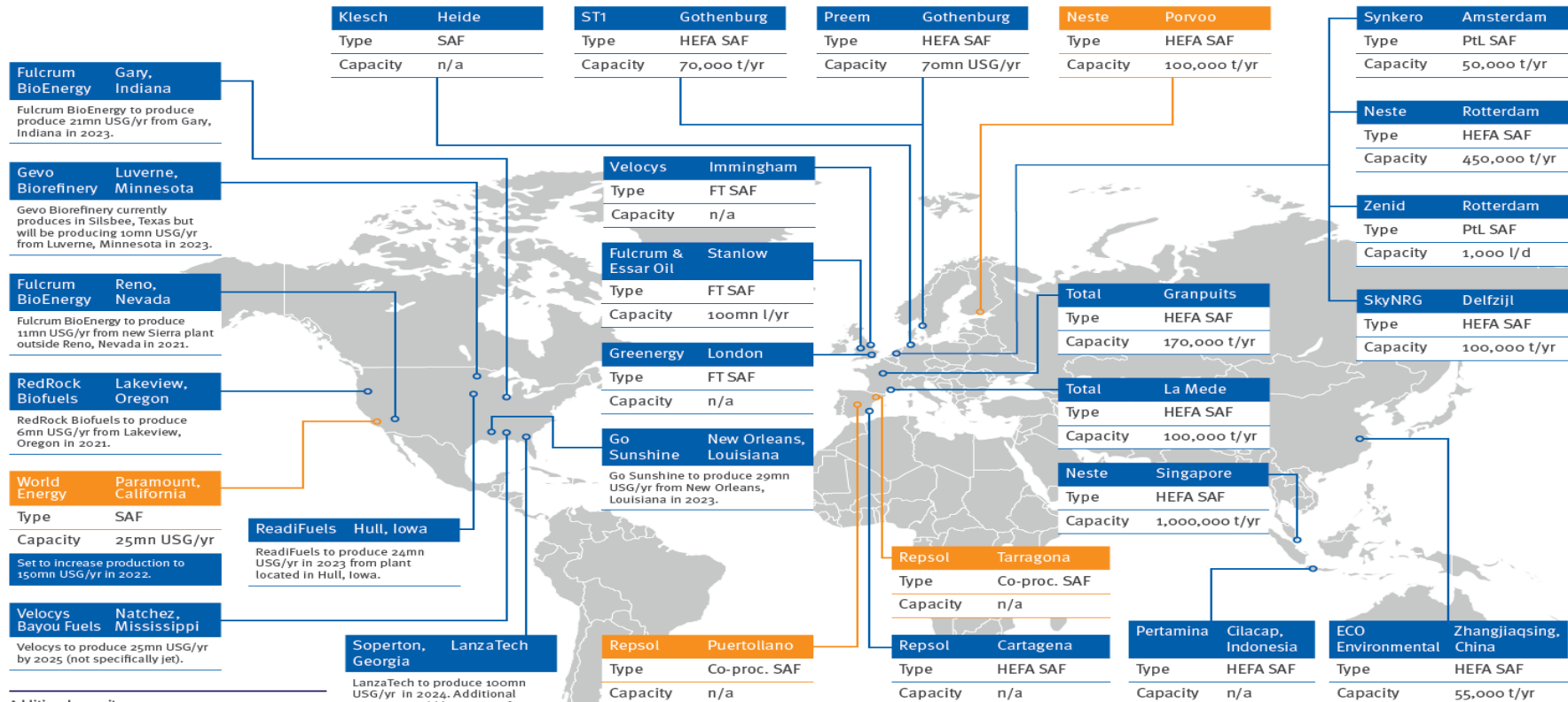
# SAF SUPPLY CHAIN FROM RAW MATERIALS TO AIRPLANE



# BOOK & CLAIM – SAF FUELING SYSTEM



# WORLDWIDE SAF PRODUCTION



**Additional capacity**

- Flite consortium led by SkyNRG to produce 30,000 t/yr from Afti facility at undisclosed European location
- Potential production of SAF at Eni's Gea 650,000 t/yr biorefinery



