Welcome to your CDP Climate Change Questionnaire 2023

C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

GlobalFoundries (GF) is a leading manufacturer of essential semiconductors. The complex, feature-rich chips we make enable billions of electronic devices that are pervasive in daily life and throughout nearly every sector of the global economy. With a focus on power efficiency and integrating more features on each chip, our differentiated portfolio of advanced semiconductor technologies is powering the innovations that are transforming how humanity lives, works and connects. With a talented and diverse workforce and an at-scale manufacturing footprint spanning the U.S., Europe and Asia, GF is a trusted technology source to a broad range of worldwide customers including the global leaders in semiconductor design. With our specialized manufacturing processes, vast library of intellectual property, and differentiated technologies, we unlock value for customers by enabling them to create new devices and products that are more intelligent and intuitive, more connected and secure, and more powerful and energy efficient. GF serves high-growth markets with a focus on automotive, smart mobile devices, communications infrastructure and data centers, home and industrial Internet of Things (IoT), and personal computing. GF also serves the worldwide aerospace, defense and critical infrastructure markets. Semiconductors are at the heart of technological advancement and progress. By providing a secure and reliable supply of chips to our customers, GF creates value for society by enabling these companies to both create products needed today and accelerate the innovation of more sustainable, safer, highly connected and increasingly useful products for the future.

Since GF's founding in 2009, we have invested more than $23 billion to create a global manufacturing footprint with multiple state-of-the-art facilities across three continents, offering customers the flexibility and security their supply chains require. We currently operate four manufacturing sites, called fabs, located in: Dresden, Germany; Singapore; Malta, New York; and Burlington, Vermont. These world-class manufacturing sites across three continents provide the scale, technology differentiation, and geographic diversification that we believe are critically important to our customers' success. Our scaled footprint also gives us the flexibility and agility to meet the dynamic needs of our customers around the globe, help them mitigate geopolitical risk, and provide greater supply chain certainty. GF is committed to providing manufacturing capacity that grows with our customers for as long as they need it, where they need it.

To meet the current and future needs of our customers, GF offers a broad range of market-driven, purpose-built technology platforms that leverage our extensive patent portfolio and deep technical expertise. We focus on manufacturing feature-rich semiconductors that include digital, analog, mixed-signal, radio frequency, ultra-low power and embedded memory solutions that connect, secure and process data, and efficiently power the digital world around us. Customers depend on GF's securely manufactured chips and our differentiated semiconductor technologies for their growing number of applications that require low power, real-time connectivity and on-board intelligence. GF's world-class manufacturing expertise is complemented by a global network of research and development, design enablement, and customer support operations. Through an intense focus on collaboration, GF has built strong strategic partnerships with a broad base of more than 250 customers (as of December 31, 2022) many of which are the global leaders in their field. Underlying all we do is our company mission and values, including our longstanding and unwavering commitment to doing the right thing as a company. Just as the chips we manufacture are vital to the innovations that are leading to a cleaner, healthier future, GF is committed to minimizing our impact on the environment, driving positive change, and creating value through corporate responsibility.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data and indicate whether you will be providing emissions data for past reporting years.

Reporting year

Start date

January 1, 2022

End date

December 31, 2022

Indicate if you are providing emissions data for past reporting years

No

C0.3

(C0.3) Select the countries/areas in which you operate.

Germany
Singapore
United States of America

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.

USD

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.

Operational control

C0.8

(C0.8) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, a Ticker symbol	GFS

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual or committee	Responsibilities for climate-related issues
Board-level committee	The Board oversees the Company's ESG matters and programs through the ARCC and the Company's management team presents updates to the ARCC at least biannually. The ARCC guides the company's approach to ESG-related strategy, policies and disclosures, specifically including for climate related topics. Over the last two years, regular ESG reports to the ARCC have included reviews of climate-related risks, GHG reduction goals, and performance for other key ESG programs. The ARCC's ESG-related recommendations are reported to the full Board for strategic decision-making. The ARCC also reviews the results of ESG-related audits, including those performed by GF's Internal Audit function. Through the ARCC, GF has established Board-level ESG goals, including climate related goals.

Board Chair	The Board oversees the Company's ESG matters and programs through the ARCC and the Company's management team presents updates to the ARCC at least biannually. The ARCC's ESG-related recommendations are reported to the full Board for strategic decision-making. A board level annual review of GF climate programs is in place that includes GHG emissions reduction goal setting and GHG emission reduction progress.

C1.1b

(C1.1b) Provide further details on the board's oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – some meetings	Reviewing and guiding annual budgets Overseeing major capital expenditures Overseeing and guiding employee incentives Reviewing and guiding strategy Overseeing the setting of corporate targets Monitoring progress towards corporate targets Reviewing and guiding the risk management process	The Board oversees the Company's ESG matters and programs through the ARCC and the Company's management team presents updates to the ARCC at least biannually. The ARCC guides the company's approach to ESG-related strategy, policies and disclosures, specifically including for climate related topics. Over the last two years, regular ESG reports to the ARCC have included reviews of climate-related risks, GHG reduction goals, and performance for other key ESG programs. The ARCC's ESG-related recommendations are reported to the full Board for strategic decision-making. A board level annual review of GF climate programs is in place that includes GHG emissions reduction goal setting (including budgeting) and GHG emission reduction progress. GF has established Board-level ESG goals, including climate related goals. Accountability for achieving these goals is placed on the company's Senior Leadership Team (SLT). In 2023, the Board's ESG goals became a component of the Company's incentive-based compensation program for the Senior Leadership Team.

C1.1d

(C1.1d) Does your organization have at least one board member with competence on climate-related issues?

	Board member(s) have competence on climate-related issues	Criteria used to assess competence of board member(s) on climate-related issues
Row 1	Yes	Criteria used to assess competence of at least one board member on climate-related issues are based on Board Members relevant experience or skills, such as industry experience, financial skills or leadership skills. For example, relevant experience or skills on climate-related issues includes leadership experience in companies with documented positions to drive positive change on climate issues, integrate climate change considerations into their decision making and support of global climate action. Relevant experience or skills on climate-related issues also includes relevant industry experience and leadership in companies whose business model primarily is to drive clean technologies, sustainable development and, or renewable energy advancement.

C1.2

(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

Position or committee

Chief Executive Officer (CEO)

Climate-related responsibilities of this position

Managing annual budgets for climate mitigation activities
Managing major capital and/or operational expenditures related to low-carbon products or services (including R&D)
Providing climate-related employee incentives
Integrating climate-related issues into the strategy
Setting climate-related corporate targets
Monitoring progress against climate-related corporate targets
Managing climate-related risks and opportunities

Coverage of responsibilities

Reporting line

Reports to the board directly

Frequency of reporting to the board on climate-related issues via this reporting line

Quarterly

Please explain

Key ESG policy decisions and long-term goals, including climate related goals, are approved by the Chief Executive Officer, in addition to the oversight provided by the Board and the ARCC.
GF has established Board-level ESG goals that include climate related goals. Accountability for achieving these goals is placed on the company's Senior Leadership Team (SLT), led by the CEO
In 2023, the Board's ESG goals became a component of the Company's incentive-based compensation program for the Senior Leadership Team.

Position or committee

Sustainability committee

Climate-related responsibilities of this position

Setting climate-related corporate targets
Monitoring progress against climate-related corporate targets
Managing public policy engagement that may impact the climate
Managing climate-related risks and opportunities

Coverage of responsibilities

Reporting line

Other, please specify

Stewardship Committee reporting line to GF SLT. Membership includes senior executives representing the Legal, Finance, Manufacturing, Human Resources, Communications, Technology, Strategy, Business Operations and Global Supply Chain organizations.

Frequency of reporting to the board on climate-related issues via this reporting line

Not reported to the board

Please explain

GF maintains a Stewardship Committee, which is responsible for setting strategic direction, conducting management reviews, and providing guidance and approval regarding ESG related
topics., specifically including climate related topics. The Stewardship Committee membership includes senior executives representing the Legal, Finance, Manufacturing, Human Resources, Communications, Technology, Strategy, Business Operations and Global Supply Chain organizations, and according to its membership reports to the SLT on multiple reporting lines.

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	GF has established Board-level ESG goals, including climate related goals. Accountability for achieving these goals is placed on the company's Senior Leadership Team (SLT). In 2023, the Board's ESG goals became a component of the Company's incentive-based compensation program for the Senior Leadership Team.

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Entitled to incentive

Corporate executive team

Type of incentive

Monetary reward

Incentive(s)

Bonus - % of salary

Performance indicator(s)

Progress towards a climate-related target
Implementation of an emissions reduction initiative
Reduction in absolute emissions

Incentive plan(s) this incentive is linked to

Short-Term Incentive Plan

Further details of incentive(s)

GF has established Board-level ESG goals, including climate related goals. Accountability for achieving these goals is placed on the company's Senior Leadership Team (SLT).
In 2023, the Board's ESG goals became a component of the Company's incentive-based compensation program for the Senior Leadership Team.

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan

The incentive contributes to an increased focus of GF's Senior Leadership Team (SLT) on the status of attainment of GF's GHG reduction goal.

C2. Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?

Yes

C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

	From (years)	To (years)	Comment
Short-term	0	2	
Medium-term	2	5	
Long-term	5	10	

C2.1b

(C2.1b) How does your organization define substantive financial or strategic impact on your business?

GF's ERM (Enterprise-wide Risk Management) integrates risk management practices into business processes and operations for safeguarding assets, achieving competitive advantage and enabling GF's growth and success. ESG risks, including potential risks associated with climate change are evaluated within GF's ERM.

GF defines "substantive financial or strategic impact" as an impact that has a high probability to manifest a significant impact to the business.

GF uses risk severity and vulnerability to determine if a potential risk is significant considering impacts on:

- GF property, operations, and business continuity,
- GF personnel;
- upstream supply chain, utilities, and materials cost and continuity, and/or
- compliance, regulatory and quality related, and resulting reputational risks.

An impact that exceeds a defined threshold of severity and vulnerability combined and/ or if it exceeds 1% of annual corporate revenue is considered to be a substantive impact.

GF's risk factors are described in our 2022 Annual Report on Form 20-F ("Key Information", section D "Risk Factors Summary"), filed on April 14, 2023.

