



Industry Metrics

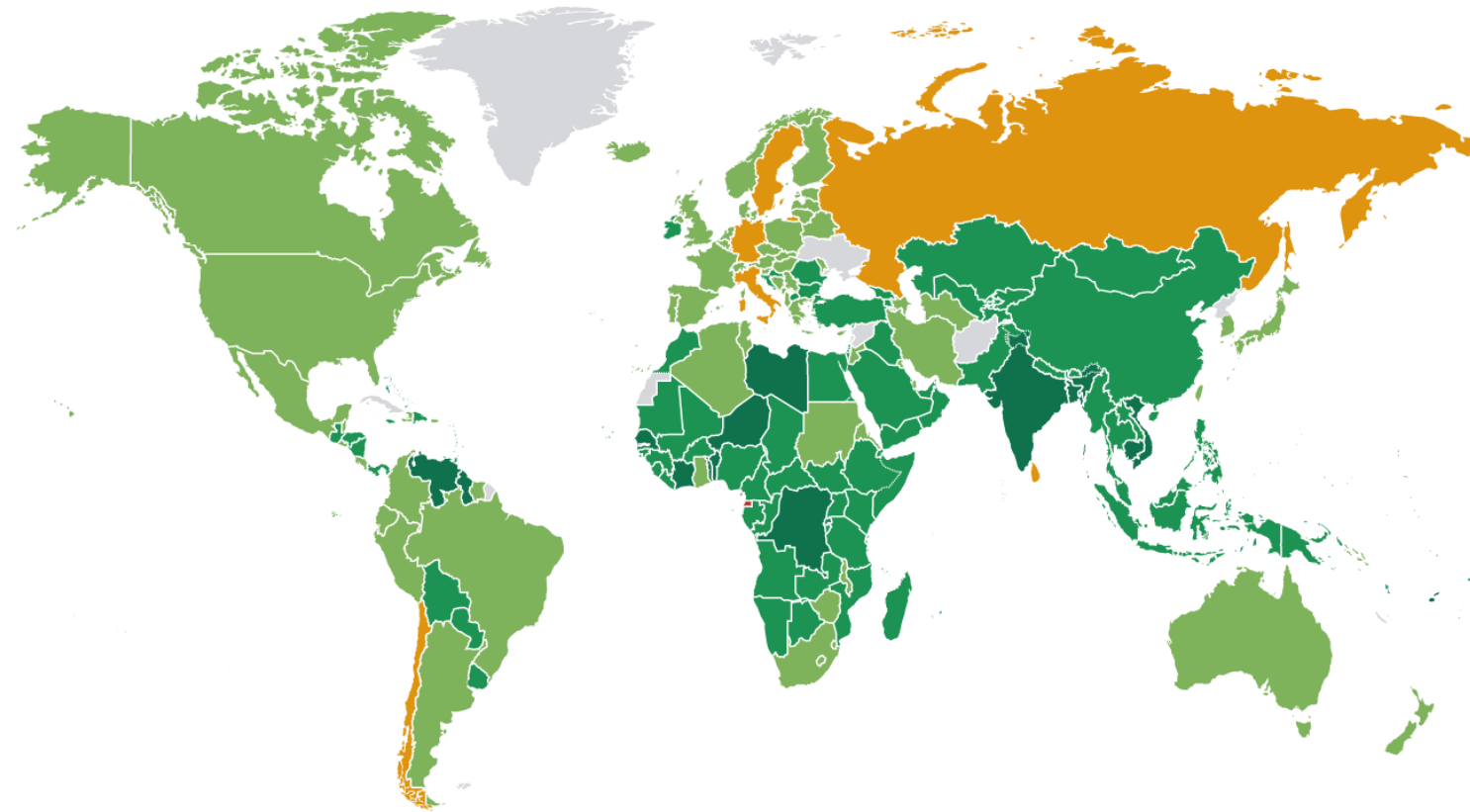
Winter 2023

Economic Review and Outlook

- Global growth is projected at 2.7 percent in 2023, 0.5 percentage points lower than 2022. This is the weakest growth profile since 2001 except for the global financial crisis and the acute phase of the COVID-19 pandemic. The cost-of-living crisis, tightening financial conditions in most regions, Russia's invasion of Ukraine, and the lingering COVID-19 pandemic all weigh heavily on the outlook.
- U.S. GDP increased at an annual rate of 3.2 percent in the third quarter of 2022, following a 0.6 percent decrease in the previous quarter. The GDP in Canada expanded by an annual rate of 2.9 percent in the third quarter of 2022, slightly lower than the 3.2 percent in the previous period to mark fifth consecutive quarters of growth.
- The U.S. unemployment rate was 3.5 percent in December 2022, falling below market expectations of 3.7 percent and matching the rates seen in July and September of 2022, which were the lowest since February 2020. The unemployment rate in Canada was 5.0 percent in December 2022, the lowest since the record-low of 4.9 percent in June and July of 2022, decreasing from 5.1 percent in the prior month and beating market estimates of 5.2 percent.
- Crude oil and jet fuel prices ended at \$76.44 and \$123.25 per-barrel in December 2022 respectively, dropped 33 percent and 29 percent respectively from June 2022. U.S. Energy Information Administration forecasted average crude oil price to be \$83 in 2023, and \$78 in 2024 as global oil inventories build, putting downward pressure on crude oil prices.

Global GDP to Grow at 2.7% in 2023

Annual Real GDP Growth by Country, 2022-2023
(Forecast as of October 2022)



Countries/regions with below 0% forecasted GDP Growth Rate in 2023:
Equatorial Guinea, Sri Lanka, Russian Federation, Chile, Germany, Italy, and Sweden

Source: International Monetary Fund (IMF), October 2022.

● 6% or more ● 3% - 6% ● 0 - 3% ● -3% - 0 ● less than -3% ● no data

Global Growth Slowed Down

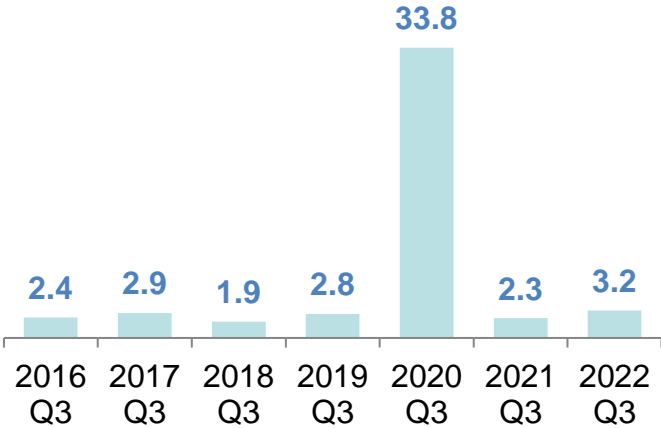
	(% change)	2021	2022	2023
North America	U.S.	5.7	1.6	1.0
	Canada	4.5	3.3	1.5
Other Regions	China	8.1	3.2	4.4
	Eurozone	5.2	3.1	0.5
	U.K.	7.4	3.6	0.3
	Japan	1.7	1.7	1.6
	India	8.7	6.8	6.1
	Brazil	4.6	2.8	1.0
World		6.0	3.2	2.7

Source: International Monetary Fund (IMF), October 2022.

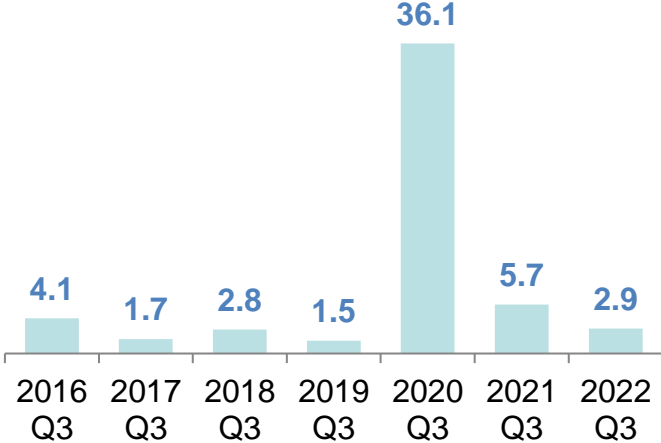
U.S. Economy Jumped in Q3 of 2022, while Canada Economy Continued to Grow



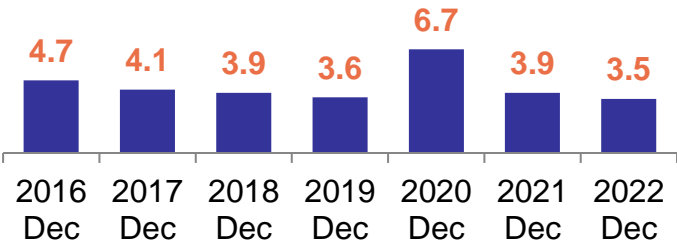
U.S. Real GDP Annual Growth Rate From Preceding Quarter (%)



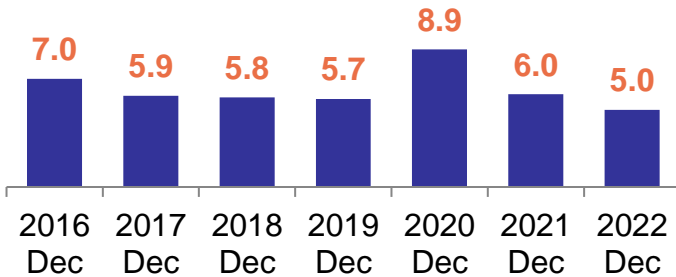
Canada Real GDP Annual Growth Rate From Preceding Quarter (%)



U.S. Annual Average Unemployment Rate (%)



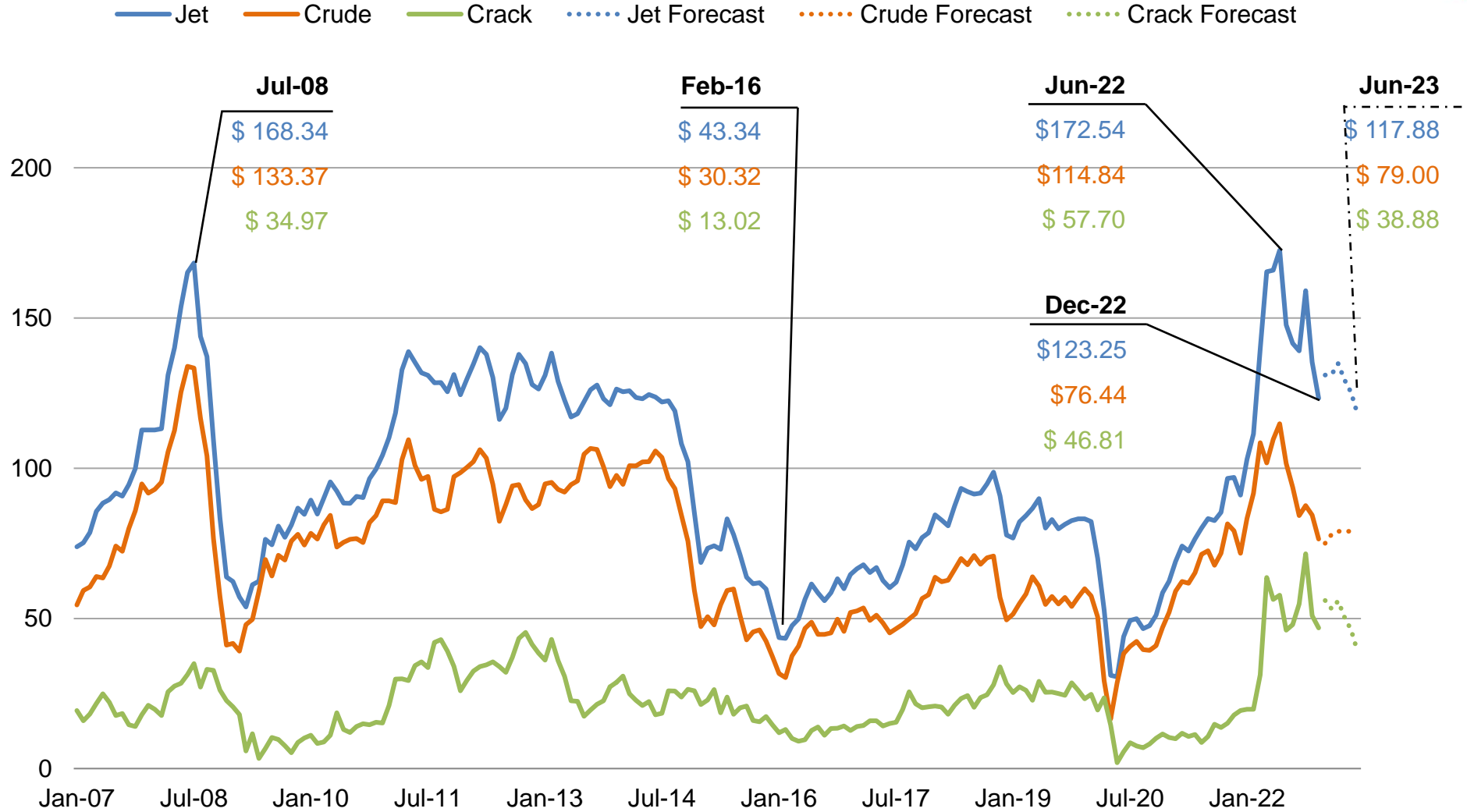
Canada Annual Average Unemployment Rate (%)



Source: BEA, BLS, Statistics Canada, January 2023.

