



Net Zero Aviation in Latin America and the Caribbean: Pathways and Trade-offs



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Project context and objective

- 1 ICAO recognized that each states' circumstances and capabilities would determine their contribution, timing, and balance between social, economic, and environmental targets.
- 2 The goal of this project is to illuminate the challenges and opportunities associated with net-zero pathways in Latin America and the Caribbean, providing a high-level, regionally appropriate perspective on the aviation industry to inform future discussions.

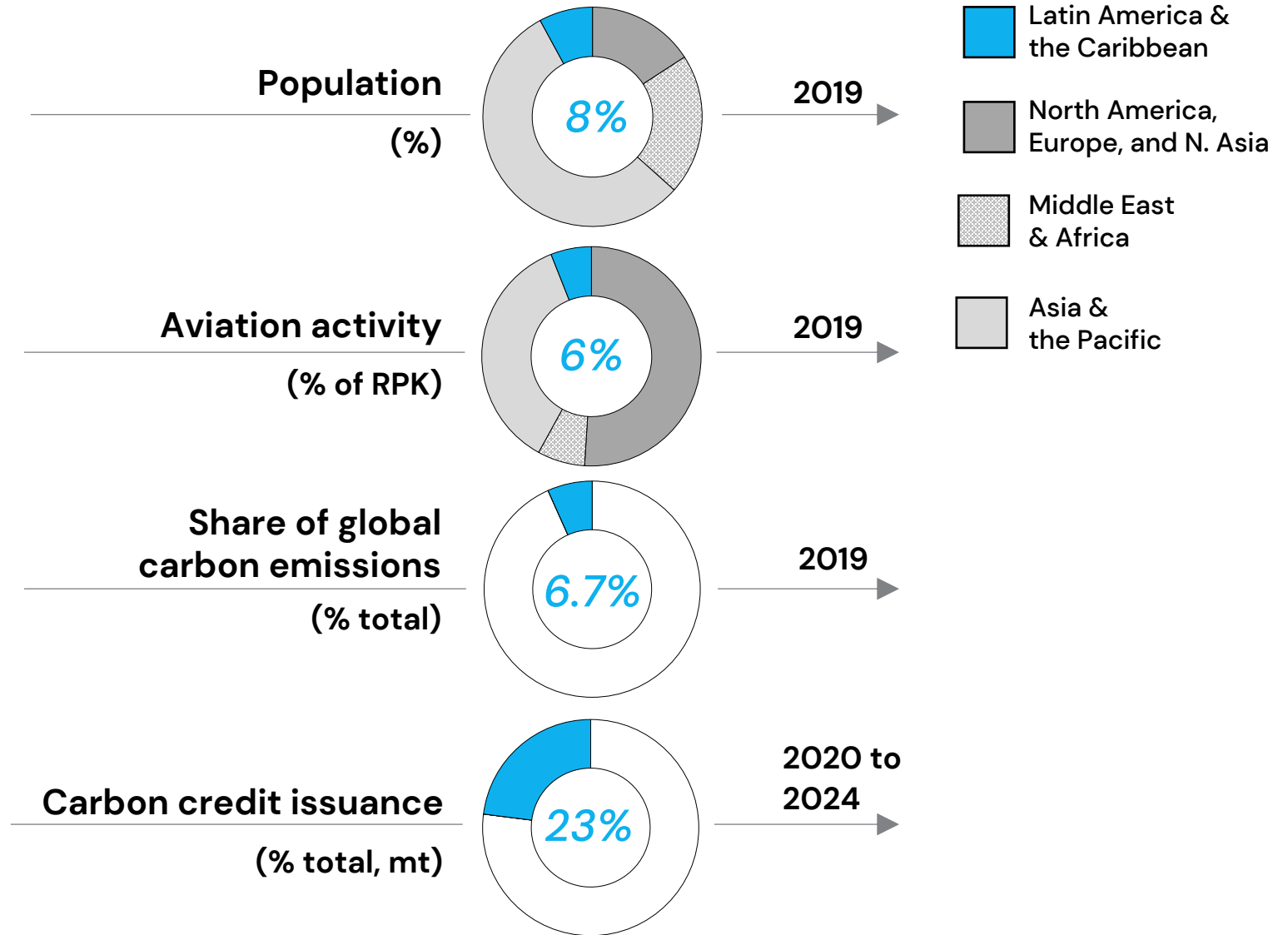
Scope

- 3 Domestic and outbound international emissions, for all countries in Latin America and the Caribbean. Civil aviation only.

Mechanisms

- 4 Considering traffic growth, new aircraft, operational measures, SAF, carbon markets, and impact via elasticities.