C2.2

(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

Value chain stage(s) covered

Direct operations
Upstream
Downstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

Annually

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

GF manages risk at the enterprise, business function and manufacturing site levels to meet our commitments to customers, shareholders, the community and employees.
We have incorporated identification and oversight of ESG risks, including climate risks, into our ERM, which is consistent with the ISO 31000 Risk Management standard and the COSO ("Committee of Sponsoring Organizations") framework.
Management and maintenance of risk mitigation is an on-going task, and our manufacturing sites and critical business functions engage in a regular review and assessment of risks. Risks are identified through a variety of assessment methodologies conducted by both internal and external resources. The frequency of these assessments depends on risk type but is typically annual. During this process, risks are prioritized, and mitigation strategies are identified, validated and measured.
Within our ERM, responsibilities for identifying and managing risks, including climate-related risks, reside with the appropriate GF functional business owners.
For example, GF manufacturing sites manage risks associated with potential physical risks of climate change on fab operations, maintaining appropriate business continuity plans and mitigation measures.
The ERM Executive Steering Committee, comprised of key members of GF's executive leadership team, is charged by the Company's management and Board of Directors to oversee the ERM, in coordination with the ARCC.

Value chain stage(s) covered

Direct operations
Upstream

Risk management process

A specific climate-related risk management process

Frequency of assessment

Not defined

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

In 2022, GF conducted a focused TFCD-aligned climate risk assessment and a qualitative scenario analysis that utilized selected low and high emissions scenarios. The climate risk assessment was done as a first step followed by the qualitative scenario-based analysis to better understand if GF potentially faces material impacts from selected climate related risks in the short-term to longer term.

C2.2a

(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Impacts of current climate-related regulation are monitored and assessed by GF's Global EHS team with inclusion of other GF teams (such as Legal, Facilities, Global Supply Management, Finance, Operations) as necessary. Examples of current regulatory risk types include regulations on carbon taxes (Singapore carbon tax) or related costs (e.g., for emissions allowances under the EU ETS), and regulations on fluorinated GHGs.
Emerging regulation	Relevant, always included	Impact of emerging climate-related regulation are monitored and assessed by GF's' Global EHS team with inclusion of other GF teams (such as Legal, Facilities, Global Supply Management, Finance, Operations) as necessary. Examples of emerging regulatory risk types include regulations on "carbon neutral" policy developments in regions where GF operates, such as emerging policies under the EU Green Deal.
Technology	Relevant, always included	Impact of climate-related technology risks are monitored and assessed by GF's' Global EHS team with inclusion of other GF teams (such as Facilities, Finance, Operations). Examples are risks that may prevent GF to reach our GF Journey to Zero Carbon emission reductions goal due to non-availability of low GHG emitting technologies, such as non-availability or not sufficient availability of renewable energy at GF sites (GF Journey to Zero Carbon goal: 25% reduction of combined Scope 1 and Scope 2 GHG emissions from 2020 to 2030). Impact of technological climate-related risks also was specifically considered as part of a TCFD-based climate risk assessment in early 2022 that evaluated key areas of potential risk using qualitative scenario analysis. The qualitative scenario analysis analyzed the risk associated with availability of low emission technology to support GF

		Journey to Zero Carbon emission reductions. Climate related technology innovation is also part of GF technology portfolio management. Semiconductors generally enable innovation in energy efficiency across multiple sectors. The contribution of GF products in electrification and the push for increasingly energy efficient products means that GF may contribute to the development and adoption of low emissions technology in other sectors.
Legal	Relevant, always included	Legal risks: compliance risks, potential litigation claim risks (including climate-related litigation claims) are considered a key risk and are always included in GF's risk assessment process.
Market	Relevant, always included	The impact of market climate-related risks is considered as part of GF technology portfolio management. GF's mission is to innovate and partner with our customers to deliver process technology solutions for all humanity. The semiconductors we deliver to our customers are a core technology enabling energy efficiency across multiple end-markets, along with the associated reductions in greenhouse gases (GHGs). High energy efficiency is a key benefit running throughout GF's technologies, and a major focus for GF is to create process innovations that further reduce power requirements to address market needs. GF enables our customers' products to be energy efficient, reduce GHGs and improve the human condition, for example in the following market segments: Automotive (transition to electrifying the automotive industry), Home and Industrial Internet of Things (IoT) (GF's technology solutions result in ultra-low power consumption by IoT devices), Smart Mobile Devices (GF delivers several key technologies that allow for more efficient, compact and higher performance mobile devices, enhancing the user experience while minimizing power consumption), Communications and Data Center (enabling energy efficiency), Emerging Technologies (future technologies such as GaN-on-silicon to support society's transition to cleaner, more renewable ways to produce and use energy).
Reputation	Relevant, always included	Reputational risks including climate-related reputational risks are subject to consideration in GF's risk assessment process. This specifically includes our customers' climate program expectations.
Acute physical	Relevant, always included	Impacts of acute physical climate risks are monitored and assessed by GF's teams such as Facilities, and Operations. GF manufacturing sites are located outside regions that are generally understood to be vulnerable to climate-related increase of extreme and severe weather events, such as cyclones, hurricanes, or floods. Acute physical risk also was considered specifically as part of a TCFD-

		based climate risk assessment that evaluated key areas of potential risk using qualitative scenario analysis in 2022.
Chronic physical	Relevant, sometimes included	Chronic physical risk was specifically considered as part of a TCFD-based climate risk assessment that evaluated key areas of potential risk using qualitative scenario analysis in 2022. GF's manufacturing sites are located outside regions that are generally understood to be vulnerable to chronic physical climate-related risks (such as rising annual average temperatures, droughts, water shortages), so that the chronic physical risk is assessed as not relevant in the short-term to mid-term for GF's own operations.

C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

No

C2.3b

(C2.3b) Why do you not consider your organization to be exposed to climate-related risks with the potential to have a substantive financial or strategic impact on your business?

	Primary reason	Please explain
Row 1	Risks exist, but none with potential to have a substantive financial or strategic impact on business	Management and maintenance of risk mitigation is an on-going task, and our manufacturing sites and critical business functions engage in a regular review and assessment of risks. Risks are identified through a variety of assessment methodologies conducted by both internal and external resources. The frequency of these assessments depends on risk type but is typically annual. During this process, risks are prioritized, and mitigation strategies are identified, validated and measured. As per response to C2.1b, GF defines "substantive financial or strategic impact" as an impact that exceeds a defined threshold of severity and vulnerability combined in our risk assessment and/ or if it exceeds 1% of annual corporate revenue. Climate-related risks have not been prioritized at the level of having a substantive impact to date. In 2022, GF conducted a TFCD-aligned climate risk assessment and a qualitative scenario analysis that utilized selected low and high emissions scenarios. While climate modeling is complex and different outcomes are possible, based on this qualitative scenario analysis, we do not expect any of the evaluated risks to present substantive impacts in the short-term (within the next 2 years) to mid-term (2-5 years). Our manufacturing sites are located in

		generally low-risk geographies for natural hazards, and the scenario analysis did not indicate a significant risk to our operations from extreme weather events well into the middle of the century.

C2.4

(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.4a

(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Opp1

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

GF's mission is to innovate and partner with our customers to deliver process technology solutions for all humanity. Our feature-rich platforms are integral to building the automated, connected, and electrified cars of tomorrow, delivering high-performance, power-efficient products designed and certified for the most demanding automotive applications. GF offers a wide range of feature-rich solutions that can address the needs of mission-critical applications in Smart Mobile Devices, Home and Industrial IoT, Communications Infrastructure & Datacenter, Automotive and Personal Computing. To solve our customers' most complex challenges, we have developed a broad range of sophisticated technology platforms that leverage our extensive patent portfolio and deep technical expertise in digital, analog, mixed-signal, RF and embedded memory. The transition from vehicles with internal combustion engines to electric vehicles (EVs)/ hybrid electric vehicles (HEV) presents growing opportunities in the automotive semiconductor market. Many automakers and industry suppliers rely on multiple automotive-qualified GF differentiated technologies, which are solving some of the most difficult power management challenges presented by vehicle electrification.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

95,200,000

Potential financial impact figure – maximum (currency)

201,400,000

Explanation of financial impact figure

GF's 2022 automotive end market revenue was $337M. 19%, or $69.9M of 2022 automotive revenue, is understood to be related to EVs/HEVs as the end application. According to S&P Global the EV/HEV semiconductor sales are expected to grow with a CAGR of 36%, 29%, 27%, and 23%, from 2023-2026. If GF meets overall market expectations for growth, 2023 EV/HEV revenues would be $95.2M USD. Because of an increased focus on the automotive end market, GF expects automotive to make up a larger portion of total company revenue. The maximum financial figure of $201.4M is achieved when GF meets its 2023 automotive end market revenue projections and maintains the 19% EV/HEV allocation. Across the minimum and maximum financial figures, the 2023 EV/HEV driven revenue opportunity is expected to represent approximately 1.2% to 2.5% of what was GF's 2022 total revenue.

Cost to realize opportunity

20,000,000

Strategy to realize opportunity and explanation of cost calculation

Strategy to realize opportunity:
Develop and manufacture semiconductor solutions for energy efficiency in Automotive end markets related to electric vehicles. Working in close collaboration with our customers, OEMs, and an ecosystem of 100+ partners globally, GF has paved the way for manufacturers and designers to take the fast lane and turn their innovative dreams into reality. Our best-in-class automotive platforms and full supply chain engagement are ready to help automotive customers drive the industry forward. Many automakers and industry suppliers rely on multiple automotive-qualified GF differentiated technologies, which are solving some of the most difficult power challenges presented by vehicle electrification. Between Q1 2022 to Q1 2023 GF has more than doubled its automotive revenue, from 4% to 10% of total revenue. Four of GF's top five automotive

customers receive semiconductors for EV/HEV applications. GF's BCD and BCDLite® CMOS platforms offer differentiated power efficiency and are essential for EVs because they enable more efficient battery designs and better battery management systems, thereby extending driving range and/or reducing vehicle weight. Key to GF's strategy is creating partnerships and long-term agreements with customers who intend to push the automotive industry to electric. In 2022 GF and General Motors (GM) entered an agreement for long-term direct supply of semiconductors for GM vehicles. This is an example of GF's first-of-its-kind, direct to source model enabling key customers to source a dedicated supply of semiconductors on the technology platform they need, with the best economics.
Explanation of cost:
According to our current strategy, GF will continue to support its customers and build on existing expertise by investing at least $20 million annually in developing automotive technology and manufacturing.

Comment

N/A

C3. Business Strategy

C3.1

(C3.1) Does your organization's strategy include a climate transition plan that aligns with a 1.5°C world?

Row 1

Climate transition plan

No, our strategy has been influenced by climate-related risks and opportunities, but we do not plan to develop a climate transition plan within two years

Explain why your organization does not have a climate transition plan that aligns with a 1.5°C world and any plans to develop one in the future

In August 2021, GF has announced its goal to reduce greenhouse gas emissions by 25% from 2020 to 2030, even as the company expands its global manufacturing capacity. GF's Journey to Zero Carbon initiative reinforces the company's commitment to sustainable and environmentally efficient manufacturing operations.
GF's current transition plans align with a "well below 2 degrees" path.

C3.2

(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?

	Use of climate-related scenario analysis to inform strategy

Row 1	Yes, qualitative, but we plan to add quantitative in the next two years

C3.2a

(C3.2a) Provide details of your organization's use of climate-related scenario analysis.

