2024 ICAO LTAG STOCKTAKING

7 — 10 OCTOBER 2024

ICAO HEADQUARTERS, MONTREAL, CANADA

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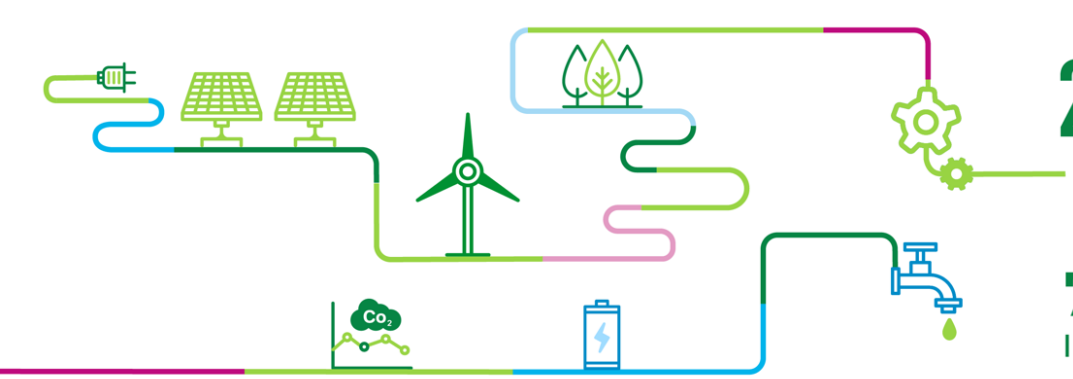
Francis Mwangi

Senior Planning Officer/CAEP Member

Kenya Civil Aviation Authority

Session 5: SAF, LCAF and Cleaner Energies – Part 3: Policies and Partnerships

9th Oct. 2024



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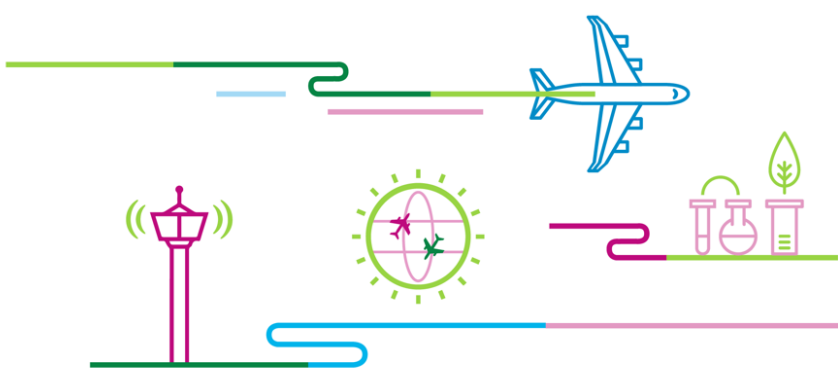


CONTENT OF THIS PRESENTATION

1. AVIATION AND ENERGY POLICY DOCUMENTS
2. SAF FEASIBILITY STUDY REPORT
3. KENYA SAF TIMELINE TO DATE
4. TECHNO-ECONOMIC ANALYSIS & GREEN PREMIUM COST PER PAX
5. STATUS ON KENYA SAF STEERING COMMITTEE AND NEXT STEPS