High Crude and Jet Fuel Prices Are Easing

(\$ per Barrel)



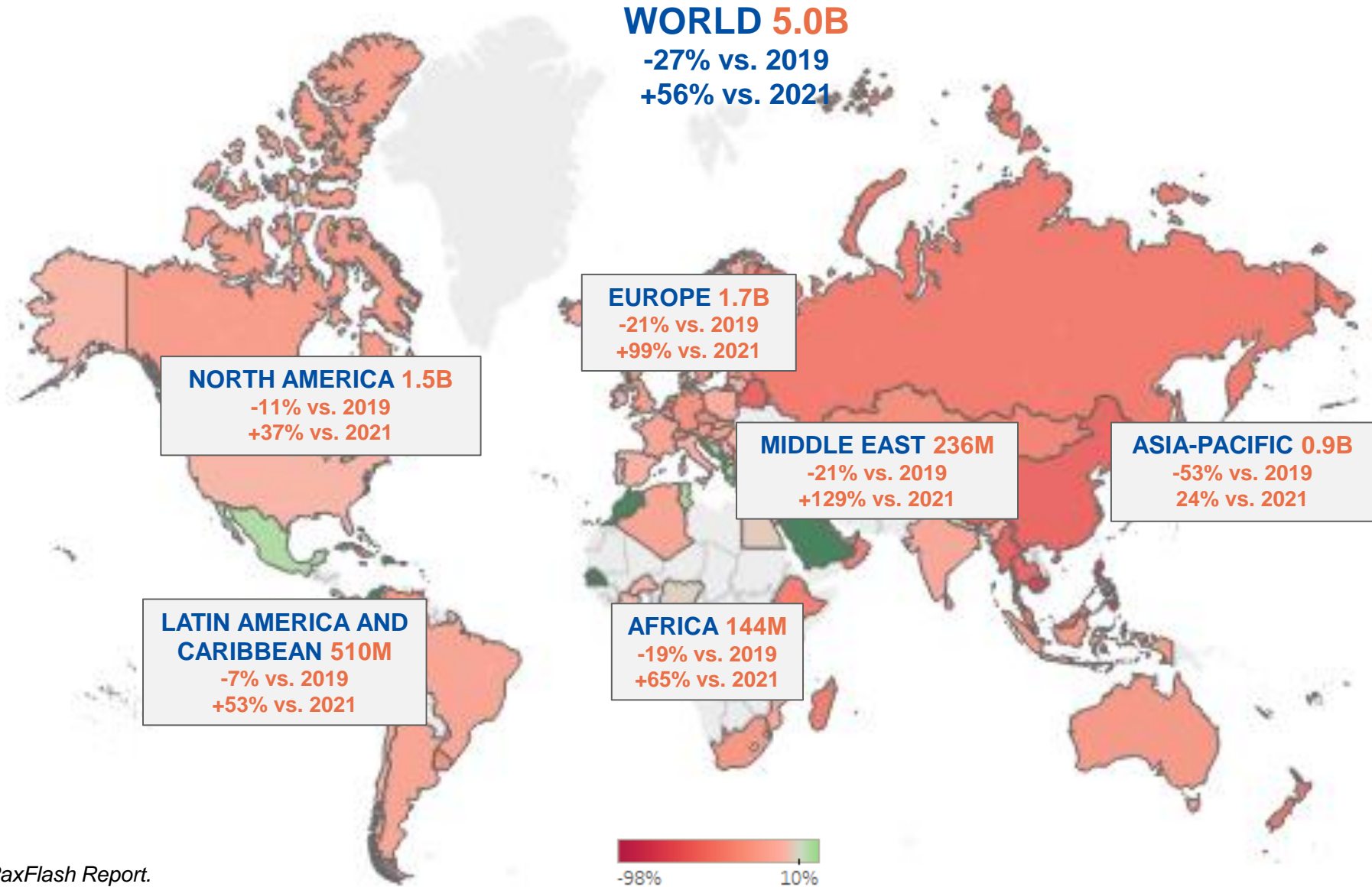
Source: EIA, 1/10/2023.

Air Travel Demand Recovery Started in 2021 and Continued in 2022



- Global passenger traffic from January to November of 2022 increased 56% from the same period of 2021, recovered to 73% of 2019 level. North America and Latin America recovered most among all regions, to 89% and 93% of 2019 level respectively.
- North American airports are still significantly affected by the COVID-19 pandemic losing respectively over 9% and 25% of domestic and international traffic from January to November 2022 compared to 2019 levels. Before the crisis, traffic had been steadily increasing at an average annual growth rate of 3% between 2011 and 2019. However, since March 2021, U.S. domestic traffic has been increasing at a faster pace than expected driven predominantly by leisure traffic.
- From January to November 2022, total freight in North America slowed down by 3.3% from 2021, is still 10.6% higher than 2019 driven by a 8.4% increase in domestic cargo and a 14.1% increase in international cargo.
- From January to November 2022, U.S. carriers' passenger traffic recovered 88% of 2019 level, with domestic passenger traffic at 92% and international traffic at 75% of the 2019 level. Canadian carriers recovered 72% of the 2019 passenger traffic.

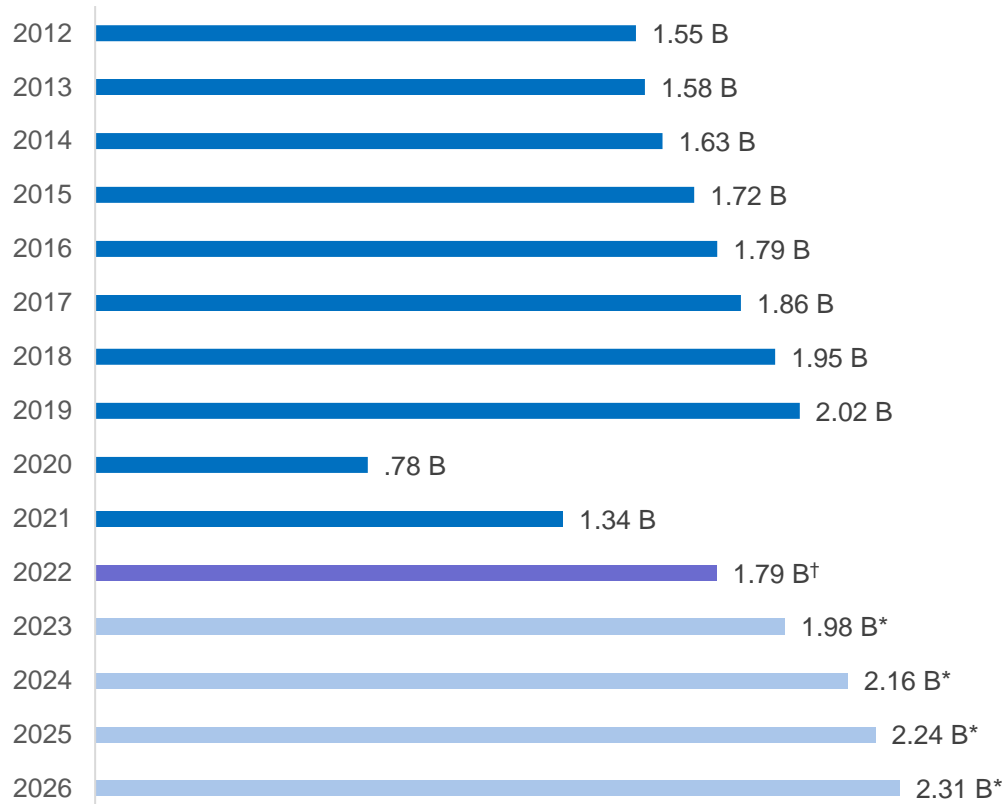
World Passenger Traffic From January to November 2022 Increased 56% from 2021, Recovered to 73% of 2019



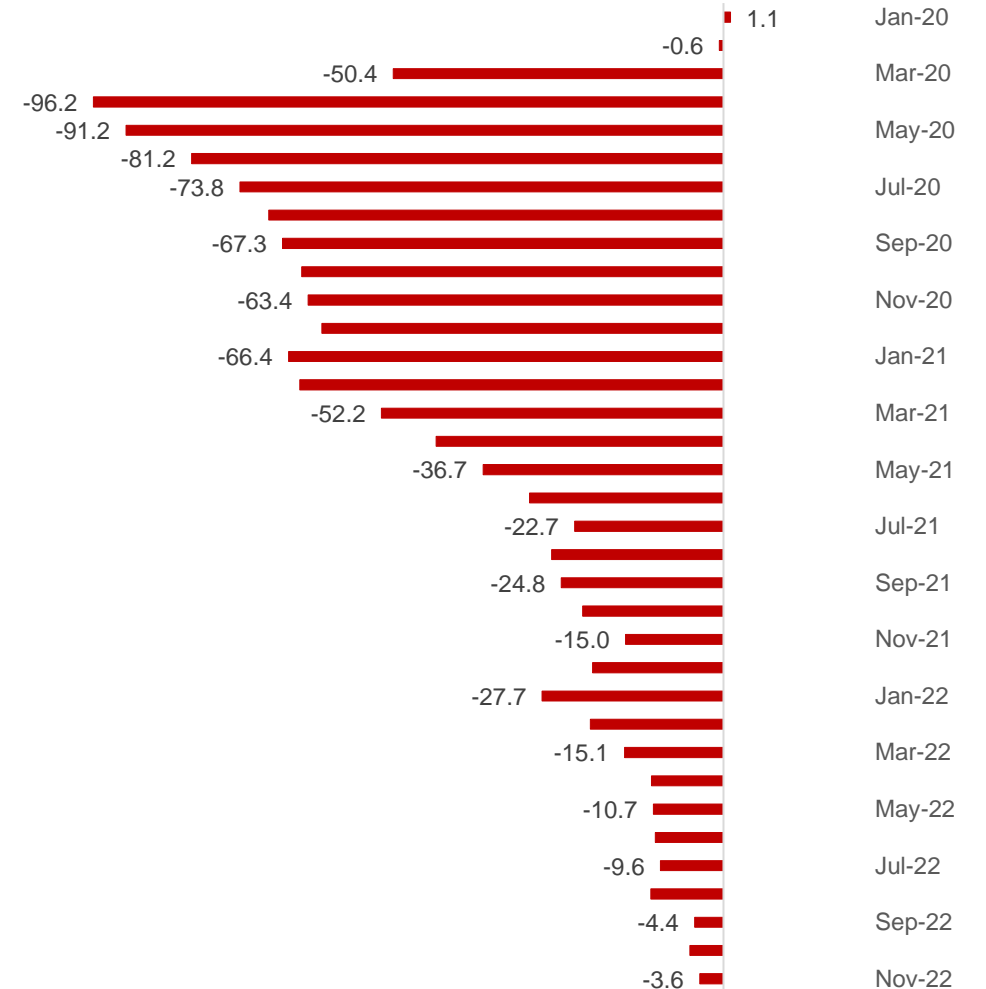
The Turning Point of the COVID-19 Pandemic and Its Impact on North America Airport Passenger Traffic



Total Passengers



Percent Change (%) vs. Same Month in 2019



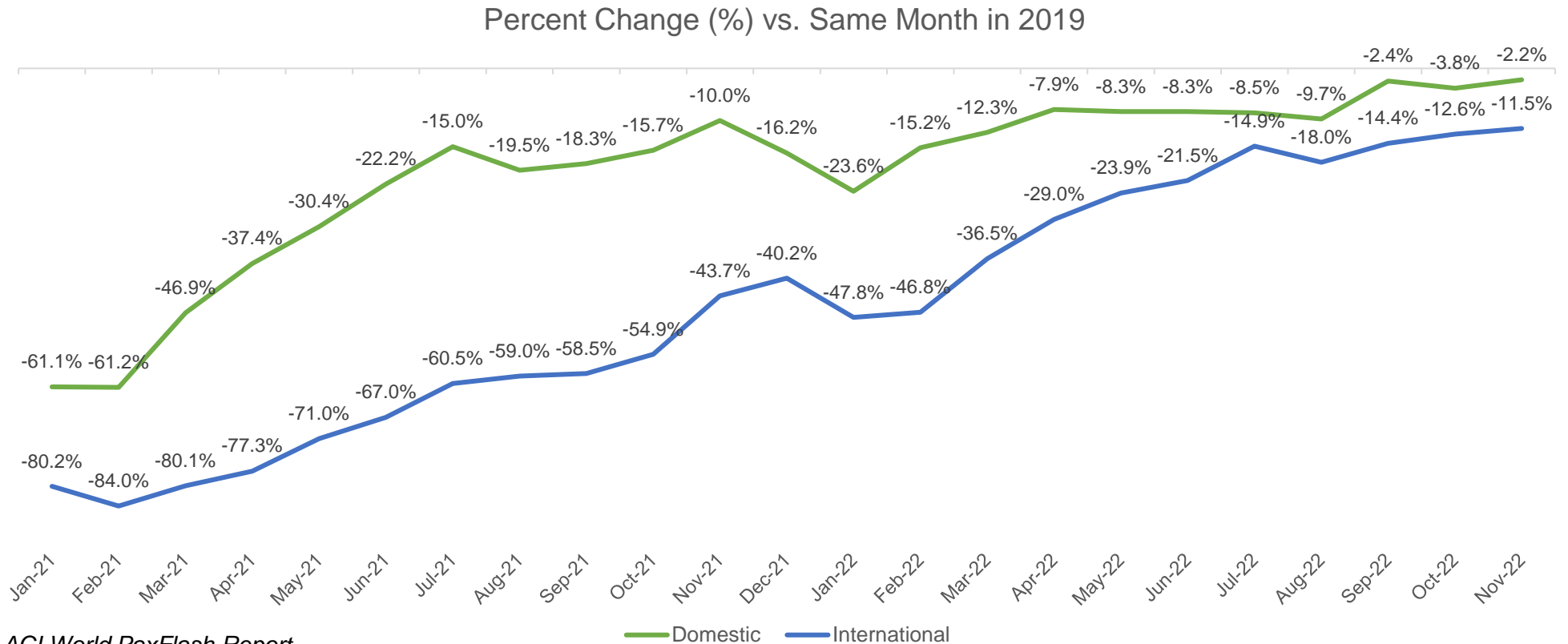
Source: ACI World Annual Traffic Report and PaxFlash Report.

