



Airlines for America[®]

We Connect the World

U.S. Airline Industry Recovery and Outlook

John P. Heimlich, Vice President & Chief Economist
Bioeconomy Hawaii Forum 2020
October 30, 2020

<https://www.airlines.org/dataset/impact-of-covid19-data-updates/>

Airlines for America (A4A) Members and Mission

Founded in 1936

A4A advocates on behalf of its members to shape crucial policies and measures that promote safety, security and a healthy U.S. airline industry. We work collaboratively with airlines, labor, Congress, the Administration and other groups to improve aviation for the traveling and shipping public.



U.S. Passenger and Cargo Airlines Facilitate the Safe and Efficient Movement of People and Goods Worldwide, 2019 Facts and Figures

Almost 750,000
direct employees



Powering
28,000 **flights**
per day across
the globe



Carrying 2.5M
passengers
per day to/from
nearly 80
countries



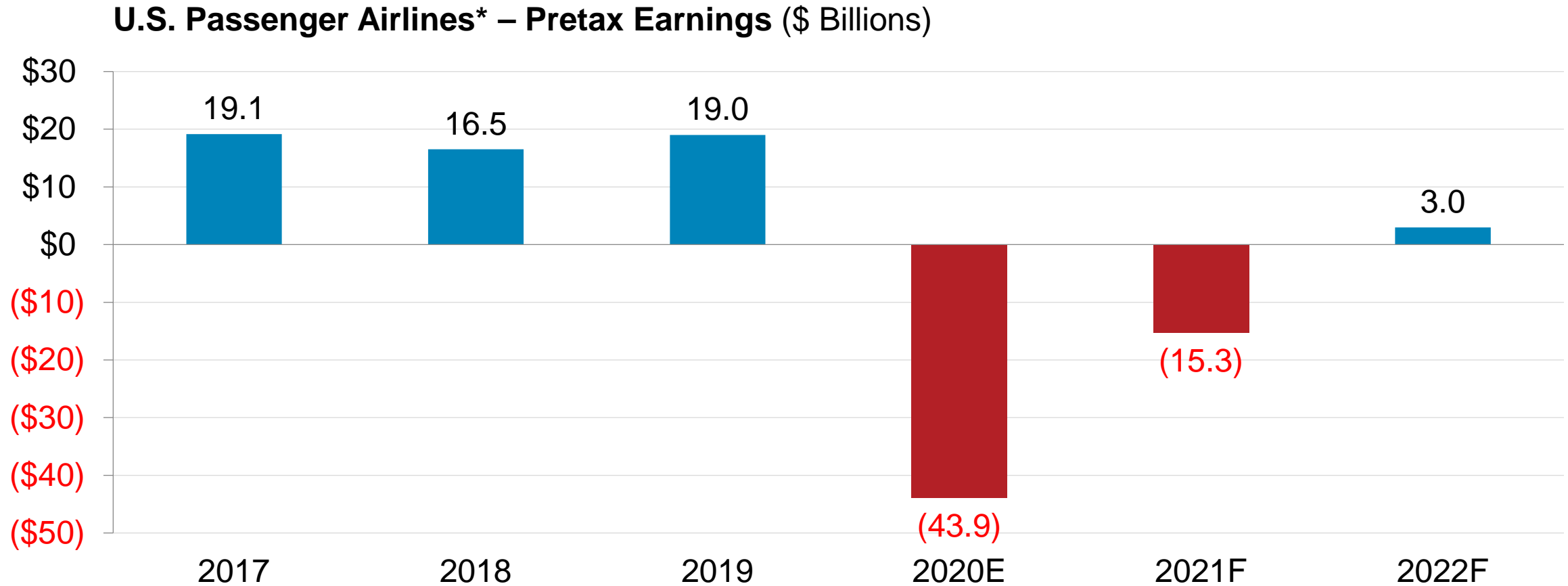
Moving 58,000
tons of **cargo**
per day to/from
more than 220
countries



Source: A4A, Bureau of Transportation Statistics, Diio by Cirium and company literature