AVIATION AND ENERGY POLICY DOCUMENTS

Bioenergy Strategy 2020-2027

Energy ACT 2019

Clean Skies for Tomorrow **SAF Policy** tool Kit

Implementation of ICAO Annex 16

ICAO Guidance on SAF Policy 2023

National **Energy Policy** 2018

Bioenergy **Strategy** Action Plan 2023

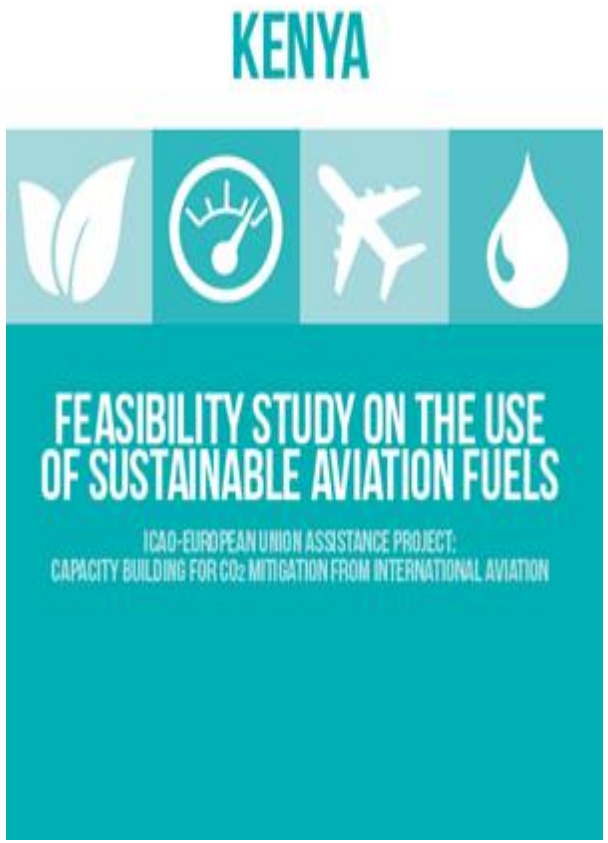
State Action plan for the environment