- North America includes U.S. and Canada
- † Estimate from ACI World
- * Forecast from ACI World

Domestic Traffic Recovers Faster, While International Traffic is Picking Up in North America

➔ From January to November 2022, domestic traffic decreased by 8.8% while international traffic decreased by 24.5% compared to 2019 levels.

➔ Domestic traffic increased its share from 84% of the total traffic pre-pandemic to 97% in May 2020, and returned to 85% in 2022.

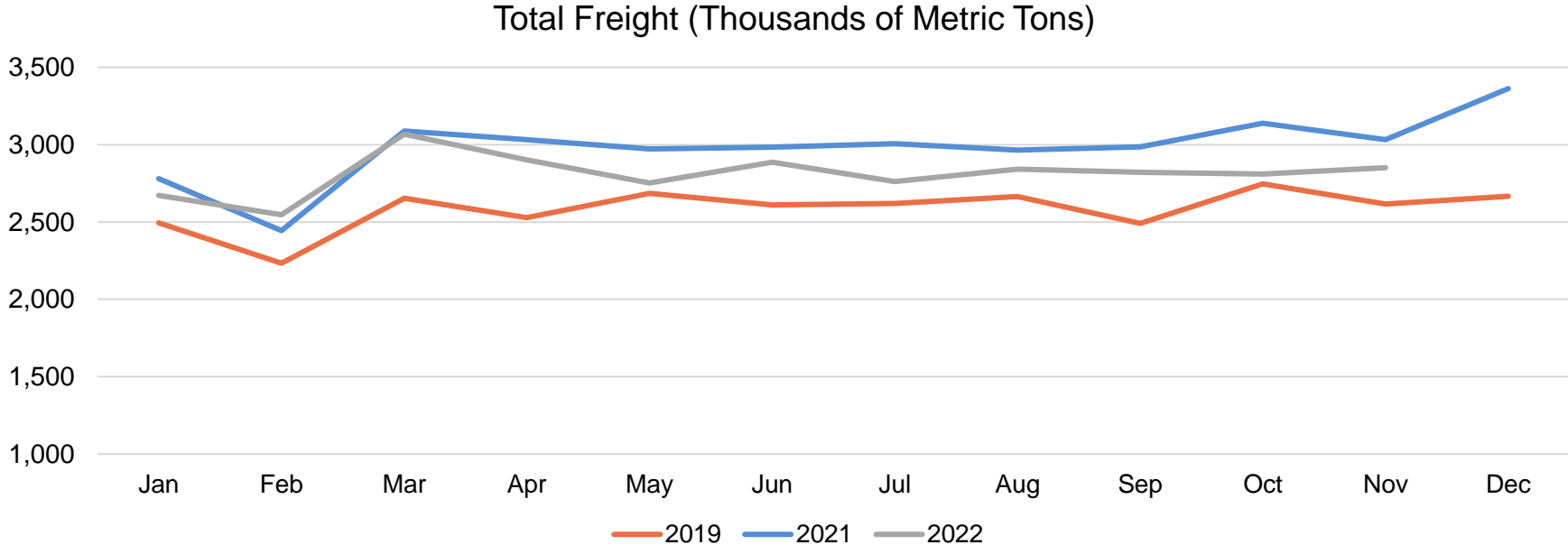


Source: ACI World PaxFlash Report.

2022 North America Cargo Traffic Decreased Slightly from 2021, Still Outperformed 2019



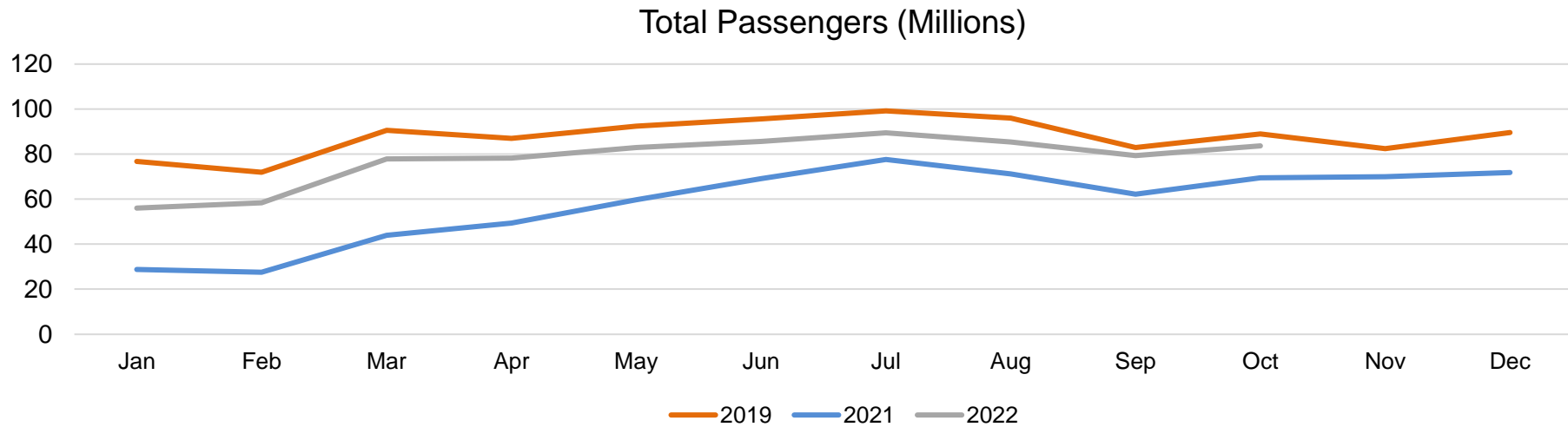
	2019 Jan-Nov	2021 Jan-Nov	2022 Jan-Nov	Change Over 2019	Change Over 2021
Total Freight	27.54 million	31.48 million	30.45 million	10.6 %	- 3.3 %
Domestic Freight	16.64 million	18.75 million	18.04 million	8.4 %	- 3.8 %
International Freight	10.34 million	12.12 million	11.80 million	14.1 %	- 2.6 %



Note: Total Freight ≠ Domestic Freight + International Freight due to some airports reporting only total freight without breakdown.
 Source: ACI World FreightFlash Reports.

U.S. Air Traffic Recovered Gradually

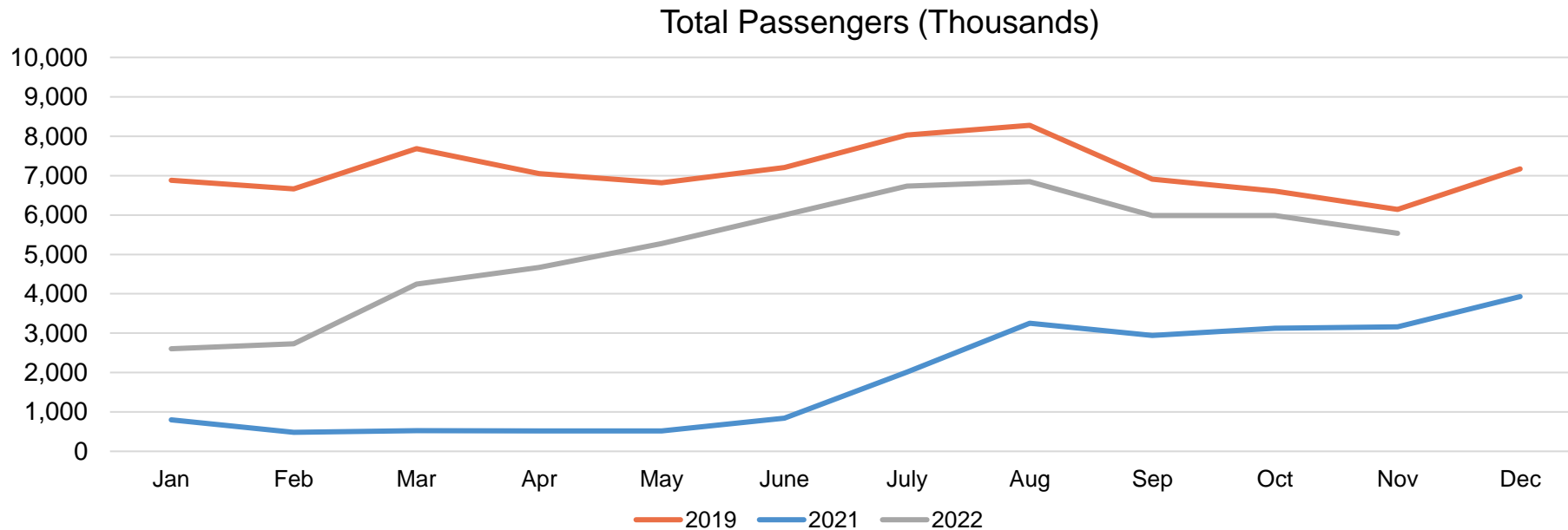
	2019 Jan-Oct	2021 Jan-Oct	2022 Jan-Oct	Change Over 2019	Change Over 2021
Total Passengers	881 million	559 million	777 million	- 12 %	+ 39 %
Domestic Passengers	677 million	487 million	624 million	- 8 %	+ 28 %
International Passengers	204 million	72 million	153 million	- 25 %	+ 112 %
Flights	8.6 million	6.2 million	7.3 million	- 15 %	+ 17 %
Available Seat Miles	1,573 million	932 million	1,290 million	- 18 %	+ 38 %
Avg. Load Factor	84.4 %	72.0 %	82.5 %	- 1.9 %	+ 10.5 %
Avg. Flight Stage Length	841 miles	845 miles	866 miles	+ 3.0 %	+ 2.4 %



Source: BTS T-100 Segment data, 1/31/2023.

Canadian Air Traffic Is Picking Up

	2019 Jan-Nov	2021 Jan-Nov	2022 Jan-Nov	Change Over 2019	Change Over 2021
Total Passengers	78.3 million	18.2 million	56.6 million	- 28 %	+ 211 %
Available Seat Miles	155.5 billion	39.4 billion	115.8 billion	- 26 %	+ 194 %
Avg. Load Factor	84.4 %	62.9 %	79.8 %	- 4.6 %	+ 16.9 %

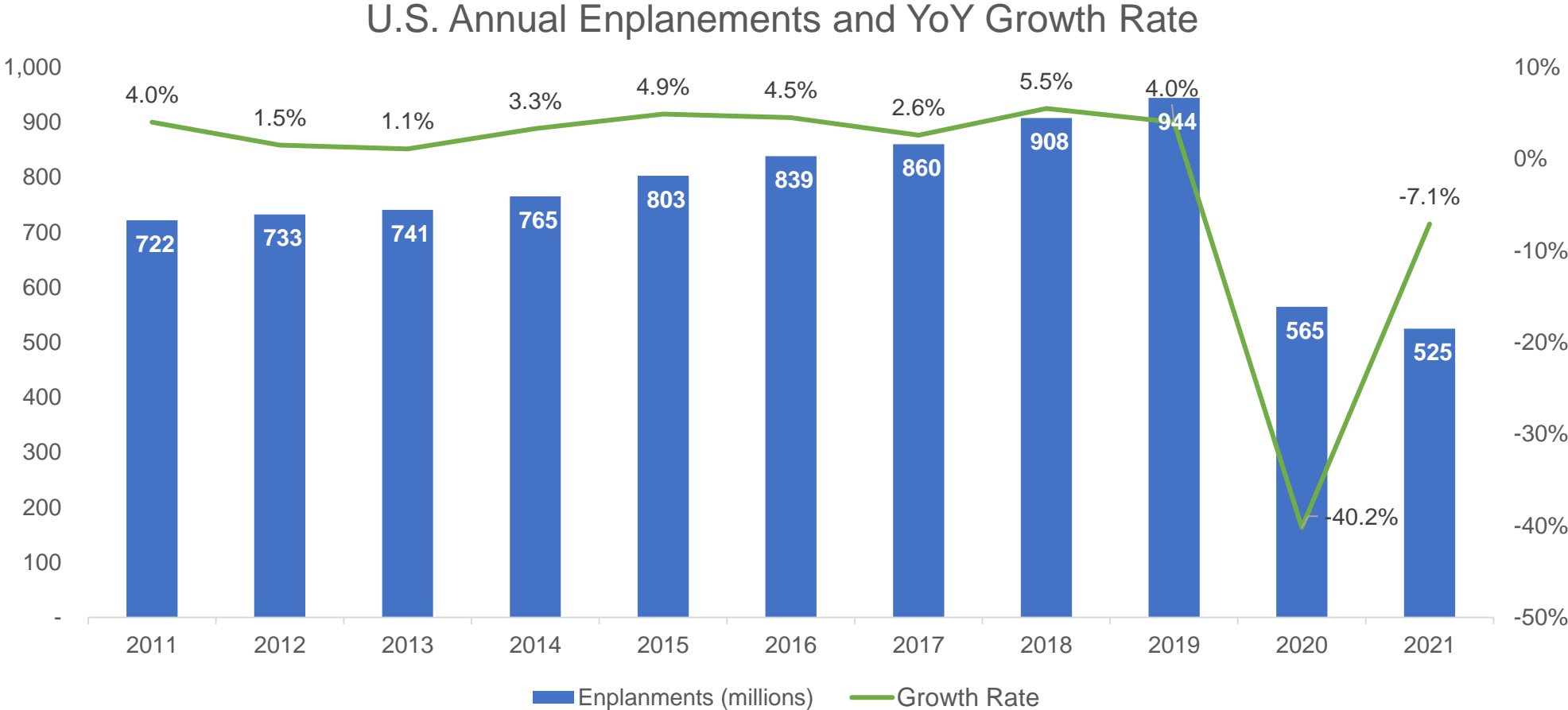


Source: Statistics Canada, for major Canadian airlines, 1/31/2023.