Airline Losses From 2020-2022 Will Exceed the Sum of Earnings From 2017-2019

Projected Pretax Loss From 2017-2022 = \$1.5 Billion



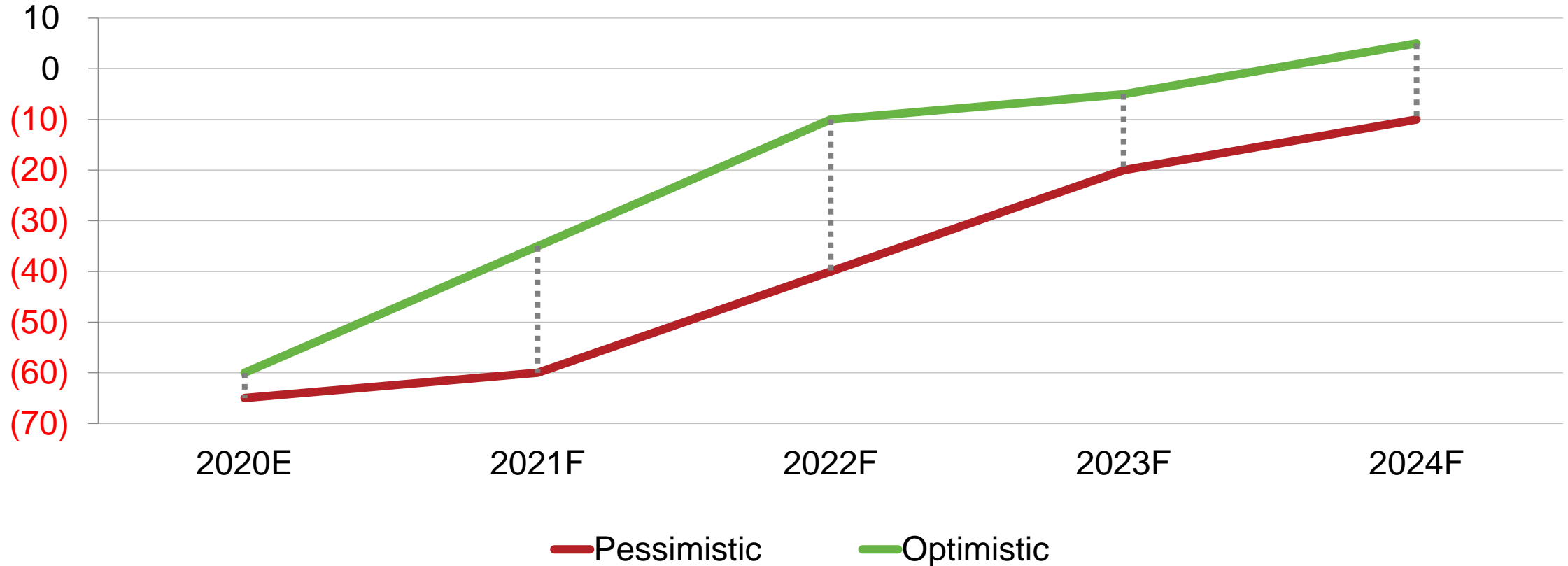
Source: A4A, equity analysts and filings of Alaska, Allegiant, American, Delta, Hawaiian, JetBlue, Southwest, Spirit and United

* Publicly traded, independently branded carriers

We Are Unlikely to See a Return to 2019 Passenger Volumes Before 2023-2024

2021-2022 Clouded by Uncertainty re: State of Pandemic, Vaccination/Therapeutics, Economy

Estimated U.S. Airline Industry Passenger Traffic Change (%) vs. 2019 Levels



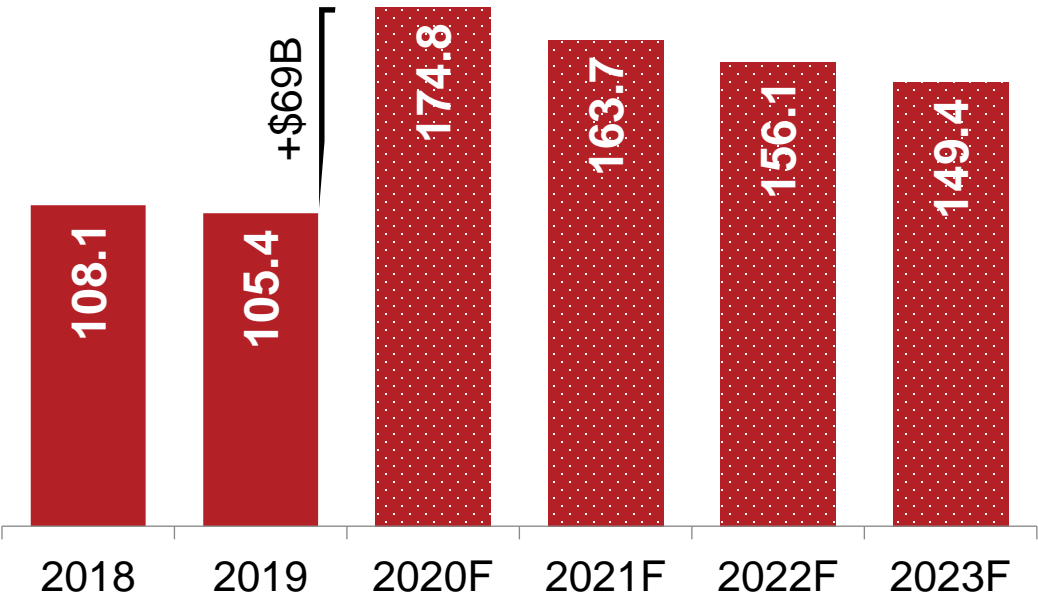
Source: A4A and various airline equity analysts

Airlines Are Coping by Taking on Billions in Debt – Up ~66% From YE2019 to YE2020

