ALTERNATIVE AVIATION FUELS
A SUSTAINABLE FUTURE IS TAKING OFF

TRUSTED SOLUTIONS FOR A NEW WORLD
The aviation industry requires effective and sustainable solutions to meet its commitments in the global efforts to reduce the impacts of climate change. Alternative aviation fuels, which can deliver significant reductions in greenhouse gas emissions while requiring no changes to existing aircraft and infrastructure, offer the most effective and immediate solution to an industry looking to decarbonise rapidly.

While advances in air traffic management, infrastructure efficiency and other operational measures will help to reduce emissions, if the industry is to achieve its target of carbon neutral growth from 2020 and a 50% reduction on 2005 emissions levels by 2050, the fuel in aircraft tanks will be the most important source of savings.

Sustainably certified alternative aviation fuels offer both greenhouse gas reductions and a credible approach to achieving sustainable development goals, and so have the power to deliver key emissions savings to the aviation industry – without compromising social development and environmental protection.
Alternative Aviation Fuels

The drive to develop viable, fully commercialised alternative fuels for aviation is gaining momentum. By the beginning of 2018, over 100,000 commercial alternative fuel flights had already taken off and over 1.5 billion gallons (5.7 billion litres) of offtakes had been achieved. Following successful trials, alternative aviation fuel provision is moving toward normalised operation at major international aviation hubs, including Oslo, Brisbane, Toronto and Geneva.

Total global alternative aviation fuel output is expected to grow by an average of 2.7% a year.³

Alternative aviation fuels derived from biomass, wastes and other feedstocks can reduce the carbon footprint of aviation fuel by up to 94% over their full lifecycle.
Alternative aviation fuels – sometimes known as sustainable aviation fuels – are low-carbon alternatives for the aviation industry. These non-petroleum-based drop-in aviation fuels are generally produced from bio-based feedstocks including waste, residues and end-of-life products – as well as fossil waste.

The use of alternative aviation fuels, along with other efficiencies in operations and aircraft design, is intended to reduce the industry’s growing share of greenhouse gas emissions and lower the overall climate impact of aviation.

However, without proper sustainability certification, some of these fuels risk having negative social and environmental impacts such as negligible greenhouse gas emissions reductions (or even increased emissions), reduced food security through the conversion of food-producing land to feedstock production, environmental degradation from deforestation, and unsustainable soil and water usage.

RSB’s certification is a crucial step to ensure this revolutionary new fuel will meet the highest possible environmental standards and will result in a radical reduction in our carbon footprint.

Richard Branson
Virgin Atlantic
There’s no doubt today that the use of biofuels is essential to achieve the environmental goals of the aviation sector. Nonetheless, we need to ensure that the biofuels suggested are thoroughly compliant with the sustainable development framework. This is the main stake of the collaboration with RSB.

Sylvain Cofsky
Executive Director, Green Aviation Research & Development Network

“A SUSTAINABLE FUTURE FOR THE INDUSTRY

The aviation industry has committed to grow carbon-neutrally as of 2020, and to decrease Greenhouse Gas (GHG) emissions by 50% by 2050.

CO2 EMISSIONS INDEXED TO 2005

2005 2010 2020 2030 2040 2050

GROW CARBON-NEUTRALLY 2020
REDUCE EMISSIONS BY 50% 2050

GOAL 1
IMPROVE FLEET FUEL EFFICIENCY BY 1.5% PER YEAR FROM NOW UNTIL 2020.

GOAL 2
STABILISE NET AVIATION EMISSIONS AT 2020 LEVELS WITH CARBON NEUTRAL GROWTH

GOAL 3
BY 2050, NET AVIATION CARBON EMISSIONS WILL BE HALF WHAT THEY WERE IN 2005

Source: Air Transport Action Group
Source: https://www.aviationbenefits.org/
The Sustainable Aviation Fuel Users Group (SAFUG), which represents approximately 1/3 of commercial aviation fuel demand, has signed a pledge to source RSB, or equivalent, sustainably certified alternative aviation fuel. This includes consideration of lifecycle GHG emissions and more.

Independent third-party certification schemes are essential to scale the sustainable (aviation) fuel industry. And for us, RSB is the best scheme out there. We’re very proud to be the first certified operator in our market, and it underlines our dedication to stimulate the use of truly sustainable aviation fuel. To further develop this market in a responsible way, sharing knowledge is key and therefore the role of RSB in bringing together all stakeholders is of great importance.

Maarten van Dijk
CEO, SkyNRG

The only commercial alternative aviation fuel producers worldwide, AltAir and SkyNRG, are both RSB certified.

AltAir and SkyNRG are global leaders in the development of alternative aviation fuels – and are instrumental in driving the scaling of supply chains, technical capability, and global supply and demand for cleaner fuels.

By delivering fuels that are RSB certified and demonstrate a 60% GHG emissions reduction against the petroleum-based products they replace – while ensuring other social and environmental impacts are minimal or positive – these two producers are having a very real impact on the industry’s ability to tackle climate challenges.