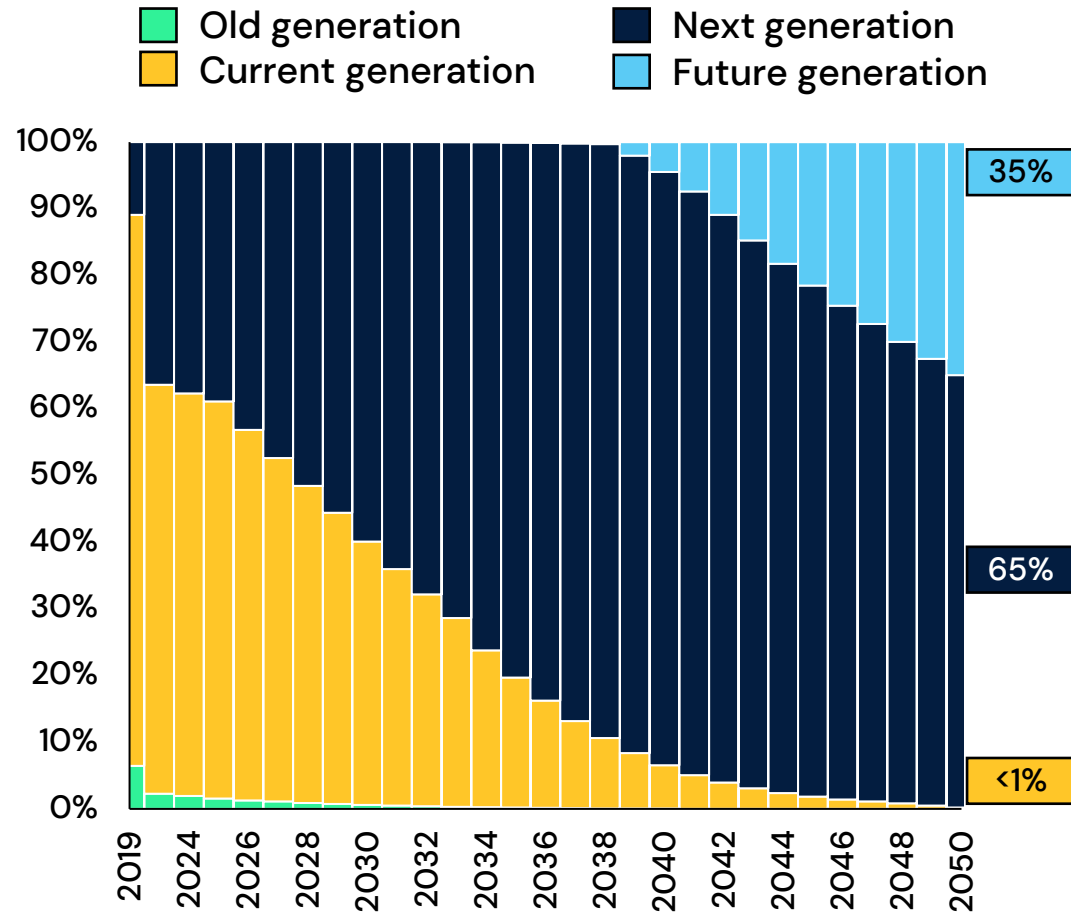
Latin America and the Caribbean must balance growth, access to aviation, emissions reduction, and the protection of critical ecosystems



LAC airlines have invested billions in new aircraft. By 2050, this will reduce emissions by 30% compared to the baseline, equal to 13.4 mt CO₂e per year

