

SUSTAINABILITY REPORT 2022

# Make Possible<sup>®</sup> a Better Future



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# Message from Our CEO

Semiconductors are foundational to the technologies that play an ever-increasing role in our lives, transforming the global economy and enabling discoveries to help address some of humankind’s greatest challenges. Applied Materials is committed to working across the semiconductor ecosystem to drive advances that can enable a better future for everyone.

The technologies that power our world—the Internet of Things (IoT), Big Data and artificial intelligence (AI)—are evolving at an unprecedented rate. Exponential growth in data generation is driving the need for dramatic improvements in the power, performance, area, cost and time to market (PPACT) of next-generation semiconductor devices. As the PPACT Enablement Company™, Applied is collaborating broadly to accelerate our customers’ technology roadmaps.

Our broad and deep capabilities encompass the ability to create, shape, remove, modify and analyze advanced materials at an atomic level and on an industrial scale. As we bring transformative new innovations to market, we are also working closely with our customers to minimize our environmental impact by reducing our products’ energy, water and carbon emissions. For example, our new Centura® Sculpta® patterning system can reduce per-wafer manufacturing costs, water use and carbon emissions compared to existing processes.

This kind of innovation not only drives PPACT for our customers, it also encourages a more sustainable innovation model throughout our industry. This is the fundamental principle

of our 1X/100X/10,000X framework, which reflects the impacts of environmental, social and governance (ESG) efforts within our operations, with our suppliers and customers, and on the global electronics ecosystem. We are committed to minimizing our own operational impact (1X), reducing the environmental impact of our value chain through our Supply Chain Certification for Environmental and Social Sustainability (SuCCESS2030) roadmap and [3x30 product improvements](#) (100X), and accelerating the commercialization of next-generation semiconductors (10,000X).

As you’ll read in this 2022 Sustainability Report, Applied Materials is driving an aggressive 10-year ESG roadmap while managing record-setting business growth, supply chain challenges, ongoing pandemic-related restrictions, and a changing macroeconomic and geopolitical landscape.

Over the past year, we further strengthened our commitment to attract and retain the best talent and cultivate a Culture of Inclusion (COI). We made progress against our goals to increase the representation of women at Applied globally and underrepresented minorities (URMs) in our U.S. workforce. We also set new 2030


diversity, equity and inclusion (DEI) targets and took steps to instill DEI best practices across the company. We continue to invest in building a diverse and inclusive talent pipeline, and in Applied’s fiscal 2022 played an active leadership role in advocating for the successful passage of the U.S. Respect for Marriage Act. These types of actions ensure inclusion remains at the center of our culture and better position us to scale our global operations in the future.

In the U.S., Applied advocated for passage of the CHIPS and Science Act, which provides a catalyst for the industry to accelerate investments to build more robust supply chains, speed up innovation and create thousands of new jobs. Our Chief Technology Officer, Om Nalamasu, serves on the Industrial Advisory Committee of CHIPS for America, giving us a seat at the table to promote fair, equitable and sustainable implementation of this policy.

We reached a key milestone in our transition to a low-carbon future by achieving 100% renewable electricity in our U.S. operations and 69% globally. We set a science-based Scope 3 carbon emissions reduction goal, which awaits validation from the Science Based Targets initiative.

Even as we celebrate this progress, we challenge ourselves to do more and do it faster. As a result of business growth, our Scope 1, 2 and 3 greenhouse gas (GHG) emissions increased 17% over the course of last year. While the intensity of those emissions declined due to our 3x30 product efficiency program, we have redoubled our efforts to decouple business growth from emissions.

As I reflect on recent history, I am more convinced than ever that there is no industry better positioned than ours to lead the transition to a more sustainable and inclusive future. I am inspired by the passion, commitment and solutions-driven mindset of our employees, customers and partners. Together, we’ve shown that challenges create opportunities for radical innovation. This is how we Make Possible a Better Future.



**Gary E. Dickerson**  
President and Chief Executive Officer

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## Key Highlights

### 1X

- Created a DEI Engine to accelerate our Culture of Inclusion
- Set bold 2030 goals to increase representation of women and URMs
- Set science-based Scope 1, 2 and 3 emissions reduction targets, with Science Based Targets initiative (SBTi) validation expected in 2023
- Reached 100% renewable electricity in the U.S. and 69% globally
- Promoted early and active business and industry support for successful passage of the U.S. Respect for Marriage Act

### 100X

- Joined the RE100 global corporate renewable energy initiative
- Developed the Centura® Sculpta® patterning system, realizing energy savings of more than 15 kWh per wafer and water savings of approximately 15 liters per wafer
- Advocated for passage of the U.S. CHIPS and Science Act, and for its fair and equitable implementation

### 10,000X

- Became a founding member of the Semiconductor Climate Consortium working to decarbonize the semi value chain, with a seat on its Governing Council
- Began exploring new partnerships with our customers and customers' customers across the value chain to reduce the impact of electronics globally
- Joined the Interuniversity Microelectronics Centre (imec) Sustainable Semiconductor Technologies and Systems (SSTS) Program to work with industry partners to solve for ecological challenges shared throughout the semiconductor value chain

### Additional Accomplishments

- Awarded more than \$11.2 million in Applied Materials Foundation grants and direct corporate contributions to strengthen communities, including \$230,000 for Ukraine humanitarian relief

# 2030 Goals and Progress

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	2030 GOAL	PROGRESS *	UN SDG**		2030 GOAL	PROGRESS *	UN SDG**
PEOPLE	Greater than 25% women representation at Applied globally	19.3%		PLANET	100% of electricity at Applied globally comes from renewable sources	69% globally (100% U.S.)	
	Greater than 21% executive women representation at Applied globally, with an aspiration to achieve equal global and executive representation of women by 2040	12.5%			50% reduction in Scope 1 and Scope 2 CO <sub>2</sub> e emissions (from 2019 baseline)	Scope 1 and Scope 2 CO <sub>2</sub> e emissions increased 23% in 2022, but decreased 3% from our 2019 baseline	
	Greater than 25% URM representation in Applied's U.S. workforce	18.8%			<b>New Goal:</b> 55% reduction per wafer of Scope 3 Category 11 emissions by 2030 (from 2019 baseline) across new semiconductor products	Targets submitted to SBTi for validation	
	Greater than 10% executive URM representation in Applied's U.S. workforce	5.3%					

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	2030 GOAL	PROGRESS *	UN SDG**
PROGRESS (3x30 and SuCCeSS2030)	Reduce equivalent energy consumption per wafer for semiconductor products by 30% by 2030 from 2019 baseline	Average per-wafer energy use decreased ahead of schedule, in part due to changes in the mix of products sold. While we expect the reduction rate to slow, we are on track to meet or exceed the 3x30 target.	
	Reduce the impact from chemical consumption per wafer for semiconductor products by 30% by 2030 from 2019 baseline	The Design for Sustainability Center of Excellence (DfSu) team and its engineering partners in the product business units are pursuing multiple development projects that will significantly reduce chemical impact. Some of these initiatives are expected to be multi-year efforts, but we are on track to meet or exceed the 3x30 target.	
	30% reduction in tool footprint per production unit ratio (sqm/wph) for semiconductor products from 2019 baseline	Footprint reduction to date is largely the result of productivity improvements in existing tool architectures. As new product architectures begin volume shipments to customers, the footprint will be further reduced and is expected to meet or exceed the 3x30 target.	
	\$1 billion spend with (and representation of) women- and minority-owned businesses by 2027	\$462 million spent with certified diverse suppliers in 2022, representing 2.5% of total global supplier spend	

\* Cumulative through FY22 unless otherwise noted

\*\* United Nations Sustainable Development Goals

# About Applied Materials

Applied Materials is the leader in materials engineering solutions used to produce virtually every new chip and advanced display in the world. Our expertise in modifying materials at atomic levels and on an industrial scale enables customers to transform possibilities into reality.

Our unique industry position comes with tremendous responsibility to our employees, customers and society. We are committed to working across the technology ecosystem to drive critical advances that [Make Possible a Better Future](#) for everyone.

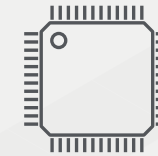


## Applied Ventures, LLC

Applied Ventures, LLC is the venture capital arm of Applied Materials, investing in and collaborating with startups with disruptive technologies. Applied Ventures is stage-agnostic and invests up to \$100 million per year. Through FY22, Applied Ventures provided capital to more than 90 companies in 17 countries, with more than 11 IPOs. [Learn more.](#)

## Our Products and Services

Applied provides manufacturing equipment, services and software to the semiconductor, display and related industries. With our diverse technology capabilities, Applied delivers products and services that improve device performance, power, yield and cost. Our customers include manufacturers of semiconductor chips, liquid crystal displays (LCD), organic light-emitting diode (OLED) displays and other electronic devices. These customers may use what they manufacture in their own end products or sell the items to other companies for use in electronic products.



### Semiconductor Systems

Design and manufacture the systems used to fabricate semiconductor chips.



### Applied Global Services®

Provide integrated solutions including consulting, spare parts, upgrades, services, remanufactured equipment and automation software, to improve equipment and fab operation performance and productivity.



### Display and Adjacent Markets

Make the products to manufacture LCDs, OLEDs and other display technologies and customer-oriented devices, and equipment for processing flexible substrates.

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**World's #1**  
Semiconductor and  
Display Equipment Company



**\$25.8 B**  
Revenue



Headquartered  
in California's  
**Silicon Valley**



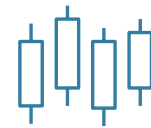
**17,300**  
Patents



**\$2.8 B**  
R&D investment



**>120**  
**LOCATIONS**  
In 24 countries



**AMAT**  
Stock listing on  
NASDAQ



Key manufacturing facilities and headquarters.

## EMPLOYEES BY REGION

### North America

Female..... 3,058  
Male.....10,953  
Undeclared..... 34

**TOTAL 14,045**

### Asia-Pacific

Female..... 2,566  
Male.....12,542  
Undeclared..... 53

**TOTAL 15,161**

### Europe, the Middle East and Africa

Female..... 804  
Male..... 3,294  
Undeclared.....2

**TOTAL 4,100**

**GRAND TOTAL 33,306**

<sup>1</sup> Data as of our fiscal year-end, October 30, 2022

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Fortune World's Most Admired Companies™ 2023



EPA Green Power Partnership National Top 100



Computerworld Best Places to Work in IT 2023



Barron's 100 Most Sustainable Companies 2023



Corporate Knights Clean200 2023



CommonWealth Magazine's Excellence in Corporate Social Responsibility Award, Foreign Enterprise Category, 2022



FTSE4Good



Forbes 2022 World's Best Employers



Intel EPIC Program Outstanding Supplier Award 2022 with Supplier Diversity Distinction



3BL Media 100 Best Corporate Citizens 2022



Human Rights Campaign 2022 Best Places to Work for LGBTQ+ Equality

## Memberships and Affiliations

- Alliance for Global Inclusion
- Boston College Center for Corporate Citizenship
- CEFLEX
- Clean Energy Buyers Association (CEBA)
- DIGITALEUROPE
- IEEE International Roadmap for Devices and Systems™ (IRDS™) Community
- Interuniversity Microelectronics Centre (imec)
- RE100
- Reboot Representation Coalition
- Semiconductor Climate Consortium (founding member, Governing Council member)
- SEMI Foundation

# ESG Vision and Strategy

Guided by our vision and ambition to **Make Possible a Better Future**, we focus on how we can use our technology and people to strengthen our industry, improve our communities and enable leading innovation—all with the lowest possible environmental footprint.

Our **1X/100X/10,000X ESG framework** considers the social and environmental impacts of our direct operations (1X); how we design solutions to address our industry's impact, including that of our customers and suppliers (100X); and how our technology can be used in innovation to advance sustainability and equity on a global scale (10,000X). Our framework is underpinned by aggressive environmental and social impact [goals](#) to hold us accountable for progress.

**Our innovations** empower a more sustainable and equitable world

- Lead with Purpose
- Invest in People
- Protect our Planet
- Innovate for Progress



**1X**  
FOR OUR BUSINESS



**100X**  
FOR THE INDUSTRY



**10,000X**  
FOR THE WORLD

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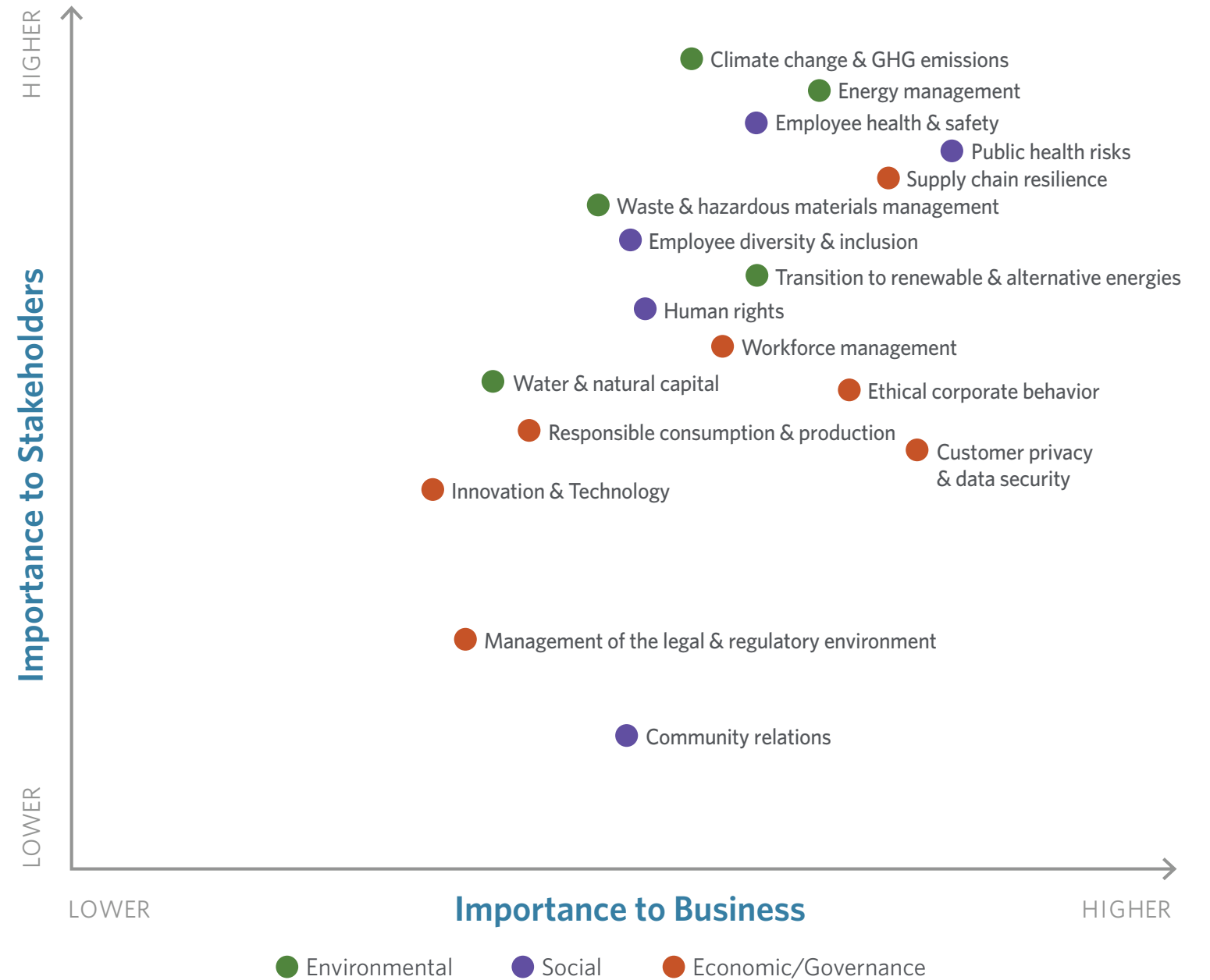
We conduct regular corporate responsibility materiality assessments to help us identify the ESG issues most important to our stakeholders and determine where we may achieve the most significant progress to Make Possible a Better Future. Insights for the assessment are gathered from key stakeholders, including customers, investors, employees, suppliers, policy makers, regulators, media, industry groups and peers.

In 2021, Applied updated its materiality assessment using the Datamaran platform. We repeated this assessment in 2022 to revalidate our focus on the most relevant ESG issues. The 2022 materiality assessment revealed no significant changes in ESG issues or prioritization mapping compared with 2021. However, we did see minor shifts in issue prioritization year-over-year when viewed through a double-materiality lens. Double materiality assesses the ESG factors likely to affect our business (e.g., financial impacts), as well as factors that our activities may affect, both positively and negatively.

The following issues rose slightly on the double-materiality assessment and align with priority areas of focus at Applied:

- [Energy management](#)
- [Employee health and safety](#)
- [Climate change and GHG emissions](#)

**This report discusses all issues identified as critical in the materiality matrix. Since issue prioritization may shift based on changing strategic impact for Applied and our stakeholders, we will continue conducting new materiality assessments on an a biannual cadence.**



\* The terms “material” and “materiality” as used in this report and in the corporate social responsibility materiality assessment are different than those terms as used in the context of filings with the U.S. Securities and Exchange Commission (SEC). Issues deemed material for the purposes of this report may not be deemed material for SEC reporting purposes.

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# Lead with Purpose

Leaning into our core values to make our company, industry and communities stronger and more resilient



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**Leading with purpose is at the core of our vision to Make Possible a Better Future, informing our priorities, guiding our actions, and directing how we invest in our communities.**

This is more than our responsibility as a good corporate citizen. It's about protecting our brand reputation, attracting the best talent, building operational efficiency and resiliency, and ensuring the long-term sustainability of our company and industry.

Leading with purpose means a relentless commitment to safeguarding our customers, employees, suppliers and trusted business partners from new and emerging threats to their privacy and to the security of their data and intellectual property (IP).

It means promoting and influencing public policies that impact our employees and company, our customers and their customers, and the semiconductor industry as a whole. It's about investing in the stability and vitality of communities where we operate to truly Make Possible a Better Future for all the generations that follow.

At Applied, we embrace our responsibility and opportunity to drive significant and lasting impact. We follow a clear and robust governance model and uphold the highest standards of ethics and integrity. We continuously evaluate and sharpen our internal processes and oversight to protect the trust our stakeholders place in us.

Our leaders, employees and partners engage in mandatory trainings and ongoing learning opportunities to strengthen their understanding and compliance with our policies and expectations. We monitor, assess and adapt to stay ahead of requirements in an ever-evolving regulatory landscape.

We take an equity-centered approach to community engagement as we work to strengthen our communities. Our employees invest their time, talents and resources, with additional support from Applied and the Applied Materials Foundation ("Foundation"), toward empowering young women to pursue careers in science, technology, engineering, and math (STEM), addressing food insecurity, promoting civic engagement, helping protect our environment, advancing educational access, and boosting culture and the arts.

Bottom line: Leading with purpose is how we safeguard our business and the interests of our stakeholders for long-term success, while making a positive impact in communities around the globe.

**Key Highlights**

**1X**

- Established regional compliance committees and conducted a company-wide, third-party-administered Ethical Culture and Compliance Perceptions Assessment
- Refreshed our Standards of Business Conduct for improved readability and comprehension; released in 14 languages
- Disclosed recipients of all charitable investments made by Applied and the Foundation in FY22

**100X**

- Completed 240 supply chain cybersecurity assessments and are monitoring approximately 2,500 suppliers for disruption; saw no impact to customer shipments or IP leaks in 2022 as a result of cyberattacks in our supply chain
- Successfully advocated for inclusion of an investment tax credit in the U.S. CHIPS and Science Act; Applied Chief Technology Officer Om Nalamasu appointed to Industrial Advisory Committee of CHIPS for America

**Additional Accomplishments**

- Supported Ukrainian refugee relief efforts with essential goods and donations and more than \$230,000 in matching corporate and Foundation grants
- Raised \$3.8 million in the annual Fight Against Hunger fundraising campaign in the U.S. and Canada, with additional employee-led efforts to support food security in Belgium, China, Greece, India, Israel, Japan, Korea, the Netherlands, Taiwan and other countries where we operate
- Served over 8,800 girls in FY22 through the Foundation's Generation Girl® initiative, bringing the total to over 36,000 girls served since 2018
- Activated cross-organizational support to advocate for the successful passage of the U.S. Respect for Marriage Act

# Corporate Governance

A company's reputation rests on both its products and its integrity. At Applied Materials, our reputation for honesty and fairness reflects our core values and our robust corporate governance practices, which are regularly reviewed through the lens of evolving best practices to assure that we remain accountable to our stockholders' best interests and feedback.

Applied's company-wide ESG strategy integrates sustainability into our operations and culture, in alignment with our corporate strategy. The company's annual strategic review process with our CEO and his executive team includes ESG. Our Corporate Scorecard includes a measure of work towards our corporate 2030 ESG goals, and the executive team reviews progress quarterly. Demonstrated progress against ESG goals affects compensation for Applied's executives, up to and including our CEO.

**For Applied's Corporate Governance Guidelines, Certificate of Incorporation, Bylaws, Board committee charters, and other governance framework materials, see our [Investor Relations site](#). Information on Board and corporate governance policies and practices can also be found in our [2023 Proxy Statement](#).**

Our ESG Leadership Council oversees the implementation of our strategy, with membership encompassing leaders from across our ESG-focused delivery teams. To ensure accountability, the Council reports progress regularly to the executive team as part of our strategic review process and reports quarterly to the Corporate Governance and Nominating Committee (CGNC). The Council is also responsible for reviewing all content in this annual Sustainability Report. The Council is supported by employees and leaders spanning our business units and functions, which are responsible for delivering progress toward our ESG strategy.

See the [Corporate Governance Addendum](#) for additional information on ESG-related governance structures and policies.

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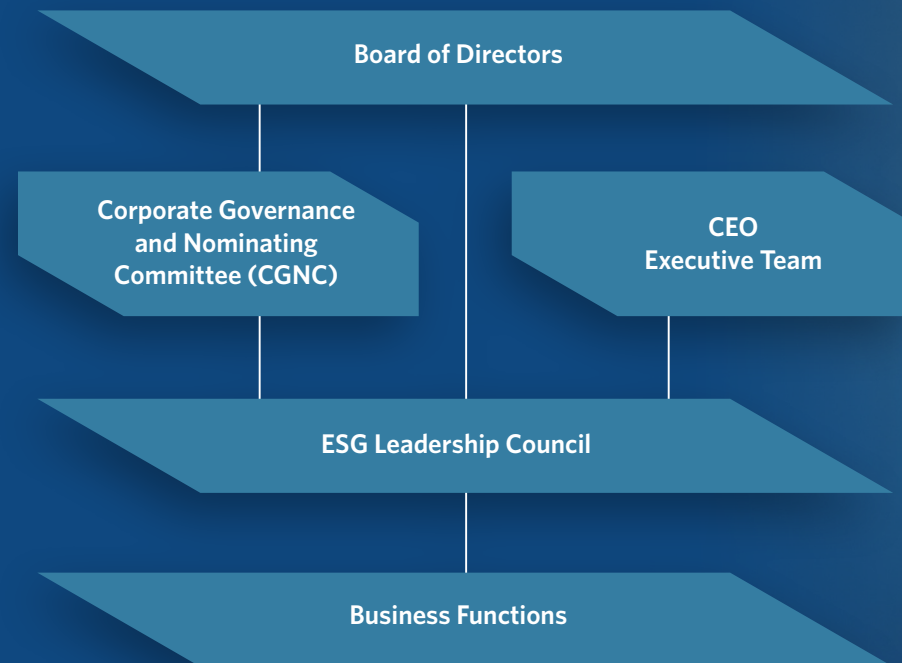
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We report on our ESG efforts in the following focus areas:



**Environmental, Social and Governance (ESG):** On a quarterly basis, our CGNC receives in-person and written updates from our head of ESG, Corporate Sustainability and Reporting. The CGNC also reviews the company's ESG strategy on a quarterly basis.



**Environmental Health and Safety (EHS):** The CGNC receives updates on a quarterly basis from our head of EHS and receives more in-depth updates annually on environmental health and safety.



**Supply Chain and Conflict Minerals:** Our Board reviews material supply chain issues, and the Board's Audit Committee reviews the annual Conflict Minerals Report we file with the SEC.



**Our People and Workplace:** The Board's Human Resources and Compensation Committee (HRCC) oversees corporate culture and human capital management programs, including our Culture of Inclusion practices and initiatives.



**Community Engagement:** The Foundation leads much of our community engagement and grantmaking. The Foundation has its own board and is independently audited on an annual basis.

# Ethics and Compliance

At Applied Materials, we attract talented, innovative individuals who conduct business with integrity, transparency, accountability and inclusion.

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Every day, our teams navigate complex situations that may impact our business, our employees and our communities. These challenges present every Applied employee with the opportunity—and obligation—to embrace our core values, demonstrate ethical decision-making, and ensure that we remain a company that competes fairly and cares about its people and communities. In this way, we continually reinvest in each other and our brand, protecting Applied’s good reputation and building toward greater success.

To continually reinforce integrity across our culture, Applied maintains a Global Ethics and Compliance (E&C) program with strong leadership and engagement from senior management. Our Board’s Audit Committee oversees the program’s overall design and implementation, including mechanisms for reporting potential violations of law or policy and investigating potential integrity violations. The Audit Committee receives quarterly reports on key initiatives and indicators across the seven pillars of Applied’s Global E&C

program (see graphic on [page 15](#)), including volume and type of open investigations, risk level, geography, and remedial actions taken, along with indicators related to E&C process utilization—e.g., volume of gifts, meals, entertainment and travel (GMET) requests, conflict-of-interest disclosures, corporate donations and third-party due diligence requests.

We engage our people on E&C through training, awareness campaigns, ethics surveys and road shows, and through our annual Responsibility and Integrity Week. Across our business units, over 60 designated Compliance Champions promote E&C, IP protection, and mandatory training completion, and serve as trusted local contacts for employee questions or concerns.