U.S. Airports' Debt Burden Is Manageable But not Sustainable, PFC Capacity May Be Exhausted

- Before the COVID-19 pandemic, U.S. airports started to spend more on capital projects to accommodate the increasing traffic. Annual capital expenditures doubled from 2011 to 2019, to meet the increasing traffic needs.
- \$77.3 billion in new money was issued from 2011-2022 to fund capital expenditures, with a sharp increasing trend. Airports issued \$11.4 billion new money in 2019 and \$13.6 billion in 2022. With the industry still recovering from the COVID-19 pandemic, continuing to take on additional debt is not sustainable.
- Total debt outstanding increased by 32% from 2011 to 2021 and is expected to increase by a significant percent in 2022 and 2023 due to the new money debt issuance in 2022. According to Bloomberg, U.S. airports total debt outstanding was \$151 billion as of February 15, 2023, another 36% increase from 2021.
- Gross debt service increased accordingly but decreased in 2021, due to debt restructuring and grant reliefs, and is expected to increase in 2022 and 2023.
- From 2011 to 2021, the PFC amount used to offset debt service accounted for an average of 82% of total PFC collection. With exhausting PFC capacity, no more relief grants, airports may be more cautious to take on additional debt.

U.S. Annual Enplanements Increased by 3.5% Annually from 2011 to 2019

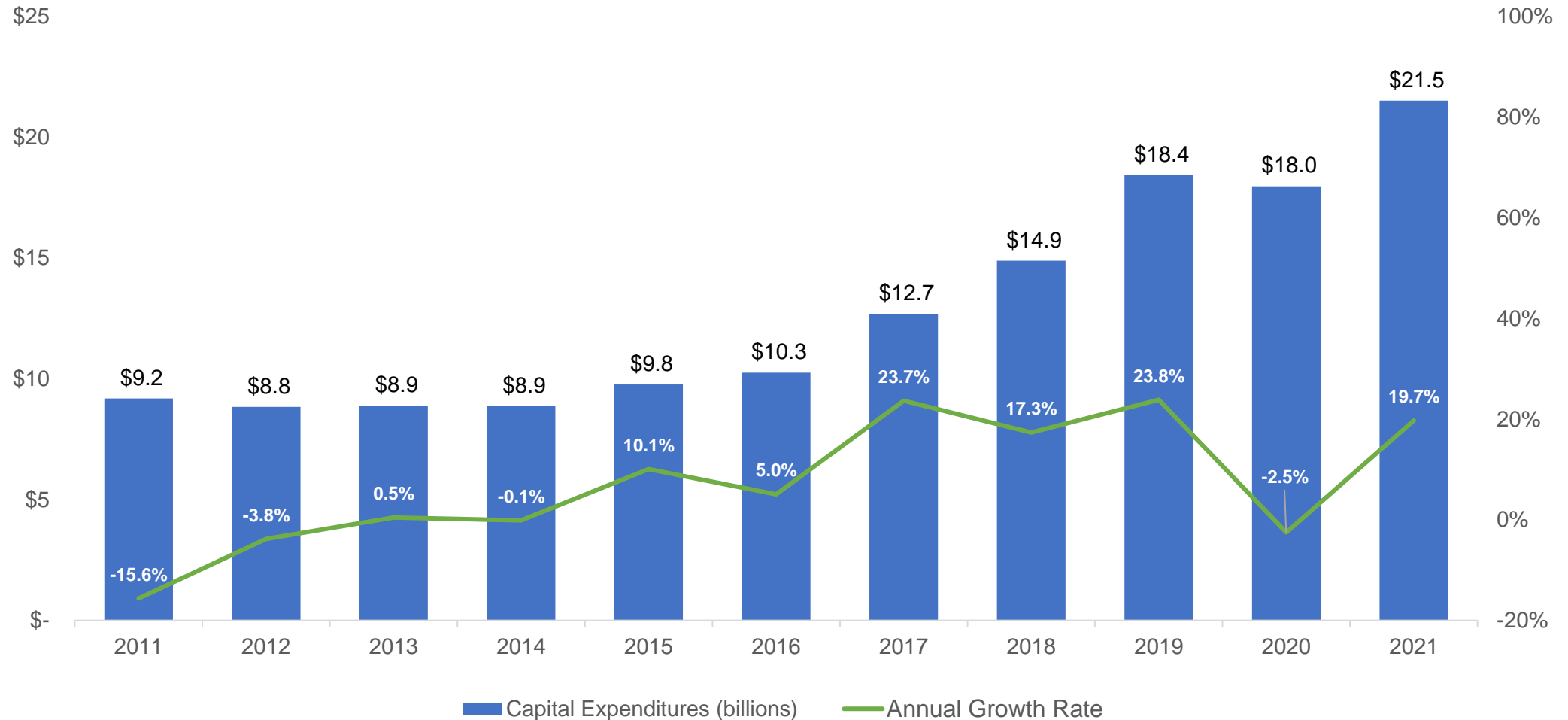


Source: Respective fiscal year data from FAA Form 5100-127.

U.S. Airports Increased Expenditures on Capital Projects Significantly in Recent Years to Meet Traffic Needs



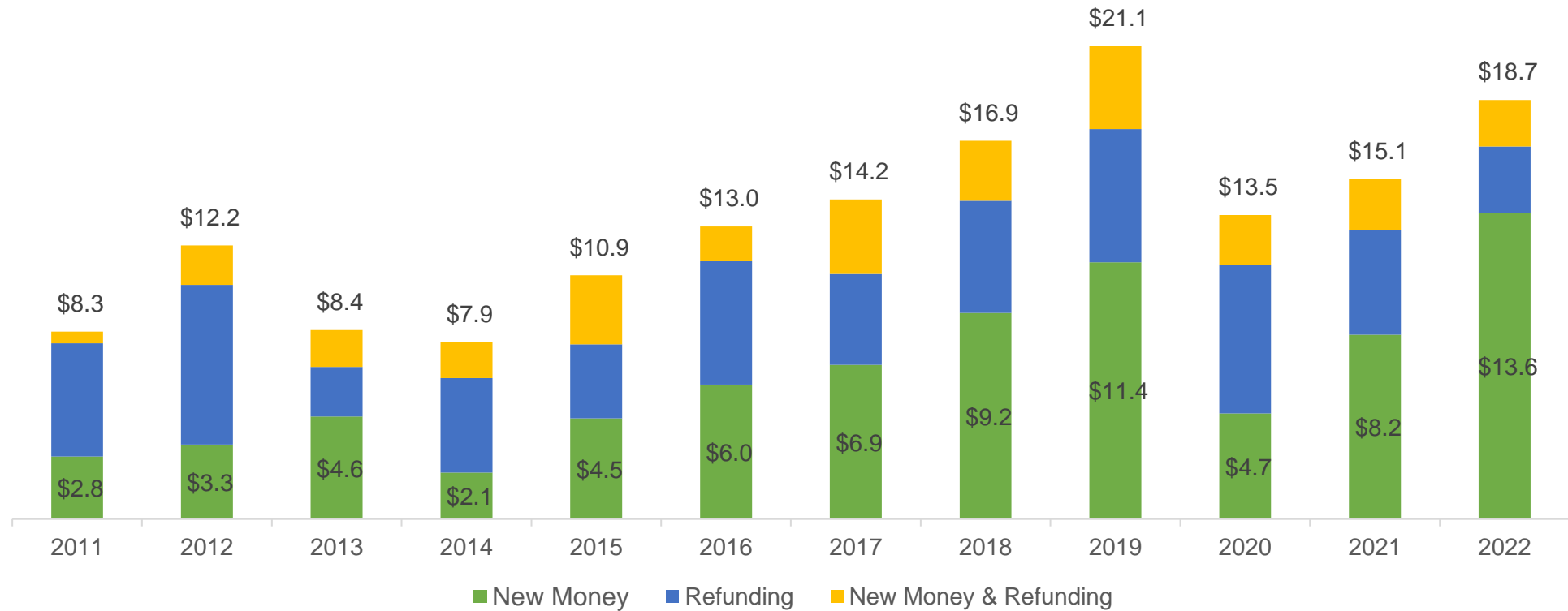
U.S. Airports Capital Expenditures and Annual Growth Rate



Source: Respective fiscal year data from FAA Form 5100-127.

New Debt Was Issued To Fund Capital Expenditures With an Accelerating Trend

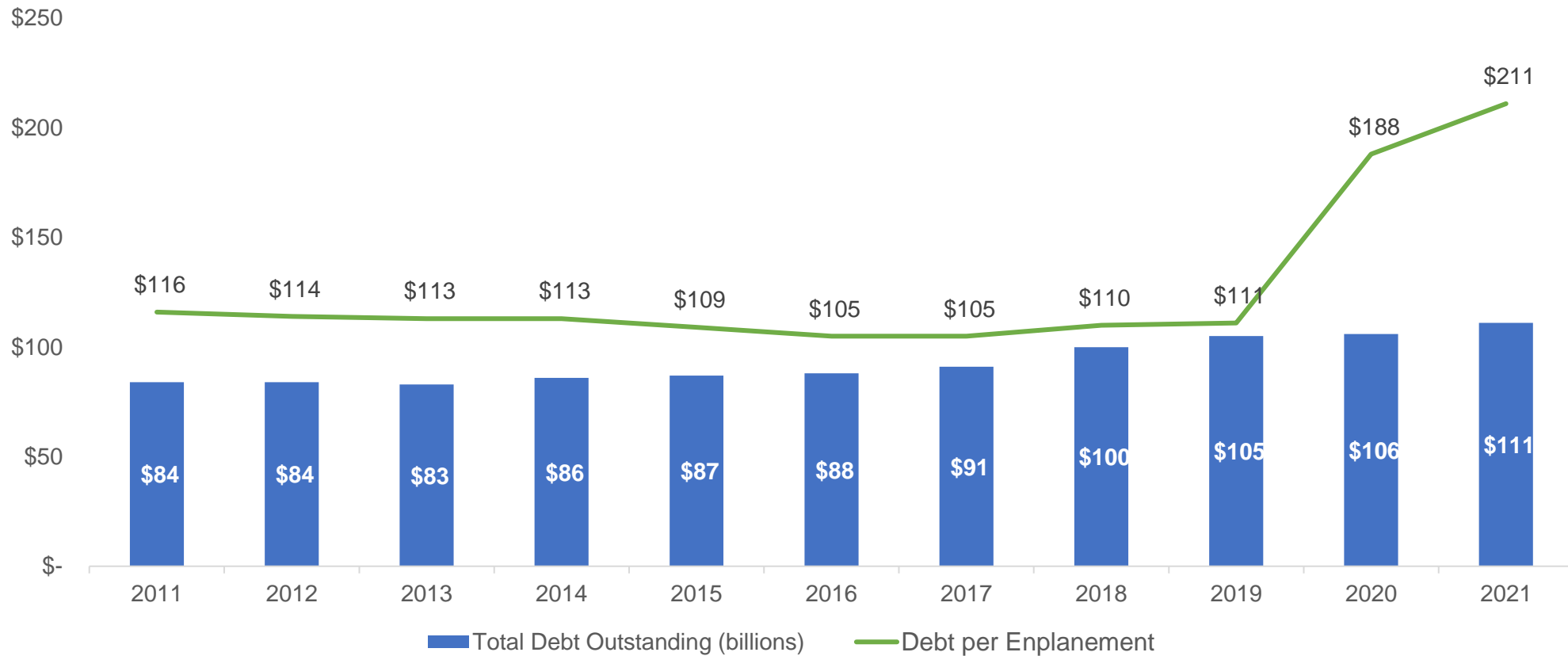
U.S. Airports Debt Issuance (billions)



Source: U.S. Municipal New Issues by calendar year.