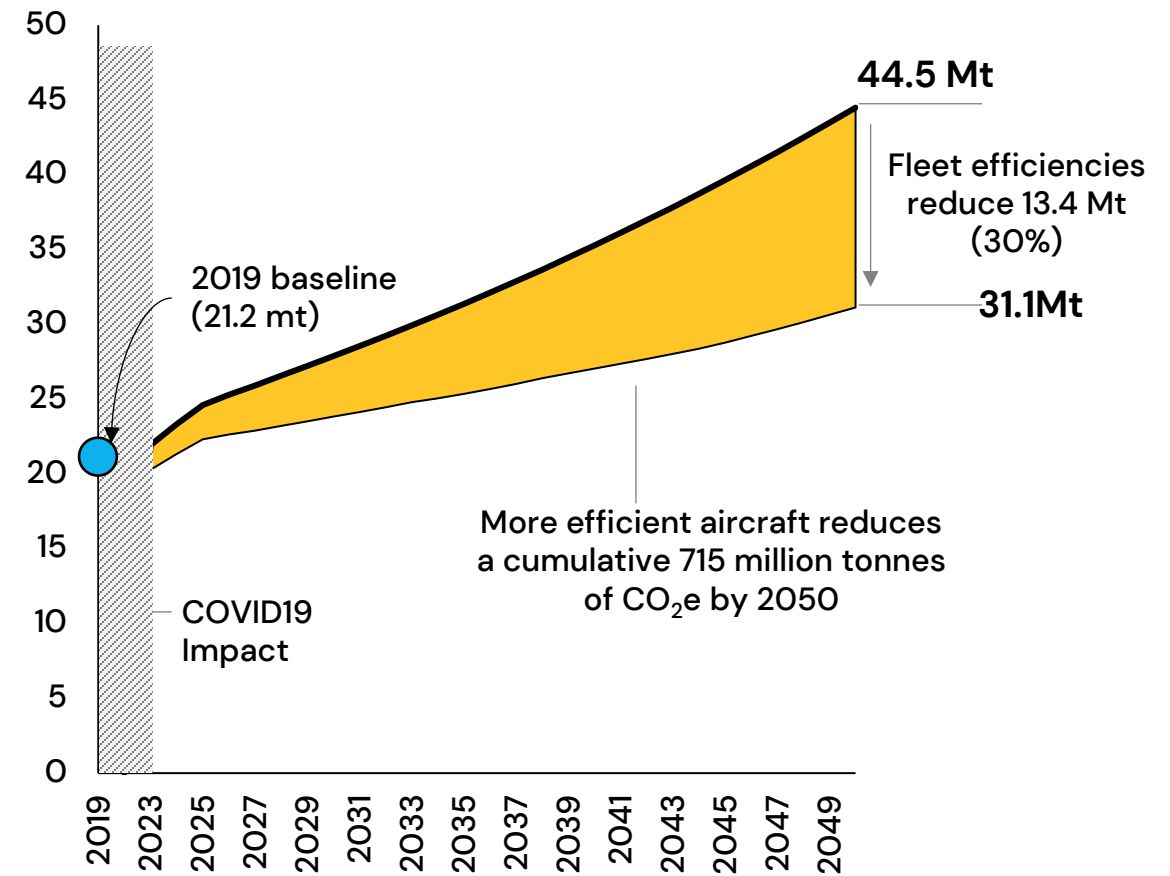
Projected fleet composition development

Percentage of total fleet



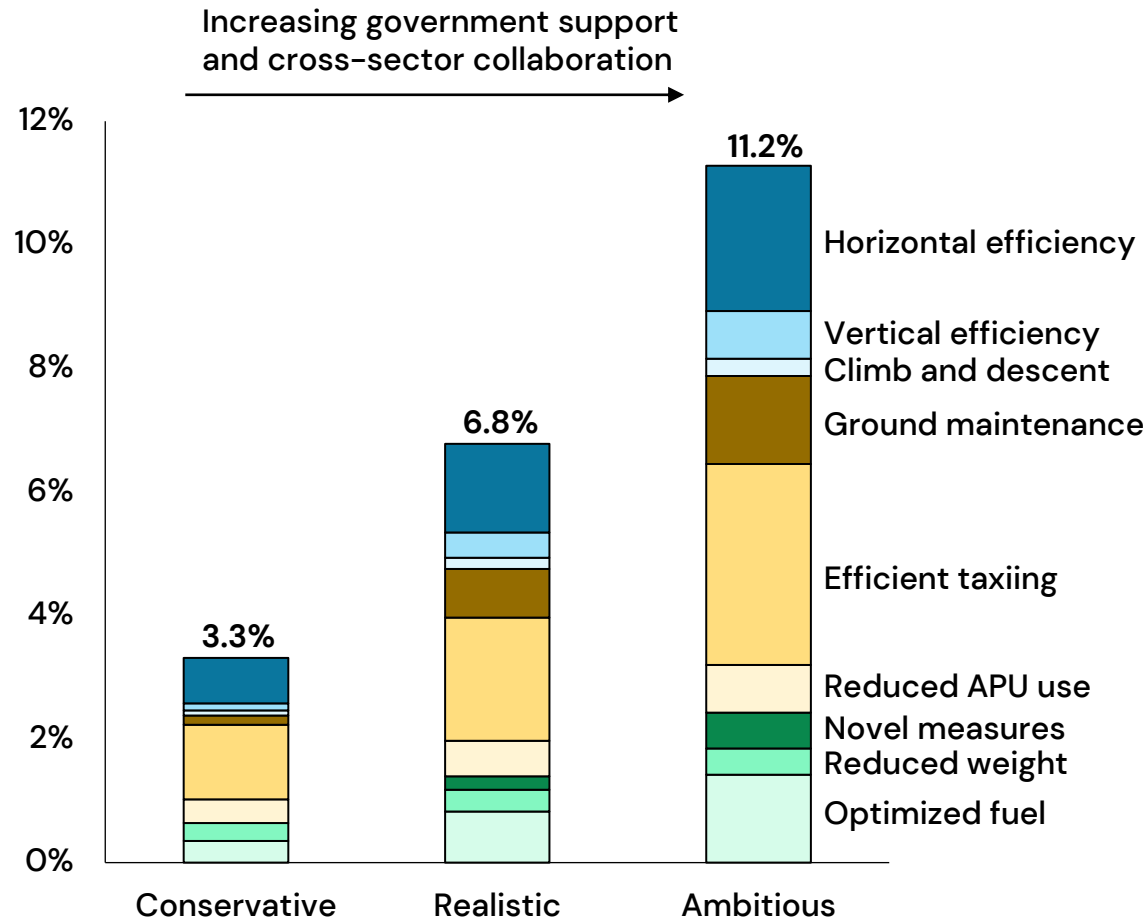
Impact of fleet renewal on regional jet fuel consumption