**Applied is committed to being a good corporate citizen and a trusted partner to our customers, suppliers and shareholders.**



## To drive E&C advances in 2022, we:

- **Revitalized our Standards of Business Conduct (SBC)** to align more closely with our company values. Beginning with our August all-employee meeting, our CEO and Chief Legal Officer rolled out our new SBC, which is available in 14 languages and is accompanied by a redesigned SBC website.
- **Created a cross-functional investigation case management tool** across legal pillars to allow data sharing, standardized reporting, and enhanced productivity and execution.
- **Created a playbook for acquisitions, joint ventures and strategic investments**, allowing for cross-topical risk identification and mitigation as well as real-time status monitoring.
- **Developed compliance “health check” indicators and metrics** for compliance risk dashboards, providing quarter-over-quarter data and trend monitoring across compliance business areas.
- **Implemented regional compliance committees** across our global operations to enable local implementation of E&C initiatives, provide regional feedback and recommendations, and further drive tone from the top and our culture of integrity. Each committee is comprised of local leaders from the Legal and Compliance Organization (LCO), Finance, HR, and our business units.
- **Completed multiple risk assessments and audits**, including in the areas of gifts and entertainment, anti-corruption in high-risk geographies, and higher risk third-party business partners.

See our [Corporate Governance documents](#) for additional details about our [Standards of Business Conduct](#) and governance structures, and our [Applied Ethics Helpline](#) for mechanisms to report ethics concerns.

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## Our Core Values



### MOST VALUED PARTNER

Collaborate broadly to solve customer high-value problems faster and better



### WINNING TEAM

Achieve great results together in an environment where employees do their best



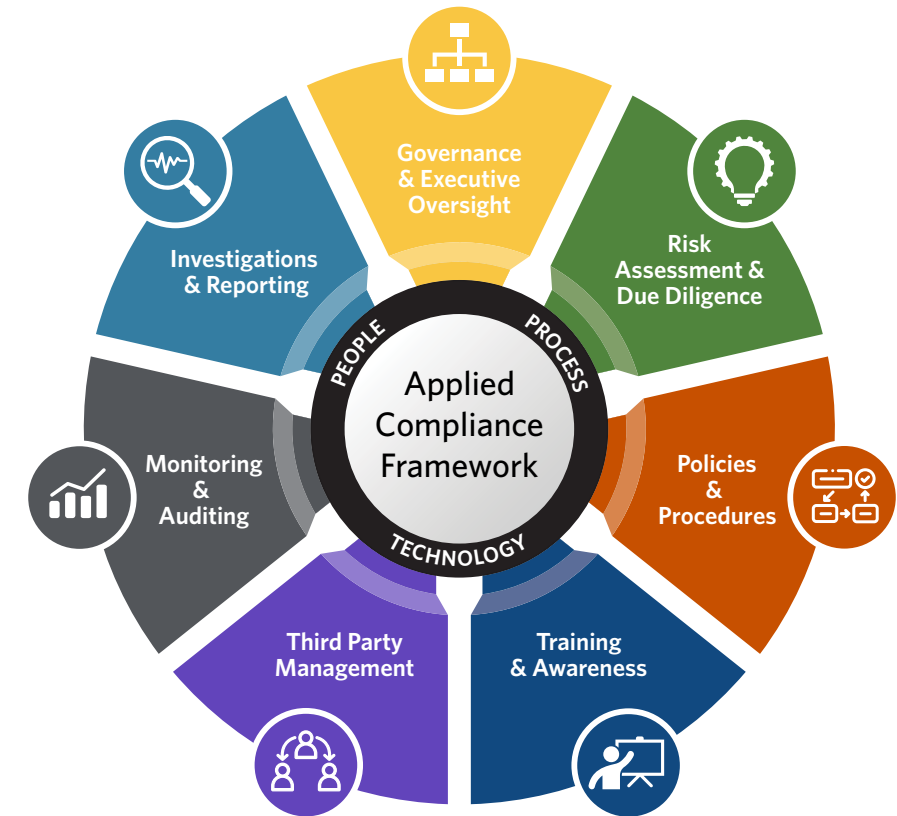
### RESPONSIBILITY & INTEGRITY

Operate with mutual trust and respect to make a positive contribution to the industry and community



### WORLD CLASS PERFORMANCE

Create competitive advantage and deliver superior results that generate value and fuel growth



## Standards of Business Conduct

Applied Materials' [Standards of Business Conduct \(SBC\)](#) communicate our values, set expectations for our global workforce and network of trusted partners, and promote the highest ethical standards in our interactions with customers, suppliers, colleagues, communities and other stakeholders. We designed the SBC to foster trust in management's commitment to our values, empower employees to speak up without fear of retaliation, and provide clear guidance about risks, laws, company policies and reporting channels.

In summer 2022 we released a major revitalization of our SBC in 14 languages, mapping the contents to Applied's core values and more clearly and succinctly reiterating our

compliance expectations for all employees. To promote compliance, we made both the SBC and our SBC website significantly more user-friendly: shortening the text, adding interactive navigation controls, and linking to policies, tools and other helpful resources.

To enable real-time data analytics and insights regarding compliance with our SBC, we maintain digitized workflows that track GMET approvals, conflict-of-interest disclosures, corporate donations approval requests and third-party due diligence approvals.

We are releasing a companion set of updated standards for our business partners.

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## Responsible Business Alliance Code of Conduct

Applied Materials is a member of the Responsible Business Alliance (RBA), the world’s largest industry coalition dedicated to social responsibility in global supply chains. In 2022, we began work on a Responsible Manufacturing Program to better monitor our compliance with the RBA [Code of Conduct](#), which provides standards related to labor, health and safety, environment, ethics and management systems, including responsible minerals sourcing. We also set clear expectations for social responsibility in our own supply chain, requiring our vendors and suppliers to comply with both our own Standards and the RBA Code of Conduct.

**In 2022, 98% of Applied's 33,306 employees completed our updated Standards of Business Conduct course.**

## Practical Advice and Training

Applied Materials provides all our employees with training and reinforcement to support their ongoing obligations around ethics and compliance. We assign newly hired employees an SBC training and certification course, which was refreshed in 2022 to align with our updated standards. Like the new standards, the SBC training is offered in 14 languages, covering our policies on conflicts of interest, IP protection, anti-corruption, gifts, insider trading, trade compliance, supplier selection and treatment, speaking up and non-retaliation. Employees renew their training and certification to the Standards annually.

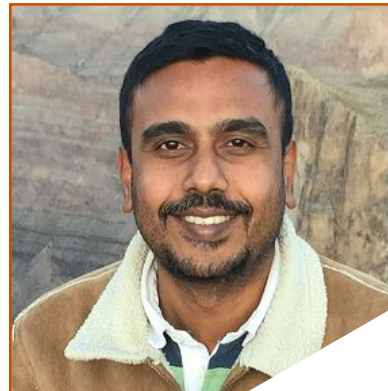
To meet the demands of specific roles and regions, employees may also receive ongoing training on specific E&C topics. In 2022, for example, we provided 52 live, in-person training sessions on our Global Anti-Corruption Policy and GMET Policy.

## 2022 Ethical Culture and Compliance Perception Survey

In 2022, Applied Materials retained a third party to develop a survey to evaluate employee perceptions of ethics and compliance within our corporate culture. Sent to all Applied employees, the survey included 69 questions designed to gauge perceptions around eight E&C categories, with additional questions on employee expectations and demographics. Results were broken down by operating regions, business groups, business function and job hierarchy.

The survey achieved a response rate above benchmark, with responses revealing improved employee perceptions in most areas compared to our 2020 survey and equal or more favorable scores in 6 of 8 categories compared to the benchmark, as well as very high awareness related to company expectations around confidential information and intellectual property protection.

The survey revealed opportunities for improvement in several areas, including building skills for managing high-pressure situations. We are focusing our 2023 Responsibility and Integrity Week and related 2023 campaigns on ethical decision-making when under pressure and are reinforcing our speak-up culture through localized content that resonates with Applied’s diverse geographic and cultural footprint.



“Applied truly gives your work purpose. I take great satisfaction in knowing that the problems I solve today can help solve a much bigger problem for someone in a different part of the world.”

**Balaji**  
Austin, Texas

**RESPONSIBILITY AND INTEGRITY WEEK**

Our annual Responsibility and Integrity Week showcases Applied’s values in action, with events designed to raise awareness of key themes, resources and best practices. During our 2022 event, 52 E&C-related topics were posted to our Inside Compliance social media channel, achieving 44,982 views.



# Public Policy

Applied Materials participates in efforts to inform policymakers about issues and challenges critical to our company, our customers and our customers' customers, typically via meetings, hearings and trade association advocacy efforts. Our general policy focus areas include technology regulation, international trade, research and development (R&D), human resources and labor, and sustainability. Efforts within these areas include advocating for immigration reform that embraces the contributions of immigrants to the U.S. economy; advocating for fairness, diversity and inclusion, including LGBTQ+ rights; and working on policies, partnerships and R&D incentives to develop and advance next-generation technologies.



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In 2022, our Government Affairs function engaged both Congress and the Biden administration on core provisions of the **U.S. CHIPS and Science Act**:

- **U.S. semiconductor funding:** We successfully advocated for the CHIPS Act that provided \$52.7 billion for grants to revitalize the U.S. position in semiconductor research, development and manufacturing, including workforce development.
- **Federal tax credit:** We were among a small number of companies leading efforts to include and expand the investment tax credit that had been removed when CHIPS programs were authorized as part of the 2021 National Defense Authorization Act. The tax credit applies to qualifying investments in facilities for manufacturing semiconductors or semiconductor manufacturing equipment.

Since passage of the CHIPS Act, Applied has been engaging with the administration and Congress to ensure its rollout is implemented fairly and equitably across the supply chain. In September 2022, Applied's Chief Technology Officer, Om Nalamasu, was named to the U.S. Commerce Department's new Industrial Advisory Committee, which advises CHIPS for America on issues related to domestic semiconductor R&D.

Under provisions of the CHIPS Act, recipients of manufacturing grants must demonstrate a commitment to increasing the participation of economically disadvantaged individuals in the semiconductor workforce. Applied is currently working with global trade association SEMI to create an apprentice program where Silicon Valley semiconductor manufacturers can train students from underrepresented communities. This program will extend our work with the Foundation's Generation Girl initiative, providing a multi-rung pathway from early STEM education to college to employment within the industry.

Applied Materials also joined a broad business and stakeholder coalition in 2022 to push the successful passage of the **U.S. Respect for Marriage Act**, which codifies into U.S. law protections for same-sex and interracial couples. Our Government Affairs team worked with our trade associations to garner votes for the bill, which ultimately passed both houses of Congress with strong bipartisan support and was signed into law by President Biden on December 13. In advance of Senate passage, Applied Materials was one of the first corporate signatories to a Human Rights Campaign open letter calling on Congress to move the legislation, along with more than 170 other companies.

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## Business and Trade Associations

Applied Materials maintains memberships in various business and trade associations that advance issues aligned with our corporate strategy and the needs of our company, industry, employees and communities. Our membership in a group does not imply that we endorse the entirety of that group’s policy positions.

In 2022, Applied paid approximately \$564,000 in trade association membership dues, 21% of which were specified by the associations as non-deductible lobbying expenditures. This total does not include conference or event sponsorships, programming activities or similar costs. Applied Materials reports on federal lobbying through the Lobbying Disclosure Act Database and files periodic reports with federal and state agencies, as appropriate.

Our U.S. Trade, Business and Civic Associations membership list can be found [here](#).



## Political Contributions

The Applied Materials, Inc. Political Action Committee (AMPAC) contributes to federal candidates, political action committees and party committees supporting issues of strategic importance to Applied, consistent with all legal requirements. Our State Contributions Committee oversees corporate political spending to advance those strategic issues at the state and local levels.

While Applied pays the administrative expenses for AMPAC, the committee is funded entirely through voluntary contributions from eligible employees, and does not make any contributions using Applied Materials corporate funds. AMPAC’s activities are overseen and its contributions reviewed and approved by the AMPAC Board of Directors. Contributions are based solely on corporate objectives, without regard for the private political preferences of either the employees who contribute to AMPAC or individual committee members. During 2022, political contributions made by AMPAC totaled \$69,500.

**Political Spending**

**FY 2022**

**FY 2021**

**FY 2020**

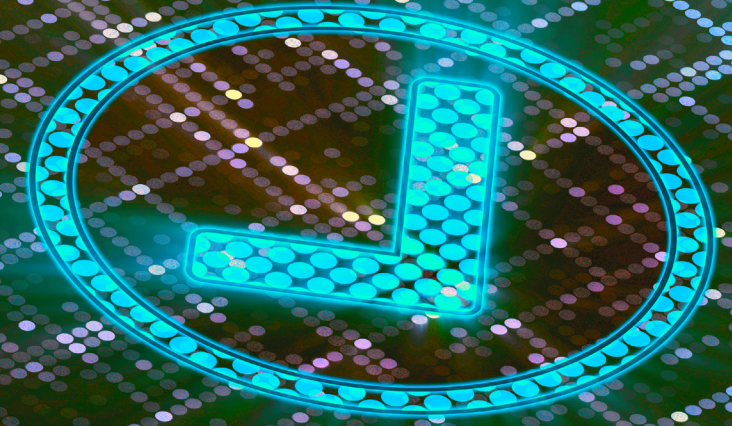
**Political Contribution Data**

	FY 2022	FY 2021	FY 2020
Total value of financial contributions to political parties, candidates, and related institutions by Applied Materials	\$0	\$0	\$0
Total value of financial contributions to political parties, candidates, and related institutions by AMPAC	\$69,500	\$24,600	\$53,500

See the [Corporate Governance Addendum](#) for additional details on Applied’s political donation policies, mechanisms and compliance practices.

# Data and IP Security

Applied Materials considers data security one of our top strategic priorities. In a threat landscape highlighted by data breaches, rising ransomware attacks, and increasing availability of tools for hacking and exfiltration, we devote robust resources toward protecting our IP and making Applied a safe data choice for our global stakeholders.



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Recognizing that cyberattacks long ago moved from being a matter of “if” to “when,” we maintain both a robust defense framework and the capacity for rapid detection and response. We conduct 24/7 monitoring and daily vulnerability assessments and continuously update our mitigation practices to stay ahead of threats.

### Among other efforts, we:

- Maintain detailed response procedures and escalation protocols
- Employ third parties for external threat monitoring, penetration testing and phishing exercises
- Maintain enhanced email security controls
- Provide robust training for our employees on recognizing security threats to enable compliance with applicable data security laws, regulations, industry practice and internal policies
- Educate employees on cyber threats, with mandatory information security and privacy training for all employees as part of their new-hire orientation and every two years thereafter
- Conduct periodic tests of random user populations to determine which users are vulnerable to real attacks, and reinforce security awareness training as needed
- Partner with industry groups, government agencies and outside experts for information exchange and peer benchmarking
- Maintain a cloud audit program and other processes to continuously review and enhance controls associated with our cloud environments’ security
- Engage third-party auditors to help assure the effectiveness of internal controls
- Conduct email campaigns to educate suppliers on cyberthreats

Applied Materials has undergone a National Institute of Standards of Technology (NIST) Cybersecurity Framework assessment and currently maintains one of the best BitSight security scores among our industry peers.

Forty-seven of our building locations hold ISO 27001 certification for information security, aligning our data security management systems and programs with global best practices.

Our Chief Information Security Officer (CISO) reports quarterly to the Board’s Audit Committee on our data and IP security programs, cloud audit program, policies, controls, key risks and notable incidents. Any significant cybersecurity threats and incidents are reported to the Audit Committee on a real-time basis.

While we have not directly experienced a material information security (cybersecurity) incident in the past three fiscal years, we maintain a cybersecurity risk insurance policy as a matter of good practice.

## CYBERSECURITY AWARENESS MONTH 2022

Applied Materials focuses on security awareness throughout the year. For Cybersecurity Awareness Month in October, we offered additional live and on-demand programming that included:

- A session with a former FBI cybersecurity specialist on the evolving threat landscape
- Sessions on supply chain, cloud, software and engineering applications security
- A discussion of the latest authentication technologies
- Tips for personal security, email security and administrator best practices

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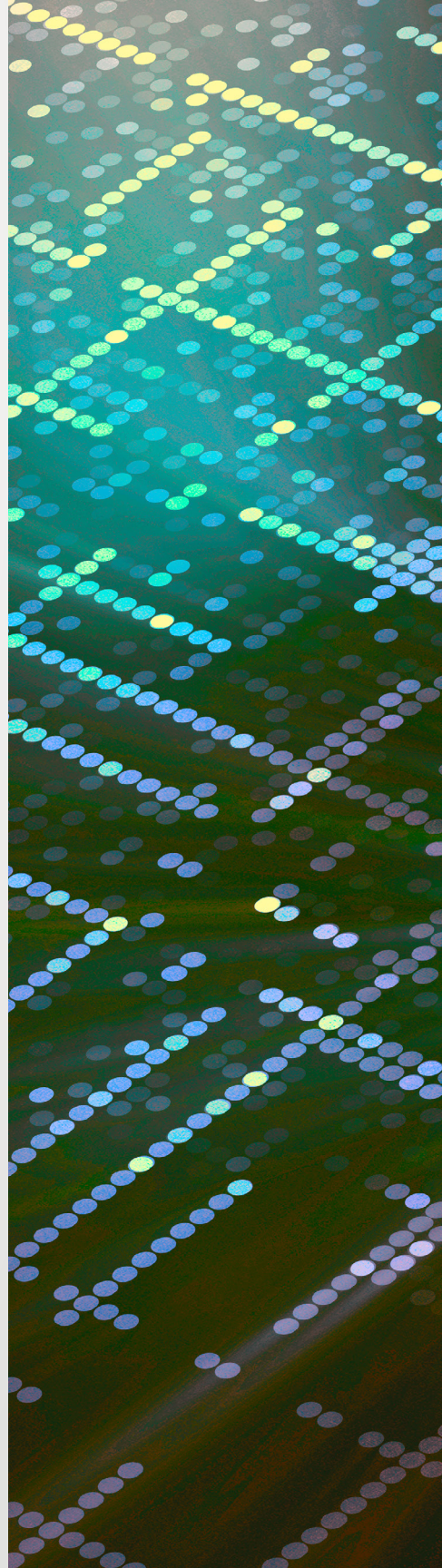
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## Supply Chain Cybersecurity

With the semiconductor industry playing such a visible role in current geopolitics, companies in the industry find themselves under attack. In 2022, eight semiconductor companies were targeted for exfiltration of IP and other confidential information, while twelve of our suppliers experienced ransomware incidents.

To minimize the risk of IP leakage and business disruption caused by attack vectors in our supply chain, our data security efforts extend to our suppliers via:

- Enhanced security controls embedded in the supplier onboarding process
- Protocols for assessing supply chain cyber-breaches and ransomware incidents
- An incident management and business continuity playbook
- Tools to monitor for threats in the dark web and identify emerging risks
- Continuous assessment and control enhancement for high-impact suppliers

Our Supply Chain Cybersecurity Program is sponsored by our supply chain head and CISO and managed by a cross-functional team encompassing our Global Supply Chain operation, Applied Global Services (AGS) Commodity Business Management, Global Information System (GIS), Information Security Risk Management (ISRM), InfoSec, Legal and Compliance Organization (LCO and Global General Procurement.

To enhance customer trust, we provide virus-free certifications with all sales of Applied semiconductor systems.

In 2022, we completed 240 supply chain cybersecurity assessments, monitored 2,500 suppliers for potential disruption, and experienced no impacts to customer shipments or IP leaks as a result of cyberattacks in our supply chain.

## Security Leadership Team

Applied’s Security Leadership Team improves IP risk visibility and defenses by identifying security gaps, and providing a forum for teams to seek executive feedback and support. The team also works to drive efficiency, consistency and accountability in processes and reporting. Comprising senior legal, HR and finance executives, and supported by a project management office (PMO), the team:

- Conducts outreach to individual risk management programs to surface vulnerabilities and needs, and to gain a holistic view into Applied’s risk posture
- Facilitates integration workshops with IP protection programs to share best practices
- Engages with programs that may present risk to Applied’s environment, in order to align on obligations and connect teams with mitigation resources

The Security Leadership Team conducts meetings with executives twice per quarter and with the PMO semi-monthly.

## Valuable Intellectual Property Program

The Valuable Intellectual Property (VIP) program seeks to raise awareness across Applied on IP protection issues to enable each employee and contractor to protect company, customer and supplier IP. Through the Insider Risk & IP Protection Awareness Campaign (held throughout September 2022), the VIP program raised awareness on a variety of topics, including:

- Proper use of internal and external collaboration tools
- Safeguarding customer confidential information

- How to protect IP in social media
- IP risks in dual employment
- Limiting information sharing to need-to-know

Throughout the year, the VIP program partners with other teams across Applied to pursue lessons learned, creating trainings or controls as appropriate to best protect IP.

The VIP program partners with Compliance Champions throughout Applied’s workforce to raise awareness on IP protection and compliance topics.

**PRODUCT SECURITY INCIDENT RESPONSE TEAM**

**In 2022, we formed a new Product Security Incident Response Team (PSIRT) and created supporting PSIRT processes to enhance our ability to handle cybersecurity issues involving our products and services.**

# Personal Data Privacy

Applied Materials respects the privacy of all individuals with whom we communicate and interact, whether directly or via our software or website. Our [privacy policy](#) describes procedures regarding our collection, use, storage and disclosure of personal information collected through these channels, and we maintain a dedicated [email address](#) for all questions and comments about our data privacy policies and safeguards.

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In 2022, we continued to adapt and expand our privacy program to comply with evolving global laws and new laws effective in 2023. To assure a more comprehensive privacy compliance, we:

- **Modernized our Document Retention Policy**, streamlining it for better execution, efficiency and consistent implementation
- **Continued automating our data privacy program** using a platform that centralizes privacy policies, assessments and other documentation, and allows for the mapping of personal data across our systems

## Applied Materials Global Privacy Principles

Applied Materials is committed to safeguarding the data of our employees and trusted business partners. We recognize the importance that our global workforce, customers and suppliers place on their personal information (PI), and we take seriously our obligations to protect that data. We published our internal Global Privacy Principles in 2022 to help serve as guiding principles for how the company—and our workforce—should safeguard PI.

2022 was another active year in the privacy regulatory landscape worldwide, with major updates in most of the regions in which Applied operates. In response to these trends, we updated our Enterprise Incident Response Plan, enhanced and provided training and awareness around these new laws and

obligations, and updated numerous global and region-specific policies, including our Document Retention Policy, Global Image Taking and Web Recording Policy, and our internal and external privacy policies.

We continue to leverage technology to visualize how PI flows throughout our organization, create a unified approach to compliance, and proactively keep pace with increasingly complex and sometimes conflicting privacy and data laws. Using an industry-leading privacy compliance platform, we standardized, semi-automated and streamlined our privacy reviews of the new technologies and applications that Applied is onboarding for its own use, reducing compliance risk while minimizing the impact to business operations.

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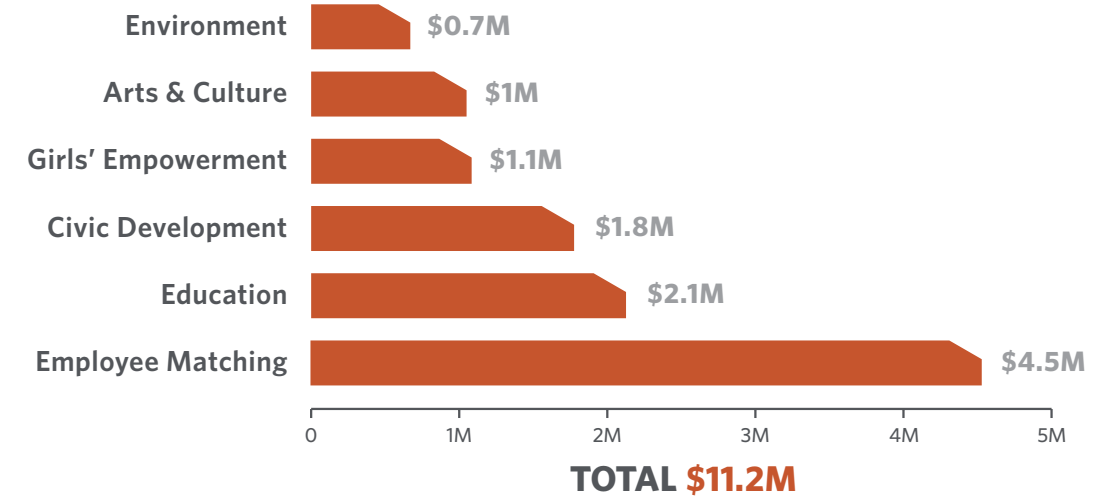
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# Community Impact

At Applied Materials, making a positive contribution to the world around us is the foundation of our culture.

2022 Breakdown of Contributions by Category



Through efforts led by Applied and the Applied Materials Foundation, we serve the needs and values of our employees and the communities where we live and work, making them part of who we are and what we stand for as a company.

Applied and the Foundation deploy human and financial resources worldwide to help social impact and nonprofit organizations fulfill their service missions free of discrimination against any group or individual. Employee engagement amplifies our positive community impact, often via company-initiated events that connect our people with local nonprofits for volunteer work or personal charity support. Our Employee Giving and Volunteer Time Grant programs amplify our people's impact. During culturally significant celebrations, such as Black History Month and Pride Month, our employee communications highlight local and national charities working for social justice and equity, suggesting ways to make a positive impact.

Applied and the Foundation focus funding across five primary areas: education, civic engagement, arts and culture, the environment and girls' empowerment—the latter primarily through the Generation Girl® initiative, a signature Foundation program. We also pivot in response to societal need, as we did in 2022 to support organizations helping Ukrainians displaced by the Russia invasion.

In 2022, Applied and the Foundation awarded \$11.2M in direct corporate contributions and Foundation grants, benefiting 260 recipients in nine countries. The total represents a decrease from 2021 due to budget constraints.

We believe our role as a corporate citizen and as individual human beings is to make the world a better place, and we are committed to taking meaningful action.

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## A Commitment to Equity-Centered Engagement

At Applied Materials, we believe equity-centered community engagement contributes to a more just, fair and humane world. We are committed to learning from leaders who live the issues we want to help solve, and to working respectfully with voices at the community level. We are determined to support solutions that address societal imbalances, provide access to resources and opportunity, and build thriving, resilient families and neighborhoods.