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Transition scenarios IEA STEPS (previously IEA NPS)	Company-wide		The IEA STEPS high emissions scenario generally assumes an avoidance of the worst impacts of climate change, it still results in a trajectory exceeding a 2°C increase, resulting in more severe climate changes relative to the low emissions scenario. STEPS reflects current policy settings based on a sector-by-sector assessment of the specific policies that are in place, as well as those that have been announced by governments around the world. Although the scenario shows that current commitments by governments around the world will make a difference compared to the current carbon trajectory, there will still be a large gap in warming between STEPS and the SDS. IEA STEPS includes all existing or announced carbon pricing schemes, at the national and regional level. GF scenario analysis was a qualitative scenario analysis with a time frame from current state to 2050.
Transition scenarios IEA SDS	Company-wide		The IEA SDS low emissions scenario requires global emissions to peak as soon as possible and rapidly fall by 70% by 2050, until they hit net zero by 2070. The scenario defines how the global energy sector needs to change by 2040 to both limit temperature increases to 2°C and also achieve the UN related policy goals around energy access and air pollution. Under this scenario, the world has a near even chance of staying within the 2°C temperature increase, thereby mitigating extreme impacts of climate change and the associated physical risk. SDS is based on a surge in clean energy policies and investments that aim to reach a plausible transition in line with the Paris Agreement. Under the scenario, current net zero pledges are achieved and efforts are made to realize near-term emissions reductions. In the SDS, carbon pricing is expanding to all advanced economies and most emerging market and developing economies.

			For countries with existing prices, costs follow stated policy and then converge on IEA's projected rates in 2040. The IEA SDS identifies 35% of the cumulative emissions reductions by 2070 as coming from technologies that are currently at the prototype or demonstration phase. A further 40% of the cumulative emissions reductions rely on technologies that have not yet been commercially deployed in mass-market applications. GF scenario analysis was a qualitative scenario analysis with a time frame from current state to 2050.
Physical climate scenarios RCP 8.5	Company-wide		SSP5-8.5 high emission scenario: The push for economic and social development is coupled with the exploitation of abundant fossil fuel resources and the adoption of resource and energy intensive lifestyles around the world. All these factors lead to rapid growth of the global economy, with strong investments in health, education, and institutions to enhance human and social capital. RCP 8.5 is characterized by very high emissions throughout the 21st century. Though considered relatively unlikely, this scenario would result in approximately 4.3°C of warming as minimal additional effort is made to constrain GHG emissions. This is generally considered a 'worst-case' climate change scenario. GF scenario analysis was a qualitative scenario analysis with a time frame from current state to 2050.
Physical climate scenarios RCP 2.6	Company-wide		SSP1-2.6 low emissions scenario: The world shifts gradually, but pervasively, toward a more sustainable path, emphasizing more inclusive development that respects perceived environmental boundaries. Management of the global commons slowly improves, educational and health investments accelerate the demographic transition, and the emphasis on economic growth shifts toward a broader emphasis on human well-being. Consumption is oriented toward low material growth and lower resource and energy intensity. This scenario is characterized by substantial net negative greenhouse gas emissions by the year 2100. It assumes carbon transition policies are put in place, resulting in generally less than 2°C warming, largely aligned with the well below 2°C warming scenario

			described in the Paris Agreement. GF scenario analysis was a qualitative scenario analysis with a time frame from current state to 2050.

C3.2b

(C3.2b) Provide details of the focal questions your organization seeks to address by using climate-related scenario analysis, and summarize the results with respect to these questions.

Row 1

Focal questions

Does GF potentially face material impacts from climate related risks in the time frame from current state to 2050?

Results of the climate-related scenario analysis with respect to the focal questions

Our TFCD-aligned climate risk assessment and qualitative scenario analysis utilized selected low and high emissions scenarios. The transitional risks included pricing of GHG emissions through carbon taxes and fees, and costs for lower emissions technology in manufacturing operations. The physical risks included increased severity of extreme weather with the potential to impact GF manufacturing operations in Germany, Singapore and the Northeast region of the U.S., or our suppliers, and rising mean temperatures.

Transitional risks: Carbon price; low emissions technology costs
While potential costs related to carbon pricing and adopting low emissions technology to reduce emissions have the potential to impact GF under both analyzed transition scenarios (IEA STEPS, and IEA SDS), the majority of impacts are not expected in the near (within the next 2 years) to mid-term (2-5 years).
GF takes action to further mitigate the impact of carbon pricing as GF continues to reduce absolute Scope 1 and Scope 2 greenhouse gas emissions by 25% by 2030 (compared to 2020 baseline) as planned according to GF's Journey to Zero Carbon Initiative.

Physical risks:
Acute Physical Risk for GF operations:
The location of the GF fabs (in Germany, Singapore, and the Northeastern US) outside of regions that are typically exposed to destructive natural hazards continues to offer protection to operations from the acute physical risks of climate change.
Chronic Physical Risk for GF operations:
Under a high emissions scenario, annual average temperature could rise by over 2°C by 2050 in the Northeastern US. The resulting increased cooling requirements could have significant impact on the cooling costs as well as potentially reduce the reliability of local

electricity supply during periods of peak demand.
Acute Physical Risk in GF Supply Chain:
Increased frequency and severity of extreme weather events can directly or indirectly affect multiple entities within supply chain networks such as physical infrastructure and assets, natural resources, and GF and supplier workforce. In both (low and high emissions) scenarios. The resulting modeled impact was considered medium for both scenarios.

C3.3

(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	GF's mission is to innovate and partner with our customers to deliver process technology solutions for all humanity. The semiconductors we deliver to our customers are a core technology enabling energy efficiency across multiple end-markets, along with the associated reductions in greenhouse gases (GHGs). Semiconductors are essential to the transportation and energy sectors, building more connected and power efficient systems and developing technology to improve human health and safety. GF's vision is to change the industry that is changing the world. Our technology solutions for humanity enable the strategies critical to tackling the most important challenges facing society, including climate change and the sustainable use of resources. The semiconductor technology platforms GF offers are the building blocks of the digital systems for the automotive, home and industrial internet of things (IoT), smart mobile devices, and communication and datacenter end markets. We also provide other emerging technologies necessary for supporting sustainability for humankind.
Supply chain and/or value chain	Yes	GF engages with a defined set of our most relevant suppliers ("major suppliers") to gain a better understanding of and drive environmental sustainability throughout our supply chain. This specifically includes, but is not limited to, climate related strategies and goals.

Investment in R&D	Yes	GF partners with customers to create sustainable solutions tailored to their specific needs and markets. High energy efficiency is a key benefit running throughout GF's technologies, and a major R&D focus for GF is to create process innovations that further reduce power requirements and enable clean technologies. We devote the majority of our R&D efforts to our seven primary differentiated technology platforms: RF SOI, FinFET, Feature-Rich CMOS, FDX, SiGe (Silicon-Germanium), GaN (Gallium Nitride) and SiPh (Silicon Photonics). A few examples of GF how these technology platforms and features enable energy-efficiency and clean technology: FDX™: GF's FDX™ platform offers a differentiated combination of high performance, energy efficiency, cost-effectiveness and flexibility. It integrates digital, high performance RF, analog and unique power management capabilities on a single chip, with a range of features including embedded non-volatile memory (eNVM). FDX-based systems can quickly toggle between high-performance or low-power operation, enabling substantial energy savings. It is especially well-matched for connected and low-power embedded applications such as those found in Home and Industrial IoT, mobile connectivity and automotive radar. GaN: Gallium nitride (GaN) is an emerging technology ideally suited for high voltage operation of power control devices and RF power amplifiers with unmatched efficiency and reliability when compared with conventional silicon devices. It is well-suited for a wide range of clean technology applications because it manages high voltages and currents at extremely high energy efficiencies, and in harsh environments. We believe GF's next-generation GaN-on-silicon technology will enable game-changing performance and efficiency in applications including electric vehicles (EVs) and the charging infrastructure for EVs, power grids, solar energy, data center and cellular infrastructure. SiPh: The GF Fotonix™ silicon photonics (SiPh) platform integrates photonic (light-based) and semiconductor technologies on the same chip to achieve high bandwidth and extremely energy-efficient data transmission in data centers. GF's SiPh technologies will play a vital role in the

		transition of data center communications from electrons to photons, greatly contributing to energy savings and scaling of generative AI models.
Operations	Yes	As an important step to align with climate science and minimize longer term exposure to climate change, in August 2021 we announced our Journey to Zero Carbon Initiative. The GF Journey to Zero Carbon goal is to reduce absolute Scope 1 and Scope 2 GHG emissions by 25% from 2020 to 2030 — even as we significantly expand our global manufacturing capacity. The strategy towards attaining the goal builds on GHG emission reduction strategies to conserve energy, implement additional emission controls and develop renewable and lower-carbon energy sources.

C3.4

(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues Direct costs Capital expenditures	GF's Journey to Zero Carbon Goal implementation plans have an impact on planned capital expenditures and on direct cost. To meet our goal of reducing absolute greenhouse emissions by 25%, GF will apply a variety of approaches and investments tailored to our global manufacturing footprint. These approaches include enhancing manufacturing emission controls (with associated capital expenditures), further improving energy efficiency (with an impact on direct costs), and sourcing renewable and lower-carbon energy (with an impact on capital expenditure and direct costs). Future GF revenue could be affected as per response to C2.4a as a result of seized climate-related opportunities.

C3.5

(C3.5) In your organization's financial accounting, do you identify spending/revenue that is aligned with your organization's climate transition?

	Identification of spending/revenue that is aligned with your organization's climate transition
Row 1	No, but we plan to in the next two years

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?

Absolute target

C4.1a

(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.

Target reference number

Abs 1

Is this a science-based target?

