



# TABLE OF CONTENTS

<b>COMPANY PROFILE</b>	<b>02</b>		
<b>CEO STATEMENT</b>	<b>06</b>		
<b>GOVERNANCE</b>	<b>08</b>		
GLOBALFOUNDRIES' Worldwide Standards: Code of Conduct	<b>09</b>		
Governance Framework	<b>10</b>		
<b>STAKEHOLDER ENGAGEMENT</b>	<b>12</b>		
Materiality Analysis	<b>15</b>		
<b>SUPPLIER RESPONSIBILITY</b>	<b>16</b>		
Conflict Minerals — Achieving a DRC Conflict-Free Supply Chain	<b>17</b>		
<b>OUR PEOPLE AND WORKPLACE</b>	<b>18</b>		
Compensation & Benefits	<b>21</b>		
Human Rights	<b>21</b>		
Employee Education & Training	<b>21</b>		
Health & Safety	<b>22</b>		
Safety in the Workplace	<b>23</b>		
Managing Chemicals Safely	<b>23</b>		
		Promoting Health and Well-Being	<b>23</b>
		<b>COMMUNITY ENGAGEMENT</b>	<b>24</b>
		Education Outreach	<b>26</b>
		Philanthropy	<b>27</b>
		Environment	<b>27</b>
		<b>SUSTAINABLE MANUFACTURING AND OPERATIONS</b>	<b>28</b>
		Quality Management Systems	<b>29</b>
		Environmental, Health & Safety Management Systems	<b>29</b>
		Eco-Efficiency: Our Goals	<b>30</b>
		Review of Performance to Date	<b>31</b>
		<b>PRODUCT STEWARDSHIP</b>	<b>37</b>
		Enabling Energy Efficiency	<b>38</b>
		Materials Management and Product Compliance	<b>40</b>
		Research & Development for Advanced Manufacturing	<b>40</b>
		<b>SITE PROFILES</b>	<b>41</b>
		<b>ABOUT THIS REPORT</b>	<b>54</b>
		<b>GRI CONTENT INDEX</b>	<b>55</b>

# 01 COMPANY PROFILE

# COMPANY PROFILE

01

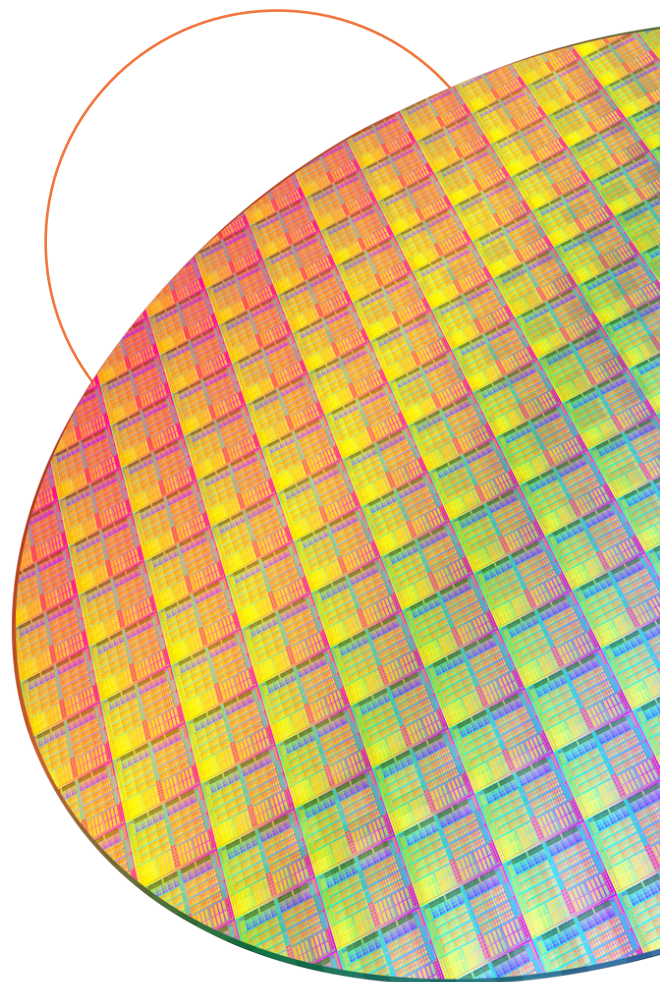
We are GLOBALFOUNDRIES, a leading full-service semiconductor design, development, fabrication and innovation company with locations across the globe. We partner with some of the world's most inspired companies to develop and produce the semiconductors that are changing the way people live today and defining what's possible for tomorrow.

While execution excellence remains our first priority, we are more than a manufacturer. We are the catalyst for growth in the industries we serve. With one of the largest populations of leading-edge scientists and technologists in the semiconductor manufacturing industry, we make possible the technologies and systems that transform industries. And we are dedicated to being the best possible partner for our customers, delivering the expertise and insights to help position them as the leaders in their markets.

GLOBALFOUNDRIES was launched in March 2009 through a partnership between Advanced Micro Devices, Inc. (AMD) and Mubadala Investment Company, which is owned by the government of Abu Dhabi. We have continually pursued capacity and technology development, breaking ground on our leading-edge Fab 8 in New York in 2009, and performing expansion and technology upgrades to Fab 1 in Dresden. With the integration of Chartered Semiconductor in January 2010 and IBM's Microelectronics Division in 2015, we have boldly pursued opportunities to strengthen our technology portfolio, manufacturing capacity and diversity. In February 2017 we announced a partnership with Chengdu municipality to develop a fab in Chengdu, China, to support the growth of the Chinese semiconductor market. GLOBALFOUNDRIES operates manufacturing centers in Dresden, Germany; Malta and East Fishkill, New York; Burlington, Vermont; and Singapore.

GLOBALFOUNDRIES' corporate offices are in Santa Clara, California (Silicon Valley), with a global network of R&D, design enablement and customer support operations in Singapore, China, Korea, Taiwan, Japan, the United States, Germany, Switzerland, France, India and the Netherlands. Our target markets include Mobility, Automotive, Communication and Datacenters, Internet of Things (IoT), Aerospace and Defense.

With our unprecedented pace of growth and global diversity, we are leading the industry forward. As promised in 2009, "Our global culture will continue to develop, always grounded in a firm commitment to responsible business practices." ▶



# COMPANY LOCATIONS

● HEADQUARTERS   ● MANUFACTURING & TECHNOLOGY CENTERS   ● DESIGN, SALES & ADMINISTRATIVE OFFICES   ● RESEARCH & DEVELOPMENT



# GLOBALFOUNDRIES MILESTONES 2009-2017



**2009**  
GLOBALFOUNDRIES is formed as a joint venture between Mubadala Investment Company and Advanced Micro Devices, Inc. (AMD), in which AMD contributes their Dresden, Germany, wafer fab and R&D capabilities.



**2010**  
GLOBALFOUNDRIES acquires Singapore-based Chartered Semiconductor.



**2014**  
GLOBALFOUNDRIES and Samsung announce a partnership bringing leading-edge 14nm technology to Fab 8.



**2016**  
To address shifting market needs and recognizing that one technology does not fit all, GLOBALFOUNDRIES announced the industry's only dual technology roadmap: FinFETs for performance and density at any cost; FDX for low-power, cost-effective performance.

GLOBALFOUNDRIES breaks ground for construction of Fab 8 in Malta, New York.



**2012**  
GLOBALFOUNDRIES repurchases AMD's remaining stake in the joint venture, thus becoming wholly owned by Mubadala Investment Company.



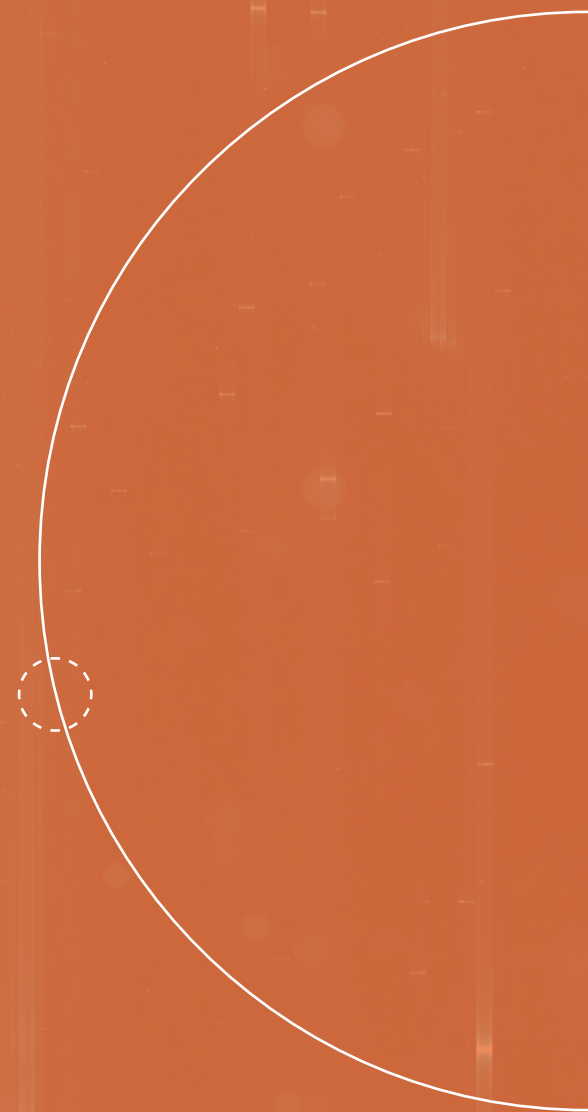
**2015**  
GLOBALFOUNDRIES acquires IBM's Microelectronics Division, adding 5,000 employees; IBM's RF and ASIC product lines; a 200mm fab in Burlington, Vermont; a 300mm fab in East Fishkill, New York; and an extensive portfolio of semiconductor technology patents.



**2017**  
GLOBALFOUNDRIES announces a partnership with Chengdu municipality to develop a fab in Chengdu, China, to support the growth of the Chinese semiconductor market.



# 02 CEO STATEMENT



# CEO STATEMENT

02

It is hard to imagine a time when technology has touched more people's lives and in such a comprehensive way. We are truly at a point where technology is becoming human — and humans more dependent on technology.

For example, there are now over 2.8 billion smartphone users; almost half of the world's population. And, for most of us, our phone has become literally an extension of our lives and a portal to our news, our money, our pictures and our relationships.

Still, while this progress has been remarkable, you could argue that we are just getting started.

In clients, the addition of features such as tactile and image sensors, higher resolution displays and voice recognition add exponentially to the quality, security and complexity of each transaction. In networks, a wide range of technologies from RF to WiFi to 5G are helping us provide the right mix of power consumption, performance and data complexity necessary to feed all the new client form-factors in the Internet of Things. And with an exponential growth in data, we are really just scratching the surface of how to sort, scrub, index, recognize patterns and translate this data into information and, eventually, into algorithms and rules for predicting future behavior.

In short — we are entering a world of “CONNECTED INTELLIGENCE,” where increasingly smart devices feed — through high-bandwidth connections — massive data processing facilities that learn, anticipate and direct behavior of devices and networks, in a virtuous circle of “Connected Intelligence.” As a broad-based semiconductor manufacturing leader, GLOBALFOUNDRIES is well-positioned to lead in these exciting times.

To lead through this era of transformative innovation and growth, we will continue to rely on a strong foundation of Corporate Responsibility. GLOBALFOUNDRIES is committed to “Act with Integrity” and hold ourselves to the highest standards of fairness, honesty and transparency in everything we do. This commitment to corporate responsibility has been integral to our company since our founding in 2009. This applies across all our operations and interactions with customers, suppliers, employees and the communities where we are located. We proudly accept these responsibilities that come with being a global leader in the semiconductor industry.

We are pleased to provide our 2017 Corporate Responsibility Report to our stakeholders. Key achievements since our last CSR report include:

- **Strengthening our Corporate Responsibility Management Systems** spanning ethics, labor, environment, and health and safety to ensure we meet the ever-increasing expectations of our customers, employees and external stakeholders, and conducting internal and external CSR audits at several manufacturing facilities;
- **Establishing a Supplier Verification program** to further ensure our suppliers meet our requirements for sustainable and ethical business practices, including conformance with the Electronic Industry Citizenship Coalition® (EICC) Code of Conduct;
- **Meeting our Safety Goal** of reducing occupational injuries for the second straight year. We reduced our lost-time injury case rate in 2016 by 20 percent compared to 2015, and we are also making progress toward achieving the new set of long-term resource conservation goals we announced in 2016;



- **Breaking ground on our new Fab 11 in Chengdu, China, and designing it to meet industry best practices for social responsibility and Environmental, Health & Safety management.** GLOBALFOUNDRIES sets these expectations through our Worldwide Standards: Code of Conduct, Global EHS and Security Standards, and Finance and Human Resources policies, among others.

While we are proud of our progress, made possible by the dedication of our 18,000 employees around the globe, we recognize that the path to sustainable business practices is never ending. Our forward-looking Corporate Responsibility strategy focuses on expanding our supplier and customer collaboration while we continue to honor and integrate the tremendous cultural diversity we have within our company. We look forward to working with our customers, communities and suppliers to meet our shared goals of a prosperous industry that is also a leader in responsible business practices. •

**SANJAY JHA**  
CHIEF EXECUTIVE OFFICER

A handwritten signature in black ink, appearing to read 'Sanjay Jha', written over a light blue background.



# 03 GOVERNANCE



GLOBALFOUNDRIES is committed to upholding the highest ethical and compliance standards. Each of our employees, contractors and consultants has the responsibility to carry out his or her duties in a manner consistent with this commitment.

## GLOBALFOUNDRIES' WORLDWIDE STANDARDS: CODE OF CONDUCT

### GLOBALFOUNDRIES' Worldwide Standards:

Code of Conduct (Code) is the foundation of our Ethics & Compliance program and sets forth the basic rules, standards and behaviors that we must follow to achieve our business objectives while upholding our values. The Code summarizes legal and ethical standards and provides practical advice covering a wide range of issues pertinent to ethical business practices, including human rights, discrimination, harassment, environmental responsibility, protection of intellectual property and anti-corruption. It also explains the major elements of our compliance program and identifies where employees can seek help and support. The Code has been communicated to all employees, and employee training and/or certification on the Code is repeated annually.

GLOBALFOUNDRIES' Code is aligned with the EICC Code of Conduct (EICC Code). GLOBALFOUNDRIES formally joined the Electronics Industry Citizenship Coalition

(EICC) in May 2016, following years of incorporating the EICC Code into our business practices. We stand committed to the EICC Code and its continuous pursuit of excellence in corporate responsibility and the extension of responsible practices throughout the supply chain. We assess our own conformance with the EICC Code using the EICC's self-assessment tools for each of our manufacturing sites, and make the results available to our customers. To date, the results indicate a low risk of non-conformance with the EICC Code. In addition, we are working with key customers to participate in the EICC Validated Audit Process (VAP).

GLOBALFOUNDRIES has established the Ethics & Compliance Office within the Legal Department to develop, coordinate and support the compliance program and foster a culture of principled behavior and decision-making. This Office is responsible for promoting employee awareness, education and training, as well as for creating and implementing a program to assess risks and proactively prevent and detect unlawful/unethical conduct. The Ethics & Compliance Office works closely with the Ethics Committee (including the Chief Human Resources Officer, Chief Financial Officer and Chief Legal Officer), which is the body charged by the Board of Directors to oversee the compliance program. ▶

The GLOBALFOUNDRIES Ethics First Helpline is accessible 24 hours a day, 365 days a year, enabling employees and stakeholders to inquire directly about the compliance program and report potential violations and other concerns. The Helpline is available to employees and contractors as well as customers, suppliers and vendors globally. We promptly review all reports, and the company has a strong non-retaliation policy to protect anyone who makes a good-faith report. Investigations of complaints are overseen by the GLOBALFOUNDRIES Ethics & Compliance Office, supported confidentially by other internal organizations such as Internal Audit and Global Security.

## GOVERNANCE FRAMEWORK

Corporate governance addresses the way in which companies are directed, controlled and managed. Our governance framework is focused on four pillars: responsibility, fairness, transparency and accountability.

### Board of Directors

The Board of Directors (the Board) is the body charged with the ultimate responsibility for ensuring appropriate governance across the organization, and establishes the “tone at the top.”

The Board reviews and determines the company’s strategy, monitors and assesses the company’s corporate and financial performance, establishes and monitors effective compliance systems and policies, and oversees the performance of GLOBALFOUNDRIES’ executive management. The Board is composed of our CEO, Sanjay Jha; representatives of Mubadala Development Corporation, our shareholder; and other senior industry leaders. The Board draws on a great depth of experience

that spans the semiconductor and equipment industries, international finance, energy, aerospace and business development. The Chairman of the Board is not an executive officer of the company.