Two years ago, the Global Community Affairs team at Applied Materials partnered with Black-owned consulting firm Frontline Solutions to conduct an equity assessment that examined both our philanthropic work’s programs and practices and the personal beliefs of those efforts’ leadership and staff, seeking to identify unintended barriers arising from biases, norms or systemic structures. Based on the assessment’s results and Frontline Solutions’ feedback, we made a [public declaration of commitment](#) to equity-centered community involvement across three core areas. In 2022, we continued acting on those commitments:

- **Grantmaking:** Applied and the Applied Materials Foundation began collecting detailed information about publicly self-identified race or ethnicity of potential grantees to ensure that the organizations we’re funding are led and staffed by people who are representative of and trusted by the communities they serve. To increase transparency, we began posting names and information for all grant recipients on our website in 2022, segmented by [Applied Materials grantees](#) and [Applied Materials Foundation grantees](#).
- **Employee engagement:** Supported by outside vendor [Visit.org](#), our Community Affairs team worked to expand opportunities to engage employees with high-impact nonprofits outside our existing network, with a focus on organizations serving and led by people of color.
- **Personal and professional development:** To ensure that Applied and Foundation decision-making structures and Community Affairs operations are centered in equity, our teams continued a program of internal learning activities to address biases and norms that negatively impact communities and organizations of color. We also began funding DEI-focused professional development opportunities for nonprofits in the community, including Racial Justice Learning Series workshops conducted by the Silicon Valley Council of Nonprofits and trainings for Austin-area organizations on using data to support community- and mission-driven services for communities of color.



“I volunteer with Opening Doors 2020 for an hour a week, serving hot lunch to the Downtown San Jose community experiencing homelessness. I am grateful that Applied Purpose matches my volunteer time with monetary donations to further the impact on my community.”

**Rebecca**  
Santa Clara, California

## Promoting Civic Engagement, Development and Relief

Civic engagement grants from Applied and the Foundation strengthen the ability of Non-Governmental Organizations (NGOs) and the nonprofit sector to address community challenges and help people find stability in difficult times. We channel funding to organizations that address food insecurity and homelessness, secure affordable housing for people in need, provide job and career training, inspire collaborative solutions for community challenges, and build the capacity of the nonprofit sector. We also contribute to relief and recovery efforts in response to natural and manmade disasters around the world.

In 2022, Applied Materials and the Foundation provided \$1.8M in grants to 71 organizations that:

- Provide basic needs and resources for homeless, low-income and immigrant communities
- Conduct after-school and youth leadership development programs for at-risk youth
- Provide help to seniors living alone
- Engage community members in addressing issues of human rights, inclusion, anti-Asian hate and equality
- Promote collaboration to solve community challenges

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## Support for Ukraine Refugee Relief

Russia’s attack on Ukraine in February 2022 resulted in Europe’s largest internal refugee crisis since World War II, uprooting 13 million people from their homes. Nearly 8 million refugees are currently scattered across Europe, and more than 5 million are internally displaced within Ukraine.

Applied Materials and our employees responded immediately to this crisis. In the first four months of the war, our European colleagues donated approximately 112,650 EUR, which the company matched for a total 225,000 EUR donation to Save the Children Deutschland eV. These funds allowed the nonprofit to provide food and shelter to displaced Ukrainian families, equip children to continue their educations, and operate mobile youth spaces in remote communities to give children a safe and supportive environment to socialize and play. Additionally, our operations and employees in France, Germany, Israel, and Italy acted through grantmaking, volunteering, and individual and matching donations to support internally and externally displaced

Ukrainians with food, supplies, and help integrating into host communities. As part of these efforts:

- Colleagues in Israel spearheaded several efforts on behalf of Ukrainian refugees, collecting donations that were matched by the company to provide a \$55,000 donation to UNICEF Ukraine, collecting 15 boxes of blankets and winter clothing that were transported to the Poland/Ukraine border for distribution, and collecting 1,000 food parcels and boxes of personal hygiene items for Ukrainian refugees arriving in Israel. Additionally, a group of Ukrainian-speaking Applied employees volunteered to provide refugee schoolchildren with weekly Hebrew language assistance and homework tutoring.
- Colleagues in France worked with local charity Protection Civile Isère to collect food and goods for shipment to Ukraine at the start of the war.
- Colleagues in Alzenau and Darmstadt, Germany, collected 300 kilos of food donations that were sent to Ukraine by the charity Hoffnungsträger Ost e. V.

## Fight Against Hunger

Around the globe, food insecurity increased year-over-year in 2022 due primarily to food price inflation and the disruption of grain exports from Ukraine and the greater Black Sea region. In the U.S., the expiration of many COVID-era nutrition programs and rising food costs combined to boost food insecurity by some 6% over 2021.

In the face of this need, Applied Materials continued its annual Fight Against Hunger fundraising campaign. In North America, our employees raised \$1.89 million. Adding a dollar-for-dollar match from the Foundation, we were able to distribute \$3.8 million to 53 food banks across the U.S. and Canada.

Globally, our employees in Korea, Greece, and Taiwan made notable contributions to the effort. In our Greece organization, which joined Applied Materials in 2020 via our acquisition of IP startup Think Silicon, employees ran their first Fight Against Hunger campaign in partnership with nonprofit To Chamogelo tou Pediou (The Smile of the Child), raising \$11,427 with the Foundation match to help alleviate hunger in local communities.

In Taiwan, a combination of employee giving and Foundation matching funds raised US\$88,000 for separate initiatives of the Children Are Us Foundation, the Garden of Hope Foundation, and Taiwan People’s Food Bank Association that explore the hunger issue from different angles. The donation will provide vulnerable individuals, families and communities hunger relief, nutrition education and community development assistance throughout the year. Our Korea-based employees supported the Fight Against Hunger campaign by teaming with Child Fund Korea to raise funds to purchase boxes of nutritious food for those who need it most.

All these efforts reflect Applied’s values and purpose, aligning who we are with what matters to our employees and what’s needed in our communities.





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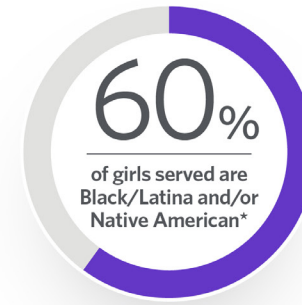
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Applied Materials believes all children of every race, gender and income level deserve equal opportunity to follow their dreams and reach their full potential, but barriers to access too frequently stand in the way. Starting early in life, girls—particularly girls of color and from low-income backgrounds—face stereotypes, gender bias, and other structural and societal barriers that can prevent them reaching their full potential. Women remain greatly underrepresented in many fields, including STEM, and the gender disparity is even more pronounced in executive leadership roles.

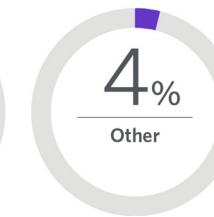
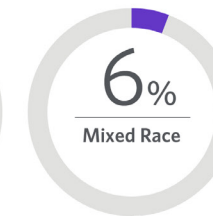
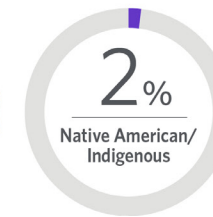
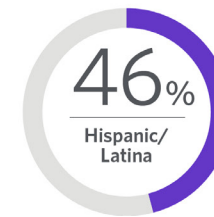
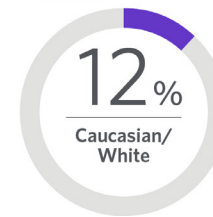
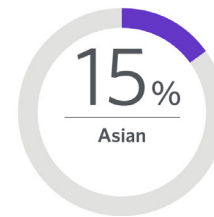
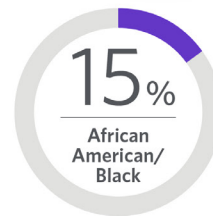
To do our part to highlight and address these inequalities, the Applied Materials Foundation created Generation Girl, a five-year initiative that invests in organizations and programs that support girls in developing self-efficacy and confidence, offer access to high-quality STEM education, and build the capacity of girl-serving nonprofits. By equipping girls with the knowledge and confidence to enter professions where women are historically underrepresented, we’re helping create a future where women—regardless of their background—can thrive in their field of choice.

In year four of the Generation Girl initiative, the Foundation provided over \$945,000 in grants to 28 programs across the U.S., reaching 8,873 girls—a 48% increase from year three (2020–21). Our year-end findings and participant survey results showed continued success:

Generation Girl Initiative Year 4 (2021–2022) Investment at a Glance		
Funding Area	# of Funded Programs	Total Grant Amount
Girls Empowerment	10	\$284,500
STEM Programming	16	\$484,735
Adult Training/Professional Development Services	2	\$175,900
<b>TOTAL</b>	<b>28</b>	<b>\$945,135</b>



Average percent of girls served by racial identity



\* Organizations funded under the Adult Training/Professional Development Services area are not included in this data.

“Generation Girl has enabled support for families in Spanish-speaking and immigrant communities and families new to youth programming/Girl Scouting.”  
- Girl Scouts of Northern California

- **Generation Girl is reaching its target population:** We focus our support to grantee organizations that primarily serve middle school and high school girls, engaging girls of color and girls from low-income backgrounds. In 2022, 82% of grantee programs served girls in middle or high school, with the remaining 18% serving girls in elementary and/or post-secondary school. The percentage of low-income girls served dropped slightly to 62% from 64% in 2020–21. As organizations increased their in-person programs, the percentage of Hispanic/Latina, African American/Black and Native American/Indigenous girls decreased to 60% from 69% in 2020–21.
- **Generation Girl supported girls' feelings of self-efficacy and self-confidence:** In 2021–22, 86% of girls surveyed reported positive levels of self-efficacy and 80% reported positive levels of self-confidence. Both results are commensurate with pre-pandemic levels.
- **Generation Girl helped girls explore STEM and its connection to their goals:** Ninety-three percent of participants increased their STEM competency (a 20% jump from 2020–21) and 85% increased their STEM interest (+10% from 2020–21). Ninety-three percent also reported believing that STEM skills are relevant to their daily lives (+5%, the highest reported level since the initiative began), 79% reported increased awareness of STEM careers, and 83% increased their interest in pursuing a post-secondary degree.
- **Generation Girl continued facilitating connections among grantees:** Ninety-two percent of grantee organizations reported that networking and collaboration opportunities through Generation Girl improved their practice, and 100% reported that the Generation Girl Community of Practice, in which representatives from our 30 grantee organizations meet to discuss common challenges and pursue partnership opportunities, strengthened their programs.
- **Generation Girl served adults who are important to girls' lives and success:** Two programs focused on strengthening the sector provided 317 adults with substantive training to increase their capacity to provide high-quality, gender-equitable programs. Sixteen grantee organizations focusing on girls' empowerment and STEM outcomes engaged 3,388 parents, relatives, mentors, after-school coordinators, teachers and other adults through resource-sharing and providing technological support.

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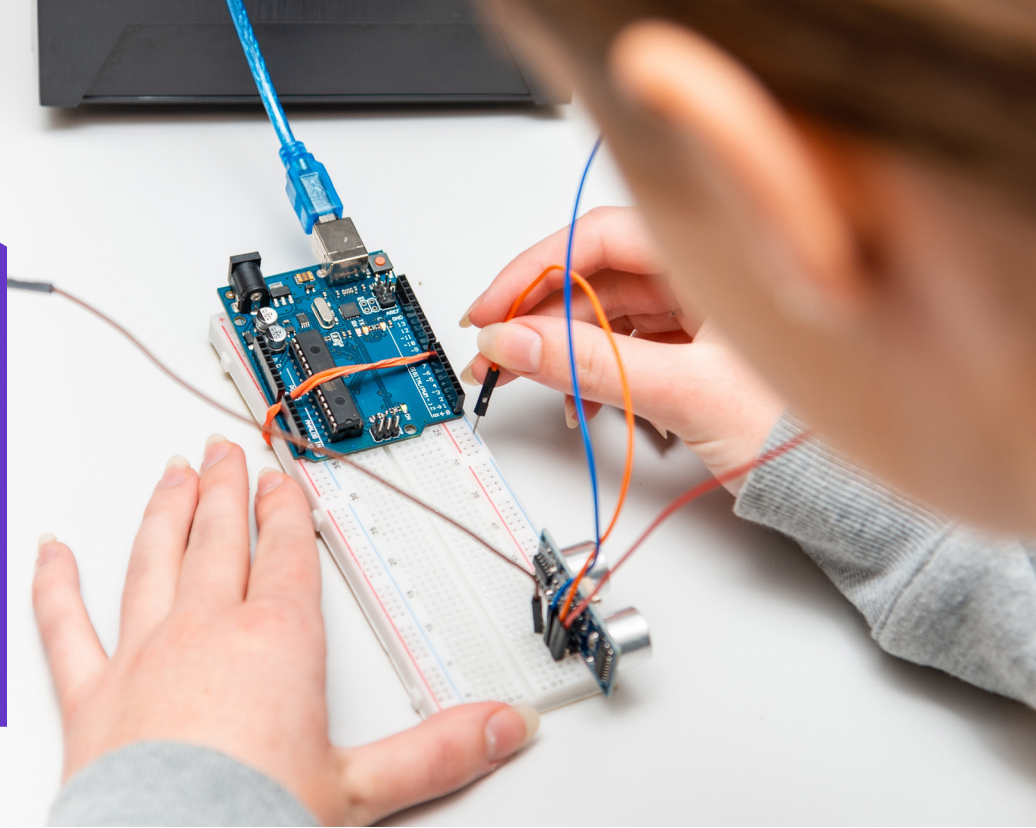
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**RAISING MATH SCORES IN AUSTIN**

As a Generation Girl grantee, the National Alliance for Partnerships in Equity Education Foundation has been working with the Manor Independent School District in Central Texas to increase participation and performance on the math pipeline. When their efforts began in 2018, the percentage of girls taking Algebra 1 in eighth grade was 26%. This year, 100% of the district's sixth grade girls are enrolled in advanced math, putting Manor ISD on track for 100% enrollment in eighth grade Algebra 1 in the 2024-25 school year.



"The consistent funding over the past several years has allowed us to bring our life-changing Social and Emotional Learning (SEL) programs to diverse, underserved schools and communities where girls have less opportunities."

**Generation Girl Grantee**

**2022 EMPLOYEE ENGAGEMENT WITH GENERATION GIRL**

In 2022, more than 200 Applied employees took part in over a dozen in-person or virtual volunteer opportunities supporting Generation Girl, including mentoring for career skills and pathways, teaching hands-on STEM workshops, and acting as guest judges for coding events. Click [here](#) to learn more.

**Generation Girl: Results since 2018**

**\$3.3**  
MILLION INVESTED

**36,000+**  
GIRLS\* SERVED

**30**  
GRANT RECIPIENTS

**6**  
U.S. REGIONS\*\*

**62%**  
FROM LOW-INCOME FAMILIES\*\*\*

**60%**  
BLACK, HISPANIC/LATINA  
OR NATIVE AMERICAN

\* "Girls" includes any girl-identified youth  
 \*\* Albany/Malta, NY; Austin, TX; Gloucester, MA; Hillsboro/Portland, OR; Kalispell, MT; Silicon Valley, CA  
 \*\*\* Four-year average

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## Promoting Education Access

At Applied Materials, we believe education inspires young minds, opens new doors and paves the way to more promising futures. Putting this philosophy into action globally, the company and the Foundation invest in efforts to help students fulfill their academic potential, regardless of their socioeconomic status, race, gender or where they call home.

In 2022, Applied Materials and the Applied Materials Foundation awarded over \$2.1 million in grants to 58 organizations providing direct educational services and teacher professional development. We prioritize programs that both address local challenges and align with our longtime education strategy, which aims to prepare students for every stage of the education journey:

- **Enter kindergarten ready to learn:** To engage children early in their education, we funded organizations such as Grail Family Services (East San Jose, CA) and AVANCE (Austin, TX), which provide impactful, culturally responsive programming for children and their families.
- **Read at grade level in elementary school:** Applied and the Foundation work with organizations that raise literacy rates for the youngest learners while instilling a lifelong love of reading. In the U.S., we supported Springboard Collaborative (East San Jose, CA), Bookspring (Austin, TX) and SMART Reading (Hillsboro, OR), organizations dedicated to make reading exciting and accessible to youth and their families. Outside the U.S., we funded work by Wuxi Lingshan Charity Foundation (China) and the Boyo Social Welfare Foundation (Taiwan) to improve literacy for underserved youth.

- **Succeed in rigorous middle school math and science:** In middle school, our focus turns to math and science readiness. Support from both Applied and the Foundation for the Silicon Valley Education Foundation focuses on accelerating teacher effectiveness in math through professional learning and peer collaboration in East San José, CA. In Austin, TX, Foundation funding underwrites work by the National Alliance for Partnerships in Equity to increase the enrollment of Black and Hispanic/Latino youth (especially girls) in academically rigorous middle school math courses.
- **Graduate high school ready for college and/or career:** Once students are excited about learning, Applied and the Foundation encourage them to dream big. Foundation collaborations with Breakthrough Central Texas (Austin, TX), Breakthrough Silicon Valley (San Jose, CA) and College Possible (Portland, OR) help ensure students are ready for college academically and emotionally. In Gloucester, MA, Applied and the Foundation support for LEAP for Education's Career Ready program provides high schoolers with a better understanding of career options. In Israel, Applied works with the Israel Scholarship Education Foundation to encourage boarding school students to complete high school and pursue higher education. In Singapore, an Applied grant to Community Chest seeks to maximize the educational experience for at-risk or out-of-school youth.

Both Applied Materials and the Foundation prioritize programs that engage families in their students' academic success. We also fund efforts to engage youth early and often in hands-on STEM programs, helping them understand the link between their academic studies and future career paths. In 2022, Applied and the Foundation funded STEM programs for youth in the U.S. and internationally:

- In Montana, the Foundation supports Flathead County Library Foundation's free Summer STEM Experience.
- Foundation support for the Western Idaho Science and Engineering Fair and the Arizona Science Center improves access to STEM programming for rural students.
- In India, our corporate support is helping Pratham Education Foundation create a Science Center in Maharashtra.
- In Korea, Applied funding provides elementary students with hands-on science education through Child Fund Korea.
- In Japan, we support a Houkago NPO After School program focused on computer programming.

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## Supporting Environmental Causes

Beyond efforts to reduce the footprint of our operations and products, Applied’s environmental commitment includes funding from Applied and the Applied Materials Foundation for environmentally beneficial projects. In 2022, we awarded a combined \$0.7M in grants to 38 nonprofits that are helping build a sustainable future through environmental education and stewardship, animal and habitat protection, conservation and repair efforts, tree planting, and improving natural spaces in urban settings. Highlighted recipients of the year’s giving included:

- Shanghai Pudong LIFE Environment Promotion Center (China) to promote public awareness of the need for environmental protection and to organize cleanup events around the country
- Moatza le Shimur Atarim (Israel) to create an organic vegetable garden where underserved children gain knowledge through hands-on environmental education
- Morino Project (Japan) to promote environmental resilience against future tsunamis by growing a new forest in a tsunami-destroyed area
- Environment Action Committee (Korea) to educate and engage youth on the importance of environmental sustainability through project-based learning
- National Parks Board (Singapore) to support efforts to plant one million trees across the island over the next 10 years
- Society of Wilderness (Taiwan) to increase awareness of important environmental issues through lectures, wilderness excursions and hands-on activities for elementary students
- Austin Youth River Watch (Austin, TX) to provide after-school and summer programs focused on hands-on science, mentoring and outdoor adventure for youth from historically marginalized communities
- Merrohawke Nature School (Gloucester, MA) to teach local youth about the maritime industry
- Whitefish Legacy Partners (Kalispell, MT) to host free outdoor education programs and provide community volunteer opportunities on the Whitefish Trail
- Green Foothills Foundation (Silicon Valley, CA) to train and invest in local environmental leaders from historically underrepresented communities

### INSPIRING ACTION THROUGH EARTHWORKS

From April through June, Applied’s annual EarthWorks campaign aims to educate and inspire our global employees on ways to adopt sustainable practices and technologies in their daily lives, homes and communities. In 2022, Applied employees conducted community and waterway clean-up, promoted carbon-free commuting, learned about climate advocacy and the impact of waste on communities of color, created 15,000 seedballs for planting, planted trees in tsunami-damaged areas, hosted a water conservation campaign, and packed environmental education kits for elementary school students.

## Funding Arts and Culture

The COVID-19 pandemic had a devastating impact on the arts worldwide. In the U.S., the arts economy shrank at nearly twice the rate of the economy as a whole in 2019–20, with performing arts shrinking by nearly 73%. Though pandemic impacts and restrictions began falling worldwide in 2022, many arts organizations that survived are still struggling.

To support arts programming and performances, museums and exhibitions, arts education and engagement, and culture- and heritage-focused arts programming, Applied and the Applied Materials Foundation awarded \$1M in grants to 59 nonprofits in FY22. We funded projects that provided global youth with access to high-quality arts education programming, such as:

- Arts in Action (San Jose, CA), which provides art kits for three schools that serve under-resourced communities
- Hockaday Museum of Art’s Engaging Youth in the Arts program (Kalispell, MT), which helps children connect with art and their community through hands-on activities, engagement with working artists and historic art, and public display of their own artwork
- Shanghai Charyou Youth Volunteer Service Center (China), which works to enhance the confidence of children who learn and share their own talent and traditional art culture while strengthening mutual understanding and respect in their community



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## Volunteering in Our Communities

To improve our people’s sense of purpose and engagement, Applied Materials seeks opportunities through which we can put our talents to work serving the communities where we live and work. We seek input from community organizations to assure that activities are truly meaningful and impactful, and provide Employee Giving and Volunteer Time Grant programs that allow our employees worldwide to maximize their personal charity support.

In 2022, Applied began partnering with Visit.org to expand our reach to new organizations beyond our existing networks and local geographies, and to help us bring a greater equity lens to our volunteering work. Visit.org provides a searchable library of curated virtual volunteer and engagement opportunities across nonprofit organizations working both within and beyond Applied’s core engagement areas. The system provides

Applied Materials and our Employee Resource Groups with a significantly deeper catalog of engagement opportunities that align with cultural, environmental, educational and other initiatives throughout the year—such as learning about the environmental impact of waste on communities of color, discussing issues disproportionately affecting girls, or empowering Asian-American voices through performances by Asian poets, musicians, dancers and storytellers.

In 2022, Applied Materials employees donated 12,138 hours of personal time to volunteering for organizations, for which the Foundation awarded \$34,500 in time grants.

See [2022 Employee Engagement with Generation Girl](#) for information on our employees’ efforts on behalf of girls’ education and empowerment.

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# Invest in People

Cultivating a culture and talent engine where every person feels included and inspired to grow in a technology career



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**Fostering diverse perspectives and experiences unlocks breakthrough innovation and strengthens every aspect of our business.**

At Applied, we are cultivating a culture where everyone feels enabled to bring their whole self to work, empowered to reap the full benefit of continuous learning, and elevated through the fair and equitable opportunity to grow in their career. We believe there is no greater asset to innovation than the diversity of our people.

We aim to support the person, not just the employee, by providing access to benefits that promote health, wellness and financial security. We are committed to protecting the fundamental human rights of our employees and those of our suppliers, as formalized in our [Human Rights Statement of Principles](#).

We invest in building an inclusive talent pipeline to expand opportunities for those who have been traditionally underrepresented in tech, benefitting individuals while providing our company and industry with future talent to power future growth. To seed the pipeline, we partner with nonprofit organizations, colleges and universities to foster interest and build STEM capabilities, particularly among girls and underrepresented minorities. Our investments continue into early-career development, with robust programs supporting interns, new college graduates (NCGs) and women in engineering and technology—because we know human potential is the fuel behind our company’s potential.

**Key Highlights**

**1X**

- Set 2030 diversity goals to increase representation of women globally and underrepresented minorities (URMs) in the U.S.
- Created a Diversity, Equity and Inclusion (DEI) Engine, a framework of tools, training and processes to accelerate our Culture of Inclusion
- Hosted a month-long Culture of Inclusion Summit at 17 Applied sites globally
- Achieved a 98% completion rate for training and learning hours by full-time employees, with a per-employee average of 57 training hours

**100X**

- Completed a human rights salience assessment, including an implementation action plan to address impacts and potential risks
- Began building a Responsible Manufacturing Program to implement Applied Materials’ Human Rights Statement of Principles and the Responsible Business Alliance (RBA) Code of Conduct

**Additional Accomplishments**

- Advocated for DEI interests in communities and society by participating in industry collaborations, including the Global Alliance for Inclusion, the Semi Foundation and the Reboot Representation Coalition
- Earned recognition from the CommonWealth Magazine (Taiwan) Excellence in Corporate Social Responsibility Awards 2022
- Earned the “Top Graduate Employer” award (China) by [51job.com](#) and [yingjiesheng.com](#)
- Earned the 2022 Gyeonggi Province Economy Contribution Award (Korea) for Applied Materials Korea Talent Acquisition team’s efforts in generating profitable jobs
- Ranked #2 in Coface’s 2022 [Best Companies to Work For](#) list (Israel)
- Named among [Singapore’s Best Employers 2022](#) by The Straits Times

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GOAL	FY22 PROGRESS	UN SDG
<b>2030 Goals</b>		
Greater than 25% women representation at Applied globally	19.3%, representing a 1.2% increase from FY21	5 GENDER EQUALITY 
Greater than 21% executive women representation globally, with an aspiration to achieve equal global and executive representation of women by 2040	12.5%, representing a 0.3% increase from FY21	5 GENDER EQUALITY 
Greater than 25% underrepresented minorities (URM) representation in U.S. workforce	18.8%, representing a 2.4% increase from FY21	10 REDUCED INEQUALITIES 
Greater than 10% executive URM representation in Applied's U.S. workforce	5.3%, achieving interim target	10 REDUCED INEQUALITIES 
<b>Annual Goals</b>		
Achieve top quartile results on inclusion index with no significant differences between demographics	Set target in FY22; calculating baseline and setting strategy in FY23	5 GENDER EQUALITY  10 REDUCED INEQUALITIES 
90% completion of designated DEI Engine learning modules by all Applied employees, annually	88%	5 GENDER EQUALITY  10 REDUCED INEQUALITIES 
Maintain occupational health and safety total case incident rate (TCIR) of 0.40 or below	0.35	8 DECENT WORK AND ECONOMIC GROWTH 



# Recruiting and Hiring

When we say Applied Materials works to Make Possible a Better Future, we don't just mean through technology innovation. A better future is also a more fair and industrious future, where people can follow their passions into careers that bring out their full potential and put that potential to work for the greater good. At Applied, we're making that vision a reality through our commitment to inclusion and diversity in all our practices for attracting, engaging and retaining top-performing talent.

