

Task Force on Climate-related
Financial Disclosures (TCFD) Report

September 19, 2024



Introduction

GE Aerospace launched as an independent public company on April 2, 2024. This report details our approach and performance across the TCFD framework, which covers [Strategy, metrics, and targets](#); [Governance](#); and [Risk management](#).

Air travel is currently responsible for just over 2%¹ of global carbon emissions, according to Air Transport Action Group (ATAG) estimates, and aviation passenger traffic is forecast to increase by around 3%² per year through 2050.

To reduce aviation sector emissions sufficiently by then, all industry participants—airlines, airports, aerospace equipment manufacturers, fuel providers, governments, and others—must play a part. At GE Aerospace, we are working on technologies to improve engine fuel efficiency, developing Software as a Service to help drive operational efficiency, and supporting the qualification of alternative fuels compatible with today’s equipment and infrastructure.

This report outlines how climate change may impact GE Aerospace’s activities and sets out our approach to mitigating potential climate-related risks. We continue to review the opportunities and risks associated with climate change and adapt our plans accordingly to increase the resilience of our business.

This report incorporates a TCFD index and supplements our [2024 Sustainability Report](#).

Forward-looking statements

This report contains “forward-looking statements”—statements related to future events that, by their nature, address matters that are uncertain to different degrees.

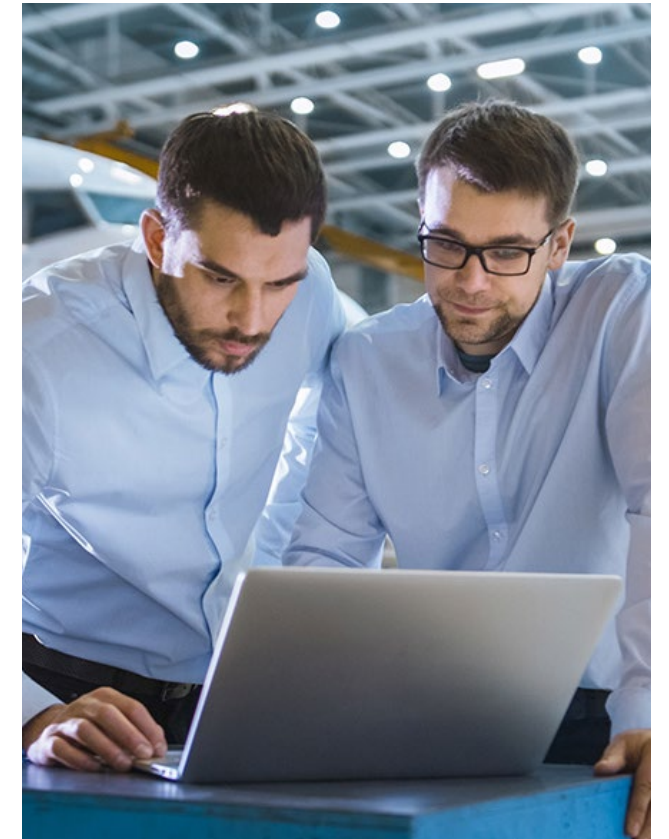
See the [Investors section of our website](#) for details of the uncertainties that may cause our actual future results to be materially different than those expressed in our forward-looking statements, as well as our annual reports on Form 10-K and quarterly reports on Form 10-Q. We do not undertake to update our forward-looking statements.

Non-GAAP financial measures

In this report, we sometimes use information derived from consolidated financial data but not presented in our financial statements prepared in accordance with U.S. Generally Accepted Accounting Principles (GAAP). Certain of these data are considered “non-GAAP financial measures” under the U.S. Securities and Exchange Commission (SEC) rules. These non-GAAP financial measures supplement our GAAP disclosures and should not be considered an alternative to the GAAP measure. The reasons we use these non-GAAP financial measures and the reconciliations to their most directly comparable GAAP financial measures are included in our current report on Form 8-K furnished with the SEC on April 11, 2024 or our other SEC filings and earnings presentations. The non-GAAP financial measures included herein are unaudited and represent our current estimates.

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Definitions

CFM International is a 50/50 joint venture that produces CFM56 and LEAP engine families.

Revolutionary Innovation for Sustainable Engines (RISE) is a program of CFM International.

CFM RISE is a registered trademark.

¹ Figure obtained from the [Air Transport Action Group](#).

² Figure obtained from the [Air Transport Action Group Waypoint 2050 Report](#).

Strategy, metrics, and targets

At GE Aerospace, we are working to enable greater fuel efficiency of our engines and supporting the industry's ambition of achieving net zero carbon emissions by 2050.

Technology innovation

In terms of innovation, the implementation of next-generation technology will depend on the evolution of new aircraft and engine designs, infrastructure, and regulations, in accordance with the sector's considerations regarding safety, reliability, and the physics of aviation. While the commercial aviation industry's journey to becoming more sustainable will be measured in decades, the industry's ambition to achieve net zero carbon emissions by 2050 is driving action today.

GE Aerospace's ambition is to achieve net zero by 2050 for Scope 3 carbon emissions from the use of sold products for commercial engines. We endeavor to lead the commercial aviation industry's decarbonization journey and support our customers by continuing to deliver more efficient engines and new forms of propulsion. The engines we manufacture today are 40% more fuel efficient than those manufactured in the 1970s and 1980s. By the mid-2030s, GE Aerospace's comprehensive technology roadmap, including the [CFM International Revolutionary Innovation for Sustainable Engines \(RISE\)](#) program seeks to develop technologies that will enable engines that are 20% more fuel efficient and have

20% fewer carbon emissions than today's most efficient commercial engines. The technology pillars that comprise the RISE program are advanced engine architectures such as Open Fan, compact core designs, hybrid electric systems, and alternative fuels, including Sustainable Aviation Fuel (SAF) and hydrogen. Emissions from commercial engines constitute GE Aerospace's reported Scope 3 carbon emissions from the use of sold products—the most impactful and relevant emissions category, given the nature of our business.