### Board Committees

Three committees support the Board in carrying out its governance responsibilities: Audit, Risk & Compliance; People & Compensation; and Innovation Investments (see below).

**The Audit, Risk & Compliance Committee (ARC)** is mandated by the Board to oversee the integrity of financial statements; compliance with legal and regulatory requirements; the effectiveness of internal systems and controls (including the company’s internal audit function); the risk management function; and the independence, qualifications and performance of the company’s external auditors.

## GLOBALFOUNDRIES BOARD OF DIRECTORS

Audit, Risk  
& Compliance  
Committee

People &  
Compensation  
Committee

Innovation  
Investments  
Committee

**The People & Compensation Committee** assists the Board in fulfilling its responsibilities concerning the hiring and compensation of our executives and in providing guidance to GLOBALFOUNDRIES’ management on personnel and compensation issues.

**The Innovation Investments Committee** oversees a dedicated source of funding to invest in nascent, high-growth, venture-capital-like opportunities in future technologies.

**GLOBALFOUNDRIES’ Chief Executive Officer**  
GLOBALFOUNDRIES’ Chief Executive Officer is responsible for managing the company’s business and is accountable to the Board. The primary responsibilities of our CEO and senior management broadly cover the management of the day-to-day operations of the business, strategic planning, budgeting, financial reporting, risk management and compliance. ▶

## Support for the Board and its Committees

With the ARC, the Legal Department and the Internal Controls Department are mandated by the CEO to oversee corporate governance at GLOBALFOUNDRIES. Together, the Legal Department and the Internal Controls Department ensure that the organization adheres to the company's corporate governance framework and associated policies and procedures, provide guidance, and ensure training sessions are conducted on a regular basis. Internal and external auditors play crucial roles in assisting the Board and management. External auditors are responsible for auditing the financial statements of the company. The Internal Audit organization plays an important role in providing the Board and senior management with objective assurance support for the business and consulting services. Internal Audit evaluates the effectiveness of risk management, internal controls and governance processes, and makes recommendations for improvement. Internal Audit also acts as a bridge between the Board and management, and reports to the ARC Committee.

In addition, the Compliance Network promotes our culture of principled behavior and decision making. The Compliance Network consists of a group of influential employees who serve as Ethics & Compliance representatives to help identify key compliance risks, drive engagement and ensure that training and communications are tailored to the needs of the individual sites.

Environmental, Health & Safety scorecards are provided quarterly.

## Delegation of Authority

GLOBALFOUNDRIES is an integral part of the Mubadala Group. An important mechanism in maintaining a strong relationship with our sole shareholder is the shareholder-approved Delegation of Authority (DOA). The DOA allows the shareholder to exercise control and oversight over the authority levels within the company.

The DOA is a critical component of our corporate governance structure. In accordance with the GLOBALFOUNDRIES DOA, the Board has delegated certain of its powers to the Board Committees, the CEO and management. The Board, management, employees, contractors, agents and anyone acting on behalf of GLOBALFOUNDRIES are responsible for ensuring that they operate in accordance with the DOA. On an ongoing basis, management, in coordination with the ARC, ensures that the DOA is appropriate for the nature of the business and that it is reviewed on an annual basis.

## Executive CSR Council

In addition to the oversight provided by the Board and its committees, the GLOBALFOUNDRIES Executive CSR Council is responsible for setting strategic direction, conducting management review, and providing approval for global Environmental, Health & Safety (EHS) and Corporate Social Responsibility (CSR) matters. The Executive CSR Council membership includes senior executives from Global Operations; Global Sales and Business Development; Global Supply Management; Communications; Legal (including Ethics & Compliance); Human Resources; and Risk Management, Sustainability, and Real Estate.

## Operational Risk Management

GLOBALFOUNDRIES manages risk at the enterprise, business and functional levels. Our structured approach enables us to identify critical risks and target mitigation programs at the appropriate level to avoid loss, disruption or interruption of mission-critical activities and systems. We routinely review and update our business resilience and preparation, including risk mitigation and business continuity plans. Each year, our manufacturing sites and business units identify the potential operational and natural disaster risks that present business continuity challenges. Executive management conducts an annual review of prioritized risks and our related mitigation strategies, projects and goals.

## Security Management

Protecting assets and the intellectual property of GLOBALFOUNDRIES and our customers and suppliers is a critical focus area. GLOBALFOUNDRIES' growing portfolio of intellectual property advances our leadership in manufacturing technology and strengthens our competitive position. We adhere to strict policies and procedures at all times to ensure the security of company confidential information and the confidential information of our customers and suppliers. Our Enterprise Security Council brings together expertise in information security, physical security, trade compliance, logistics and government security programs for a comprehensive approach to security. That approach extends to each employee and their individual responsibilities. Annually, we conduct integrated Confidentiality and Security training for all employees. •



# 04 STAKEHOLDER ENGAGEMENT

# STAKEHOLDER ENGAGEMENT

04

Our key stakeholders have a significant interest in our business and help shape our company and the products and services we provide. We regularly engage with our employees, customers, suppliers, communities and industry peers, sharing perspectives and gaining valuable insight relevant to our business and operations.

## Customers

From the Internet of Things to “the cloud,” we collaborate with forward-thinking customers on semiconductor solutions that are transforming businesses, industries and everyday lives. We created our Customer Experience program to continually improve our customers’ experience when partnering with GLOBALFOUNDRIES. The program is geared to drive improvements by listening to our customers and feeding their voice back into our business processes.

We track internal, customer-facing key performance indices that closely align to our customers’ Quality, Business, Technology, Fulfillment and Responsiveness targets to ensure we can quickly make course corrections when needed. We conduct third-party customer relationship surveys to enable a deeper assessment of our performance.

We manage customer issues in our Action Management and Escalation system to ensure responsive follow-through to our commitments. We meet with our customers on a regular basis to review our performance. Improvement projects are prioritized based on customer feedback. The relationships we thus maintain

through ongoing dialogue and collaboration ensure that we understand our customers’ expectations, including our shared commitment to social and environmental responsibility.

## Employees

We take great pride in the dedication and commitment of our global workforce to GLOBALFOUNDRIES’ success and work to further engage employees at both the global and local levels. We nurture a performance-based culture in an environment that encourages individual development, collaboration and new ideas. Employees stay current on corporate and local site information through a number of communication channels, including quarterly all-hands events, the internal weekly global News Digest, our company intranet (GlobalConnect), the Global Community internal social platform, and ongoing corporate and employee communications, all of which include opportunities to ask questions and provide feedback.

We also feature our employees’ professional and personal success stories in our Employees’ Spotlight section on GlobalConnect as an inspiration to all fellow employees. Additionally, employees engage and share their ideas through participation in various site-level committees and programs.



▲ CEO Sanjay Jha and other Senior Leadership Team representatives celebrate with GLOBALFOUNDRIES Singapore winners of the 2016 CEO Recognition Award.

# STAKEHOLDER ENGAGEMENT

04

## Communities

Along with our global footprint comes a responsibility to the communities in which we operate — a responsibility that extends beyond simply meeting regulatory expectations. At a worldwide level, through our GlobalGives program, we aim to provide employees at all of our sites with the opportunity to make a positive impact in their local communities in the areas of education, philanthropy and the environment. Each of our fab locations has well-established programs and teams dedicated to enriching the lives of local citizens, and we take great pride in their long history of community involvement.

## Suppliers

Suppliers of goods and services play a critical role in our business. Our supplier relationships are built on a foundation of trust and integrity. We strive to establish long-term working relationships through mutual performance expectations and measures, performance feedback and continuous improvement plans. We engage with our suppliers through measures such as periodic business reviews and our Total Supplier Rating (TSR) process to determine supplier performance with regard to technology, quality, cost, flexibility and service including Environmental, Health & Safety (EHS) and Corporate Social Responsibility (CSR). EHS and CSR expectations are established early in supplier relationships to improve efficiency and reduce risks throughout the supply chain. GLOBALFOUNDRIES' commitment to the EICC Code has been well communicated and we require our suppliers to comply with the Electronic Industry Citizenship Coalition (EICC) Code of Conduct.

## Industry Collaboration

Through our participation — and leadership — in semiconductor industry trade associations, we gain valuable insight into the economic, social and environmental trends that affect our business. These groups include the Semiconductor Industry Association (SIA), the Information Industry Technology Council (ITI), the European Semiconductor Industry Association (ESIA), the World Semiconductor Council (WSC), the Global Semiconductor Alliance (GSA), the United States Information Technology Office (USITO), Semiconductor Equipment and Materials International (SEMI), ZVEI (a leading German electronics trade association) and the EICC.

These associations are engaged in a wide variety of public policy matters ranging from technology, trade, tax and environmental policy to promoting STEM education and the adoption of energy-efficient technologies. SIA, ESIA, ITI, the WSC and SEMI all have active EHS committees. Since our inception, GLOBALFOUNDRIES has been committed to the EICC Code of Conduct and its continuous pursuit of excellence in corporate responsibility and the extension of responsible practices throughout the supply chain. GLOBALFOUNDRIES is a member of and fully supports the vision and goals of the EICC, working toward convergence with best practices in our own operations as well as those of our major suppliers. ▶



- ▲ Green Mountain Power and the town of Williston partnered with GLOBALFOUNDRIES to develop a 4.7-megawatt solar facility located on our Vermont campus. The facility will provide enough electricity to power 1,100 homes in the region.

## THE MATERIALITY ANALYSIS

This CSR Report and metrics focus on certain Corporate Responsibility topics that we consider “material” to our business. To determine materiality, we conduct an annual materiality analysis by engaging our Materiality Analysis Team, a team representing a diverse spectrum of perspectives on GLOBALFOUNDRIES’ business, with a multitude of insights into internal and external stakeholder expectations and perceptions.

The Materiality Analysis Team is composed of senior representatives from a cross section of GLOBALFOUNDRIES’ organizations: Communications; Customer Engineering; Ethics & Compliance; Global EHS & Corporate Social Responsibility; Global Supply Management; Human Resources; Product Management and Risk Management, Sustainability and Real Estate.

Team members were nominated by our Executive CSR Council based on their roles within the company and their corresponding insights into internal and external stakeholders’ perspectives. In conducting the materiality analysis, the team started by identifying a broad range of issues of concern. In subsequent and iterative steps, these topics were prioritized with regard to their economic, environmental and social impacts to GLOBALFOUNDRIES, as well as their perceived level of importance to internal and external stakeholders. The resulting materiality map, as presented in FIGURE 1, was reviewed and approved by GLOBALFOUNDRIES’ Executive CSR Council.

You will find these topics addressed with associated metrics on the following pages. •

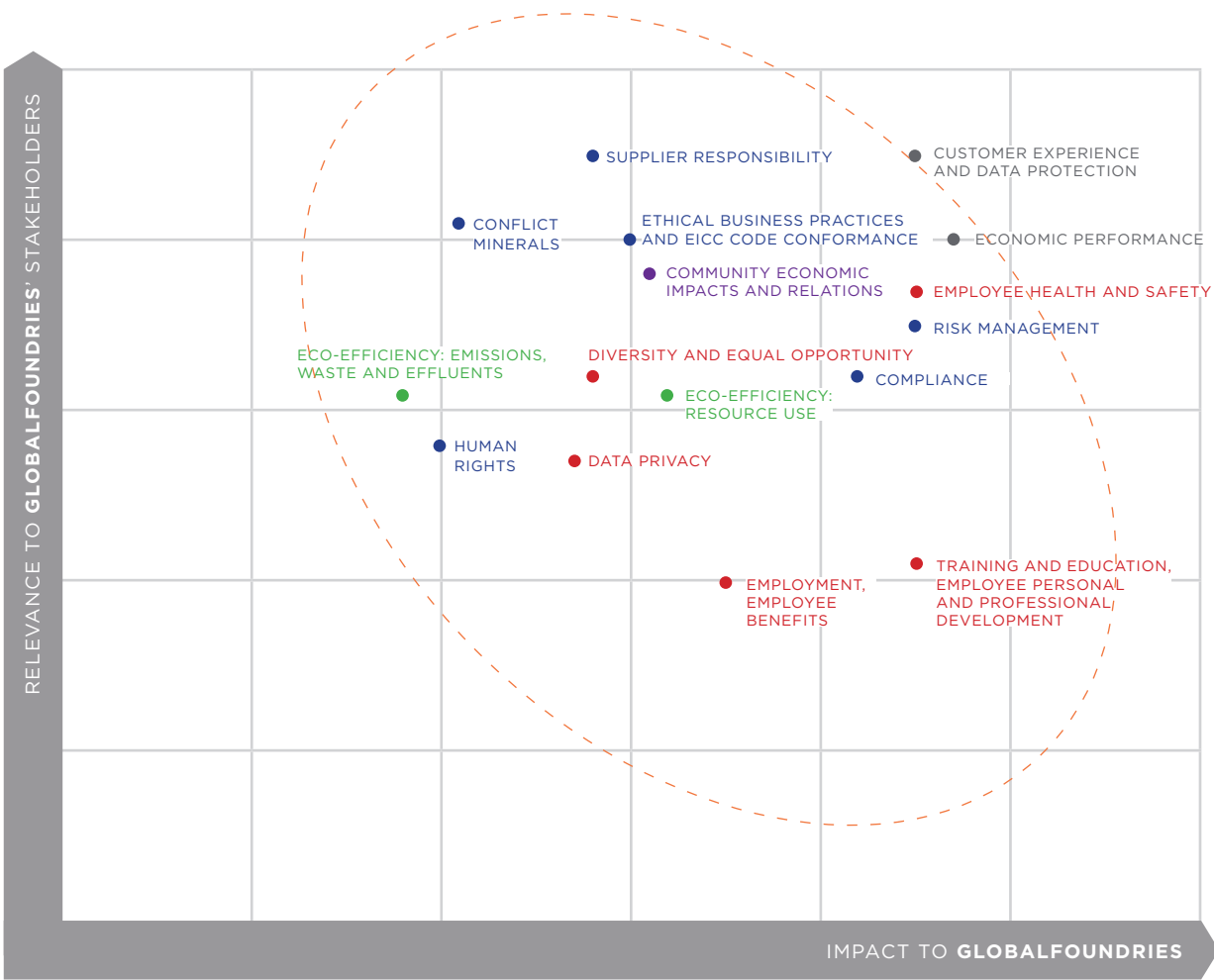


FIGURE 1 GLOBALFOUNDRIES' Materiality Map (Per Materiality Analysis Performed In Q2 2017).

● GOVERNANCE AND ETHICAL BUSINESS ● SOCIAL/EMPLOYMENT ● ENVIRONMENTAL ● COMMUNITY ● ECONOMIC



05

# SUPPLIER RESPONSIBILITY

# SUPPLIER RESPONSIBILITY

05

GLOBALFOUNDRIES' commitment to corporate responsibility extends to requiring that our suppliers follow ethical and responsible business practices.

Our manufacturing supply chain consists primarily of suppliers of highly specialized semiconductor manufacturing equipment and materials. We also work with suppliers of specialized business services ranging from fab design and construction to IT-related consulting. The majority of our manufacturing suppliers conduct their operations in the United States, Japan, Singapore, Germany and other EU countries, and Taiwan.

In 2009, our founding year, GLOBALFOUNDRIES adopted the Electronic Industry Citizenship Coalition (EICC) Code of Conduct to align our approach to supply-chain CSR with this industry-wide commitment to socially and environmentally responsible business practices. GLOBALFOUNDRIES is a member of the EICC and fully supports its vision and goals, working toward convergence with best practices in our own operations as well those of our suppliers. Our Global Supplier and Subcontractor Management Policy, standard supplier agreements, and purchase order terms and conditions all require conformance with the EICC Code.

We conduct regular surveys to determine our major suppliers' risk of non-conformance with the EICC Code's provisions. We employ the EICC's industry-standard self-assessment tools and have adopted a risk-based approach to verifying our major suppliers' self-assessment information based on EICC instruments and processes. Where applicable, the results of EICC non-conformance risk assessments are included in our Global Supplier Rating (GSR) process.

## CONFLICT MINERALS — ACHIEVING A DRC CONFLICT-FREE SUPPLY CHAIN

GLOBALFOUNDRIES is conscious of the severe human rights abuses in conflict regions of the Democratic Republic of Congo (DRC) and adjoining countries, and the financial support that comes from extractive minerals production. GLOBALFOUNDRIES has supported global efforts to achieve a DRC conflict-free supply chain in the sourcing of tantalum, tin, tungsten and gold ("3TG metals") since 2009, and is a member of the Conflict-Free Sourcing Initiative (CFSI). GLOBALFOUNDRIES established a conflict minerals policy which prohibits sourcing that contributes to financing armed conflict and human rights abuses in the conflict regions of the DRC and adjoining countries. We are proud to have achieved a fully "DRC Conflict-Free" supply chain.