From inception AltAir has pledged to its customers a pursuit of the highest standards of sustainability. By achieving RSB certification, we now have third-party verification of field to wing or tank GHG reduction of at least 60%. These measurable results ensure that AltAir customers and their stakeholders are meeting their respective sustainability targets.

Bryan Sherbacow
President and Co-Founder, AltAir

CORSIA is the only international market mechanism to offset carbon emissions from the aviation industry and is managed by the International Civil Aviation Organisation (ICAO), whose carbon reduction strategy has four components, including scaling up the use of alternative aviation fuels. CORSIA’s reporting mechanisms require airlines who use alternative aviation fuels to ensure sustainability certification from feedstock producer to final product. RSB has worked on the Alternative Fuels Task Force to develop these requirements and is well placed to support their implementation. RSB tools include our greenhouse gas calculator that covers the full scope of the CORSIA methodology from agriculture and transport to processing, and is adapted for the CORSIA calculation rules. Additionally RSB has a robust GHG auditing and certification system in place, offers regular training for operators and auditors, and can support operators to demonstrate that they are at minimal risk of indirect land use change, via our Low ILUC module.

Supporting airlines to meet their reporting requirements, RSB provides Chain of Custody certification that ensures that information necessary to fulfil CORSIA reporting requirements is tracked from origin to the user – via continuous documentation of claims and product handling.

As of 11 January 2018, 73 states representing 87.7% of international aviation activity have voluntarily signed up to The Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) which will become compulsory as of 2026.
A TRUSTED PARTNER IN THE AVIATION INDUSTRY

The RSB supports the development of alternative aviation fuels that safeguard social and environmental sustainability, including promoting food security and water stewardship. We do this by developing practical solutions and projects, partnering with alternative aviation fuel initiatives worldwide, engaging airlines through membership, and helping companies and entire supply chains achieve RSB’s most trusted certification of alternative aviation fuels.

Alternative aviation fuels accounted for 11% of RSB-certified products in 2017.

- Offers trusted and credible solutions
- Enables the protection of ecosystems, high conservation value areas, and biodiversity
- Prevents or limits direct and indirect land use change (ILUC)
- Is based on a risk-based approach that mitigates business risk
- Promotes food security and water stewardship
- Protects socio-economic conditions of farmers and local population (particularly in developing countries)
- Contributes to the UN Sustainable Development Goals
- Ensures that alternative aviation fuels have at least 60% less GHG emissions than conventional jet kerosene
- Has a global Standard with local application and relevance
The RSB Principles & Criteria describe how to produce bio-based feedstocks, biomass-derived materials, and alternative fuels in an environmentally, socially and economically responsible way.

Principle 1: Legality
Operations follow all applicable laws and regulations.

Principle 2: Planning, Monitoring & Continuous improvement
Sustainable operations are planned, implemented and continuously improved through an open, transparent and consultative impact assessment and management process and an economic viability analysis.

Principle 3: Greenhouse Gas Emissions
Alternative fuels contribute to climate change mitigation by significantly reducing lifecycle GHG emissions as compared to fossil fuels.

Principle 4: Human and Labour Rights
Operations do not violate human rights or labour rights, and promote decent work and the well-being of workers.

Principle 5: Rural and Social Development
In regions of poverty, operations contribute to the social and economic development of local, rural and indigenous people and communities.

Principle 6: Local Food Security
Operations ensure the human right to adequate food and improve food security in food insecure regions.

Principle 7: Conservation
Operations avoid negative impacts on biodiversity, ecosystems and conservation values.

Principle 8: Soil
Operations implement practices that seek to reverse soil degradation and/or maintain soil health.

Principle 9: Water
Operations maintain or enhance the quality and quantity of surface and groundwater resources, and respect prior formal or customary water rights.

Principle 10: Air Quality
Air pollution shall be minimised along the whole supply chain.

Principle 11: Use of Technology, Inputs & Management of Waste
The use of technologies shall seek to maximise production efficiency and social and environmental performance, and minimise the risk of damages to the environment and people.

Principle 12: Land Rights
Operations shall respect land rights and land use rights.
The Roundtable on Sustainable Biomaterials (RSB) is an international, multi-stakeholder, independent organisation that supports the development of the global bioeconomy through sustainability solutions, certification, innovation and collaborative partnerships.

By 2030, the RSB will have supported the emergence of a new world bioeconomy founded on social, economic and environmental considerations that contribute to the UN Sustainable Development Goals – reducing climate impacts, enhancing food security and rural development, and protecting ecosystems.

Why RSB?

With credible solutions, global expertise, partners across the spectrum from government to industry and NGOs, and an extremely robust approach to sustainability, RSB is the partner of choice for the aviation industry as it seeks to fulfill its global commitments to greenhouse gas reduction while also ensuring social development and environmental protection.

RSB is a member-led organisation which represents a worldwide movement of businesses, NGOs, academies, government and UN organisations that have demonstrated their commitment to the development of the sustainable bioeconomy by working together to create our most trusted Standard.