Yes, we consider this a science-based target, but we have not committed to seek validation of this target by the Science Based Targets initiative within the next two years

Target ambition

Well-below 2°C aligned

Year target was set

2021

Target coverage

Company-wide

Scope(s)

Scope 1
Scope 2

Scope 2 accounting method

Market-based

Scope 3 category(ies)

Base year

2020

Base year Scope 1 emissions covered by target (metric tons CO2e)

1,552,766

Base year Scope 2 emissions covered by target (metric tons CO2e)

772,930

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 2: Capital goods emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 4: Upstream transportation and distribution emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 6: Business travel emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 7: Employee commuting emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 10: Processing of sold products emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 11: Use of sold products emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 14: Franchises emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 15: Investments emissions covered by target (metric tons CO2e)

Base year Scope 3, Other (upstream) emissions covered by target (metric tons CO2e)

Base year Scope 3, Other (downstream) emissions covered by target (metric tons CO2e)

Base year total Scope 3 emissions covered by target (metric tons CO2e)

Total base year emissions covered by target in all selected Scopes (metric tons CO2e)

2,325,696

Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1

100

Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2

100

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target as % of total base year emissions in Scope 3, Category 1: Purchased goods and services (metric tons CO2e)

Base year Scope 3, Category 2: Capital goods emissions covered by target as % of total base year emissions in Scope 3, Category 2: Capital goods (metric tons CO2e)

Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target as % of total base year

emissions in Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

Base year Scope 3, Category 4: Upstream transportation and distribution covered by target as % of total base year emissions in Scope 3, Category 4: Upstream transportation and distribution (metric tons CO2e)

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target as % of total base year emissions in Scope 3, Category 5: Waste generated in operations (metric tons CO2e)

Base year Scope 3, Category 6: Business travel emissions covered by target as % of total base year emissions in Scope 3, Category 6: Business travel (metric tons CO2e)

Base year Scope 3, Category 7: Employee commuting covered by target as % of total base year emissions in Scope 3, Category 7: Employee commuting (metric tons CO2e)

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 8: Upstream leased assets (metric tons CO2e)

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target as % of total base year emissions in Scope 3, Category 9: Downstream transportation and distribution (metric tons CO2e)

Base year Scope 3, Category 10: Processing of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 10: Processing of sold products (metric tons CO2e)

Base year Scope 3, Category 11: Use of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 11: Use of sold products (metric tons CO2e)

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO2e)

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 13: Downstream leased assets (metric tons CO2e)

Base year Scope 3, Category 14: Franchises emissions covered by target as % of total base year emissions in Scope 3, Category 14: Franchises (metric tons CO2e)

Base year Scope 3, Category 15: Investments emissions covered by target as % of total base year emissions in Scope 3, Category 15: Investments (metric tons CO2e)

Base year Scope 3, Other (upstream) emissions covered by target as % of total base year emissions in Scope 3, Other (upstream) (metric tons CO2e)

Base year Scope 3, Other (downstream) emissions covered by target as % of total base year emissions in Scope 3, Other (downstream) (metric tons CO2e)

Base year total Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes

100

Target year

2030

Targeted reduction from base year (%)

25

Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]

1,744,272

Scope 1 emissions in reporting year covered by target (metric tons CO2e)

1,649,765

Scope 2 emissions in reporting year covered by target (metric tons CO2e)

811,685

Scope 3, Category 1: Purchased goods and services emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 2: Capital goods emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 4: Upstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 5: Waste generated in operations emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 6: Business travel emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 7: Employee commuting emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 8: Upstream leased assets emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 9: Downstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 10: Processing of sold products emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 11: Use of sold products emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 12: End-of-life treatment of sold products emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 13: Downstream leased assets emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 14: Franchises emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 15: Investments emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Other (upstream) emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Other (downstream) emissions in reporting year covered by target (metric tons CO2e)

Total Scope 3 emissions in reporting year covered by target (metric tons CO2e)

Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)

2,461,450

Does this target cover any land-related emissions?

No, it does not cover any land-related emissions (e.g. non-FLAG SBT)

% of target achieved relative to base year [auto-calculated]

-23.3485373841

Target status in reporting year

Underway

Please explain target coverage and identify any exclusions

The Journey to Zero Carbon target encompasses all of GF’s fabs' Scope 1 and Scope 2 GHG emissions even as GF increases manufacturing capacity. There are no material exclusions.

Plan for achieving target, and progress made to the end of the reporting year

To meet GF's Journey to Zero goal of reducing absolute greenhouse emissions by 25%, GF applies and has plans to apply a variety of approaches and investments tailored to its global manufacturing footprint. These approaches include enhancing manufacturing emission controls, further improving energy efficiency, and sourcing renewable and lower-carbon energy.

The 25% reduction goal encompasses all of GF’s fabs .

Key 2022 projects to reduce GHG emissions are reported in response to question C4.3. GF 2022 combined absolute Scope 1 and Scope 2 emissions were six percent higher than the 2020 baseline. However, they decreased by more than 47,000 MTCO2-e (two percent) as compared to 2021, marking a change in GF's emissions trend as a consequence of the Journey to Zero Carbon emission reduction projects that GF has embarked on since 2021.

List the emissions reduction initiatives which contributed most to achieving this target

C4.2

(C4.2) Did you have any other climate-related targets that were active in the reporting year?

Other climate-related target(s)

C4.2b

(C4.2b) Provide details of any other climate-related targets, including methane reduction targets.

Target reference number

Oth 1

Year target was set

2022

Target coverage

Company-wide

Target type: absolute or intensity

Intensity

Target type: category & Metric (target numerator if reporting an intensity target)

Energy consumption or efficiency

kWh

Target denominator (intensity targets only)

Other, please specify

Manufacturing Index (MI). MI = Number of semiconductor wafers manufactured * wafer area * number of masking steps in our fabrication processes (reflecting process complexity)

Base year

2020

Figure or percentage in base year

0.053

Target year

2025

Figure or percentage in target year

0.033

Figure or percentage in reporting year

0.042

% of target achieved relative to base year [auto-calculated]

55

Target status in reporting year

Underway

Is this target part of an emissions target?

GF's energy efficiency goal supports our GHG reduction goals as listed above: Abs1, Int1.

Is this target part of an overarching initiative?

No, it’s not part of an overarching initiative

Please explain target coverage and identify any exclusions

The target covers electricity use of all GF fabs and has no significant exclusions.

Plan for achieving target, and progress made to the end of the reporting year

Semiconductor manufacturing requires electricity to create and maintain the critical cleanroom conditions in our fabs, as well as for powering process tools, pumps and other equipment needed for our complex manufacturing processes. GF continually improves and optimizes these processes, identifying and implementing further efficiencies and energy-saving measures into our operations.

Normalized electricity use decreased more than 23 percent in 2022 compared to 2020. This decrease in normalized electricity use reflects GF’s continued work over many years to

achieve significantly higher productivity by keeping the absolute electricity demand nearly flat while increasing manufacturing output.

List the actions which contributed most to achieving this target

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	3	600,600
To be implemented*	10	530,200
Implementation commenced*	3	116,963
Implemented*	9	47,900
Not to be implemented	0	0

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Initiative category & Initiative type

Non-energy industrial process emissions reductions
Process equipment replacement

Estimated annual CO2e savings (metric tonnes CO2e)

19,067

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

475,000

Investment required (unit currency – as specified in C0.4)

866,667

Payback period

1-3 years

Estimated lifetime of the initiative

6-10 years

Comment

GF Singapore commenced a multi-year project to reduce GHG emissions by retrofitting a set of CVD tools. The retrofits enable use of an NF3 remote clean for the CVD chamber clean
process. This cleaning technology significantly reduces GHG emissions. Retrofits completed in 2022 are estimated to result in annualized greenhouse gas emission reduction of more than 19,000 MTCO2-e.
Annual monetary savings assume savings in Singapore carbon tax and an average tax rate per MTCO2e is assumed that considers the expected increase until year 2030.

Initiative category & Initiative type

Non-energy industrial process emissions reductions
Process material efficiency

Estimated annual CO2e savings (metric tonnes CO2e)

12,800

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

195,755

Investment required (unit currency – as specified in C0.4)

0

Payback period

No payback

Estimated lifetime of the initiative

6-10 years

Comment

GF Singapore engineers successfully optimized C2F6 cleaning gas flow for a CVD chamber cleaning step for a specific deposition process. These improvements will reduce annual GHG emissions by nearly 12,800 MTCO2-

Initiative category & Initiative type

Non-energy industrial process emissions reductions
Process material efficiency

Estimated annual CO2e savings (metric tonnes CO2e)

1,155

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

92,222

Investment required (unit currency – as specified in C0.4)

0

Payback period

No payback

Estimated lifetime of the initiative

6-10 years

Comment

A N2O using process step was removed from a process flow sequence at a specific tool set at GF Giga+ fab, resulting in annual savings of approximately 1150 MTCO2-e

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Initiative category & Initiative type

Non-energy industrial process emissions reductions

Other, please specify

Installation of process gas emissions abatement

Estimated annual CO2e savings (metric tonnes CO2e)

1,500

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

0

Investment required (unit currency – as specified in C0.4)

3,056,000

Payback period

No payback

Estimated lifetime of the initiative

6-10 years

Comment

Fab 9 continued to install additional point-of-use (POU) abatement units. These POU installations are part of a multi-year project to reduce GHG emissions.

Initiative category & Initiative type

Fugitive emissions reductions

Other, please specify

Fluorinated heat transfer fluid (FHTF) use replacement to lower GWP FHTF

Estimated annual CO2e savings (metric tonnes CO2e)

3,410

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

44,000

Investment required (unit currency – as specified in C0.4)

0

Payback period

No payback

Estimated lifetime of the initiative

6-10 years

Comment

Fugitive emissions reductions of FHTF (fluorinated heat transfer fluids) by replacing by fluids with lower global warming potential.

Initiative category & Initiative type

Energy efficiency in buildings

Other, please specify

Optimization in chiller operating configurations

Estimated annual CO2e savings (metric tonnes CO2e)

2,860

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 2 (location-based)

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

686,780

Investment required (unit currency – as specified in C0.4)

23,000

Payback period

<1 year

Estimated lifetime of the initiative

6-10 years

Comment

At our Singapore site's GIGA+ fab, a multiyear project was completed that focused on the optimization of chiller operating configurations. The completed project is estimated to save more than 7,050 MWh annually, which also saves a corresponding annual amount of 2,860 MTCO2-e in Scope 2 GHG emissions.

Initiative category & Initiative type

Energy efficiency in production processes

Other, please specify

Optimization of process equipment utilities' configurations.

Estimated annual CO2e savings (metric tonnes CO2e)

1,345

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 2 (location-based)

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

195,590

Investment required (unit currency – as specified in C0.4)

0

Payback period

No payback

Estimated lifetime of the initiative

6-10 years

Comment

GIGA+ fab engineers standardized process equipment utilities' configurations including scrubber exhaust, process chilled water and electricity. The resulting annual savings are

estimated to amount to 3,320 MWh with a corresponding savings of 1,345 MTCO2-e GHG in Scope 2 GHG emissions.

Initiative category & Initiative type

Energy efficiency in production processes
Cooling technology

Estimated annual CO2e savings (metric tonnes CO2e)

1,135

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 2 (location-based)
Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

286,775

Investment required (unit currency – as specified in C0.4)

0

Payback period

No payback

Estimated lifetime of the initiative

6-10 years

Comment

GF Singapore conducted a project to reduce process chilled water (PCW) flow at Fab 7 to rates that better aligned with tool specifications. Electricity savings from the lower demand on PCW pumps amounted to more than 2,800 MWh annually with a corresponding savings of 1,135 MTCO2-e in Scope 2 GHG emissions.

