中国民用航空第二研究所
THE SECOND RESEARCH INSTITUTE OF CAAC

SAF Development Status and Technical Trends in China

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The Second Research Institute of CAAC

AMF Webinar

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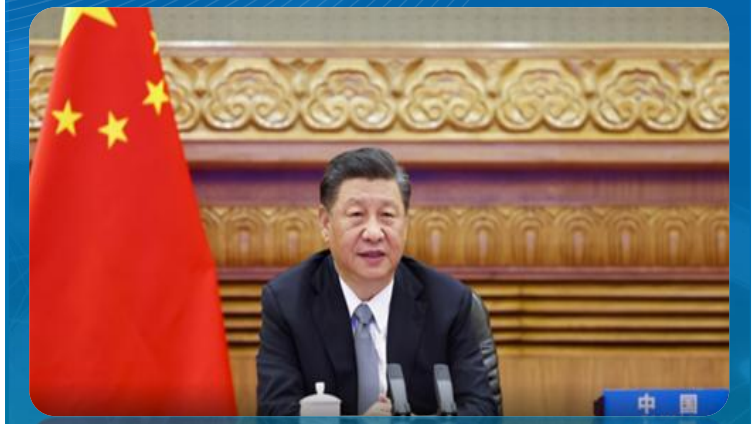
This presentation reflects our own views on SAF and does not represent CAAC. For official CAAC SAF policies, please visit www.caac.gov.cn

Targets for China



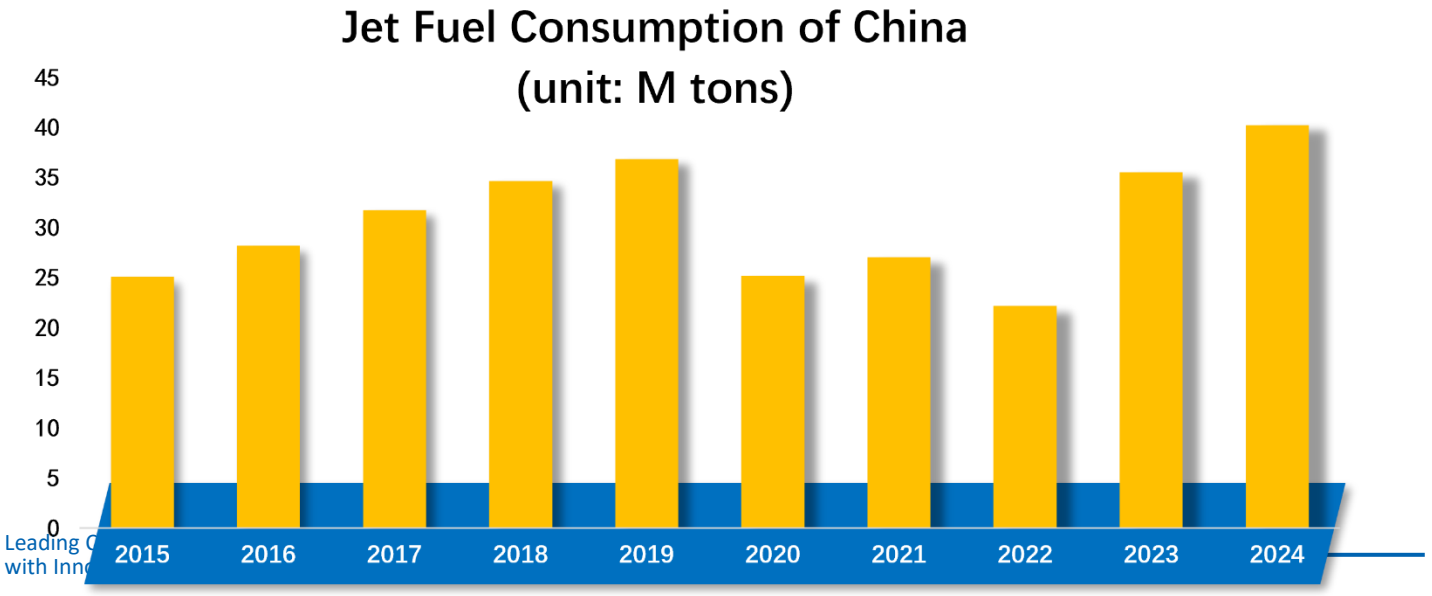
President Xi Jinping pledged：

Carbon peak in 2030, carbon neutrality in 2060 in China

Achieve a 7%-10% reduction in net economy-wide greenhouse gas emissions from peak levels by 2035

