

# Preparing for Take-Off: RSB and the Role of the Standard in Driving Innovation and Sustainability

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(Roundtable on Sustainable Biomaterials – RSB)



The aviation industry requires effective and sustainable solutions to meet its commitments at national and international levels in its global effort to reduce the impacts of climate change. With the implementation of CORSIA regulations, over 85% of global aviation activity will be working to limit carbon emissions through the improved technology and operations, as well as the use of carbon offsets and alternative fuels. The RSB, a global multi-stakeholder organization, works with the aviation

industry to support their commitments to climate action through a range of solutions that are grounded in the best-in-class sustainability outlined in the RSB Standard.

Alternative aviation fuels, which can deliver significant reductions in greenhouse gas emissions while requiring no changes to existing aircraft and infrastructure, offer one of the most effective and immediate solutions to an industry looking to decarbonize rapidly. Such fuels have

the potential to offer both greenhouse gas reductions and a credible approach to achieving sustainable development goals, and so could deliver key emissions savings to the aviation industry – without compromising social development and environmental protection.

Not only do fuels produced from a range of feedstocks including: crops, production residues, end-of-life materials, and fossil waste produce reduced greenhouse gas emissions, they also do not cause negative environmental and social impacts – such as increased global hunger or the destruction of ecosystems. To ensure that this remains the case, a robust and credible certification scheme has been developed.

The RSB is a multi-stakeholder organization committed to ensuring best practice in the advanced economy. It offers ready-made solutions for the aviation industry as it adopts CORSIA, via certification to its best-in-class

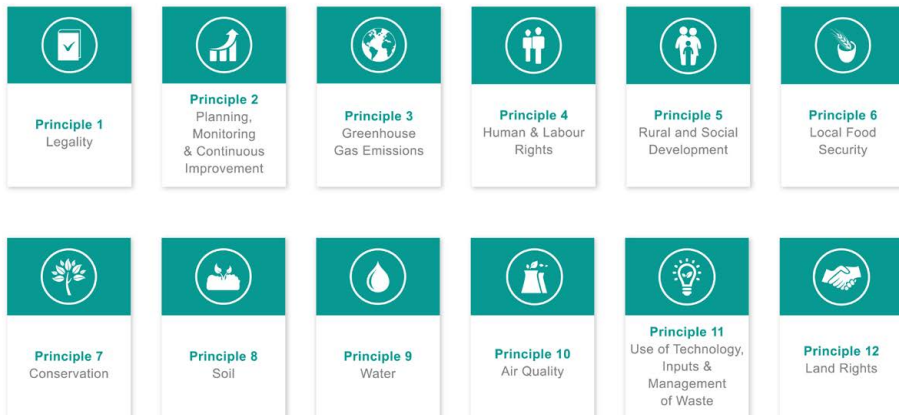
LanzaTech’s demonstration plant with Shougang in China, converting steel mill gases to ethanol, was the first RSB-certified biofuel plant in China, and the first of its kind anywhere to receive this key certification for industrial carbon capture and utilization. Ethanol, from the RSB-certified demonstration plant, was converted to drop in jet fuel, used in a world first commercial flight with Virgin Atlantic in 2018. LanzaTech’s first commercial plant is operating today in China, making ethanol from steel mill emissions.

Through utilization of waste emissions, this technology enables local production of low carbon fuels which displace the need for fresh fossil inputs; it creates new green employment at waste sites, and by avoiding combustion of gases, the process reduces criteria pollutants which would impact local communities.

**TABLE 1:** RSB and CORSIA Requirements

Topic	CORSIA requirement	RSB Coverage
Greenhouse Gases	CORSIA eligible fuel should generate 10% lower carbon emissions on a life cycle basis.	RSB’s Greenhouse Gas principle requires at least 50% emissions reduction based on a robust life cycle assessment. RSB has vast experience in operating a reliable auditing and certification system to verify GHG calculations.
Carbon Stock	CORSIA eligible fuels should not be made from biomass obtained from land with high carbon stock.	RSB’s Conservation Principle covers the CORSIA requirement on carbon stocks by requiring documentation that proves biomass has not come from land converted after 1 January 2008 that was primary forest, wetlands, or peat lands and/or contributes to degradation of the carbon stock in those lands.