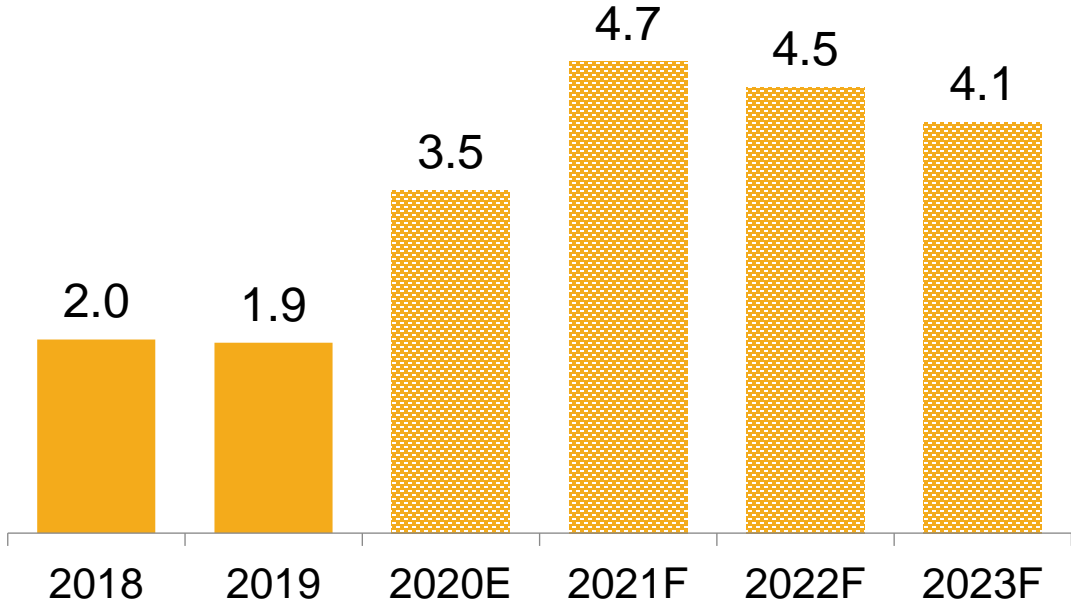
Annual Net Interest Expense Projected to Exceed \$4B Over Next Three Years

“For 2021 and beyond, we anticipate a major deleveraging cycle as **the industry will have no choice but to address its significant debt load.**” (Deutsche Bank, “Airline Industry Update,” July 1, 2020)

Year-End Total Debt (\$ Billions)



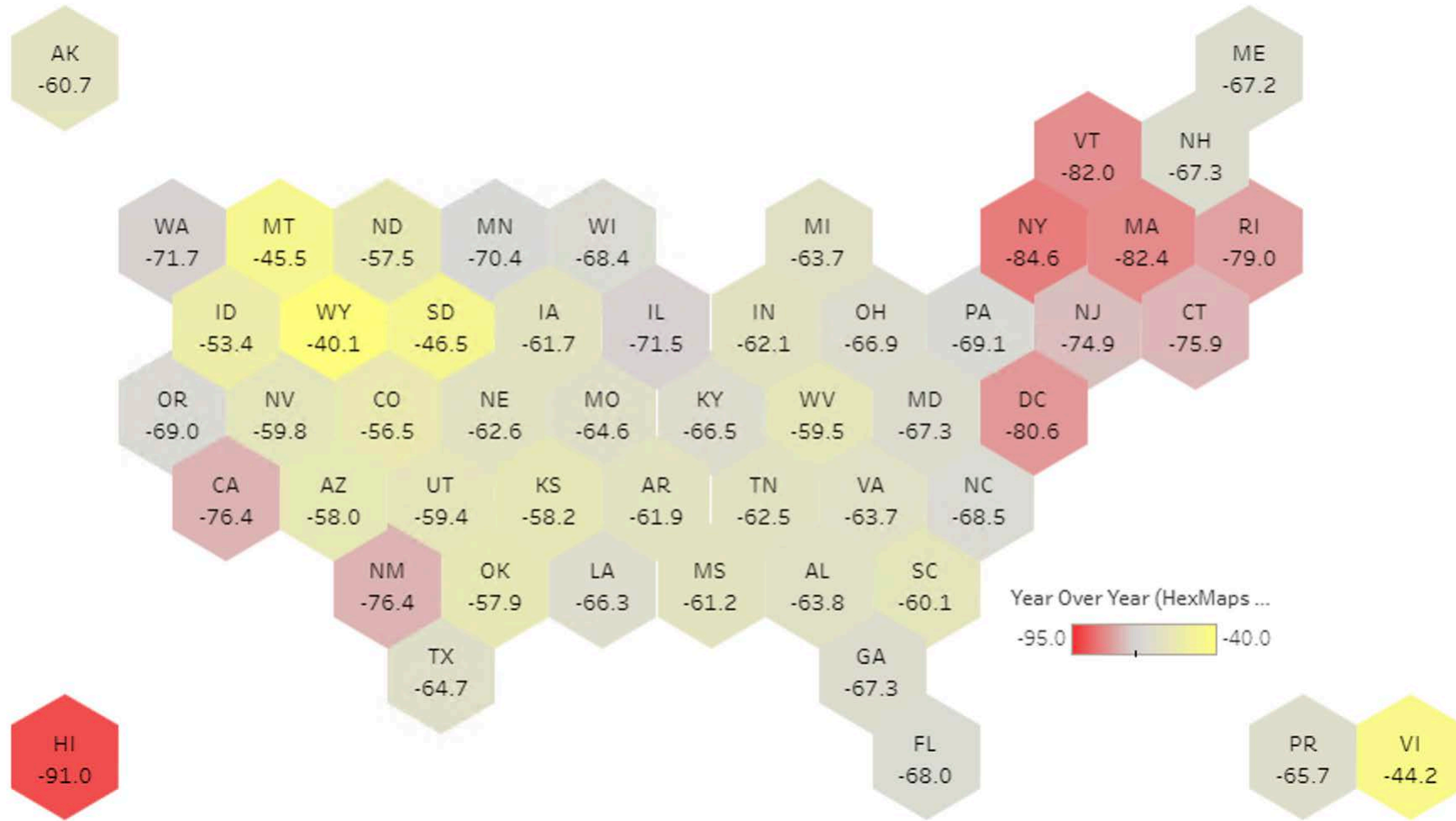
Net Interest Expense (\$ Billions)



