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Breaking the jinx of powering cleaner flights: A review of successes, constraints, regulations and prospects

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With the technical barriers to practicability of aviation biofuels apparently overcome in the aftermath of several test flights from 2008 to 2011 and subsequent approval for use in passenger flights, their availability and economics remain key issues for this strategic industry. Addressing these and other limiting factors becomes pertinent when viewed against the backdrop of ever-increasing global concerns about climate change; aviation being the first industry to have goals to reduce its 2% contribution towards CO₂ emissions. This paper will briefly chronicle the evolution of biofuels for aviation, highlight successful case examples stating emission reduction figures, critically evaluate existing regulations such as the European Commission's proposed reform of the Renewable Energy Directive (RED) and their implications for investment in the subsector, attempt to address outstanding constraints to widespread adoption, as well as explore future prospects and research directions. The imports of this work will be useful for airline operators, policy makers and regulators in the continuous drive towards a sustainable and greener aviation future.

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