The 3TG metals are essential to numerous applications throughout the electronics industry. In the complex, multi-step silicon wafer manufacturing process, tantalum and tungsten are added to achieve the desired functionalities of integrated circuits. The commodities we purchase that contain tantalum or tungsten include high-purity targets used in physical vapor deposition (PVD) and process gases and chemicals, all of which are used to deposit ultra-thin films of these metals directly onto the wafer surface. Tin and gold are used in post-wafer fab process steps, such as in interconnect materials in wafer bump or wafer packaging, and in components used for semiconductor module assembly.

Since January 2016, all GLOBALFOUNDRIES sourcing of tantalum, tin, tungsten and gold is from smelters included on the list of compliant smelters maintained through the CFSI's Conflict-Free Smelter Program (CFSP).



To achieve this, we conducted a thorough assessment of our supply base to identify all 3TG metals suppliers. We partnered with these suppliers to identify all smelters in our extended supply chain and determined their progress toward certification as CFSI "DRC Conflict-Free" smelters. We continually monitor the audit status of smelters in our supply chain, working directly with our suppliers to ensure all relevant smelters maintain CFSP conformance. Any new commodities including 3TG metals must be sourced only from CFSP-compliant smelters.

To support our customers' needs for reporting under the United States Securities and Exchange Commission's (SEC) Conflict Minerals Rule (regulations under the U.S. Dodd-Frank Wall Street Reform and Consumer Protection Act), we routinely provide due diligence information using industry-standard reporting tools and processes. Our conflict minerals program and progress are reviewed periodically by the Executive CSR Council.



# 06 OUR PEOPLE AND WORKPLACE

# OUR PEOPLE AND WORKPLACE

GLOBALFOUNDRIES relies upon our people to deliver on our mission to enable our customers' success with the right technology at the right time. Individuals with varied backgrounds enrich our ideas and drive innovation.

Our strength lies in the talent and diversity of our employees, who bring a range of capabilities, experiences and qualifications that give us a competitive advantage in our global markets. GLOBALFOUNDRIES strives to create a working environment that respects diversity and allows employees the opportunity to learn, grow and develop their talents. TABLE 1 shows a breakdown of our global workforce by region and by gender.

While we naturally have an international workforce due to the span of our global locations, GLOBALFOUNDRIES is also proud to be an employer of a highly diverse workforce within our sites. For example, at Fab 8 in New York, GLOBALFOUNDRIES has created close to 3,000 new direct jobs since breaking ground on the project in 2009. Our unique and diverse workforce is drawn from local talent as well as experienced professionals from across the United States and represents more than 50 nationalities. Similarly, while the majority of our workforce at Fab 1 in Dresden, Germany, is hired locally, the fab is home to employees from more than 45 nations. With respect to gender diversity, we are committed to the advancement of women at GLOBALFOUNDRIES. ▶



**TABLE 1** Employee Data by Region and by Gender (as of December 2016)\*.  
\*Regular employees only.

INDICATOR	TOTAL	MEN	WOMEN
NUMBER OF EMPLOYEES	18,289	75%	25%
• USA	45%	79%	21%
• Europe, Middle East, Africa	19%	82%	18%
• Asia Pacific/China	36%	66%	34%
SENIOR LEADERSHIP TEAM	82	85%	15%
BOARD	9	89%	11%

# OUR PEOPLE AND WORKPLACE

06

In 2013, GLOBALFOUNDRIES established a new network with a mission to create a sustainable framework for the professional development of women at GLOBALFOUNDRIES. The company is proud to brand this as GLOBALWOMEN. GLOBALWOMEN focuses on initiatives that have a positive impact on women at GLOBALFOUNDRIES and on our business. This is already happening in multiple ways:

- A site chapter structure at each site in the U.S.: Austin, Texas; Santa Clara, California; Burlington, Vermont; and Malta, Albany, and East Fishkill, New York;
- Memberships, awards, publications, and leadership opportunities;
- A variety of site events and activities to network and engage employees;
- Attracting and recruiting top female talent into our business;
- Lunch-and-learn opportunities on topics that are relevant to women.

The company has also chosen to partner with the Society of Women Engineers (SWE) as a corporate member. SWE is a global leader in establishing engineering as a highly desirable career aspiration for the next generation, empowering women to succeed and advance in their careers as engineers, and recognizing members for their life-changing contributions and achievements as engineers. This partnership allows GLOBALWOMEN to leverage training, conference participation and an extensive network of resources within SWE as we build out this program. ▶

## STEP AHEAD RECOGNITION FOR GLOBALFOUNDRIES EMPLOYEES

On April 20, 2017, GLOBALFOUNDRIES joined leaders from more than 200 companies to honor 130 women in manufacturing at an evening celebration in Washington, D.C. Launched by the Manufacturing Institute, the STEP Ahead initiative honors and promotes the role of women who have made significant contributions in the fields of Science, Technology, Engineering and Production (STEP). Representing GLOBALFOUNDRIES at the STEP Ahead Awards were Laura Brown, Director, Business Development, Strategic Agreements and Alliances (Fab 8), who was selected as an “Honoree,” and Colleen Meagher, Principal Engineer, Integration & Yield (Fab 10), who was selected as an “Emerging Leader.”

STEP Honorees are women in the industry who have demonstrated excellence and leadership in their careers, from the factory floor to the C-Suite. STEP Emerging Leaders are women in the industry who are making significant contributions and excelling early in their careers. Now in its fifth year, STEP Ahead is led by the Manufacturing Institute to celebrate women in the manufacturing industry who are making a difference through advocacy, mentorship, engagement and leadership. As a member of the National Association of Manufacturers (NAM), which houses the Institute, and as a founder of STEP Ahead, GLOBALFOUNDRIES continues to shape the direction of the initiative through participation in NAM and the STEP Ahead Advisory Board. STEP Ahead complements GLOBALFOUNDRIES’ involvement in GLOBALWOMEN and the Society of Women Engineers by elevating the role of women in manufacturing and inspiring the next generation of female talent.

Laura and Colleen follow three previous GLOBALFOUNDRIES STEP Award Honorees since 2013.

### What inspires women about manufacturing?

Laura and Colleen share their perspectives:

#### LAURA BROWN

*Director, Business Development,  
Strategic Agreements and Alliances (Fab 8)*



“My passion comes from solving problems and learning each day,” said Laura. “In semiconductors, that involves taking a concept from research to high-volume manufacturing in less than four years. Meeting the challenges throughout this process and seeing my team’s work manifest itself into products such as smartphones that enhance our daily lives is extremely rewarding.”

#### COLLEEN MEAGHER

*Principal Engineer, Integration & Yield (Fab 10)*



“Manufacturing provides me the opportunity to be constantly learning,” said Colleen. “Every day is unique and brings challenges that require technical innovation and teamwork to solve. I continue to grow as an engineer and an individual by getting to work with many talented and motivated people who inspire me to be better.”

## COMPENSATION & BENEFITS

GLOBALFOUNDRIES' Global Benefits Strategy is to provide compliant and cost-effective benefit programs that are considered competitive against current local market norms. Our goal is to gain balance between global standardization and local customization while offering our employees protection and flexibility with their benefit offerings. We recognize that benefit environments vary by country, and therefore the types of benefit plans we offer reflect the prevailing local market practices. Benefits under this strategy include healthcare, risk benefits such as personal insurance, retirement savings, time off, educational assistance and other location-specific benefits. For example, GLOBALFOUNDRIES' approach to parental leave for employees for the birth or adoption of a child is based on a combination of national and local leave entitlements implemented through our regional leave policies.

As shown in TABLE 2, over the last two years almost all (more than 99 percent) employees who have taken a parental leave returned to work, with a less than 1 percent difference between the rates for men and women. The subsequent retention rate for employees following parental leave was more than 87 percent, with a difference of less than 1 percent between men and women.

**TABLE 2** Parental Leave Data\*.   
\*Includes global employees who took a parental leave of absence in 2015 or 2016.

INDICATOR	TOTAL	MEN	WOMEN
RETURNED FROM LEAVE	99%	99%	99%
STILL EMPLOYED AS OF MAY 2017	87%	88%	87%

## HUMAN RIGHTS

GLOBALFOUNDRIES is strongly committed to protecting the fundamental rights of all people. We strive to maintain a fair and open workplace based on a culture of respect, dignity and integrity for all. As outlined in our [Worldwide Standards: GLOBALFOUNDRIES' Code of Conduct](#), the company strictly forbids all forms of child labor and forced, compulsory or trafficked labor in the operation of our business, and we require the same from our suppliers. We respect the rights of employees to associate freely and have a zero-tolerance policy against harassment, including sexual harassment, and discrimination based on age, ancestry, color, marital status, medical condition, mental or physical disability, national origin, race, religion, political and/or third-party affiliation, sex, sexual orientation, gender identity or veteran status.

## EMPLOYEE EDUCATION & TRAINING

At GLOBALFOUNDRIES, we continue to realize the importance of developing our people as a cornerstone of our success. To do that, we provide employees with opportunities to enhance their knowledge, skills and abilities through technical and corporate training programs. Using the three pillars of Experience, Exposure and Education, we offer instructor-led courses, e-learning, videos, interactive simulations and on-the-job-training. We also support our employees' development through mentoring, professional certifications and partnerships with outside organizations. We are building the foundation of a learning culture where all employees, from individual contributors to senior executives, learn and grow through new challenges, job rotations, special projects and ongoing feedback from their managers. We incorporate all of these developmental opportunities through our annual performance evaluation process. ▶

## SAFETY AWARENESS CAMPAIGNS

All GLOBALFOUNDRIES manufacturing sites implemented extensive safety awareness campaigns during 2016, which continue into 2017.

Under the motto “Use Your Brain to Avoid Pain” the Dresden site runs a behavioral safety campaign calling people’s attention to the risk of unsafe behavior, such as when using the staircases. Regular updates to management are provided in weekly site management meetings. Classroom training was conducted to help people managers learn how to influence employees’ safe behaviors. Employees are kept up to date via Global Echoes (the EHS & Security newsletter), posters in staircases and other highly frequented areas, and by deploying screensavers with images from the campaign’s posters.

The U.S. Northeast sites have extensive behavioral safety campaigns in place, with a recurring focus on Slip/Trip/Fall prevention. The campaigns addressed safe walking — and driving — specifically under winter weather conditions with ice and snow. Fun events that promote safe behavior included Fab 9’s “Walk like a Penguin” Slip/Trip/Fall Prevention Winter Safety event and quiz. Selected employees won gift cards by completing the Winter Safety quiz correctly. The U.S. Northeast Safety teams also extended the Slip/Trip/Fall prevention campaign through a video on the risks of “distracted” walking.

As part of the Behavioral Safety Program in Singapore, posters are placed at stairways to remind employees that they should not be using their phones while using the stairs. Email alerts are sent out on a weekly basis based on various themes, including “Eyes on the Ground” to warn employees against looking at their phones while driving or walking. During monthly Safety Committee meetings, videos on common injuries, such as those sustained from slips, trips and falls, are shared to remind employees to be alert and pay attention to their surroundings during their work as well as in their daily lives. Employees on the Singapore site are also encouraged to read the quarterly *Global Echoes* newsletter and participate in a quiz to get the chance to win prizes.



## HEALTH & SAFETY

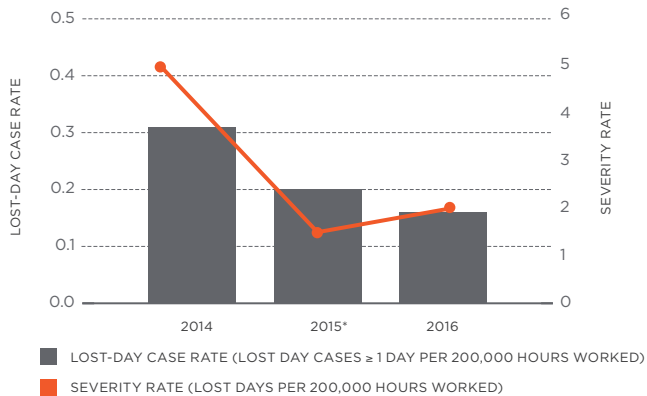
Protecting the health, safety and well-being of our employees, visitors and communities is one of our greatest responsibilities, one that we embrace proactively and systematically. We are committed to Behavior-Based Safety (BBS), a collaborative approach to safety that recognizes and facilitates individual safety awareness and behaviors, with collective results. We strive to continuously reduce occupational injuries and illnesses in all of our operations, with an ultimate goal of zero incidents. All of our manufacturing facilities are certified to the OHSAS 18001 standard for health and safety management systems. Our OHSAS certificates are available [here](#). ▶

# OUR PEOPLE AND WORKPLACE

06

## SAFETY IN THE WORKPLACE

GLOBALFOUNDRIES measures the performance of our health and safety programs with a range of metrics – both leading and lagging indicators. At the highest level, lost workday case rate\* and severity case rate\* provide an aligned performance view across the company. We evaluate all occupational injuries and illness cases to identify their root causes and determine appropriate preventive measures and corrective actions. As shown in FIGURE 2, from 2015 to 2016 our employee lost workday case rate declined from 0.20 to 0.16. For comparison, the 2015 U.S. Lost Workday Incidence Rate (the most recent year for which these statistics are available) for the semiconductor industry was 0.4. Severity case rates measure the number of days employees were unable to work following an occupational injury or illness, per case. Our 2016 severity rate was 2.0 in 2016 compared to a rate of 1.5 in 2015.



**FIGURE 2** GLOBALFOUNDRIES' Corporate Lost Day Case and Severity Rates (2014-2016).  
\*2015 totals include second-half data only for Fabs 9 & 10 acquired as of July 1, 2015.

*\*Note: GLOBALFOUNDRIES defines a lost workday case as any injury requiring one or more days away from work. For comparative purposes, we have provided Lost-Day Case rates for "Semiconductor and related device manufacturing" (NAICS Code 334413) compiled by the U.S. Bureau of Labor Statistics.*

## MANAGING CHEMICALS SAFELY

Semiconductor processing takes place in a highly controlled cleanroom environment. Manufacturing equipment and chemical/gas distribution systems are completely enclosed to maintain an ultra-clean manufacturing space and provide safe working conditions. Stringent material handling procedures include automated chemical delivery systems and sophisticated manufacturing equipment that incorporates multiple engineering controls to minimize the risk of chemical exposure for employees working in the cleanroom and chemical distribution areas.

GLOBALFOUNDRIES' chemical review processes ensure that all new chemicals are thoroughly reviewed before introduction to our sites, and that proper safeguards and material handling procedures are in place. Our chemical management systems at each site provide employees with ready access to Safety Data Sheets (SDS) and identification of appropriate personal protective equipment when necessary.

## PROMOTING HEALTH AND WELL-BEING

We place great value on our employees' overall health and wellness. Each of our manufacturing facilities has an on-site clinic and medical professionals who administer health and wellness programs in collaboration with Human Resources. We encourage employees to live healthy, active lives, and provide support through vaccinations, health screenings and surveillance, first aid training and safety tips for travelers. Our ongoing wellness programs provide many opportunities for employees and their families to learn about healthy living and lifestyles. For example, our Dresden facility provides information about healthy diets, sports and fitness activities, and health-related benefits provided by GLOBALFOUNDRIES on an intranet-based health portal. Further measures include, among others, on-site flu vaccinations,

educational ergonomics presentations, specific on-site training for First Aiders, specific medical examinations and biometric screening.

Our U.S. fabs' wellness services include benefits such as on-site flu vaccinations, educational presentations, health and benefits fairs, and biometric screening events (screening and counseling on weight, blood pressure, cholesterol, and blood sugar). Our Singapore employees have access to a variety of wellness opportunities, including fitness facilities where they can participate in fitness classes and other organized activities that promote a healthy, active lifestyle.

In addition, GLOBALFOUNDRIES' Employee Assistance Program (EAP) provides all U.S. employees and their families with confidential access to resources to help with life management issues. Resources include short-term counseling sessions, legal and financial services, and childcare, eldercare, and adoption references. •

## HEALTH DAY 2016

In 2016, GLOBALFOUNDRIES sites once again hosted a "Health Day." For GLOBALFOUNDRIES Fab 1 in Dresden, the theme was "ergonomics," a topic of great employee interest and a central focus of the site's health program during 2016.

Ergonomics is one of the essential health issues with respect to the workforce. Special focal points during the health days have included checks of individual mobility, individual diagnostics of body posture, and a training module on proper lifting and carrying methods. The site's physiotherapy clinic offered a special training session on individual body coordination. The opportunity to take specialized eyesight tests and seasonal flu vaccinations was also provided.