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"Applied values veterans. They know we have a strong technical foundation, troubleshooting skills and a community-focused mindset."

**James**  
Austin, Texas

## Recruiting Diverse Talent

Our diverse talent recruiting has a global scope, seeking candidates from the technology industry and related fields and attracting talented new graduates from universities with strong engineering and science programs, including U.S. schools with large Black and Hispanic/Latino student populations. Through STEM education initiatives with colleges, universities and nonprofit partners serving middle and high school students, we are also building a pipeline of diverse future talent. Over the past two years, we've pursued a range of initiatives and technologies to help us achieve our diversity goals:

- Introducing a **Diverse Talent Sourcing Platform** that enables searches for diverse candidates
- Rolling out a global **Talent Selection Playbook** that helps managers define their talent needs, then assess and select the most appropriate candidates
- Doubling our **referral bonus program** to reward employees for recommending successful candidates for customer engineering and other technical roles
- Expanding **talent searches** beyond our physical operating regions to broaden our potential talent pool
- **Recruiting military talent** as they exit the U.S. services

We have also partnered with a third party to help showcase Applied's inclusion culture—for example, by arranging for one of our female engineers who began as an intern to speak at the Singapore Semiconductor Industry Association Women's Forum and in a social media video. We have also appointed a group of ambassadors and social media influencers from diverse backgrounds to represent Applied's Culture of Inclusion.

These initiatives and others have contributed to a year-over-year increase in the representation of global women, U.S. women and U.S. URM employees at nearly every level of Applied's workforce.

## DEI WORLDWIDE

In 2022, Applied Materials locations worldwide conducted initiatives to support our DEI goals.

**TAIWAN:** To engage female engineering talent and elevate our employer brand, we launched a new "High Tech Girls" program with more than 350 women participants, and partnered with SEMICON's "Women in Tech" workforce workstream to provide career talks and face-to-face engagements as part of a trade show. In our Field Service Operations' iTeam organization, we created mandatory interview guidance to boost interview opportunities for female talent and further elevate our female hire rate, which increased 53% in FY22 over FY21.

**IRELAND:** We continued our relationship with STEM Women Ireland and are working to engage their network of STEM women students and graduates.

**ISRAEL:** We renewed our relationship with Co-Impact, an organization that connects global tech companies with qualified Arab candidates in Israel, and are planning to receive candidates in 2023.

**INDIA:** To fill 90+ positions targeted for gender diversity hiring across all business units, a slate of 100 candidates was presented, yielding 69 offers and 63 acceptances (91%). Year-over-year hiring of female candidates rose by 38% over 2021.



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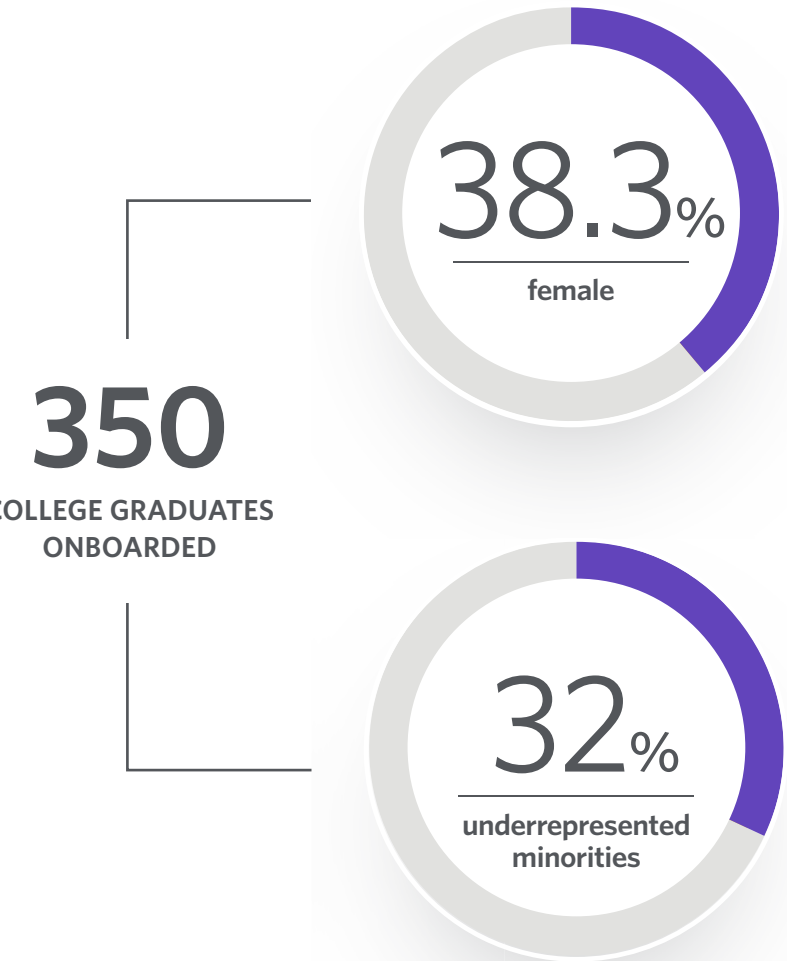
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## Recruiting and Hiring Next-Generation Talent

Throughout 2022, we evolved our recruiting, hiring and onboarding practices to reach incoming tech talent, showcasing Applied as a company that offers opportunity, growth and learning in an environment of respect and corporate responsibility. We onboarded 350 new college graduates during the year, among whom 38.3% were female and 32% were URM. Our efforts included:

- New college graduate rotation programs:** To drive in-depth cross-functional training, provide access to our global knowledge, and assure optimal placement of new hires, internal organizations including Supply Chain, Global Field Group, Finance (Austin, TX and Santa Clara, CA) and Implant (Gloucester, MA) offered rotation programs that included mentoring, networking, skills development and hands-on experience across various areas of their operations.
- University recruiting events:** To reach the next generation of Applied talent, our University Recruiting Team participated in 52 career fairs and 30 networking events in spring and fall 2022, at colleges and universities around the U.S. In Korea, we recruited at more than 20 universities and attended six job fairs, meeting nearly 3,000 students and potential candidates. In Taiwan, we attended 23 campus events with a pipeline of 4,381 students.
- Internships:** In North America and globally, hybrid in-person/virtual internship programs continued giving students exposure to our diverse and inclusive workplace, introducing them to career paths and roles in both engineering and corporate. Highlights of the year included a “Meet the CEO” summer intern event and a new Manufacturing Intern Program for students at two-year colleges. In the U.S., we hired a total of 262 interns, 46.9% of whom were female and 21.8% of whom were URM. Additional internships were offered in our operations in India (23) and Taiwan (15).
- GEM scholarships:** Applied is collaborating with the National GEM Consortium, an organization dedicated to increasing the participation of underrepresented groups at the master’s and doctoral levels in engineering and science. In the first year of the partnership, we hired four GEM interns for positions in our Chief Technology Office and Semiconductor Products Group organizations.
- China programs:** Spanning 15 Applied locations in China, our China New Star NCG program saw 26% female new hires in 2022. We also organized seven virtual networking events attracting 1,000+ attendees and a dedicated live online presentation that logged 63,000 views.



“Applied’s internship program connected me to people who genuinely care. Now that I’m a full-time employee, I am surrounded by teams that ensure that everyone can learn, grow and contribute to the success of the company.”

**Adaeze**  
Gloucester, Massachusetts

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Over the past several years, Applied Materials has been working to grow a Culture of Inclusion across every business group, function, strategy, process and region of our company, and we're doing it for one simple reason: helping everyone succeed. We know that driving cultural transformation around diversity, respect, fairness, and teamwork helps our employees to become their best selves, sets our company up for greater success, and models the equity and inclusion that should be among the hallmarks of a just society.

Now more than ever, Applied is positioned to be a leader in creating a more diverse, inclusive culture and showing our industry a winning employee value proposition for the future. With analysts predicting that the global semiconductor industry will grow to \$1 trillion in revenues by 2030, our employee base

will need to grow by roughly 60,000 employees over the same period. Generation Z will be a big part of that growth, and with 48% of that cohort representing communities of color, the industry must become a place where they can feel at home.

In 2020, our CEO, Gary Dickerson, announced DEI commitments to increase transparency, establish meaningful targets, and implement training to reduce bias and educate employees on how to listen, learn and act. This year we made progress against all three, including announcing in this report a new set of [2030 diversity goals](#) designed to increase the number of women in our global workforce and underrepresented minorities in the U.S., at both the employee and executive levels.

Our Executive Leadership Team is committed to continually transforming our culture to be more inclusive, operationalizing DEI in all of our processes, and achieving our DEI goals. To assure we achieve our goals by 2030, in 2022 we launched our [DEI Engine](#), a new framework of tools, training and processes for all employees, aimed at moving our transformation to the next level.

**“Inclusion is empowering every voice on the team. If I look at my own team, every person brings a unique gift, a unique talent that we can use to help solve problems. And if we are not leveraging everybody on the team, then we’re never going to be as good as we can be.”**

**Carl**  
Austin, Texas

## Applied's DEI Vision

Diversity, equity and inclusion isn't just a slogan. The words have real meaning.



**DIVERSITY** means everyone: the variety of differences and similarities among people, often called “diversity dimensions.”



**EQUITY** is the guarantee of fair treatment, access, opportunity and advancement, paired with a process that identifies and eliminates barriers that have held some groups back from full participation. This principle acknowledges that there are historically underserved and underrepresented populations and that we need fairness to restore balance, equality and opportunity for all groups.



**INCLUSION** is a dynamic state of feeling, belonging and operating in which diversity is leveraged and valued to create a fair, healthy and high-performing organization.

At Applied, DEI means embracing change as a new governing philosophy, not just tweaking the tactics and strategies of the past. At its most basic level, it's about breaking the cycle of looks-like-me hiring and welcoming new employees of all backgrounds and experiences. But DEI has to be more holistic than just talent, embracing an expansive and empathetic mindset that not only sees but seeks the value in difference and works toward that ideal in everything we do, including:

- Embedding a culture of respect, empathy and collaboration across our strategy and business processes
- Creating safe spaces where all voices can be heard
- Reinventing our culture to value a healthier work/life balance
- Identifying and partnering with more diverse suppliers

# Growing a Diverse Workforce

Advancing our 2020 commitment to DEI transparency, we continue to track and publicly disclose our strategic efforts to recruit and retain diverse talent. This year's results show steady progress toward our goals:

- Women's representation exceeded our 18.7% target, achieving 19.3% due to reduced Q4 turnover and a 2022 hiring ramp
- U.S. executive URM representation achieved our target of 5.3%
- U.S. URM representation increased to 18.8%
- We began tracking a new "Other Professionals" category for Customer Support, Technical and Operations career bands, extending our capture of hiring trends beyond executives, managers and professionals to our entire regular full-time (RFT) workforce



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### FY22 U.S. Workforce: Gender, Ethnicity and Race Representation by Employee Level

	FY2022	FY2017	Women	Asian	Black	Hispanic/Latino	Other URMs	White
<b>EXECUTIVES</b> (VP+Director)			12.9%	47.1%	1.1%	2.9%	1.3%	46.3%
			11.3%	41.7%	0.8%	2.0%	0.7%	54.8%
<b>MANAGERS</b>			19.2%	33.9%	4.2%	8.7%	2.7%	49.1%
			13.0%	31.3%	3.2%	5.8%	0.9%	58.8%
<b>PROFESSIONALS</b> (Business, Engineering, and Sales Career Bands)			28.2%	43.7%	3.8%	8.1%	2.9%	39.3%
			24.8%	42.1%	3.2%	6.6%	1.2%	46.8%
<b>OTHER PROFESSIONALS</b> (Customer Support, Technical and Manufacturing Career Bands)			15.5%	18.4%	10.0%	16.4%	4.8%	47.5%
			12.5%	18.7%	6.2%	12.1%	2.5%	60.4%

Engineers are those in roles within the Engineering Career band only. Customer Engineers and Engineering Technicians are excluded from this metric. In FY22, 2.2% of employees did not disclose race/ethnicity.

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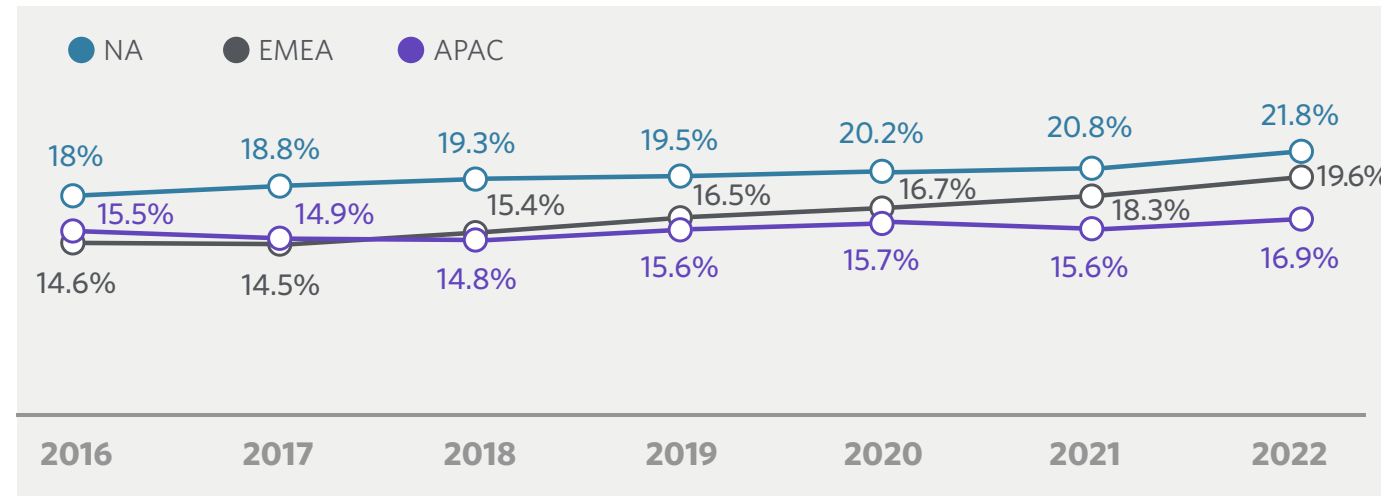
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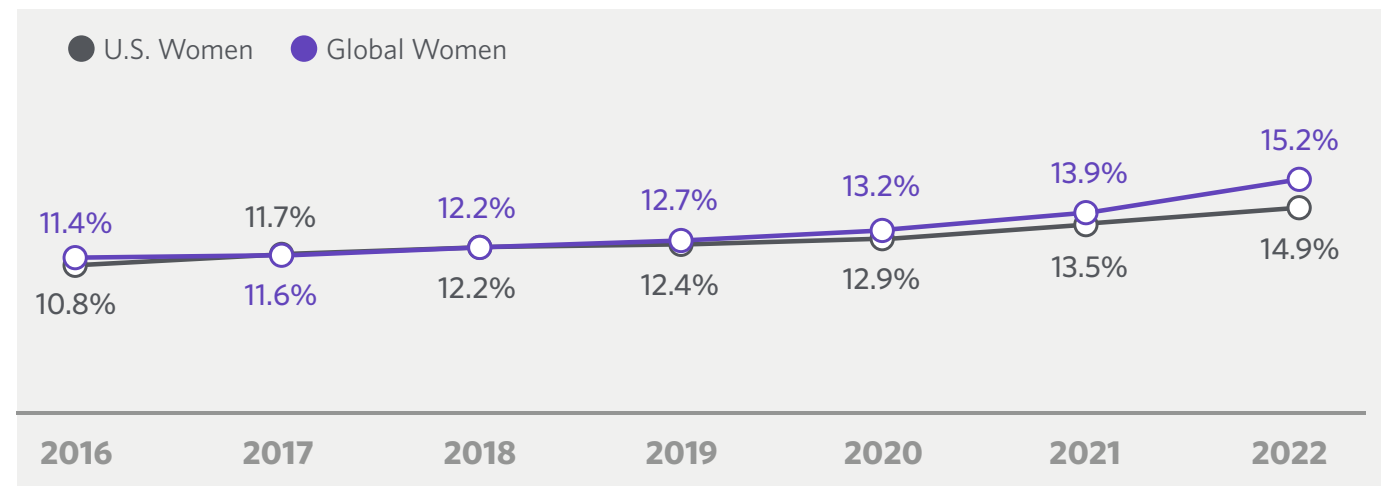
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Female Representation by Region 2016-2022



Improved Gender Diversity in Engineering



**88% of our global workforce received DEI training by Q4 2022**

**DEI STANDS FOR SUCCESS**

- Diverse companies achieve **2.5 times higher cash flow** per employee
- Diverse management can **increase revenue by 19%**
- Gender-diverse companies are **15% more likely** to beat industry median financial returns

Source: <https://builtin.com/diversity-inclusion/diversity-in-the-workplace-statistics>

# Building Our DEI Engine

Launched in November 2022, our DEI Engine is a framework of tools, training and processes to accelerate our Culture of Inclusion strategy. The engine has three pillars:

- 1. Ingrain an inclusive culture** where everyone can speak safely and be fully heard, and where we leverage and embrace our differences across all levels of the organization
- 2. Inspire, engage and attract** world-class talent by incorporating DEI throughout the employee experience, including hiring, promotion, rewards and benefits
- 3. Impact DEI in industry and society** through leadership and stakeholder engagement, creating pathways that reduce social, economic and educational inequities

**The DEI Engine will help Applied Materials:**

- Activate our Culture of Inclusion strategy to enable a more connected and inclusive culture
- Create a common DEI language, process and metrics to advance our Culture of Inclusion
- Accelerate our connected culture through inclusive leader behaviors, decisions, actions and outcomes
- Demonstrate our DEI commitment to all our stakeholders
- Personalize DEI for everyone, inspiring personal commitment through “Applied Inclusion: It Starts with Me” messaging
- Create more innovative solutions that are shared across the enterprise

**Our DEI Engine will engage everyone to listen, learn and act, and operationalize our Culture of Inclusion through:**

- Mandatory virtual learning, with a 90% completion target
- Experiential learning, providing a scaled menu for all levels of the company, with leaders as teachers
- Resource toolkits for leaders and individuals
- Communication strategy including multimedia, Employee Resource Group (ERG) events and our Global Inclusion Summit
- Partnerships with ERGs to tie together strategies impacting DEI from across the enterprise

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## Engaging Leaders as Champions of Change

As Applied Materials evolves to make DEI integral to the way we do business, our leaders are increasingly demonstrating their personal commitment to raising awareness and driving change.

At our 2022 Applied Leadership Group (ALG) meeting, over 400 senior leaders learned about inclusion not only as a concept, but as a personal story and a call to action. Several leaders gave powerful, passionate speeches about how inclusion matters to them personally, and all attendees were asked to take three actions:

- Seek out learning to improve their personal inclusive leadership
- Identify actions to improve and embed the Culture of Inclusion in their organizational and talent strategy
- Talk about what inclusion means to them in multiple forums

### WORKFORCE DIVERSITY RECOGNITION

Applied Materials is consistently recognized for our efforts around workforce diversity and military veteran recruitment.

**Korea President's Award "2022 Equal Employment"**  
Presented by the Minister of Employment & Labor

**Human Rights Campaign Foundation**  
Corporate Equality Index 2022, 100% overall rating  
Best Places to Work for LGBTQ+ Equality

**Woman Engineer Magazine**  
Top 50 Employer 2022

**Military Times**  
2022 Best for Vets

### 2022 GLOBAL CULTURE OF INCLUSION SUMMIT

"Applied Inclusion: It Starts with Me" was the theme of our first ever month-long Inclusion Summit in June 2022, which included three mainstage global sessions and 48 regional events at 17 Applied sites around the world, both live and virtual. Topics ranged from general discussions of gender, race and LGBTQ+ issues to focuses on disabilities and innovation, personal development, multi-generational teams, neurodiversity, mental health, micro-aggressions/bias and inclusive leadership.

During a panel discussion, leaders heard from ERG leadership about how their groups offer opportunities for employees to create a more inclusive culture, advance themselves professionally and volunteer in their communities. Panel members encouraged leaders to support and advocate for ERGs, and to consider becoming executive sponsors.

For the second year, U.S. leaders also participated in a Berkeley Executive Coaching Institute (BECI) "Coaching for Inclusion" program, which builds on previous diversity trainings through a focus on:

- Building core capabilities and helping leaders develop an authentic leadership presence around DEI
- Building empathy and an understanding of how DEI issues affect oneself and others
- Becoming more conscious of how personal behaviors can unintentionally reinforce unproductive dynamics
- Making personal commitments for change in their leadership style and their approach to influencing change across the enterprise

The program is delivered via an initial two-day session, plus coaching, independent study and a follow-up workshop. In 2022, more than 100 Applied leaders completed the program.

These efforts build on changes introduced in prior years to help our leaders take Applied Materials in the direction we need to go—changes such as introducing an Inclusive Leader Action Guide to provide pragmatic strategies and best practices for our executive staff and people managers, creating diversity dashboards that allow U.S. leaders to track progress against diversity goals for each organization, and tying executive compensation directly to the achievement of our diversity objectives via our Corporate Scorecard.

Our Culture of Inclusion progress is shared on a quarterly basis with our Human Resources and Compensation Committee.

# Employee Resource Groups

Applied Employee Resource Groups (ERGs) are one important way we ingrain inclusive culture, inspire and engage our diverse talent, and positively impact the communities in which we work and live. Today, our network includes eight ERGs, with 28 chapters around the world.

- Applied PRIDE
- Asians in Motion
- Hispanics in Partnership
- Leadership Encouraging Achievement through Diversity / Black Employee Network
- Male ERG for Equity
- Veterans Employee Team
- Women's Professional Development Network
- Young Professionals Network

Our ERGs continue to increase in overall membership and create programs and events that support and promote our Culture of Inclusion. In 2022, ERGs sponsored learning, networking and community service events across the world. Here are just a few highlights:

“Diversity and inclusion have been a really big focus area at Applied. And it’s something that I find, in our culture, we really, really value. I grew up in the U.S. and for me, it’s been really interesting to learn where other people come from and ask about their history, their culture, what they do, what they don’t do, and see if I can apply that.”

**Nadine**  
Santa Clara, California

**Young Professionals Network (YPN):** To foster an increased sense of belonging for new hires and new college graduates, YPN sponsored “YPN Week” at all Applied U.S. sites, which offered opportunities to network with fellow newly hired graduates as well as Applied executives and leaders across diverse gender, race, cultural and socio-economic backgrounds. This event helped new hires learn and grow beyond their job roles, find mentors, increase understanding and compassion for diverse groups, and serve our community.



**Women’s Professional Development Network (WPDN):** Over the course of 2022, three virtual events sponsored by the Taiwan WPDN focused on one theme: “empowering women.” The series kicked off with a webinar combining industry insights with financial management methods. “A Conversation About Women’s Empowerment” featured female speakers who shared how women can empower each other to support, inspire and achieve their goals in the workplace and in life. Finally, a “Celebrate Empowerment and Your Peers” Yammer campaign invited employees to celebrate the accomplishments of their peers and family members.



**Veterans Employee Team:** This U.S.-based military veterans ERG completed its second annual “Veterans Helping Veterans” community service project with nonprofit Rebuilding Together Silicon Valley (RTSV) to paint and repair the home of a local Korean War veteran in need. Applied has a long-standing reputation as a top employer for veterans, regularly ranking as one of the [best workplaces for veterans](#). We currently employ more than 1,000 veterans including approximately 330 newly hired in 2022.



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## DEI ADVOCACY PARTNERSHIPS

Applied Materials advocates for DEI interests by pursuing partnerships with groups at the global, community and local government levels. In 2022, we participated in:

- **Global Alliance for Inclusion** efforts to diversify the tech industry
- **SEMI Foundation** efforts to introduce young people to careers in the semiconductor industry
- **The Reboot Representation Coalition**, focused on increasing the number of Black, Latina and Native American women receiving computing degrees

# Learning and Development

Applied Materials creates growth and development opportunities that support an engaged and inclusive workforce to propel our business into the future.

Our employee learning and development program focuses on improving technical skills, professional capabilities and business acumen, enabling every individual to excel in their current role while preparing them for career growth. All training is coordinated centrally and aligned with common objectives through Applied Global University (AGU), the delivery arm of our Learning and Development organization, with corporate providing general professional, management and leadership training and our business units and functions providing technical and job-specific training tied to their disciplines.

At every level, we conduct employee assessment and development in the context of both current and future role requirements, and deliver instructor-led and web-based training along with AI-based simulations and augmented reality/virtual reality learning capabilities. Our PATHWAY program helps our employees create personalized learning journeys, with our technical talent receiving additional specialized opportunities to develop knowledge and skills. Training programs for managers and executive leadership facilitate preparation for progressive roles and support our leadership pipeline.

**“ Applied is an exciting, forward-thinking, fast-moving company. The company’s enthusiasm for developing its employees has fostered a creative and productive environment of professionals that are truly engaged with their work.”**

**Ugne**  
Leixlip, Ireland

## PATHWAY: Personalized Employee Development

Applied Materials recognizes continuous learning and skills development as an essential component of growth and success, for both our employees and our company. Our integrated PATHWAY learning program helps drive that growth and success by empowering employees to create a personalized learning journey to fine-tune their existing skills and build capacity for the future. By enabling our employees to browse and select courses mapped to their role-related skills and development plan, and by giving recommendations for role-based self-directed learning, PATHWAY helps enable our culture of continuous improvement and employee support.

Each fiscal year, Applied employees are required to select a skill goal and a defined “skill journey” to enhance development in a specific area. In addition to taking courses through our extensive course catalog, employees may meet their annual requirement of 40 learning hours through university-level courses, professional accreditation or continuing education workshops, and flexible learning opportunities such as attending conferences, reading a job-related book, mentoring or creating a course.