**TABLE 2:** RSB twelve sustainability principles





standard which is already fully in-line with CORSIA requirements.

The RSB Standard is the strongest and most trusted of its kind, recognized as such by the likes of the World Wildlife Fund (WWF), International Union for Conservation of Nature (IUCN), and Natural Resources Defence Council (NRDC). The standard is being used by the international aviation industry to ensure that real, credible sustainability based on 12 Principles is achieved. RSB-certified alternative aviation fuels, adhering to a holistic approach to a broad range of risks, are ensuring real sustainability and lasting solutions for decarbonizing the aviation industry – without creating other social and environmental challenges. Commitment to producing and sourcing RSB-compliant fuels shows the world that an organization is reaching for the very highest levels of sustainability while aiming for significant climate impact through reduced greenhouse gas emissions.

RSB is already assisting operators to ensure they are prepared to lead the development of a cleaner and more responsible industry. Through comprehensive tools and solutions – including certification, advisory services and a step-wise ‘road to compliance’ approach – RSB is enabling actors from across the supply chain to prepare for the new regulations and beyond as progress is achieved towards the realization of a truly sustainable industry.

At the forefront of sustainability in alternative fuels, RSB has been involved in several world firsts:

- The first biofuel flight in Africa was made by South African Airways (SAA) using fuel produced from RSB-certified solaris tobacco.
- The first commercial flight using fuel produced LanzaTech ethanol on board a Virgin Atlantic jet, with fuel sourced from the RSB-certified fuel plant in Shougang, China.
- The first commercial scale alternative aviation fuel producer, World Energy Paramount, is RSB-certified.
- RSB developed the first, and only, low ILUC module which enables producers to demonstrate that their production has a low risk of causing indirect emissions elsewhere. UPM Biofuels were the first

operator to achieve certification for fuels produced from tall oil and *Agrisoma carinata* seeds.

The RSB supports the development of sustainable alternative fuels for the aviation industry that promote social and environmental sustainability and safeguard food security. This is done by partnering with aviation fuel initiatives worldwide, engaging airlines through membership, and helping supply chain companies achieve RSB certification for their alternative fuels.

Beyond certification, RSB leverages the power of its standard to support the most exciting and innovative projects to ensure that environmental and social sustainability, as well as real GHG emission reductions, are built into their very foundations. It works with partners across the aviation industry globally to develop innovative solutions to the challenges and issues that face those organizations operating on the cutting edge.

Working with RSB, members of the aviation industry are mapping the availability of sustainable resources in different regions in order to answer the key question of *where is all this feedstock going to come from?*

RSB also works with its partners to develop sustainability protocols for their supply chains and to manage credible

The first commercial alternative aviation fuel producer worldwide, World Energy Paramount, is RSB certified.

World Energy is a global leader in the development of alternative aviation fuels – and is 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 minimum 60% GHG emissions reduction against the petroleum-based products they replace – while ensuring other social and environmental impacts are minimal or positive – RSB-certified producers are having a very real impact on the industry’s ability to tackle climate challenges.

**FIGURE 1:** RSB's Involvement with Worldwide Aviation.

stakeholder consultation processes, and more. All of this can lead to RSB Certification or provide a roadmap for achieving it as markets grow. On a larger scale, RSB works at regional or national levels to do the following: develop indicators which benchmark local policy against the RSB Standard, identify crossover and gaps, reduce the time and effort involved in attaining certification, and help governments understand where to direct legislative efforts.

