The Boeing Company

TCFD Report

Task Force on Climate-related Financial Disclosures Report

Data from January - December 2024 | Published August 2025

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As part of our commitment to transparency, resilience and business continuity and to comply with California Senate Bill No. 261 (SB 261 as modified by SB 219) requirements, we align our climate-related disclosures herein with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

For purposes of this TCFD report, Boeing used the TCFD risk framework, which differs from our approach to the disclosures of risks in our filings with the U.S. Securities and Exchange Commission (SEC). The inclusion of information contained in this report should not be construed as a characterization regarding the materiality of that information for purposes of Boeing's SEC filings. See also the Caution Concerning Forward-Looking Statements at the end of this report for important information on forward-looking information used in this report.

Introduction

At Boeing, we recognize that climate change presents both financial risks and opportunities for our business, stakeholders, and the global economy. This report provides an overview of Boeing's material climate-related financial risks and the strategies in place to mitigate and adapt to these risks, pursuant to the TCFD risk framework. Our approach to governance, strategy, risk management, and metrics and targets, as outlined in this report, is designed to help our business strategy remain resilient amid evolving regulatory, physical environment, and market conditions.

Governance

At Boeing, a strong governance structure is foundational to our approach to managing climate-related risks and opportunities. Leadership at all levels is actively engaged in managing sustainability and embedding resilience in the corporate strategy, risk management and decision-making processes.

The Board's Governance & Public Policy (GPP) Committee, as outlined in its charter, is responsible for oversight of the company's practices relating to public policy and corporate sustainability, including environmental and governance matters.

We have a dedicated Global Enterprise Sustainability (GES) organization led by our Vice President, Global Enterprise Sustainability. The progress of Boeing's sustainability objectives and stakeholder-oriented disclosures is reported regularly to the GPP Committee and the full Board. The Executive Council is engaged at least annually on sustainability and climate-related topics. Boeing's Vice President, Global Enterprise Sustainability, leads an enterprise Global Sustainability Council (GSC) composed of global leaders from across Boeing's business units (BUs) and functions, including Environment, Health and Safety, Supply Chain, Law, and Human Resources.

The GSC meets annually and was established to provide executive leadership, advocacy and collaboration across the enterprise to advance our sustainability objectives and strategy. Our Legal and relevant business organizations are collectively responsible for establishing processes to foster policies and actions that are compliant with applicable sustainability laws and regulations. This membership provides for engagement of functions that contribute to sustainability across the enterprise.

The GES organization includes subject matter experts in climate-related topics. These leaders contribute to Boeing's established risk management process, described below. GES partners with other functions to mitigate and manage climate-related risk, facilitating consistency across BU and functional strategies.

Sustainability Oversight

Strategy

We support our customers and governments around the globe in furthering their climate-related ambitions, including the commercial aviation industry's goal to achieve net-zero carbon emissions.

Boeing's business strategy includes addressing material climate-related financial risks, such as regulatory changes, market shifts, and supply chain disruptions. To strengthen business resilience, Boeing integrates environmental risk assessments into our investment strategies, research and development (R&D) funding, and operational planning.

Key Examples:

- Production of more efficient commercial airplanes.
- Investment in sustainable aviation fuels (SAF) and alternative propulsion technologies.
- Collaboration on climate resilience strategies for supply chains and production facilities.
- Evaluation of impacts of potential carbon regulatory policies to inform internal strategies.
- Future compliance costs are factored into long-range business planning.

Boeing regularly evaluates its strategic resilience against climate-related risks to support long-term stability in a changing regulatory and market environment.

We have five strategies for products and services:

Fleet renewal

Operational efficiency

Renewable energy

Advanced technologies

Market-based measures

For our own operations, we rely on the following four strategies:

Innovation and Engagement

Efficiency and Conservation

Site and Infrastructure Investment

Resilience and Risk Management

The strategies are further characterized in our **Global Sustainability Report**. We believe our business strategy is resilient to a changing climate, given sustained focus and investment in our products, services and operations, as well as enhanced risk management practices for global operations. Environmental assessments have informed our due diligence as we consider property transactions and the design of future products and infrastructure.

