

Contents

Introduction

President and CEO Message

CSO Message

2022 Highlights

Approach & Governance

People

Products & Services

Operations

Communities

Reporting



Neil Titchener, Ellen Ebner and Chris Raymond unveil the public version of Cascade during the Sustainable Aerospace Together Forum in Renton. (Boeing photo)



The Sustainable Aerospace Together Forum, presented by Boeing in partnership with the Financial Times, brought together the aviation, energy, finance and policy sectors. (Boeing photo)



Boeing President and CEO Dave Calhoun discusses the importance of working together for a sustainable aerospace future with Boeing communicator Elisa Hahn at the pre-forum reception. (Boeing photo)

We advanced SAF. Nearly all industry and governmental decarbonization road maps conclude that SAF is the biggest lever we have to reduce GHG emissions from commercial aviation. Our company is focused on multiple areas to catalyze SAF scaling, including investing in airplane efficiency and compatibility, purchasing SAF for our own fuel use in our operations, engaging global regulators on smart policies, promoting robust sustainability criteria, and investing in Cascade to further industry partnerships and policy advocacy to scale up SAF supply and bring down cost.

We continue to make progress on the technical journey working with our suppliers to ensure our commercial airplanes are 100% SAF compatible by 2030. We are seeing exciting SAF innovation occurring in sustainable feedstocks and partnering on technologies including waste-and-biomass-based SAF, power-and-biomass-to-liquid and power-to-liquid enablers that can make existing and future SAF pathways more sustainable over time.

We purchased 5.6 million gallons (21.2 million liters) of blended SAF to support our commercial operations. The challenge remains scaling SAF availability and lowering its cost. Together, we’ve made important progress this year on building the industry. Governments around the world are unlocking policy mechanisms to scale SAF, including a blending mandate and corresponding offtake requirement in Europe, and incentives such as the Blenders Tax Credit for SAF producers in the U.S. These policies and incentives are beginning to attract necessary capital to scale production.

Finally, the Boeing ecoDemonstrator team partnered with NASA on emissions testing to better understand SAF and contrails.

We advanced the future of flight. While SAF is a necessary lever to decarbonize commercial aviation, we have a “SAF and” view and not a “SAF or” approach to achieving the commercial aviation industry’s net zero goal by 2050. Together with partners, we continue to explore the safety and viability of other renewable energy carriers and technologies for aircraft. You’ll read about several of these developments in this report, including our Wisk joint venture’s announcement of the world’s first self-flying, all-electric four-passenger vertical takeoff and landing (eVTOL) air taxi. As Wisk’s go-to-market aircraft, the latest generation of this aircraft represents the first-ever candidate for type certification by the U.S. Federal Aviation Administration of an autonomous eVTOL. We also value our partnerships around the world to advance sustainable technologies, such as the new Boeing Research and Technology center in Japan with a focus on sustainability. We are also honored to be selected by NASA for the Sustainable Flight Demonstrator program, which will inform future designs that could lead to breakthrough aerodynamics and future efficiency gains.

The aforementioned Boeing ecoDemonstrator program embodies our “together” theme and is celebrating its 10-year anniversary this year. The ecoDemonstrator takes promising technologies out of a lab and tests them in operational environments with a variety of partners,

including airline customers, suppliers and regulatory agencies. From the first ecoDemonstrator in 2012 through this year’s effort, the ecoDemonstrator program will have evaluated more than 225 technologies with approximately one-third of those getting implemented. Projects include technologies that reduce fuel use, emissions and noise, enhance safety and incorporate more sustainable materials.

Sustainable Aerospace starts within our four walls and Boeing continues to make progress on our 2025 operational targets as outlined on [Page 53](#).

See [Page 7](#) for a more comprehensive snapshot of our accomplishments last year and [Page 45](#) for an overview of how we partnered around the globe to advance sustainable aerospace together.

Together as an industry, we’ve made modern jet travel a reality, helped defend freedom around the world, and made space exploration possible. We now enter the era of more sustainable aerospace. The foundation we are laying now will be carried forward by future generations to preserve and grow the societal benefits of this industry. We are proud to be on this journey — together — with so many capable and committed partners around the globe.