The RSB Standard is the strongest and most trusted of its kind, recognised as such by the World Wildlife Fund for Nature (WWF), International Union for Conservation of Nature (IUCN) and Natural Resources Defense Council (NRDC).

WHO WE ARE

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WHAT WE DO

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RSB’s Pioneering Approach

The RSB’s progressive ILUC module is the first to address the challenges associated with indirect land use change in biomass production and is available ahead of new regulations coming into force in the EU and beyond.

The module is a practical solution for organisations seeking to mitigate risk and demonstrate that their operations are at minimal risk of causing indirect deforestation, food insecurity or increased greenhouse gas emissions.

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ADVANCED FUELS

The development of our Standard for Advanced Fuels ensures that producers of non-traditional alternative aviation fuels – such as those produced from fossil fuel waste – are able to achieve RSB’s rigorous sustainability certification.

This approach is supporting the aviation industry to overcome many of the challenges associated with first-generation biofuels – such as ILUC and GHG emissions, biodiversity and food security – and supports innovative solutions for the next generations of sustainable alternative aviation fuels.

The world’s first commercial alternative aviation fuel plant, AltAir Fuels, is RSB certified and utilises refined waste feedstocks to produce jet, diesel and gasoline fuels, meeting the same industry certification as the petroleum-based products they replace.

GHG CALCULATOR

RSB’s Greenhouse Gas Calculator is a market-leading tool based on fewer default values and more real activity testing to deliver extremely reliable outcomes when compared with other calculators.

It is highly adaptable to new scenarios, pathways and feedstocks, and enables RSB-certified alternative aviation fuels to demonstrate a minimum 60% GHG emission reduction compared to the fossil fuel baseline.
The RSB’s Pioneering Approach

RSB’s approach to waste and residues in its Standard for Advanced Fuels ensures robust traceability for waste, residues and end-of-life materials, as well as real sustainability in processing units with a particular focus on the specific risks in play at these facilities – such as management of water and effluents.

This approach ensures that the use of waste and residue material – considered to be particularly high risk in some markets, including the EU – in alternative aviation fuels demonstrates the highest standard of sustainability, traceability and credibility.

Using wastes and residues as feedstocks is essential to give carbon a second chance at life, making new products that would otherwise come from fossil resources. LanzaTech and our partners turn to RSB to guide us in ensuring that wastes and residues can be used sustainably to create a carbon smart world.

Jennifer Holmgren
CEO, LanzaTech

WASTES AND RESIDUES

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SDG ALIGNMENT

RSB is well aligned with the UN Sustainable Development Goals, and our partners in the aviation industry can be assured that RSB-certified alternative aviation fuels are contributing to the realisation of many of the SDGs. Not only do RSB-certified alternative fuels support SDG requirements on clean energy and climate action, our best-in-class approach to myriad social and environmental issues supports the achievement of many of the other SDGs.

With our focus on food security in our Principles and Criteria and the practical development of tools like our low ILUC module, as well as a stringent requirement for stakeholder consultation to ensure that issues that might impact local food production, such as water access, are identified, RSB’s approach to food security is extremely robust.

By ensuring that alternative aviation fuels are RSB-certified, the industry can be sure that not only is it not impacting local food security, but that it is strengthening rural development and food production via RSB’s requirements.
The RSB’s US corn stover protocol supports producers and auditors to ensure that removal of corn stover for cellulosic biofuel production is done in a way that ensures optimal soil health.

The RSB has developed—or is currently developing—regional indicators in the USA, Mexico, South Africa, Ethiopia and Queensland, Australia, which will ease the process of certification in those regions by taking a risk-based approach to local legislation and regulations, as well as the results of thorough stakeholder engagement.

The RSB is a technical advisor to the UN ICAO Alternative Fuels Task Force, guiding the development of the CORSIA regulations related to sustainability criteria, traceability, and robust auditing and certification.

The RSB has partnered with the Mexico Biojet Cluster to ensure that all alternative aviation fuels produced in Mexico will be subject to the RSB’s sustainability criteria and certification.

The RSB is a key player in the bio-jet industry and it’s been very interesting to see the evolution of the organisation. In Mexico it has been very helpful to have the RSB standard to help policy makers build their capabilities. Not everyone understands the complexities which is why the RSB’s approach to sustainability is so useful and encouraging for both Mexico and Brazil.

Mexico Bio-jet Consortium

BRINGING MEANINGFUL PARTNERSHIPS AND POLICY TO LIFE WITH RSB

The Roundtable on Sustainable Biomaterials collaborates with government, industry and NGOs worldwide to develop effective partnerships and local, regional and global policy that incorporates our best-in-class approach to sustainability.
ARE YOU READY TO SHAPE THE FUTURE SUSTAINABILITY OF THE AVIATION INDUSTRY?

Support the transformation of the aviation industry into a new global economic opportunity.

WORK WITH US TODAY