Climate Scenario Analysis

In 2024, using the TCFD framework, Boeing refreshed our climate-related risks and opportunities assessment of the enterprise, including performing a climate scenario analysis, to better understand and address environmental risks, while capturing opportunities that align with our business model and operations. This assessment was performed with support from leaders and subject matter experts, leveraging TCFD guidance, industry insights, and environmental expertise.

To identify material climate-related risks and opportunities according to the TCFD framework, the assessment considered impacts to product and workplace safety, business operations, financial results and reputation, as well as the likelihood of the risk occurring to develop an inherent risk score. The current and future mitigation strategies were assessed for their effectiveness to determine a residual risk score. To assess the impact, information was gathered from cross-functional teams, enterprise subject matter experts, and publicly available sources. The climate-related scenario analysis identified potential physical and transition risks and opportunities to Boeing's business over the short, medium and long terms, and across multiple climate scenarios. The time horizon refers to the period in which the risk or opportunity arises. The scenarios were chosen to cover a range of future outcomes. Due to the unique nature of the aerospace and defense industry, the Air Transport Action Group (ATAG) Waypoint 2050 scenarios described below were included in order to incorporate probable SAF scenarios.

Time Horizons	
Short (0-1 years)	Aligns with Boeing's annual financial reporting period
Medium (1-5 years)	Aligns with Boeing's planning cycle
Long (5-25 years)	Aligns with market and customer demands

Transition Risk Scenarios	
Low Emissions	A qualitative scenario considering information from the International Energy Agency (IEA) Net Zero Emissions by 2050, Network for Greening the Financial System (NGFS) Net Zero 2050, and ATAG Waypoint 2050 Aggressive SAF scenarios. This scenario assumes global CO_2 emissions reach net zero around 2050 with projected warming limited to 1.5°C by 2100.
Baseline	A qualitative scenario considering information from the IEA Announced Pledges, NGFS Nationally Determined Contributions scenarios, and ATAG Waypoint 2050 Scenario 0 – High SAF. This scenario assumes country-level commitments are met with projected warming of 1.5-2.6°C by 2100.

Physical Risk Scenarios	
Low Emissions	A qualitative scenario considering information from the Intergovernmental Panel on Climate Change (IPCC) Shared Socio-economic Pathways (SSP) 1-2.6 scenario. This scenario assumes global emissions reach net zero with a "very likely" projected warming range of 1.3-2.4°C by 2100.
High Emissions	A qualitative scenario considering information from the IPCC SSP 5-8.5 scenario. This scenario assumes global emissions continue to rise with a "very likely" projected warming range of 3.3-5.7°C by 2100.

The impact of climate-related risks is determined by estimating the likelihood of occurrence as well as the consequences to Boeing's business operations, strategy, reputation and financial performance, where applicable.[1]

Low	No significant impact
Medium	Moderate impact
High	Significant impact

[1] In this report, the term "significant" with regard to climate-related impacts refers broadly to climate risks and opportunities that may notably influence environmental, social, operational, or reputational factors, irrespective of immediate financial quantification.

Climate-Related Transition Risks Identified in Scenario Analysis

Policy & Legal Transition Risk	
Description: Legal requirements on products, services and/or operations Primary potential financial impacts: An increase in climate-related legal requirements or restrictions may lead to increased compliance and operating costs for Boeing	
Low Emissions Scenario Potential Impact: High Time horizon: Medium	Baseline Scenario Potential Impact: Medium Time horizon: Medium

Technology & Market Transition Risk	
Description: Customer purchasing policies shift to climate-conscious and/or lower-emitting products and/or services Primary potential financial impacts: Shifts in customer preference may lead to negative perceptions and/or decreased demand for existing products or services; funding initiatives that do not appropriately meet stakeholder expectations may lead to sunk R&D costs (e.g., expenses incurred on research and development that cannot be recovered) and potential loss of revenue	
Low Emissions Scenario Potential Impact: High Time horizon: Long	Baseline Scenario Potential Impact: Low Time horizon: Long