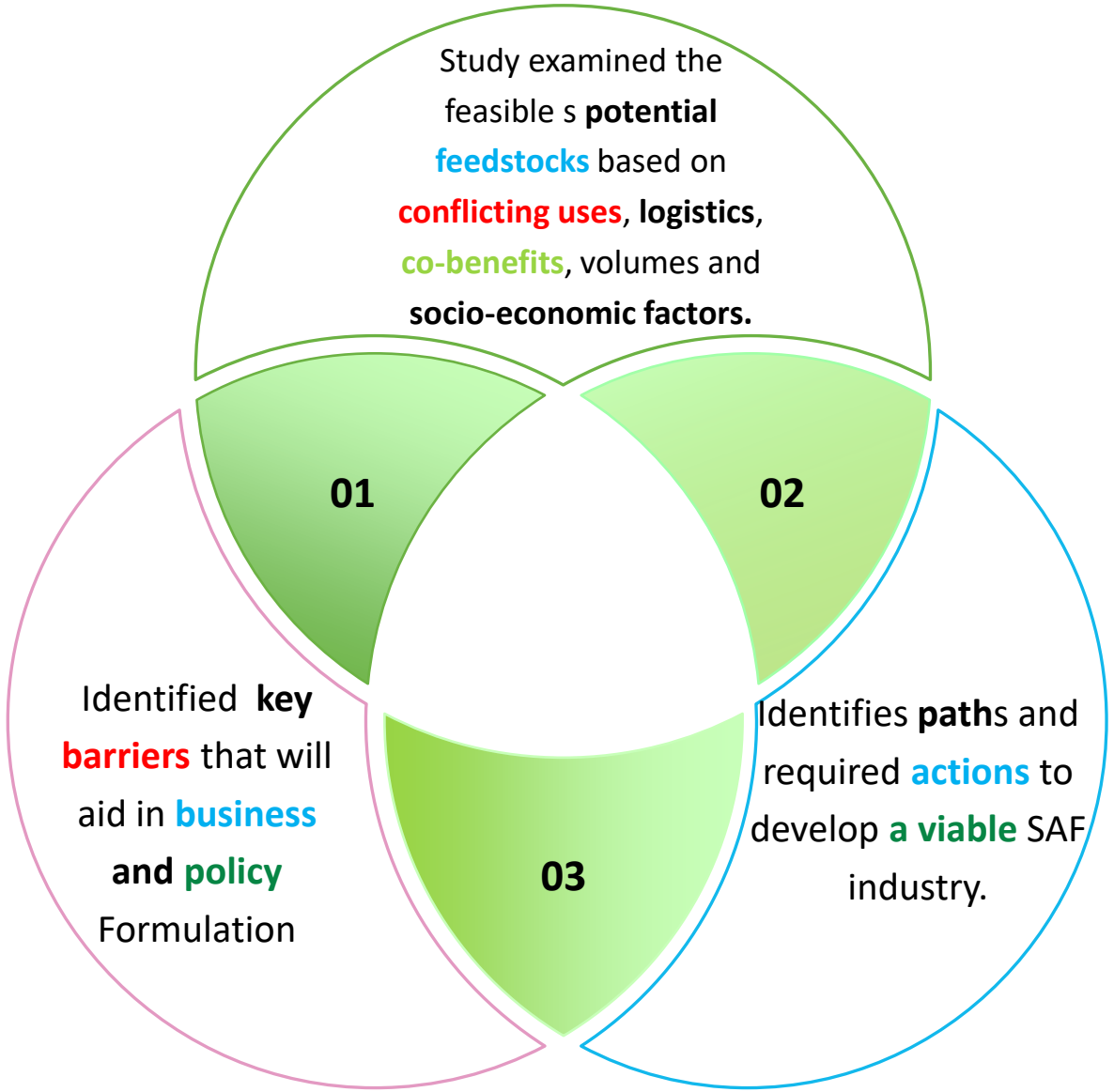
National **Aviation Policy** 2024

The **SAF Feasibility** Report 2018

RESULTS FROM SAF FEASIBILITY STUDY REPORT

The SAF Feasibility Study was done in 2018 under **ICAO-EU assistance** Project





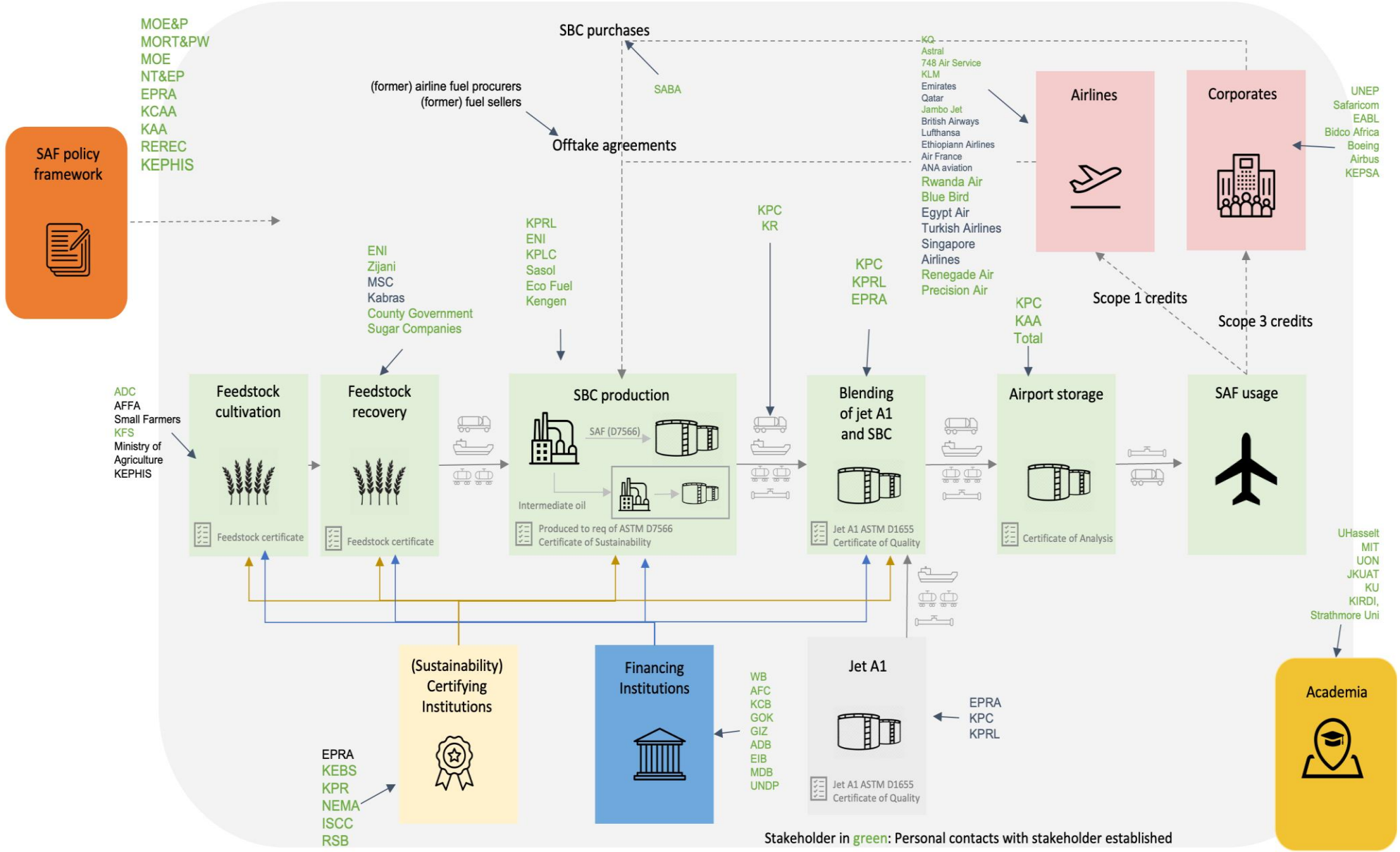
https://www.icao.int/environmental-protection/Documents/FeasabilityStudy_Kenya_Report-Web.pdf