# 07 COMMUNITY ENGAGEMENT

# COMMUNITY ENGAGEMENT

07

Our company has a global footprint, and with it a responsibility to the communities in which we have a presence — a responsibility that extends beyond just meeting regulatory expectations. Globally, we look toward driving programs that are specifically focused on education, outreach, philanthropy and the environment.

Each of our fab locations has well-established programs and teams dedicated to enriching the lives of local citizens, and we take great pride in their long history of community involvement. Through the GlobalGives program, we are building upon these grassroots efforts, embracing them as integral to our company identity and connecting employees and teams to a larger international effort. The GlobalGives platform provides employees with direct access to more than 2 million nonprofit organizations to facilitate both employee giving and volunteer engagement. It also provides an effective mechanism at the corporate level for disaster response. ▶

*“GLOBALFOUNDRIES made great strides in community outreach in 2016. We leveraged our regional grassroots efforts to launch GlobalGives as a corporate initiative, making a positive impact in our local communities in the areas of education, philanthropy, and the environment. We built a team of dedicated regional representatives to establish local programs in support of employee interests, and at the corporate level have initiated giving campaigns to support victims of natural disasters around the world. Our employee response to recent natural disasters has been phenomenal. GlobalGives will continue to grow and mature as we go forward!”*

## MIKE CADIGAN

Senior Vice President Global Sales and Business Development  
and Corporate Executive Sponsor for Community Involvement  
at GLOBALFOUNDRIES



▲ GLOBALFOUNDRIES Santa Clara employees participated in a May 2017 volunteer event to weed, plant, and pick up litter at the nearby Don Edwards San Francisco Bay National Wildlife Refuge.

# COMMUNITY ENGAGEMENT

07

## EDUCATION OUTREACH

GLOBALFOUNDRIES strives to promote, develop and support educational programs, both inside and outside the classroom, as well as in our homes and local communities. Our many activities include developing, supporting and expanding upon educational programs in STEM (Science, Technology, Engineering and Math) fields at all of our sites through our global STEM Initiative, providing experiential learning opportunities for students and teachers, establishing early college technology programs in high schools, providing mentorships for girls pursuing careers in technology, and providing potential employment opportunities for graduates in advanced manufacturing, among others. Some of the specific programs we have supported include:

- Girls' Day 2017, which brought in 16 students from local schools to teach them more about the semiconductor industry and the corresponding training professions (Dresden, Germany);
- Partnership with miSci, which enabled 250 middle-school-aged students from five regional Boys and Girls Clubs to experience the immersive science programs and interactive galleries at the Museum of Innovation and Science (Malta, New York);
- STEM Event at Boys & Girls Club of Silicon Valley, which brought in a group of volunteers to host two hours of science-related activity stations and a Q&A for approximately 80 students, ages 6-11 (Santa Clara, California);
- ▲ Senior Vice President and Fab 8 General Manager Tom Caulfield spoke to participating students and administrators during GLOBALFOUNDRIES Week at miSci.
- FIRST® (For Inspiration and Recognition of Science and Technology) programs, designed to motivate young people to pursue education and career opportunities in STEM, while building self-confidence, knowledge and life skills (Malta, New York, and Burlington, Vermont);
- Microelectronics Academy, which gives top young engineers exposure to the technical challenges of the semiconductor industry (Dresden, Germany); and
- "Jugend forscht" (Young Scientists) Saxony, a regional competition that supports creative talents and encourages young people to put their ideas into practice (Dresden, Germany). ▶



*GLOBALFOUNDRIES strives to promote, develop and support educational programs, both inside and outside the classroom, as well as in our homes and local communities.*

# COMMUNITY ENGAGEMENT

07

## PHILANTHROPY

We believe the success of our company is directly related to the health of the communities we call home. GLOBALFOUNDRIES and its employees make a difference by generously volunteering their time and donating money and goods to support a wide variety of philanthropic causes, helping to improve the quality of life in our communities.

Our Calendars for Charity program leverages the winning images from our annual employee photo contest to create calendars that are given to employees who make charitable donations in support of their local communities. Some of the many local programs we have supported across the company include:

- Treat the Troops, which provides powdered drink mixes, candy, granola bars, trail mix, chips, and notes and cards to our deployed men and women (East Fishkill, New York);
- Hair for Hope, which serves to raise funds and promote awareness of childhood cancer (Singapore);
- Operation Holiday Happiness, which provides gifts for needy families in local communities (East Fishkill, New York);
- Burlington Site Food Drive, which provides food to help fight hunger in the local community (Burlington, Vermont);
- Christmas Celebration supporting the Mathru Educational Trust for the Blind, which provides funds to purchase custom-made notebooks for children at the school (Bangalore, India); and
- Malta Food and Toy Drives, which provide much-needed food to the Food Pantries of the Capital District, and toys to needy children through the Toys for Tots program (Malta, New York).



▲ Mona Ee, HR Operations, GLOBALFOUNDRIES Singapore, receives the Children's Cancer Foundation (CCF) 2016 Philanthropy Award from Associate Professor Ho Peng Kee, Patron for CCF. The award recognized GLOBALFOUNDRIES' yearly participation in supporting CCF and the Hair for Hope program.

Together with the towns of Malta and Stillwater, GLOBALFOUNDRIES established and funded two charitable foundations, specifically designed to benefit the communities located near our Malta, New York, site. These foundations fund and support a wide variety of local community programs, not-for-profit organizations and other charitable causes that have been benefiting the towns of Malta and Stillwater since the first grants in 2012. With the 2016 awards, the foundations will have exceeded \$1 million in total grants invested in the communities and retain healthy endowments for continued future giving.

## ENVIRONMENT

GLOBALFOUNDRIES strives to provide our employees with opportunities to make a positive impact on the environment throughout the year, both through volunteer programs and various on-site activities. Some of the specific programs we have supported include:

- Earth Day activities, which took place at many of our sites worldwide and served to demonstrate support for environmental protection (Global);
- Adopt-a-Road Cleanup Day, which brought employees together to help make clean a section of local road (Malta, New York);
- E-waste drives, which allow electronic products nearing the end of their useful life to be reused, refurbished or recycled (Santa Clara, California, and Bangalore, India).

GLOBALFOUNDRIES strives to support valuable education outreach programs, improve the quality of life in our communities through our charitable and volunteer efforts, and implement processes and technologies that minimize our impact on the environment. We take great pride in these efforts as an important aspect of our brand identity and a reflection of our values. ●



# 08

## SUSTAINABLE MANUFACTURING AND OPERATIONS

# SUSTAINABLE MANUFACTURING AND OPERATIONS

08

GLOBALFOUNDRIES is committed to eco-efficiency in foundry operations. We define eco-efficiency as optimizing the utilization of resources to yield products meeting stringent GLOBALFOUNDRIES and customer performance and quality criteria.

Semiconductor manufacturing operations must be highly efficient and extremely flexible to deliver optimal results in a fast-paced and demanding market. We are committed to providing differentiated manufacturing services that value speed, accuracy and agility to help ensure that our customers are consistently provided with the right technologies at the right time that meet or exceed their specifications for quality and reliability.

Producing advanced integrated circuits at ever-smaller geometries requires exacting manufacturing processes. As integrated circuit line widths continue to shrink and products become increasingly complex, the intensity of resource use per silicon wafer increases. Getting the most from those resources is fundamental to the sustainability of our manufacturing processes and our customers' products.

## QUALITY MANAGEMENT SYSTEMS

Our Quality vision is to be our customers' partner of choice, and we believe that consistently creating a better customer experience is the basis of achieving our goals. GLOBALFOUNDRIES' Quality Management System is in place to ensure that our products meet or exceed customer specifications on quality and reliability for all industries and markets. Our employees are dedicated to a "zero excursion, zero defect" mission in all aspects of our product realization and business processes. GLOBALFOUNDRIES' manufacturing facilities are

certified to international quality standards that validate the effectiveness of the quality management system in support of market segments including automotive (IATF-16949) and aerospace (AS9100). The advanced quality system builds upon these internationally recognized standards. The quality standards codify the requirements to ensure product quality, including robustness of the management system and infrastructure.

In the quest to continually improve our customers' experience when partnering with GLOBALFOUNDRIES, we listen to our customers and feed their voice back into our business processes and systems. We manage customer issues in our Action Escalation system to ensure responsive follow-through with our commitments. We track internal, customer-facing key performance indices that are closely aligned to our customers' Quality, Business, Technology, Fulfillment and Responsiveness targets. Finally, we conduct third-party customer relationship surveys every year to ensure our customers notice the improvements we're making.

Our quality management system is described further [here](#), including copies of third-party certification certificates.

## ENVIRONMENTAL, HEALTH & SAFETY MANAGEMENT SYSTEMS

Our Global EHS Standards are the foundation of an integrated EHS Management Systems employed at our manufacturing sites. All of our manufacturing locations are certified to both the ISO 14001 environmental management systems standard and the OHSAS 18001 occupational health and safety management systems standards. In 2016 we initiated a process to obtain an enterprise-wide certification to these EHS management



▲ GLOBALFOUNDRIES Singapore employees celebrate the groundbreaking of a new water treatment and reclamation plant, construction of which was completed in 2016

system standards that covers all of our manufacturing locations. In addition to ISO 14001 certifications, all of our operating fabs have either been certified under the Sony Green Partner program or maintain equivalent controls to ensure product compliance. Fab 1 (Dresden, Germany) has put an additional focus on improving the site's energy management, and has established an ISO 50001-certified energy management system. Our certificates are available [here](#).

Fab 8, in Malta, New York, was designed as a "green fab." The fab and associated administrative and support buildings include many energy and water efficiency features. We applied the "LEED® green building program" design criteria. Admin 1 and Admin 2 office buildings are LEED Gold® and the Fab 8.1 fabrication facility is LEED Silver®.

# SUSTAINABLE MANUFACTURING AND OPERATIONS

08

## ECO-EFFICIENCY: OUR GOALS

Our environmental engineers partner with our technical experts from the research and technology development phases through integration into volume production at our fab sites in order to optimize eco-efficiency relative to raw material use and waste generation. We also work with equipment and material suppliers to reduce resource consumption and evaluate new chemistries. We employ a precautionary approach to the materials that we use in our processes and continually seek alternatives to hazardous materials which meet our quality and performance requirements.

Meaningful environmental performance data collection and analysis is key to eco-efficiency, as in all areas of operational excellence. We measure our operational EHS performance using a defined set of global key environmental performance indicators (KEPIs), reflecting resource consumption, environmental emissions, waste generation and regulatory compliance. To understand our production efficiency, we normalize data from operations with differing levels of technology complexity using an industry-standard 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. The normalized rate of a KEPI thus reflects our production efficiency.

Our global EHS KEPIs are collected quarterly from all of our manufacturing sites. The data are validated internally and are reviewed by our Executive CSR Council and summarized for the Audit, Risk & Compliance Committee of the GLOBALFOUNDRIES Board of Directors.

In 2016, we defined a new set of resource conservation goals to accommodate the significant change in our company structure that occurred with the acquisition of IBM's Microelectronic Division in 2015; notably the addition of two manufacturing facilities now known as Fab 9 in Burlington, Vermont, and Fab 10 in East Fishkill, New York. We have also defined a new baseline to measure our progress as we work toward achieving our new goals. This new baseline is defined as the first 12 months of our combined operations following the acquisition (from July 2015 through June 2016).

To develop our new set of goals, in 2016 we identified resource conservation projects across our company's manufacturing sites that are charted for execution from 2016 through 2018 to reduce consumption of electricity and water, greenhouse gas emissions, chemical consumption and the generation of waste. We have translated the planned aggregated annual savings of these projects into the following year-end 2018 goals:

- Reduce electricity use by 48 gigawatt hours (GWh);
- Reduce water use by 3.7 million cubic meters (m<sup>3</sup>);
- Reduce GHG emissions by 14,600 metric tons carbon equivalent (MTCE); and
- Reduce chemical use and waste generation by a combined 11,000 tons.

Additionally, we have maintained our 2016 goal value to recycle and reuse at least 55 percent of hazardous waste generated across the company for our 2017 operations. Noting that normalized rates are affected by changes in technology mix and the level of fab activity (loading), achieving our resource conservation goals would lead to the following forecasted reductions in normalized consumption or emission rates by the end of 2018:

- 18 percent reduction of normalized electricity consumption\*;
- 32 percent reduction of normalized water consumption\*;
- 20 percent reduction of normalized greenhouse gas emissions.\* ▶

\*As compared to our new baseline: the first 12 months of our combined operations (July 2015 – June 2016).

# SUSTAINABLE MANUFACTURING AND OPERATIONS

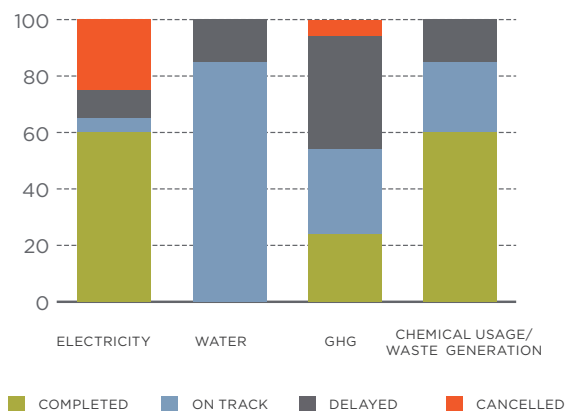
08

## REVIEW OF PERFORMANCE TO DATE

In this section, we present our performance to date regarding our progress toward our 2016–2018 goals, and additional KEPIs we have identified to be material to GLOBALFOUNDRIES' operations.

### Progress toward our Goals

We are measuring progress toward our new goals in percentage of completion of the underlying 2016–2018 resource conservation projects.



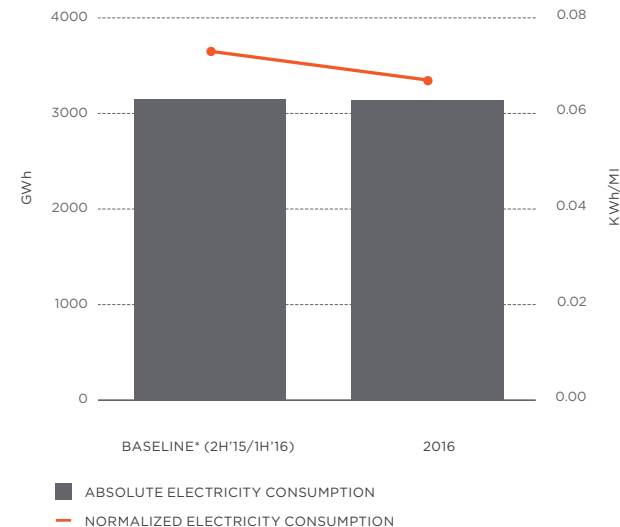
**FIGURE 3** Resource Conservation Project Status.

FIGURE 3 shows progress toward achieving our resource conservation goals as of the end of 2016. The majority of our resource conservation projects are on track for completion or have already been completed. While some of the identified projects have subsequently been cancelled, or have been delayed and will therefore not reach execution in the goal timeframe, GLOBALFOUNDRIES' engineers are continually working to identify additional resource conservation projects.

## Energy consumption

FIGURE 4 shows absolute and normalized electricity consumption at our manufacturing facilities at the new baseline and in the totals for 2016. While absolute consumption of electricity in 2016 was flat from the baseline value, normalized electricity usage decreased by 8 percent in 2016 compared to the baseline level. We expect to see this trend continue as production volumes ramp, along with our continued efficiency improvements. In 2016, our list of projects to increase energy efficiency included the following major initiatives:

- Dresden Fab 1 introduced a compressed air leakage management improvement for cleanroom tools with projected savings of more than 2,000 MWh per year.
- At Fab 7 of our Singapore Woodlands campus, the chilled water system was optimized by connecting two previously separate chilled water system loops, thus leading to an estimated annual electricity saving of 3,500 MWh.
- A new energy-efficient gas farm supplying our Singapore Woodlands campus was completed during 2016 and is estimated to help save 9,000 MWh annually.
- Fab 3 at the Singapore Woodlands campus upgraded the air conditioning of its data center, leading to an annual electricity savings of approximately 1,000 MWh.
- Fab 9 in Burlington completed a project to balance exhaust from cleanroom tools to an optimized flow rate with a projected savings of more than 2,000 MWh per year.

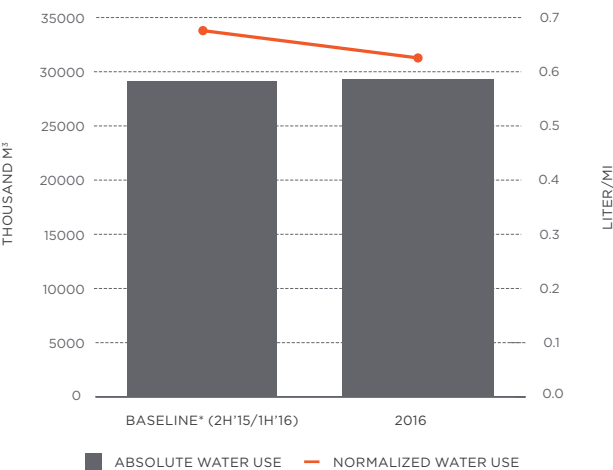


**FIGURE 4** Absolute and Normalized Electricity Usage – Baseline\* and 2016.  
\*The baseline is defined as the first 12 months of our combined operations (July 2015 – June 2016).