Debt Outstanding Increased by 32% from 2011 to 2021

U.S. Airports Debt Outstanding and Debt per Enplanement

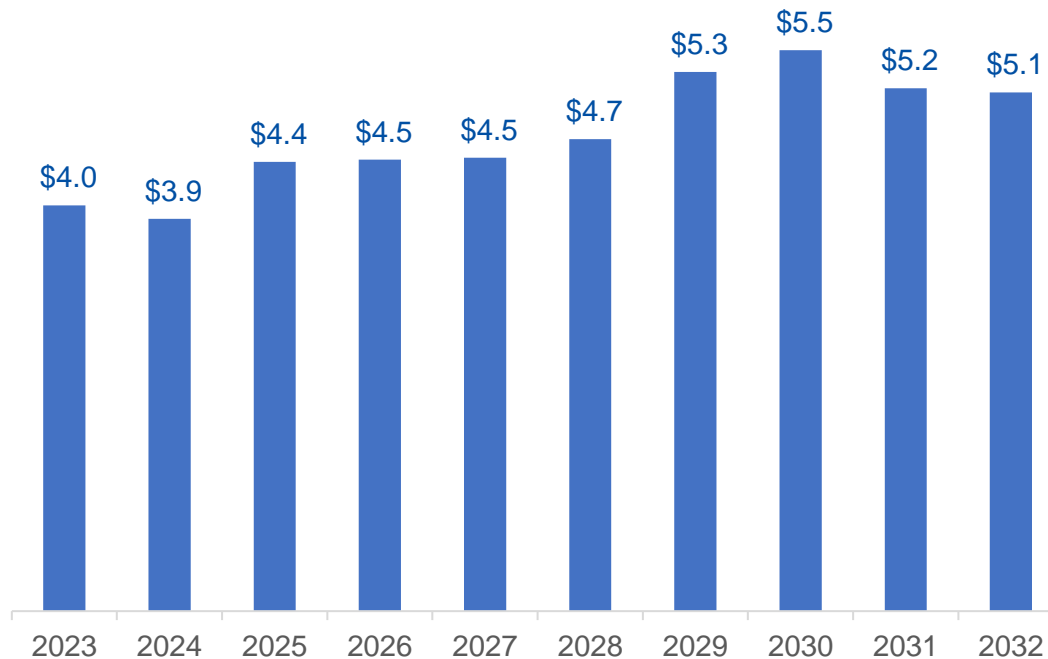


Source: Respective fiscal year data from FAA Form 5100-127. Note: Debt per enplanement = Total Debt Outstanding / Total Annual Enplanement

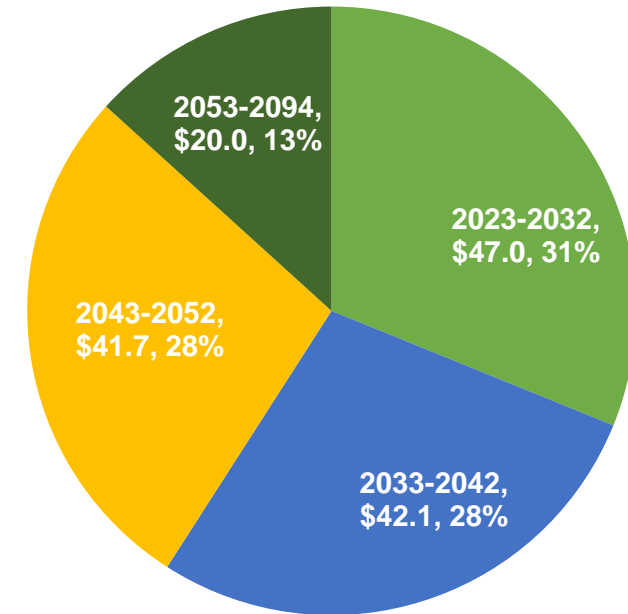
Debt Outstanding Increased Another 36% Since 2021

- As of February 15, 2023, U.S. airports have \$151 billion debt outstanding, a 36% increase from the \$111 billion as of FY2021 year end.
- An average of \$4.4 billion debt will need to be paid down annually in the next 30 years even if airports do not take on additional debt.

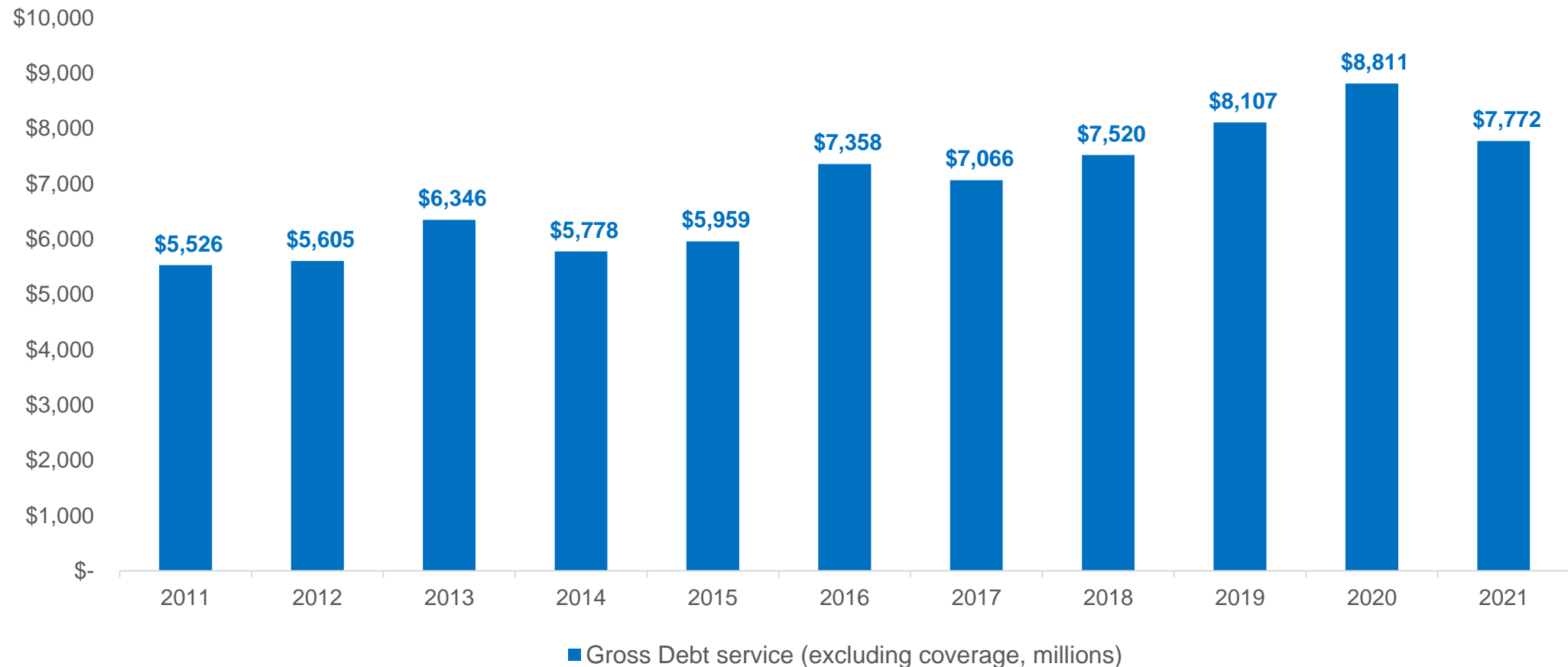
Annual Debt Maturing (In Billions) – Next Ten Years



Debt Maturing (In Billions)

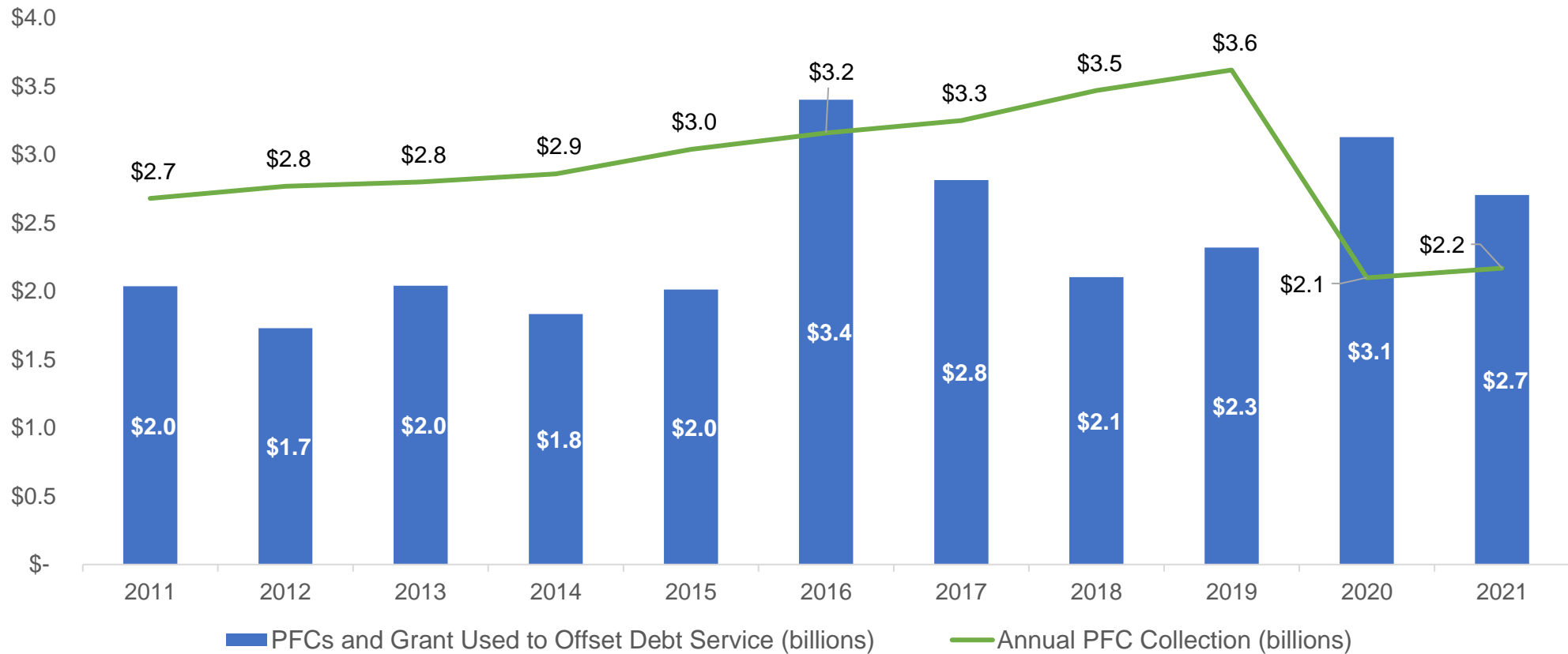


Annual Debt Service Increased by 59% from 2011 to 2020, and Decreased by 12% in 2021 Due to Restructuring and Relief Grants



Source: Respective fiscal year data from FAA Form 5100-127.

An Average of 82% of Annual PFC Collection Was Used to Offset Debt Service, Leaving Limited Capacity to Fund New Projects



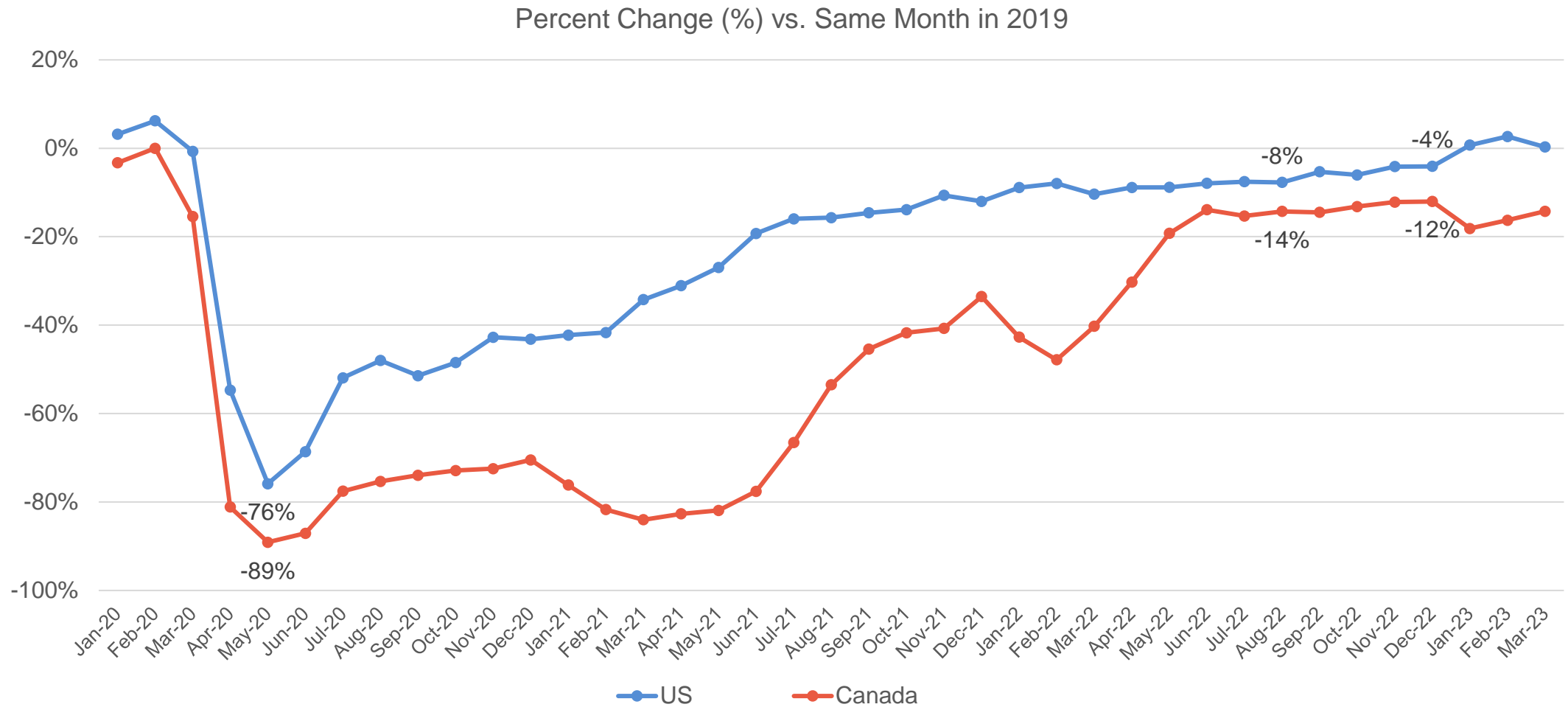
Source: Respective fiscal year data from FAA Form 5100-127.
The amounts used for debt service include a minor portion from grants.