# CHALLENGING SUPPLY AND DEMAND DYNAMICS TOWARDS 2030

## WE HAVE TO INTEGRATE SAF IN ALL OUR BUSINESS MODELS

### SCANDINAVIA

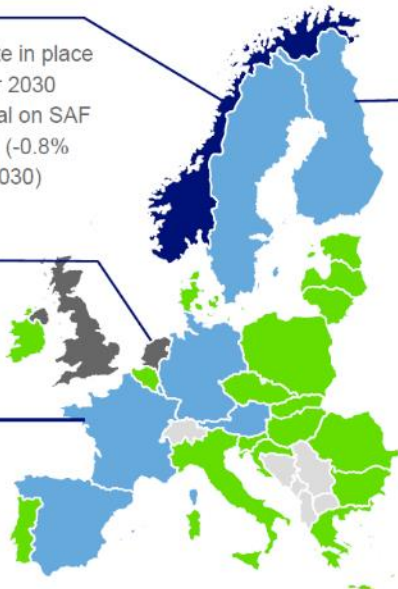
**Norway:** SAF mandate in place (0.5%), 30% target for 2030  
**Sweden:** Law proposal on SAF mandate start in 2021 (-0.8% GHG; -27% GHG in 2030)

### Netherlands

Ministry proposal on SAF mandate: 2023 start, 14% in 2030

### FRANCE

SAF mandate: 1% in 2022; 5% in 2030



### FINLAND

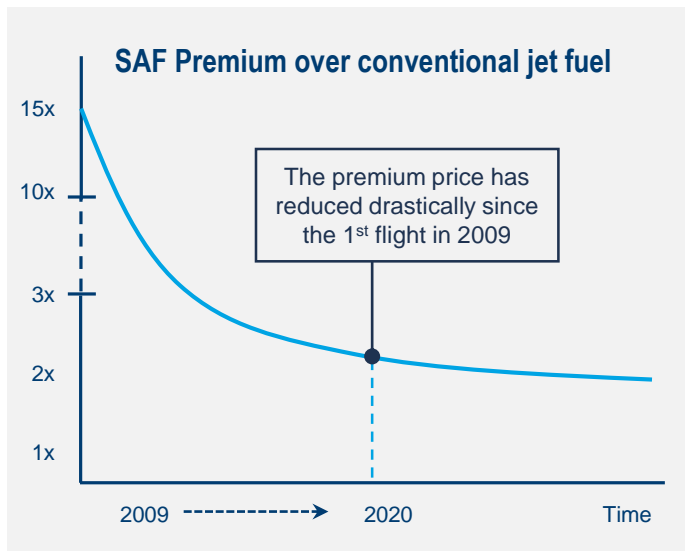
Ministry proposal: 2022 start; 30% in 2030

### EUROPEAN UNION

ReFuelEU Aviation SAF mandate: Consultation on-going



# HELP CREATE SCALE OF PRODUCTION CAPACITY AND BECOME A PIONEER IN YOUR INDUSTRY



## SAF REPRESENTS < 1% OF TOTAL JET FUEL DEMAND

### PRICE

There is a significant gap between SAF and conventional jet fuel.

### POLICY

Stable, effective and supportive policies are still lacking.

### SUPPLY

Scale is needed to create economies of scale and further reduce the SAF price.

Together, we can overcome challenges now to grow the market for SAF and reach climate goals



THANK YOU



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# Sustainable Fuel Switch – Industry Guidance



## Carbon Insets for the Logistics Sector

Innovating carbon offset practices to accelerate freight decarbonization

White Paper  
November 2020



## Sustainable Aviation Fuel Greenhouse Gas Emission Accounting and Insetting Guidelines

Smart Freight Centre and MIT Center for Transportation & Logistics



## Powering Sustainable Aviation Through Consumer Demand: The Clean Skies for Tomorrow Sustainable Aviation Fuel Certificate (SAFc) Framework

INSIGHT REPORT  
JUNE 2021

News

## Smart Freight Centre partners with World Economic Forum and leading companies to develop a book and claim chain of custody system for transportation supply chain emission reduction actions

Amsterdam, 9 December 2021 – Smart Freight Centre (SFC) is pleased to partner with World Economic Forum (the Forum) and leading companies in launching a new project to develop a framework and accounting guidelines for a book and claim chain of custody system for transportation supply chain emission reduction actions.

"The decarbonization of logistics requires an industry-wide, multi-stakeholder collaborative effort. In order to enable partners across the value chain to contribute to the accelerated use of sustainable fuels and technologies within the sector, a standardized book and claim accounting mechanism is urgently needed.