We are also exploring efforts beyond propulsion leadership. We have established a team called Aerospace Carbon Solutions (ACS) to catalyze progress in SAF and high-quality carbon removal technologies, which will be essential to the industry achieving its decarbonization goals. Through ACS, we are supporting startups and other efforts at the forefront of these spaces. We are also mobilizing our team at GE Aerospace Research to design technologies that reduce the cost and increase the potential scale of SAF refining, hydrogen production, and direct air carbon capture.

Achieving the industry's net zero goal will require a substantial effort from a wide range of participants, including aircraft manufacturers, airlines, aviation industry suppliers, and companies outside the industry, such as fuel and energy producers and policymakers. At GE Aerospace, we are working to enable greater fuel efficiency of our engines and supporting the industry's overall ambition as it works to reduce its environmental impact.

GE Aerospace remains focused on innovating cutting-edge technology and making operational improvements to help meet historic demand while decreasing emissions. To that end, we invested \$2.3 billion in aerospace research and development in 2023,³ including the development of technologies for a smarter and more efficient future of flight.

Scope 3 carbon emissions: Use of sold products^{4,5,6}
(million MTCO₂)


2019	2020	2021	2022	2023
51.73	32.45	24.83	25.05	30.62

GE Aerospace's net Scope 3 carbon emissions (use of sold products for commercial engines)⁷ decreased from 2019 to 2022 due to lower engine sales in light of reduced demand for travel during COVID-19, 737 MAX groundings, and supply chain constraints. Net carbon emissions began to notably increase in 2023 due to increase in demand for global travel. We expect our net carbon emissions to continue to increase as demand for travel increases.

Scope 3 carbon emissions intensity^{5,6}
(gCO₂/RPK)

2019	2020	2021	2022	2023
5.96	6.42	6.04	5.67	5.17

Estimated lifetime emissions of commercial engine products installed on widebody, narrowbody, regional, and business jet aircraft by year. Based on Greenhouse Gas Protocol, [Scope 3 use of sold products, category 11 methodology](#).

More details on our current and future technologies can be found in our [2024 Sustainability Report](#). 

³ Amount represents aerospace research and development as reported in our 2023 Form 10-K and includes customers and partner funding.

⁴ Calculations use actual commercial engine deliveries by GE Aerospace/GE Aerospace Partnership companies to airframers for installation on new aircraft in alignment with our financial reporting.

⁵ 2019–2023 data is presented here to reflect the profile of GE Aerospace as it exists today, following the spin-offs of GE HealthCare in January 2023 and GE Vernova in April 2024.

⁶ Figures do not include any SAF projection over the forecast product life.

⁷ Estimated lifetime emissions of commercial engine products installed on widebody, narrowbody, regional, and business jet aircraft by year.

GE Aerospace’s roadmap for the future of flight

This summary shows our across-the-board activities to support a more sustainable future of flight, including the development of more efficient engine technologies compatible with alternative fuels by collaborating with others across the industry. We are also exploring the use of carbon reduction market mechanisms consistent with industry roadmaps.

	Actions pre-2020	2020–2030	2030–2050
Engine technology	<ul style="list-style-type: none"> • More fuel-efficient commercial engine products certified: GE Passport, GEnx, CFM LEAP • Fewer part counts, optimized part designs from additive manufacturing vs. conventional manufacturing • More heat-resistant ceramic matrix composites (CMCs) vs. metal alloys • Twin Annular Premixing Swirler (TAPS) combustor to reduce nitrogen oxide (NOx) emissions • Counter Rotating Open Rotor engine ground test with European Clean Sky initiative⁸ 	<ul style="list-style-type: none"> • More fuel-efficient commercial engines certified: GE9X <ul style="list-style-type: none"> ◦ Expands additive manufacturing and CMC parts vs. LEAP ◦ Third-generation TAPS combustor • CFM International’s Revolutionary Innovation for Sustainable Engines (RISE) program unveiled, advancing a suite of engine technologies including advanced engine architectures like Open Fan, compact core, and hybrid electric systems • Developing hydrogen combustion engine technologies • NASA Electrified Powertrain Flight Demonstration (EPFD) project launched for megawatt-class hybrid electric powertrain • World’s first to test high-power, high-voltage hybrid electric components in simulated altitude conditions up to 45,000 feet • Awarded NASA’s Hybrid Thermally Efficient Core (HyTEC) project to mature compact engine core technologies 	<ul style="list-style-type: none"> • Potential entry-into-service of new engine technologies that, combined, could achieve 20% better fuel efficiency vs. commercial engines today: <ul style="list-style-type: none"> ◦ Open Fan engine architecture ◦ Compact engine core ◦ Hybrid electric systems • Potential hydrogen-fueled direct combustion engine
Operational efficiency	<ul style="list-style-type: none"> • Real-time data monitoring of operator fleets • Flight Management System for optimized airport descents • FlightPulse™ post-flight software provides pilots with flight data to optimize fuel savings 	<ul style="list-style-type: none"> • Expanded real-time data monitoring to 181 million records annually • On-wing 360 Foam Wash process yields up to three times more fuel savings than water wash and is available for GE90, GEnx, and CF34 engines • Fuel Insight, FlightPulse™, and Airspace Insight software use data to optimize flight plans and routes for fuel savings 	<ul style="list-style-type: none"> • Enhanced flight data analytics for fuel savings recommendations
SAF	<ul style="list-style-type: none"> • All GE Aerospace and partner engines can operate on approved SAF blends • Industry’s first commercial airliner flight with 100% SAF in both GE90 engines • Active participation in ASTM International for qualification of new SAF production pathways and co-processing approaches 	<ul style="list-style-type: none"> • Tested 10th aircraft engine model with 100% SAF • First experimental flight with invited passengers using 100% SAF in one of two LEAP-1B engines • Chair ASTM International committee responsible for SAF pathway qualifications and development of 100% drop-in SAF specification • United Airlines Ventures Sustainable Flight Fund inaugural investor 	<ul style="list-style-type: none"> • Support adoption of 100% SAF • GE Aerospace and partner engines can operate on 100% drop-in SAF once approved for commercial use
		<p>2023 progress</p> <ul style="list-style-type: none"> • Simulated Open Fan engine architecture performance using the world’s fastest supercomputer • More than 250 tests completed for CFM’s RISE program, including first test of next-generation high-pressure turbine airfoils • Awarded next phase of NASA contract for advanced engine compact core development • Avio Aero launched the AMBER⁹ hybrid electric technology program to demonstrate an aviation propulsion system coupling a turbine engine with a fuel-cell powered electric motor • Supported in-flight testing to evaluate SAF benefits on emissions and contrails 	