During FY22, 13,695 Applied employees completed their PATHWAY skill journeys and 19,142 accessed and participated in PATHWAY trainings, helping us achieve a participation rate of 72% across our global workforce. Coursework in leadership and communication were the most popular, and we saw a significant year-over-year enrollment increase in problem solving and system engineering courses.

During our annual two-day **Virtual Learning Summit** in July 2022, more than 4,370 employees participated in learning challenges and talks by keynote speakers focused on building skills with purpose, intention, determination and action. This represented a 21% increase from FY21, with major representation from employees in Taiwan, China, Singapore, Korea, Japan and India.



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## 2022 Learning Hours

Through virtual and in-person trainings, we were able to meet our corporate training objectives and goals for 2022. Ninety-four percent of our leaders, executive-level vice presidents and managers completed training during the year, and 98% of regular full-time (RFT) employees completed role-related and additional training. Our RFT new-hire completion rate for Standards of Business Conduct training was 92%.

Information on ethics and compliance training is provided [here](#). For additional details and breakdowns, see the [Report Annex](#).

Totals	FY22
Total Individual Learners (RFT employees)	32,890
Total Individual Learners (total workforce)	45,859
Total Learning Hours	2,046,238

Completed Training By Role (Unique Learners)	FY22
Executive-Level Vice Presidents	192
Executive-Level Directors	2,126
Manager Level	3,193
Individual Contributors	27,485
Interns	102



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# Taking Care of Our Employees

## Employee Engagement

Great people make great things possible. That's why we value our employees' feedback about what we do well and where we can improve.

In November 2021 we launched our first Pulse Survey focused entirely on employee engagement, asking for feedback in four key areas: time to effectiveness, productivity, talent attraction/retention, and a connected and inclusive culture. Survey results were kept confidential and only reported on in aggregate for team-level insights to help shape Applied's strategy and build an even stronger organization, culture and employee experience.

Enterprise-wide actions taken in 2022 following survey analysis included:

- Roll-out of career conversations for all employees, supported by a training for managers, with over 16,000 documented conversations in just six months
- Launch of our new manager forum to enhance manager effectiveness and educate managers on our global rewards philosophy and practices
- Elevation of our Culture of Inclusion efforts, including clarifying our goals
- Continued emphasis on employee well-being

Many of our business units also launched employee development days to celebrate and recognize our accomplishments.

"Applied cares about me on a holistic level. The benefits program has allowed me to focus on my professional growth while also prioritizing my health and wellbeing."

**Geoffrey**  
Grenoble, France

Our engagement survey helps align Applied's people strategy to business outcomes by providing top-down and bottom-up actionable insights and planning at all levels of the organization. Enterprise-wide, fast turnaround of information and real-time data visibility enable greater transparency across the organization and allow us to benchmark results and development indexes to provide baseline measurement for future actions and initiatives. At the business unit and team level, managers are empowered to drive greater engagement across their teams, with personalized, actionable insights allowing greater precision. For employees, the clear connection between feedback and action can increase trust, transparency, a sense of agency in their own experience, growth and engagement, and a sense of inclusion.

In February 2023, we conducted our latest employee engagement survey. The results will be detailed in next year's sustainability report.



## Employee Benefits

Investing in employee wellbeing is the core of our Total Rewards program, which offers a suite of health and wellness benefits to support our employees' physical, emotional, social and financial health. Our plans differ geographically but are designed to help employees at work, home and anywhere they go. See our [Applied Materials Benefits website](#) for information on U.S. benefits including financial, insurance, health and wellness, and time off. Specific benefits offered vary by country.

2022 saw a number of significant additions and accomplishments in our U.S. Total Rewards program:

- We enhanced gender affirmation support benefits aligned to the updated World Professional Association for Transgender Health (WPATH) guidelines, with availability beginning January 1, 2023.

- We also enhanced fertility facilitation support effective January 1, 2023, with more inclusive coverage for same-sex couples and uncoupled and transgender employees.
- We supported student loan debt repayment for non-highly-compensated U.S. employees, with \$658,815 repaid in 2022, supporting 548 employees.
- We continued providing employee assistance support globally, including ten additional mental health sessions at our on-site health centers, Crossover Health sites, or virtually. Through Care.com, employees may access help finding childcare, elder care, pet walking or house cleaning support.
- We offer 12 weeks of 100% paid family care leave to all U.S. employees to care for a newborn, adopted or foster child, as well as seriously ill family members.

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# Occupational Health and Safety

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Applied Materials places high priority on the safety of our on-site workforce, our field services engineers, our suppliers and our customers. We are committed to complying with or exceeding all regulatory requirements applicable and relevant to the health and safety performance of our operations, processes and products.

## PURPOSE

In 2022, our on-site protocols around COVID-19 safety tracked the waning impacts of the pandemic in most regions. We continue to monitor the status of the virus in our communities, follow up on confirmed cases where required by state or country regulations, and communicate protocols to keep employees who are ill away from the workplace.

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## Safety Targets and Performance

Applied Materials maintains global programs and monitoring to promote a safety culture and safe work practices, minimize workplace risks, and support continuous improvement in our safety performance. We use the definitions set by the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) for recordable, lost-time and restricted-day injuries. These definitions are implemented globally for data gathering and analysis, and we set both corporate- and site-level targets and objectives, which are embedded into annual performance objectives. These key safety metrics are made available to all business units in our safety performance dashboards. At the end of each year, we analyze results and reset targets for the coming year.

### Total Case Incident Rate (TCIR)

In FY22, Applied achieved a TCIR of 0.35, beating our goal of 0.40 and significantly outperforming the industry benchmark of 0.60.

### Health and Safety Violations

In FY22, we received two violations worldwide, one for a non-hazardous waste disposal issue at our Gloucester, MA, location (no fines) and one OSHA machine guarding safety violation considered "other than serious" (\$2,800 fine). Both were closed with the regulatory agencies.



## Safety Training Rate

For FY22, Applied Materials achieved a 97.5% safety training rate for relevant employees. Weekly safety training penetration reports, across all business units, are sent to all members of executive management as part of the weekly Environmental Health and Safety (EHS) Update Report.

Work-Related Injury Rates	FY22	FY21	FY20
Total Case Incident Rate (TCIR)	0.35	0.45	0.33
Days Away, Restricted, or Transferred Rate (DART)	0.24	0.35	0.23
Lost Time Severity Rate (LTSR)	2.59	4.44	3.70
Fatalities	0	0	0

*The main types of work-related injuries are strains, sprains and fall-related incidents. TCIR is calculated as (total number of OSHA Recordable injuries and illnesses x 200,000) / total hours worked by employees. DART rate is calculated as (total number of DART incidents x 200,000) / total hours worked by employees. LTSR is calculated as (total number lost workdays x 200,000) / total hours worked by employees. Rates are based on fiscal year.*



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# Human Rights

Over the past two years, Applied Materials has taken several significant steps toward formalizing our commitment to protecting human rights wherever we do business. In 2021 we published our first [Human Rights Statement of Principles](#) and formed a cross-functional Human Rights Working Group to lead our Corporate Human Rights Program.

In 2022, we partnered with Article One Advisors to complete a three-phase project to proactively identify human rights risks associated with our operations and assess whether we are managing these risks effectively through our existing policies and processes. The assessments identified risks around:

- Non-compliance with Responsible Business Alliance (RBA) working hour limits
- Forced labor in the upstream information and communications technology supply chain
- Supplier deficiencies in RBA assessments and resistance to remediation
- Increasing regulatory activity around human rights due diligence
- The need for a human rights governance system

This assessment underscored that Applied Materials has opportunities to elevate the importance of human rights management. Following completion of the assessment, Applied commenced work on developing:

- New training on human rights and RBA requirements to educate Applied workers and support supply chain outreach
- A Responsible Manufacturing Program to operationalize human rights governance across our manufacturing operations to comply with our Human Rights Statement of Principles and the RBA Code of Conduct
- Internal communications to further embed human rights into company culture

As of the publication of this report, we are taking steps to implement our Human Rights Statement of Principles across our operations and supply chain, and we look forward to sharing details in our next sustainability report.

See the [Occupational Health and Safety](#) section of this report for additional information on employee working conditions and policies. See [Supply Chain Responsibility](#) for our commitment to protecting human rights in our supply chain.

## NON-DISCRIMINATION POLICY

Applied Materials is committed to providing a workplace that is free of discrimination, harassment and retaliation. We do not tolerate harassment based on race, color, national origin, ancestry, religion, age, sex, sexual orientation, gender identity, marital status, physical disability, mental disability, medical condition, genetic information, family care leave status, union membership, veteran status or any other basis prohibited by law. Our Non-Discrimination Policy protects employees who have lodged good-faith reports of possible ethical issues or policy violations, or participated in any investigation, proceeding or hearing. The policy addresses conduct, complaint procedure, supervisory responsibilities, responsive action and supplemental state-specific rules.

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# Protect Our Planet

Accelerating our transition  
to a low-carbon future  
powered by renewables

## Applied Materials invests in transforming our business to Make Possible a Better Future for our industry.

### INTRODUCTION

As the effects of climate change continue to impact our lives and economy with increasing frequency, the demand for corporate action becomes more urgent. Semiconductor manufacturing is being recognized as a growing contributor to GHG emissions.<sup>1,2</sup>

### PURPOSE

At the same time, the semiconductor industry is powering a digital transformation that can fundamentally reshape our future to be more sustainable, equitable and just. Big emerging technologies such as artificial intelligence (AI), Internet of Things (IoT), electric vehicles (EVs), and 5G/6G networks are creating unprecedented demand for semiconductors across the industry, while geopolitical pressure is prompting legislative action by the U.S. and EU to ramp up domestic production. As the leader in materials engineering solutions, we recognize the opportunity this presents and the responsibility it requires, and we are working to demonstrate sustainable transformation by example.

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Across our facilities, our value chain and the geographies in which we operate, we are doing our part to accelerate the transition to a low-carbon future. In 2022, Applied experienced record business growth as we aggressively addressed a significant order backlog spurred by pandemic-related supply chain disruptions. Although our Category 11 (use of sold products) carbon emissions doubled during this period of rapid growth, we still saw improvements in per-wafer emissions intensity. This is due, in part, to changes in our product mix year-over-year, adjustments to our process recipes, and progress toward our [3x30 goals](#).

We are expanding our use of renewable electricity, including onsite solar installations and Power Purchase Agreements (PPAs), as we work to reduce our Scope 2 emissions. Largely through our VPPA with White Mesa Wind, we reached our goal of being fully powered by renewable electricity in the U.S., and we are 69% of the way toward 100% renewable electricity globally. To help drive global demand for renewable electricity across our industry and expedite the transition to clean energy sources, we work with key customers and engage in industry coalitions and collaborations such as RE100 and the Clean Energy Buyers Alliance (CEBA).

Since about 80% of our emissions are tied to customer use of Applied products, enabling more efficient energy consumption by our customers and the semiconductor industry as a whole is just as essential as transitioning to clean energy. Through innovations like those associated with our 3x30 goals, we are working to significantly reduce the total equivalent energy and emissions impact associated with our semiconductor products. In 2022, we set a new goal to reduce per-wafer Scope 3 Category 11 emissions by 55% by 2030 and have submitted the goal for SBTi validation.

We are committed to decoupling growth from our carbon emissions footprint so we can meet soaring demand while protecting the planet. Through cross-industry collaborations like the Semiconductor Climate Consortium, we are engaging on policy, sharing learnings, and problem-solving collectively to speed progress for our business, our customers, our industry and the world.

## Key Highlights

### 1X

- Reached 100% renewable electricity in the U.S. and 69% globally; defined a roadmap to reach 100% renewables globally by 2030
- Began installation of a 5.6 megawatt solar array across three quarters of the Applied Materials Logistics Service Center roof—the largest rooftop solar array in Central Texas
- Set science-based Scope 1, 2 and 3 emissions reduction targets, with SBTi validation expected in 2023
- Achieved a decrease in water intensity even as absolute water withdrawal increased due to business growth; improved our CDP water rating to B
- Completed a Cold Aisle Containment System retrofit on our main data center, achieving Power Use Effectiveness (PUE) reductions estimated to save 306,200 kWh of electricity annually<sup>3</sup>

### 100X

- Joined RE100, a global initiative led by The Climate Group and CDP, comprised of businesses committed to 100% renewable electricity
- Continued to invest in, and advance progress toward, identifying solutions across our semiconductor products and OLED technology to lower energy consumption and emissions
- Continued to advance automated carbon footprint data capture associated with process cooling water (PCW) in semiconductor manufacturing

### 10,000X

- Became a Founding Member and Governing Council Member of the Semiconductor Climate Consortium, which works across the semiconductor value chain from equipment manufacturers to fab operators to device manufacturers to reduce technology's GHG impacts

<sup>1</sup> <https://www.bloomberg.com/news/articles/2021-04-08/the-chip-industry-has-a-problem-with-its-giant-carbon-footprint>

<sup>2</sup> Proceedings – International Symposium on High-Performance Computer Architecture, February 2021, 854–867; <https://asu.pure.elsevier.com/en/publications/chasing-carbon-the-elusive-environmental-footprint-of-computing>

<sup>3</sup> Based on average server load of 562 KW

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GOAL	FY22 PROGRESS	UN SDG
100% of electricity at Applied globally comes from renewable sources by 2030, with an interim goal of 100% in the U.S. by 2022	69% globally 100% U.S., achieving our interim goal	<b>7</b> AFFORDABLE AND CLEAN ENERGY 
50% reduction in Scope 1 and Scope 2 CO <sub>2</sub> e emissions by 2030 (from 2019 baseline)	Scope 1 and Scope 2 CO <sub>2</sub> e emissions increased 23% in 2022, but decreased 3% from our 2019 baseline Target submitted to SBTi for validation	<b>13</b> CLIMATE ACTION 
<b>New goal:</b> 55% reduction per wafer of Scope 3 Category 11 emissions by 2030 (from 2019 baseline) for semiconductor products	Targets submitted to SBTi for validation	<b>13</b> CLIMATE ACTION 

# Climate and Energy

While growth in our facilities footprint and production output caused Applied's total energy consumption to rise 7% in 2022, our successful renewable electricity strategy reduced the impacts of our Scope 1 and 2 emissions. By achieving 100% renewable electricity in the U.S. and 69% globally, we were able to reduce our Scope 1 and Scope 2 emissions footprint by 3% from our 2019 base year.

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In a year of unprecedented demand across the semiconductor industry, we saw our Scope 3 Category 11 emissions (use of sold products) for semiconductor products nearly double from our 2019 baseline. Given the strong and increasing demand for our products, we anticipate this robust business growth will continue over the coming decade. To limit the environmental impacts of that growth, we are working toward SBTi validation of our [Paris-aligned](#) science-based targets. Successful completion of these targets would encourage product and operational efficiencies and a 100% global shift to renewable power in order to achieve a 50% absolute reduction in Scope 1 and 2 emissions and a 55% reduction per wafer in Scope 3 Category 11 emissions for semiconductor products, both by 2030 (baseline: 2019).

**Applied Materials maintains memberships in corporate groups working to drive sustainability:**

**Semiconductor Climate Consortium (Founding Member, Governing Council Member)**

**Leadership Group on Semiconductor Industry Association PFAS Consortium**

**imec Sustainable Semiconductor Technologies and Systems (SSTS) program**

**RE100**

**Clean Energy Buyers Alliance (CEBA)**

**SUPPORTING BIODIVERSITY CONSERVATION**

Applied Materials understands that protecting biodiversity is an essential part of maintaining healthy ecosystems, protecting watersheds, and supporting a future in which global temperature rise is limited to 1.5°C above pre-industrial levels. While we do not operate in biodiversity-sensitive regions or employ commodities that impact biodiversity, we nevertheless perform thorough environmental assessments when planning construction of any new real estate facilities and prioritize building on land in our existing portfolio.

We are in the process of evaluating opportunities to support biodiversity efforts, particularly nature-based carbon-removal projects, and will be announcing our participation at the appropriate time.



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## Climate Risks

Applied Materials monitors current and emerging climate-related risks on an annual basis. Responsibility for evaluating company-wide risks is initiated by the ESG team and shared with relevant enterprise risk management (ERM) stakeholders. Site-specific risks are monitored and managed by Applied’s Business Continuity Planning (BCP) team, as well as local facilities teams and EHS teams. When planning new sites, we consider the relative climate risk of candidate sites. Our risk identification, mitigation and management plans help ensure our ability to recover quickly from climate-related events and effectively support our customers’ and suppliers’ operations.

In line with recommendations from the Task Force on Climate-related Financial Disclosures (TCFD), Applied contracted a third party to conduct a two-year Climate Risk Assessment, identifying key physical risks across our global operations as well as transition risks and opportunities across our value chain. Phase 1 of the assessment, completed in 2020, gauged physical risk exposure across our global operations by identifying our highest-risk assets and operations based on various chronic and acute geographical climate hazard indicators. The assessment utilized three different Representative Concentration Pathways (RCPs) representing low-, moderate-, and high-risk climate change scenarios for 2019 (baseline), 2030, and 2050.

Phase 2, which concluded in March 2022, provided insights on Applied’s projected risks associated with the transition to a low-carbon economy between 2025 and 2050. Benchmarked against our industry peers, the assessment gauges relative risk levels across four key areas—policy and legal, market, reputation and technology—in which climate risk mitigation and adaptation strategies may shift asset values and raise business and compliance costs.

To date, we have not identified any material climate-related risks with the potential to have a substantive financial or strategic impact on our business. Applied plans to re-run a comprehensive physical and transition climate risk assessment in 2023.

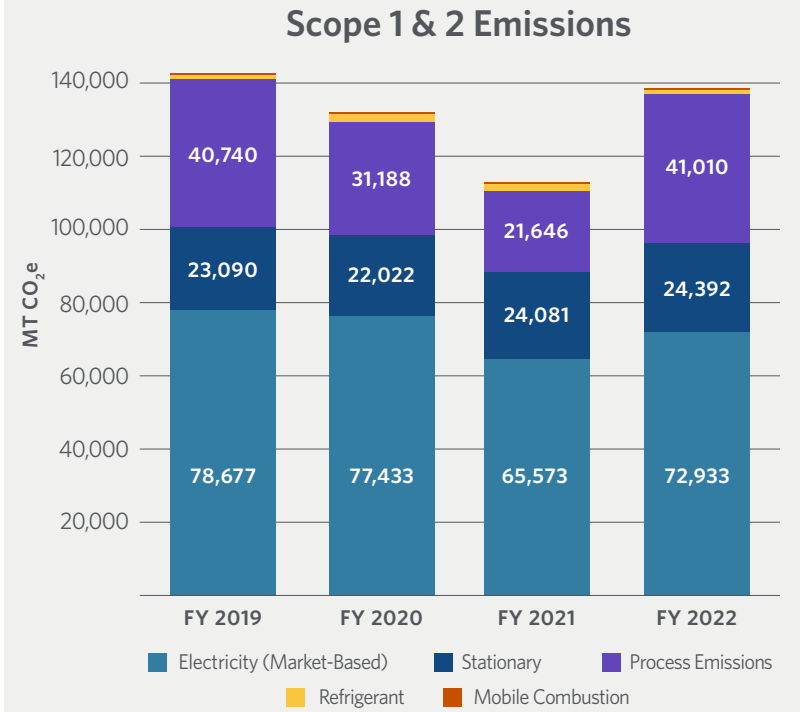
See the [TCFD Index](#) in our Report Annex for assessment results.

## Scope 1 and 2 Emissions

The largest part of our Scope 1 and 2 footprint is traceable to the power needs of our factories and labs, which represent our primary opportunity for change. In 2022, we completed work with energy consultant 3Degrees on a renewable energy strategy and roadmap that will expand our renewable energy portfolio to achieve our goal of 100% renewable electricity globally by 2030, with associated drops in Scope 2 emissions.

In 2022, Applied Materials’ Scope 1 and 2 market-based emissions totaled 139,486 metric tons of carbon dioxide equivalent (CO<sub>2</sub>e), representing a 3% decrease from base year FY19. Although we made substantial progress on Scope 1 and 2 reductions between FY19 and FY21, a jump in business production in FY22—notably, an increase in process gas use in our R&D labs and higher electricity consumption in our Asia operations—countered the reductions we gained from reaching 100% renewable electricity in the U.S. Since 2021, our consumption of electricity and natural gas increased by 8% and 2% respectively, aligning with our 5% operational footprint growth during the same period.

Although our consumption of process gases increased dramatically over 2021 (+89% year over year), the increase since base year 2019 was only 1%. Process gas emissions are driven primarily by the requirements of tools being tested in our R&D labs. Applied is working both internally and through industry groups to identify solutions to lower the impact of these gases through efficiency measures, identification of lower-impact gases, and better abatement technologies.



# Renewable Energy

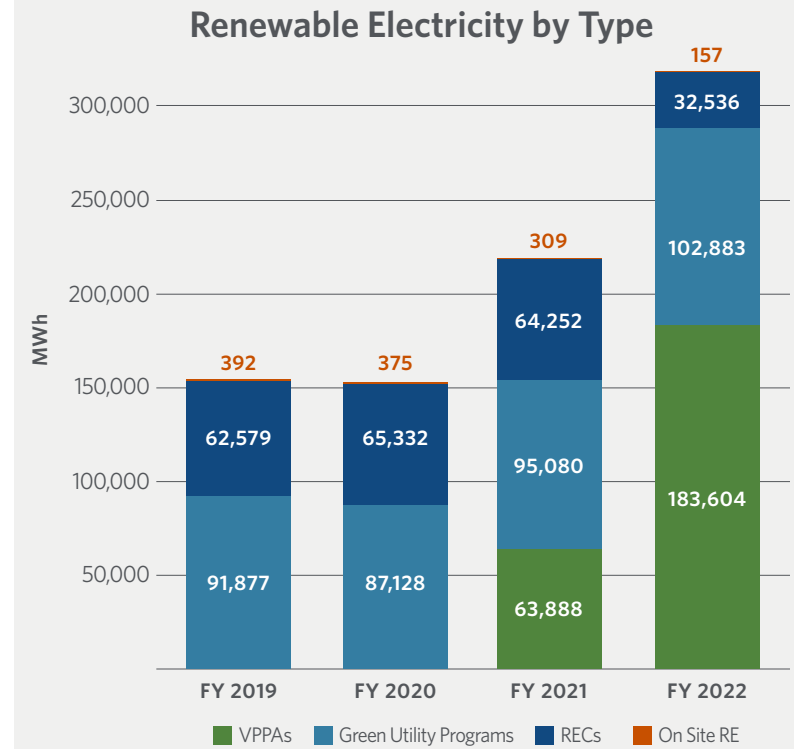
In 2022, we achieved our goal of powering Applied’s U.S. operations with 100% renewable electricity and reached 69% in our worldwide renewables rate.

In partnership with energy consultant 3Degrees, we completed a roadmap to help us assess current renewable energy opportunities across key global markets, prioritize near-term sourcing, improve consumption forecasts, and scale procurement to meet demand—bringing us closer to our goal of 100% green power by 2030, worldwide.

Our global renewable energy strategy relies on four complementary approaches:

- **On-site solar power generation:** Applied Materials maintains on-site solar generating capacity at our facilities in Sunnyvale, CA; Austin, TX; Singapore; Bangalore, India; and Xi’an, China. Combined, these arrays generated 157 MWh of clean power in 2022. Three additional solar projects are in progress: a new 5.4 MW system at our Logistics Service Center (LSC) in Austin, TX; a 4 MW onsite/offsite solar project in Rehovot, Israel; and a 700 kW onsite solar plant in Taiwan. The LSC array is expected to be Applied’s largest on-site system and the largest rooftop installation in Austin.

- **Virtual Power Purchase Agreements:** Financial contracts with external solar, wind and other renewable energy generating projects reduce our Scope 2 emissions inventory by delivering clean power to the grid. We have a VPPA with the White Mesa Wind project, which began operations in October 2021 and was fully operational throughout 2022.
- **Utility green procurement programs:** We purchase renewable energy directly from utility providers in Santa Clara and San Jose, CA; Austin, TX; and Alzenau, Germany.
- **Renewable Energy Credits:** Our White Mesa VPPA currently represents 58% of our total global renewable energy and 59% of our total U.S. renewable energy portfolio. We also participate in green utility programs (32% of global portfolio) and purchase renewable energy certificates (RECs) (10%). Through these strategies, Applied enabled 319,180 MWh of green power in 2022, covering all our U.S. and 69% of our worldwide electricity footprint — a year-over-year improvement of more than 37% in the U.S. and 32% globally.



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“Working at Applied enables me to broaden my global perspective and foster my boundless creativity in my jobs. My fervor lies in engaging employees in corporate social responsibility, evident by the gleaming dedication in their eyes while participating in volunteerism. I strongly believe that each sustainability measure we implement for the betterment of our employees and society will have a positive impact not only on our company but also on our community.”

**Pearl**  
Hsinchu, Taiwan



**Fortune**  
**500<sup>®</sup>**  
PARTNERS

NATIONAL  
**Top-100**  
USER OF GREEN POWER

**Top-30**  
TECH AND TELECOM

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## Scope 3 Emissions

In early 2022, we completed a 2019 Scope 3 emissions inventory for our semiconductor products, giving us a baseline from which to report our Scope 3 inventory for both FY21 and FY22. Our Scope 3 emissions grew substantially in 2021 and then nearly doubled in 2022 (from our baseline year) due to record-breaking production following an order backlog from the COVID-19 pandemic and increasing demand to support emerging technologies. Despite this rise, we saw improvements in emission intensity driven by fluctuations in our product mix, changes to process recipes, and progress toward our [3x30 objectives](#).

Among the 15 categories defined by the Greenhouse Gas Protocol, **Category 11, Use of Sold Products**, continues to represent by far our largest share of Scope 3 emissions (78% in FY22). This category denotes the total emissions from all Applied semiconductor products sold during a reporting year, estimated over the average lifetime of those products (10 years, as described below) and includes emissions from both the technology’s energy draw in customer fabs and the chemicals and gases used in chip-making processes.

