Climate Change Mitigation

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The aviation industry is committed to mitigating and reducing its environmental impact. A robust sustainability strategy provides the industry with the license to operate and grow while delivering the social and economic benefits of air connectivity.

All sectors of the economy are increasingly being challenged to address their environmental impact.

The aviation industry is responding in all aspects and has a long-standing four-pillar strategy to mitigate its environmental impact built on improvements in operations, infrastructure, and technology, together with market-based measures to offset any remaining emissions.

One of the industry's targets to improve fuel efficiency by 1.5% every year has been constantly met and exceeded averaging a 2.4% annualized improvement since 2009. The aim is to be carbon-neutral by 2020 and to halve net emissions by 2050 compared with 2005.

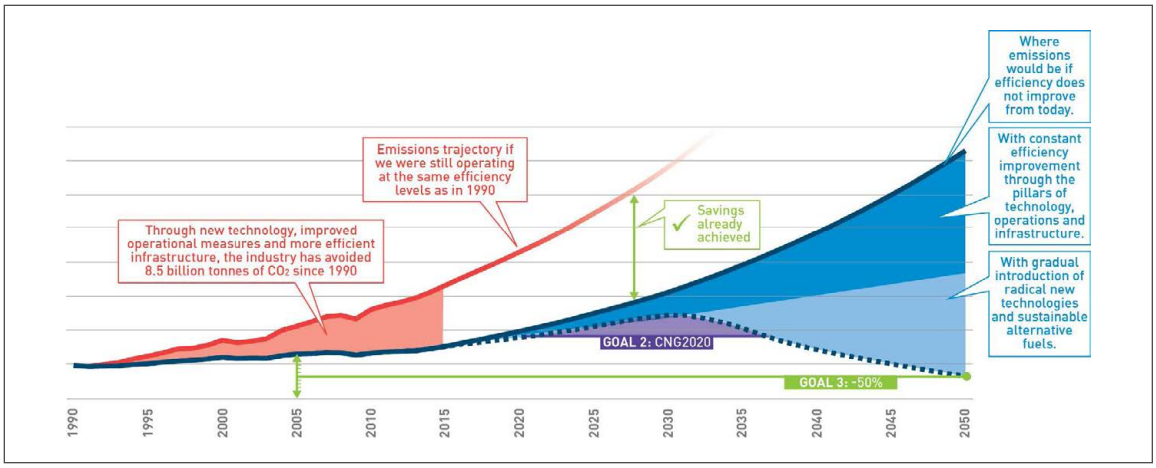
The Carbon Offsetting Scheme for International Aviation (CORSIA) will prove crucial in this respect. This will ensure aviation offsets its carbon emissions (2020-2035) and is the first global agreement of its kind, demonstrating the industry's commitment.

Over the longer term, IATA believes that the more substantive reductions in net CO_2 from aviation will have to come from sustainable aviation fuels (SAF). Understanding what quantities might be available is an important element for evaluating aviation's sustainability trajectory towards 2050.

To aid the advancement of SAF, IATA supports research, development and deployment, including the promotion of these fuels that meets environmental, societal and economic sustainability criteria. IATA follows sustainability developments closely and is a member of the International Sustainability and Carbon Certification (ISCC) and the Roundtable on Sustainable Biomaterials (RSB). RSB has developed the most comprehensive sustainability standards for biofuels.

At the 73rd IATA AGM in Cancun, 2017, IATA members unanimously agreed a resolution on the deployment of SAF, including calling for constructive government policies, and committing to only use fuels which conserve ecological balance and avoid depletion of natural resources.

FIGURE 1: The Industry's Carbon Goals



SUSTAINABLE AVIATION FUELS IN PRACTICE

Since the first flight on SAF in 2008, considerable progress has occurred in all aspects of production, certification and deployment. Today SAF are being produced and used in commercial flights every day. While the current volumes being produced are low (<1% of total jet fuel demand), these volumes can be substantially increased with coordinated support including effective policy frameworks.

To date, about 40 million liters of SAF has been produced and each of the five technical pathways to produce SAF have been used for commercial flights. These technical SAF pathways to produce SAF typically deliver a 60-80% reduction in CO_2, which is equivalent to 25,000 cars being taken off the road since regular use began in 2016.

Despite this good news, it must be noted that the 10 million liters of SAF per annum represents just 0.01% of total fuel uptake. Clearly, the production of SAF needs to increase dramatically to make a more substantive environmental impact.