Initiative category & Initiative type

Energy efficiency in production processes
Compressed air

Estimated annual CO2e savings (metric tonnes CO2e)

190

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 2 (location-based)
Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

0

Investment required (unit currency – as specified in C0.4)

0

Payback period

No payback

Estimated lifetime of the initiative

6-10 years

Comment

Fab 1 reconfigured the operating schedule of compressed air turbo compressors for energy optimization. The change is estimated to result in annual savings of 800 MWh, corresponding to approximately 190 MTCO2-e.

Initiative category & Initiative type

Energy efficiency in production processes

Other, please specify

Numerous other smaller energy efficiency projects across the company not mentioned before

Estimated annual CO2e savings (metric tonnes CO2e)

4,438

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 2 (location-based)

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

0

Investment required (unit currency – as specified in C0.4)

0

Payback period

No payback

Estimated lifetime of the initiative

6-10 years

Comment

Numerous energy efficiency projects across the company (not included in projects listed individually) resulted in approximately another 4,430 MTCO2-e of annual reduction in our Scope 2 emissions.

C4.3c

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Financial optimization calculations	This method is used to identify the hierarchy of GHG reduction projects.
Dedicated budget for other emissions reduction activities	GHG emissions reduction project costs (such as for abatement installations to reduce process gas emissions) are budgeted within the overall company budget planning process.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products?

No

C5. Emissions methodology

C5.1

(C5.1) Is this your first year of reporting emissions data to CDP?

No

C5.1a

(C5.1a) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data?

Row 1

Has there been a structural change?

No

C5.1b

(C5.1b) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?

	Change(s) in methodology, boundary, and/or reporting year definition?

Row 1	No

C5.2

(C5.2) Provide your base year and base year emissions.

Scope 1

Base year start

January 1, 2020

Base year end

December 31, 2020

Base year emissions (metric tons CO2e)

1,552,766

Comment

To quantify semiconductor process related PFC emissions GF uses Tier 2 methods of IPCC Guideline for GHG Inventories V3_Chapt6 Electronics Industries. -

Scope 2 (location-based)

Base year start

January 1, 2020

Base year end

December 31, 2020

Base year emissions (metric tons CO2e)

889,721

Comment

Slight modification as compared to 2022 CDP submission due to modifications/updates to final 2020 values of grid emissions factors. 2022 reported value was: 897,687 MTCO2-e

Scope 2 (market-based)

Base year start

January 1, 2020

Base year end

December 31, 2020

Base year emissions (metric tons CO2e)

772,930

Comment

Slight modification as compared to 2022 CDP submission due to modifications/updates to final 2020 values of grid emissions factors. 2022 reported value was: 780,771 MTCO2-e

Scope 3 category 1: Purchased goods and services

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

434,151

Comment

For the year 2021, GF has begun to quantify an extended GHG inventory beyond Scope 1 and Scope 2 GHG emissions. Therefore, 2021 is our Scope 3 GHG emissions base year.

Scope 3 category 2: Capital goods

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

25,966

Comment

For the year 2021, GF began to quantify an extended GHG inventory beyond Scope 1 and Scope 2 GHG emissions. Therefore, 2021 is our Scope 3 GHG emissions base year.

Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

254,079

Comment

For the year 2021, GF began to quantify an extended GHG inventory beyond Scope 1 and Scope 2 GHG emissions. Therefore, 2021 is our Scope 3 GHG emissions base

year.
Also, please note, this is a restatement value reported in 2022 CDP for Scope 3 GHG Emissions from "Fuel and energy related activities" due to a correction.

Scope 3 category 4: Upstream transportation and distribution

Base year start
January 1, 2021

Base year end
December 31, 2021

Base year emissions (metric tons CO2e)
25,905

Comment
For the year 2021, GF has begun to quantify an extended GHG inventory beyond Scope 1 and Scope 2 GHG emissions. Therefore, 2021 is our Scope 3 GHG emissions base year.

Scope 3 category 5: Waste generated in operations

Base year start
January 1, 2021

Base year end
December 31, 2021

Base year emissions (metric tons CO2e)
11,506

Comment
For the year 2021, GF began to quantify an extended GHG inventory beyond Scope 1 and Scope 2 GHG emissions. Therefore, 2021 is our Scope 3 GHG emissions base year.

Scope 3 category 6: Business travel

Base year start
January 1, 2021

Base year end
December 31, 2021

Base year emissions (metric tons CO2e)
940.58

Comment
For the year 2021, GF began to quantify an extended GHG inventory beyond Scope 1 and Scope 2 GHG emissions. Therefore, 2021 is our Scope 3 GHG emissions base year.

Scope 3 category 7: Employee commuting

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

14,458

Comment

For the year 2021, GF began to quantify an extended GHG inventory beyond Scope 1 and Scope 2 GHG emissions. Therefore, 2021 is our Scope 3 GHG emissions base year.

Scope 3 category 8: Upstream leased assets

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

420

Comment

For the year 2021, GF began to quantify an extended GHG inventory beyond Scope 1 and Scope 2 GHG emissions. Therefore, 2021 is our Scope 3 GHG emissions base year.

Scope 3 category 9: Downstream transportation and distribution

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 10: Processing of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 11: Use of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 12: End of life treatment of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 13: Downstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 14: Franchises

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 15: Investments

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (upstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (downstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

C5.3

(C5.3) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

IPCC Guidelines for National Greenhouse Gas Inventories, 2006
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)
US EPA Mandatory Greenhouse Gas Reporting Rule

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)

1,649,765

Comment

no comment

C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We are reporting a Scope 2, market-based figure

Comment

no additional comment

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?

Reporting year

Scope 2, location-based

934,912

Scope 2, market-based (if applicable)

811,685

Comment

no additional comment

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1, Scope 2 or Scope 3 emissions that are within your selected reporting boundary which are not included in your disclosure?

Yes

C6.4a

(C6.4a) Provide details of the sources of Scope 1, Scope 2, or Scope 3 emissions that are within your selected reporting boundary which are not included in your disclosure.

Source of excluded emissions

Emissions from non-manufacturing sites

Scope(s) or Scope 3 category(ies)

Scope 2 (market-based)

Relevance of Scope 1 emissions from this source

Relevance of location-based Scope 2 emissions from this source

Relevance of market-based Scope 2 emissions from this source

Emissions are not relevant

Relevance of Scope 3 emissions from this source

Date of completion of acquisition or merger

Estimated percentage of total Scope 1+2 emissions this excluded source represents

0.1

Estimated percentage of total Scope 3 emissions this excluded source represents

Explain why this source is excluded

Emissions from non-manufacturing sites (leased spaces, not operated by GF) are not included in GF's Scope 1 GHG emissions inventory, because they are accounted for as Scope 3 Category 8 GHG emissions (Upstream leased assets).

Explain how you estimated the percentage of emissions this excluded source represents

We have accounted for emissions from non-manufacturing sites as Scope 3 Category 8 GHG emissions (Upstream leased assets: 917 MTCO2-e), so we have applied this amount to GF's total Scope 1+2 emissions and obtained a percentage value that is lower than 0.1%.

Source of excluded emissions

Emissions associated with refrigerant losses (comfort cooling)

Scope(s) or Scope 3 category(ies)

Scope 1

Relevance of Scope 1 emissions from this source

Emissions are not relevant

Relevance of location-based Scope 2 emissions from this source

Relevance of market-based Scope 2 emissions from this source

Relevance of Scope 3 emissions from this source

Date of completion of acquisition or merger

Estimated percentage of total Scope 1+2 emissions this excluded source represents

1

Estimated percentage of total Scope 3 emissions this excluded source represents

Explain why this source is excluded

GF generally accounts for fugitive emissions from the use of fluorinated heat transfer fluids and other cooling liquids for cooling of our manufacturing facilities and office

buildings. Some fugitive emissions from comfort cooling at some office buildings at our manufacturing sites have not been included due to an unclarity in the GHG data collection SOP that is planned to be updated.

Explain how you estimated the percentage of emissions this excluded source represents

The total GHG emissions from fugitive emissions from the use of fluorinated heat transfer fluids (FHTFs) for cooling of our manufacturing facilities and office buildings was 7% in 2022. We estimate that the fugitive emissions from the use of FHTFs for cooling of our manufacturing facilities accounts for more than 6%, and fugitive emissions from comfort cooling at office buildings accounts not more than 1% of the combined 7%. Because only a fraction of fugitive emissions from comfort cooling at few selected office buildings have not been included, we estimate that the omission is less than 1%.

C6.5

(C6.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

484,369

Emissions calculation methodology

Supplier-specific method

Hybrid method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

87

Please explain

Scope 3 GHG emissions of purchased goods and services (chemicals, wafers, masks, outsourced assembly and test services) were estimated using GF major suppliers' information obtained in annual major supplier campaign. GF major suppliers were requested to provide their Scope 1 and Scope 2 GHG emissions, as well as their revenue, so that supplier specific economic (Scope 1+Scope 2) GHG intensity could be derived.

GF major supplier spend was multiplied with GF specific supplier spend to obtain the resulting supplier specific (Scope 1+ Scope 2) GHG emissions. Major suppliers with a cumulative spend of 87 percent were covered by this method, and their individual supplier specific (Scope 1+ Scope 2) GHG emissions were summed up. The resulting total was extrapolated to 100 percent to represent GF's Category 1 Purchased goods and services Scope 3 GHG emissions.

The Scope 3 GHG emissions of Category 1 Purchased goods and services are considered relevant because they exceed 5% of GF's 2022 total quantified Scope 3 GHG emissions.

Capital goods

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

17,596

Emissions calculation methodology

Supplier-specific method

Hybrid method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

77

Please explain

Scope 3 GHG emissions of capital goods were estimated using GF major suppliers' information obtained in annual major supplier campaign. GF major suppliers were requested to provide their Scope 1 and Scope 2 GHG emissions, as well as their revenue, so that supplier specific economic (Scope 1+Scope 2) GHG intensity could be derived. GF major supplier spend was multiplied with GF specific supplier spend to obtain the resulting supplier specific (Scope 1+ Scope 2) GHG emissions. Major suppliers with a cumulative spend of 77 percent were covered by this method, and their individual supplier specific (Scope 1+ Scope 2) GHG emissions were summed up. The resulting total was extrapolated to 100 percent to represent GF's Category 2 Capital goods Scope 3 GHG emissions.

The Scope 3 GHG emissions of Category 2 Capital goods are not considered relevant because they do not exceed 5% of GF's 2022 total quantified Scope 3 GHG emissions.