⁸ Counter-Rotating Open Rotor was a technology test led by Safran Aircraft Engines with the participation of Avio Aero, a GE Aerospace company.

⁹ AMBER is a project funded under Clean Aviation Joint Undertaking, a successful public-private partnership between the European Commission and the European aeronautics industry.

More details on our current and future technologies can be found in our 2024 Sustainability Report. [➔](#)

Operations

Our goal is to achieve net zero carbon for Scope 1 and 2 operational emissions by 2030.¹⁰

To do so, we are using FLIGHT DECK, our proprietary lean operating model, to reduce energy waste and increase energy efficiency while transitioning to decarbonized power globally. While we are focused on driving absolute reductions to achieve net zero, where necessary, we plan

to balance remaining emissions with high-quality carbon credits. GE Aerospace internally tracks progress to established targets against a 2019 baseline.

By the end of 2023, we reduced Scope 1 and 2 CO₂e emissions by 23% against a 2019 base year.

More details on how we are optimizing our operations can be found in our 2024 Sustainability Report. [→](#)

Reducing operational emissions



Improving efficiency

In 2023, GE Aerospace introduced a Carbon KPI focused on reducing carbon emissions at more than 60 sites across 15 countries.¹¹ Participating sites are required to track energy usage every month and prepare action plans using FLIGHT DECK fundamentals to achieve targets. We also use energy treasure hunts (ETHs) to optimize energy efficiency at our sites. Findings can range from quick paybacks to more complex and investment-heavy solutions.

To improve our engine acceptance testing fuel efficiency, we began piloting an internal fuel-efficiency KPI at our largest testing site in Peebles, Ohio., in 2023. This has enabled greater focus on action planning and problem solving to reduce the use of jet fuel in commercial engine acceptance testing. As of 2024, we have scaled this internal KPI to all test sites across the company.



A move toward sourcing more carbon-free electricity

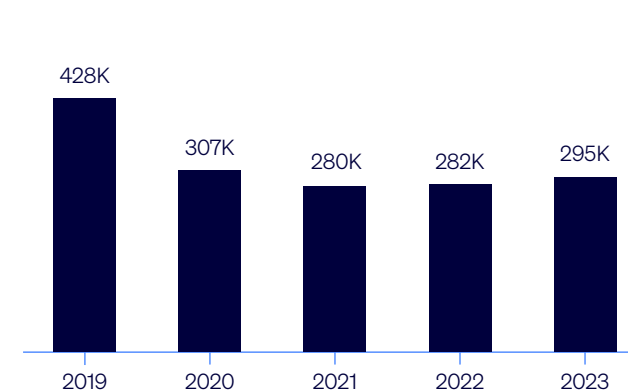
Our goal to achieve net zero carbon for Scope 1 and 2 operational emissions by 2030¹⁰ is supported by efforts that focus on infrastructure investments and lean operations to improve energy efficiency, and move toward sourcing more carbon-free electricity.



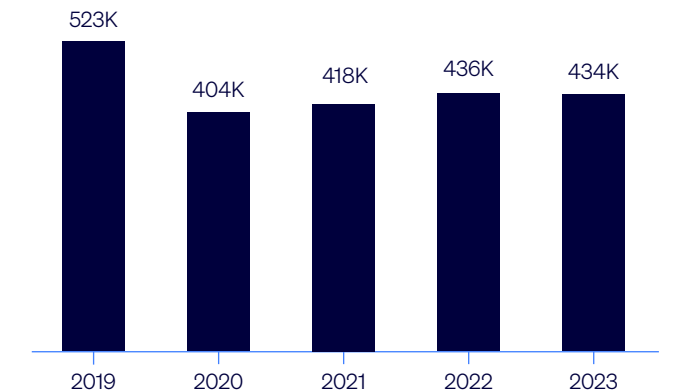
Using low-carbon fuels in our engine testing operations

This year, GE Aerospace is working toward procuring 250,000 gallons of blended SAF to be physically delivered to Peebles Test Operation and sustainable fuel certificates (SAFc) for 400,000 gallons of SAF, through book-and-claim.

Scope 1 emissions¹² (MTCO₂e)



Scope 2 emissions¹² (MTCO₂e) (market-based)



Emissions and energy use¹²

	2019	2020	2021	2022	2023
Total emissions (absolute Scope 1 and 2)—market-based (MTCO ₂ e)	951,490	710,406	698,085	718,458	728,592
Scope 1 emissions (MTCO ₂ e)	428,000	306,708	280,047	282,456	294,537
Scope 2 emissions—market-based (MTCO ₂ e)	523,490	403,698	418,038	436,002	434,056
Scope 2 emissions—location-based (MTCO ₂ e)	513,078	485,792	436,503	441,302	441,385
Operational energy use (MWh)	3,255,320	2,560,815	2,498,098	2,685,746	2,476,158
Total electricity (MWh)	1,400,434	1,307,447	1,269,583	1,278,055	1,276,090
Carbon-free electricity (MWh)	0	20,747	34,704	61,720	77,198
Percentage of carbon-free electricity (%)	0%	2%	3%	5%	6%

¹⁰ Locations within GE Aerospace's operational control as defined by the GHG Protocol.