Source: A4A, equity analysts and filings of Alaska, Allegiant, American, Delta, Hawaiian, JetBlue, Southwest, Spirit and United

TSA Checkpoint Volumes Declining Most in HA/NY/VT/MA/DC; Least in MT/WY/SD/ID/AK

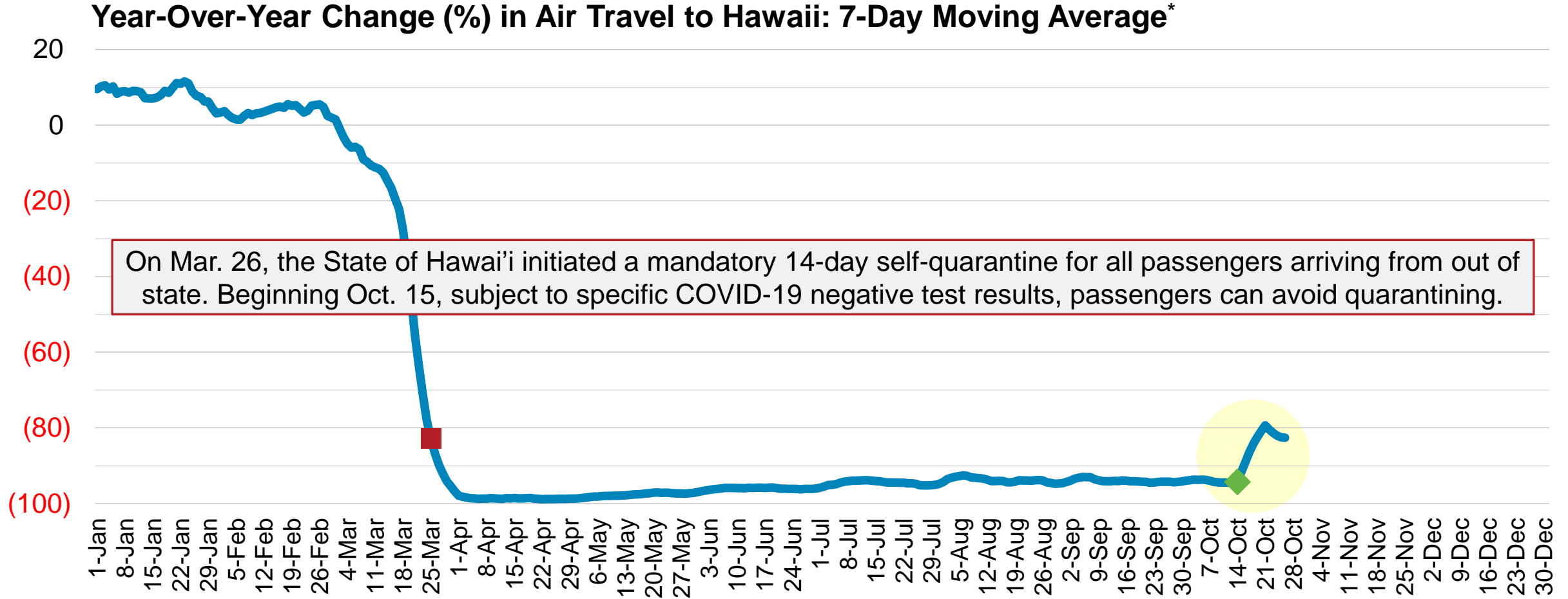
% Change YOY in Traveler Throughput by U.S. State – September 2020