Planned Airline Capacity Demonstrates Continuing Recovery



- Compared to the same quarter in 2019 (pre-COVID-19), the flight capacity of U.S. airports decreased by 15.5% in Q4 of 2022, and is projected to decrease by 10.2% in Q1 of 2023. Canadian airports experienced a more significant decrease of 22.1% in Q4 of 2022, and are projected to decrease by 28.1% in Q1 of 2023.
- Seat capacity of U.S. airports decreased by 4.8% in Q4 of 2022, comparing to 2019, but is projected to increase by 1.2% in Q1 of 2023, the first time over 2019 since the COVID-19 pandemic. Canadian airports still experienced a more significant decrease of 12.5% in Q4 of 2022, and are projected to decrease by 16.2% in Q1 of 2023.
- U.S. airports experienced decreases of 4.0% and 10.0%, respectively, in domestic and international seat capacity in Q4 of 2022 (compared to the quarter in 2019). While international seat capacity is projected to continue the decrease by 8.4% in Q1 of 2023, domestic seat capacity is projected to increase by 2.6% in Q1 of 2023.
- Canadian airports experienced a more significant decrease in seat capacity of both markets, but with international market recovered to a similar level of domestic market. Compared to 2019, the decreases were 12.9% in domestic seats and 11.9% in international seats in Q4 of 2022 and are projected to decrease by 18.4% and 13.3% in Q1 of 2023.

Seat Capacity at U.S. Airports Recovered to 2019 Level in Q1 2023, Canadian Airports Catching Up

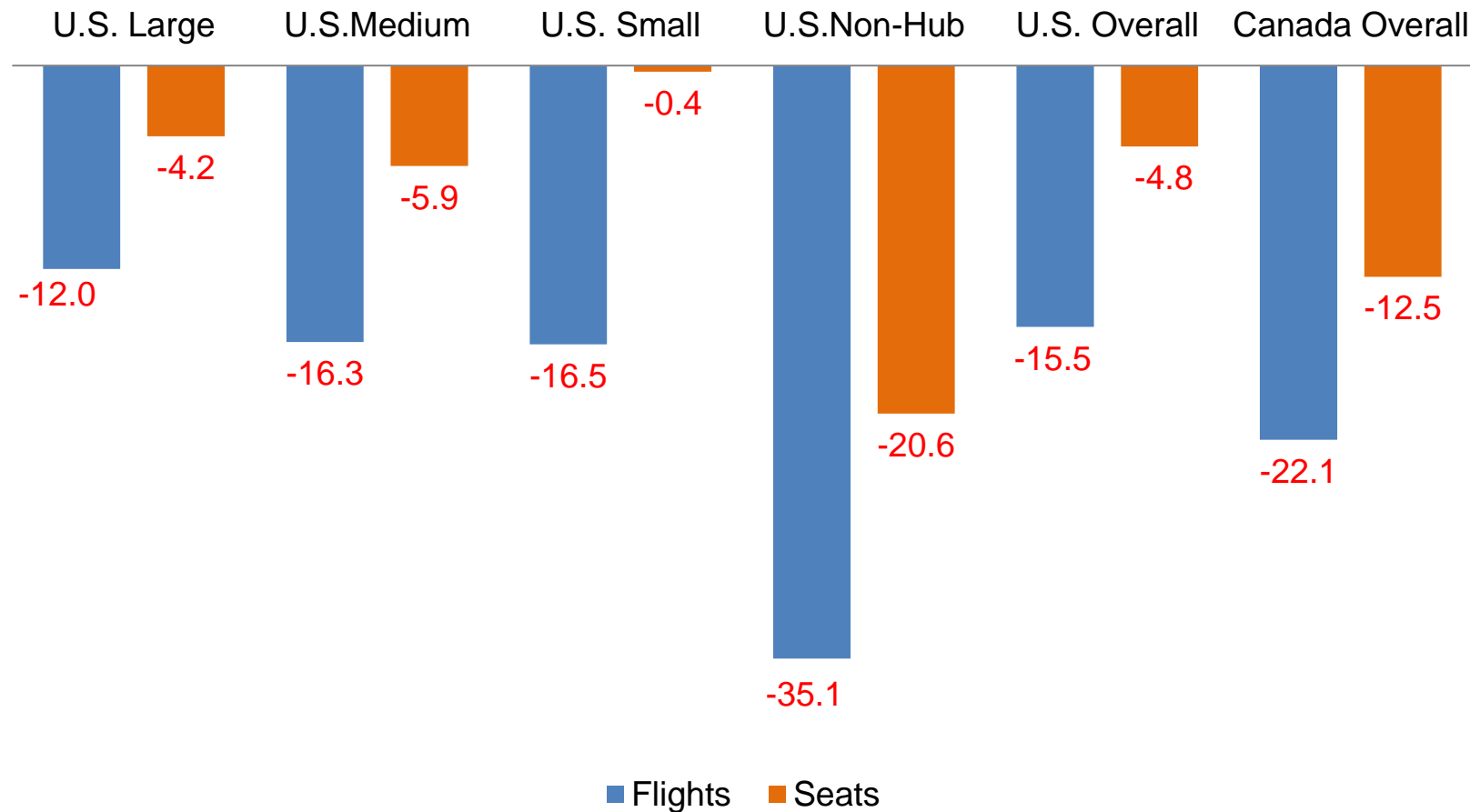


Source: Diio Mi 2/1/23.

Change in Airline Capacity at North America Airports – Q4 Flights and Seats (Q4 2019 vs. Q4 2022)

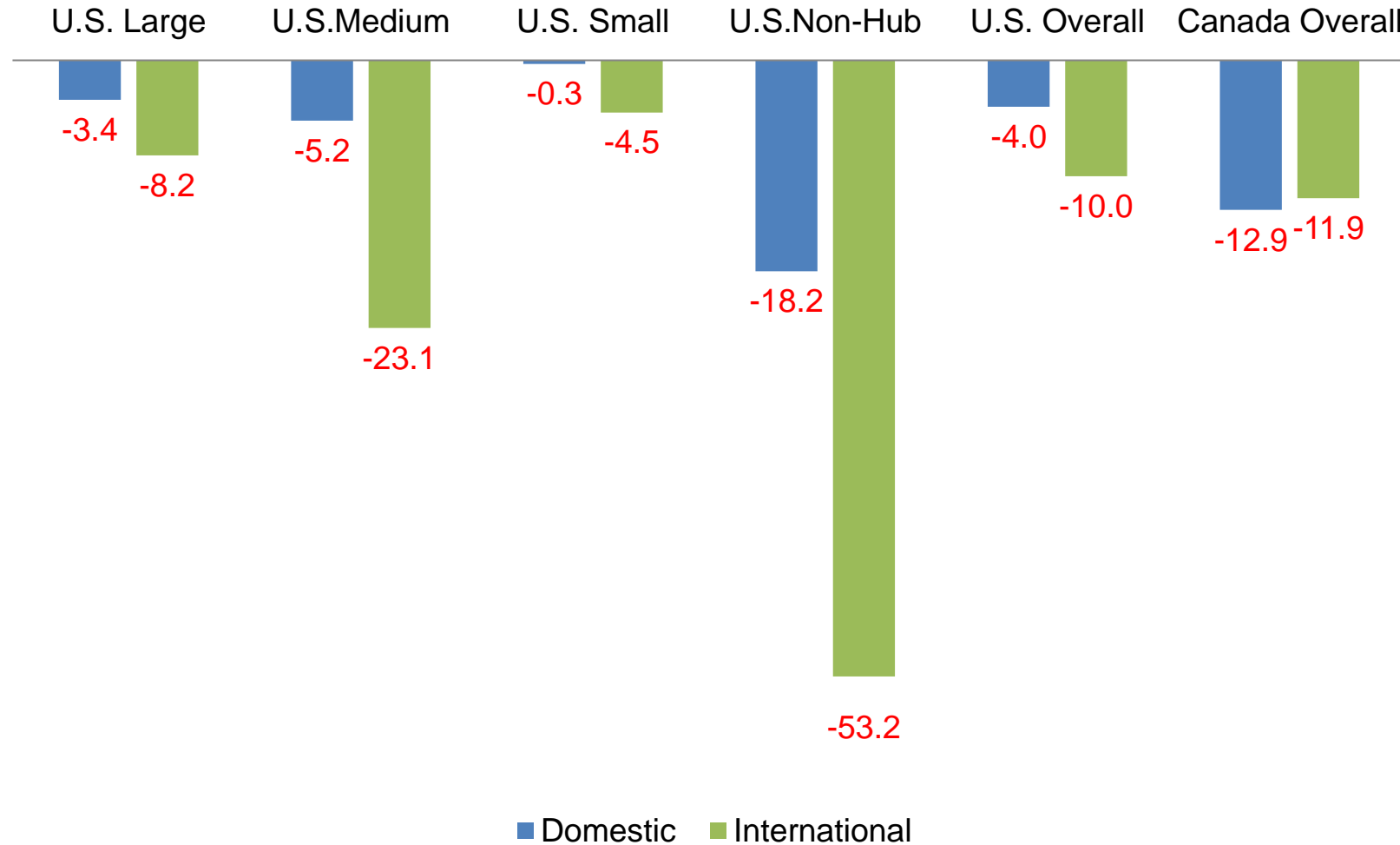


→ Even though U.S. small and non-hub airports reported double-digit decreases in scheduled flights, scheduled seats at these airports reported much less decline due to airlines’ up-gauging strategy with flying larger aircraft.



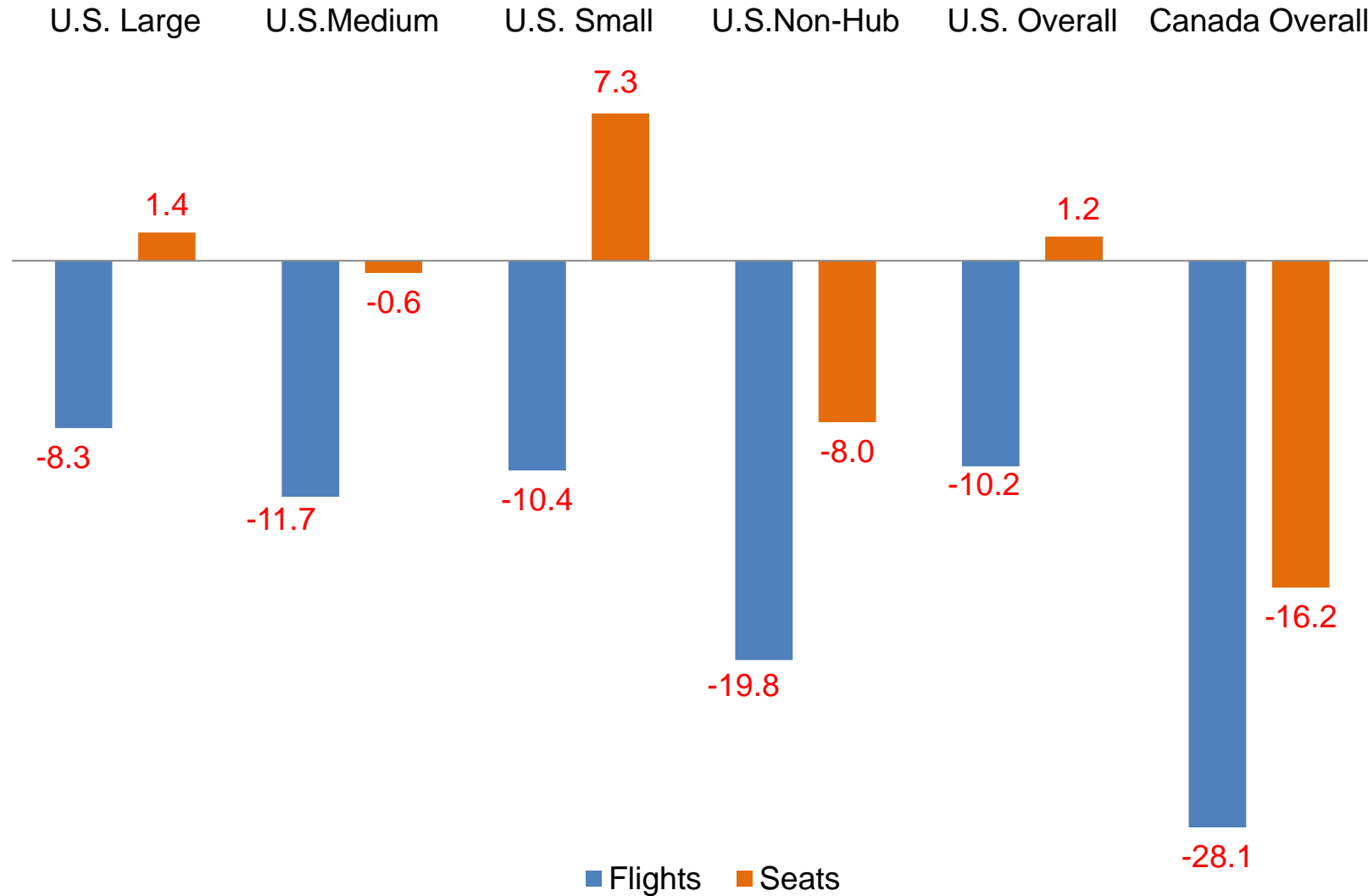
Source: Diio Mi, 2/1/2023.
Based on FAA 2021 hub size category