**Category 1, Purchased Goods and Services**, is the second largest contributor to our Scope 3 footprint (16%), representing Applied’s estimated upstream supply chain emissions. This category includes all upstream (i.e., cradle-to-gate) emissions from the production of products purchased or acquired by us in the reporting year.

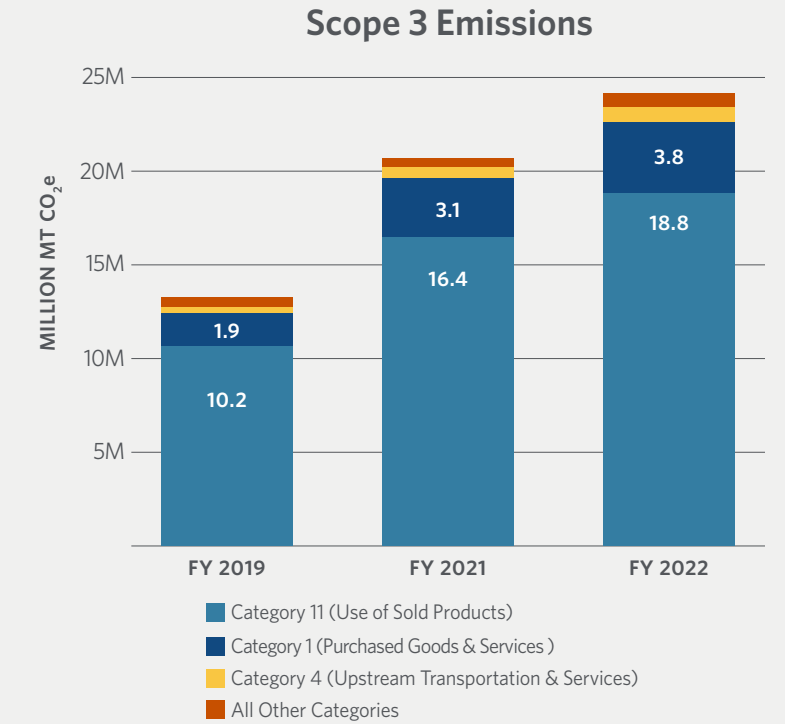
While we are in the process of developing semiconductor guidelines for Category 11 emissions through the Semiconductor Climate Consortium, we have developed our own methodology building on the SEMI S23 standard (related to energy, utilities and material use efficiency) to test and model our tools’ energy and process gas consumption in order to estimate product-use emissions. For the purposes of our assessment, we include emissions not only from sold products but also from certain non-Applied ancillary and subfab equipment required for the tools’ operation, such as pumps, cooling systems and point-of-use abatement systems. Our calculation assumes an average 10-year product lifespan across all Applied tools and technologies. However, because customers and third parties frequently extend

the life of Applied products through refurbishment (a plus for circularity and reuse, but a complication for GHG accounting), we plan to continue to review and refine our estimates and assumptions. Once better data becomes available, we plan to add product-use emissions data from our Display and Adjacent Markets segment to our annual emissions reporting. In 2022, Display represented 5% of our total sales.

In 2022, we improved the granularity of product groups modeled for Category 11 and applied more specific grid emission factors based on the countries to which the tools are shipped. We also made improvements to our Scope 3 calculations for Categories 6 (Business Travel), 7 (Employee Commuting), and 15 (Investments). For a complete overview of these updates, see our [Scope 3 methodology](#).

Applied continues to review the methodology annually to refine its calculations, emissions factors, data, estimates and underlying assumptions, aiming to replace our use of Environmentally Extended Input-Output (EIO) model estimates with primary data wherever possible. We will report any resulting changes and implications.

See our [Report Annex](#) for complete 2021 and 2022 Scope 3 emissions reporting.



FY 2020 not included due to abnormal business operations related to COVID-19 pandemic.

### BUSINESS TRAVEL EMISSIONS PLATFORM

Applied implemented a third-party business travel emissions platform in 2022 that will go live in 2023, helping our company and employees identify opportunities to decrease emissions and drive further carbon savings. Calculating emissions data across air, hotel, train and car (rental/taxi) transportation, the platform will include a baseline CO<sub>2</sub> dashboard with data from January 2019 through December 2021. By providing traveling employees with real-time, point-of-sale information on their CO<sub>2</sub> impacts, the platform can inform decisions to shift spending to better suppliers and more climate-friendly transportation options, supporting employee engagement with our Scope 3 emissions reduction goals.

# Environmental, Health and Safety

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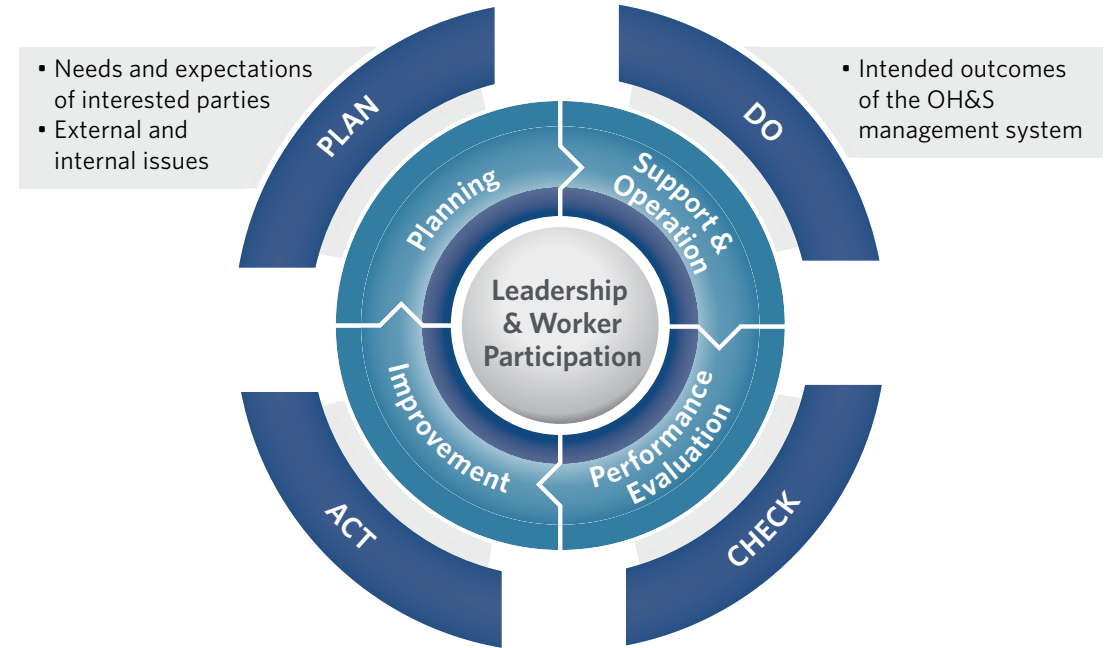
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Our emissions reduction efforts are only one part of Applied Materials' overall commitment to reducing our environmental impacts. Throughout our global operations, we also work continuously to promote safe and healthy work environments for our people and to conserve resources, reduce waste and demonstrate environmental leadership in our communities.

Our labs and manufacturing facilities account for the largest share of our global energy and water consumption. Throughout 2022, we continued to pursue corporate-level initiatives and site-specific conservation, efficiency and recycling/reuse programs to improve energy, waste and water management across our global footprint.



## EHS Policies, Systems and Governance

Applied Materials' [EHS policy](#) commits our company to conducting business operations in a manner that preserves the environment and protects the health and safety of workers, customers and neighboring communities. The policy is signed by our President and CEO, distributed to all Applied locations globally, and referenced often during site team and management meetings.

Our EHS organization is an integrated entity with teams responsible for EHS in on-site operations (including construction, fire and life safety, and contractor safety), hazard and risk identification, customer site support operations, emergency preparedness, environmental management and product safety. The organization conducts these efforts under the guidance of our EHS policy and with

the support of company management, and provides the Board's Corporate Governance and Nominating Committee with both quarterly and in-depth annual EHS reports.

We implement our EHS policy through our Environmental Health and Safety Management System (EHSMS), which conforms with international management system standards such as ISO 14001, ISO 45001, OSHA's Voluntary Protection Program (VPP), and EHS documentation to the requirements of ISO 9000. The EHSMS builds upon our EHS policy and provides management leadership and policy around:

- **Planning:** Legal compliance, risk assessment and controls, objectives and targets, and EHS programs

- **Implementation and operation:** Program structure and responsibility, training, awareness and competency, communication, documentation, operational control, and emergency preparation and response
- **Checking and evaluation:** Compliance and performance monitoring, investigations to identify root causes and corrective actions, and performance of EHSMS audits
- **Management review:** Addressing gaps, setting objectives, and implementing EHSMS improvements

A list of ISO certifications for our manufacturing sites is available on our [website](#).

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# Energy Management

Applied Materials is committed to maximizing energy performance and minimizing consumption through:

- Continuously monitoring energy use and conducting energy audits
- Building optimal energy efficiency into all new facility construction, such as through U.S. Green Building Council LEED certification
- Purchasing more energy-efficient new equipment
- Optimizing the temperature of chilled water used in our operations
- Transitioning to 100% renewable electricity worldwide by 2030

Applied’s total energy use grew by 7% in 2022, tracking growth in both demand for our products and in our real estate footprint (+5%). Our energy intensity fell, however, as measured against both revenue and employee headcount.

See the [Climate and Energy](#) section of this report for more on our emissions and renewable power commitments.

“It is necessary to create awareness among employees on how ESG is impacting the business as well as the planet they live in. It is the responsibility of each of us to save the resource for future generations. This is in alignment with our vision statement Make Possible a Better Future.”

**Nicily**  
Bangalore, India

## 2022 ON-SITE ENERGY CONSERVATION AND EFFICIENCY PROJECTS

In 2022, energy and waste reduction efforts produced significant results at Applied Materials sites around the world. Here are some highlights:

- At our Taiwan manufacturing facility, optimization of HVAC fan filter units and makeup air units for cleanroom operation produced energy savings of 498,234 kWh/year.
- In Santa Clara, CA, installation of a dedicated three-ton split AC unit for a commonly used room produced a 481,180 kWh/year savings versus running the entire building’s 25-ton AC system.
- In another Santa Clara building, reprogramming of rooftop AC units to stage down during non-occupancy hours and adding split HVAC units for some rooms resulted in a 558,450 kWh/year savings.
- In Rehovot, Israel, office areas underwent a major internal renovation implemented in conformance with the Israeli Green Building Standard–renovation projects (ISGBC 5281), using locally sourced, low-impact materials and energy-efficient lighting.
- All Applied Silicon Valley sites in California installed Chargepoint EV charging stations, accounting for a reduction of 378,515 pounds of CO<sub>2</sub> per year.

## GREEN IT EFFORTS

Applied is in the midst of a multi-year effort to reduce our data center footprint through optimization and a shift to cloud computing. Projects completed or currently in progress include:

- **Austin Cold Aisle Containment:** Our Primary Data Center completed a 2022 retrofit to a Cold Aisle Containment system to optimize air flow efficiency and reduce the amount of energy required to cool IT infrastructure, resulting in annual electrical savings of 306,200 kWh.
- **Santa Clara Data Center:** In Q1 2023, we completed migration of our disaster recovery solution and other services to the cloud and moved all remaining services from an inefficient data center to a modern data center co-location facility that utilizes Bloom Energy fuel cells as its primary source for powering IT loads. These projects resulted in a net energy reduction of 20kW.
- **Amsterdam Colocation Data Center:** We migrated a Teamcenter instance to the cloud, reducing power from 110kW to 80kW. Retirement of Teamcenter equipment is expected to be complete in Q2 2023, resulting in a further 40kW savings.

# Waste Management

Applied is committed to minimizing waste across our locations and logistics operations, with a special focus on non-recyclable, landfill-bound waste.

Waste reduction, reuse and recycling programs are managed at the site level and have been successful in minimizing generation of paper waste, increasing reuse and recycling of product and packaging materials, implementing sorting of recyclables at point of disposal, and maximizing composting of organic materials from our cafeteria operations. Waste management targets are set for individual manufacturing sites based on the ISO 14001 framework and are reviewed on an ongoing basis and scored annually.

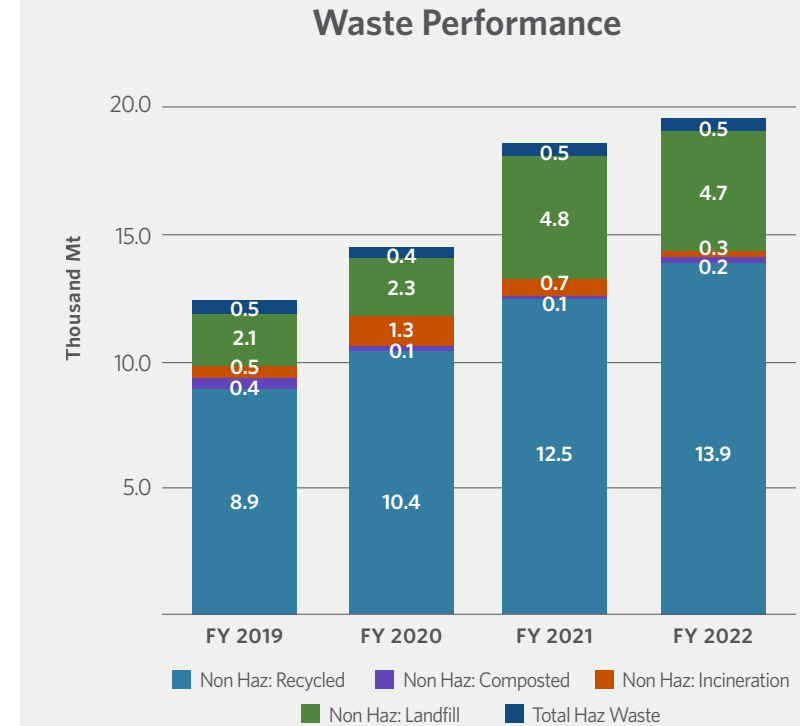
In 2022, Applied increased our volume of recycled waste by 11% over 2021 and 56% over 2019. We also increased our diversion rate from landfill/incineration to 72%, up 5% since 2021; however, multi-year growth in our manufacturing activities and better data reporting have kept our current rate lower than in 2019.

Generation of hazardous waste rose by 5% from 2021 to 2022, mirroring our 5% growth in real estate footprint.

Our compost program continues to grow, but remains a very small percentage of our overall waste. See the [Design for Sustainability](#) section for information on our responsible product and packaging initiatives.

**Hazardous waste management:** Hazardous waste accounted for 3% of our annual waste output in 2022. We contract with licensed third parties to transport waste (including hazardous waste) for off-site disposal, consistent with applicable laws and regulations. Our EHS organization provides oversight of third-party hazardous material disposal companies and verifies that all disposal sites and methods meet regulatory requirements. We also evaluate potential vendors via the CHWMEG Facility Review Program, which provides environmental, operational and financial information on waste treatment, disposal, recycling and storage facilities.

**Wastewater management:** Applied strives to reduce the negative impacts of wastewater produced by our operations, monitoring to ensure sufficient removal of solids and adherence to permitted parameters (e.g., pH and fluoride content) before discharge to publicly owned treatment works. Each Applied site is responsible for wastewater monitoring, with problems escalated to the site management team and applicable corporate staff for immediate correction.



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2022 Waste Performance	Metric Tons
Total waste generation	19.6
Diversion rate	72%
Total non-hazardous waste	19.1
Diverted non-hazardous waste	13.9
Non-hazardous waste to landfill/incineration	5.0
Compost	0.2

## RECYCLING AND CIRCULARITY SOLUTIONS FOR RENOVATION WASTE

During 2022 renovations at our Santa Clara headquarters campus, our facilities team partnered with Green Standards to salvage decommissioned furniture, equipment and other materials and repurpose them through charitable donation, resale and recycling—keeping them out of a landfill while generating positive local impact.

At the launch of this project in April, we set out to divert 100% of decommissioned materials. By the project's conclusion, we'd reached that goal by diverting 102 tons of materials, 84% through recycling and 16% (worth \$23,615) through donations to 17 community organizations, including seven schools. Cumulatively, these efforts resulted in a savings of 294 metric tons of CO<sub>2</sub> emissions.

# Water Management

In 2022, business growth caused our absolute water withdrawal to increase slightly (5% over 2021), but our water intensity per employee has declined to a current value of 0.09 (from 0.14 in 2019) and our CDP Water score improved from C to B.

Overall, Applied’s operations are not high-volume water consumers relative to our industry, but we nevertheless strive to optimize water use across our facilities. Ninety-five percent of our water use is in lab or mixed-use buildings, with our R&D labs accounting for our highest consumption of ultrapure water, followed by our manufacturing operations, routine use at our offices, and landscape irrigation. We are currently in the process of enhancing our water policy, establishing reduction targets, and creating water-efficiency strategies for new labs. Our water conservation efforts include:

- Designing water-efficient products, following best practices for tool design and specifications for water use outlined in SEMI industry requirements
- Water recycling and reuse for non-potable applications, especially cooling and landscape irrigation
- Rainwater collection at certain sites for use in landscaping or non-production needs
- Drought-tolerant landscaping and smart irrigation to reduce the number of watering days

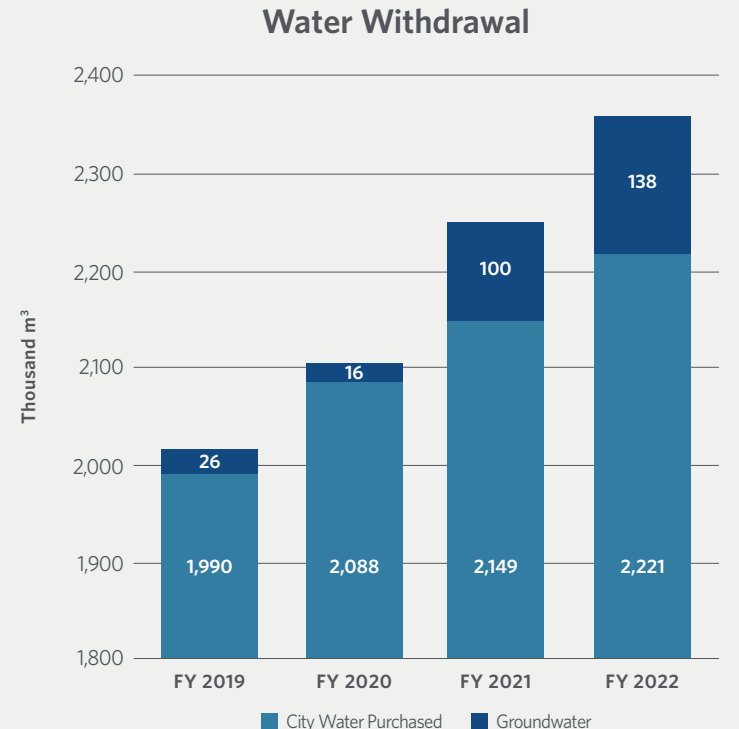
Facilities groups are responsible for water use management at specific Applied sites, with oversight from the company’s EHS organization. Our Vice President of Global EHS is responsible for ensuring that water-related risks and minimization opportunities are assessed as appropriate. Water reduction is covered under our EHS policy and ISO 14001 EHSMS, which call for our business operations to identify opportunities, make continual improvements on environmental preservation and natural resource conservation, and meet or exceed all relevant regulatory requirements.

**Manufacturing and product water use:** Only a few select types of Applied tools require ultrapure water in production processes. Most of our tools require cooling water, which runs in a closed-loop process and is negligible in terms of water consumption. Because of this, our focus on water has come through the lens of energy efficiency—for example, looking at hardware and software processes that reduce water flow for our equipment and thus the energy required to pump that water. As an example, clamp-on ultrasonic water flow meters can provide data on the velocity of liquid flowing through a pipe, which can then be used to calculate water volume. As part of our Design for Sustainability program, we communicate these types of optimization strategies to our largest customers, which collectively represent over 70% of our Scope 3 Category 11 emissions, driving energy and water reductions.

As part of our 3x30 product efficiency modeling initiative, Applied is starting to gather water consumption indicators across all our tools in order to identify efficiency opportunities for specific tools and enable engagement with customers on future water use reduction strategies. Engagement success is measured through the total number of projects where efficiency measures are implemented across our tools, and the total reductions associated with such projects.

**Water risk evaluations:** Using the World Resources Institute (WRI) Aqueduct tool, Applied Materials conducts an annual analysis to better understand current and future water risks, identify facilities located in regions with medium high, high and extremely high water risk across our global operations, and track their ongoing water use.

In 2020–21, an additional gauge of water stress risk was included in an assessment of physical climate risks conducted for Applied by Trucost, which identified top facilities that, due to their location, are expected to be subject to higher associated risks between 2020 and 2050. Facilities identified for medium high, high and extremely high water risk are in Xi’an, China (representing 67% of our total water stress withdrawal); Rehovot, Israel (21%); and Arizona, U.S. (9%).



## 2022 ON-SITE WATER EFFICIENCY PROJECTS

Applied Materials sites around the world are continually working to optimize their water use. Here are some standout efforts from 2022:

- Our lab in Taiwan installed a new process wastewater recycling system, saving 2,624,166 gallons in FY22
- Our lab in Xi’an, China, upgraded four local scrubbers, conserving 2,373,800 gallons of water annually
- Our facility in Austin, TX, began using HVAC condensate for landscape irrigation, conserving 1,364,580 gallons of water annually

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# Innovate for Progress

Advancing innovations that  
enable our customers—and  
their customers—to reduce  
environmental impacts



## Applied Materials is committed to empowering transformative, high-performance innovation that consumes less energy, while also optimizing the life of our existing materials and tools.

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We continue to drive progress toward our 3x30 goals, reducing energy and chemical consumption while simultaneously reducing our tools' physical footprint to enable cleanroom efficiencies. These goals contribute to our broader ambition to drive rapid and dramatic improvements in chip performance, power, area, cost and time to market (PPACT) across our industry.

Traditional Moore's Law scale is slowing, and the semiconductor industry must find new ways to increase chip performance—while also consuming less power. Increasingly smaller process nodes means there is less physical space available on a chip for processors. At the same time, the market is demanding significantly faster time to market for new chip designs. Solving this materials engineering challenge is urgent, and doing so will benefit the entire technology ecosystem.

Applied is the PPACT Enablement Company™, accelerating a new PPACT playbook for our customers and partners and providing the broadest and deepest portfolio of products for delivering materials engineering innovations to market. Innovations like our Integrated Materials Solutions, which combine multiple processes with customized metrology and sensors in a single system, help our customers create faster, more efficient chips. The

Centura® Sculpta® pattern-shaping system, released in early 2023, helps chipmakers reduce process complexity while continuing to shrink designs—saving energy, reducing greenhouse gas emissions and cutting water use. Applied is also advancing OLED display technology with a device architecture that enables a maskless solution and high material utilization, which reduces energy use and carbon emissions associated with both manufacturing and lifecycle use of the final display product.

As we innovate for the next generation of transformative technology, we're also working to keep existing materials and tools in use longer, helping to advance a more circular economy.

Recognizing that our supply chain plays an essential role in delivering on our ESG strategy, we created a strategic 10-year roadmap, Supply Chain Certification for Environmental and Social Sustainability (SuCCESS2030), to grow our suppliers' ESG capabilities and performance. Three years into the effort, we continue to drive steady progress on aligning suppliers with our business standards, encouraging and supporting robust diversity and inclusion strategies within suppliers' operations, and increasing our own percentage of spend with women- and minority-owned suppliers.

## Key Highlights

### 1X

- Deployed EcoTwin integrated software platform to reduce the environmental impact of wafer manufacturing tools and related subfab support equipment; currently being evaluated in etch tools at Applied labs and a customer site
- Released the ALTA 3900DP mask patterning tool that reduces power consumption 83% compared with the previous generation tool; an upgrade is available for existing tools
- Conducted a carbon footprint analysis of an electrostatic chuck comparing refurbishment and reuse to single-life use—finding 34% lower footprint for one reuse cycle, 50% for three cycles
- Added more Design for Safety (DfSafety) requirements in our product development process for all product lines, and incorporated a new company-wide Community of Practice to foster greater visibility and collaboration related to product safety

### 100X

- In early 2023, we announced the Centura® Sculpta® pattern-shaping system, a transformative innovation developed in collaboration with leading customers to help them reduce the number of processing steps needed in advance-node chipmaking, resulting in reduced GHG emissions and water use
- Assessed about 50% of our top 80% of suppliers by spend and top 95% of high-risk supplier sites according to the RBA Risk Assessment Model; balance to be completed in 2023
- Conducted GHG survey of 102 suppliers representing approximately our top 65% by spend; using data to set targets and to help suppliers develop emissions reduction strategies
- Offered a structured learning program for our suppliers to close gaps across our ESG focus areas, conducting 24 webinars across two time zones in 2022

### 10,000X

- Co-hosted the CHIPS CEO Summit 2022 with Global Foundries and Ford, to discuss how the CHIPS and Science Act can accelerate semiconductor manufacturing and strengthen the U.S. economy, supply chains and national security
- Joined imec's Sustainable Semiconductor Technologies and Systems (SSTS) Program to work with industry partners in solving for ecological challenges shared throughout the semiconductor value chain

# Goals and Progress

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## 3x30 Goals

GOAL	FY22 PROGRESS	UN SDG
Reduce equivalent energy consumption per wafer for semiconductor products by 30% by 2030 from 2019 baseline	Average per-wafer energy use decreased ahead of schedule, in part due to changes in the mix of products sold. While we expect the reduction rate to slow, we are on track to meet or exceed our 3x30 target.	12 RESPONSIBLE CONSUMPTION AND PRODUCTION
Reduce the impact from chemical consumption per wafer for semiconductor products by 30% by 2030 from 2019 baseline	Design for Sustainability (DfSu) team and its engineering partners in the product business units are pursuing multiple development projects that will significantly reduce chemical impact. Some of these initiatives are expected to be multi-year efforts, but we are on track to meet or exceed the 3x30 target.	12 RESPONSIBLE CONSUMPTION AND PRODUCTION
Reduce tool footprint per production unit ratio (sqm/wph) for semiconductor products by 30% by 2030 from 2019 baseline	Footprint reduction to date is largely the result of productivity improvements in existing tool architectures. As new product architectures begin volume shipments to customers, footprints will be further reduced and are expected to meet or exceed the 3x30 target.	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

## SUCCESS2030 Goals

GOAL	FY22 PROGRESS	UN SDG
<b>New Goal:</b> Collect GHG data from top suppliers and partner on reduction targets	Conducted GHG surveys with over 100 top suppliers in FY22	12 RESPONSIBLE CONSUMPTION AND PRODUCTION
Drive compliance with RBA Code of Conduct and Applied Materials Standards of Business Conduct	Conducted audits of over 65 top-tier suppliers in FY22	5 GENDER EQUALITY  10 REDUCED INEQUALITIES
Increase the percentage of spend with, and representation of, women- and minority-owned businesses by 2024, aiming to reach \$1 billion in diverse spend by 2027	Met our interim goal of increasing diverse spend to 2.5% of total global supplier spend, spending \$462 million with certified diverse suppliers in 2022	5 GENDER EQUALITY  10 REDUCED INEQUALITIES
Transition the supply chain to recyclable content packaging, with a target of 80% by year-end 2023	As of 2022, we reached 70% and are on track to meet our 2023 goal	12 RESPONSIBLE CONSUMPTION AND PRODUCTION

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# Design for Sustainability

Enabling the PPACT playbook is an extension of our ongoing 3x30 focus, which defines Applied’s goals for reducing our semiconductor products’ energy consumption, chemical consumption and footprint intensity, all by 2030.