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

237,098

Emissions calculation methodology

Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

GF Scope 3 fuel and energy related activities (not already included in Scope 1 or 2) were quantified using GF's own data on fuel and electricity use and third-party average factors (Defra 2022, EPA egrid 2021 (EPA 2021 egrid data released in January 2023). The quantification includes all upstream (cradle-to-gate) emissions of purchased fuels, electricity, and all upstream (cradle-to-gate) emissions of energy consumed in a T&D system (for T&D losses).
The Scope 3 GHG emissions of Category 3 Fuel-and-energy-related activities (not included in Scope 1 or 2) are considered relevant because they exceed 5% of GF's 2022 total quantified Scope 3 GHG emissions.

Upstream transportation and distribution

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

28,901

Emissions calculation methodology

Other, please specify

Engineering estimate, based on prior detail Scope 3 assessments where upstream transportation Scope 3 emissions represented ~ 6% of Purchased Goods and Services Scope 3 GHG emissions.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

The number represents an engineering estimate, based on prior GF detail Scope 3 assessments where GF's upstream transportation GHG emissions represented ~ 6% of GF's Purchased Goods and Services Scope 3 GHG emissions. The estimate includes Tank-to-Wheel (TTW) portion.
The Scope 3 GHG emissions of Category 4 Upstream transportation and distribution are not considered relevant because they do not exceed 5% of GF's 2022 total quantified Scope 3 GHG emissions.

Waste generated in operations

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

42,101

Emissions calculation methodology

Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

The quantification of Category 5 Scope 3 Waste generated in operations is based on actual 2022 GF total waste tonnage and third-party average factors (Defra 2022) for Scope 1 and Scope 2 of waste treatment of the waste GF generated in 2022.
The quantification of Category 5 Scope 3 Waste generated in operations includes as well the well to wheel emissions (scope 1) from waste transportation.
It is based on distances to waste treatment facilities relevant to GF waste, and third-party average factors (Defra 2022) for waste transportation.
The Scope 3 GHG emissions of Category 5 Scope 3 Waste generated in operations are considered relevant because they exceed 5% of GF's 2022 total quantified Scope 3 GHG emissions.

Business travel

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

4,600

Emissions calculation methodology

Supplier-specific method
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

Business travel: Data provided by GF’s global travel provider and includes travel carriers' Scope 1 and Scope 2 emissions (well to wheel/ well to wing).
The quantification of GF's travel provider factors in the scope 1 and scope 2 emissions of transportation companies (e.g., airlines) and is based on the distances travelled and the travel means (e.g. air, rail).
The Scope 3 GHG emissions of Category 6 Business travel are not considered relevant because they do not exceed 5% of GF's 2022 total quantified Scope 3 GHG emissions.

Employee commuting

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

19,224

Emissions calculation methodology

Average data method
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

Quantification is based on number of employees by location, employee commute assumptions and third party average factors (Defra 2022). The assumptions were validated / updated with results from an employee survey on employee commute distances, frequency and modes of employee commute, that was performed in early 2023.
Emissions from employee commuting include the scope 1 and scope 2 emissions of employees and third-party transportation providers.
The Scope 3 GHG emissions of Category 7Employee commute are not considered relevant because they do not exceed 5% of GF's 2022 total quantified Scope 3 GHG emissions.

Upstream leased assets

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

917

Emissions calculation methodology

Asset-specific method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

The quantification includes location-based Scope 2 emissions from upstream leased assets, based on upstream leased assets' 2022 electricity consumption and the applicable location based grid emission factor.
The Scope 3 GHG emissions of Category 8 Upstream leased assets are not considered relevant because they do not exceed 5% of GF's 2022 total quantified Scope 3 GHG emissions.

Downstream transportation and distribution

Evaluation status

Not relevant, explanation provided

Please explain

GF does not have control of and therefore does not have sufficient insight into this category and therefore does not quantify this category.

Processing of sold products

Evaluation status

Not relevant, explanation provided

Please explain

As a manufacturer of "sold intermediate products", GF does not have control and has not had sufficient insight into this category. GF is therefore not able to reasonably estimate the downstream emissions in Category 10 Processing of sold products that are associated with the various subsequent processing options of the intermediate product.

Use of sold products

Evaluation status

Not relevant, explanation provided

Please explain

As a manufacturer of "sold intermediate products", GF does not have control and has not had sufficient insight into this category. GF is therefore not able to reasonably estimate the downstream emissions in Category 11 Use of sold products that are associated with the various end uses of the intermediate product.

End of life treatment of sold products

Evaluation status

Not relevant, explanation provided

Please explain

As a manufacturer of "sold intermediate products", GF does not have control and has not had sufficient insight into this category. GF is therefore not able to reasonably estimate the downstream emissions in Category 12 End of life treatment of sold products that are associated with the various end of life treatment options of the intermediate product.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

GF did not have any downstream leased assets in the reporting year, so Category 13 Downstream leased assets is n/a.

Franchises

Evaluation status

Not relevant, explanation provided

Please explain

GF did not have any franchises in the reporting year, so Category 14 Franchises is n/a.

Investments

Evaluation status

Not relevant, explanation provided

Please explain

GF JVs are disclosed in 2022 GF Annual Report GF Form 20-F.
For Silicon Manufacturing Partners Pte Ltd. (“SMP”), GHG emissions are already accounted as part of GF's Scope 1 and Scope 2 GHG emissions because GF exercises operational control.
For GF's JV with Toppan, these are covered as part of GF's Scope 3 Category 1 Purchased goods and services GHG emissions, as the JV is part of our major suppliers list.

Other (upstream)

Evaluation status

Not relevant, explanation provided

Please explain

This category was not relevant to GF business in the reporting year.

Other (downstream)

Evaluation status

Not relevant, explanation provided

Please explain

This category was not relevant to GF business in the reporting year

C6.7

(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?

No

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure

0.000303583

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

2,461,450

Metric denominator

unit total revenue

Metric denominator: Unit total

8,108,000,000

Scope 2 figure used

Market-based

% change from previous year

20

Direction of change

Decreased

Reason(s) for change

Other emissions reduction activities
Change in revenue

Please explain

GF revenue increased from 2021 to 2022 by 23%. At the same time, GF's 2022 GHG emission decreased by more than 47,000 MTCO2-e (2%) as compared to 2021, marking a change in GF's emissions trend as a consequence of GF's Journey to Zero Carbon emission reduction projects that GF has embarked on since 2021. (Please also see as reported in response to question C4.3b)

Intensity figure

0.0000331888

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

2,461,450

Metric denominator

Other, please specify

Manufacturing Index (MI): the MI is derived from the number of wafers manufactured, the number of masking steps in our fabrication processes (reflecting process complexity), and the total area of wafers produced.

Metric denominator: Unit total

74,165,171,326

Scope 2 figure used

Market-based

% change from previous year

6.3

Direction of change

Decreased

Reason(s) for change

Other emissions reduction activities
Change in output

Please explain

GF's 2022 GHG emission decreased by more than 47,000 MTCO2-e (2%) as compared to 2021, marking a change in GF's emissions trend as a consequence of GF's Journey to Zero Carbon emission reduction projects that GF has embarked on since 2021. (Please also see as reported in response to question C4.3b)

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?

Yes

C7.1a

(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
PFCs	920,631	IPCC Fourth Assessment Report (AR4 - 100 year)
HFCs	46,636	IPCC Fourth Assessment Report (AR4 - 100 year)
SF6	71,119	IPCC Fourth Assessment Report (AR4 - 100 year)
NF3	224,066	IPCC Fourth Assessment Report (AR4 - 100 year)
N2O	91,169	IPCC Fourth Assessment Report (AR4 - 100 year)
CO2	125,002	IPCC Fourth Assessment Report (AR4 - 100 year)
Other, please specify Fluorinated Heat Transfer Fluids (FHTFs)	171,142	Other, please specify IPCC AR4 where available, and U.S. EPA GWPs per Table A-1 to Subpart A of Part 98 GHG Mandatory Reporting Rule (MRR)

C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/area/region.

Country/area/region	Scope 1 emissions (metric tons CO2e)
Germany	64,288
Singapore	976,229
United States of America	609,248

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

By facility

C7.3b

(C7.3b) Break down your total gross global Scope 1 emissions by business facility.

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
Fab 1, Dresden, Germany	64,288	51.050407	13.737262
Woodlands, Singapore	976,229	1.3521	103.8198
Fab 8, Malta, NY, USA	199,072	42.9854	-73.7868
Fab 9, Burlington, VT, USA	254,671	44.4759	-73.2121
Fab 10 East Fishkill, USA	155,504	41.5356	-73.899

C7.5

(C7.5) Break down your total gross global Scope 2 emissions by country/area/region.

Country/area/region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Germany	303,444	275,145
Singapore	415,600	413,907
United States of America	215,867.85	122,632

C7.6

(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.

By facility

C7.6b

(C7.6b) Break down your total gross global Scope 2 emissions by business facility.

Facility	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Fab 1, Dresden, Germany	303,444	275,145
Woodlands, Singapore	415,600	413,907
Fab 8, Malta, NY, USA	81,945	81,945
Fab 9, Burlington, VT, USA	93,236	0
Fab 10, East Fishkill, NY, USA	40,687	40,687

C7.7

(C7.7) Is your organization able to break down your emissions data for any of the subsidiaries included in your CDP response?

No

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Decreased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.

	Change in emissions (metric tons CO2e)	Direction of change in emissions	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	0	No change	0	There has been no material change in renewable energy consumption from 2021 to 2022.
Other emissions reduction activities	47,900	Decreased	1.9	GHG emission reduction (Scope 1 and Scope 2) through greenhouse gas reduction projects that were implemented in 2022. Please see the

				project descriptions in response to question C4.3b. The total combined savings amount to 47,900 MTCO2, which are 1.9% of GF's 2021 Scope 1 and Scope 2 GHG emissions (2,461,450 MTCO2e) (based on market-based Scope 2).
Divestment	0	No change	0	There was no divestment that became effective in the reporting year.
Acquisitions	0	No change	0	There was no acquisition that became effective in the reporting year.
Mergers	0	No change	0	There was no merger that became effective in the reporting year.
Change in output	297	Increased	0.01	There was an overall increase in wafer output for the year 2022 as compared to 2021. That increase was mainly at those GF's fabs that are GF's less GHG emission intensive fabs.
Change in methodology	0	No change	0	There was no change in methodology effective in the reporting year.
Change in boundary	0	No change	0	There was no change in boundary effective in the reporting year.
Change in physical operating conditions	0	No change	0	There was no change in physical operating conditions effective in the reporting year.
Unidentified	0	No change	0	This category was not applicable in the reporting year.
Other	0	No change	0	This category was not applicable in the reporting year.

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Market-based

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

More than 5% but less than or equal to 10%

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	Yes
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	Yes
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	0	684,231	684,231
Consumption of purchased or acquired electricity		857,672	2,259,028	3,116,700

Consumption of purchased or acquired heat		0	187,155	187,155
Consumption of purchased or acquired cooling		0	344,992	344,992
Consumption of self-generated non-fuel renewable energy		4,172		4,172
Total energy consumption		861,843	3,475,406	4,337,249

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	No
Consumption of fuel for the generation of heat	Yes
Consumption of fuel for the generation of steam	No
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	No

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Sustainable biomass

Heating value

LHV

Total fuel MWh consumed by the organization

0

Comment

No sustainable biomass was used as a fuel in the reporting year.