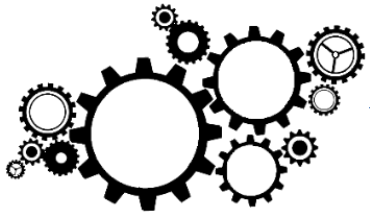
ICAO

Carbon offsetting & reduction scheme 2021-2035	Net-zero carbon emissions goal	SAF、LCAF and other Aviation Cleaner Energies
CORSIA	ICAO LTAG NET-ZERO 2050	CAAF/3
2016	2020	2023



Aviation Fuel Management

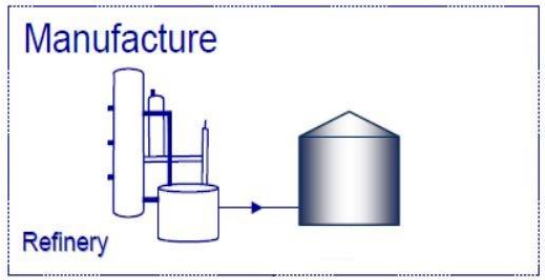
Innovated Aviation Fuel Management

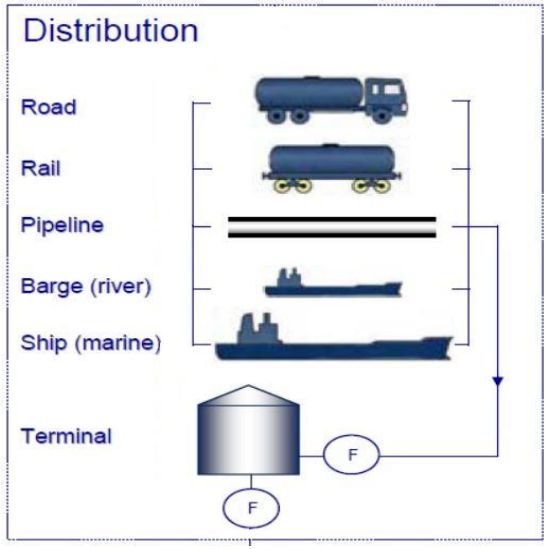


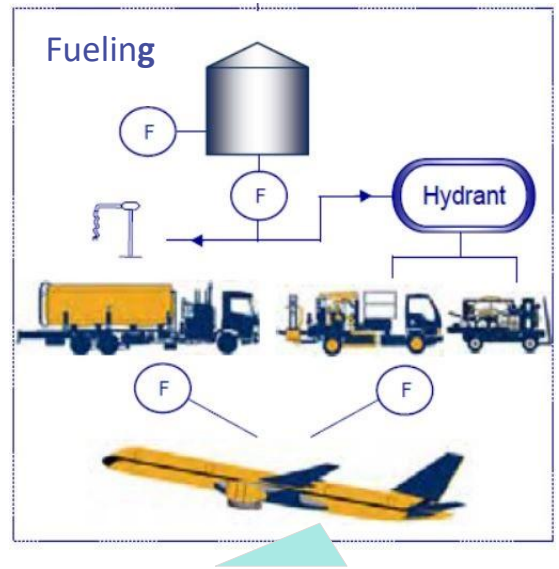
Aviation Fuel is Managed as an Aircraft Component

CAAC Certifies Aviation Fuel by Administrative License

Entire Supply Chain Supervision







CCAR-25/33(TC/STC-TCDS)
CS-25/CS-E(TC/STC-TCDS)

