



WORKING PAPER

**THIRD CONFERENCE ON AVIATION AND ALTERNATIVE FUELS
(CAAF/3)**

Dubai, United Arab Emirates, 20 to 24 November 2023

Agenda Item 2: Supporting policies to promote the development and deployment of cleaner energy for aviation

UAE NATIONAL DECARBONISATION INITIATIVES

(Presented by the United Arab Emirates)

SUMMARY

The United Arab Emirates (UAE) is a regional leader in championing decarbonisation initiatives through the cohesive and concerted efforts of the aviation stakeholders to innovate, validate and integrate emissions reduction measures in their operations, informed by national roadmaps tailored to the country's feedstock supply and accessible technology pathways.

Action by the Conference is in paragraph 4.

1. INTRODUCTION

1.1 By the end of November 2021, the United Arab Emirates (UAE) was identified as one of the 89 Member States (out of 193) that have submitted an updated State Action Plan with sufficient data for analysis. The UAE Government through the Ministry of Energy and Infrastructure (MoEI) and with the support of the aviation stakeholders operated in a cooperative and cohesive manner to inform national roadmaps on decarbonisation, namely the UAE's Sustainable Aviation Fuel (SAF) roadmap and the World Economic Forum's Power-to-Liquid Fuels Roadmap, to support the UAE's Net Zero by 2050 Strategic Initiative. This initiative, aligned with the Paris Agreement, is designed to support carbon-neutral growth through the deployment of at least USD 163 billion to support a low-carbon economy.

1.2 The UAE is a natural hub for air transport given its central location at the crossroads of some of the world's fastest-growing economies. Aviation is a strategic and evolving industry in the UAE, which in 2019 ranked third worldwide, after the USA and China, in Revenue-Tonne-Kilometers and Revenue-Passenger-Kilometers. The UAE is home to six major carriers: Emirates, Etihad Airways, Air Arabia Abu Dhabi, flydubai, Air Arabia and most recently Wizz Air Abu Dhabi. The country has eight international airports including one of the world's largest and busiest airports in Dubai. According to IATA, in 2018, the air transport industry supported USD 47.4 billion (almost 13.3%) of the GDP in the UAE and is estimated to grow by 170% over the next 20 years.

1.3 In October 2022, the UAE announced the aviation sector's Net Zero resolution and amplified efforts towards decarbonisation to support the integration of operational efficiencies, sustainable and low carbon aviation fuels (SAF and LCAF), and carbon reduction efforts. By 2030, the UAE aims to produce 700 million litres of sustainable aviation fuel annually, leveraging all its possible feedstock channels. The UAE's proactive and agile response to CORSIA is the result of the government's cohesive coordination of the many stakeholders, which has facilitated the pronounced synergy in the region in the last few years.

2. COHESIVE COORDINATION

2.1 The UAE government, mainly through its civil aviation authority, played a pivotal role in international and regional coordination as well as consensus-building between operators, original equipment manufacturers, energy producers and local ministries. The cooperation between the General Civil Aviation Authority (GCAA), the Ministry of Climate Change and Environment (MoCCaE) and the Ministry of Energy and Infrastructure (MoEI) supports a quick and positive adoption of recommendations outlined in the national roadmaps.

2.2 UAE aviation stakeholders convene regularly to discuss and consult on sectoral updates. They are also extensively represented in national working groups and committees that focus on decarbonisation. This specific style of cohesive coordination ensures that every stakeholder is informed and active in supporting the national goals.

3. NATIONAL DECARBONIZATION INITIATIVES:

3.1 The national aspirations of the UAE to lead a low carbon economy has been reflected in the many initiatives that have been active over the past years. These initiatives have mainly explored the different feedstocks and technology pathways available and suited to the local ecosystem to produce SAF/LCAF, the viability of exceeding the current limit of a 50% SAF blend on modern engines, and the potential of applying 'Book and Claim' to accelerate SAF supply/demand. We list the most noteworthy ones here in chronological order:

3.2 **2011-2019:** The Sustainable Bioenergy Research Consortium (SBRC) was founded in 2011 by Masdar Institute (now part of Khalifa University), Etihad Airways, The Boeing Company, Honeywell-UOP, which together with the Abu Dhabi National Oil Company (ADNOC), Safran, GE and Bauer Resources continue to study the commercial viability of halophyte-derived jet fuel and bioenergy. Etihad operated the first commercial flight using UAE produced SAF from this project in 2019.