Other biomass

Heating value

LHV

Total fuel MWh consumed by the organization

0

Comment

No other biomass was used as a fuel in the reporting year.

Other renewable fuels (e.g. renewable hydrogen)

Heating value

LHV

Total fuel MWh consumed by the organization

0

Comment

No other renewable fuel was used as a fuel in the reporting year.

Coal

Heating value

LHV

Total fuel MWh consumed by the organization

0

Comment

No coal was used as a fuel in the reporting year.

Oil

Heating value

LHV

Total fuel MWh consumed by the organization

14,935

Comment

This includes fuel uses of Diesel in the reporting year.

Gas

Heating value

LHV

Total fuel MWh consumed by the organization

663,543

Comment

This includes fuel uses of 578 MWh LPG and 662,965 MWh Natural Gas in the reporting year.

Other non-renewable fuels (e.g. non-renewable hydrogen)

Heating value

LHV

Total fuel MWh consumed by the organization

5,753

Comment

This includes fuel uses of non-renewable Hydrogen in the reporting year.

Total fuel

Heating value

LHV

Total fuel MWh consumed by the organization

684,231

Comment

Number represents total fuel use in the reporting year.

C8.2d

(C8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	4,172	4,172	4,172	4,172
Heat	0	0	0	0
Steam	0	0	0	0
Cooling	0	0	0	0

C8.2e

(C8.2e) Provide details on the electricity, heat, steam, and/or cooling amounts that were accounted for at a zero or near-zero emission factor in the market-based Scope 2 figure reported in C6.3.

Country/area of low-carbon energy consumption

United States of America

Sourcing method

Default delivered electricity from the grid (e.g. standard product offering by an energy supplier) from a grid that is 95% or more low-carbon and where there is no mechanism for specifically allocating low-carbon electricity

Energy carrier

Electricity

Low-carbon technology type

Low-carbon energy mix, please specify

This refers to the grid electricity as provided by the local utility provider Green Mountain Power (GMP) to GF Fab 9 Vermont. GMP energy mix is 100% carbon free and more than 78% renewable (includes wind, solar).

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

377,510

Tracking instrument used

Contract

Country/area of origin (generation) of the low-carbon energy or energy attribute

United States of America

Are you able to report the commissioning or re-powering year of the energy generation facility?

No

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

Comment

Grid electricity as provided by the local utility provider Green Mountain Power (GMP) to GF Fab 9 Vermont. GMP energy mix is 100% carbon free and more than 78% renewable (includes wind, solar).

C8.2g

(C8.2g) Provide a breakdown by country/area of your non-fuel energy consumption in the reporting year.

Country/area

Germany

Consumption of purchased electricity (MWh)

564,975

Consumption of self-generated electricity (MWh)

0

Consumption of purchased heat, steam, and cooling (MWh)

532,147

Consumption of self-generated heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

1,097,122

Country/area

Singapore

Consumption of purchased electricity (MWh)

1,020,230

Consumption of self-generated electricity (MWh)

4,172

Consumption of purchased heat, steam, and cooling (MWh)

0

Consumption of self-generated heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

1,024,402

Country/area

United States of America

Consumption of purchased electricity (MWh)

1,531,494

Consumption of self-generated electricity (MWh)

0

Consumption of purchased heat, steam, and cooling (MWh)

0

Consumption of self-generated heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

1,531,494

C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

Description

Energy usage

Metric value

0.42

Metric numerator

Electricity used in MWh (3,120,871 MWh)

Metric denominator (intensity metric only)

Manufacturing Index: 74,165,171,326

% change from previous year

2.6

Direction of change

Decreased

Please explain

Normalized electricity use decreased by 2.6 percent in 2022 compared to 2021. This reflects GF's continued work to conserve energy over many years to achieve significantly higher productivity by keeping the absolute electricity demand nearly fat while increasing manufacturing output.

C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	No third-party verification or assurance

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

GlobalFoundries Reporting Year 2022 Verification Statement_Limited (1).pdf

Page/ section reference

Page 1-3

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

C10.1b

(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.

Scope 2 approach

Scope 2 market-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

GlobalFoundries Reporting Year 2022 Verification Statement_Limited (1).pdf

Page/ section reference

page 1-3

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

Scope 2 approach

Scope 2 location-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

GlobalFoundries Reporting Year 2022 Verification Statement_Limited (1).pdf

Page/ section reference

page 1-3

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?

No, but we are actively considering verifying within the next two years

C11. Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?

Yes

C11.1a

(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.

Singapore carbon tax

C11.1c

(C11.1c) Complete the following table for each of the tax systems you are regulated by.

Singapore carbon tax

Period start date

January 1, 2022

Period end date

December 31, 2022

% of total Scope 1 emissions covered by tax

44

Total cost of tax paid

2,219,638

Comment

Total costs paid were: SGD 3,060,881.40 and was converted into USD using the 2022 average conversion rate of IRS Yearly Average Currency Exchange Rates.

C11.1d

(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

GF Singapore is subject to the Singapore Carbon Pricing Act (CPA), which came into operation on 1 Jan 2019.

GF has a number of projects implemented to date and planned to reduce the in-scope Scope 1 GHG emissions to address the carbon tax amount. Projects relate to PFC (perfluorocompound) process GHG emissions reduction.

In 2022, GF SGP has completed a number of projects that reduce annual Scope 1 PFC emissions by more than 32,500 MTCO2e. The list of projects included projects that

implemented process gas use optimization, and projects that substitute certain PFC process gases with NF3 in an optimized process that generates significantly lower GHG emissions. Further projects are planned for the next years (2023 to 2025) that are specifically targeting more process gas substitution to further reduce GF SGP Scope 1 GHG emissions.

C11.2

(C11.2) Has your organization canceled any project-based carbon credits within the reporting year?

No

C11.3

(C11.3) Does your organization use an internal price on carbon?

Yes

C11.3a

(C11.3a) Provide details of how your organization uses an internal price on carbon.

Type of internal carbon price

Shadow price

How the price is determined

Benchmarking against peers

Objective(s) for implementing this internal carbon price

Identify and seize low-carbon opportunities

Stress test investments

Scope(s) covered

Scope 1

Scope 2

Pricing approach used – spatial variance

Uniform

Pricing approach used – temporal variance

Evolutionary

Indicate how you expect the price to change over time

We expect the current price to change by approximately 7% on average a year until 2030. We generally follow the IEA Scenario Carbon Prices.

Actual price(s) used – minimum (currency as specified in C0.4 per metric ton CO2e)

56.5

Actual price(s) used – maximum (currency as specified in C0.4 per metric ton CO2e)

70.6

Business decision-making processes this internal carbon price is applied to

Capital expenditure

Mandatory enforcement of this internal carbon price within these business decision-making processes

Yes, for some decision-making processes, please specify

GF is using an internal carbon price to prioritize GHG emissions reduction projects in project planning for our Journey to Zero Carbon (25% reduction of GF absolute Scope 1+2 GHG emissions by 2030 compared to 2020 baseline)

Explain how this internal carbon price has contributed to the implementation of your organization's climate commitments and/or climate transition plan

Our internal carbon pricing supports our planning and prioritization of projects that contribute to achieving our Journey to Zero Carbon Goal (25% reduction of GF absolute Scope 1+2 GHG emissions by 2030 compared to 2020 baseline) across operations (fabs) and company fab locations.

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

Yes, our suppliers
Yes, our customers/clients
Yes, other partners in the value chain

C12.1a

(C12.1a) Provide details of your climate-related supplier engagement strategy.

Type of engagement

Information collection (understanding supplier behavior)

Details of engagement

Collect GHG emissions data at least annually from suppliers
Collect targets information at least annually from suppliers

% of suppliers by number

5

% total procurement spend (direct and indirect)

81

% of supplier-related Scope 3 emissions as reported in C6.5

81

Rationale for the coverage of your engagement

GF annually engages with its "major" suppliers via Responsible Business Alliance (RBA) tools and platforms. The composition of the annual GF major supplier list is based on documented criteria that are related to supplier category, supplier spend, supplier facility location, and nature of supplier business.

The 2022 GF major supplier list covered suppliers with a cumulative spend of more than 80 percent in the primary commodities, which include silicon wafer, electronic grade and specialty chemical suppliers, manufacturing tool suppliers, mask suppliers, and outsourced manufacturing — mostly outsourced test and assembly (OSAT) suppliers.

The suppliers of capital goods (manufacturing tools) and the suppliers of the chemicals / materials / gases that we use in semiconductor manufacturing, as well as OSAT suppliers, are the suppliers that are understood to account for the majority of GF supply chain climate impact.

The aim of the annual RBA major supplier engagement is: a) to assess the risks at GF's major suppliers for nonconformance to the RBA Code, including its environmental and climate related requirements (using RBA SAQs (Self Assessment Questionnaires) and RBA Audit tools), and b) to better understand / quantify and drive environmental sustainability throughout our supply chain: The annual RBA Environmental Survey covers GHG reporting (Scope 1, 2 and 3), emissions verification, and goal setting, as well as energy use and types of energy used (e.g. renewables).

GF is using major supplier information reported in the RBA Environmental Survey to quantify estimated GF supply chain Scope 3 GHG emissions.

GF’s major suppliers are incentivized to report the requested RBA information, including the environmental and climate-related information, because the annual results of the RBA Code conformity assessment and verification process are included in our Global Supplier Ratings process, which scores supplier performance with regard to Quality, Cost, Operations, Service, Technology and Business Continuity / Compliance. Failure to be in non-conformance to the RBA Code, and failure to provide requested RBA information results in a lower supplier score.

Impact of engagement, including measures of success

Impact of engagement: The annual major supplier engagement allows GF to assess whether GF's major suppliers are at risk of non-conformance to the RBA Code, including its environmental and climate related requirements. This risk is assessed using RBA SAQs (Self-Assessment Questionnaires) and RBA Audit Information. The annual RBA Environmental Survey that GF major suppliers are required to complete includes questions on GHG emissions (Scope 1 and 2 as well as Scope 3) and GHG emission reduction targets and the level of ambition of these targets.