Aviation Fuel Grade and Specification Management

CCAR-21(CTSOA)
DEF STAN 91-091/ASTM D1655
ASTM D7566, etc.
Aviation Fuel Producer Qualification and Approval

CCAR-55(Aviation Fuel Supplier/Testing)
EI 1530/JIG 4

Aviation Fuel Handling: Transport, Storage, Fueling and Quality Testing

CAAC Supervision

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ASTM D4054: SATF/SBC

ASTM D4054: Standard Practice for Evaluation of New Aviation Turbine Fuels and Fuel Additives

Prescreening
Tier α&β Testing
Tier **α** (5ml)
Tier **β** (1L)

US D4054 Clearinghouse

UK SAF Clearing House

EU SAF Clearing House

START

Exploratory Discussions

Tier 1 & 2 Testing

50-100 gals test fuel

OEM Phase 1 Review

Tier 3 & 4 Testing

1000's to 100K's gals test fuel

OEM & Regulatory Agency Phase 2 Review/

ASTM Review & Balloting

ASTM D7566 Qualification

END

SAF-CERT CENTER

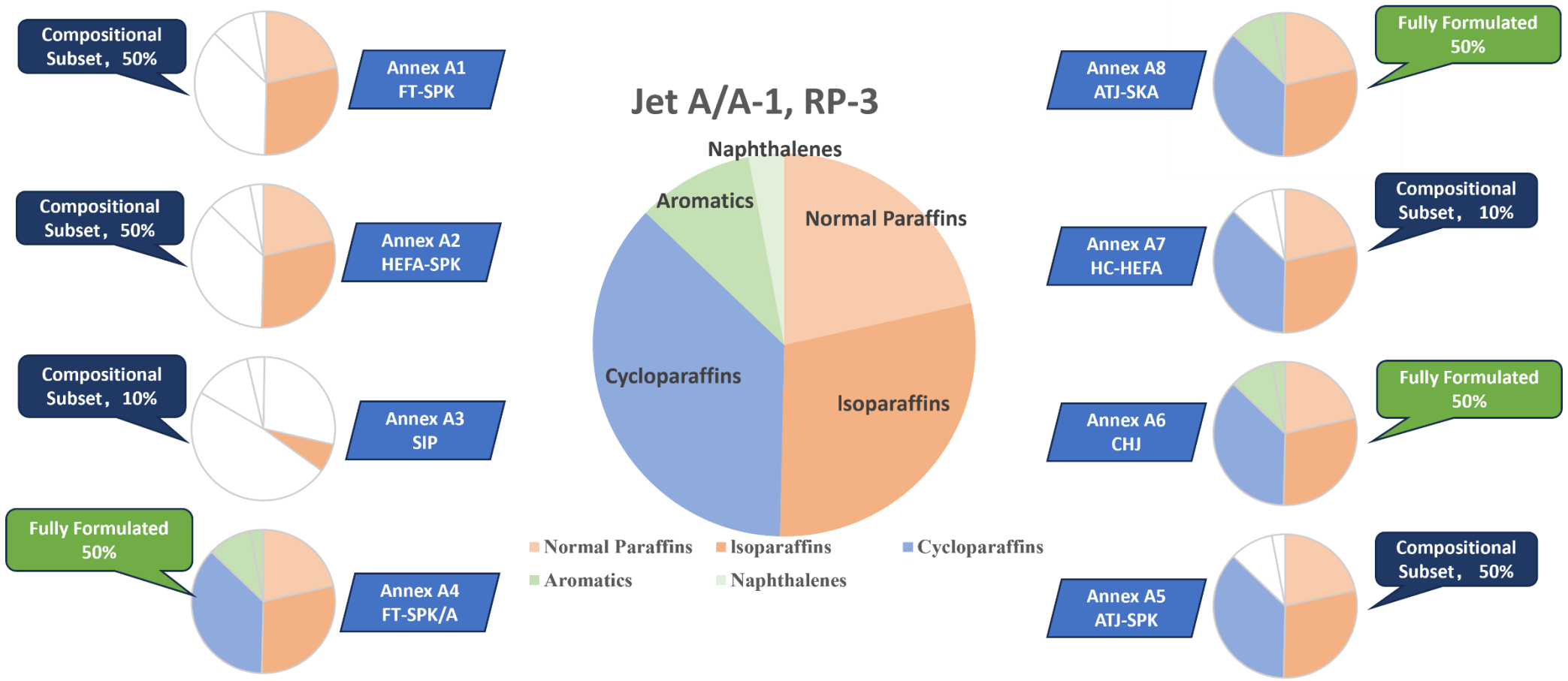
可持续航空燃料联合创新研究与验证中心

Sustainable Aviation Fuel
Certification, Evaluation, Research & Testing Center

SAF-CERT Center

From: Mr. Mark Rumizen, Air Company

ASTM D7566: Approved Pathways



For fully formulated SBC, the maximum blending ratio is capped at 50% due to conservatism, pending further service experience.