The benefits of integrating the RSB Standard into an operation – whether via certification or other partnerships – are many and extend beyond compliance with CORSIA

The RSB worked with Airbus in Mobile, Alabama to assist the aircraft manufacturer in developing a sustainable vision for the development of sustainable alternative aviation fuels in the region. Working in close partnership with Airbus, RSB conducted a *sustainable feedstock resource assessment* to map the potential for agricultural feedstocks, as well as waste and residues, and to estimate current and potential future production capacity in Alabama and surrounding states. The results of this project are being used by Airbus to shape its commitment to a sustainable aviation industry, and to the economic development of the Mobile, Alabama region.

regulations. RSB enjoys widespread NGO support and its member community and governance structure ensure that social and environmental NGO parties have an equal voice at the table.

The RSB Standard is well-aligned with the UN Sustainable Development Goals (SDGs). For example, RSB enables businesses to demonstrate a tangible impact on climate change and SDG 13 (Climate Action) – by demonstrating 50% greenhouse gas emissions reduction as a minimum, as well as Goal 7's Affordable and Clean Energy.

Additionally, bio-economy stakeholders across the supply chain that incorporate RSB's 12 Principles are supporting a number of UN SDGs as follows:

- SDG 6 - Clean Water and Sanitation; by implementing RSB's most rigorous approach to water (as rated by WWF).
- SDG 1 - No Poverty; by ensuring that all production and processing in regions of poverty are tied to meaningful community development, labor rights, food security, and rural and social development.
- SDG 15 - Life on Land; by requiring a rigorous approach to soil conservation, biodiversity and land rights.

In fact, nearly all SDGs are supported by the RSB Standard.







By continuously innovating, RSB is able to support stakeholders across the aviation industry to address future challenges before they impact the industry. On the forefront of the very latest technological and sustainability developments, RSB developed an approach for certifying the sustainability of advanced fuels. These fuels are those produced not only from traditional biogenic sources, but also end-of-life products, by-products, and residues (including fossil waste). RSB's Standard for Advanced Fuels, with its groundbreaking approach to managing the sustainable use of waste & residue materials, is the first of its kind. It has been developed to allow the most innovative fuel producers to stay ahead of the sustainability curve – ensuring 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 the management of water and effluents.

RSB is the first system to develop a methodology for measuring displacement emissions. These are the indirect emissions caused by redirecting a waste feedstock into fuel production from another pathway – thus requiring a new feedstock to be exploited for the original use and potentially causing more emissions.

From certification to research, projects, partnerships, and continuous development of our standard, RSB solutions are geared towards industry leaders that are committed to combatting climate change, promoting environmental health, and ensuring social responsibility across their supply chains. RSB is committed to ensuring it is aligned with CORSIA so that these solutions not only demonstrate the highest level of commitment to environmental and social outcomes – including the UN Sustainable Development Goals – but also compliance with all reporting requirements. With these solutions and cutting edge approaches to the latest sustainability challenges, and a proven track record in supporting the industry, RSB is helping partners to use the best-in-class sustainability and credibility of its standard to drive innovation in the aviation industry – from field and factory to tank.

RSB worked with WWF South Africa on a report conducted in collaboration with the International Institute for Applied Systems Analysis (IIASA) and supported by the Boeing Company to understand the potential for the production of sustainably certified alternative aviation fuels in sub-Saharan Africa. The report found that there is a small, but not insignificant, potential for the production of alternative aviation fuels in sub-Saharan Africa in compliance with RSB's robust sustainability requirements.

#### **RSB works with Boeing and WWF to grow a sustainable bioeconomy in Brazil**

As part of a project between RSB and WWF, powered by Boeing's Global Engagement Portfolio, Boeing will invest \$1 million into the Brazilian bioeconomy via a commitment that will focus on identifying suitable feedstocks and supporting small-scale farmers across the country achieve RSB certification for the production of biomass for alternative fuels. Boeing aims to develop a truly sustainable aviation industry that will maximise the environmental, social and economic benefits of the bioeconomy – and RSB's approach to sustainability is key in guiding this investment.

Boeing is supporting RSB and WWF's work in Brazil to ensure sustainability in feedstock options and farming practices in order to increase the capacity for sustainable production for the aviation sector. The project will also support a diversification of production that will fuel the broader regional bioeconomy.