GF staff analyze major supplier GHG emissions and reduction strategies/ targets to assess supplier best practices and to estimate GF supply chain Scope 3 GHG emissions. Incentive: The annual results of the RBA Code conformity assessment and verification process are included in our Global Supplier Ratings process, which scores

supplier performance with regard to Quality, Cost, Operations, Service, Technology and Business Continuity / Compliance. Failure to be in non-conformance to the RBA Code, and failure to provide requested RBA information results in a lower supplier score. Success is measured by:
a) the number of major supplier sites (in percent) with a high risk to be in nonconformance to the RBA Code: The target is 0% of major suppliers with a (confirmed) high risk to be in non-conformance to the RBA Code, including its environmental and climate related requirements. In 2022, GF obtained RBA SAQs for 168 major supplier sites, with zero SAQs scored high risk. Of the 36 RBA audits performed at GF major supplier sites in 2021-2022, there were zero priority findings (the most severe category) on environmental (including climate) provisions of the RBA Code.
b) the number of major suppliers with completed reporting on their GHG emissions and reduction targets (in percent). The target is to drive a maximum of major suppliers to complete reporting on their GHG emissions and reduction targets.

Comment

No additional comment.

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

Type of engagement & Details of engagement

Education/information sharing
Share information about your products and relevant certification schemes (i.e. Energy STAR)

% of customers by number

100

% of customer - related Scope 3 emissions as reported in C6.5

0

Please explain the rationale for selecting this group of customers and scope of engagement

GF shares product specific manufacturing carbon footprint information with customers on request, as well as information regarding GF GHG emissions, GF strategy on GHG reduction as well as performance to GHG reduction targets - to enable our customers' climate programs. For example, we share our PFC emissions data according to EPEAT ecolabel criteria with all (100%) of our customers by providing this information on our website to enable them to meet EPEAT ecolabel criteria and prioritize their products as environmentally preferred under U.S. public procurement criteria.

Impact of engagement, including measures of success

Impact of engagement: We enable our customers to better understand their supply chain (Scope 3) emissions associated with GF manufacture of their wafers and define their climate and GHG reduction strategies accordingly. We also enable GF customers to meet EPEAT criteria for prioritization of their products as environmentally preferred under US public procurement criteria. Measure of success: Customer satisfaction: GF Customer Experience program is geared to continually improve our customers' experience when partnering with GF by listening to and feeding our customers' voice back into our business processes. This includes our customers' voice on our shared commitment to social and environmental responsibility. Additionally, we share our PFC emissions data according to EPEAT ecolabel criteria with 100% of our customers by providing this information on our website.

C12.1d

(C12.1d) Give details of your climate-related engagement strategy with other partners in the value chain.

Other partners in GF's value chain include industry peers and R&D networks and universities with whom GF works to drive innovation through R&D

Industry peers: Industry association working groups

Through our engagement in semiconductor industry associations, we gain valuable insight into the economic, social and environmental trends that affect our business. These associations include the Semiconductor Industry Association (SIA), European Semiconductor Industry Association (ESIA), the World Semiconductor Council (WSC). These associations all have active EHS committees, including working groups on reducing perfluorocompound (PFC) emissions from semiconductor manufacturing.

R&D networks

GF is actively partnering with universities as well as other semiconductor companies in research projects on various aspects of environmental, health, and safety of semiconductor manufacturing processes.

In 2022, GF sponsored 13 such university research projects. For example, with other industry partners GF sponsored research at the University of California, Los Angeles (UCLA) and the Arizona State University that is focused on global warming gas emissions reduction: One of the projects is working to develop alternative plasma etch processes, with lower net greenhouse gas emissions than the current processes that use PFCs and HFCs. The second project is investigating the development of a catalytic processes to reduce N2O emissions from semiconductor manufacturing facilities exhausts.

C12.2

(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization's purchasing process?

Yes, climate-related requirements are included in our supplier contracts

C12.2a

(C12.2a) Provide details of the climate-related requirements that suppliers have to meet as part of your organization's purchasing process and the compliance mechanisms in place.

Climate-related requirement

Climate-related disclosure through a non-public platform

Description of this climate related requirement

GF requires suppliers to be in conformity to the Responsible Business Alliance (RBA) Code that includes environmental and climate related requirements. This requirement is included in our Supplier Code of Conduct, our standard contract templates, Purchase Order Terms and Conditions, Global Supplier and Subcontractor Management Policy and Material Qualification Procedure. We have implemented a risk-based process that assesses our major suppliers' conformity to the RBA Code, in which GF annually works with its "major" suppliers via RBA tools and platforms:
a) to assess (using self-assessment information) and verify as applicable (through on-site audit report information) the risks at GF's major suppliers for nonconformance to the RBA Code, including its environmental and climate related requirements, and
b) to better understand / quantify and drive environmental sustainability throughout our supply chain: The annual RBA Environmental Survey covers GHG reporting (Scope 1, 2 and 3), emissions verification, and goal setting, as well as energy use and types of energy used (e.g., renewables). GF is using major supplier information reported in the RBA Environmental Survey to estimate GF supply chain Scope 3 GHG emissions. The 2022 GF major supplier list covered suppliers with a cumulative spend of 81 percent in the primary commodities: silicon wafer, electronic grade and specialty chemical suppliers, tool suppliers, mask suppliers, and outsourced manufacturing suppliers.

% suppliers by procurement spend that have to comply with this climate-related requirement

81

% suppliers by procurement spend in compliance with this climate-related requirement

81

Mechanisms for monitoring compliance with this climate-related requirement

Supplier self-assessment
On-site third-party verification

Response to supplier non-compliance with this climate-related requirement

Retain and engage

C12.3

(C12.3) Does your organization engage in activities that could either directly or indirectly influence policy, law, or regulation that may impact the climate?

Row 1

External engagement activities that could directly or indirectly influence policy, law, or regulation that may impact the climate

Yes, our membership of/engagement with trade associations could influence policy, law, or regulation that may impact the climate

Does your organization have a public commitment or position statement to conduct your engagement activities in line with the goals of the Paris Agreement?

No, but we plan to have one in the next two years

Describe the process(es) your organization has in place to ensure that your external engagement activities are consistent with your climate commitments and/or climate transition plan

As according to the mechanisms within our governance structure:
The Global EHS & CSR Director and/or the Head of Global ESG oversee our trade associations engagement regarding ESG related topics, including climate-related topics, to ensure consistent positions. Strategic decisions and position taking are presented for review and approval to GF's Stewardship Committee. The Stewardship Committee is responsible for setting strategic direction, conducting management reviews, and providing guidance and approval regarding ESG related topics, including climate-related topics.

C12.3b

(C12.3b) Provide details of the trade associations your organization is a member of, or engages with, which are likely to take a position on any policy, law or regulation that may impact the climate.

Trade association

Other, please specify

Semiconductor Industry Association (SIA)

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

The semiconductor industry is an acknowledged global leader in promoting environmental sustainability in the design, manufacture, and use of its products, as well as the health and safety of its operations and impacts on workers in semiconductor facilities (fabs). SIA's position is that the semiconductor industry will play a constructive role in protecting the global environment, including engaging with the international community on effective means of addressing climate change. Although the industry contributes only a very small amount of GHG emissions, SIA and its members have been engaged in ongoing efforts to reduce these emissions. For example, SIA contributed to the World Semiconductor Council's Best Practice Guidance for Semiconductor PFC Emission Reduction.
https://www.semiconductors.org/policies/environment-health-safety/
http://www.semiconductorcouncil.org/wp-content/uploads/2017/07/Best-PracticeGuidance-of-PFC-Emission-Reduction.pdf

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

0

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify

European Semiconductor Industry Association

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

The European Union has pledged to become the first climate-neutral continent by 2050, with a revised 2030 emission reduction goal of 'at least 55%'. The European Green Deal, aims at using technological innovations that are enabled by semiconductors as the main tool for decarbonising economies. The European Semiconductor industry supports the Green Deal and its semiconductor products will continue to be a key enabler of low carbon and energy efficient innovative solutions. https://www.eusemiconductors.eu/esia/public-policy/sustainability-esh ESIA contributed as well to the World Semiconductor Council's Best Practice Guidance for Semiconductor PFC Emission Reduction. http://www.semiconductorcouncil.org/wp-content/uploads/2017/07/Best-PracticeGuidance-of-PFC-Emission-Reduction.pdf

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

0

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

C12.4

(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Publication

In voluntary sustainability report

Status

Complete

Attach the document

GF-CRR-23.pdf

Page/Section reference

Sections / page references:
Stakeholders and priorities, specifically GF's corporate responsibility strategy (page 17)
Governance (pages 18-21);
Technology for humanity (pages 38-45)
Sustainable manufacturing (page 68-85), specifically: Emission targets (page 72), GHG emissions — climate risk mitigation (page 73-74), and
TCFD table (pages 109-110);

See page detail page numbers and references as per GRI Index (pages 111-123); SASB index (page1 124-126),

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

C12.5

(C12.5) Indicate the collaborative frameworks, initiatives and/or commitments related to environmental issues for which you are a signatory/member.

	Environmental collaborative framework, initiative and/or commitment	Describe your organization's role within each framework, initiative and/or commitment
Row 1	Other, please specify Semiconductor Climate Consortium	In, 2022, GF joined the semi Semiconductor Climate Consortium (SCC) as a Founding Member to collaborate across the supply chain to accelerate the reduction of greenhouse gas emissions across the semiconductor value chain. The SCC is focused on the challenges of climate change and works to speed industry value chain efforts to reduce greenhouse gas emissions in member company operations and in other sectors of the value chain. The SCC believes that the collaboration of member companies, with their accumulated knowledge and innovative technology, will accelerate solutions to the most pressing problems. Working together, the SCC will address issues no one company can do alone. The SCC drives progress on climate challenges within our industry value chain and supports the Paris Agreement and related accords driving the 1.5°C pathway

C15. Biodiversity

C15.1

(C15.1) Is there board-level oversight and/or executive management-level responsibility for biodiversity-related issues within your organization?

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues

Row 1	No, but we plan to have both within the next two years

C15.2

(C15.2) Has your organization made a public commitment and/or endorsed any initiatives related to biodiversity?

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity
Row 1	No, but we plan to do so within the next 2 years

C15.3

(C15.3) Does your organization assess the impacts and dependencies of its value chain on biodiversity?

Impacts on biodiversity

Indicate whether your organization undertakes this type of assessment

No, but we plan to within the next two years

Dependencies on biodiversity

Indicate whether your organization undertakes this type of assessment

No, but we plan to within the next two years

C15.4

(C15.4) Does your organization have activities located in or near to biodiversity-sensitive areas in the reporting year?

No

C15.5

(C15.5) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?
Row 1	No, we are not taking any actions to progress our biodiversity-related commitments, but we plan to within the next two years

C15.6

(C15.6) Does your organization use biodiversity indicators to monitor performance across its activities?

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	No	

C15.7

(C15.7) Have you published information about your organization's response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
No publications		

C16. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

No additional comment.

C16.1

(C16.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Head of Global ESG	Chief Sustainability Officer (CSO)

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	I understand that my response will be shared with all requesting stakeholders	Response permission
Please select your submission options		Public

Please confirm below