SAF Certification Achievements

2014

China's First

Bio-jet No.1

Possess self-production capabilities

2022

Completed

Sinopec Zhenhai HEFA-SPK production

Capable of producing 50000 tons

2023

Completed

Henan Junheng HEFA-SPK production

Capable of producing 200000 tons

2024

Completed

Shandong Sanju HEFA-SPK production
Start SAF Pilot Project

Capable of producing 250000 tons

2025

Completed

Jiaao, ecoceres, and Hake HEFA-SPK production

Capable of producing over 1.3 million tons

2026

In progress

Certifying Jianglan HEFA-SPK production

Capable of producing is increasing

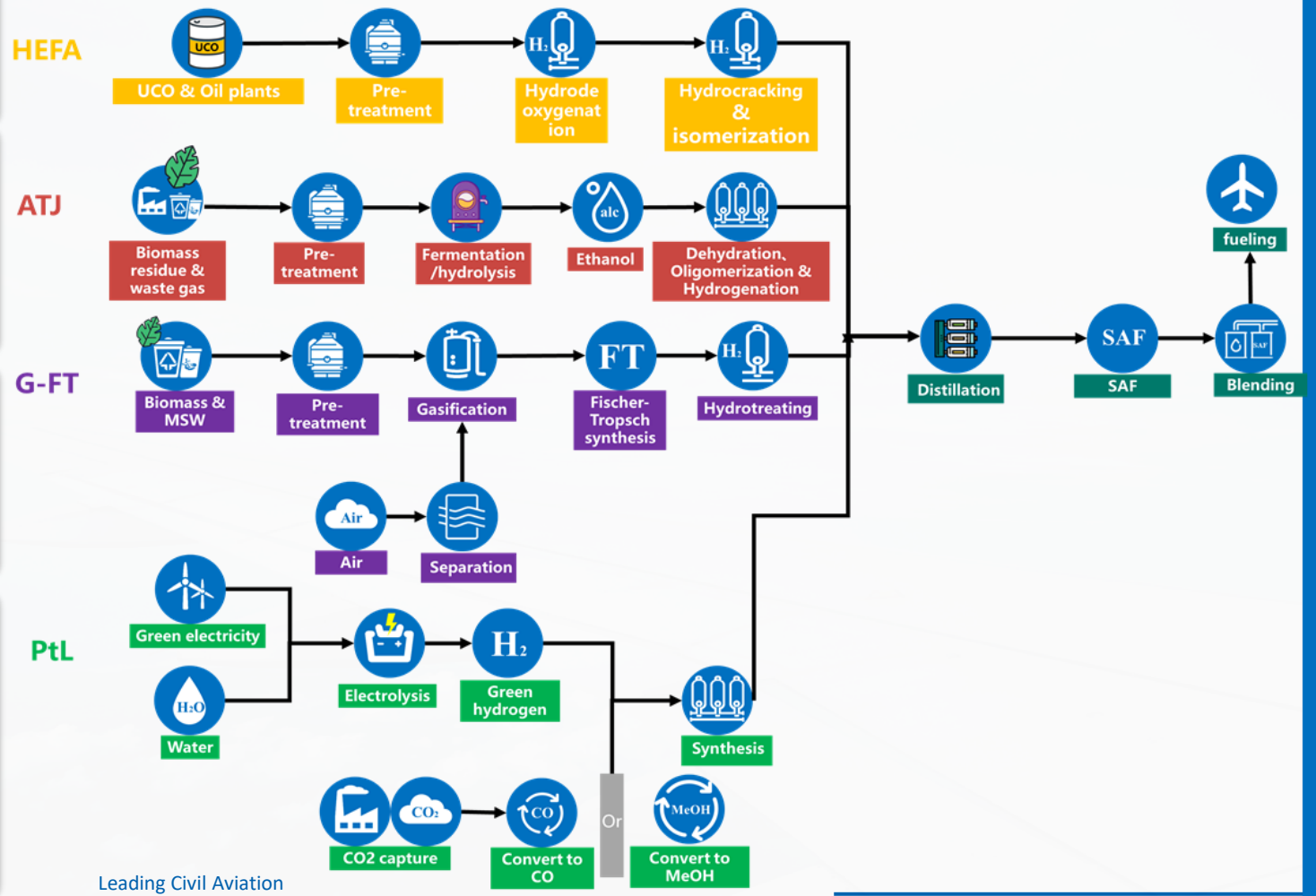
SAF Production Technology Development

- Proven technology
- Most economically viability
- High conversion rate
- Limited feedstock

- Relatively proven technology
- Economic viability second only to HEFA
- Relatively high conversion rate
- Wide range of feedstock

- Relatively immature technology
- Low economic viability
- Low conversion rate
- Wide range feedstock

- Immature technology
- Low economic viability
- Low conversion rate
- Feedstock are only green electricity, water, and CO_2
  - emission reduction capacity >90%
  - Low land use demand
  - Low water resource demand



HEFA Technology

Technology Developer

- SINOPEC RIPP
- Junheng GROUP
- SANDONG SANJU
- ECO CERES

Advantages

High adaptability to raw materials

SAF yields >65%

Lower catalyst cost

Achievements

Six biorefineries in operation

Total Capacity > 720,000 t/y

ATJ Technology

Technology Developer

- Shougang Lanza Tech
- Jupeng Bio Tech
- Guotou Bio Tech
- The Dalian Institute of Chemical Physics