Million tonnes of jet fuel consumption (Mt)

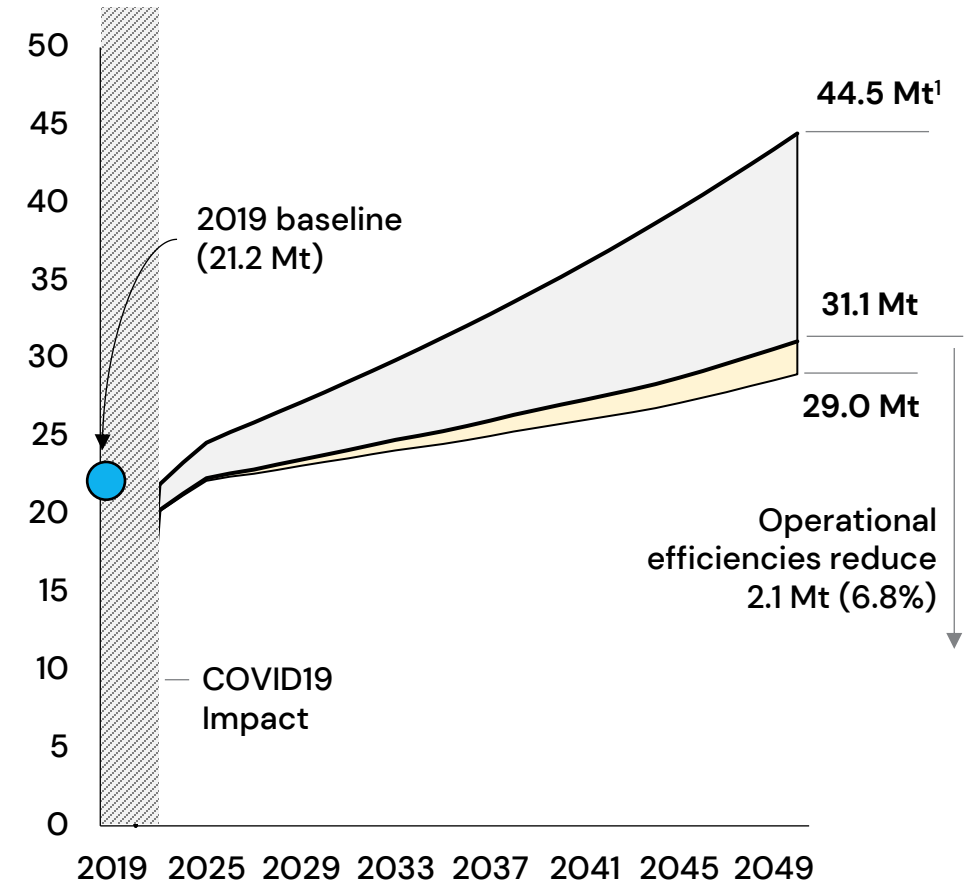


Operational improvements are a cost effective and immediate opportunity to reduce emissions by 3.3%–11.2%, depending on the level of government support