¹¹ Sixty sites account for ~88% of our Scope 1 and 2 emissions attributable to site-specific operations. Excludes fleet, SF6, jet fuel used for product testing, and de minimis amounts.

¹² 2019–2023 data is presented here to reflect the profile of GE Aerospace as it exists today, following the spin-offs of GE HealthCare in January 2023 and GE Vernova in April 2024.

Governance

Sustainability governance structure

The GE Aerospace Board of Directors (the Board) and its committees oversee the establishment and execution of corporate strategy. The company's senior leadership team is responsible for developing our sustainability strategy, focusing on priorities, and for the company's sustainability performance—and reports to the Board and its committees on GE Aerospace's sustainability activities and progress. Our sustainability function coordinates day-to-day sustainability-related activities and is led by the CEO of Aerospace Carbon Solutions and Sustainability.

Board oversight of sustainability

The GE Aerospace Board of Directors oversees the company's sustainability priorities and initiatives as an integrated part of our overall strategy and risk management. Matters related to sustainability often span multiple functional categories and areas of oversight, and therefore involve discussion at the full Board level as well as at individual committees.

- **The Governance & Public Affairs Committee (Governance Committee)** has primary oversight of our priorities and external reporting related to sustainability and environmental, social, and governance (ESG) matters. This includes supporting the full Board's oversight of strategy, risks, and opportunities related to climate change. The Governance Committee also oversees political spending and lobbying, human rights, and environmental, health, and safety (EHS).
- **The Audit Committee** also has a role to play in sustainability and ESG matters, to the extent these topics relate to financial reporting and regulatory requirements. This includes reporting on these matters in Securities and Exchange Commission (SEC) filings and data quality related to this reporting.

More information on the role of each committee can be found in our [Proxy Statement](#) and in each committee's charter, which can be found in the [Governance section of our website](#). [➔](#)

Management oversight of sustainability

Strong sustainability engagement from management and the sustainability group ensures effective oversight and alignment across our organization's key functions.

Sustainability Senior Aerospace Leadership Team (SALT) Steering Committee

Our Sustainability SALT Steering Committee comprises senior leaders from key business areas, including sustainability, engineering, corporate affairs, supply chain, legal and compliance, commercial engines and services, and our transformation office. The committee develops the company's sustainability strategy, focusing on our sustainability priorities, and is responsible for sustainability performance and integration across the company. It also reviews the company's Sustainability Report and other ESG disclosures.

Sustainability Council

Staffed by a wide range of corporate functions, including legal, finance, sustainability, communications, investor relations, diversity, equity, and inclusion., human resources, supply chain, and quality, the Sustainability Council meets monthly to:

- Make sustainability core to GE Aerospace
- Monitor progress toward delivering on sustainability goals established by the Sustainability SALT Steering Committee

- Address gaps in our sustainability programs
- Review sustainability disclosures, including the Sustainability Report and regulatory reporting requirements

Progress or challenges in the areas above are escalated to the Sustainability SALT Steering Committee as needed.

At the operationalization level, the Sustainability leader is responsible for leading periodic climate-related risks and opportunities assessments and engaging subject matter experts across the company in sustainability-related issues. The Infrastructure team is responsible for executing actions to support our goal of net zero carbon for Scope 1 and 2 operational emissions by 2030.

Read more about our sustainability oversight in our [2024 Sustainability Report](#). [➔](#)

Policy engagement

Advancing policy development will require continued partnerships across governments, business, and civil society. As a major global company, GE Aerospace belongs to many industry associations, through which we engage in advocacy on a range of policy topics including energy and climate, in line with our climate change ambitions and our support for the Paris Climate Agreement.

While the Paris Agreement sets broader climate goals that encompass all sectors, including aviation, the efforts of the International Civil Aviation Organization (ICAO) are more tailored to the specific challenges and requirements of the aviation industry, focusing specifically on mitigating the emissions from aircraft operations. We are supporting ICAO's work on fuel-efficiency standards for aircraft and its Carbon Offsetting and Reduction Scheme for International Aviation (CORSA).

We also promote research into technology and materials to improve fuel efficiency and reduce emissions, such as those in development through the CFM International Revolutionary Innovation for Sustainable Engines (RISE) program and with more efficient flight planning.

Trade associations are increasingly moving to rally their members toward climate change and energy transition solutions, and our policy team works with them to influence constructive action toward these goals. Where there is divergence of views on policies and approaches, we strive for constructive engagement, initially reaching out to seek alignment. However, we may consider terminating our membership or withdrawing financial support if the misalignment outweighs the benefits of membership.

Read more about our policy engagement work in our 2024 Sustainability Report. [→](#)



Risk management

Enterprise risk management


GE Aerospace manages enterprise risk using a defined process, active leadership involvement, and robust governance practices.

Our Enterprise Risk Management (ERM) process is performed regularly and is intended to enable the company to effectively manage the enterprise risks that have the potential to impact our long-term strategy. The process requires the business to define and identify enterprise risks, prioritize its top risks and opportunities, and assess existing action plans to mitigate risk.

The foundational tier of our framework is a Working Committee made up of senior leader representatives across the enterprise and is co-chaired by the Chief Compliance Officer and Chief Risk Officer. This committee assigns business risk owners to key top risks, defines our company's risk profiles, and reviews risk tolerances and response strategies. Its output is brought to an Executive Risk Committee comprising members of the SALT, co-chaired by the General Counsel, Chief Financial Officer, and Chief Compliance Officer. This committee provides additional oversight, approves risk tolerances, and escalates key risks to the Audit Committee.