KENYA SAF TIMELINE TO DATE

First SAF Workshop and High-Level Meeting

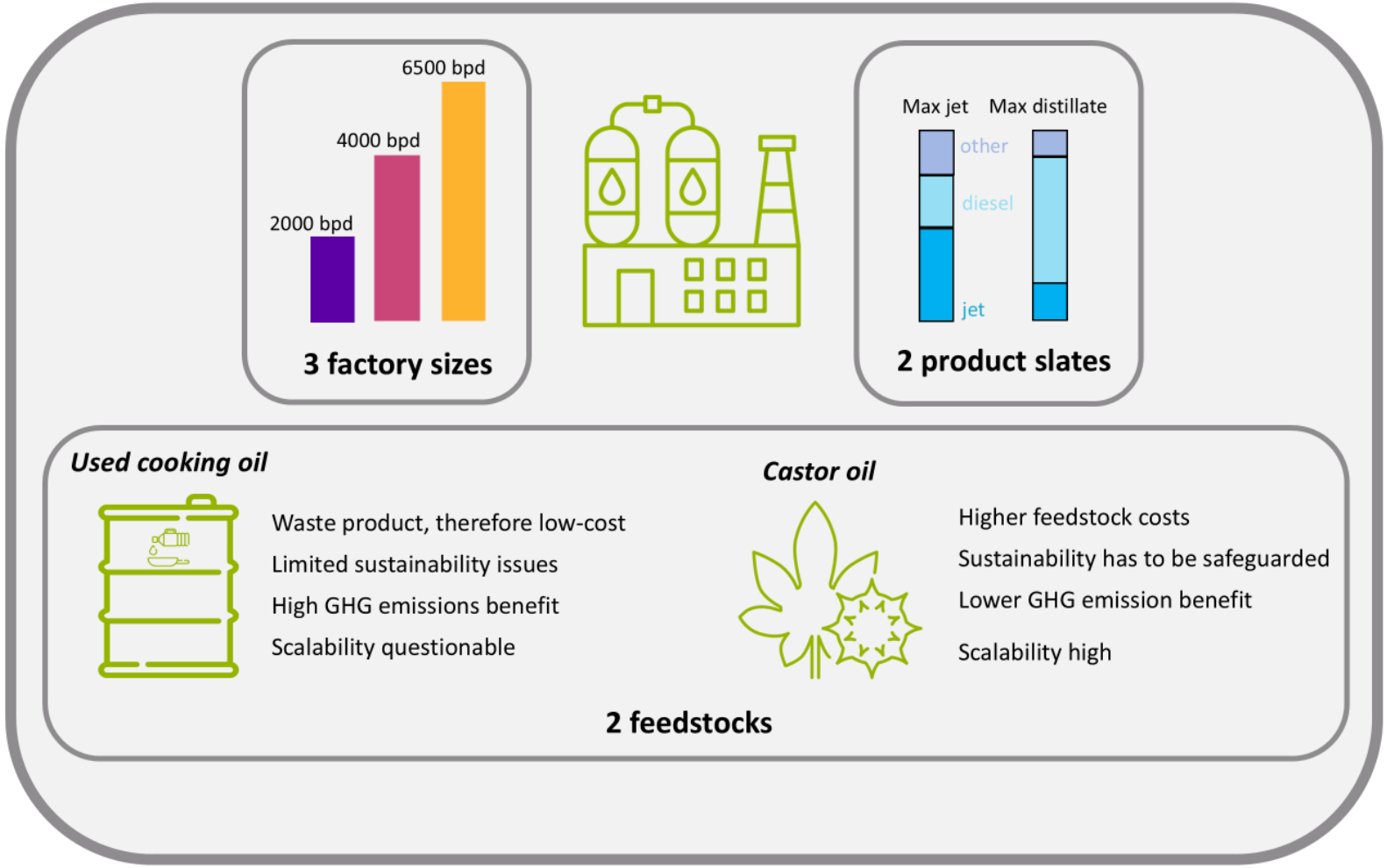
- Kenya hosted first workshop on **SAF scaling up** including Power to Liquid in Nairobi on 3rd August 2022 in Collaboration with GIZ PtX Hub
- The workshop brought different partners i.e Government agencies, Airlines, ICAO and international partners
- The workshop was able to **communicate** and **create** awareness among stakeholders on SAF initiative and deployment.

KENYA SAF STAKEHOLDER MAPPING



TECHNO-ECONOMIC ANALYSIS

Scope



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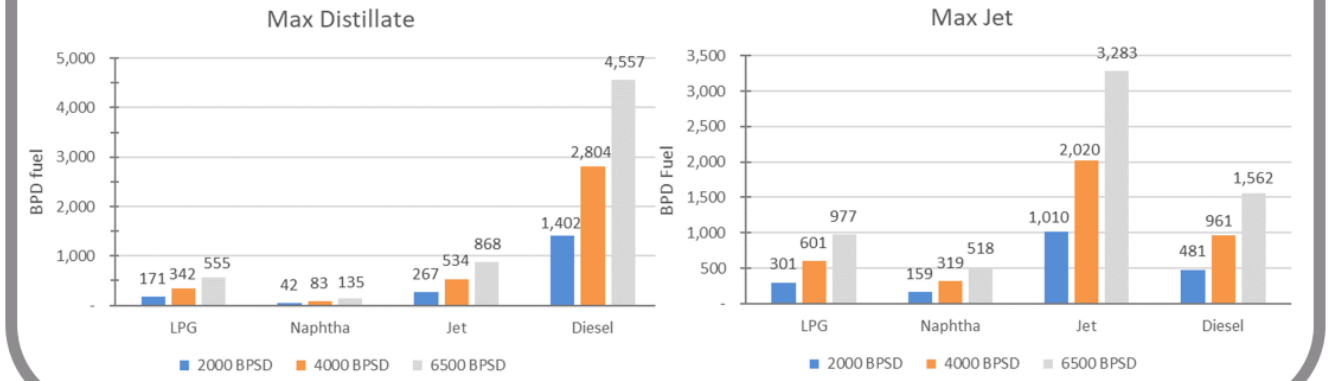
TECHNO-ECONOMIC ANALYSIS

Scope

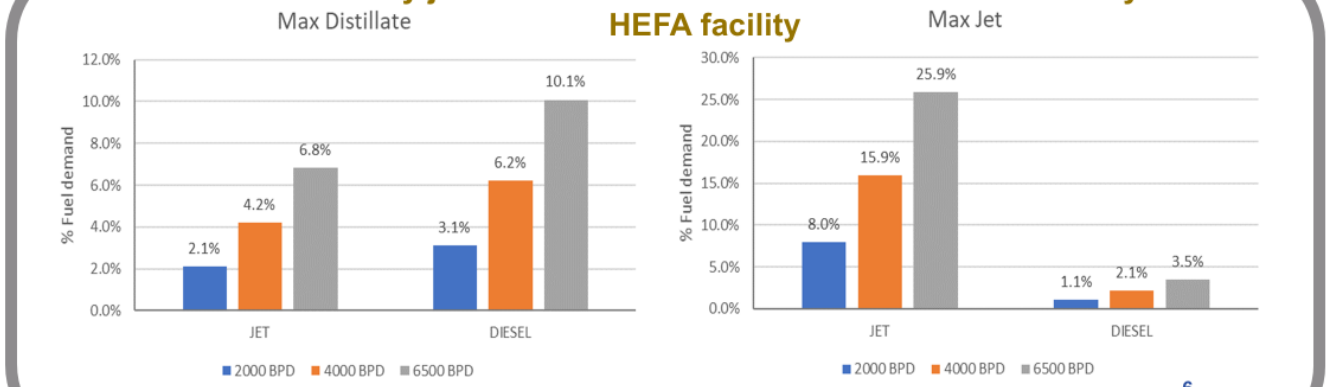
A commercial-scale facility aiming to maximize jet fuel production satisfies between **8%** and **26%** of the total year 2022 jet fuel demand in Kenya.