Fuel burn reduction from additional operational efficiencies
% of fuel burn



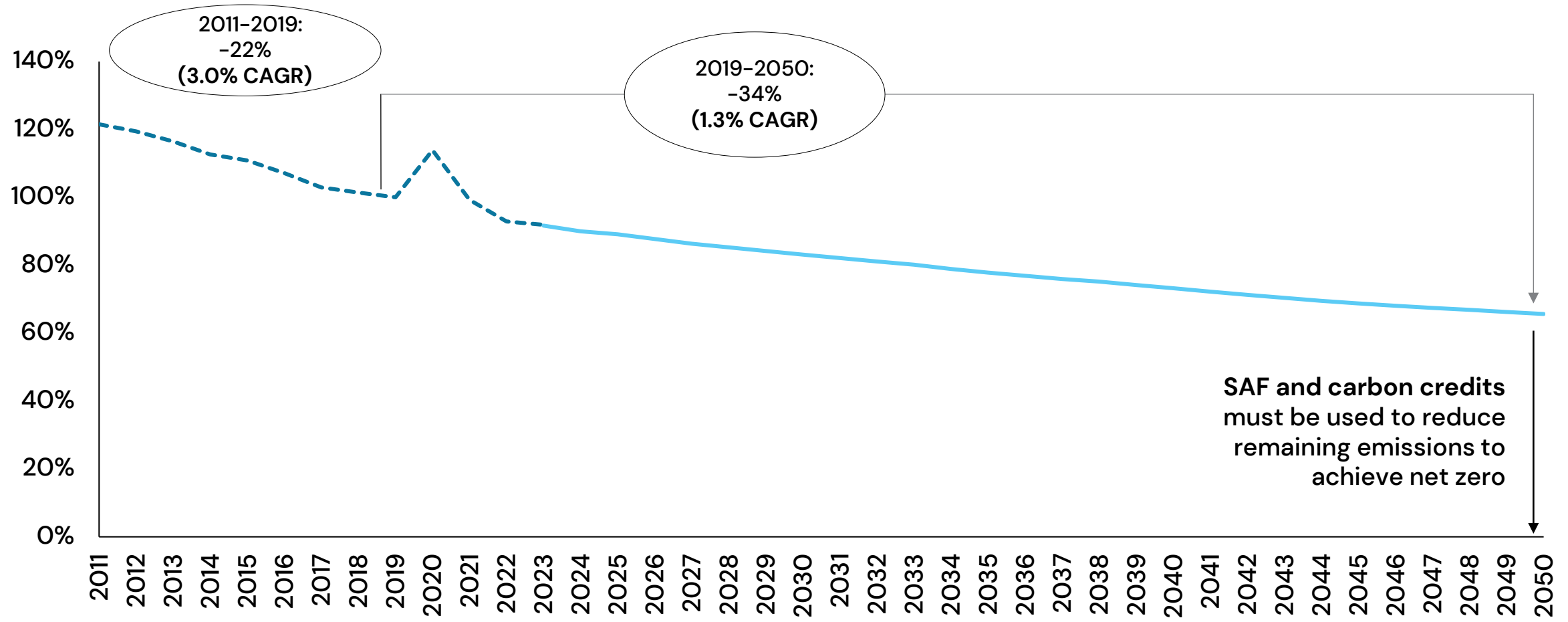
Impact of operational improvements on regional jet fuel consumption
Million tonnes of jet fuel consumption (Mt)



Current fleet and efficiency plans are projected to reduce 2050 emissions intensity by a third; SAF and carbon credits would need to address remaining gap

Fuel efficiency change compared to 2019

Fuel consumption kg per RPK



The SAF industry is build on the foundations of the bioeconomy. Staging the development of the industry encourages emissions reduction at the lowest cost

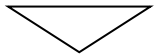
1 Scaling the bioeconomy in LAC (through 2030)

- Developing the infrastructure, fixed capital, expertise, and foundations of the bioeconomy
- This ensures the feedstocks, infrastructure, skills, and expertise are developed to support future SAF production



2 Leveraging SAF export opportunities (2030-2040)

- Initial SAF markets are developing in Europe and the US
- Opportunities to export to these markets can build initial expertise in LAC