Climate-Related Physical Risks Identified in Scenario Analysis

Acute Physical Risk	
Description: Increased severity of extreme weather events due to climate change (e.g., floods, wind storms, storms & cyclones, wildfires, storm surge, hail, etc.) Primary potential financial impacts: Increased weather events due to climate change may increase capital costs from property damage or may decrease the public's interest in air travel and/or lead to operational or supplier disruptions, potentially reducing revenue	
Low Emissions Scenario Potential Impact: High Time horizon: Medium	High Emissions Scenario Potential Impact: High Time horizon: Medium

Chronic Physical Risk	
Description: Rising mean temperatures may require aircraft modifications, impacting Boeing's product design strategy and/or usage of current products & services Primary potential financial impacts: Funding initiatives that do not appropriately meet stakeholder expectations or meet the needs of future climate scenarios may lead to sunk R&D costs, and potential loss of revenue	
Low Emissions Scenario Potential Impact: Medium Time horizon: Long	High Emissions Scenario Potential Impact: High Time horizon: Long

Climate-Related Opportunity Identified in Scenario Analysis

Products and Services Opportunity
Description: New or expanded business opportunities from climate conscious and/or low emitting products and/or services Primary potential financial impacts: Increased revenue
Potential impact: High Time horizon: Long

Impact of Risks & Opportunities on the Business, Strategy & Resource Allocation

Boeing is investing in innovation and clean technologies for improved aerodynamic performance, increased propulsion and systems efficiency, reduced life cycle energy use and emissions, and the latest digital design, test and production capability. Informed by the company's history of developing advanced aircraft configurations and incorporating innovative technologies for sustainability, Boeing has developed a research and technology program, "Future Flight Concepts." This program helps us to understand the realm of possibility for future airplane design and expose technical challenges that require research and technology development. The Future Flight Concepts studies include hybrid-electric, hydrogen fuel cell, hydrogen combustion, dual fuel and other alternate energy carrier aircraft.

Boeing proactively monitors policy and engages with policymakers to anticipate new product-related and climate-related rules, while collaborating with industry associations to promote harmonized standards. In addition, Boeing integrates multiple potential outcomes of regulatory actions into our risk management practices, thereby informing strategic decisions through analysis of potential policy trajectories and resource impacts. By investing in alternative propulsion technologies and helping accelerate the adoption of SAF, Boeing can better position product roadmaps to respond to evolving regulations.

In May 2023, Boeing released the Cascade Climate Impact Model (Cascade) for public use. Cascade is a data modeling tool that quantifies the potential of commercial aviation's strategies to reduce carbon emissions. Cascade allows the user to model various paths to decarbonization utilizing user-selectable scenarios for the five core strategies that affect aviation's footprint: traffic, aircraft, operations, energy, and offsets & removals.

Boeing also has a suite of strategies for approaching physical risks to our direct operations and supply chain. Boeing operates in a global environment that is seeing increased number of natural or otherwise climate-related events that have the potential to affect Boeing's infrastructure and business operations. Boeing's Business Continuity Management organization proactively enables risk mitigation in the event of a business disruption to Boeing or its supply chain. In the event of a natural or otherwise climate-related disaster, Boeing maintains a portfolio of insurance coverage to support long-term resilience of Boeing's operations.

Resilience of Strategies

Boeing has analyzed its climate-related risks and opportunities under multiple scenarios, including a low-emissions scenario (below 2°C, significant regulatory action and rapid decarbonization) and a baseline scenario (moderate policy action and slower emissions reductions) for transition risks and low emissions (fewer physical changes) and high emissions (more physical changes) scenarios for physical risks. These scenarios were chosen based on TCFD recommendations and industry-relevant projections.

Strategy Viability Across Scenarios

Under a low-emissions transition risk scenario, rapid policy changes (e.g., stricter carbon pricing, increased SAF mandates) could increase compliance and operating costs and require accelerated R&D investment in alternative propulsion technologies. In a baseline transition risk scenario, regulatory shifts occur at a slower pace, allowing for gradual adaptation but still requiring ongoing investments in product innovation and emissions reductions.

In both physical risk scenarios, climate-related physical risks (e.g., extreme weather events, heat stress on aircraft performance) may disrupt operations and supply chains, necessitating continued investment in infrastructure resilience.