Feedstock and total Capex considerations imply that the **high-end** of the commercial-scale facilities **sizes** will be **difficult** to **build/operate**.

Fuel products that could be produced from maximum distillate and jet scenarios in barrels per day (BPD)



Share of daily jet and diesel fuel demand that could be met by the HEFA facility



Minimum fuel selling price (MSP)

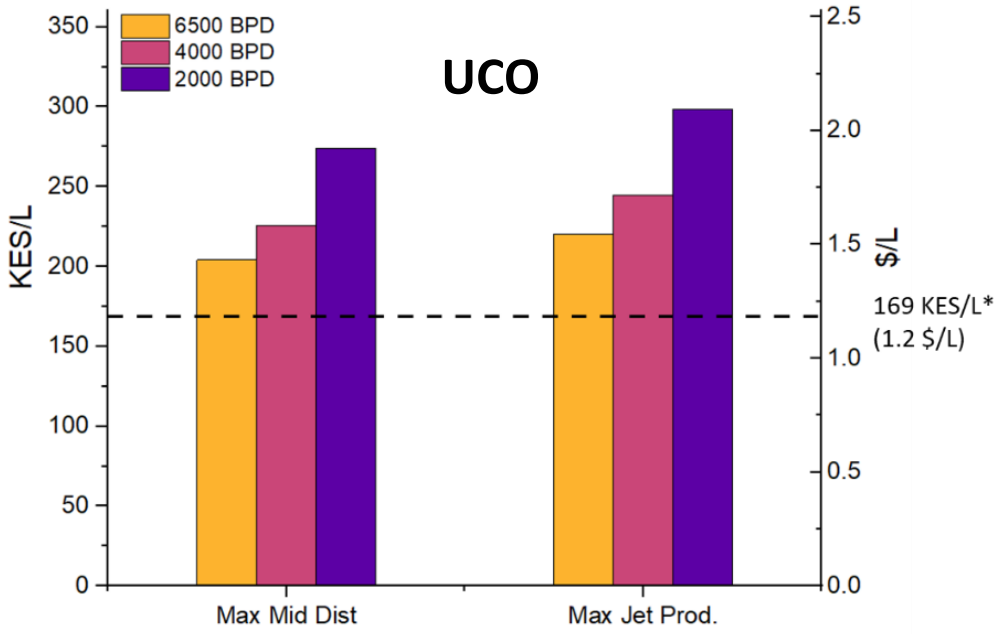
Minimum fuel selling price

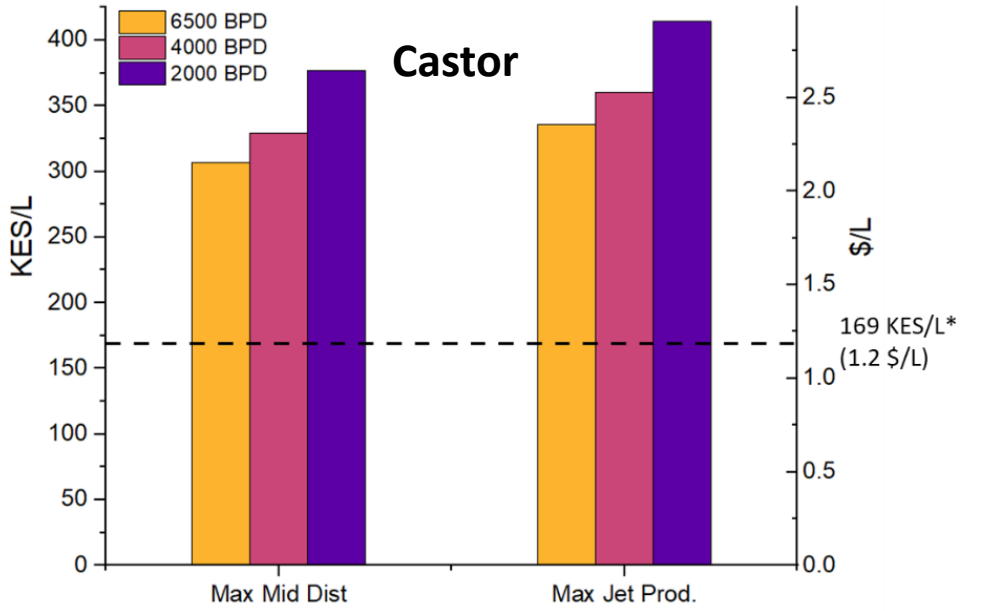
The MSP is the price that the SAF needs to be sold for an investor to meeting the expected rate of return. This is the SAF price at which the net present value of the refinery project equals zero.