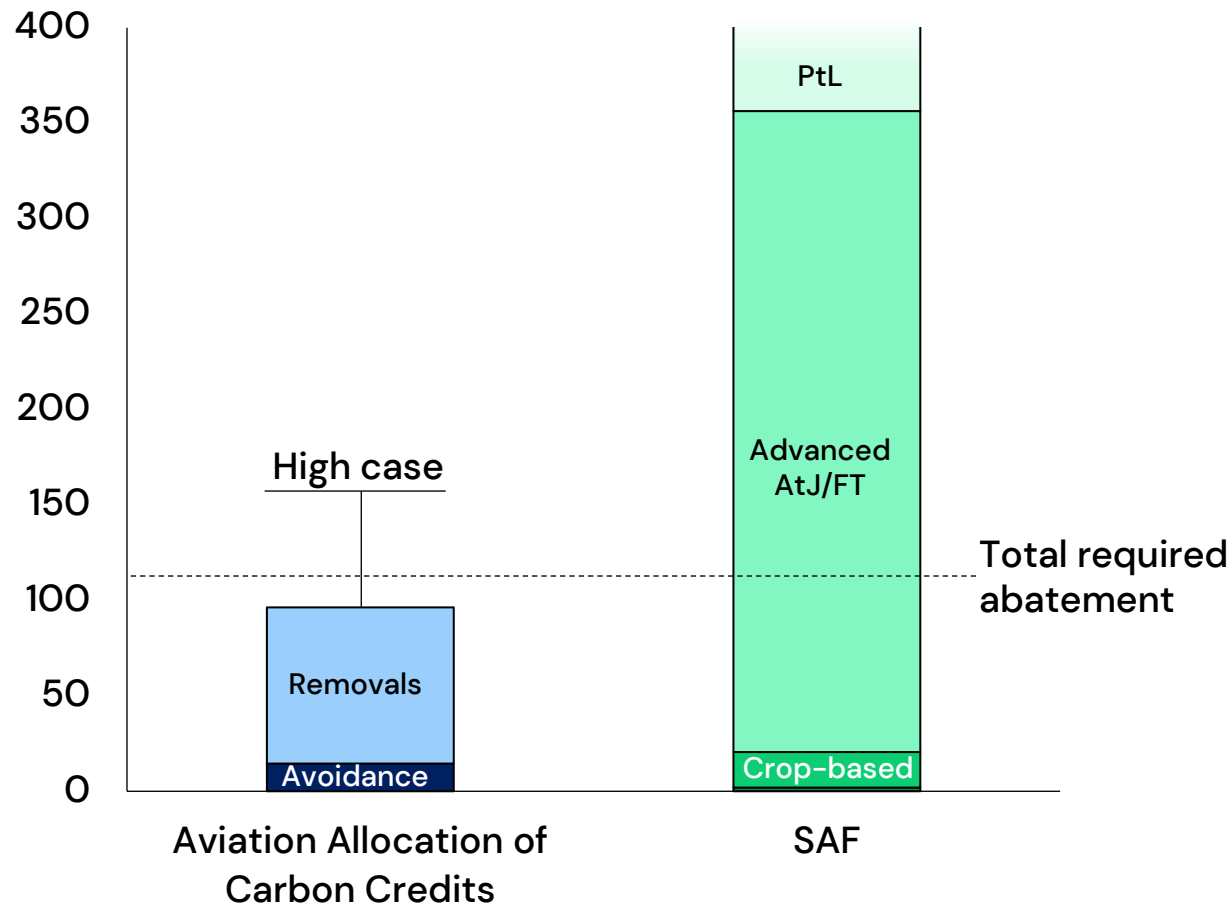
3 Scaling SAF uptake in LAC (2040+)

- As on-road transportation shifts to Electric and aviation continues to reduce emissions, increasing volumes of production can transition to domestic aviation

The use of SAF and carbon offsets must balance price, availability, and aviation affordability