Main milestones so far:

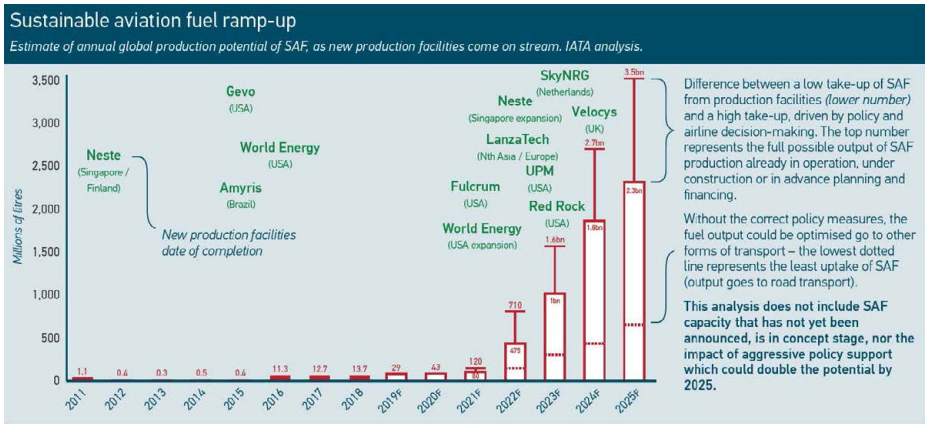
- 2008 – The first test flight with biojet fuel was performed by Virgin Atlantic.
- Between 2011 and 2015 – 22 airlines performed over 2,500 commercial passenger flights with blends of up to 50% biojet fuel from feedstock including used cooking oil, jatropha, camelina, algae and sugarcane.
- Jan. 2016 – Regular sustainable aviation fuel supply through the common hydrant system started at Oslo Airport with renewable fuel producer Neste and supplier SkyNRG as well as Air BP involved.
- Mar. 2016 – United became the first airline to introduce SAF into normal business operations by commencing daily flights from Los Angeles Airport (LAX), supplied by AltAir (now World Energy).
- June 2019 –More than 180,000 commercial flights using SAF have been performed and greater than 40 different commercial airlines have gained experience using SAF.

Over the past 18 months there has been considerable commercial SAF activity with the announcement from airlines of new forward purchase agreements and new commercial construction activity which has included both new SAF plants as well as the expansion of existing facilities.

The below chart (Figure 2) provides a guide and estimate of the likely commercial development of SAF based on publicly released information. Looking out to 2025, publicly announced projects alone could push SAF uptake in aviation to 3.5 billion liters annually. It is not unreasonable to assume that as-yet-unannounced projects will double that number, representing nearly 2% of total fuel demand by 2025.

Further increases in SAF production and uptake will be aided by the technical approval of new fuel pathways,

FIGURE 2: Commercial production chart



investment in production capacity, and innovative collaborations. All these factors require a stable policy framework. In essence, companies need to know that the supply of, and demand for, SAF will be there.

More information can be found on these specific projects at: https://aviationbenefits.org/environmental-efficiency/climate-action/sustainable-aviation-fuel

LOOKING TO THE FUTURE

IATA believes that to reach a commercialization tipping point (around two per cent of commercial operators fuel supply by 2025) will require some seven billion liters of SAF a year. As demonstrated above, current estimates show that production facilities to meet half that volume have already been announced. However, it is vital to ensure that the output from those facilities is directed to aviation and not road transport which should be transitioning to electricity. Governments must play a key role in setting the right policy track that enable the acceleration of SAF supply while recognizing the unique challenges for aviation including avoiding competitive fuel price distortions and any unintended environmental consequences.

Further supporting the importance of SAF commercial deployment is that unlike the ground transport sector, which can use electric energy, aviation has no near-term alternative to liquid hydrocarbon fuels (electric commercial aircraft are unlikely before 2040). Technical impediments for the acceleration of the deployment of SAF are few. SAF can be safely mixed with conventional jet fuel, can use the same supply infrastructure and do not require adaptation of aircraft or engines. 5 technical production pathways have been certified under ASTM d7566 meeting the equivalent or higher technical specifications as conventional jet fuel. Additional certification are expected and methods to expedite future certifications based on historical learning will help with adding additional supply options, increasing competition and further lowering the unit cost of production.

IATA's SAF Strategic Vision

Industry actions

- Developed an industry roadmap (2015) highlighting best practice for technology adoption, policy and regulation, economics, sustainability and accounting standards.
- Provide industry leadership on best practice concerning: sustainability standards, accounting procedures, logistics, communication, effective policy and business case development.
- Influence policy negotiations to ensure aviation can opt in to existing ground transport policies and build understanding for the importance of directing feedstock towards hard to abate sectors such as aviation.
- Several airlines have concluded long-term offtake agreements with biofuel suppliers, most of which are reported as commercially competitive. IATA will continue to work with aircraft operators to educate, prepare and encourage additional forward purchase commitments.

Role of governments

- Take a leadership role in managing the aviation energy transition.
- Adopt globally-recognized sustainability standards and work to harmonize global standards.
- Ensure existing policy incentive frameworks designed for ground transport, also include aviation and evaluate higher incentives for aviation over ground transport which has other energy alternatives.
- Encourage user-friendly sustainable aviation fuel accounting methods and work to harmonize global standards.
- Support sustainable aviation fuel R&D and demonstration plants.
- Implement policies that de-risk investments into sustainable aviation fuel production plants.
- Engage in public-private partnerships for sustainable aviation fuel production and supply.
- Commit to policy certainty or at a minimum policy timeframes that match investment timeframes.