# SUSTAINABLE MANUFACTURING AND OPERATIONS

## Water Use

FIGURE 5 shows absolute and normalized water consumption at our manufacturing facilities at the new baseline and in 2016. In 2016, absolute water consumption increased slightly — by 1 percent compared to the baseline value. Comparing the 2016 normalized water consumption rate to our baseline shows a decrease of 7 percent. We expect that continued growth in manufacturing volume, along with implementation of a number of charted projects to increase our water efficiency, will drive continued reductions in normalized water use.



**FIGURE 5** Absolute and Normalized Water Use – Baseline\* and 2016.  
*\*The baseline is defined as the first 12 months of our combined operations (July 2015 – June 2016).*

GLOBALFOUNDRIES uses water from municipal sources at all of our manufacturing facilities. A portion equivalent to 58 percent of Fab 10’s water use is withdrawn from groundwater sources, representing 8 percent of GLOBALFOUNDRIES’ total water use in 2016. We have extensive water reuse and recycling programs at our manufacturing facilities in place.

In 2016, we achieved a combined corporate water reclaim rate of 51 percent relative to incoming water supply. “Reclaim” includes both water recycling and reuse. Some reclaimed water is used as a high-quality raw water supply to our ultra-pure water (UPW) plants (defined as “recycling”) as well as for facility operations such as cooling towers and scrubbers, which can accommodate lower-quality water sources (defined as “reuse”).

In 2016, the average water recycling rate across our fab sites was 35 percent compared to incoming water.

Our Singapore fabs, which operate under the highest water constraints in the company, achieved a 56 percent recycling rate in 2016 as compared to incoming water. In 2016, our Singapore site further enhanced its conservation efforts by completing construction of a new water treatment and reclamation facility at the Woodlands campus. This state-of-the-art facility features advanced technology that is designed to reduce waste sludge and enable the reuse of treated wastewater, thereby further reducing overall raw water consumption. The facility is also projected to use less chemicals and energy during the water treatment process.

At our Fab 1 in Dresden the team is completing an extension of the ultra-pure water recycling plant, with the goal to substantially increase the recycling capacity for ultra-pure water, thereby saving a corresponding amount of feed water along with the chemicals and energy that would have been required to treat the additional incoming water supply.

We operate permitted wastewater treatment systems at each of our manufacturing sites to manage effluent from production areas. These facilities treat the wastewater to meet regulatory requirements prior to discharge to municipal treatment facilities, or directly to surface waters in the case of Fabs 9 and 10. The direct discharges follow a rigorous combination of industrial and biological treatment processes. In 2016, we discharged 23.7 million cubic meters of treated wastewater from all manufacturing operations combined. ▶

# SUSTAINABLE MANUFACTURING AND OPERATIONS

08

## Material Use

A wide range of resources, including energy, water, chemicals and gases, is needed to manufacture semiconductors. Chemical and gas usage ranges from bulk gases and chemicals to specialty gases and chemicals used in smaller amounts. In addition, chemicals are needed to produce ultra-pure water and to treat wastewater and exhaust.

A high-volume semiconductor fab may use more than 100,000 tons of materials per year. High-purity bulk gases (oxygen, nitrogen, helium and others) represent the largest share, followed by process chemicals. These include sulfuric acid, hydrogen peroxide, specialty chemicals like photoresists and developers used in photolithography or slurries for the chemical-mechanical planarization (CMP) process, and chemicals used in water purification and treatment. Specialty gases used in chemical vapor deposition (CVD), plasma etching and related wafer fabrication processes constitute a relatively smaller amount (less than 1 percent of the total).

## Greenhouse Gas Emissions

Climate change is an increasingly important challenge impacting our global environment, human society and the global economy. GLOBALFOUNDRIES monitors our energy consumption and greenhouse gas (GHG) emissions to understand our climate impacts. We manage our climate-related business risks by conserving energy, implementing emission controls and participating in initiatives to drive industry-wide improvements.

The potential business risks associated with climate change are complex, ranging from regulatory initiatives affecting energy and process materials to severe weather events such as droughts, flooding and extreme temperatures. Climate-related risks, including supply or operational disruptions due to severe weather events, are evaluated as part of our risk management process. We track the development of proposed climate legislation around the world and have implemented proactive measures that go well beyond regulatory requirements. We are active in industry-wide initiatives that drive reductions in GHG emissions. Fabs 1, 9 and 10 participated in the industry-wide goal established by the World Semiconductor Council (WSC) to reduce emissions of perfluorocompound gases (PFCs) 10 percent by 2010 compared to 1995. In 2011, the WSC announced it had surpassed its goal, having achieved a 32 percent reduction.

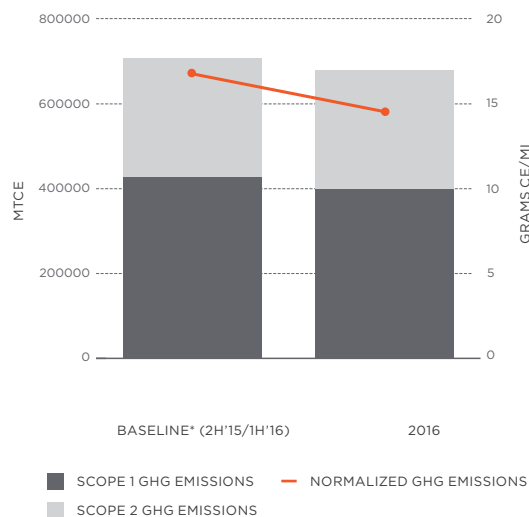
In 2011, the WSC announced a new voluntary PFC agreement for 2020. The elements of the 2020 goal are rooted in the implementation of best practices for new semiconductor fabs. The semiconductor industry expects that the implementation of best practices in new semiconductor fabs will result in a 30 percent reduction of normalized emission rate (NER) from the WSC 2010 aggregated NER baseline. Best practices will be continuously reviewed and updated by the WSC. Our newest operating fab, Fab 8 in New York, was built to meet the WSC Best Practices commitment, which will also apply to our new Fab 11 that is under construction in Chengdu, China. ▶



▲ Vermont Governor Phil Scott and state Natural Resources Secretary Julie Moore joined Greg Geyer from the National Pollution Prevention Roundtable (NPPR) at Fab 9 on January 31, 2017 for the presentation of the 2016 Most Valuable Pollution Prevention Award.

The winning project — Chemical Mechanical Polish (CMP) — has previously won a Vermont Governor's Environmental Excellence Award and an EPA Environmental Merit Award. It improved the overall environmental impact and efficiency of the CMP processing step, lowering slurry usage by 94,600 liters and reducing the overall nitrate usage by 625 kg per year;; lowered slurry usage by 94,600 liters per year; increased CMP consumable lifetimes; improved equipment productivity; and reduced scrap.

# SUSTAINABLE MANUFACTURING AND OPERATIONS

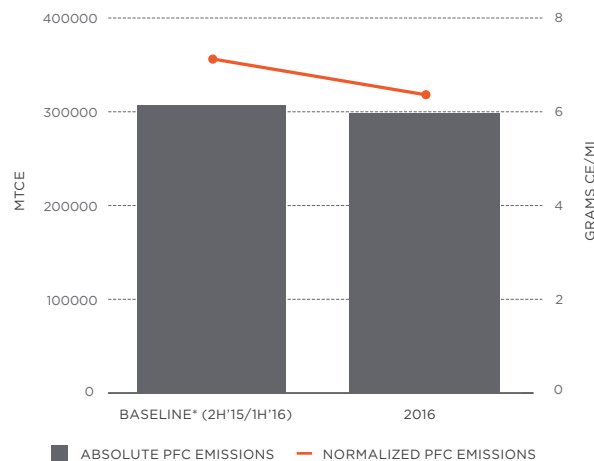


**FIGURE 6** Absolute and Normalized GHG Emissions — Baseline\* and 2016.  
\*The baseline is defined as the first 12 months of our combined operations (July 2015 – June 2016).

FIGURE 6 shows absolute and normalized direct (Scope 1) and indirect (Scope 2) greenhouse gas (GHG) emissions at our baseline and in 2016. Absolute total GHG emissions decreased by 4 percent in 2016 relative to the baseline value, with a decrease in direct (Scope 1) GHG emissions of 7 percent. Indirect (Scope 2) GHG emissions in 2016 were relatively flat compared to the baseline.

Compared to our baseline, normalized 2016 GHG emissions were 12 percent lower. This was due to a higher productivity in the latter half of 2016. We expect that continued growth in manufacturing volume along with projects to reduce direct and indirect GHG emissions will further support that trend.

Several GHG emission reduction projects commenced in 2016, including reduction in direct emissions from fuel use at the Singapore Woodlands site, and reductions in emissions of heat transfer fluid emissions at Fab 10 in East Fishkill, New York. Improvement in inventory management and accounting significantly reduced reported emissions of heat transfer fluids at Fab 8 in Malta, New York.



**FIGURE 7** Absolute and Normalized PFC Emissions — Baseline\* and 2016.  
\*The baseline is defined as the first 12 months of our combined operations (July 2015 – June 2016).

FIGURE 7 shows absolute and normalized total PFC emissions at our baseline and in 2016. PFC gases are used in semiconductor manufacturing processes like wafer etching and CVD chamber cleaning. Absolute PFC emissions decreased by 3 percent in 2016 compared to our baseline, with normalized PFC emissions decreasing by 11 percent at the same time.

These rates are expected to further decrease due to growing utilization of 300mm fabs with lower PFC emissions, such as Fab 1 in Dresden and Fab 8 in New York, which were designed to produce extremely low emissions of PFCs. These fabs use low-emission gases in CVD chamber cleaning, coupled with near-universal use of point-of-use abatement equipment for PFC-using processes.

## Air Emissions

All of our manufacturing facilities operate within air quality conditions permitted by local regulatory agencies. The primary air emissions from our wafer manufacturing facilities include corrosives (acids and bases) and volatile organic compounds (VOCs).

We employ wet scrubbers to neutralize corrosive emissions and treat the scrubber water in on-site wastewater treatment systems prior to discharge. Based on air emission measurements that we conduct at each fab, we have estimated our 2016 fabs' combined corrosive emissions at approximately 130,200 kg.

For VOC emissions reduction, most sites use thermal oxidation or carbon bed adsorbers. Fab 1 in Dresden, Fab 8 in Malta, New York, and Fab 10 in East Fishkill, New York, have control technology that utilizes rotary concentrators followed by thermal oxidation. This technology uses highly adsorbent zeolite materials to capture VOCs, which are subsequently desorbed, producing a low-volume exhaust stream with a higher concentration of VOCs. This more concentrated exhaust stream is then treated with greater efficiency through a combustion process that destroys as much as 98 percent of the VOCs. ▶

# SUSTAINABLE MANUFACTURING AND OPERATIONS

### Hazardous Waste

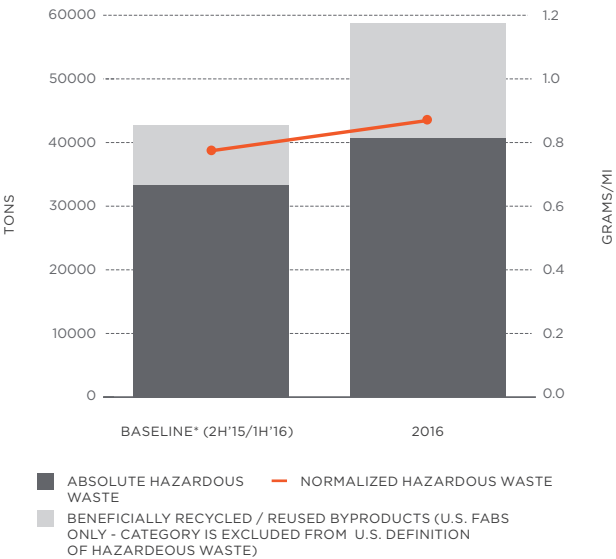
FIGURE 8 shows absolute and normalized hazardous waste generation at our baseline and in 2016. The classification of waste as “hazardous” is determined by varying regulations that apply to our manufacturing sites.

Absolute hazardous waste generation increased by 22 percent in 2016 compared to the baseline. The normalized rate of hazardous waste generation increased less since it was offset by a higher productivity in the second half of 2016, and grew by 12 percent during 2016.

The rise in absolute and normalized hazardous waste generation is also due to the continued increase in wafer technology complexity associated with manufacturing integrated circuits at more advanced technology nodes. The number of wafer cleaning steps in advanced processes continues to grow due to smaller feature dimensions and the fact that constructing complex integrated circuits requires process flows that involve hundreds of individual process steps. The increased number of cleaning steps requires an increased use of both UPW and cleaning chemicals such as sulfuric acid. We are actively investigating ways to reduce water and chemical use to ultimately reduce hazardous waste.

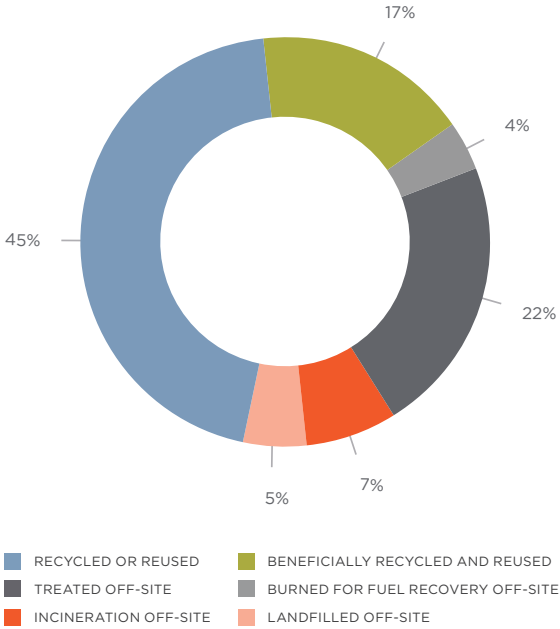
FIGURE 9 shows a breakdown of the disposal methods for the hazardous waste generated in 2016. We also include the category “byproducts beneficially recycled.”

and reused,” which is applicable only to our U.S. sites because reclaimed material is excluded from the definition of hazardous waste under U.S. EPA regulations. Approximately 61 percent of total hazardous waste (including byproducts beneficially recycled and reused) generated in 2016 was recycled or reused.



**FIGURE 8** Absolute and Normalized Hazardous Waste Generation-Baseline\* and 2016.  
 \*The baseline is defined as the first 12 months of our combined operations (July 2015 - June 2016).

Consequently, we met our 2016 goal to achieve a recycle and reuse rate of more than 55 percent and we are applying the same goal value to our manufacturing operations in 2017.



**FIGURE 9** 2016 Disposal Methods for Hazardous Waste and Beneficially Recycled and Reused Byproducts.

# SUSTAINABLE MANUFACTURING AND OPERATIONS

### Non-Hazardous Waste Generation

FIGURE 10 shows absolute and normalized non-hazardous waste generation at our baseline and in 2016. Absolute nonhazardous waste generation decreased by 11 percent in 2016 compared to our baseline, whereas normalized non-hazardous waste generation decreased even more (by 18 percent) due to an increase in manufacturing volumes in the second half of 2016.

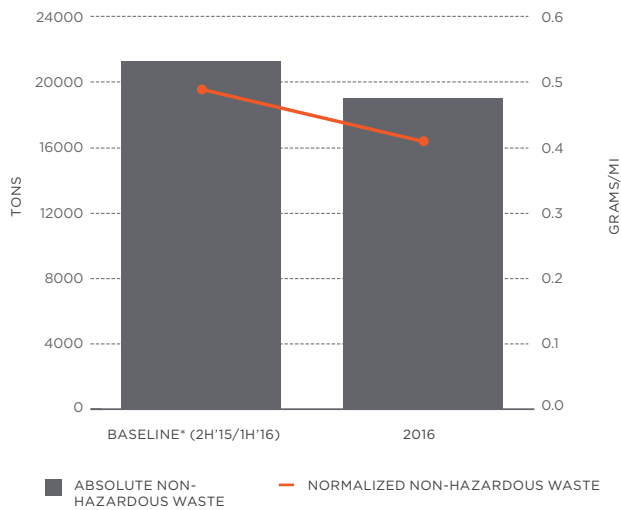


FIGURE 10 Absolute and Normalized Non-Hazardous Waste Generation — Baseline\* and 2016.