Source: Transportation Security Administration

Conditional Lifting of Hawaii Inbound Quarantine on Oct. 15 Is Boosting Volumes*

Recent Days Are 75-83% Below Year-Ago Levels in Contrast to 94-95% Previously



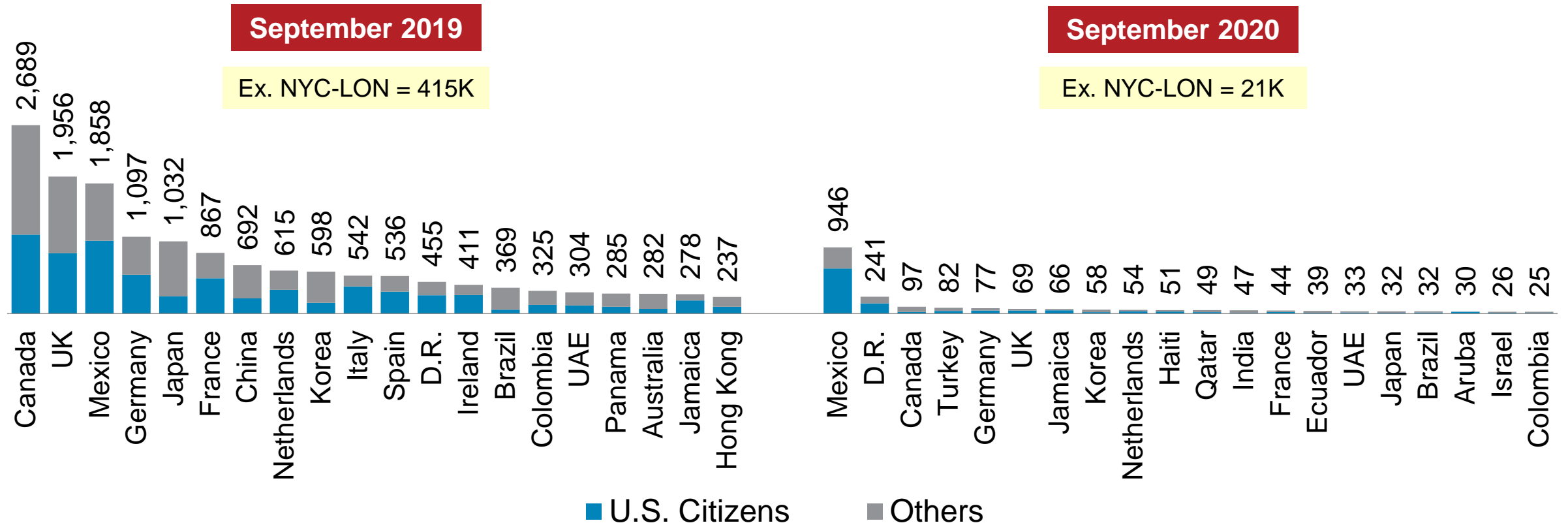
Source: Hawaii Department of Business, Economic Development & Tourism

* Daily passenger counts include returning residents, intended residents and visitors but exclude interisland and Canada passengers

In September 2020, Mexico Was the Clear Leader for U.S.-International Air Travel

U.S.-Mexico Down 49% YOY vs. U.S.-United Kingdom Down 96% YOY

Top-20 U.S. Country Pairs by Total Nonstop Air Passengers* (000)

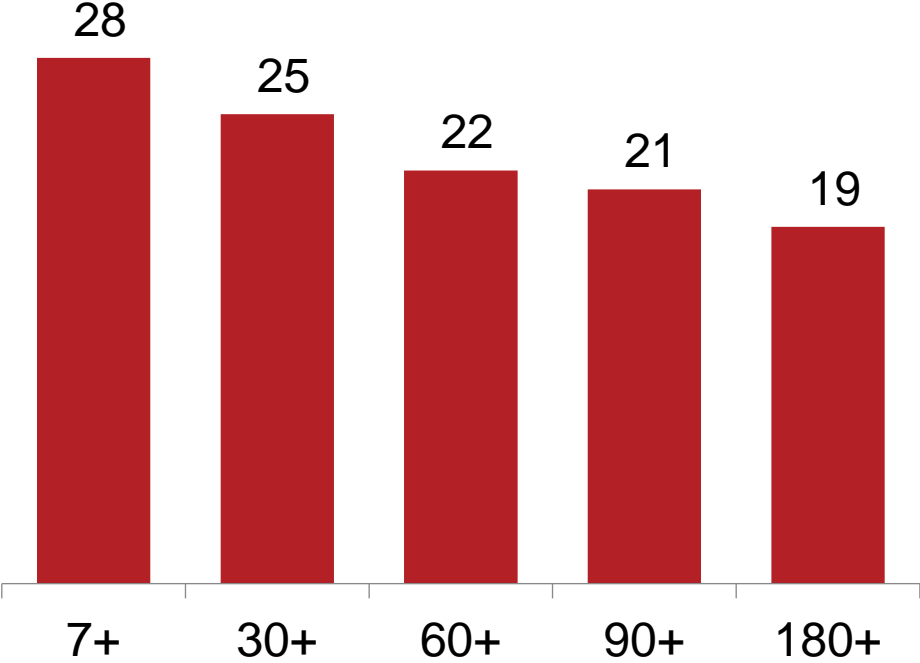


Source: U.S. Department of Commerce National Travel and Tourism Office using DHS I-92 / APIS data

* Gateway-to-gateway passengers on U.S. and foreign scheduled and charter airlines and general aviation