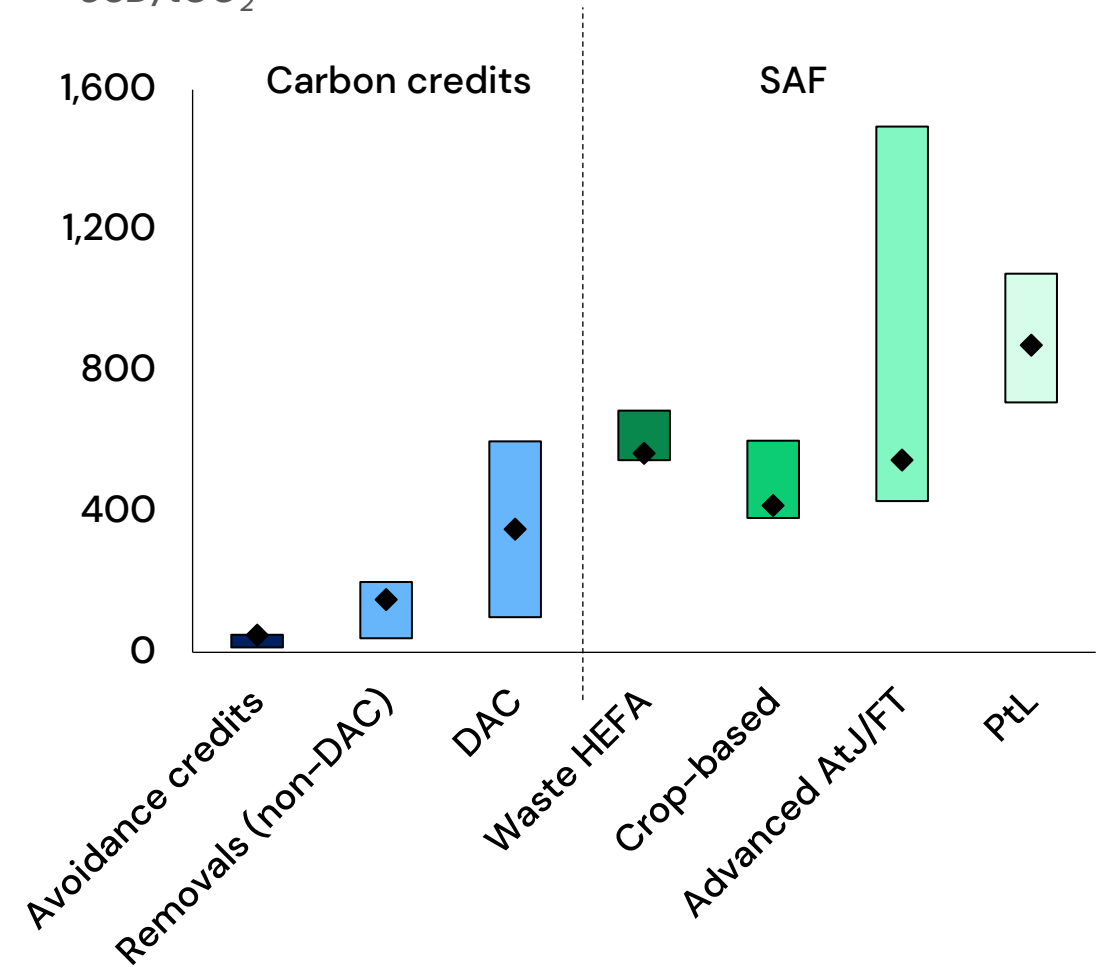
2050 available abatement – Carbon Credits and SAF

Available reduction, million tonnes carbon dioxide equivalent



2050 estimated cost of abatement – Carbon Credits and SAF

USD/tCO₂

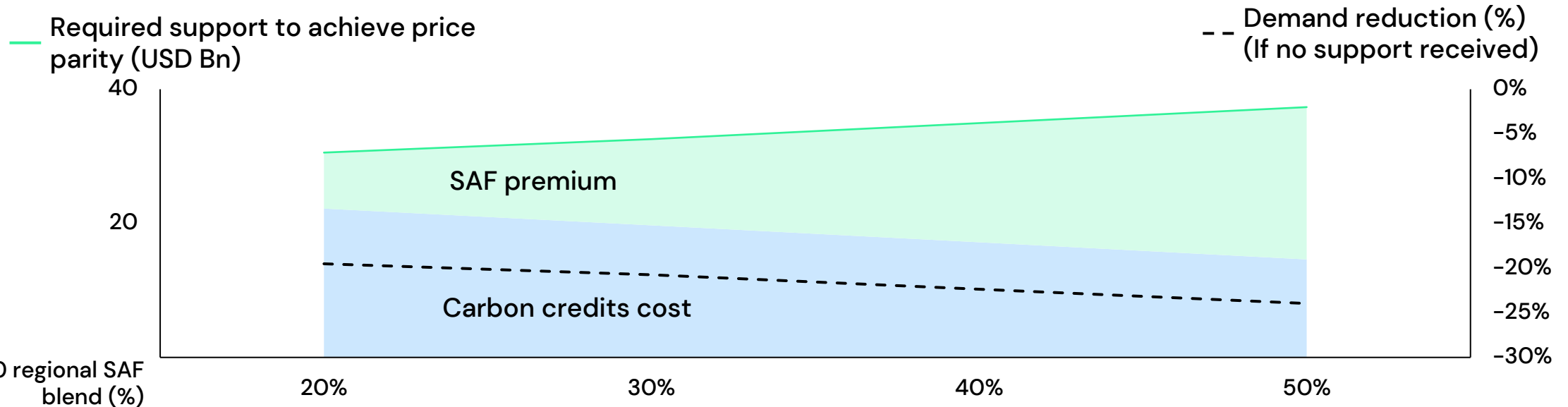


DAC = Direct Air Capture; 2. Waste HEFA (Hydroprocessed Esters and Fatty Acids) = produced from UCO, animal fats; 3. Crop-based = produced from crops (ex. sugarcane AtJ, soybean HEFA); 4. Advanced AtJ/FT = produced from agricultural and forest residues or municipal solid waste; 5. PtL = Power-to-Liquid