\*The baseline is defined as the first 12 months of our combined operations (July 2015 – June 2016).

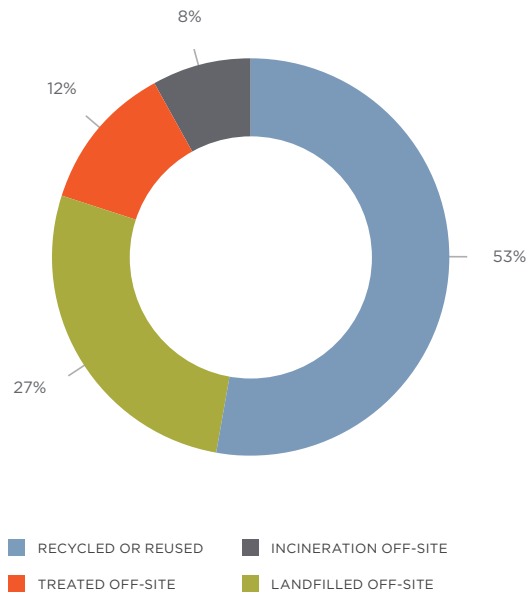


FIGURE 11 2016 Disposal Methods for Non-Hazardous Waste.

FIGURE 11 shows the breakdown of the disposal methods for non-hazardous waste generated in 2016. More than 50 percent of non-hazardous waste generated by GLOBALFOUNDRIES in 2016 was recycled or reused.

### EHS Compliance

Through our global Environmental, Health & Safety policy, we are committed to a “Beyond Compliance” approach, seeking to exceed the requirements of applicable regulations. We implement consistent and rigorous EHS standards, management systems, metrics, external reporting and compliance assurance programs.

These programs are designed to protect the environment; to protect the safety, health and well-being of our employees, contractors and communities; and to ensure that we meet or exceed regulatory compliance requirements. Our manufacturing sites perform internal reviews as part of their EHS Management Systems and are routinely inspected by regulatory authorities.

In 2016, inspections and regular compliance reporting across our global locations resulted in two notices of violation (NOVs). All issues were corrected to the satisfaction of the respective regulatory authorities, and neither of the two NOVs resulted in financial penalties. •



# 09 PRODUCT STEWARDSHIP

# PRODUCT STEWARDSHIP

09

It is our responsibility to reduce the potential health, safety, environmental and social impacts of the product life-cycle stages under our control. With our broad range of technologies and manufacturing expertise, we enable our customers' success while at the same time keeping a focus on opportunities to reduce their environmental footprint.

## ENABLING ENERGY EFFICIENCY

Our industry is undergoing a seismic shift from an era of "smart mobility" to a world of "connected intelligence." Increasingly smart devices are connected through high-bandwidth networks to massive data centers, which leverage powerful processing capabilities to learn, anticipate and direct the behavior of the devices and networks. Semiconductors lie at the heart of this change, and GLOBALFOUNDRIES is very focused on delivering the underlying technology needed for connectivity, for low power and for intelligence.

As the world becomes increasingly integrated through billions of connected devices, many emerging applications demand a new approach to semiconductor innovation. The chips that make these applications possible are evolving into mini-systems, with increased integration of intelligent components including wireless connectivity, non-volatile memory, advanced logic and power management — all while driving ultra-low power consumption. GLOBALFOUNDRIES is a leader in enabling connected intelligence and we are focusing on delivering semiconductor solutions that meet the low-power requirements of battery-powered connected devices. Our leading-edge manufacturing technologies make possible smaller transistors, lower power consumption and lower leakage currents, particularly for battery-powered connected devices. We have integrated leading-edge wafer technology capabilities into manufacturing processes that enable low power consumption of the final

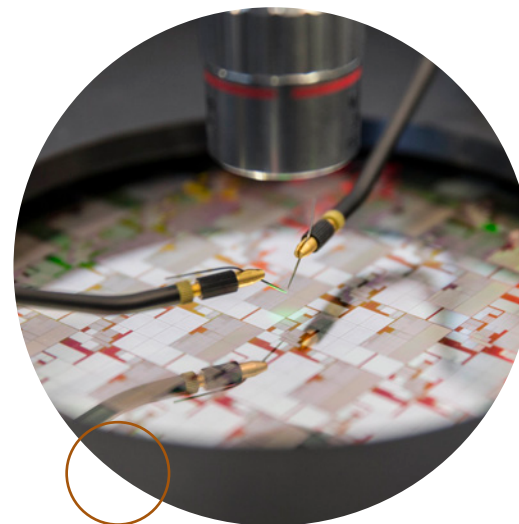
application, such as Fully Depleted Silicon on Insulator (FD SOI) and Fin-Shaped Field Effect Transistors (FinFET transistors).

## FD-SOI Technology — Fully Depleted Silicon on Insulator Technology

FD-SOI technology is a planar process that leverages existing manufacturing methods to deliver reduced silicon geometries, improved performance and low power consumption. Two key innovations are combined, synergistically, to create the FD-SOI process. The first is the use of an ultra-thin oxide insulator placed on top of the base silicon. Second, a very thin silicon layer creates the transistor channel. Due to the thinness of this layer, no channel doping is required, making the transistor "fully depleted." The FD-SOI structure results in much better transistor characteristics compared to traditional bulk CMOS technology, reducing leakage current and parasitic capacitance, thus making the transistor more energy efficient.

## FinFETs (Fin-Shaped Field Effect Transistors)

Historically, transistors have been two-dimensional features in an integrated circuit. FinFETs are three-dimensional transistors that have the intrinsic capability to operate at a lower voltage, which translates to improved energy efficiency and longer battery life. This is a highly desired technology for performance-hungry mobile computing applications. ▶



These power-saving wafer technology elements are applied in a number of technology platforms at GLOBALFOUNDRIES, such as:

## **GLOBALFOUNDRIES' 7nm AND 14nm FINFET TECHNOLOGY PLATFORMS**

In June 2017, GLOBALFOUNDRIES announced design kit availability for its 7nm Leading-Performance (7LP) FinFET semiconductor technology. GLOBALFOUNDRIES' 7LP 7nm FinFET process technology platform is ideal for high-performance, power-efficient, high-volume applications. Based on the 3D FinFET transistor technology, as well as benefiting from the shrink in geometry from 14nm to 7nm, GLOBALFOUNDRIES' 7LP technology can provide more than 40 percent higher device performance and more than 60 percent lower total power compared to 14nm technologies. GLOBALFOUNDRIES' 14nm FinFET technology platform, currently one of the most advanced in the industry, is ideal for the most demanding high-volume, high-performance and power-efficient System on Chip (SoC) designs. The platform taps the benefits of three-dimensional, fully depleted FinFET transistors to overcome the limitations of planar transistor technology. The 14nm FinFET devices offer the perfect answer to growing market needs, with intrinsic performance boost over 28nm and 20nm devices and a superior power footprint compared to any predecessors.

## **GLOBALFOUNDRIES' ASIC SOLUTIONS**

GLOBALFOUNDRIES' application-specific integrated circuit (ASIC) solutions are designed to deliver system-level differentiated semiconductors for a number of applications and markets.

GLOBALFOUNDRIES' newest platform of ASICs, FX-7™, is based on GLOBALFOUNDRIES' 7nm FinFET technology. FX-7 builds on the success of its predecessor in 14nm technology, the FX-14™ ASIC platform, as well as on a legacy of ASIC expertise. Energy efficiency has always been a focus of ASIC technology platform designers. For example, the FX-14 ASIC platform offers an increase of up to 50 percent in energy efficiency as compared to its predecessor.\*

The FX-7 ASIC platform unlocks a new level of power efficiency, taking advantage of GLOBALFOUNDRIES' leading-edge 7nm FinFET technology platform, 7LP, and offering similar energy efficiency improvements.

## **GLOBALFOUNDRIES' 22FDX™ AND 12FDX™ TECHNOLOGIES**

The GLOBALFOUNDRIES 22FDX™ platform features significant low power, low cost and power efficiency advantages for designing differentiated solutions for mobile application processors, wireless networking, Internet of Things (IoT) and automotive markets. GLOBALFOUNDRIES' 22nm FD-SOI technology delivers FinFET-like performance and energy-efficiency at the cost of 28nm planar technologies, including up to 70 percent lower power as compared to 28nm.

The roadmap to the next-generation 12FDX™ platform is designed to enable the ultra-low-power intelligent systems of tomorrow across a range of applications, from mobile computing and 5G connectivity to artificial intelligence and autonomous vehicles, delivering unprecedented levels of system integration, design flexibility and power scaling.

GLOBALFOUNDRIES' new 12FDX technology is specifically architected to deliver these unprecedented levels of system integration, design flexibility and power scaling. 12FDX technology is built on a 12nm FD-SOI platform, enabling the performance of 10nm FinFET with better power consumption and lower cost than 16nm FinFET. The platform offers a full node of scaling benefit, delivering a 15 percent performance boost over current FinFET technologies and as much as 50 percent lower power consumption.

## **Beyond the Leading Edge**

Our focus on technologies that enable energy efficiency extends beyond the leading-edge technology nodes. We also offer semiconductor services for power management integrated circuits (PMICs) and power converters. Our growing portfolio is continuously expanding for higher voltages.

GLOBALFOUNDRIES has developed a unique version of BiCMOS/DMOS named BCDlite™, which has become one of the key technology platforms for cost-effective power management and power converter solutions. This technology platform offers tremendous design flexibility for power management and high-voltage analog circuits. ►

*\*GF Cu-32 ASIC. Results vary depending on actual chip design.*

## MATERIALS MANAGEMENT AND PRODUCT COMPLIANCE

All GLOBALFOUNDRIES sites have chemical review and approval systems in place to ensure that only approved materials are brought on site for use in wafer fabrication. Our material qualification process assesses materials relative to GLOBALFOUNDRIES' Specification for Banned, Restricted and Declarable, which includes both regulatory and customer-driven requirements. We extend these requirements to our manufacturing partners that provide semiconductor foundry, assembly and test services. Applicable regulatory requirements include the EU Directive on restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS Directive) as well as its sister directives in other jurisdictions, such as China RoHS, and other legislation that regulates substances in articles, most prominently the EU REACH Directive's provisions on the presence of designated Substances of Very High Concern (SVHCs) in articles.

GLOBALFOUNDRIES has programs in place to obtain analytical evidence of product compliance (such as RoHS and halogen-free requirements). We make these reports and other product compliance documentation, including our statement that GLOBALFOUNDRIES' products contain no SVHCs above the applicable thresholds, and our corporate Conflict Minerals Reporting Template (CMRT), available to customers on GlobalFoundryView, our customer portal.

Our specifications require packing material suppliers to meet applicable substance restrictions. In addition, GLOBALFOUNDRIES requires that paper-based shipping materials contain more than 50 percent recycled content, and any remaining content is preferably sourced from sustainably managed forests.

## RESEARCH & DEVELOPMENT FOR ADVANCED MANUFACTURING

GLOBALFOUNDRIES is driving advancements in semiconductor technology that challenge the current limits of manufacturing and materials development. Developing leading-edge technologies requires substantial investments in research and development. We employ thousands of the world's brightest technologists and hold more than 25,000 semiconductor patents and applications. GLOBALFOUNDRIES received a Top 10 patent ranking in 2016 among U.S. companies. As one of only four global semiconductor manufacturers competing at the most advanced technology nodes (14nm, 7nm and beyond), we collaborate with a dynamic array of partners in technology pathfinding, including IBM Research, SUNY Polytechnic Institute (New York), IME (the Institute for Microelectronics in Singapore), IMEC (Belgium), the Fraunhofer Institute (Germany) and LETI (France). We are engaged in university research through the Semiconductor Research Corporation (SRC) Impact+ at the University of California, Los Angeles; and System X, located at Stanford University.

### Integrating EHS with Research & Development

Addressing the environmental, health and safety aspects of new materials and processes is a key requirement for successful technology innovation. GLOBALFOUNDRIES' professionals play a leading role in setting industry strategy for EHS research and development. For many years, we and our industry peers have supported EHS R&D work at the Semiconductor Research Corporation's (SRC) Engineering Research Center for Environmentally Benign Semiconductor Manufacturing, and other R&D consortia, including IMEC and SEMATECH. Through the SRC, we co-fund fundamental EHS research at leading academic institutions, such as the University of California, Los Angeles; University of Arizona; University of Texas; and

Arizona State University. We also directly participate in fundamental research; for example, partnering as co-principal investigators with professors at the University of Arizona and Arizona State University in a National Science Foundation-funded project to characterize the EHS properties of novel semiconductor materials.

In addition, we have initiated a program in which professors can spend a sabbatical period with us. This opportunity provides academics with direct insight into research needs and technical challenges faced by our industry. It also provides GLOBALFOUNDRIES' engineers with direct access to university expertise, providing an opportunity to increase their technical skills. The intent of these and our other EHS research efforts is to ensure that the introduction of new materials and processes into semiconductor manufacturing processes is conducted in a safe and environmentally responsible manner. Our participation in industry research consortia allows us to pool resources with other leading manufacturers to evaluate the EHS aspects of new materials at a pre-competitive stage. In 2017 we entered into a multiyear agreement to support EHS research at the SRC, focused on initiating new projects in early 2018 that will run through 2020. This provides us with essential information as we bring new materials and processes through our development process, and helps ensure that EHS criteria are addressed all the way from exploratory research through release to high-volume manufacturing. •

# 10 SITE PROFILES

This section profiles our five major manufacturing locations along with our two largest non-manufacturing locations – our headquarters in Santa Clara, CA, and our design center in Bangalore, India.

# SITE PROFILES

## FAB 1 - DRESDEN, GERMANY

Groundbreaking for Fab 1 in Dresden took place in October 1996. The grand opening of the first production cleanroom followed in 1999, and the Dresden site has continued to expand ever since. In 2009, the Dresden site became the first GLOBALFOUNDRIES fab when the company was divested from Advanced Micro Devices, Inc. (AMD). With more than 52,000 square meters of cleanroom, Fab 1 is the largest semiconductor manufacturing site in Europe.

Employees (end 2016)	Approx. 3,500
Total Investment	> USD 12B
Capacity	up to 80K 300mm wafers/month
Technology	40nm, 28nm, 22nm
Management System Certifications	ISO 9001, ISO 14001, OHSAS 18001, ISO 50001



# SITE PROFILES

## FAB 1 - DRESDEN, GERMANY

### ECONOMIC COMMUNITY IMPACT

Employing approximately 3,500 employees, GLOBALFOUNDRIES significantly contributes to the advancement of leading-edge semiconductor industry in Europe, Germany, and specifically the high-tech cluster in Saxony. The region currently counts approximately 2,300 high-tech companies with more than 60,000 employees.

### COMMUNITY RELATIONS

Located literally fence to fence with its neighbors in the 800-year-old villages of Wilschdorf and Boxdorf, the Dresden site participated in its first local town hall meetings back in 1996 and continues to do so today. The annual highlights of the neighborhood program include support of the Wilschdorf summer party, which features a joint concert of the Village Choir and the GLOBALFOUNDRIES site choir. Additionally, Fab 1 supports various neighborhood associations and activities such as local heritage societies, volunteer fire brigades and choirs.

The Dresden site has implemented a Community Affairs Program with a focus on educational youth projects and neighborhood activities. As a leading tech company, the Dresden site is driving a considerable number of educational projects focused on STEM activities with K-12 students. Jointly with long-term partners Siemens and BMW Leipzig, GF Dresden is a sponsor of the renowned youth tech competition “Jugend forscht” (“Young Scientists”). Other long-term commitments include the Saxon IT competition for schools – INVENT a CHIP – and a student visitor program.

The site has also actively participated in blood drives and has supported different local youth organizations that focus on kids from disadvantaged families, as well as various corporate programs, including Calendars for Charity and Leap of Kindness Day.

### SUSTAINABILITY FEATURES

Low-carbon energy supply: Fab 1 is mainly powered by two specially designed, highly efficient trigeneration plants, along with a small fraction of electricity from the Dresden public grid. Energy Centers I and II burn natural gas to supply Fab 1 with electricity, with fab heating and cooling generated mainly from the trigeneration plants' waste heat. Trigeneration is much more efficient than conventional coal or natural gas power plants, and sourcing energy from the Energy Centers has helped Fab 1 avoid greenhouse gas emissions of almost 2.9 million tons of CO<sub>2</sub> throughout its lifetime.\*

Low GHG emissions: Fab 1 in Dresden is one of the largest fabs in Europe, and yet it produces very low levels of PFC (perfluorocompound) emissions. Fab 1 was designed for extremely low emissions of PFCs, which is accomplished by utilizing low-emission gases in CVD chamber cleaning, coupled with near-universal use of point-of-use abatement equipment for PFC-using processes.