This structure drives accountability in the business, supporting effective risk management practices. Ultimately, the Audit Committee oversees GE Aerospace's enterprise risk management framework and receives an enterprise risk report from the Chief Compliance Officer. Our governance principles and committee charters define the risk areas for which each committee has ongoing oversight responsibility. The Board, as a whole, focuses on the most significant risks facing the company.

Top climate-related identified risks are currently embedded within our identified enterprise risk area universe. As part of the annual long-term strategy review process, we will continue to evaluate how to integrate the processes of climate-related risk identification, assessment, and management into the overall ERM process.

To read more on our ERM process, please see our [2024 Sustainability Report](#). 

Climate assessments

We have assessed our transition and physical risks and opportunities through two focused qualitative climate-related risk assessments.

The qualitative results of both assessments are detailed below.

Physical risk assessment

A global physical climate-related risks and exposures assessment was conducted in 2024 by third-party specialists. The assessment used engineering data from site visits at selected locations and the latest climate

insights to assess physical climate-related risks and exposures. We identified acute and chronic risks specified by weather and other events impacted by climate change according to different climate scenarios and timeframes, business interruptions, and outlooks for climate change impacts at specific locations. The assessment utilized the Representative Concentration Pathways (RCPs) detailed below.

This physical climate-related scenario analysis identified impacts to GE Aerospace's over two timeframes:

- *Short term (by 2030)*
- *Long term (by 2050)*

Scenarios

RCP 2.6¹³	Low: Global mean surface temperature continues to rise but is projected to stay below 2°C above preindustrial levels by 2050. This scenario is considered the best case for limiting climate change impacts. It requires a major turnaround in climate policies and concerted worldwide actions to reduce GHG emissions drastically.
RCP 4.5¹³	Intermediate: Global mean surface temperature continues to rise and is projected to reach 2°C above preindustrial levels by 2050. This scenario assumes a stabilization of GHG emissions by 2050 and a decline afterwards.
RCP 8.5¹³	High: Global mean surface temperature continues to rise and is projected to exceed 2°C above preindustrial levels by 2050. This scenario represents the highest GHG emissions scenario.

¹³ RCP refers to Representative Concentration Pathways, as described by the IPCC in the sixth assessment report, found [here](#).



GE9X engine.

Transition risk assessment

A climate-related transition risks and opportunities assessment was conducted between Q4 2023 and Q1 2024. This assessment was led by the Sustainability team with the support of external third-party specialists. As part of the assessment, a series of workshops with representatives and leaders from different functions across the company were hosted with the objective to refine and validate a process to identify and assess climate-related risks and opportunities.

The overall exercise included a qualitative climate risk assessment that considered two potential climate pathways covering a broad spectrum of outcomes to help consider risks and opportunities that may arise. Scenarios were built using publicly available data

sources, including assessments and reports by the Intergovernmental Panel on Climate Change (IPCC) and the International Energy Agency (IEA) on climate emission pathways.

The climate-related scenario analysis conducted identified impacts to GE Aerospace over three timeframes.

- **Short term (2024–2025)**
Covers a period aligned with internal budgeting cycles
- **Medium term (2025–2030)**
Aligned to company goal of net zero carbon for Scope 1 and 2 operational emissions by 2030
- **Long term (2030–2050)**
Aligned to the IEA climate scenarios timeframe

Scenario	Warming scenario (4°C to 5+°C warming by 2100)	Decarbonization scenario (1.5°C to 2°C warming by 2100)
Reference scenarios	IPCC SSP5-RCP 8.5, IEA Stated Policies Scenario (STEPS), NGFS Current policies	IPCC SSP1-RCP 2.6, IEA Net Zero Emissions by 2050 Scenario (NZE), NGFS Net Zero 2050
Overall trend	Climate change more pronounced Physical risks more prominent Adaptation required	Climate policy more pronounced Transition risks more prominent Mitigation required
GHG emissions rise	Emissions continue rising at current rates	Emissions are aggressively mitigated, reaching net zero by 2050
Temperature rise	2.4°C (4.3°F) by 2050 Warming up to ~4.4°C (7.9°F) expected by 2100, leading to an increase in chronic risks such as drought	~1.5°C (2.7°F) by 2050 vs. preindustrial levels Limiting warming to 1.5°C by 2100

Climate-related risks and opportunities

Physical risks could result from disruptions to our facilities and operations due to increased frequency and severity of extreme weather events, high temperatures, droughts, and sea level rise while transition risks could result from industry transition to a low-carbon economy. The table below covers key identified risks and opportunities. For additional information on climate-related risk see risk factors described in our SEC filings.

Physical risk	Description	Time horizon	Highest impact
Acute and chronic	Damage or disruption due to extreme weather events, for example extreme precipitation and sea level rise	2030–2050	Operations
Transition risk	Description	Time horizon	Highest impact
Policy	Regulatory requirements and compliance landscape	2025–2050	Downstream
	Carbon pricing schemes	2025–2050	Downstream
Technology	Increasing demand for transitioning to lower-emission technologies, including shifts in consumer demand for air travel	2025–2050	Downstream
	Limited availability of low-emission fuel	2025–2050	Downstream
	Unsuccessful investment in new engine technology	2025–2050	Downstream
Market	Shifts in customer preference from GE Aerospace products toward competition as competitors make advancements in relation to implementation of low-carbon technologies	2025–2050	Downstream
Transition opportunity	Description	Time horizon	Highest impact
Market	Air travel market growth	2025–2050	Downstream
Technology	Successful new low-emissions engine technology	2025–2050	Downstream



Physical risk

Damage or disruption due to extreme weather events, for example extreme precipitation and sea level rise

Time horizon
2030–2050

Description

Potential damage or disruption to GE Aerospace sites and operations due to increased frequency and severity of extreme weather events.