The mix of SAF and Carbon mechanisms will have a significant impact on the level of government support and investment required

2050 Support required and demand reduction for mix of SAF and carbon mechanisms

Required support¹ in USD bn (left) and demand reduction in % (right)

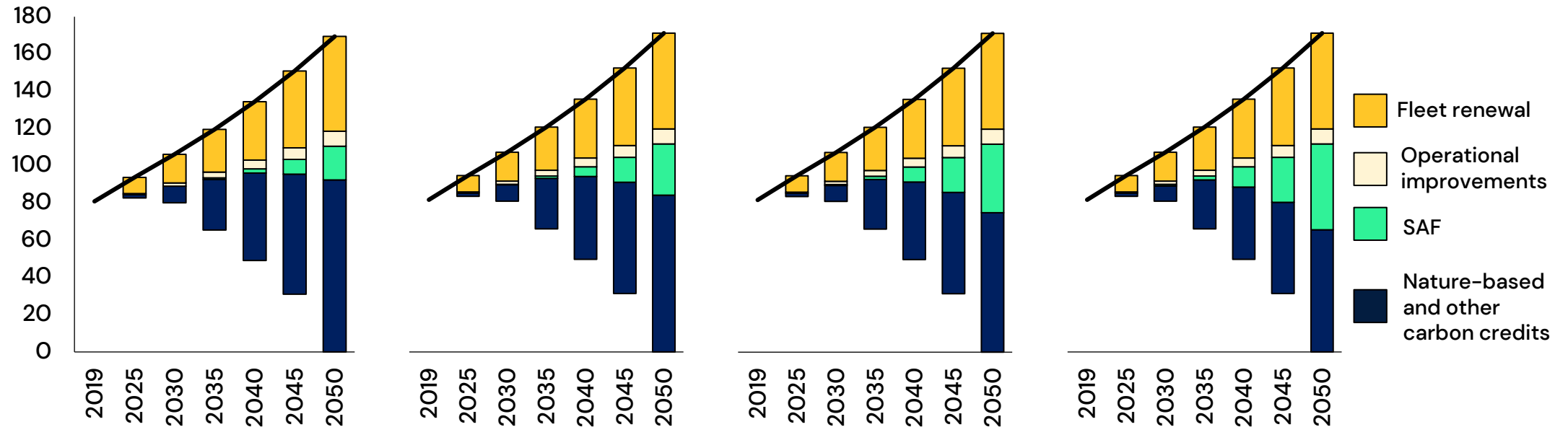


2050 regional SAF blend (%)	20%	30%	40%	50%
Cost of SAF premium (USD Bn/year)	8.3	12.9	17.8	22.7
Cost of carbon credits (USD Bn/year)	22.2	19.7	17.2	14.6
Total cost (USD Bn/year)	30.5	32.6	34.9	37.3
Demand reduction without support (%)	-19.5	-20.7	-22.4	-24.0

Aviation net-zero in the region can be achieved through various pathways. However, support is required in all scenarios to reduce the demand impact

Trajectories for a range of net-zero pathways

Million tonnes of CO₂e



Blend (2050)

20% SAF

30% SAF

40% SAF

50% SAF

Impact if support not received:

Seats lost (cumulative, Bn)	1.29	1.39	1.53	1.68
2050 demand reduction without support (%)	-19.5%	-20.7%	-22.4%	-24%

Key takeaways

- 1 The aviation sector in Latin America and the Caribbean is committed to reducing emissions.
- 2 Aviation is the backbone of regional connectivity in the LAC region. Efforts to reduce emissions must balance with maintaining this critical driver of growth and integration.
- 3 Fleet is the most effective measure to reduce emissions while growing the economy. Airlines in the region have already made substantial investments and operate one of the most fuel efficient fleets globally.
- 4 Operations efficiencies represent an immediate and cost-effective measure to reduce emissions, but require collaboration from governments, airports, and other stakeholders.
- 5 The most ambitious global pathways are unrealistic for the region. The mix of offsets and SAF has an important impact on demand.
- 6 SAF is an in-sector measure with significant long-term potential for emissions reductions in aviation, but several economic, technical, political, and regulatory barriers must be addressed.
- 7 Several critical ecosystems are in Latin America and the Caribbean, and preserving and restoring them offers a key regionally appropriate emissions reduction mechanism for the sector.



Discussion