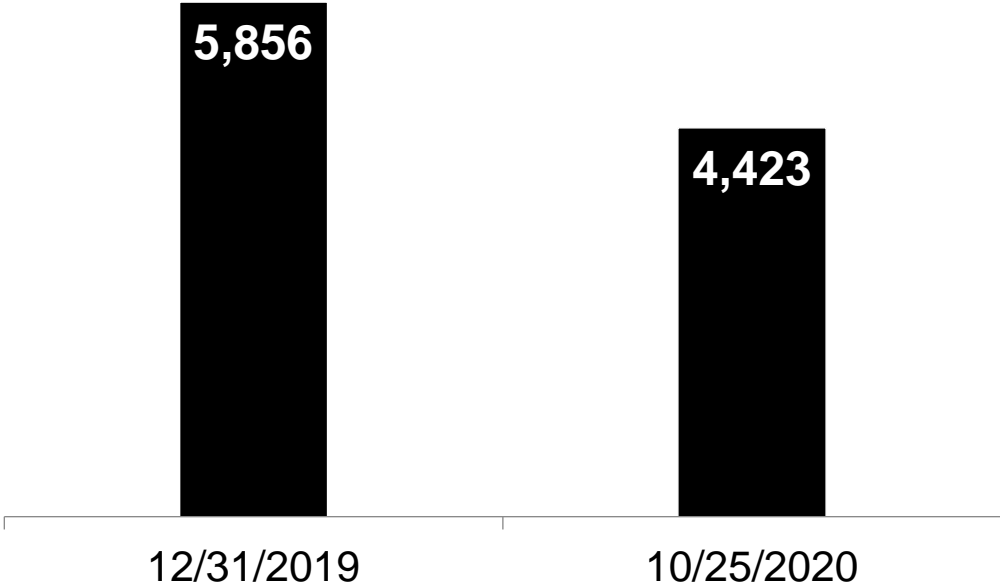
The Pandemic Means Fewer Aircraft Deployed

% of Fleet Inactive by Duration



Consecutive Days Inactive as of 10/25/2020

Number of Active Aircraft*

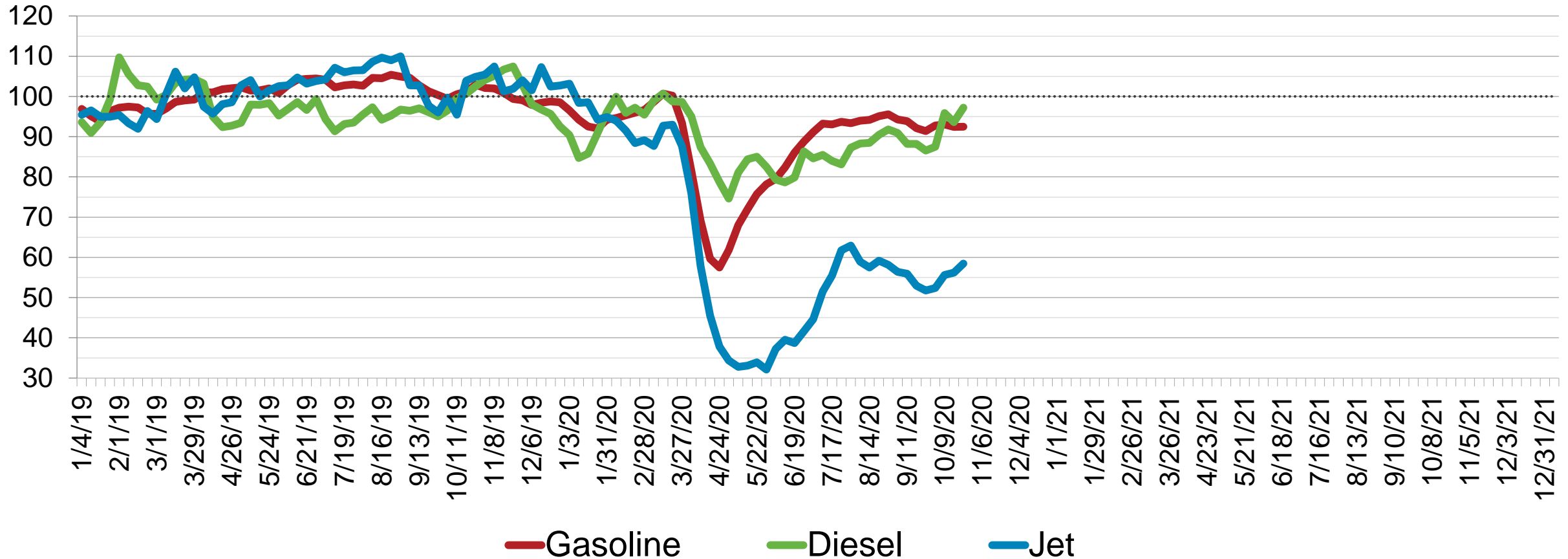


Source: Global Eagle's masFlight Aviation Platform, based on tail numbers that were active at any point in 1Q 2020.