Strategic Adaptation and Flexibility

To further long-term resilience, Boeing has:

- Investments in R&D for low-carbon aviation technologies to remain competitive regardless of policy shifts.
- Flexible compliance strategies to manage evolving regulatory requirements while maintaining profitability.
- Climate risk integrated into our risk management processes to monitor and respond to emerging risks proactively.

Business Continuity and Long-Term Competitiveness

By integrating climate considerations into strategies, processes, and planning, Boeing aims to maintain stability, reduce regulatory risks, and capitalize on emerging market opportunities. Boeing's product roadmap is designed to align with industry-wide decarbonization efforts, supporting robust market demand for future aircraft models and customer requirements. Furthermore, increased SAF adoption supports compliance with global emissions regulations while strengthening customer relationships.

Boeing's climate resilience strategy provides safeguards that operations, product development, and resource allocation remain viable under multiple climate scenarios. For potential climate-related physical events, Boeing strengthens its resilience through Business Continuity Management, managing and mitigating risks should a significant incident disrupt business operations. This entails five key preparedness initiatives: Business, Emergency, Information Technology, Supply Chain and Human Resources working together to facilitate company resilience. The primary objective of these initiatives is to develop and maintain guidelines, standards, processes and tools that enable BUs and functions to mitigate risk and recover critical programs, applications and suppliers. Business Continuity Management continues to identify risks and to implement strategies and processes to mitigate those risks to our people, programs, infrastructure, network, and supply chain.

Risk Management

Boeing has established processes to identify, assess, mitigate and manage risk. The Board is responsible for overseeing management in the execution of its risk management responsibilities and for assessing the company's global approach to risk management. Senior management is responsible for day-to-day management of risks globally, including the implementation of appropriate risk management policies and procedures, as well as effective risk management controls.

We take an integrated approach to risk management across the company with coordination among our enterprise risk management (ERM) process, compliance risk management (CRM) process and our Safety Management System (SMS) Risk Register. All business units and functions participate in both the ERM and CRM processes, including an annual review to assess and prioritize the most critical risks facing the company globally, implement appropriate mitigation measures, evaluate the effectiveness of mitigation strategies and controls, and identify important emerging risks. The results of the ERM and CRM processes are reviewed with both the Audit Committee and the full Board at least annually.

GES risk management processes inform resource allocation, including long-term capital budgeting decisions. For example, investments in clean technology and innovation for aerospace are prioritized to mitigate emissions and to reduce exposure to policy risks and physical climate-related disruptions.

Risk Oversight

Board of Directors

The full Board is briefed at least annually on the ERM and CRM processes and assessments and throughout the year as needed on specific risks facing the company, including those relating to the SMS Risk Register

Audit Committee

The Audit Committee is briefed at least annually on the ERM and CRM processes and assessments

- **Enterprise Risk Management**
- **Compliance Risk Management**

Aerospace Safety Committee

The Aerospace Safety Committee is briefed at every meeting on the SMS Risk Register

- **Safety Management System**

Annual Employee Training and Ethics Recommitment

On an annual basis, all employees are required to complete:

- Training on compliance risk areas tailored to their specific duties and responsibilities
- Product safety training that highlights the importance of speaking up about any potential product- or services-related safety concerns
- An Ethics Recommitment and training that features real-life compliance issues and consequences and highlights how adherence to our values and doing business with integrity is critical to Boeing's success

Metrics & Targets

Boeing has the following goals and targets focused on emissions mitigation from our operations and products.

Goal	2030 Target
Sustainable Operations Reduce greenhouse gas (GHG) emissions from Boeing operations through conservation and renewable energy	Achieve 30% reduction in Scope 1 and Scope 2 market-based GHG emissions from 2023 base year[1, 2, 4]
	Achieve 100% renewable electricity[1, 3]
	Achieve 3% reduction of natural gas intensity from 2023 base year[4, 5]
Innovation and Clean Tech Support the transition to carbon-neutral aerospace through investments and partnerships for fleet efficiency improvements, SAF and future platform technologies	All production commercial airplanes will be 100% SAF compatible
	Support the commercial aviation industry's ambition to achieve net-zero carbon emissions for global commercial aviation operations
	Build and certify our first zero-emission, electric, autonomous aircraft via Wisk

1.The 2030 GHG and renewable electricity targets are set with an operational boundary of The Boeing Company, which includes all majority-owned subsidiaries.