This mechanism will enable the allocation of emission reductions through insetting and thereby support DP DHL and its customers to effectively reduce their carbon footprint. Being one of the signatories of the Forum's Supply Chain and Transport Industry statement of support for green demand alliances and a book and claim standard, we are glad to see this has so quickly been picked up by SFC and the Forum and fully support this initiative"  
- Andreas Muedel, SFC Strategy and Operations Programs at DP DHL and global head of the company's Clean Operations program

## Context & Background

Insetting Standard, currently being developed by Smart Freight Centre in collaboration with WEF

### Project deliverables:

- Establish a **book and claim** chain of custody system for tracking insetting emission reduction
- Write an **accounting standard** for insetting consistent with GLEC Framework & GHG Protocol

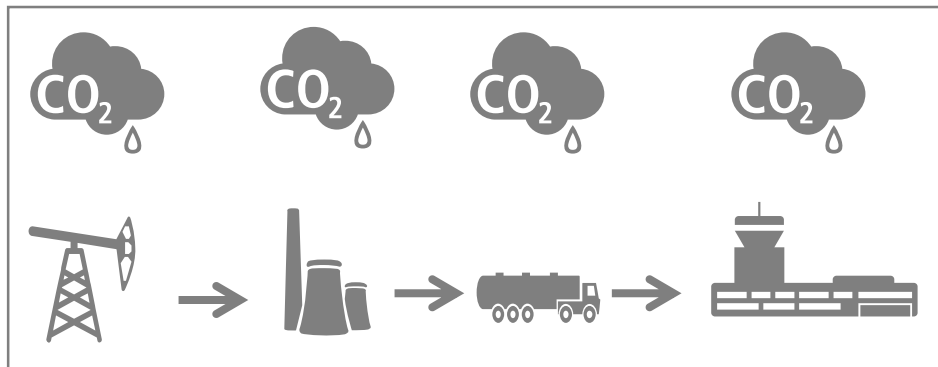
### Project timeline:

- Public consultation in summer, afterwards revision of text, finalization and layout
- Expected publication: End of 2022