3.3 **2020-2022:** The Green Falcon project lead by Masdar, TotalEnergies, Siemens Energy and Marubeni; and collaborating with the Abu Dhabi Department of Energy, Etihad Airways, Lufthansa Group and Khalifa University on the production of e-fuels. Along these same lines, a study with Masdar, BP, ADNOC, Etihad Airways and Tadweer was initiated to explore the production of e-fuels using municipal solid waste and hydrogen. In 2022, Emirates and GE Aviation embarked upon a series of tests in partnership with Boeing, Honeywell, Neste and Virent using 100% SAF fuel, which resulted in a successful demonstration flight using 100% SAF in one engine of a Boeing 777-300ER in 2023. In an attempt to increase SAF uplift, irrespective of locality, Etihad partnered with World Energy and the Roundtable for Sustainable Biomaterials (RSB) on an extra long-haul flight from Washington to Abu Dhabi to explore the virtual uplift of 100% SAF using 'Book and Claim'.

3.4 **2021-2023:** As an active member of the Long Term Aspirational Goal (LTAG) Task Group, the UAE has jointly assessed the potential of LCAF in terms of production volumes, GHG emissions reduction, technology implementation and related costs. The UAE is exploring all the segments across the fuel production value chain to ensure it is enabling the local production of LCAF.

3.5 **2023:** The development of Sustainable Aviation Fuel (SAF) is a key part of ADNOC's strategy to deliver lower carbon fuels to its customers and support the aviation industry's decarbonization ambitions. ADNOC has received the ISCC's EU and CORSIA PLUS "Co Processing" certifications to produce SAF, making it the first refiner in the Middle East to achieve the distinction. This enables ADNOC to supply its SAF to international airlines at UAE Airports. Successful trials have been conducted to produce SAF from used cooking oil using bio-feedstock secured through ADNOC Global Trading.

3.6 **2023:** Emirates has pledged one of the industry's largest funds of USD 200 million to fund research and development (R&D) projects focussed on reducing the impact of fossil fuels in commercial aviation. Emirates has also partnered with Shell Aviation to uplift over 300,000 gallons of blended SAF in its Dubai hub. After a series of tests with SATAVIA on the management of CO₂ and non-CO₂ effects simultaneously, Etihad committed to a multi-year commercial contract to integrate contrail management within its routine operations to further explore and mitigate the warming of aircraft contrails, and the potential generation of future carbon credits through contrail avoidance.

4. ACTION BY THE CAAF/3

4.1 The CAAF/3 is invited to:

- a) ensure the ICAO GLOBAL FRAMEWORK FOR AVIATION CLEANER ENERGIES is agnostic of feedstock and technology to ensure the fast track towards net zero, as well as emphasizing the importance of sharing knowledge and best practice to ensure all States achieve decarbonization efforts;
- b) support ICAO efforts in facilitating finance through the concept of the Finvest Hub, and amplify partnerships and joint efforts aimed at accelerating investments in decarbonisation projects. ensure the implementation of the national roadmaps;
- c) acknowledge the vital role of low carbon aviation fuels (LCAF) as a valuable contributor to reducing aviation's emissions until the widespread use of SAF is commercially viable regionally; and
- d) acknowledge the urgent need to establish credible accounting mechanisms for SAF and LCAF use, based on robust and traceable chain of custody models, so that aircraft operators can claim emissions reductions from the use of SAF and LCAF to support decarbonisation. This will require expediting LCAF CORSIA certification under an approved certification scheme, as well as supporting wider certification of SAF to CORSIA Standards.

—END—