Change in Airline Seat Capacity at North America Airports – Q4 Domestic and International (Q4 2019 vs. Q4 2022)



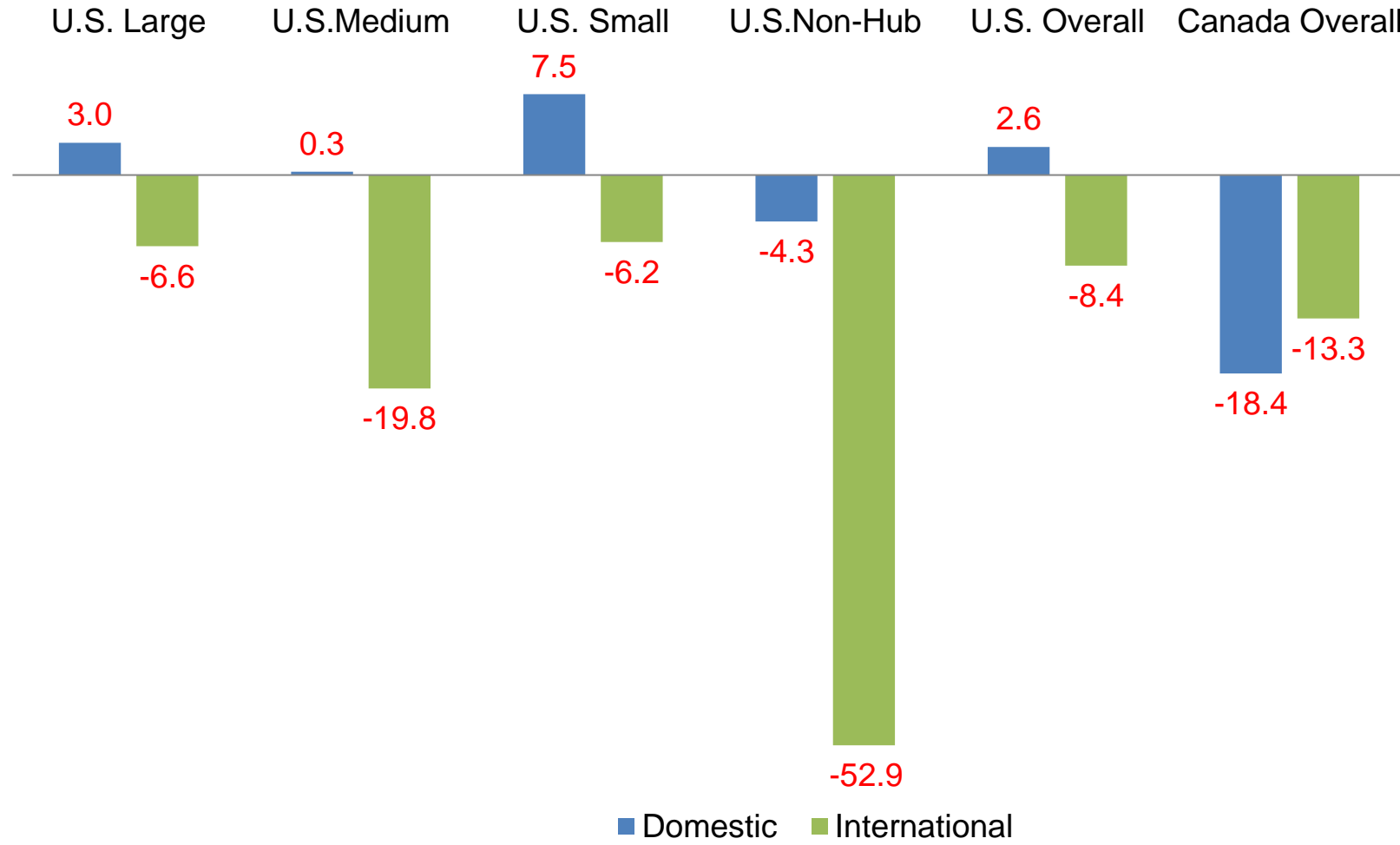
Source: Diio Mi, 2/1/2023.
Based on FAA 2021 hub size category

Change in Airline Capacity at North America Airports – Q1 Flights and Seats (Q1 2019 vs. Q1 2023)



Source: Diio Mi, 2/1/2023.
Based on FAA 2021 hub size category

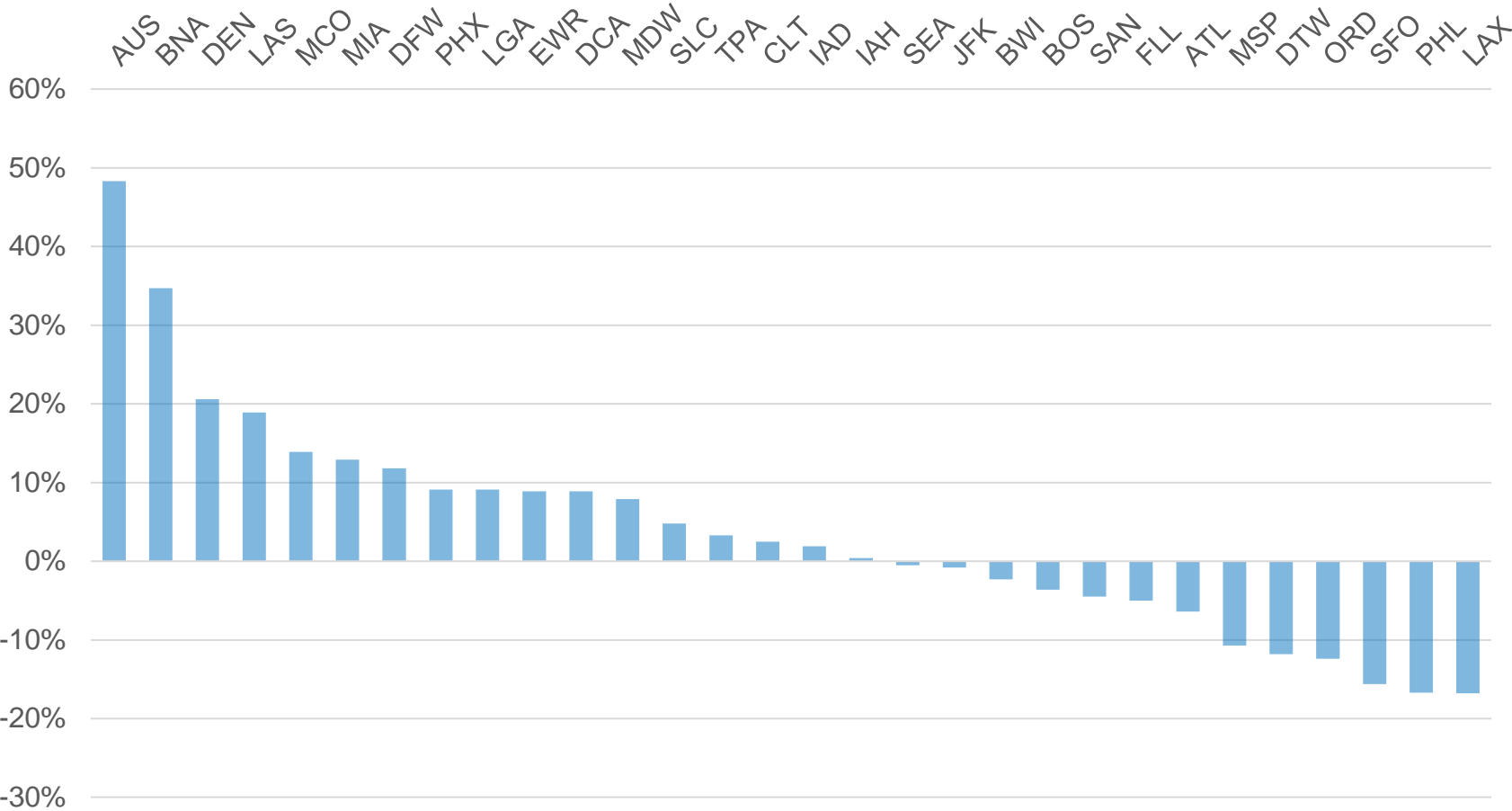
Change in Airline Seat Capacity at North America Airports – Q1 Domestic and International (Q1 2019 vs. Q1 2023)



Source: Diio Mi, 2/1/2023.
Based on FAA 2021 hub size category

U.S. Large Hub Airports Seat Capacity Change (%) in Q1

(Q1 2019 vs. Q1 2023)



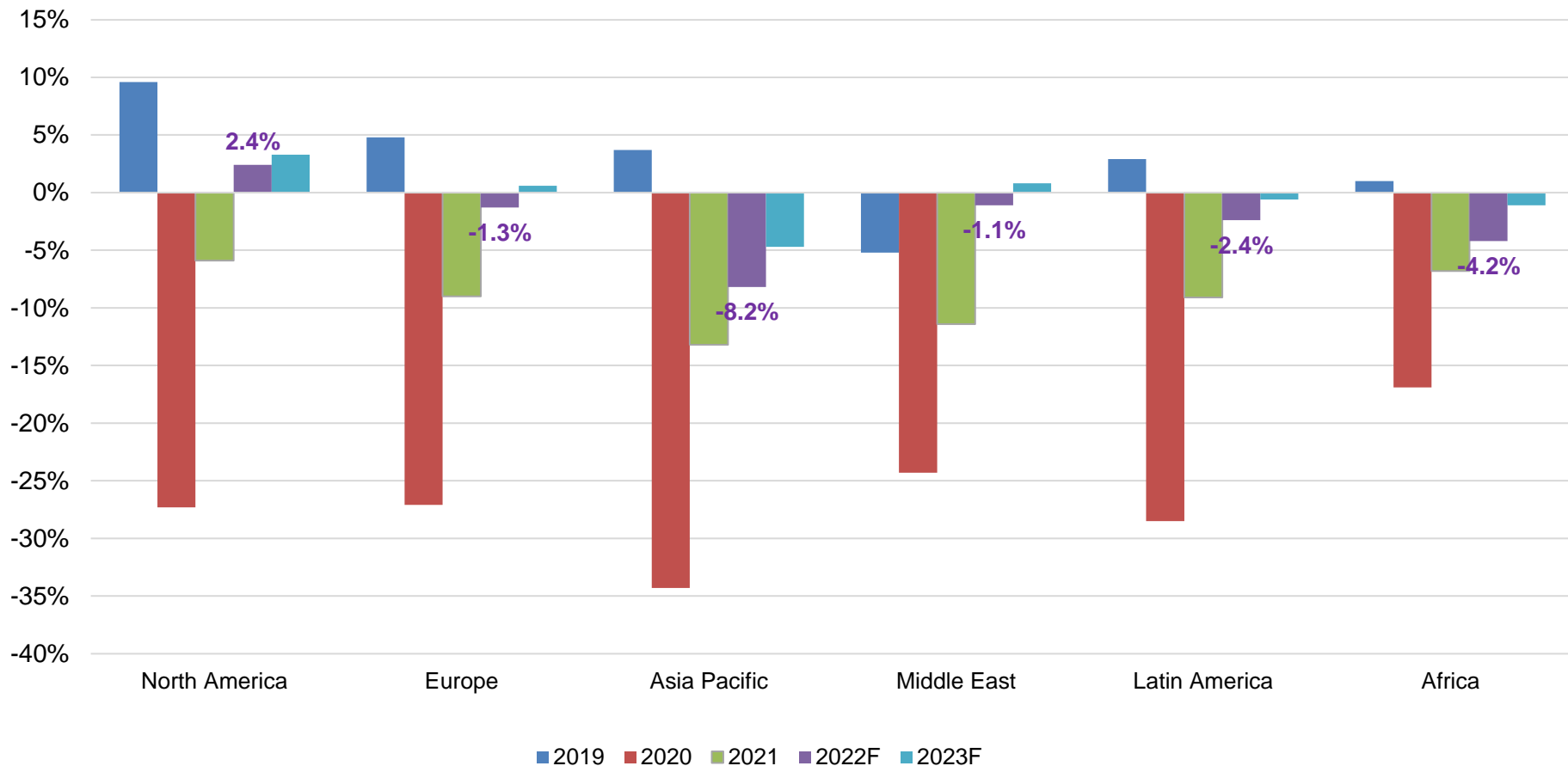
Source: Diio Mi, 2/1/2023.
Based on FAA 2021 hub size category

Airline Capacity and Financial Review

- IATA forecasted global airline industry to have a -1.3% operating margin in 2022, up from -8.9% in 2021. Airlines in North America are forecasted to have a positive operating margin in 2022, supported by the large U.S. domestic market and the opening of additional markets worldwide.
- Both U.S. and Canadian carriers kept similar level of seats capacity in Q1 2023 compared to Q4 2022.
- With increased air travel demand but shortage of labor, North America air carriers cancelled and delayed more flights in the summer and year end of 2022.
- In Q3 2022, U.S. domestic airfare increased by 13% from Q3 of 2021 after adjusting inflation.
- Majority of major U.S. carriers have returned to profitability in 2022 financial results. Domestic leisure travel continues to lead the recovery with international travel demand accelerating.