* Active defined as operated in any of the previous seven days

Due to Sharply Reduced Demand for Air Travel, Jet-Fuel Use is Down Disproportionately

U.S.-Based Fuel Demand* (Index: 2019 Average = 100)

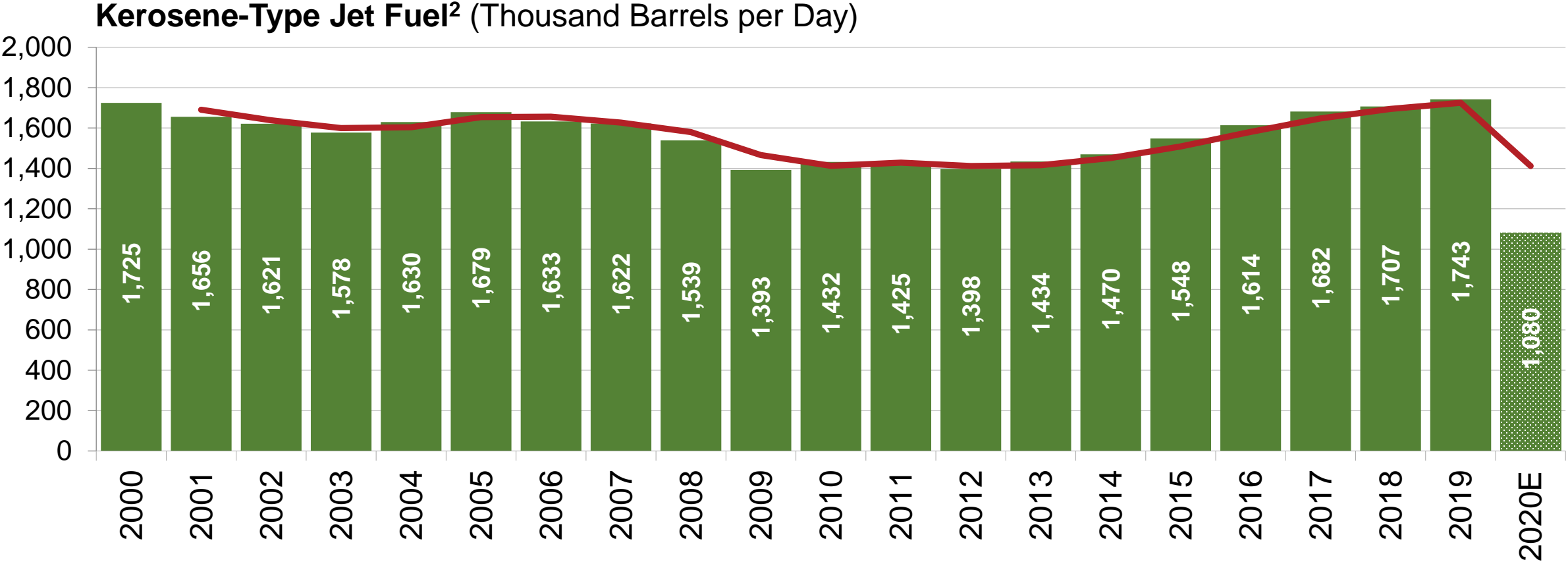


Source: Energy Information Administration

* Supplied within the United States to all users (i.e., U.S. and foreign airlines, recreational and business aviation, civilian government, military)

Total U.S.-Based Jet Fuel Demand¹ Reached All-Time High in 2019

It Took 19 Years to Return to Year 2000 Levels



¹ Jet fuel supplied within the United States to all users (i.e., U.S. and foreign airlines, recreational and business aviation, civilian government [e.g., USCG, NASA, DHS, USDA, DOJ] military)
² Approximates consumption by measuring the disappearance of these products from primary sources (i.e., refineries, natural gas processing plants, blending plants, pipelines, bulk terminals). Generally computed as: field production + renewable fuels and oxygenate plant net production + refinery and blender net production + imports + net receipts + adjustments - stock change - refinery and blender net inputs - exports.

Source: U.S. Energy Information Administration



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Nancy Young, A4A – VP Environment The U.S. Airlines' Climate Commitment and Sustainable Aviation Fuels

- Aviation Has a Strong Climate Record
- Despite the Negative Economic Impacts of COVID-19,
We Are Committed to Further Action
- The Important Role of Sustainable Aviation Fuels
- Opportunities to Grow the Hawaiian Bioeconomy
through SAF

Aviation's Strong Climate Record

» Aviation Is a Relatively Small Contributor

- Domestic U.S. commercial aviation = 2% GHGs (source: EPA)
- Worldwide aviation = 2% (source: IPCC)

» We Have a Strong Record . . .e.g., U.S. Airlines:

- Improved fuel efficiency over 135% between 1978 and 2019
- Saved over 5 billion metric tons of CO₂ (equivalent to taking 27 million cars off the road each year since 1978)

» But There Are Concerns . . .

- Concerns about potential for aviation emissions growth; will aviation meet its targets?

» The Global Aviation Industry Is Working Hard to Address These Concerns



"Today's fleet of aircraft has an average fuel efficiency on par with a modern Toyota Prius hybrid."
US FAA, Sept. 2019



Despite COVID, We Remain Committed to Our Global Aviation Climate Action Emissions Targets and Initiatives

1. Industry's Emissions Targets

- 1.5% annual average fuel and carbon efficiency improvement, 2009-2020
- Carbon neutral growth starting in 2020
- 50% net reduction in CO₂ in 2050 relative to 2005 levels



2. Key Focus on Technology, Operations, Infrastructure & Sustainable Aviation Fuels (SAF) Measures

3. Implementing 2016 United Nations International Civil Aviation Organization (ICAO) Agreements

- ICAO CO₂ certification standard for new aircraft (2020 and 2023 implementation dates)
- ICAO Carbon Offsetting & Reduction Scheme for International Aviation (CORSA), emissions monitoring began in 2019, offsetting 2021+ (includes crediting for SAF use)

What Is SAF?