Under our baseline assumptions, depending on facility size and product slate assumptions, the MSP for **UCO HEFA** ranges from **204 KES/l - 299 KES/l**.

Under our baseline assumptions, depending on facility size and product slate assumptions, the MSP for **Castor HEFA** lies between **308 KES/l - 414 KES/l**.

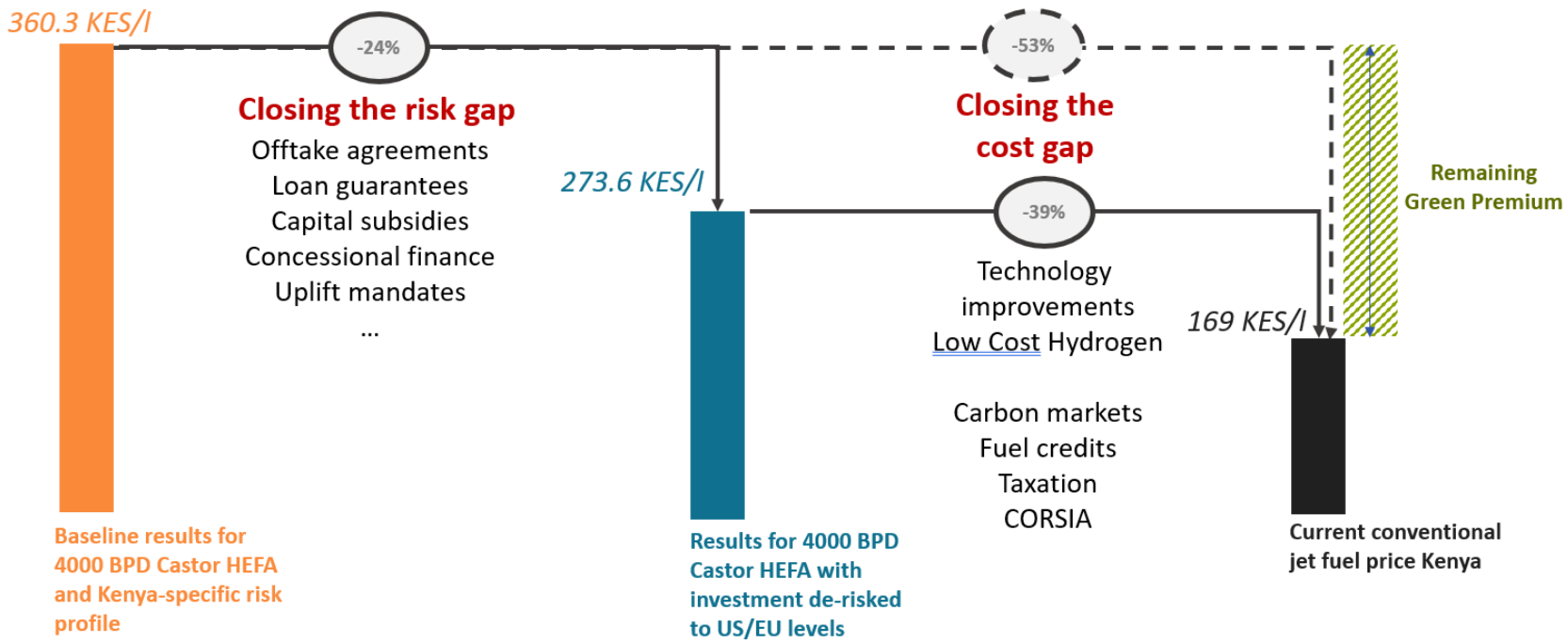
If the renewable diesel co-produced cannot be sold at a mark-up needed for SAF, the Castor HEFA MSP increases to **>500 KES/l**.