## Common Language – Emission Categories



← Well to Tank →

Upstream

Energy Provision Emissions



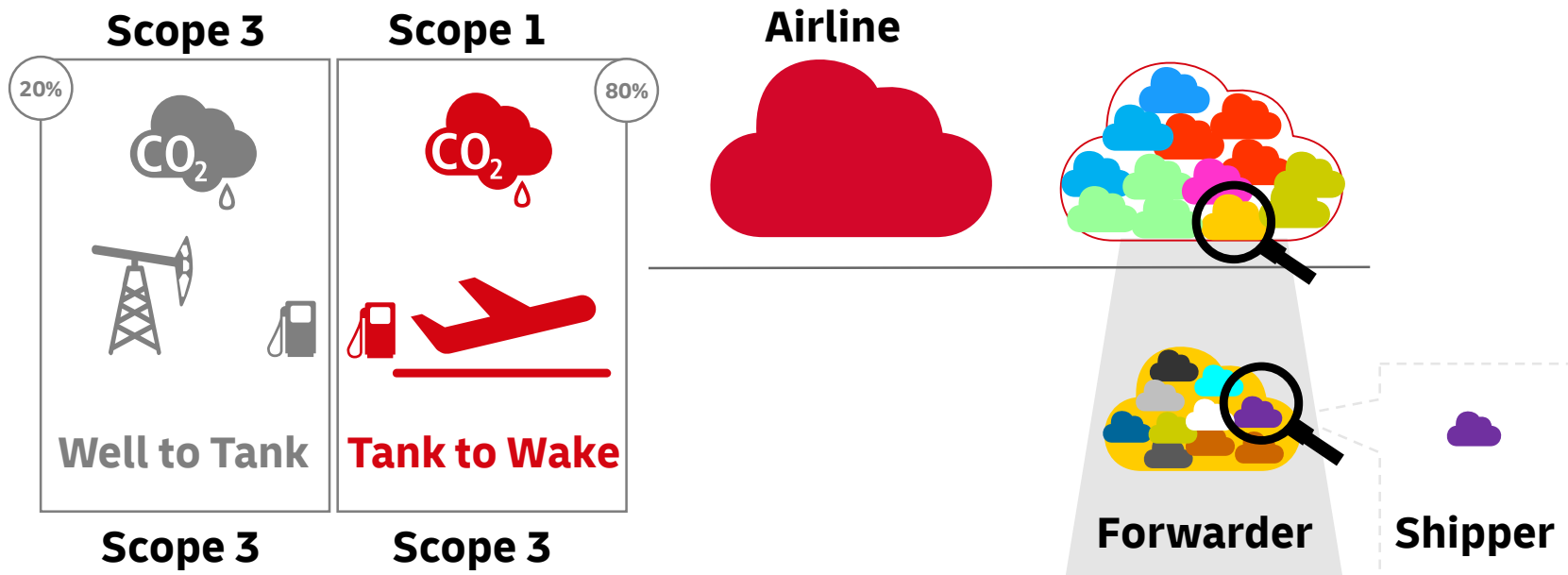
← Tank to Wake →

Downstream

Operational Emissions



## Common Language – Emission Scopes





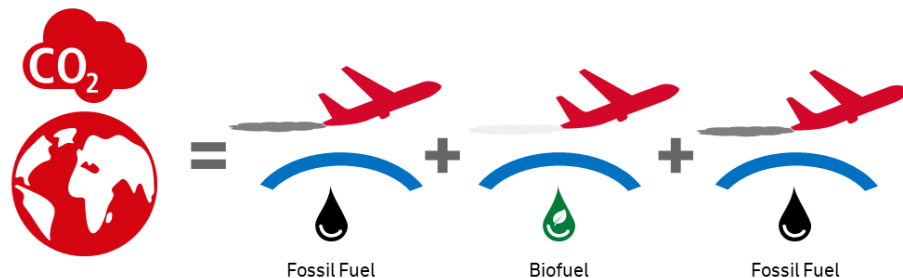
## Sustainable Fuel Switch – Sharing CO<sub>2</sub> Reductions



- **Emission reduction** can be passed on along the value chain, just like Scope 3 emissions
- To overcome SAF availability constraints and to create a SAF market more **flexible reduction allocation mechanisms** are needed:
  - Mass-balance
  - Book & Claim
  - Insetting

### One-Atmosphere Approach

To overcome geographical or physical biofuel constraints we need to look at the aviation industry as one entity



All aircrafts exhaust in the same atmosphere. **Therefore, it does not matter for our climate where or in which aircraft biofuel is used** instead of fossil fuel.



## Sustainable Fuel Switch – Mechanisms/Schemes

### Direct physical supply

#### Mass Balance

Airline buys SAF. SAF is delivered into the **fuel farm** and **airline** physically only receives it in diluted form but claims the entire amount. Airline can grant Scope 3 reduction to forwarders/shippers

#### Scope 1 Book & Claim

Airline pays for SAF Scope 1 reduction. Fuel supplier delivers SAF to an airport (no physical connection). SAF is accounted for purchased volume. Airline cannot pass Scope 3 reduction along value chain. Airline cannot grant Scope 3 reduction to others

#### Scope 3 Book & Claim

Forwarder or shipper purchases Scope 3 reduction form airline or directly from fuel provider. Forwarder can grant Scope 3 reduction to shippers

### Offsetting

**Scope 1 & 3 reductions can be granted separately**



## Insetting Frameworks – Discussion Items (selection)

Constraint	Description
Cross-modal	SAF insets can only be used to reduce emissions from air transport
Activity	You can't inset more air freight than the amount you are responsible for
Additionally	Fuels introduced to the network to fulfill a blending mandate cannot be used for insets
Other	Under discussion: vintage requirement, contract constraint, geographic constraint etc



- 'Insetting' **term might be changed**
- Discussions on '**insetting**' **boundaries** ongoing
- BUT **need** for 'insetting' mechanism **recognized**
- AND **conservative approach mitigates risks**



## Book & Claim Solutions – Available Market Solution



### Book & Claim

Possible Today

Accelerates **uptake of sustainable fuels** in all transport modes. Addresses **current supply & distribution issues**



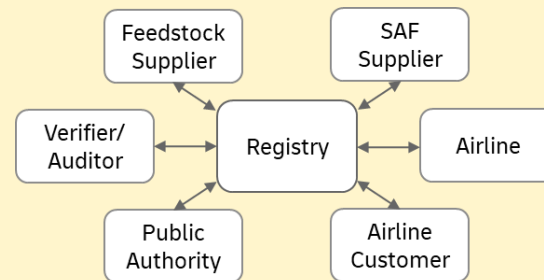
*Independent 3<sup>rd</sup> party auditor verifies carbon calculation and reduction allocation process. Audits supply & demand process*



### SF Registry

Under Development

System of **registration, allocation, accounting** and **reporting** of SF with **standardized documentation** and **tracking methods**



*Entire value chain gets information from Registry and/or enters information: From feedstock supplier to final customer*

# Q&A SESSION

If you have any further questions, contact your usual Account Manager or Customer Service Representative, or email us at [\*\*GoGreen.DGF@dhl.com\*\*](mailto:GoGreen.DGF@dhl.com)

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