Advantages

CO/CO_2 Fermentation

- Continuous CO/CO_2 biological conversion
- High ethanol yield rate

Biomass Fermentation

- Cellulose fermentation for ethanol technology

- Cellulose ethanol conversion rate > 20%

Ethanol to SAF

- Ethanol to light olefin and olefin to SAF technology is under development

Achievements

Two CO/CO_2 to ethanol facilities in operation;
Total Capacity > 100,000 t/y

One cellulose to ethanol facility in operation with capacity 30,000 t/y

The ethanol to light **olefins and olefins to SAF pilot** plant is under construction

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G + FT Technology

Technology Developer

East China University of Science and Technology

Shanghai Electric

SEDIN Engineering

Institute of Coal Chemistry

Lanze Energy

Advantages

Gasification

High-efficiency gasification and complete system

Multiple routes developed

Diverse feedstock compatibility

Fischer–Tropsch Synthesis

SAF yield rate > 60%

Catalyst life > 3 years

Achievements

The **pilot-scale** Fischer-Tropsch SAF unit with production capacity over 1,000 t/y **has completed validation**

Yancheng straw-to-SAF plant, 100,000 t/y, start operation in 2028

Luzhou distiller’ s grains & bamboo waste to SAF plant, 100,000 t/y; under construction

PTL Technology

Technology Developer

Tsinghua University

The Dalian Institute of Chemical Physics

Advantages

Abundant renewable electricity sources

In some regions, the cost of green electricity is below CNY 0.20 per kWh

>60% CO_2 conversion, >85% SAF selectivity, and passed a 1,000-hour durability testing