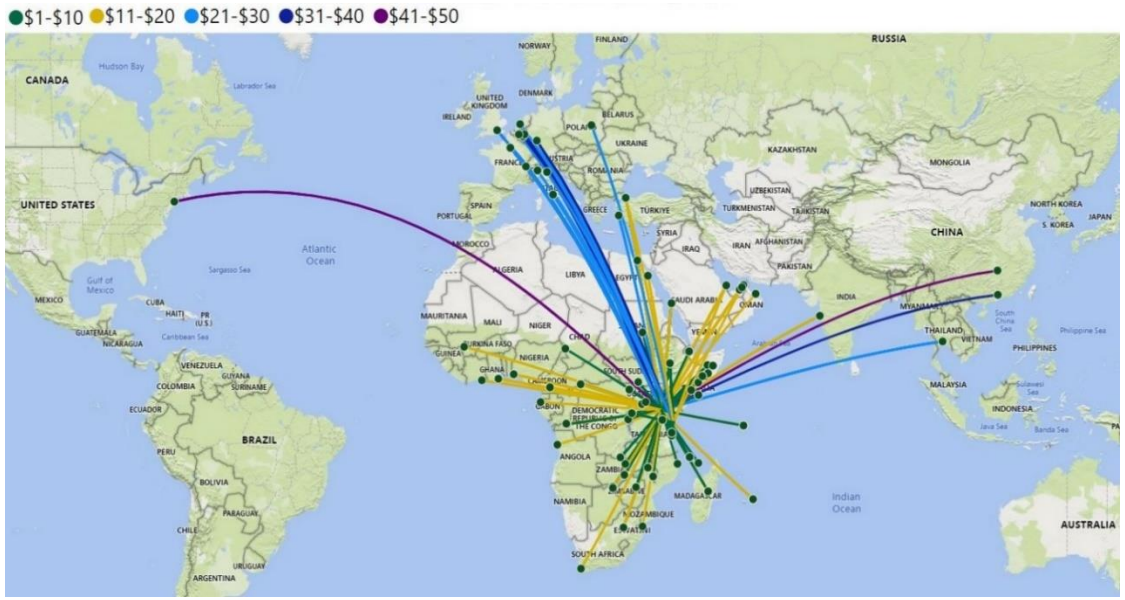


TECHNO-ECONOMIC ANALYSIS CONT..

Closing of risk and cost gaps



Green Premium Cost per passenger

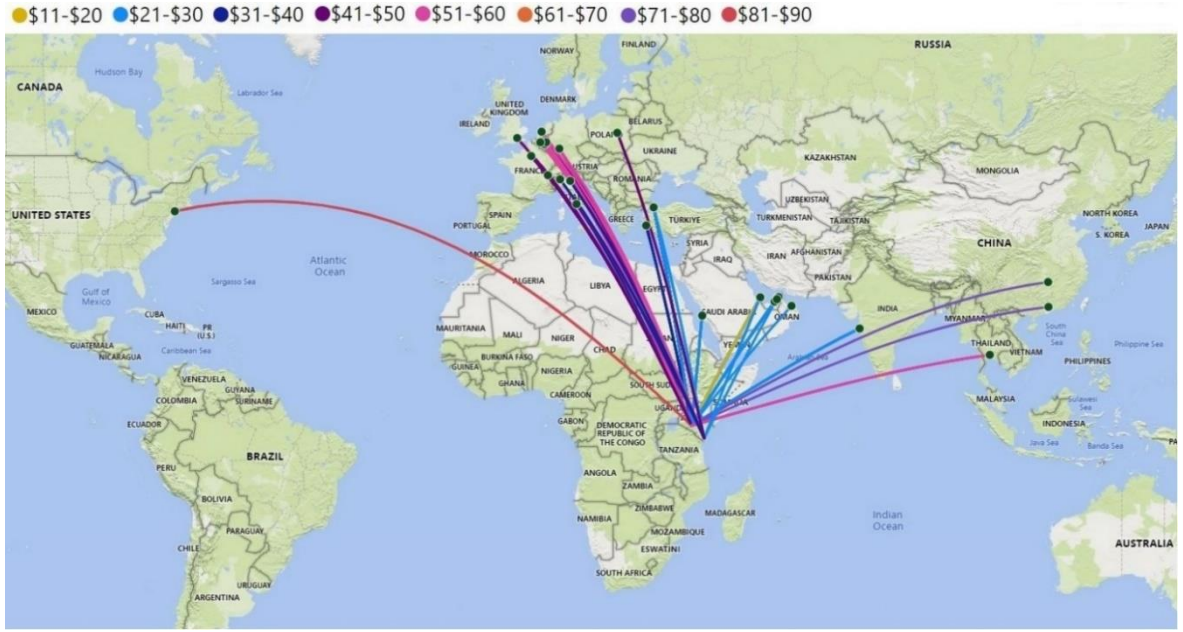


Green premium examples:

NBO-JFK: 45.83 USD

MBA-FRA: 24.68 USD

NBO-CPT: 13.16 USD



Green premium examples:

NBO-JFK: 82.82 USD

MBA-FRA: 44.61 USD

NBO-CPT: 0.00 USD

- Using **10 % SAF** on all **departing international flights** from Nairobi and Mombasa, the fuel-related cost of tickets for each passenger increases by approx. 12.0 %. Assuming a 30% share of fuel costs in total costs, this **yields a ticket price increase** of **4 %** if the costs are fully passed through.

- Using SAF only on departing international flights from Nairobi and Mombasa **to other continents**, the fuel-related cost of tickets for each passenger increases by approx. 21.5 %**.** Assuming a 30% share of fuel costs in total costs, this **yields a ticket price increase** of **6 %** if the costs are fully passed through.

2ND WORKSHOP AND HIGH-LEVEL MEETING ON SAF IN NAIROBI SEPTEMBER 2023

Second workshop and high-level meeting on the development and deployment of SAF in Kenya held on 11&12 September 2023 – with KCAA, GIZ, Ascent & Partners