IATA Forecasted North America Airlines to Have a Positive Operating Margin in 2022

Airlines Operating Margin by Region



Source: IATA December 2022 Industry Statistics

Operating margin measures how much profit a company makes on a dollar of sales after paying for variable costs of production, such as wages and raw materials, but before paying interest or tax. It is calculated by dividing a company's operating income by its net sales.

North American Airline Capacity

Change in 2022 Q4 and 2023 Q1 Scheduled Seats (vs. 2019)

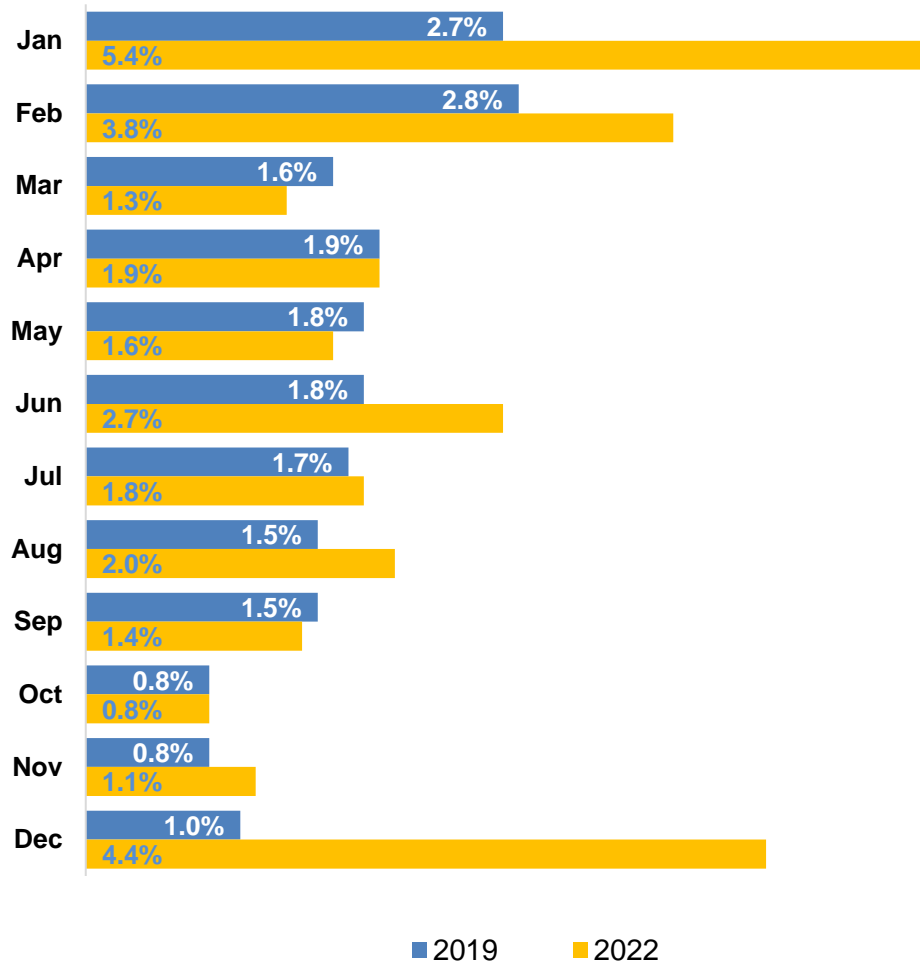
Scheduled seat capacity change (%) versus 2019 levels



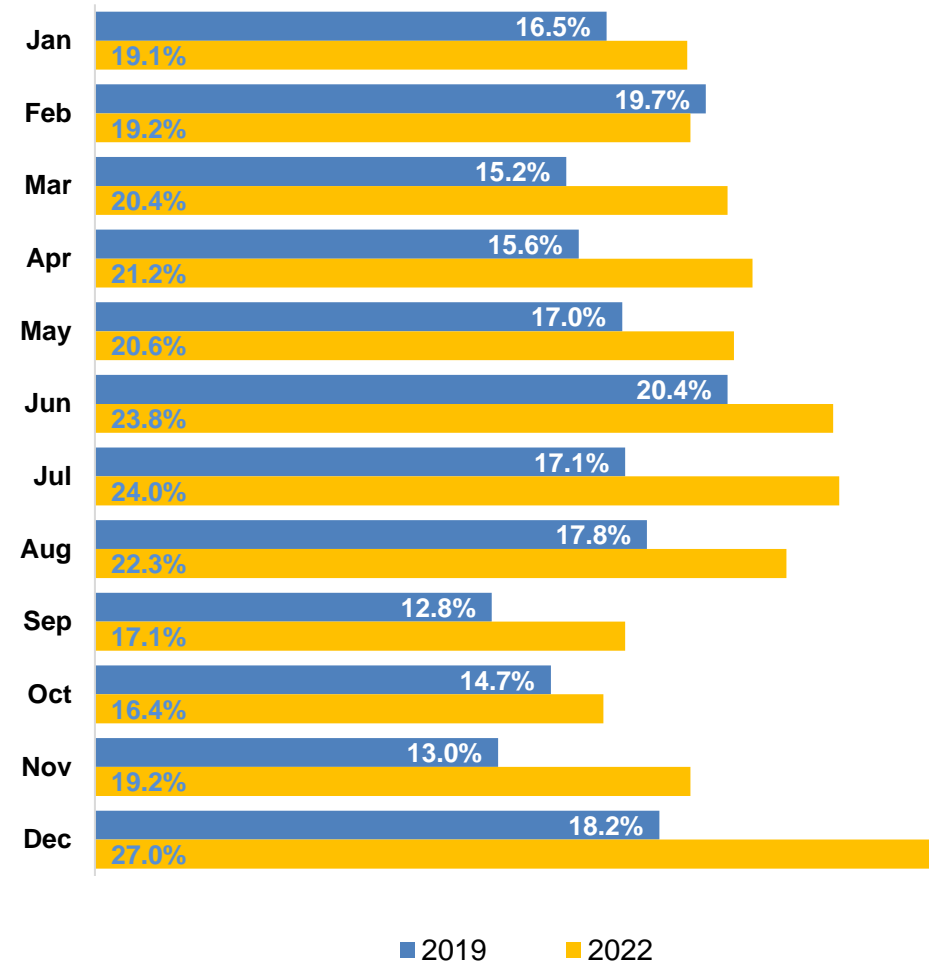
Source: Diio Mi, 2/1/2023.

U.S. Carriers Had More Cancellations and Delays in 2022

U.S. Air Carriers Flight Cancellations



U.S. Air Carriers Flight Delays

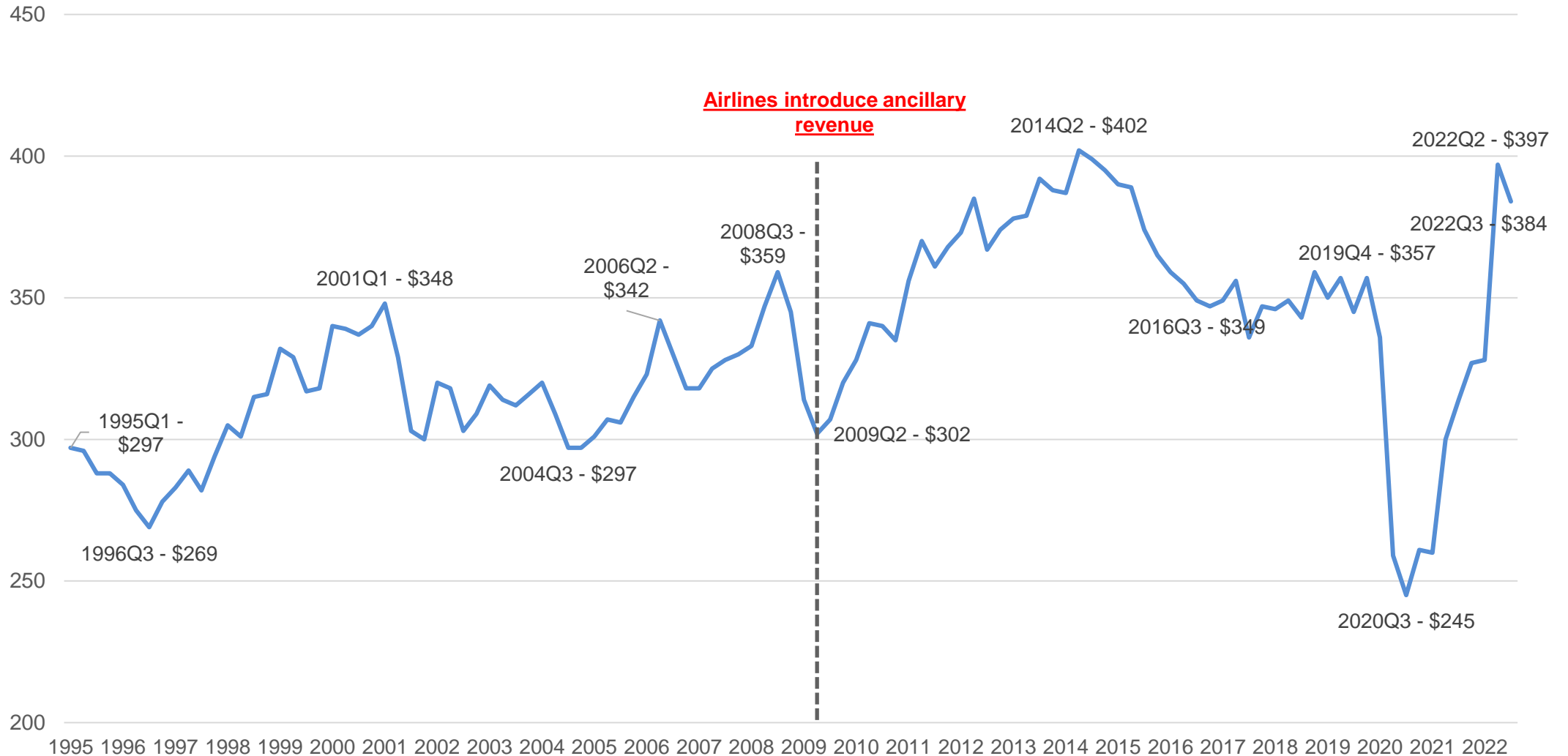


Source: FlightAware, 2/1/2023

U.S. Domestic Airfare Increased by 13 Percent in Q3 2022 from Q3 2021 After Adjusting for Inflation



US Average Domestic Airfare (Current \$)













Source: BTS, 1/18/2023.

North American Airline Finances – Net Profit/Loss

2019 vs. 2021 vs. 2022



Carrier	2019	2021*	2022
 Alaska	\$ 798 million	\$ 478 million / \$ 914 million	\$ 58 million
 allegiant	\$ 232 million	\$ 152 million / \$ 202 million	\$ 2.5 million
 American Airlines	\$ 1,686 million	- \$ 1,993 million / \$ 4,200 million	\$ 127 million
 DELTA	\$ 4,767 million	\$ 280 million / \$ 4,512 million	\$ 1,318 million
 HAWAIIAN AIRLINES	\$ 224 million	- \$ 145 million / \$ 321 million	- \$ 240 million
 jetBlue	\$ 569 million	- \$ 182 million / \$ 833 million	- \$ 362 million
 Southwest	\$ 2,300 million	\$ 977 million / \$ 2,960 million	\$ 539 million
 spirit <small>LESS MONEY. MORE GO.</small>	\$ 335 million	- \$ 473 million / \$ 378 million	- \$ 554 million
 UNITED	\$ 3,009 million	- \$ 1,964 million / \$ 4,000 million	\$ 737 million
 AIR CANADA	CAD 1,476 million	- CAD 3,602 million	- CAD 1,700 million

Source: Airlines' Quarterly Results Releases

* 2021 has net profit/loss on the left, and federal grant amount on the right

Special Thanks



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