Common Term for What Aviation Seeks as Alternative Fuel

» Basic Definition:

- Sustainable aviation fuel (SAF) is one of the terms used to describe **non-petroleum-derived** aviation fuels **proven to be safe**, which **emit less carbon** from a life-cycle perspective **and meet other environmental and economic sustainability criteria**

» Terms Commonly Considered Synonyms:

- Sustainable Alternative Jet Fuel (SAJF); Sustainable Alternative Fuel; “Bio-jet” Fuel; Alternative Jet Fuel; Renewable Jet Fuel

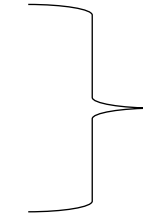
» Benefits in Addition to Greenhouse Gas Emissions Reduction:

- Local air quality benefits (primarily particulate matter)
- “Sustainability” more broadly
- Potential to enhance energy security (**Hawaii-specific SAF sources could be a strong plus for Hawaii**)

What Airlines Need to Deploy SAF

1. Above All, Safety – This is Addressed Through:

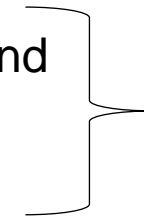
- The jet fuel specification, ASTM D7566; and
- Application of procedures to assure fuel quality is maintained



We have accomplished this

2. Environmental Benefit – This is Addressed Through:

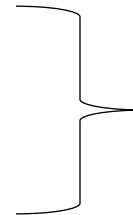
- Lifecycle greenhouse gas emissions assessment (LCA), benefits up to 80%; and
- Sustainability review/certification



Established protocols for this

3. Commercial Viability

- Need cost competitiveness; and
- Supply scale up and reliability



Progress, but remains the biggest challenge

What Is Needed for Commercial Viability?

✓ Collaborative, Cooperative Efforts Across Key Stakeholders

- We have multiple cooperative efforts (e.g., CAAFI; CLEEN; ASCENT)

✓ Market Signals from Fuel Purchasers

- United, American, Alaska and JetBlue currently are taking supply; other A4A members have SAF offtake agreements with prospective suppliers

? Consistent and Sustained Policy from Governments

? Scale-up Capability and “Positive” Economics (Relative to Renewable Diesel and Petroleum-Based Jet Fuel)

- Includes opportunities for regionally available feedstocks



Progress . . .But Still Challenges

Mechanisms to Scale Up and Enhance Cost-Competitiveness Are Still Lagging

-
- SAF is still very expensive and scale-up takes time
 - Need stable alternative fuels programs
 - Tax incentives: e.g., currently none for SAF specifically; the \$1/gallon federal blender's tax credit for biodiesel/renewable diesel expired for 2 years, now reinstated but only through 2022
 - NOTE: The aviation industry and SAF producers are seeking a SAF-specific federal tax credit
 - Positive support is good (e.g., tax incentives; loan guarantees; grant programs for promising technologies) – mandates are not (unlike for ground-based alternative fuels, still an immature market)

Examples of Opportunities to Help Make SAF a Reality in Hawaii

- » **Leverage the University of Hawaii’s Engagement in FAA’s Aviation Sustainability Center Focusing on Projects to Support Development of SAF Supply Chains in Hawaii**
- » **Pair Existing and Emerging Federal Programs with State Programs**
 - e.g., Federal Renewable Fuel Standard provides “opt-in” credit for SAF; federal grant and loan guarantees; USDA and DOE grants have been awarded to SAF research and production
 - e.g., Proposal in HB 1910 to establish a Sustainable Aviation Fuel program in Hawaii
 - e.g., States that have adopted low carbon fuel standards (CA, OR) provide opt-in credit for SAF
- » **Tap Potential Sources of SAF Feedstocks**
 - e.g., Municipal solid waste; construction waste; crop residues; oil seed crops grown in rotation; carbon capture from industrial emitters; waste fats and greases; high-moisture invasive species

Why SAF Should Remain a Priority in the Resource-Constrained Environment During and in the Wake of COVID-19

Making the Case for Additional Federal, State and Public-Private Support

- » **The Global, National, Regional and Local Economies Rely Heavily on Aviation**
 - Aviation is very important to Hawaii
- » **The SAF Bioeconomy Can Support Jobs**
- » **The SAF Bioeconomy Brings Climate Change, Local Air Quality, Sustainability and Energy Security Benefits**
- » **Commercial Aviation Will Rely on Liquid Fuels for Years to Come, So Prioritizing SAF Makes Sense**
 - e.g., commercial aircraft will not have viable electric options for the next several decades, whereas cars can switch from liquid fuels in the nearer term
- » **The Aviation, Fuel Producer & Bioenergy Communities Are Working Together to Gain Additional Access to Incentive Programs for Ground-Based Alternative Fuels**

In Sum, Opportunities & Challenges



- » The Industry Is Working Together to Drive Solutions
- » We Remain Committed to Our Climate and SAF Goals
- » Coordination Is Essential
- » There Is Real Opportunity in Hawaii for SAF
- » Need Complementary, Stable Federal and State Policy Programs