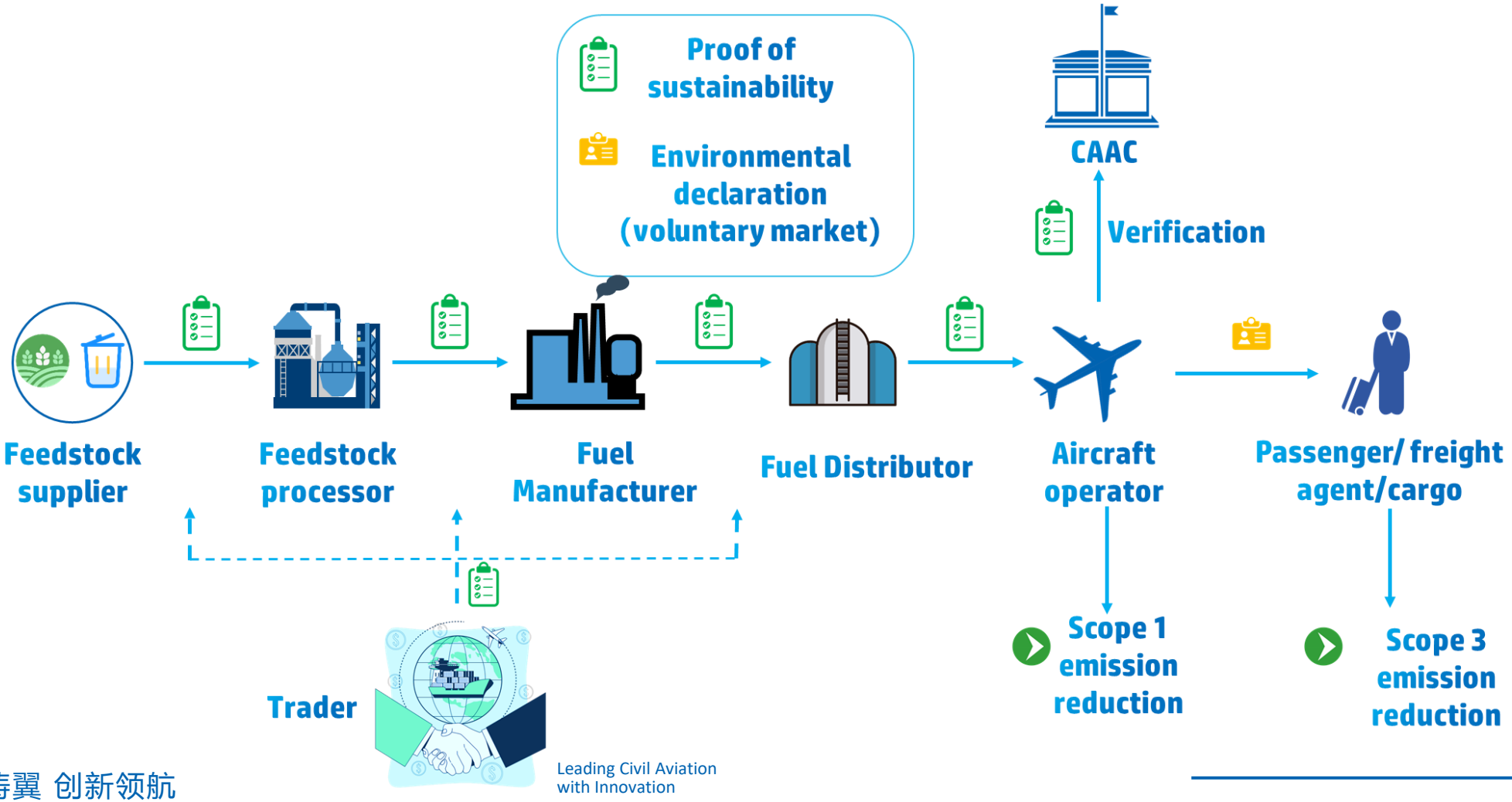
Achievements

First **1,000 t/y eSAF pilot plant** for synthesizing 100% SBC

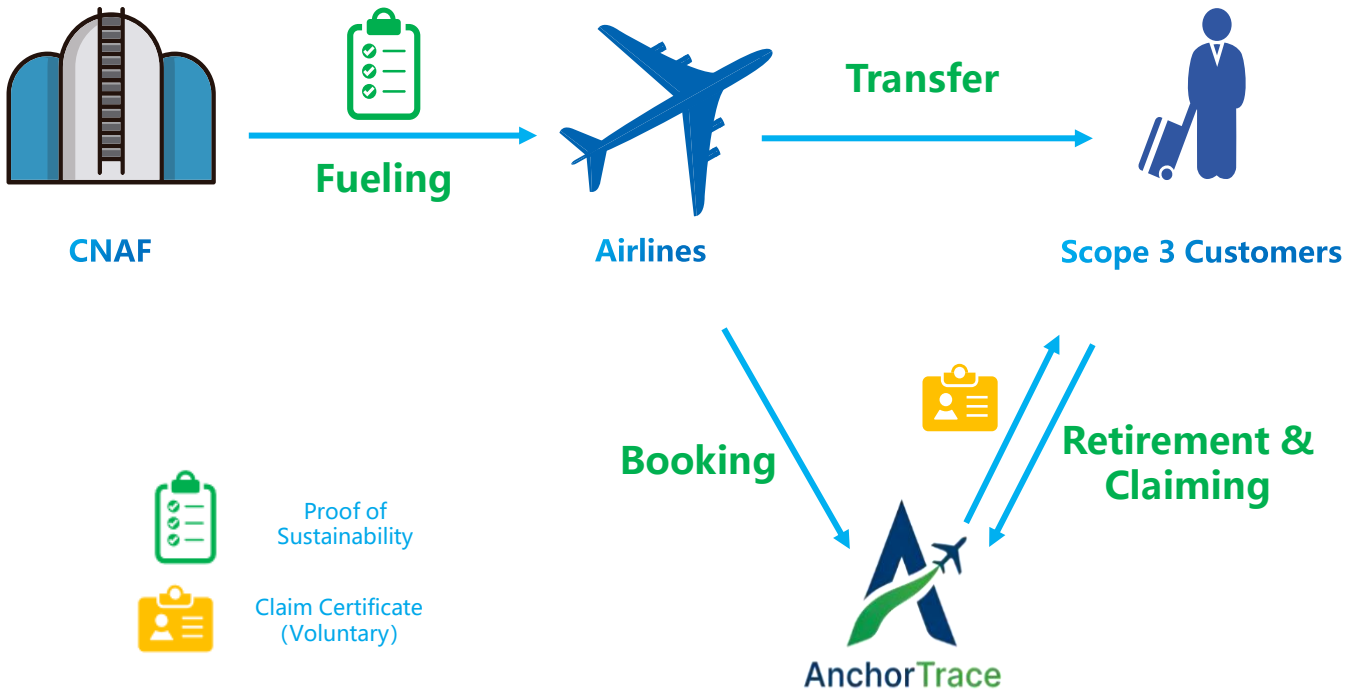
10,000 t/y carbon dioxide-to-aromatics/SAF facility is expected to start operation in 2026

The 100,000 t/y green methanol project will supply feedstock for the subsequent MtJ project;
The **MtJ technology** is recently approved.

Sustainability Certification



AnchorTrace Platform: Scope 3



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CNAF

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- Corporate Scope 3 emission reduction commitments align perfectly with voluntary market applications of SAF.

Summary

- SAF adoption in China is gaining momentum, backed by the **establishment of the SAF Alliance** and a strong outlook for future growth.
- **Rigorous airworthiness certification** in China ensures the highest standards of SAF quality and safety.
- Research across **multiple SAF production pathways** in China is progressing rapidly, with several delivering breakthrough results.
- A **robust SAF sustainability certification and standards framework** in China is taking shape, driving industrial development forward.
- Addressing cost barriers requires a unified strategy — integrating policy, technology, standards, and certification to build a resilient, end-to-end SAF industry ecosystem, while fostering **global collaboration** to accelerate industry-wide progress.

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Thank You!

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