Response

At GE Aerospace, we reduce potential risk at our global operations through property loss prevention plans, business continuity plans, energy-efficiency programs, and capital investments for maintenance and upgrades to our facilities to build resilience into our operational infrastructure.



Transition risks

Regulatory requirements and compliance landscape

Time horizon
2025–2050

Description

Our business may be impacted by climate change and governmental and industry actions taken in response, which present a variety of risks to our business and financial results.

Changes in environmental and climate-related laws or regulations, including regulations on GHG emissions, product efficiency standards, mandatory disclosure obligations, and U.S. government procurement requirements, could increase our operational and compliance expenditures and those of our suppliers, and could require new or additional investments in product designs and facility upgrades.

Response

While the Paris Agreement sets broader climate goals that encompass all sectors, the efforts of the International Civil Aviation Organization (ICAO) are more tailored to the unique challenges and requirements of the aviation industry, focusing specifically on mitigating the emissions from aircraft operations. We support ICAO's work on fuel-efficiency standards for aircraft and its Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). We also promote research into technology and materials to improve fuel efficiency and reduce emissions, such as those in development through the CFM International RISE program and with more efficient flight planning.

Carbon pricing schemes

Time horizon
2025–2050

Description

Changes in environmental and climate-related laws or regulations could increase our operational and compliance expenditures and those of our suppliers, including increased energy and raw material costs and costs associated with manufacturing impacted by carbon pricing schemes.

Response

In 2023, GE Aerospace announced the creation of Aerospace Carbon Solutions (ACS). ACS' focus is to work on "beyond-the-engine" decarbonization breakthroughs, including low-carbon technologies for SAF and carbon credit markets.

Increasing demand for transitioning to lower-emission technologies, including shifts in consumer demand for air travel

Time horizon
2025–2050

Description

We face, along with others across the aerospace and defense sector, increasing demand for transitioning to lower-emission technologies, including low- to no-carbon products and services, the use of alternative energy sources and other sustainable aviation technologies, and climate adaptation products and services. Customers, shareholders, and institutional investors also continue to increase their focus on ESG issues, including our environmental sustainability practices and commitments with respect to our operations, products, and suppliers.

Response

Over the last decade, we have introduced new engines in virtually every market segment that offer double-digit fuel-efficiency improvements compared to their predecessors. GE Aerospace's position as an industry leader gives us a unique responsibility to chart the future of flight. But we are not doing it alone, nor could we. We benefit from partnerships with peer companies, aircraft manufacturers, and government entities, all of which demonstrate the strength of our team and technology portfolio.



Transition risks continued

Limited availability of low-emission fuel

Time horizon
2025–2050

Description

The achievement of aerospace and defense sector climate goals over the coming decades is likely to depend, in part, on technologies that are not yet deployed or widely adopted today. For example, emissions reduction over time will likely require a combination of changes such as continued technological innovation in the fuel efficiency of engines, expanded use of SAF, and the development of electric flight, among other aviation technologies.

Response

GE Aerospace has been actively involved in assessing and qualifying SAF since 2007 and works closely with SAF producers, regulators, and operators to ensure SAF can be widely adopted for use in aviation.

GE Aerospace is advocating for incentives that encourage greater development across the supply chain to make SAF more available and affordable compared to conventional jet fuel. For example, GE Aerospace has joined the Roundtable on Sustainable Biomaterials (RSB), an independent, international organization helping develop market policies for SAF and helping ensure SAF feedstock is resourced responsibly.

To learn more about SAF and alternative fuels, please see our 2024 Sustainability Report. [→](#)

Unsuccessful investment in new engine technology

Time horizon
2025–2050

Description

Our success in advancing climate objectives will depend in part on the actions of governments, regulators, and other market participants to invest in infrastructure, create appropriate market incentives, and to otherwise support the development of new technologies. The process of developing new high-technology products and enhancing existing products to mitigate climate change is often complex, costly, and uncertain, and we may pursue strategies or make investments that do not prove to be commercially successful in the timeframes expected or at all.

Response

GE Aerospace is focusing on collaborating with other industry participants to bring into service breakthrough technologies in the mid-2030s to help achieve absolute emissions reductions for the aviation sector's path to net zero.

For additional details, please see our 2024 Sustainability Report. [→](#)

Shifts in customer preference from GE Aerospace products toward competition as competitors make advancements in relation to implementation of low-carbon technologies