Engineers in our Semiconductor Products Group (SPG) include sustainability as a core criterion on new product performance scorecards, assuring that we employ Design for Sustainability (DfSu) methods and principles from the earliest stages of design—innovating systems that consume fewer resources, last longer and support circularity through end-of-life reuse or recycling.

We also work continuously to improve the sustainability performance of our existing products, both through built-in innovation at the manufacturing stage and through upgrading existing systems and developing new tools, service products and efficiency strategies.

Our comprehensive, industry-leading effort encompasses three core elements:

- **Our DfSu Center of Excellence**, which supports our product design teams in developing more sustainable technologies and processes
- **A proprietary modeling tool** that quantifies the energy, chemical and footprint impacts of past, present and future tool designs
- **Customer partnerships** to innovate efficiencies in our tools and processes, boost industry-wide sustainability, and deliver broad benefit to the planet

In 2022, we made significant progress in providing our customers with continuous emissions and energy consumption data that empowers them to take immediate action to improve the sustainability performance of semiconductor manufacturing.

Applied is globally certified to ISO 9001:2015 for quality management. Click [here](#) for additional certifications.



“Working at Applied Materials for 17 years has taught me that there are no obsolete points of view when it comes to taking technology to its edge. My team succeeds when we combine all of our different perspectives into one optimal product.”

**Michal**  
Rehovot, Israel

# Design for Sustainability Center of Excellence

Within Applied's Systems Engineering organization, our DfSu Center of Excellence (DfSu) analyzes both in-design and existing semiconductor product sets to identify new reduction opportunities for energy, water, waste and chemicals. Through this design support, the DfSu expands our product groups' responsibilities to include both performance improvements and power reductions. By adding to our existing portfolio of energy-saving product enhancements, we're able to share energy optimization opportunities with our customers and model sustainability leadership industry-wide.

In Bengaluru, India, the DfSu concept and prototyping lab supports our U.S. product design teams in developing a library of sustainability improvement solutions for our products, advancing 3x30 metrics to normalize comparisons between tools and business units, and promoting standardized methodologies to drive energy and chemical use reductions.

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### ECOTWIN SOFTWARE PLATFORM

A major highlight of our 2022 product sustainability efforts was the development of EcoTwin, an integrated sustainability software platform designed specifically to reduce the environmental impact of wafer manufacturing tools and related subfab support equipment.

EcoTwin enables first-principles understanding of all wafer fab and subfab systems, combining sensor data from our tools with extrinsic IoT electrical sensors to provide a holistic demonstration of energy consumption and support optimization efforts. Sensors monitoring process cooling

water, compressed dry air and house nitrogen can be seamlessly integrated to the platform, which also allows engineers to track and compare carbon impacts of different wafer recipes with component and chemical granularity.

EcoTwin is currently deployed and being evaluated in etch tools at Applied labs and a customer site. We anticipate releasing it in three stages: EcoTwin Monitor visualization dashboard, EcoTwin Explore for quantifying scenarios, and EcoTwin Improve for autonomous adjustments.



### ICAPS EFFICIENCY WINS

Our ICAPS (IoT, Communications, Automotive, Power and Sensors) team developed and released a new mask patterning tool that reduces power consumption by 83% over the previous generation product. ICAPS also designed an upgrade for existing tools that has the potential to reduce installed base tools' power consumption by more than 30 million kWh/year.

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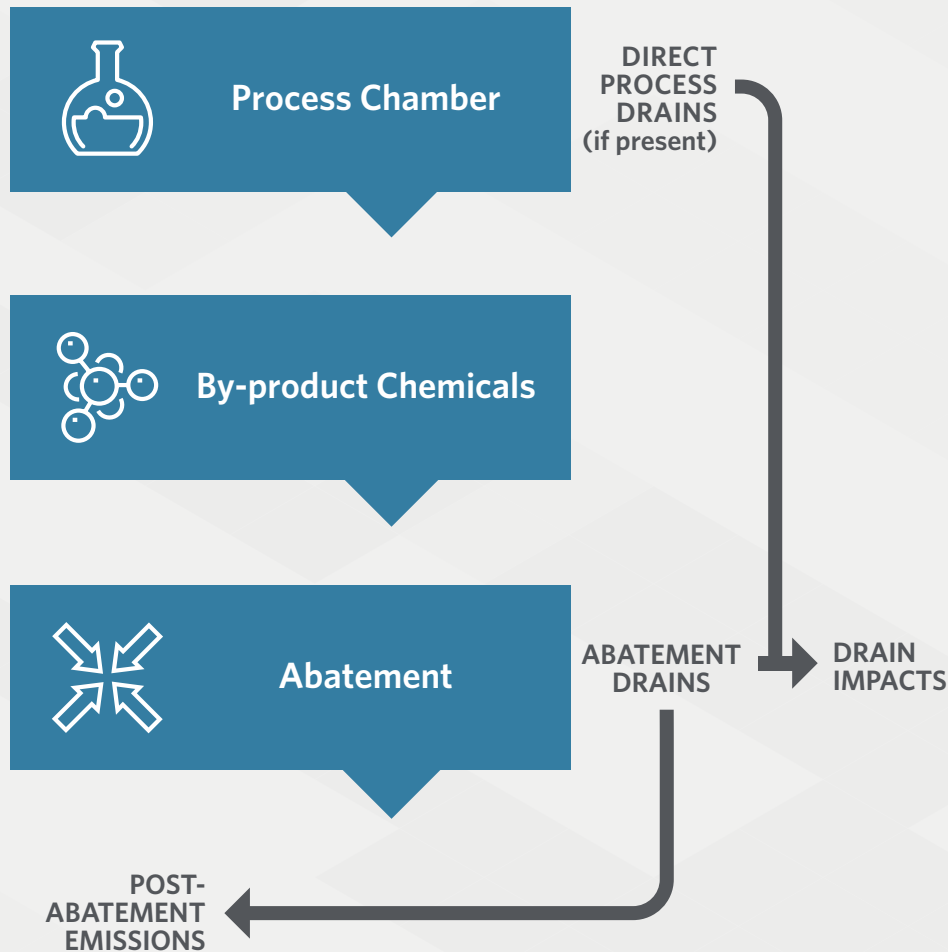
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## Chemical Impact Metric

### Cradle to Gate



### Gate to Gate



## Modeling Sustainability and Efficiency

Our proprietary modeling tools analyze product designs and incorporate end-user data to pinpoint sustainability improvement opportunities for legacy, in-production and design-stage semiconductor manufacturing tools. These modeling efforts support our 3x30 goals of reducing energy use, chemical consumption and the equipment’s physical footprint to increase throughput density per square foot of cleanroom space. By modeling tools early in the design process, our product design engineers gain the data they need to reduce a tool’s projected resource consumption and other environmental impacts before the tool goes into production. Analysis of existing tools supports identification of process efficiency improvements that we can communicate to our customers to boost sustainability performance in their fabs.

Working from a 2019 baseline of energy consumption for our complete line of SPG semiconductor products, we are able to gauge the impact of potential energy reduction strategies and inform calculation of our Scope 3 emissions in Category 11 (use of sold products).

The results of chemical impact analyses also allow us to improve process design and reduce, eliminate and/or replace the most negatively impactful chemicals used by our tools. Baselining our chemical impacts in GHG equivalents also contributes to our Scope 3 Category 11 assessments.

In 2022, Applied joined international research and development organization imec’s **Sustainable Semiconductor Technologies and Systems (SSTS) program** to expand industry-wide models of environmental impact from semiconductor manufacturing and to develop solutions for a more sustainable industry. Applied is contributing to the effort by providing data to inform the creation of industry-level models for energy consumption in wafer production.

“Applied’s culture is centered around growing our curiosities and moving forward together. I am constantly growing my practical and theoretical understanding of emerging technologies.”

**Cyril**  
Grenoble, France

### SMALL IS BIG

The third commitment in our 3x30 strategy—enabling a 30% reduction in tool footprint per production unit ratio for our semiconductor products by 2030—is an important but sometimes underappreciated leverage point for improving fab sustainability. By enabling systems with a smaller cleanroom footprint, we enable our customers to make more efficient use of shared, energy-consuming resources such as air conditioning, piping and materials. Additional gains can be made by increasing the throughput of systems in a given footprint. As semiconductor manufacturers ramp up capacity, these improvements will make each new wave of expansion more eco-efficient.

# Reducing Emissions Through Customer Partnerships

Through our focus on improving the sustainability performance of new and existing tools, Applied Materials is helping semiconductor manufacturers realize energy savings, meet their own sustainability goals and shrink the industry's overall energy and chemical footprint.

Asia and North America, helping reduce GHG emissions and energy consumption of their wafer fab and subfab equipment.

Along with our customer partnerships, we are also engaged with a number of suppliers to improve energy efficiency, reduce GHG emissions and optimize utility consumption of peripheral components. We expect to implement some of these capabilities in the field in 2023.

Building on our ongoing energy-savings work with TSMC, we have expanded our sustainability engagements with major memory and ICAPS customers in Europe,



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## Working with Industry to Drive Change

Applied is a leader within multiple groups dedicated to improving sustainability performance in the semiconductor industry.

- Applied is a founding member of the **Semiconductor Climate Consortium (SCC)**, a group formed in 2022 by the trade association SEMI with companies across the semiconductor value chain, aimed at accelerating the industry's GHG-reduction efforts.
- As part of SEMI, Applied is chairing a task force to explore the development of **Environmental Performance Ratings** for semiconductor manufacturing equipment components. The task force aims to define a transparent system that will encourage and simplify the comparison of environmental performance during equipment selection.

- Applied's Director of Environmental Services co-chairs the committee drafting a semiconductor industry Water and Energy Roadmap as part of the **International Roadmap for Devices and Systems (IRDS)**. The Water and Energy Roadmap seeks to communicate industry needs to the supply chain around new solutions for enabling sustainable industry growth, with targets for solutions in high-risk areas and associated key performance indicators (KPIs).

# Promoting the Circular Economy

Applied Materials works to promote the circular economy vision by eliminating waste through design, creating efficiencies throughout the product lifecycle, and employing materials that can be reused or recycled at the end of a product's functional life.

## Remanufacturing Semiconductor Systems and Parts

Our systems are designed to last, to support upgrades and repurposing for new applications, and to be easily repairable if parts fail or performance falls below acceptable standards. All newly manufactured parts are engineered for greater repairability, and we use refurbished parts whenever possible for repair and remanufacture, contributing to sustainability and cost-effectiveness.

In a cross-functional effort, new parts are identified for potential repairability during new product introductions. Within Applied Global Services (AGS), which provides equipment installation, warranty and maintenance support for our products, our service engineering group confirms which parts can be repaired. We also continually look at parts that come into contact with process chemicals for potential repair or cleaning/reuse solutions.

AGS specializes in recovering parts and assemblies from our tools in the field and reconditioning them for reuse, thereby reducing our manufacturing operation's need for virgin materials. Each recovered part goes through an exacting process of inspection, decontamination, refurbishment, and repair, and is then recertified by AGS as "like new" for reuse and recirculation, with a full warranty and the same service level as a new part. On average, 40% of the parts used for servicing Applied Materials tools (under a service agreement) have been repaired after previous use in an Applied system. We are constantly improving our processes to grow that number by encompassing more part categories. We maintain one of the industry's largest global inventories of spare parts, with recovered parts searchable in our inventory management system and ready to be selected for cleaning and repair. In 2022, Applied Materials established a European Repair Center in Treviso, Italy, to provide local repair and Total Kit Management® (TKM) capabilities to support our European customer base.

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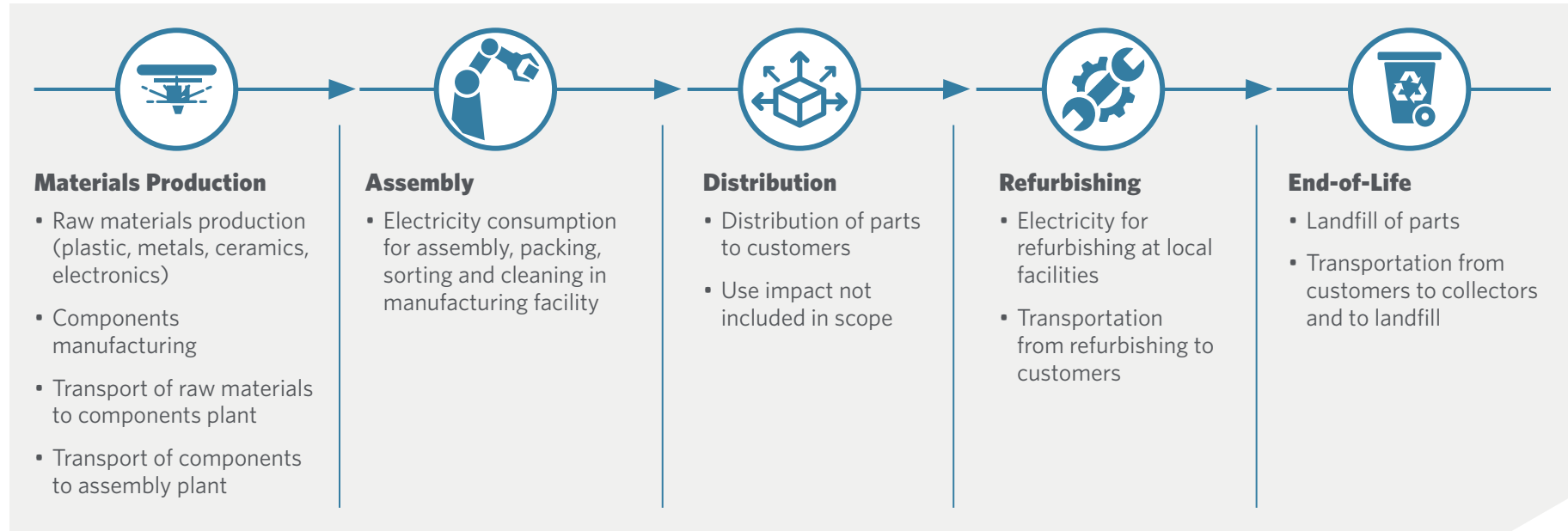
# Lifecycle Stages

## Assessing the Carbon Footprint of a Refurbished Part

In 2022, AGS conducted a cradle-to-grave carbon footprint analysis to assess and quantify the impacts and trade-offs of refurbishment and reuse versus a business-as-usual lifecycle. For this initial screening, only one device—a 0041-75950 electrostatic chuck—was assessed based on a set of assumptions that included source of raw materials (China), source of components (Taiwan), assembly at Applied Materials locations, distribution by truck (domestic) and plane (international), and end-of-life treatment (100% of parts sent to landfill). The assessment yielded the following results:

- Refurbishing the part leads to a significantly lower carbon footprint (34% for one cycle and 50% for three cycles) compared with traditional end-of-life for a single-use part.
- Impacts from material production drive the difference in carbon footprint, due to the reduced number of original parts needed to return a refurbished part to service.
- Transportation/distribution accounts for 99% of the carbon impacts of a refurbished part.

The results show that refurbishing parts provides an environmental advantage in reduced carbon footprint when compared with current end-of-life disposal of single-use parts. To further optimize the refurbishing process, we may consider opportunities to use marine versus air freight for international transportation and avoid overseas transport entirely through investment in local refurbishing locations.



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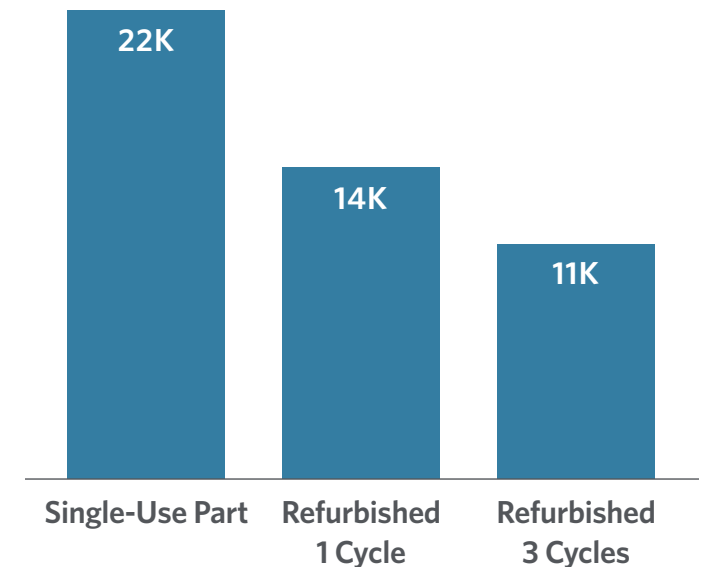
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“Everybody here is part of a team and nobody’s out there working by themselves. Someone will help you and guide you if you need it.”

**Fred**  
Santa Clara, California

## Estimated GHG Impact for All Scenarios (kg CO<sub>2</sub>e)





## Enabling Recycling of Flexible Packaging

At Applied's Flexible Technology Group business unit in Germany, our sales, business development and design functions work with customers to create new solutions for increasing the recyclability of food packaging materials. Spurred by impending regulatory targets for reducing packaging waste, companies are committing to a full transition to biodegradable, recyclable or renewable materials within the decade, and leveraging Applied's expertise with roll-to-roll vacuum coating systems to help them get there.

The focus of this work is using our tools to create single-polymer products (e.g., all-polypropylene pouches) as an alternative to multilayered aluminum-and-polymer films, making flexible food packaging easier to sort and recycle.

### 2022 highlights of the group's work included:

- Launching a project with Mitsui Chemical to create a paper barrier coating able to protect food from contamination, spoilage and leakage.
- Continuing to work with a multinational food packaging and processing company to reduce the material mix in aseptic cartons to make them more recyclable, leading toward customer trials in 2023.
- Showing the capability of our equipment to run and achieve exceptional barrier on some new, more recyclable substrates, including MDOPE and BOPE (which enable all-polyethylene flexible packaging structures) and PEF, a high-performance plant-based polymer that is both recyclable and degradable.
- Working with partners to launch an open-source all-polypropylene recyclable retort solution that eliminates aluminum foil from the structure, potentially allowing more converters to compete in this fast-growing food packaging application.
- Proving the superior robustness of HAD AIOx to reactive AIOx through converting processes. A further step will show how eliminating a secondary topcoating process can reduce energy and cost and improve the recyclability of oxide-coated flexible packaging.
- Collaborating with other members of the Circular Economy for Flexible Packaging (CEFLEX) initiative on new solutions for mono-material household flexible packaging and improved recyclability solutions for multi-layer packaging. In 2022, our studies showing that oxide and aluminum depositions on plastic films do not significantly affect their mechanical recyclability led to new guidelines that accept vacuum deposition products in flexible packaging recycling streams.

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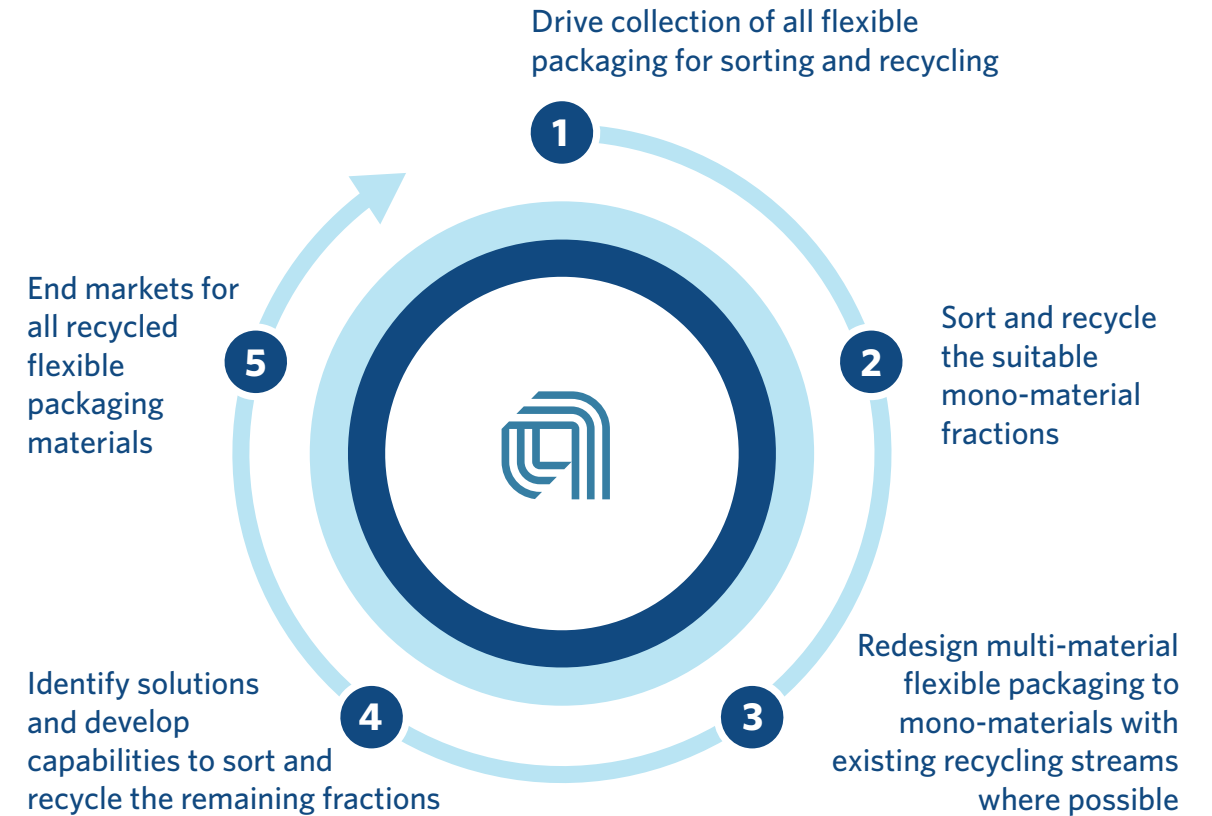
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## Building a Circular Economy for Flexible Packaging

Applied Materials is a member of Circular Economy for Flexible Packaging (CEFLEX), a collaborative initiative representing the full value chain of the flexible packaging industry.

CEFLEX stakeholders have endorsed a five-step roadmap to building a circular economy for flexible packaging and collaborated on detailed guidelines that give clarity on redesigning to mono-material packaging and eliminating waste through innovation. With major consumer products companies and plastics producers signing on to the Ellen MacArthur Foundation's [Global Commitment](#) to develop a circular economy for plastics, CEFLEX and its stakeholders are innovating new solutions to allow the redesign of consumer household flexible packaging to mono-materials without loss in functionality.

# Product Safety



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**Applied Materials develops and implements comprehensive product design, manufacturing, labeling and testing policies and programs to ensure our products are safe to use and comply with applicable legal requirements and industry standards and guidelines. Third-party assessments validate that our products meet applicable safety requirements.**

We follow relevant country- and region-specific requirements. For example, products distributed in China are marked with a mandatory China RoHS label to comply with the administrative measure on the control of pollution from electronic information products. Products sold in the European Union comply with regional manufacturing and labeling requirements, including the CE mark affirming conformity with European essential health and safety requirements. Products sold in the UK bear the similar UKCA (UK Conformity Assessed) mark.

Applied Materials products are designed and engineered to minimize safety risks to the end user's personnel and protect the end user's facilities and the environment. Any residual

risks must be below a minimum acceptable level when the products are operated, maintained and serviced in accordance with instructions and other information provided to the user. Our Product Safety group partners with other company functions to oversee the design of products and services, monitors their safety during the product's lifecycle, and drives compliance with our product safety policy and procedures.

Our risk assessment process follows the applicable SEMI S10 Safety Guideline for Risk Assessment and Risk Evaluation Process on identifying, estimating and evaluating the lifecycle risks of semiconductor equipment beginning with the product design and manufacturing process and continuing through its use.

## DESIGN FOR SAFETY

In 2022, Applied enhanced our Product Safety program by adding Design for Safety (DfSafety) requirements to our Product Development Process (PDP) for all product lines. These enhancements include performing safety FMECAs (Failure Mode, Effects & Criticality Analysis) and reliability FMECAs and enhancing our design process around hardware and software interlocks. We also incorporated a new, companywide Community of Practice (CoP) forum for all design organizations in Applied to discuss and give additional visibility to product safety issues.

# Supply Chain Responsibility

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While ongoing global supply chain issues and lingering COVID-19 limitations affected our supply chain operations in 2022, they did not prevent us from achieving progress on our goals.