MAIN OUTCOMES OF HIGH-LEVEL SAF MEETING IN SEPTEMBER 2023

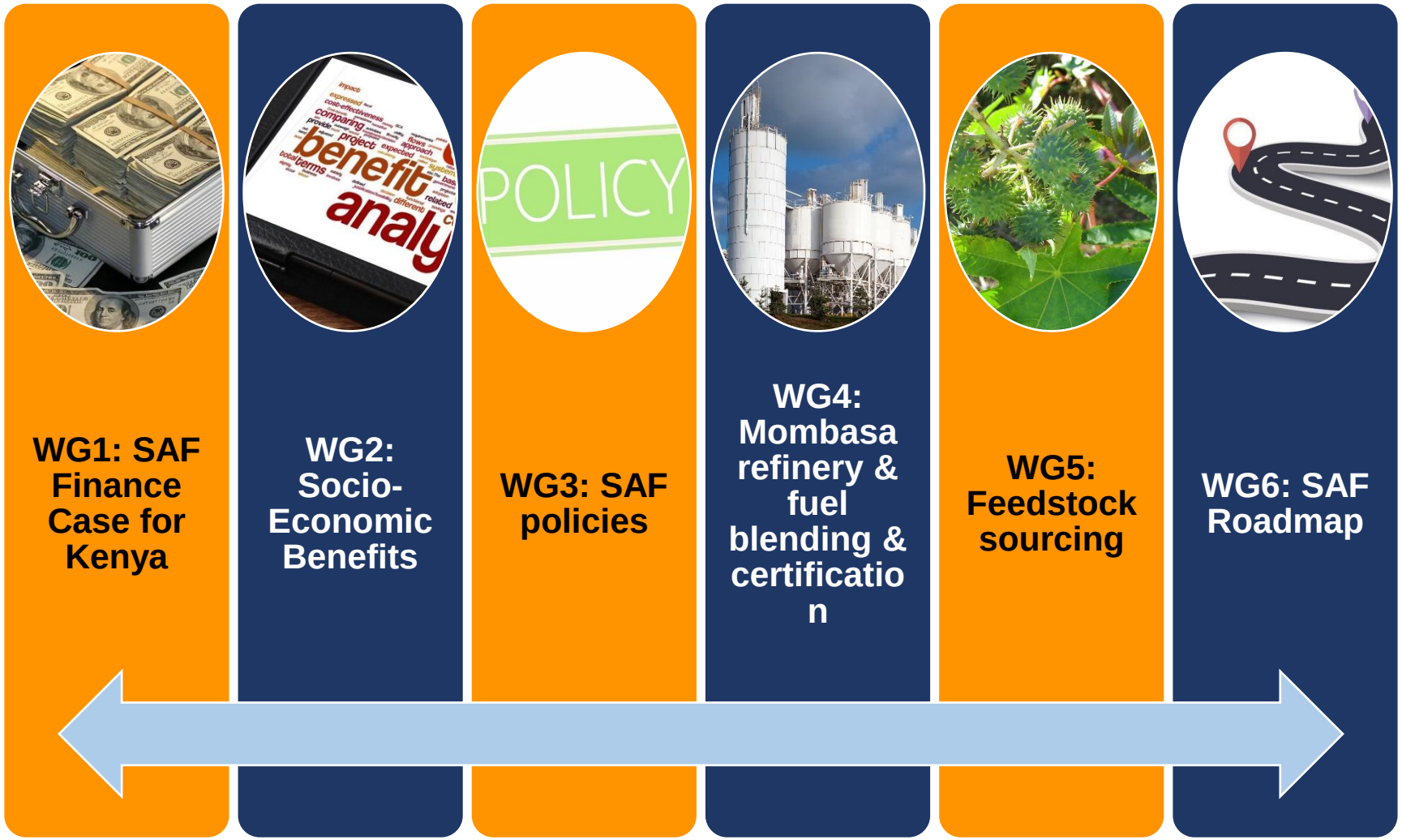
Establish a SAF Steering Committee to advance the efforts for a first SAF facility in Kenya

The Steering Committee shall focus on advancing the following items:

1. Model SAF Finance Case for Kenya
2. Quantify the socio-economic benefits of domestic SAF production in Kenya
3. Develop a Domestic SAF policy
4. Conduct a technical analysis of using the Mombasa refinery, and of blendinginfrastructure, as well as of domestication of (certification) standards.
5. Development of a SAF Roadmap for Kenya
6. Initiate targeted Capacity Building and Knowledge Transfer

STATUS ON KENYA SAF STEERING COMMITTEE

The tentative list of Working Groups encompasses



STATUS ON KENYA SAF STEERING COMMITTEE CONT..

1st SAF Steering Committee Meeting Held on 29th May 2024

STATUS ON KENYA SAF STEERING COMMITTEE CONT..

Co-hosted EASA SAF Regional workshop for Under ACT-SAF for India and Africa
On 30th Sept. -2nd October 2024

Held SAF 2nd Steering Committee Meeting on 3rd and 4rth October 2024

KEY CHALLENGES

The following are the Key Challenges:

- θ Pulling of SAF Finance for Setting up the refinery
- θ Cost & Competition
- θ Investment Risk and returns
- θ Price and Volumetric Parameters
- θ Feedstock aggregation
- θ Inadequate experts on SAF production
- θ Country Risk assessment

NEXT STEPS- CALL FOR ACTION THROUGH PARTNERSHIPS

Call for **cooperation** and collaboration through public-private partnerships

Need to work towards in **removing barriers** to the realization of a cost-competitive SAF market

Need to promote the global harmonization of sustainability criteria for SAF and certification

Support the development of SAF industry, by **de-risking early investments** including attracting investment

Implement SAF research programs/Innovation hub aimed to expand SAF feedstocks and production pathways

Thank You

ICAO