Time horizon
2025–2050

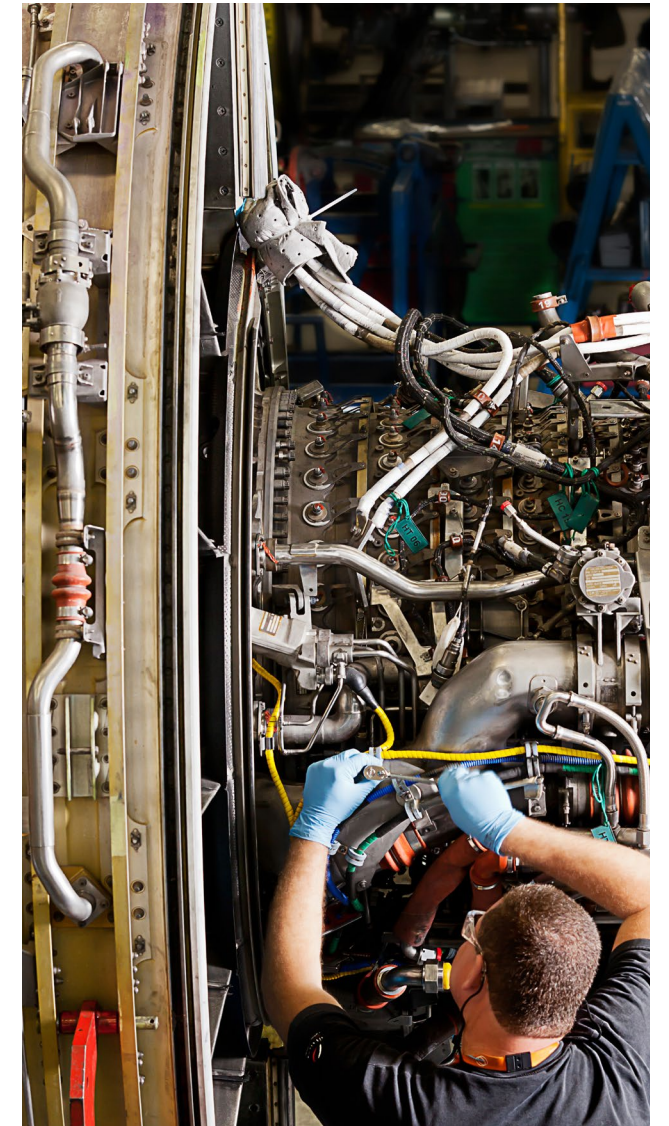
Description

We also face risks as our competitors respond to advancing sustainable technologies. Our competitors may develop these in-demand technologies before we do, their new technologies may be deemed by our customers to be superior to technologies we may develop, and their technologies may otherwise gain industry acceptance in advance of or instead of our products. In addition, as we and our competitors develop increasingly sustainable technologies, demand for our older offerings may decrease or become nonexistent.

Response

At GE Aerospace, we never stop innovating. As one of the world's largest suppliers of aircraft engines, systems, and services, GE Aerospace continues to lead the industry in developing technologies to reduce carbon emissions from flight. To that end, we invested \$2.3 billion in aerospace research and development in 2023,¹⁴ including emissions-reducing technologies.

For additional details, please see our 2024 Sustainability Report. [→](#)



¹⁴ Amount represents aerospace research and development as reported in our 2023 Form 10-K and includes customers and partner funding.



Opportunities

Air travel market growth

Time horizon
2025–2050

Description

The post-pandemic commercial aerospace recovery remains robust. The demand for new engines and aftermarket services continues to increase, powered both by the world returning to flight and airlines looking to expand and modernize their fleets. We continue to take actions to serve our customers as demand in the global airline industry increases.

Response

Breakthrough technologies (e.g., Open Fan, hydrogen, hybrid electric) could generate opportunity through accelerated fleet replacement if GE Aerospace products are significantly more efficient than competitors.

Successful new low-emissions engine technology

Time horizon
2025–2050

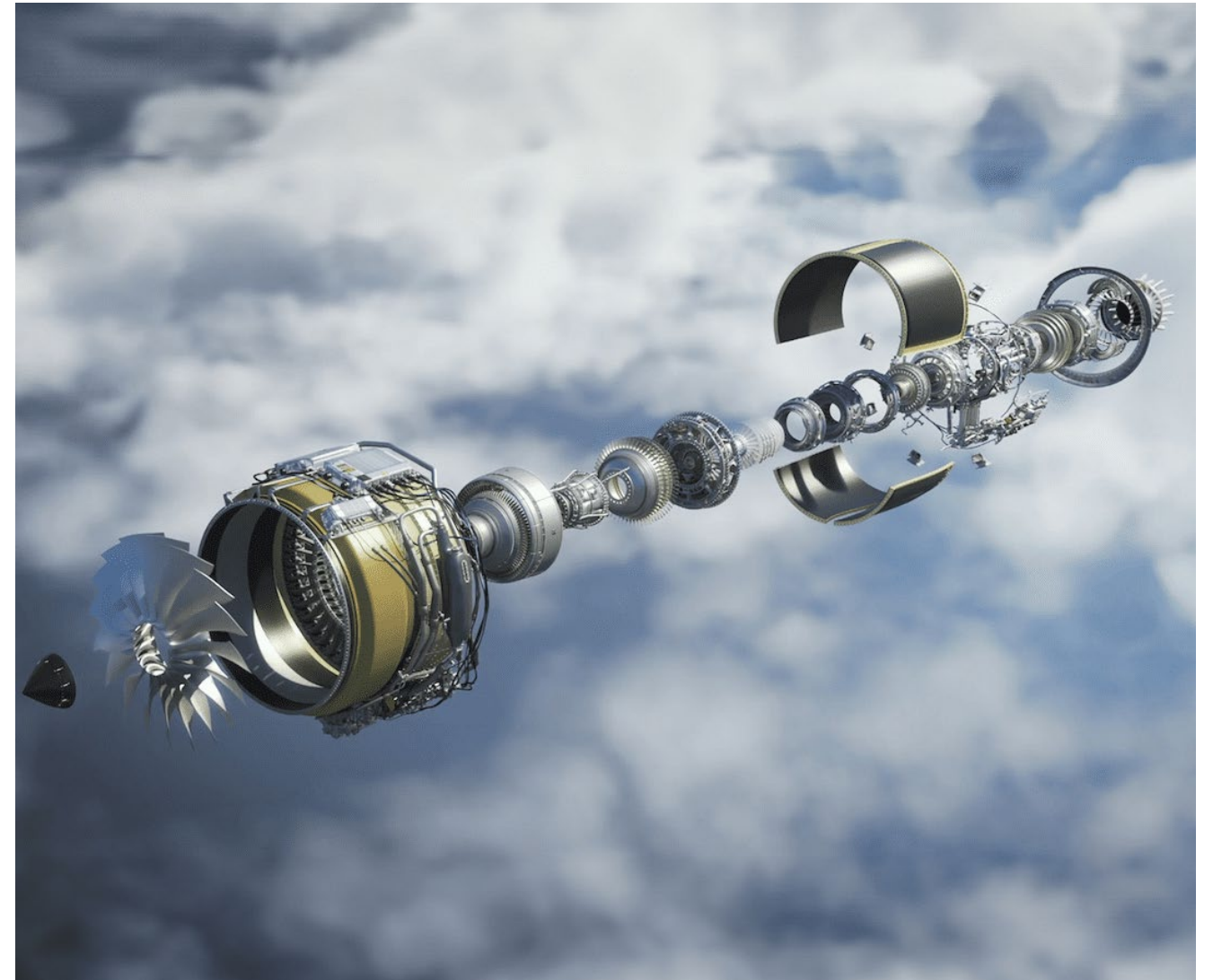
Description

Advanced propulsion technologies, aircraft operations, and other specific advancements are instrumental in helping our customers improve the efficient use of energy (fuel) in their future aircraft.