\*This comparison assumes that the local utility company would buy electricity from a base load power plant fueled with brown coal, while heating and cooling would be supplied on-site and fueled by natural gas. This would have been the most likely conventional scenario, considering the amount of energy needed, existing capacity at the local utility company and the unique nature of the site's electricity demand profile, which shows minimal daily variation.

# SITE PROFILES

## GLOBALFOUNDRIES SINGAPORE

GLOBALFOUNDRIES Singapore is a community of approximately 6,000 people working across two campuses: at the main Woodlands campus, which is home to one 200mm “GIGA fab” (Fabs 2, 3 and 5) and one 300mm fab (Fab 7), and a 200mm fab in Tampines, 30 minutes away from the main campus. These facilities comprise nearly 11 soccer fields of cleanroom space. The history of our GIGA fab goes back to 1995 when Fab 2 first started production. Our 300mm Fab 7 commenced operation in 2005, and has evolved ever since. In 2016 the site executed a significant extension of Fab 7 by updating and merging our former 200mm Fab 6 into Fab 7. The GLOBALFOUNDRIES Singapore fabs were previously owned by Chartered Semiconductor Manufacturing, and were acquired by GLOBALFOUNDRIES in 2010.



Employees (end 2016)	Approx. 6,000
Capacity	93K 200mm wafers/month 68K 300mm wafers/month
Technology	180nm-40nm
Management System Certifications	ISO 9001, TS 16949, ISO 14001, OHSAS 18001, Sony Green Partner; Fab 7 and Fab 3E: ISO 15408 (Common Criteria)

# SITE PROFILES

## GLOBALFOUNDRIES SINGAPORE

### AWARDS AND RECOGNITION

- **2016 Ministry of Manpower Workplace Safety & Health Silver Award.**
- **2016 Workplace Safety and Health Council bizSAFE Star Certificate.**
- **2016 Philanthropy Award from Children's Cancer Foundation, Corporate Category Gold. The award recognized GLOBALFOUNDRIES' yearly participation as one of the top five corporate Satellite Partners raising funds for the Hair for Hope program.**
- **2016 Energy Efficiency National Partnership Award, Best Practices category—jointly recognized with strategic partner Edwards by Singapore's National Environment Agency.**

### ECONOMIC COMMUNITY IMPACT

The GLOBALFOUNDRIES Singapore site employs over 6,000 employees across the Woodlands and Tampines sites, contributing to the low unemployment rate in Singapore (2 percent).

### COMMUNITY RELATIONS

Since 2006, the GLOBALFOUNDRIES Singapore site has held an annual Hair for Hope fundraising event benefiting the Children's Cancer Foundation (CCF). GLOBALFOUNDRIES donated a total of S\$116,290 (\$85,000 USD) to the program in 2016. This signature event serves to raise funds and promote awareness of childhood cancer.

Every Christmas season, GLOBALFOUNDRIES Singapore partners with the Singapore Boy's Brigade for their Give-a-Gift program to fulfill the wish list of different beneficiaries. From the wish list, employees will select the items that they wish to fulfill and wrap them up as Christmas gifts. In 2016, GLOBALFOUNDRIES Singapore gave away 795 presents.

GLOBALFOUNDRIES' Singapore site offered the charitable 2017 GlobalGives calendar to employees for purchase. All donations collected were given to Food from the Heart, a nonprofit organization that provides food for the less fortunate. A total of 1,000 calendars were sold in 2016.

2016 marks the 13th year of the Singapore site's Corporate and School Partnership program. As part of the program, the GLOBALFOUNDRIES Singapore EHS team provides financial resources and technical expertise to the students to raise their awareness about waste minimization and renewable energy sources such as solar energy.

As part of our community outreach initiative, we host exchange programs with other organizations to learn

about their CSR initiatives and EHS best practices. In 2016, the GLOBALFOUNDRIES Singapore EHS team hosted students from Republic Polytechnic for an industrial visit. The site tour and hands-on activities allowed the students to gain a better understanding of EHS management in the semiconductor industry.

### SUSTAINABILITY FEATURES

Resource efficiency is a priority for the Singapore site team—energy and water conservation programs are continually pursued to raise resource efficiency to the next level.

Our Singapore fabs have extensive water recycling capabilities and achieved a 56 percent recycling rate in 2016 as compared to incoming water. In 2016, our Singapore site further enhanced its conservation efforts by completing construction of a new water treatment and reclamation facility at the Woodlands campus. This state-of-the-art facility features advanced technology that is designed to reduce waste sludge and enable the reuse of treated wastewater, thereby further reducing overall raw water consumption. The facility is also projected to use less chemicals and energy during the water treatment process.

Furthermore, more than 95 percent of the water consumed at GLOBALFOUNDRIES Singapore is NEWater, which is reclaimed and treated wastewater supplied by the Singapore Public Utilities Board. Using NEWater supports Singapore's water conservation strategy to reserve high-quality potable water for domestic consumption.

# SITE PROFILES

## FAB 8 - MALTA, NEW YORK, USA

In 2009, GLOBALFOUNDRIES broke ground for construction of our Fab 8 300mm wafer manufacturing facility in Malta, New York. The current capital investment for the Fab 8 campus is more than \$12 billion. The majority of this investment has been directed toward supporting the ramp of our leading-edge 14nm technologies. With 40,875 square meters of cleanroom space and continued expansion, GLOBALFOUNDRIES Fab 8 is one of the leaders in advanced manufacturing in the U.S.

Employees (end 2016)	Approx. 3,000
Total Investment	> USD 12B
Capacity	up to 60K 300mm wafers/month
Technology	14nm, 7nm
Management System Certifications	ISO 9001, ISO 14001, OHSAS 18001

### AWARDS AND RECOGNITIONS

- Admin 1 and Admin 2 office buildings are LEED Gold®.
- Fab 8.1 fabrication facility is LEED Silver®.



# SITE PROFILES

10

## FAB 8 - MALTA, NEW YORK, USA

### ECONOMIC COMMUNITY IMPACT

Fab 8 is a cornerstone of upstate New York's "Tech Valley" region and is the largest public-private sector industrial investment in New York state's history. Since breaking ground on Fab 8 in 2009, GLOBALFOUNDRIES has created approximately 3,000 new jobs. These new jobs support an additional 15,000 indirect jobs in the economy, based on research by the Semiconductor Industry Association.

Fab 8 is an ideal home for GLOBALFOUNDRIES' leading-edge manufacturing and technology development activities. Working within the Joint Development Alliance in Albany and the Polytechnic Institute at the State University of New York (SUNY Poly), combined with the growing presence of technology development personnel on the Fab 8 campus, we have helped make New York's Tech Valley a global center for next-generation technologies.

### COMMUNITY RELATIONS

The region has also benefited from our support of local education through numerous initiatives. The following are a few examples of those programs:

- **TechValley Connection for Education and Jobs:** Launched in 2012, this regional program collects and builds upon innovative practices and ideas in education to help ensure that students acquire the skills that businesses require to be successful into the future.
- **First Robotics:** GLOBALFOUNDRIES is among an extensive network of corporations, educational and professional institutions, foundations and individuals that support the New York Tech Valley FIRST® Robotics Competition Regional and STEM education through FIRST programs.
- **GLOBALGirls:** First launched as a Fab 8 pilot program on May 12, 2015, GLOBALGirls is a GLOBALFOUNDRIES initiative to inspire young women and girls to pursue an education in STEM and help guide them on a pathway to a rewarding career in advanced manufacturing.
- **TechTuesday:** TechTuesday is an education and workforce development initiative to strengthen GLOBALFOUNDRIES' engagement with the community. TechTuesday combines inspiration, education and innovation to offer a glimpse into the world of nanotechnology, our people and the career pathways available at Fab 8.

### SUSTAINABILITY FEATURES

The Fab 8 campus integrated green building principles and practices as part of the site design, construction and operation. Its energy-saving features are estimated to save approximately 16 GWh annually. Some of these include:

- High-efficiency motors, chillers, boilers, fan filters for the cleanroom, and vacuum pumps.
- An innovative system that uses heat recovery chillers to meet the fab's year-round base cooling load and recover the heat for site needs instead of removing it with cooling towers. The system meets 40 percent of the site's heating load with recovered heat.
- A fab-wide "Green Mode" strategy for point-of-use abatement systems and for a significant portion of the installed base of vacuum pumps. Green Mode uses smart controls that place fab support equipment into an idle mode that lowers power and natural gas consumption during periods of inactivity. This strategy is in the process of being implemented.

# SITE PROFILES

## FAB 9 - BURLINGTON, VERMONT, USA

Sixty years ago, IBM broke ground on its Vermont facility located on the banks of the Winooski River near Burlington. Since its inception in 1957, the campus has grown and evolved into a major semiconductor manufacturing site. When GLOBALFOUNDRIES acquired the site as part of the IBM Microelectronics business in 2015, nearly 3,000 people became GLOBALFOUNDRIES employees. GLOBALFOUNDRIES Fab 9 is the largest private employer in the state of Vermont.

Employees (end 2016)	Approx. 2,700
Capacity	up to 40K 200mm wafers/month
Technology	350nm-90nm
Management System Certifications	ISO 9001, TS 16949, ISO 14001, OHSAS 18001, Sony Green Partner

### AWARDS AND RECOGNITION

- 2016 Vermont Governor’s Award for Environmental Excellence
- 2016 MVP2 (Most Valuable Pollution Prevention) Award from the National Pollution Prevention Roundtable
- 2016 EPA Region 1 Environmental Merit Award
- OSHA VPP (Voluntary Prevention Programs) Star site



# SITE PROFILES

10

## FAB 9 - BURLINGTON, VERMONT, USA

### ECONOMIC COMMUNITY IMPACT

Fab 9 is the largest private employer in the state of Vermont. The site's employees live in over 190 towns in the state of Vermont.

### COMMUNITY RELATIONS

The site has an extensive history of community involvement and thus is well known for its dedication and passion to the community, whether it be through charitable contributions or through volunteering during days of caring. In addition, the "Bridge the Gap" and Calendars for Charity programs helped provide local charities with valuable contributions.

Burlington employees are very passionate about K-12 outreach, taking part in FIRST Robotics activities and E-week, where employees visit schools around the area to introduce students to fun science activities and get them excited about STEM (Science, Technology, Engineering and Mathematics) careers. Every year in April, the site welcomes over 400 employee children, treating them to many fun and educational activities during Take Our Children to Work Day. The site also held a National Manufacturing Day & Problem Solving Symposium, an event open to state officials, local educators and business leaders.

### SUSTAINABILITY FEATURES

Noted for its long-term environmental excellence, the Burlington site has received extensive recognition, including numerous national, regional and state awards for its pollution prevention and energy management results and initiatives.

Fab 9 uses 3.2 million gallons of water per day, including 2 million gallons per day of ultra-pure water. The water comes from Lake Champlain and wastewater treatment is done on-site. The site has reduced its water usage by 30 percent over the last decade. The site is fed by 150-kilovolt power lines and has its own smart grid, which has reduced its peak power consumption by 7 megawatts.

The site employs energy efficiency techniques such as free cooling, heat recovery and smart management of buildings and equipment. The company has even assisted other local organizations such as Vermont Technical College and the Howard Center in making energy efficiency improvements. Fab 9 has also shared technical expertise of its staff with numerous local organizations including the Solar Research Test Center, hospitals, colleges, the Vermont Air Guard and Cabot Cheese. In 2016, Fab 9 transferred unused land to Green Mountain Power to develop a 4.7 MW solar power generation facility, the state's largest, providing benefits to local communities, GLOBALFOUNDRIES and the environment.

# SITE PROFILES

## FAB 10 - EAST FISHKILL, NEW YORK, USA

Once used for agriculture, the 464-acre site in the town of East Fishkill, New York, is now a massive microelectronics complex and home to the GLOBALFOUNDRIES Fab 10. The site was originally purchased by IBM in 1962, and grew and evolved into an R&D and manufacturing center, first solely in support of IBM's own mainframe products, and later also serving the needs of other original equipment manufacturers (OEM). Major updates were added when the 300mm fabs were completed in 2002 and 2005. The site joined GLOBALFOUNDRIES as part of the acquisition of IBM's microelectronics business acquisition in 2015 and is now known as GLOBALFOUNDRIES Fab 10.

Employees (end 2016)	Approx. 1,500
Capacity	up to 20K 300mm wafers/month
Technology	90nm-22nm
Management System Certifications	ISO 9001, AS 9100C; ISO 14001, OHSAS 18001, Sony Green Partner

### AWARDS AND RECOGNITION

OSHA VPP (Voluntary Protection Programs) Star site — the U.S. Occupational Safety and Health Administration (OSHA) VPP Star recognizes “employers and employees who demonstrate exemplary achievement in the prevention and control of occupational safety and health hazards and the development, implementation and continuous improvement of their safety and health management system.”



# SITE PROFILES

## FAB 10 - EAST FISHKILL, NEW YORK, USA

### COMMUNITY RELATIONS

East Fishkill employees have always prided themselves on being good neighbors, giving generously to the local community through charitable donations and volunteering. Employees have built bicycles and collected toys for less fortunate children; supplied tons of food to local food banks; donated thousands of coats to a local nonprofit; “adopted” families during the holiday season; mentored elementary, high school and college students through the Pathway to Technology program; and visited hundreds of classrooms during eWeek to encourage students to pursue careers in science and mathematics.

With the longtime motto “People, Products and Pride,” the East Fishkill team strives to strengthen GLOBALFOUNDRIES in all of those ways. The site also participates in a number of STEM (Science, Technology, Engineering and Mathematics) activities, including FIRST Robotics and P-Tech events, as well blood drives, a Treat the Troops program and the Calendars for Charity campaign.

### SUSTAINABILITY FEATURES

Fab 10 produces two commercial chemical products for reutilization from the wastewaters generated by its 300mm manufacturing operations:

- A sulfuric acid wastewater is segregated to produce a spent sulfuric acid product for on-site reuse in air emission abatement as well as off-site reuse for chemical manufacturing.
- Ammonia wastewater is distilled to produce an ammonium hydroxide solution for reuse in off-site catalytic air emission abatement systems. In addition, wastewater rinses representing approximately 10 percent of site water usage are segregated from more concentrated wastewaters for reuse in on-site air emission abatement systems.
- Groundwater treated through IBM groundwater remediation activities (approximately 25 percent of site water usage) is also reused in the production of ultra-pure water.

# SITE PROFILES

10

## SANTA CLARA, CALIFORNIA, USA

In 2013, GLOBALFOUNDRIES consolidated its Silicon Valley operations at a new corporate headquarters in Santa Clara. Drawing from the deep talent of the world's premiere innovation center, and located close to many of our customers, the Santa Clara office employs approximately 500 people who work in Product Management, Sales and Marketing, Finance, IT, HR, Legal and other teams.

Employees (end 2016)

Approx. 500

### COMMUNITY ENGAGEMENT

In keeping with our GlobalGives focus areas of education, philanthropy and environment, Santa Clara employees support numerous community initiatives. Recent examples include an Earth Day-inspired volunteer event at the nearby Don Edwards San Francisco Bay Wildlife Refuge, and hosting the site's first STEM event for approximately 80 students, ages 6-11, at the Boys & Girls Club of Silicon Valley in the nearby community of Alviso. The STEM event featured two hours of activity station rotations, helping students dress up in cleanroom "bunny suits," simulating photolithography processes, constructing electrical circuits and more. GF Santa Clara leases a LEED Gold-certified building in the Santa Clara Gateway (SCG) complex. The complex uses recycled water for non-potable uses and features bicycle lockers, electric vehicle (EV) charging stations and preferred parking for energy-efficient vehicles and carpools.



# SITE PROFILES

10

## BANGALORE, INDIA

GLOBALFOUNDRIES India joined the company in July 2015 as a strategic component of our acquisition of the IBM Microelectronics Division. Our location in Bangalore serves as our largest design center, including Product Management, Global Sales and Business Development, and IT teams. The site is poised to grow as we leverage the strong talent of this global electronics hub. The GF India Board of Directors has its own CSR Committee and established a CSR Policy in 2017.

Employees (end 2016)

Approx. 225

### COMMUNITY ENGAGEMENT

Through its STEM outreach program, the site organized exciting “Show & Tell” activities at multiple schools in Bangalore, involving about 150 students in grades 9 and 10. The activities gave the students a chance to learn about semiconductors and how microchips are made. The children also participated in hands-on, highly interactive electronic experiments, which generated a lot of interest about electronics. The targeted schools serve underprivileged children who don’t normally have the opportunity to participate in STEM-related activities. Our Bangalore employees support the Diya Foundation, a charitable trust which trains and provides employment to differently abled adults on daily living skills, social personal skills, communication skills, occupational guidance and work skills. Our employees also volunteered at and/or donated to the Pediatric Department of Kidwai Memorial Hospital, the Little Sisters of the Poor, the Freedom Foundation and the Holy Family Home. The GF India Board’s CSR Committee has approved a CSR Plan to further expand the site’s educational and philanthropic initiatives.