Chris Raymond
Chief Sustainability Officer

Sustainable Aerospace Together

2022 Highlights

Contents

Introduction

President and CEO Message

CSO Message

2022 Highlights

Approach & Governance

People

Products & Services

Operations

Communities

Reporting

January 2022



Wisk secured \$450 million from Boeing to advance certified autonomous electric flight

February



Purchased 2 million gallons (7.6 million liters) of SAF for Boeing's commercial airplane operations

April



Announced multiyear commitment to Yale Center for Natural Carbon Capture

May



Named ENERGY STAR Partner of the Year

June



Unveiled 2022 ecoDemonstrator, a 777-200ER serving as a test bed for 30 new technologies to help decarbonize aviation

July



Debuted Cascade, a data modeling tool that visualizes how to get to a net-zero carbon emission future for commercial aviation



Boeing and MIT announced research project to help decarbonize aerospace



Became founding member of UK Innovation Hub to drive SAF development



Boeing and Mitsubishi Heavy Industries partnered on innovative climate change solutions



Announced research project with the University of Cambridge to further advance Aviation Impact Accelerator

August



Opened Japan Research Center and expanded sustainability partnerships



Announced as the aviation sector champion in First Movers Coalition, global alliance established by the U.S. government and World Economic Forum

September



Boeing and Wisk unveiled concept of operations for urban air mobility



New Boeing Additive Manufacturing facility in Auburn, Washington, uses 3D printing to produce essential components, reducing waste

October



Wisk unveiled world's first autonomous, four-seat, all-electric, vertical takeoff and landing air taxi



ecoDemonstrator program collaborated with NASA to test SAF emissions

November



Partnered with Avolon, an aircraft leasing company, to scale SAF in Ireland

January 2023



Selected for NASA Sustainable Flight Demonstrator award

Connecting Globally to Advance Sustainable Aerospace



Americas

Brazil — Boeing Sustainability Forum: Boeing celebrated its 90th anniversary in Brazil at an inaugural summit with the Roundtable on Sustainable Materials and Brazilian-American Chamber of Commerce in São Paulo in September.

U.S.

- Summit of the Americas: Hosted a roundtable on sustainable aviation with IATA as part of Summit of the Americas in Los Angeles in June.
- Decarbonizing Aviation “Everything for Zero”: Hosted an event in Washington, D.C., in November, sharing Boeing’s vision and a Cascade demo with U.S. and non-U.S. policymakers, legislators and think tanks.

Asia-Pacific

Australia — Indo-Pacific Clean Energy Forum: Co-hosted a high-level SAF panel discussion in July in Sydney.

China

- Peking University Institute of Energy’s Report Launch: Supported the report launch in October, which compiled results of SAF research.
- Boeing participated at the 1st China Civil Aviation Green Development Forum, which was sponsored by CAAC and in the Annual Civil Aircraft Industry International Forum.

Japan — Boeing Tokyo Sustainability Summit: Hosted a two-day sustainability summit to celebrate a new research center opening in August.

Indonesia, Malaysia, Vietnam — Supported aviation industry forums and workshops with regulators, airlines and academics, sharing key aviation decarbonization priorities and strategies.

Singapore

- Singapore Airshow: Engaged with key industry and policy stakeholders to advocate for sustainable aviation initiatives and partnerships.
- Singapore Sustainable Air Hub Report: Contributed key sustainability insights as part of international advisory panel established by the Civil Aviation Authority of Singapore.

Europe

Belgium

- European Parliament Sustainability Event: Organized a joint event with Ryanair in October, engaging with members of the Parliament, media, industry and EU stakeholders about ongoing policies and regulations that contribute to accelerating SAF supply and use.

- Conference on National Armaments Directors: Joined NATO’s first Industry Symposium on Climate Change and Capabilities, which brought together over 150 representatives from NATO Allies and industry. Participants discussed the military challenges of a climate changed world, navigating the energy transition and the national security opportunities of technologies like SAF.