Response

Significant R&D investment combined with our scale provide opportunities to capitalize on low-emissions technologies.

To learn more about R&D investment, please see our 2024 Sustainability Report. [➔](#)



Components of a GE Aerospace Passport engine.

TCFD index

Disclosure Focus Area	Disclosure	Response
Governance		
Disclose the organization's governance around climate-related risks and opportunities	a) Describe the board's oversight of climate-related risks and opportunities.	TCFD Report: Governance—Board oversight of sustainability, page 6 CDP Corporate Questionnaire 2024: C4.1, C4.2
	b) Describe management's role in assessing and managing climate-related risks and opportunities.	TCFD Report: Governance—Management oversight of sustainability, page 6 CDP Corporate Questionnaire 2024: C4.3, C4.5
Strategy		
Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy and financial planning.	a) Describe the climate-related risks and opportunities the organization has identified over the short, medium and long term.	TCFD Report: Risk management—Enterprise risk management—Climate-related risks and opportunities, page 10 CDP Corporate Questionnaire 2024: C3.1, C3.6
	b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy and financial planning.	TCFD Report: Risk management—Enterprise risk management, page 8–9 TCFD Report: Risk management—Climate-related risks and opportunities, page 10 TCFD Report: Risk management—Climate-related risks and opportunities, Physical risk, page 11 TCFD Report: Risk management—Climate-related risks and opportunities, Transition risks, page 11–12 TCFD Report: Risk management—Climate-related risks and opportunities, Opportunities, page 13 CDP Corporate Questionnaire 2024: C5.1, C5.3, C5.4, C5.5
	c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	TCFD Report: Strategy, metrics, and targets, page 3–5 TCFD Report: Risk management—Climate-related risks and opportunities, page 10 TCFD Report: Risk management—Climate-related risks and opportunities, Physical risk, page 11 TCFD Report: Risk management—Climate-related risks and opportunities, Transition risks, page 11–12 TCFD Report: Risk management—Climate-related risks and opportunities, Opportunities, page 13 CDP Corporate Questionnaire 2024: C5.1, C5.3

Disclosure Focus Area	Disclosure	Response
Risk Management		
Disclose how the organization identifies, assesses and manages climate-related risks.	a) Describe the organization's processes for identifying and assessing climate-related risks.	TCFD Report: Risk management—Enterprise risk management, page 8 TCFD Report: Risk management—Climate assessments, page 8–9 CDP Corporate Questionnaire 2024: C2.1, C2.2, C2.3
	b) Describe the organization's processes for managing climate-related risks.	TCFD Report: Risk management—Enterprise risk management, page 8 CDP Corporate Questionnaire 2024: C2.1, C2.2, C2.3, C4.3
	c) Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organization's overall risk management.	TCFD Report: Risk management—Enterprise risk management, page 8 CDP Corporate Questionnaire 2024: C2.1, C2.2, C2.3, C4.3
Metrics and Targets		
Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities.	a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	TCFD Report: Strategy, metrics, and targets, page 3–5 CDP Corporate Questionnaire 2024: C7.4, C7.6, C7.7, C7.8
	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks.	TCFD Report: Strategy, metrics, and targets, page 3–5 CDP Corporate Questionnaire 2024: C7.4, C7.6, C7.7, C7.8
	c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	TCFD Report: Strategy, metrics, and targets, page 3–5 CDP Corporate Questionnaire 2024: C7.53, C7.54

Disclosure Focus Area	Disclosure	Response
Cross-Industry, Climate-Related Metrics		
Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities	GHG Emissions: Absolute Scope 1, Scope 2 and Scope 3; emissions intensity.	TCFD Report: Strategy, metrics, and targets, page 3–5 CDP Corporate Questionnaire 2024: C7.4, C7.6, C7.7, C7.8, C7.45, C7.50
	Transition Risks: Amount and extent of assets or business activities vulnerable to transition risks.	TCFD Report: Risk management—Climate-related risks and opportunities, Transition risks, page 11–12 CDP Corporate Questionnaire 2024: C3.1, C3.6
	Physical Risks: Amount and extent of assets or business activities vulnerable to physical risks.	TCFD Report: Risk management—Climate-related risks and opportunities, Physical risks, page 11 CDP Corporate Questionnaire 2024: C3.1, C3.6
	Climate-Related Opportunities: Proportion of revenue, assets or other business activities aligned with climate-related opportunities.	TCFD Report: Risk management—Climate-related risks and opportunities, Opportunities, page 13 CDP Corporate Questionnaire 2024: C3.1, C3.6
	Capital Deployment: Amount of capital expenditure, financing or investment deployed toward climate-related risks and opportunities.	TCFD Report: Risk management—Strategy, metrics, and targets—Technology innovation, page 3–4 TCFD Report: Risk management—Strategy, metrics, and targets—Operations, page 5 CDP Corporate Questionnaire 2024: C5.3, C5.4, C5.5
	Internal Carbon Prices: Price on each ton of GHG emissions used internally by an organization.	CDP Corporate Questionnaire 2024: C5.10
	Remuneration: Proportion of executive management remuneration linked to climate considerations.	CDP Corporate Questionnaire 2024: C4.5