2. GHG reduction target includes all Scope 1 and Scope 2 (market) emissions. More information about our approach to GHG accounting can be found in our GHG Supplement.

3. Renewable electricity is procured through a combination of direct purchases and renewable energy credits.

4. Progress to the GHG reduction and natural gas intensity goals is based on an updated 2023 baseline, which is pending reverification.

5. The boundary is all major manufacturing locations, including all majority-owned subsidiaries,representing 77.9% of total operations. Major manufacturing: >100,000 sq, ft of factory and laboratory space; intensity measure used is square footage.

Boeing tracks and discloses Scope 1, Scope 2, and relevant Scope 3 emissions, with a primary focus on our largest category of Scope 3 emissions, from the use of sold products.

	2024
Emissions	**Metric Tons CO_2e**
Scope 1 GHG	517,000
Scope 2 GHG — Location Based	783,000
Scope 2 GHG — Market Based	464,000
Scope 3 GHG — Business Travel	161,000
Scope 3 GHG — Use of Sold Products (Commercial Airplanes)	352,000,000
Scope 3 GHG — Use of Sold Products (Defense, Space & Security)	21,000,000
Total Calculated GHG (Market-Based) Excluding Sold Products	**1,142,000**
GHG Intensity Ratio[1]	0.000015

1. GHG Intensity reflects metric tons per dollar revenue.

Caution Concerning Forward-Looking Statements

This report contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. Words such as "may," "will," "should," "expects," "intends," "projects," "plans," "believes," "estimates," "targets," "anticipates," and other similar words or expressions, or the negative thereof, generally can be used to help identify these forward-looking statements. Examples of forward-looking statements include statements relating to our future financial condition and operating results, industry projections and outlooks, plans, objectives and goals, allocation of resources, the likelihood of the occurrence of future events and their potential impacts, planned performance of technology, as well as any other statement that does not directly relate to any historical or current fact. Forward-looking statements are based on expectations and assumptions that we believe to be reasonable when made, but that may not prove to be accurate. These statements are not guarantees and are subject to risks, uncertainties, and changes in circumstances that are difficult to predict. Many factors could cause actual results to differ materially and adversely from these forward-looking statements. Among these factors are risks related to: (1) general conditions in the economy and our industry, including those due to regulatory changes; (2) our ability to achieve our sustainability goals and objectives; (3) the accuracy of our estimates and assumptions in our selected hypothetical scenario analyses, and the inherent uncertainty and limitations in scenarios designed to model global climate outcomes and human responses over a multi-decade period; (4) our reliance on our commercial airline customers; (5) the overall health of our aircraft production system, production quality issues, commercial airplane production rates, our ability to successfully develop and certify new aircraft or new derivative aircraft, and the ability of our aircraft to meet stringent performance and reliability standards; (6) our dependence on our subcontractors and suppliers, as well as the availability of highly skilled labor and raw materials; (7) work stoppages or other labor disruptions; (8) competition within our markets; (9) our non-U.S. operations and sales to non-U.S. customers, including tariffs, trade restrictions and government actions; (10) realizing the anticipated benefits of mergers, acquisitions, joint ventures/strategic alliances or divestitures; (11) our dependence on U.S. government contracts; (12) management of a complex, global information technology (IT) infrastructure; (13) compromised or unauthorized access to our, our customers' and/or our suppliers' information and systems; (14) potential business disruptions, including threats to physical security or our IT systems, extreme weather (including effects of climate change) or other acts of nature, and pandemics or other public health crises; (15) potential adverse developments in new or pending litigation and/or government inquiries or investigations; (16) potential environmental liabilities; (17) effects of climate change and legal, regulatory or market responses to such change; (18) credit rating agency actions and our ability to effectively manage our liquidity; and (19) the adequacy of our insurance coverage.

Additional information concerning these and other factors can be found in our filings with the Securities and Exchange Commission, including our most recent Annual Report on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K. Any forward-looking statement speaks only as of the date on which it is made, and we assume no obligation to update or revise any forward-looking statement, whether as a result of new information, future events, or otherwise, except as required by law.