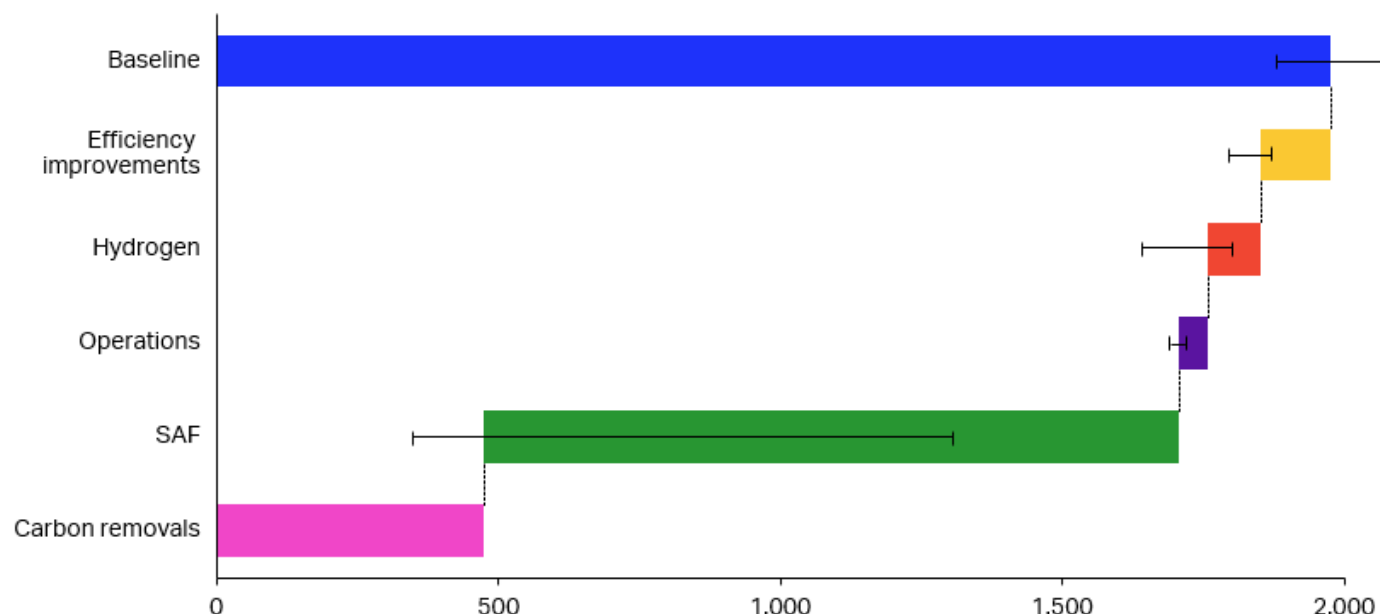


Chart of the Week

7 July 2023

Getting to net-zero aviation – a bottom-up roadmap approach

Aviation CO₂ emissions (in million tonnes) in 2050



Source: IATA Sustainability and Economics

- IATA recently released [five strategic roadmaps](#) which provide an overview of the crucial steps required to achieve aviation's transition to net zero CO₂ emissions; a goal which airlines have committed to achieving [by 2050](#). The roadmaps range across aircraft technology, energy infrastructure, operations, finance, and policy.
- Aviation is currently responsible for approximately 2.4% of global CO₂ emissions. Without action, those emissions are estimated to reach around 2 gigatons by 2050.
- Incorporating the replacement of existing fleet by more fuel-efficient aircraft that are currently available in our baseline emissions projections, the blue bar in the chart above shows the baseline CO₂ emissions projected for 2050. Clearly, fleet improvement alone is not sufficient to deliver CO₂ net-zero by 2050. The subsequent colored bars show the abatement contribution of each specific technology or improvement which together can bring aviation's CO₂ emissions to net-zero in 2050.
- The levers of action range from innovative aircraft design, development of hydrogen aircraft, potential abatement from operational improvements, contribution from Sustainable Aviation Fuels (SAF), and implementation of carbon removal technologies. It is evident that the successful scale-up of SAF (the green bar) plays the most important role in the industry's sustainability transition in the 2050 time horizon.
- The black lines represent the range of uncertainty around the estimates, pertaining to factors including the timing and speed of implementation, the impact of policy initiatives, and the availability of finance. Accelerating technology development and SAF scale-up beyond current expectations could lead to higher-than-anticipated CO₂ emission reductions, but equally, any delay in deployment would result in higher residual emissions in 2050.
- Supportive policy and financing frameworks will be critical for the industry to harmonize efforts and accelerate the net zero CO₂ transition, while also helping to mitigate the costs and investments involved. Cross-industry collaboration and engagement is a fundamental requirement to ensuring that the targets can be met.