Germany — Berlin Air Show: Briefed media about Boeing’s work to decarbonize both commercial and defense products.

United Kingdom

- Farnborough Airshow: Unveiled Cascade and announced several sustainability initiatives, including partnerships with University of Sheffield Energy Innovation Centre, Cambridge – Aviation Impact Accelerator, Alder Fuels, Mitsubishi Heavy Industries and MIT. Joined UK Ministry of Defense and industry partners to discuss how sustainability enhances operational effectiveness and resilience.
- Jet Zero Council: Boeing hosted the Council meeting in London in February 2023, showcasing both Boeing’s UK presence and the Cascade modeling tool, which informs future climate policy choices such as UK SAF mandates.

Republic of Ireland — Airfinance Journal Dublin: Joined a panel on carbon offsetting and operational strategies for carbon reduction.

Middle East & North Africa

United Arab Emirates — Power-to-Liquid Report Launch: Supported and joined the launch event of the Power-to-Liquid roadmap led by the UAE government in July.

Egypt — COP27: Engaged government, industry, civil society partners and local and international media.

Bahrain — Energy & Sustainability Forum MENA 2023: Joined panel and discussed opportunities for alternative fuels, rising importance to diversify and build out low-carbon fuels and green chemical industry to create development opportunities.

Contents

Introduction

Approach & Governance

Company Profile

Advancing Our
Sustainability Journey

Sustainability Goals

Governance and
Risk Management

Enhancing a
Sustainability Culture

Ethical and Compliant
Business

People

Products & Services

Operations

Communities

Reporting



APPROACH & GOVERNANCE

Transparent and Accountable

Boeing global headquarters in Arlington, Virginia campus just outside Washington, D.C. (Boeing photo)

Company Profile

The Boeing Company

As a leading global aerospace company, Boeing develops, manufactures and services commercial airplanes, defense products and space systems for customers in more than 150 countries. As a top U.S. exporter, the company leverages the talents of a global supplier base to advance economic opportunity, sustainability and community impact. Boeing’s diverse team is committed to innovating for the future, leading with sustainability and cultivating a culture based on the company’s core values of safety, quality and integrity and sustainability. Learn more at [boeing.com](https://www.boeing.com).



Commercial Airplanes

This business develops, produces and markets commercial jet aircraft, principally to the commercial airline industry worldwide. We are a leading producer of commercial aircraft and offer a family of commercial jetliners designed to meet a broad spectrum of global passenger and cargo requirements of airlines. This family of commercial jet aircraft in production includes the 737 standard-body model and the 767, 777 and 787 widebody models. We ended production of the 747 widebody model in 2022. Development continues on the 777X program and the 737-7 and 737-10 derivatives.



Defense, Space & Security

This business engages in the research, development, production and modification of manned and unmanned military aircraft and weapons systems for strike, surveillance and mobility, including fighter and trainer aircraft; vertical lift, including rotorcraft and tilt-rotor aircraft; and commercial derivative aircraft, including anti-submarine and tanker aircraft. In addition, this segment engages in the research, development, production and modification of the following products and related services: strategic defense and intelligence systems, including strategic missile and defense systems, command, control, communications, computers, intelligence, surveillance and reconnaissance, cyber and information solutions, intelligence systems, satellite systems, including government and commercial satellites and space exploration.



Global Services

This business provides services to our commercial and defense customers worldwide. Boeing Global Services sustains aerospace platforms and systems with a full spectrum of products and services, including supply chain and logistics management; engineering, maintenance and modifications; upgrades and conversions; spare parts; pilot and maintenance training systems and services; technical and maintenance documents; and data analytics and digital services.



- \$23B Defense, Space & Security
- \$26B Commercial Airplanes
- \$18B Global Services
- \$0.2B Boeing Capital

- 10-Year Served Market**
- \$2.8T Defense, Space & Security
 - \$3.5T Commercial Airplanes
 - \$3.3T Global Services

- 13% Outside the U.S.**
- 16,961 Defense, Space & Security
 - 41,256 Commercial Airplanes
 - 20,523 Global Services
 - 77,614 Enterprise