# ABOUT THIS REPORT

The **GLOBALFOUNDRIES 2017 Corporate Responsibility Report** is our third comprehensive sustainability report. The last report was published in 2016 and covered 2014-2015 data. We are using the Global Reporting Initiative (GRI) G4 Sustainability Reporting Guidelines, and self-declare the report to be prepared in accordance with the GRI G4 “Core” level.

Operational data presented in this report reflect calendar year 2016. The data were compiled from facilities owned or operated by GLOBALFOUNDRIES during the reporting period and validated using our internal processes. No significant change in company structure as relevant to this report occurred during 2016.

*We value and encourage your feedback on this report.*

Please send comments or questions to [CSR@globalfoundries.com](mailto:CSR@globalfoundries.com).

# 11 GRI CONTENT INDEX

● FULLY DISCLOSED

◐ PARTIALLY DISCLOSED

○ NOT DISCLOSED

**GLOBALFOUNDRIES** reviewed the disclosures in this report relative to the GRI G4 guidelines. Please refer to the index table below, which indicates how our disclosures address the GRI guidelines.

STANDARD DISCLOSURES PART I: PROFILE DISCLOSURES				
STRATEGY AND ANALYSIS				
PROFILE DISCLOSURE	DESCRIPTION	REPORTED	CROSS-REFERENCE	EXPLANATORY COMMENT
G4-1	Provide a statement from the most senior decision-maker of the organization (such as CEO, chair or equivalent senior position) about the relevance of sustainability to the organization and the organization's strategy for addressing sustainability.	●	CEO Statement	
ORGANIZATIONAL PROFILE				
G4-3	Report the name of the organization.	●	Company Profile	
G4-4	Report the primary brands, products and services.	●	Company Profile	
G4-5	Report the location of the organization's headquarters.	●	Company Profile	
G4-6	Report the number of countries where the organization operates, and names of countries where either the organization has significant operations or that are specifically relevant to the sustainability topics covered in the report.	●	Company Profile	
G4-7	Report the nature of ownership and legal form.	●	Company Profile	
G4-8	Report the markets served (including geographic breakdown, sectors served, and types of customers and beneficiaries).	●	Company Profile	
G4-9	Report the scale of the organization.	●	Company Profile	
G4-10	Report the total number of employees by category.	◐	Company Profile	We report the total number of employees by region and gender.
G4-11	Report the percentage of total employees covered by collective bargaining agreements.	●	-	None

# 11 GRI CONTENT INDEX

● FULLY DISCLOSED

◐ PARTIALLY DISCLOSED

○ NOT DISCLOSED

ORGANIZATIONAL PROFILE (CONTINUED)				
PROFILE DISCLOSURE	DESCRIPTION	REPORTED	CROSS-REFERENCE	EXPLANATORY COMMENT
G4-12	Describe the organization's supply chain.	●	Supplier Responsibility	No significant change in company structure as relevant to this report occurred during 2016.
G4-13	Report any significant changes during the reporting period regarding the organization's size, structure, ownership,or its supply chain.	●	Company Profile	
G4-14	Report whether and how the precautionary approach or principle is addressed by the organization.	●	Governance	
G4-15	List externally developed economic, environmental, and social charters, principles, or other initiatives to which the organization subscribes or which it endorses.	●	Stakeholder Engagement	
G4-16	List memberships of associations (such as industry associations) and national or international advocacy organizations.	●	Stakeholder Engagement	
IDENTIFIED MATERIAL ASPECTS AND BOUNDARIES				
G4-17	List all entities included in the organization's consolidated financial statements or equivalent documents.	○	-	
G4-18	Explain the process for defining the report content and the Aspect Boundaries.	●	Stakeholder Engagement	
G4-19	List all the material Aspects identified in the process for defining report content.	●	Stakeholder Engagement	
G4-20	For each material Aspect, report the Aspect Boundary within the organization.	●	Stakeholder Engagement	

# 11 GRI CONTENT INDEX

● FULLY DISCLOSED

◐ PARTIALLY DISCLOSED

○ NOT DISCLOSED

## IDENTIFIED MATERIAL ASPECTS AND BOUNDARIES (CONTINUED)

PROFILE DISCLOSURE	DESCRIPTION	REPORTED	CROSS-REFERENCE	EXPLANATORY COMMENT
G4-21	For each material Aspect, report the Aspect Boundary outside the organization.	●	Stakeholder Engagement	
G4-22	Report the effect of any restatements of information provided in previous reports, and the reasons for such restatements.	●	-	None
G4-23	Report significant changes from previous reporting periods in the Scope and Aspect Boundaries.	●	Company Profile; About This Report	No significant change in company structure as relevant to this report occurred during 2016.

## STAKEHOLDER ENGAGEMENT

G4-24	Provide a list of stakeholder groups engaged by the organization.	●	Stakeholder Engagement	
G4-25	Report the basis for identification and selection of stakeholders with whom to engage.	●	Stakeholder Engagement	
G4-26	Report the organization's approach to stakeholder engagement.	●	Stakeholder Engagement	
G4-27	Report key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns.	●	Stakeholder Engagement	

# 11 GRI CONTENT INDEX

● FULLY DISCLOSED

◐ PARTIALLY DISCLOSED

○ NOT DISCLOSED

REPORT PROFILE				
PROFILE DISCLOSURE	DESCRIPTION	REPORTED	CROSS-REFERENCE	EXPLANATORY COMMENT
G4-28	Reporting period.	●	About This Report	
G4-29	Date of most recent previous report.	●	About This Report	
G4-30	Reporting cycle (such as annual, biennial).	●	About This Report	
G4-31	Provide the contact point for questions regarding the report or its contents.	●	About This Report	
G4-32	Report the “in accordance” option the organization has chosen, and the GRI Content Index for the chosen option.	●	About This Report	
G4-33	Report the organization’s policy and current practice with regard to seeking external assurance for the report.	●	-	At this time, GLOBALFOUNDRIES is not seeking external assurance for this report.
GOVERNANCE				
G4-34	Report the governance structure of the organization, including committees of the highest governance body.	●	Governance	
ETHICS AND INTEGRITY				
G4-56	Describe the organization’s values, principles, standards and norms of behavior such as codes of conduct and codes of ethics.	●	Governance	
ECONOMIC				
MATERIAL ASPECT: ECONOMIC PERFORMANCE				
G4-DMA	Generic Disclosures on Management Approach.	○	-	Not disclosed; GLOBALFOUNDRIES is privately held.

# 11 GRI CONTENT INDEX

● FULLY DISCLOSED

◐ PARTIALLY DISCLOSED

○ NOT DISCLOSED

PROFILE DISCLOSURE	DESCRIPTION	REPORTED	CROSS-REFERENCE	EXPLANATORY COMMENT
G4-EC1	Direct economic value generated and distributed.	○	-	Not disclosed; GLOBALFOUNDRIES is privately held.
G4-EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change.	○	-	Not disclosed; GLOBALFOUNDRIES is privately held.
G4-EC3	Coverage of the organization's defined benefit plan obligations.	○	-	Not disclosed; GLOBALFOUNDRIES is privately held.
G4-EC4	Financial assistance received from government.	○	-	Not disclosed; GLOBALFOUNDRIES is privately held.
ASPECT: INDIRECT ECONOMIC IMPACTS				
G4-DMA	Generic Disclosures on Management Approach.	●	Sustainable Manufacturing	
G4-EC8	Significant indirect economic impacts, including the extent of impacts.	●	Sustainable Manufacturing	
ENVIRONMENTAL				
MATERIAL ASPECT: ENERGY				
G4-DMA	Generic Disclosures on Management Approach.	●	Sustainable Manufacturing	
G4-EN3	Energy consumption within the organization.	●	Sustainable Manufacturing	
G4-EN5	Energy intensity.	●	Sustainable Manufacturing	
G4-EN6	Reduction of energy consumption.	◐	Sustainable Manufacturing	Examples with significant reductions are reported.
G4-EN7	Reductions in energy requirements of products and services.	●	Product Stewardship	Examples are reported for new and existing energy-efficient technologies that enable our customers to design energy-efficient products.

# 11 GRI CONTENT INDEX

● FULLY DISCLOSED

◐ PARTIALLY DISCLOSED

○ NOT DISCLOSED

PROFILE DISCLOSURE	DESCRIPTION	REPORTED	CROSS-REFERENCE	EXPLANATORY COMMENT
MATERIAL ASPECT: WATER				
G4-DMA	Generic Disclosures on Management Approach.	●	Sustainable Manufacturing	
G4-EN8	Total water withdrawal by source.	●	Sustainable Manufacturing	
G4-EN10	Percentage and total volume of water recycled and reused.	●	Sustainable Manufacturing	
MATERIAL ASPECT: EMISSIONS				
G4-DMA	Generic Disclosures on Management Approach.	●	Sustainable Manufacturing	
G4-EN15	Direct greenhouse gas (GHG) emissions (Scope 1).	●	Sustainable Manufacturing	
G4-EN16	Energy indirect greenhouse gas (GHG) emissions (Scope 2).	●	Sustainable Manufacturing	
G4-EN18	Greenhouse gas (GHG) emissions intensity.	●	Sustainable Manufacturing	
G4-EN21	NO <sub>x</sub> SO <sub>x</sub> and other significant air emissions.	◐	Sustainable Manufacturing	
MATERIAL ASPECT: EFFLUENTS AND WASTE				
G4-DMA	Generic Disclosures on Management Approach.	●	Sustainable Manufacturing	
G4-EN22	Total water discharge by quality and destination.	●	Sustainable Manufacturing	
G4-EN23	Total weight of waste by type and disposal method.	●	Sustainable Manufacturing	
G4-EN24	Total number and volume of significant spills.	●	-	In August 2016, approximately 2,300 gallons of fuel oil was accidentally released at GLOBALFOUNDRIES Fab 9. The fuel oil was contained within the fuel tank farm secondary containment area.
MATERIAL ASPECT: COMPLIANCE				
G4-DMA	Generic Disclosures on Management Approach.	●	Sustainable Manufacturing	
G4-EN29	Monetary value of significant fines and total number of non-monetary sanctions for noncompliance with environmental laws and regulations.	●	Sustainable Manufacturing	

# 11 GRI CONTENT INDEX

● FULLY DISCLOSED

◐ PARTIALLY DISCLOSED

○ NOT DISCLOSED

PROFILE DISCLOSURE	DESCRIPTION	REPORTED	CROSS-REFERENCE	EXPLANATORY COMMENT
MATERIAL ASPECT: SUPPLIER ENVIRONMENTAL ASSESSMENT				
G4-DMA	Generic Disclosures on Management Approach.	●	Supplier Responsibility	
G4-EN32	Percentage of new suppliers that were screened using environmental criteria.	●	Supplier Responsibility	
SOCIAL: LABOR PRACTICES AND DECENT WORK				
MATERIAL ASPECT: EMPLOYMENT				
G4-DMA	Generic Disclosures on Management Approach.	●	Our People and Workplace	
G4-LA2	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by significant locations of operation.	●	Our People and Workplace	
G4-LA3	Return to work and retention rates after parental leave, by gender.	◐	Our People and Workplace	
MATERIAL ASPECT: OCCUPATIONAL HEALTH AND SAFETY				
G4-DMA	Generic Disclosures on Management Approach.	●	Our People and Workplace	
G4-LA6	Type of injury and rates of injury, occupational diseases, lost days and absenteeism, and total number of work-related fatalities, by region and by gender.	◐	Our People and Workplace	We do not disclose by gender and region.
MATERIAL ASPECT: TRAINING AND EDUCATION				
G4-DMA	Generic Disclosures on Management Approach.	●	Our People and Workplace	
G4-LA10	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings.	●	Our People and Workplace	

# 11 GRI CONTENT INDEX

● FULLY DISCLOSED

◐ PARTIALLY DISCLOSED

○ NOT DISCLOSED

PROFILE DISCLOSURE	DESCRIPTION	REPORTED	CROSS-REFERENCE	EXPLANATORY COMMENT
MATERIAL ASPECT: DIVERSITY AND EQUAL OPPORTUNITY				
G4-DMA	Generic Disclosures on Management Approach.	●	Our People and Workplace	
G4-LA12	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership and other indicators of diversity.	●	Our People and Workplace	We do not disclose by age group and/or other minority groups.
MATERIAL ASPECT: SUPPLIER ASSESSMENT FOR LABOR PRACTICES				
G4-DMA	Generic Disclosures on Management Approach.	●	Supplier Responsibility	
G4-LA14	Percentage of new suppliers that were screened using labor practices criteria.	●	Supplier Responsibility	
HUMAN RIGHTS				
MATERIAL ASPECT: CHILD LABOR				
G4-DMA	Generic Disclosures on Management Approach.	●	Full Supplier Responsibility	
G4-HR5	Operations and suppliers identified as having significant risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor.	●	Full Supplier Responsibility	
MATERIAL ASPECT: FORCED OR COMPULSORY LABOR				
G4-DMA	Generic Disclosures on Management Approach.	●	Supplier Responsibility	
G4-HR6	Operations and suppliers identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of all forms of forced or compulsory labor.	●	Supplier Responsibility	

# 11 GRI CONTENT INDEX

● FULLY DISCLOSED

◐ PARTIALLY DISCLOSED

○ NOT DISCLOSED

PROFILE DISCLOSURE	DESCRIPTION	REPORTED	CROSS-REFERENCE	EXPLANATORY COMMENT
MATERIAL ASPECT: ASSESSMENT				
G4-DMA	Generic Disclosures on Management Approach.	●	Stakeholder Engagement	We periodically assess our conformance with the EICC Code using the EICC’s self-assessment tools, and make the results available to our customers. In addition, we are working with key customers to participate in the EICC Validated Audit Process.
G4-HR9	Total number and percentage of operations that have been subject to human rights reviews or impact assessment.	●	Stakeholder Engagement	
MATERIAL ASPECT: SUPPLIER HUMAN RIGHTS ASSESSMENT				
G4-DMA	Generic Disclosures on Management Approach.	●	Supplier Responsibility	
G4-HR10	Percentage of new suppliers that were screened using human rights criteria.	●	Supplier Responsibility	
SOCIETY				
MATERIAL ASPECT: LOCAL COMMUNITIES				
G4-DMA	Generic Disclosures on Management Approach.	●	Community Engagement	
G4-SO1	Percentage of operations with implemented local community engagement, impact assessments and development programs.	●	Community Engagement	
MATERIAL ASPECT: ANTI-CORRUPTION				
G4-DMA	Generic Disclosures on Management Approach.	●	Supplier Responsibility	In 2016, the company’s Ethics & Compliance team conducted an enterprise risk assessment that covered 17 unique risk areas. No significant risks related to corruption were identified.
G4-SO3	Total number and percentage of operations assessed for risks related to corruption and the significant risks identified.	●	-	
G4-SO4	Communication and training on anti-corruption policies and procedures.	●	Governance	

# 11 GRI CONTENT INDEX

● FULLY DISCLOSED

◐ PARTIALLY DISCLOSED

○ NOT DISCLOSED

PROFILE DISCLOSURE	DESCRIPTION	REPORTED	CROSS-REFERENCE	EXPLANATORY COMMENT
MATERIAL ASPECT: COMPLIANCE				
G4-DMA	Generic Disclosures on Management Approach.	●	Governance	
G4-SO8	Monetary value of significant fines and total number of non-monetary sanctions for noncompliance with laws and regulations.	●	-	In 2016, GLOBALFOUNDRIES was not assessed any significant fines or non-monetary sanctions.
MATERIAL ASPECT: SUPPLIER ASSESSMENT FOR IMPACTS ON SOCIETY				
G4-DMA	Generic Disclosures on Management Approach.	●	Supplier Responsibility	
G4-SO9	Percentage of new suppliers that were screened using criteria for impacts on society.	●	Supplier Responsibility	
PRODUCT RESPONSIBILITY				
MATERIAL ASPECT: COMPLIANCE				
G4-DMA	Generic Disclosures on Management Approach.	●	Governance	
G4-PR9	Monetary value of significant fines for noncompliance with laws and regulations concerning the provision and use of products and services.	●	-	None



GLOBALFOUNDRIES®

GLOBALFOUNDRIES®, the GLOBALFOUNDRIES logo, and combinations thereof are trademarks of GLOBALFOUNDRIES Inc. in the United States and/or other jurisdictions. Other names used in this document are for identification purposes only and may be trademarks of their respective owners. ©2017 GLOBALFOUNDRIES Inc. All rights reserved.