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- Supplier responsibility, engagement and assessment:** Applied strives to be a partner to our suppliers, providing resources, guidelines, tools and trainings to build capacity on advancing sustainable practices. We also support our suppliers and sub-tier suppliers in their efforts to conform to the Responsible Business Alliance (RBA) code of conduct. From this baseline, we can better gauge progress using RBA assessments and audits.
- Supplier diversity and inclusion:** Mirroring our own inclusion and diversity journey, Applied's SuCCESS2030 goals include promoting development of robust diversity strategies throughout our supply chain. Our near-term supplier diversity targets include increased representation of women and other underrepresented groups and increased percentage spend with women- and minority-owned businesses, all by 2024. We are also working with our trade associations to significantly grow the pipeline of diverse talent available to the industry by 2030.
- Packaging:** Our precision tools and products require carefully designed packaging to avoid damage during transport, and we are continuously exploring strategies to reduce packaging waste, including redesigning cases and crates for reuse, using recyclable material such as corrugated fiberboard for boxes, and doing testing and measurement to gauge the feasibility of reducing virgin materials usage.
- Wastewater:** Though our own operations are neither water-intensive nor major emitters of wastewater, we recognize the need to reduce our industry's large footprint in both areas. We have piloted a process of pre-treating metal surfaces for rust protection using zinc oxide rather than phosphates (which can damage aquatic systems when released in wastewater), and are looking to scale rollout to all suppliers that possess the requisite capabilities.

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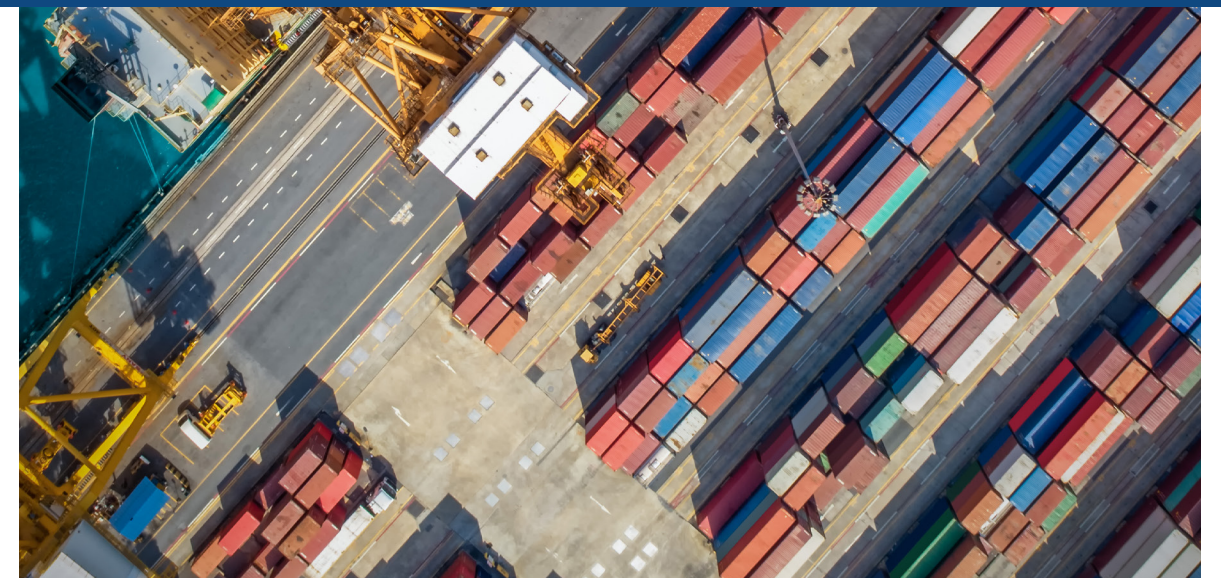
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We continued to advance our Supply Chain Certification for Environmental and Social Sustainability (SuCCESS 2030) program, Applied's 10-year roadmap for strengthening our ESG supply chain strategy for our semiconductor and display businesses. This effort builds on our foundation of supporting ethical labor practices, environmentally responsible operations, responsible minerals sourcing, and international human rights standards. Under SuCCESS2030, our assessments of supplier performance and capabilities require shared commitments across core ESG focus areas, most of which include defined performance targets.

SuCCESS2030 is managed through our SuCCESS2030 Office, which oversees metrics and compliance audits and conducts training and coordination with participating suppliers. Across our operations, we conduct pilot programs to test new efficiency and waste-reduction processes, with the intention of sharing key learnings with our supplier partners and magnifying positive impacts across the industry.

Efforts to explore intermodal shipping alternatives to air freight as part of SuCCESS2030 were suspended in 2022 after proving to represent an immaterially small fraction of our overall emissions.



# Supplier Engagement, Training and Assessment

SUCCESS2030 encompasses a series of best practices for building a more sustainable business, society and planet. As we raise the bar, we are also building our suppliers' competencies to reach it.

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### Contract Obligations

Applied's Supplier ESG Requirements document is incorporated into our Global Supplier Agreements and other agreements with direct suppliers. These requirements are also included in the terms and conditions for logistics suppliers and all purchase order transactions, and are enumerated in our most commonly used agreements for indirect services. As applicable, these require Applied's suppliers to:

- Implement Applied's Standards of Business Conduct and the RBA Code of Conduct in their own operations and ensure RBA code compliance among their sub-tier suppliers
- Comply with our Responsible Minerals Sourcing Policy and meet related statutory and regulatory requirements
- Meet Applied's other ESG requirements in their own operations and ensure compliance among their sub-tier suppliers
- Comply with Applied's Environmental Health and Safety Policy and "any applicable environmental, health or safety law, rule, regulation, order, decree or ordinance"
- Comply with Applied's minimum product EHS requirements
- Provide requested information to enable Applied's compliance with material content restriction regulations, including but not limited to REACH (EC number 1907/2006) and the U.S. Toxic Substances Control Act
- Comply with the California Transparency in Supply Chains Act of 2010, addressing the risk of slavery and human trafficking in supply chains



### Supplier Monitoring and Engagement

Applied Materials employs a metrics-based approach to assessing supply chain ESG risks and reflects these assessments in our supplier scorecards. To secure baseline data, we require subsets of our suppliers (as applicable) to:

- Complete annual self-assessment questionnaires to measure their conformance to the RBA Code of Conduct (top 80% of direct suppliers by spend and 10% of high-risk indirect suppliers, plus some small suppliers in higher-risk countries)
- Complete an RBA Environmental Survey to provide basic data on GHG emissions, energy use, water withdrawal and waste generation, plus qualitative data on reduction targets and efforts (top 80% of direct suppliers by spend)
- Submit conflict minerals reporting templates, as well as an extended minerals reporting template (EMRT) if applicable, as part of our responsible minerals sourcing due diligence
- Report on their performance under environmental regulations

To best assess our suppliers' compliance with local laws related to labor and human rights, EHS, management systems and ethics, we conduct third-party audits to the RBA audit protocol, which includes principles from the UN Guiding Principles on Business and Human Rights, the ILO Core Labor Standards, and other international guidelines. While many companies opted for remote audits in 2022 to accommodate pandemic protocols, we felt the need to conduct worker interviews in person to uphold audit integrity. To increase scheduling flexibility of these interviews and accommodate COVID shutdowns, we managed the scheduling with the audit firms ourselves. All other aspects of our Customer Managed Audit process continued to follow the RBA VAP guidelines, including having a fourth-party quality check. Click [here](#) for more information on the RBA audit guidelines.

### 2022 Supplier Audits

Initial Audits Conducted	63
Closure Audits Conducted	39
Total Audits Conducted	102
Closed Corrective Action Plans (CAP) from FY21 & FY22 Audits	7

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**PROTECTING HUMAN RIGHTS IN OUR SUPPLY CHAIN**

Applied Materials is unequivocally committed to protecting human rights and conducting business in an ethical and responsible manner around the world. We condemn and are committed to ending forced and bonded labor in all its forms, including child labor, indentured labor, slavery and human trafficking.

**Risk Assessment**

Applied uses the RBA Risk Assessment Model to conduct due diligence around supply chain sustainability. We begin the assessment process by compiling a list of all supplier sites in the top 80% of spend and high-risk sites in the top 95%. “High risk” was defined using the RBA Country Risk Assessment Tool, R1, which classifies country risk as low, medium, high and extreme based on indices of governance, human rights and conflict risk. Other risks we considered included prevalence of foreign migrant workers, potential risks discovered in our targeted working conditions audit (embedded in our Applied supplier quality audits), suppliers flagged in the media for poor working conditions, and others.

Approximately half of our planned audits were conducted in FY22, with the remainder scheduled for FY23. In 2023, we will also launch our first RBA risk assessment audits for selected tier 2 suppliers.

**Remediation**

Directly, or through our third-party consulting partner, we work with suppliers identified as posing ESG risks to answer any questions about the RBA audit protocol and to create corrective action plans. Our suppliers are required to close out all priority and major risk findings within the suggested RBA timeline. In 2022, exceptions were made to accommodate COVID shutdowns.

**Capacity Building**

We want working with Applied to be a partnership, with collaboration driving benefits to all parties. In 2022, we began offering a structured program of webinars, trainings and assistance to help our suppliers close any gaps across our ESG focus areas. These included:

- Weekly live webinars discussing key area of ESG focus
- Online training on Applied Materials Supply Chain ESG Requirements
- Training through the RBA e-Learning Academy and RBA workshops
- Ability to contract for social responsibility and sustainability assistance from a consultant at pre-negotiated rates

Our Applied commodity business managers are required to complete these trainings, assuring that the people who engage most frequently with our suppliers can knowledgeably communicate the business benefits of our sustainability expectations.

Our commitment to protecting human rights wherever we do business is detailed in the policies and statements listed on [page 44](#). We communicate our human rights commitments and requirements clearly to our supply chain and business partners to help ensure compliance with our expectations around humane treatment of the workforce and enforce the prohibition

of forced and bonded labor. We conduct due diligence on human rights risk in our supply chain and flag zero-tolerance issues in our supplier scorecards.

View our Human Rights Statement of Principles [here](#).

In 2022, a three-phase project led by U.S.-based Article One Advisors to identify human rights risks associated with our operations pinpointed risks of forced labor in our upstream information and communications technology supply chain.

**GHG Scope 3 Supplier Survey**

To improve our Scope 3 emissions calculations in the future, we initiated a survey in 2022 of 102 top suppliers. Questions gauged their own Scope 1 and 2 emissions and the maturity of their GHG reduction plans and goals. Suppliers were provided webinar training and one-on-one support to better understand how to measure and track their emissions and energy use. Applied plans to scale this effort to more suppliers in coming years.

In FY22, we conducted 24 supplier-focused webinars across two time zones, featuring internal and external speakers discussing key areas of ESG focus.



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# Responsible Minerals Sourcing

Applied Materials is committed to the responsible sourcing of minerals used in our products.

Key to this commitment is our policy around the sourcing of tantalum, tin, tungsten and gold, commonly referred to as 3TG or conflict minerals for their frequent origin in the Democratic Republic of Congo (DRC) and adjoining countries, and other conflict-affected and high-risk areas (CAHRAs). Since 2019, Applied Materials has retained a third-party service provider to assist in conducting outreach to suppliers regarding their use of 3TG and evaluating their responses.

Our commitment to improving transparency within the 3TG supply chain includes direct smelter engagement. Our SuCCESS2030 team works directly with 17 smelters or refiners to ensure their continued participation in the RMI Responsible Minerals Assurance Process (RMAP) program. Additionally, our SuCCESS2030 lead is the current co-chair of the Responsible Minerals Initiative Smelter Engagement Team (RMI SET), on which three Applied employees serve in a voluntary capacity. Applied is helping to set direction and guide smelter engagement through increased interest and scrutiny regarding responsible minerals.

For more information about our 3TG due diligence, please refer to our [Conflict Minerals Report](#).

Chain of Custody / Traceability Metrics	
Supplier response rate	<b>99%</b>
Number of RMI "Conformant" smelters	<b>229</b>
Number of RMI "Active" smelters	<b>15</b>
Number of "Eligible" smelters that are not rated as conformant	<b>2</b>

*"Conformant" smelters are those that have successfully completed an assessment against the applicable RMAP standard or equivalent. "Active" smelters have committed to undergo an RMAP assessment, completed the relevant documents, and scheduled the on-site assessment. "Eligible" smelters meet the RMI's definition of a smelter.*

# Packaging Reduction and Reuse

Our precision products require carefully designed packaging to avoid damage from shock and vibration during transport. Our Design for Distribution task force plans and develops smarter packaging strategies that meet those demands while improving sustainability via materials reduction, improved recyclability and reusability.

In 2022, greater than 70% of our packaging materials were made from recyclable materials (polyethylene, polypropylene, corrugated fiberboard, steel and wood), many of which are also reusable. For supplier-sourced packaging, we maintain specifications that prohibit the use of certain packaging materials (including polystyrene) and are in the process of rolling out requirements for suppliers to report materials data, improving our ability to track our packaging's recyclable content. We are developing processes to track and enforce compliance with those specifications.

Ongoing initiatives are detailed below:

### Hybrid Crate Design

For lighter product shipments, we employ hybrid crates that pair a wooden base with a corrugated kraft board top and full moisture-barrier bagging inside. Offering a 50% reduction in packaging weight, these designs save the equivalent of 3,917 trees annually, trim transport emissions and packaging material cost, ease recycling, and increase safety for freight handlers. Use of hybrid crates in 2022 saved \$1 million in materials and reduced wood weight by 900,000 pounds.

### Lighter Polyethylene Bags

To save materials, we are moving from 6 mil to 4 mil thickness for low-density cleanroom polyethylene (LDPE) bags in our Austin and Singapore manufacturing operations. In 2022, we achieved an approximate 33% reduction in materials, avoiding 101,000 pounds of plastic. For 2023, we are working to assure that all bags achieve 4 mil thickness or less, thereby avoiding 215,000 pounds of plastic.

### "Just Strong Enough" Crates

Where earlier wooden crate designs tended to be overbuilt for most use cases, our new, lighter crates are matched to the precise needs of individual products. In 2022, this strategy saved some 956,000 pounds of wooden crate materials.

### Reusable Packaging

A collaborative effort between our packaging, logistics, supply chain and quality teams and our crating vendor is working on a reuse ROI and sustainable process for returning and reusing crates sent to Applied's factories by one of our contract manufacturers.

### Reusable Packaging Labels

Labels communicate to the end user that our packaging is reusable and must not be discarded.

### Waste Reduction

To keep our packaging out of landfills, Applied prohibits the use of non-recyclable and environmentally burdening materials such as polystyrene, PVC and toxic foams.

### Packaging ESG Dashboard

An in-progress initiative is using existing shipment management systems (SMS) and SAP systems to develop measurement dashboards detailing our packaging's ESG impact.

### "No Crate Needed" Delivery

Our Tainan Manufacturing Center factory in Taiwan is reducing the use of packing crates altogether by trucking products directly to local customers.

## MATCHING SOLUTIONS TO NEED IN OUR PACKAGING ECOSYSTEM

Having real-world impact on packaging waste requires real-world insight—into how much protection individual products need, where we're shipping them, and what the capacities are for recycling and reuse in those locations. Then, we design the most resource-efficient packaging and processes to match.

## PILOTING LOWER-IMPACT POU PACKAGING

Common point-of-use (POU) packaging, used for interplant handling of fragile parts into cleanrooms, is die-cut virgin polyethylene foam inserts placed in a polypropylene plastic corrugated box. To reduce environmental impacts, we are working to replace this plastic with a solution that combines the box and foam into a single 100% recycled polyethylene pack. We have begun piloting this solution with select high-volume repairable parts for the repair return cycle, with completion of the pilot run expected in 2023.

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# Supplier Diversity

To broaden the impact of our inclusion and diversity commitment, Applied Materials works to build diversity in our supply chain, both through onboarding women- and minority-owned suppliers and through encouraging equitable hiring practices across our supply base.

Our supplier diversity program is one of the main pillars of our SuCCESS2030 initiative, and in 2022 we met our goal of increasing diverse spend to 2.5% of our total global supplier spend, achieving \$462 million spending with certified diverse suppliers. For 2023, we're seeking to raise that number past \$500 million. Our goal is to reach \$1 billion in diverse spend by 2027 by setting goals for senior supply chain executives, continuing our visits to potential diverse suppliers, increasing our involvement in capacity building for diverse suppliers, and integrating more inclusive recruiting and onboarding practices for potential suppliers. We will also work toward further embedding supplier diversity into our corporate strategy and culture.

Beyond pure spend, we also partner with applicable existing suppliers to pursue their diversity certifications through the Women's Business Enterprise National Council (WBENC) and the National Minority Supplier Diversity Council (NMSDC). To achieve local impact, we are exploring community educational initiatives in FY23 to boost diverse-owned companies with potential to join the semiconductor industry.

## DEFINING DIVERSITY

Applied Materials' diverse suppliers must be certified by a third-party auditor as being at least 51% diverse owned, controlled and operated by U.S. minorities (African-American/Black, Hispanic/Latino, Native American, Asian-Pacific American, Asian-Indian American), women, minority women, LGBTQ+, persons with disabilities, veterans or service-disabled veterans. Applied Materials also tracks additional diverse suppliers who could potentially be registered as diverse if they proceed with certification.

As a founding member of SEMI's Manufacturing Ownership Diversity (MOD) working group, Applied Materials is working to provide best practices for supplier diversity in the semiconductor industry.



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# About This Report

Published on behalf of Applied Materials, Inc. and its subsidiaries (collectively referred to as “Applied Materials,” “Applied,” or “the company”), this report continues the work begun with our first Corporate Social Responsibility (CSR) report in 2015.

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This report builds on Applied’s previous disclosures and expands transparency through:

- Reporting our total Scope 3 greenhouse gas (GHG) inventory for our semiconductor products for 2022, 2021 and our 2019 baseline year (see the report [Annex](#))
- Continuing to improve and refine the accuracy of our reported data (see the report [Annex](#))

Applied Materials produces our Sustainability Report on an annual basis, and data is reported by fiscal year unless clearly marked otherwise. Report data covers all global operations unless otherwise noted.

### Reporting Standards

- This report has been prepared in accordance with the **Global Reporting Initiative 2021 Standards**. A GRI Index is included in the report [Annex](#).
- Disclosures following the **Sustainability Accounting Standards Board (SASB) Semiconductor Standard** are also provided in the report [Annex](#).
- We provide a **TCFD Index** in the report [Annex](#) and discuss the results of our climate risk assessment in the [Climate and Energy](#) section of the report.
- GHG emissions are calculated following the **GHG Protocol** using the best available data in the reporting year. Calculation methodology improvements are likely to be implemented annually and will be transparently disclosed in future sustainability reports.
- Throughout the report, we demonstrate alignment and contribution to key **United Nations Sustainable Development Goals (SDGs)**.

### Report Information and Data Assurance

Limited assurance of select indicators included in the Sustainability Report and Annex has been conducted by ERM CVS, whose assurance statement is provided on [page 74](#). Further, all Applied manufacturing sites maintain ISO 14001:2015 and ISO 45001:2018 certifications, which require annual third-party audits of our management systems and processes.

### Forward-Looking Statements and Reporting Uncertainties

This report contains forward-looking statements, including our sustainability strategies and targets and other statements that are not historical facts. These statements are subject to risks and uncertainties, and are not guarantees of future performance. Factors that could cause actual results to differ materially from those expressed or implied by such statements are included in the “Risk Factors” section of our SEC filings, including our recent Forms 10-K, 10-Q and 8-K. All forward-looking statements are based on management’s current estimates, projections and assumptions, and we assume no obligation to update them.

Non-financial information is subject to measurement uncertainties resulting from limitations inherent in the nature and methods used for determining such data. The selection of different but acceptable measurement techniques can result in materially different measurements.

# Third-Party Data Assurance Statement

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### Independent Limited Assurance Statement to Applied Materials, Inc.

ERM Certification & Verification Services ("ERM CVS") was engaged by Applied Materials, Inc. ("Applied Materials") to provide limited assurance in relation to the selected information set out below and presented in the Applied Materials' 2022 Sustainability Report and Data Annex (the "Report").

#### Engagement summary

Whether the 2022 information and data for the following selected indicators are fairly presented in the Report, in all material respects, in accordance with the reporting criteria.

#### Environmental indicators

##### GHG Emissions

- Total direct (Scope 1) GHG emissions [metric tons CO2e]
- Total indirect (Scope 2, location-and market-based) GHG emissions [metric tons CO2e]
- Total Scope 1 and 2 (location-and market-based GHG emissions) [metric tons CO2e]
- GHG emissions intensity -Total Scope 1 and Scope 2 [metric tons CO2e/employee and metric tons CO2e/million dollars of revenue]\*
- Total Scope 3 emissions inclusive of Categories: 1-Purchased Goods and Services, 2-Capital Goods, 3-Fuel-and-Energy Related Activities, 4-Upstream Transportation and Distribution, 5-Waste Generated in Operations\*\*, 6-Business Travel, 7-Employee Commuting, 8-Upstream Leased assets, 9-Downstream Transportation and Distribution, 11-Use of Sold Products, 12-End of Life Treatment of Sold Products, 13-Downstream Leased assets and 15-Investments [metric tons CO2e]

##### Energy

- Total energy consumption [MWh]
- Total renewable energy [MWh]
- Total electricity consumption [MWh]
- Percentage renewable energy consumption [%]
- Percentage renewable electricity consumption [%]
- Energy intensity [MWh/employee and MWh/million dollars of revenue]\*

##### Water

- Total water withdrawal [megaliters]
- Total water withdrawal from all areas with water stress [megaliters]

#### Workforce Indicators

- Total workforce [number]
- Workforce by category (by contract type) [Regular Full-Time Employees, Temp and Interns] [number]
- Female representation—Global and US workforce (including New College Graduates, excluding interns) by category (career level and engineering specifically) [Executives, Managers, Professionals] [%]
- Ethnicity & Race Representation of the U.S. Workforce [%]
- Female representation of new hires, interns, and New College Graduates [%] (US only)
- Voluntary turnover—Global rate [%] and Global rate by gender [%]

#### Health & Safety Indicators

- Total case incident rate (TCIR)
- Days away, restricted, or transferred (DART) rate
- Number of fatalities

#### Community Impact Indicators

- Total community investments [million dollars]
- Total giving through the Foundation Match Program [million dollars]
- Total Volunteer Time Grant hours logged [hours]
- Total contributions issued by Applied Materials Foundation based on Time Grant hours [dollars]

Scope of our assurance engagement

#### Restatement of prior year data 2021

##### GHG Emissions

- Total Scope 1, Total Scope 2 (location-and market-based GHG emissions) and combined Total Scope 1 and 2 [metric tons CO2e]
- GHG emissions intensity -Total Scope 1 and Scope 2 [metric tons CO2e/employee and metric tons CO2e/million dollars of revenue]\*

##### Energy

- Total energy consumption [MWh]
- Total renewable energy [MWh]
- Total electricity consumption [MWh]
- Percentage renewable energy consumption [%]
- Percentage renewable electricity consumption [%]
- Energy intensity [MWh/employee and MWh/million dollars of revenue]\*

\* For the assurance of the intensity metrics included in the scope of this engagement, ERM CVS relies on the annual revenue stated in the Applied Materials 10K filing with the SEC, which is taken as read.

\*\*Underlying waste data was not verified for the purpose of the Scope 3 category.

Our assurance engagement does not extend to information in respect of earlier periods or to any other information included in the Report, unless otherwise stated.

#### Reporting period

Fiscal Year. For the purposes of Environmental Data, Applied Materials applies a 1 November 2021 - 31 October 2022 reporting period to closely align with fiscal year.

Reporting period

#### Reporting criteria

- WBCSD/WRI GHG Protocol (2004, as updated January 2015) for the Scope 1, 2 and selected Scope 3 GHG emissions;
- OSHA Injury and Illness Recordkeeping and Reporting definitions;
- GRI Standards version of 2020 for Water and effluents (303);
- Applied Materials' internal reporting criteria and definitions for community impact and workforce data (as described in the Data Annex published by Applied Materials).

#### Assurance standard and level of assurance

We performed a limited assurance engagement, in accordance with the International Standard on Assurance Engagements ISAE 3000 (Revised) 'Assurance Engagements other than Audits or Reviews of Historical Financial Information' issued by the International Auditing and Standards Board.

The procedures performed in a limited assurance engagement vary in nature and timing from and are less in extent than for a reasonable assurance engagement and consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

#### Respective responsibilities

Applied Materials is responsible for preparing the Report and for the collection and presentation of the information within it, and for the designing, implementing and maintaining of internal controls relevant to the preparation and presentation of the information in scope.

ERM CVS' responsibility is to provide conclusions to Applied Materials on the agreed scope based on our engagement terms with Applied Materials, the assurance activities performed and exercising our professional judgement. We accept no responsibility, and deny any liability, to any party other than Applied Materials for the conclusions we have reached.

#### Our conclusion

Based on our activities, as described below, nothing has come to our attention to indicate that the 2021 and 2022 data and information for the disclosures listed under 'Scope of our Engagement' above are not fairly presented in the Report, in all material respects, in accordance with the reporting criteria.

#### Our assurance activities

Considering the level of assurance and our assessment of the risk of material misstatement of the information in scope a multi-disciplinary team of sustainability and assurance specialists performed a range of procedures that included, but was not restricted to, the following:

- Assessing the appropriateness of the reporting criteria for the information in scope.
- Interviews with management representatives responsible for managing the selected issues.
- Interviews with relevant staff to understand and evaluate the relevant management systems and processes (including internal review and control processes) used for collecting and reporting the selected disclosures.
- Conducting tests of the controls on data management and reporting.
- A review at corporate level of a sample of qualitative and quantitative evidence supporting the reported information for each of the metrics in scope.
- An analytical review of the year-end data submitted by all locations included in the consolidated 2022 group data for the selected disclosures which included testing the completeness and mathematical accuracy of conversions and calculations, and consolidation in line with the stated reporting boundary.
- Four visits to Applied Materials facilities, two in-person visits in the United States (Gloucester Campus, Massachusetts and Scott Campus, California) and two virtual visits, one in the United States (Kalispell, Montana) and one in India (International Technology Park Bangalore), to review source data and local reporting systems and controls.
- Confirming conversion and emission factors and assumptions used.
- Evaluation of the restatement process for 2021 environmental data to adjust to fiscal year timeline and updates to calculations methodologies, including integrity of calculation workbooks through review and recalculation and underlying or external references used to determine updates to methodologies.
- Reviewing the presentation of information relevant to the scope of our work in the Report to ensure consistency with our findings.

#### The limitations of our engagement

The reliability of the assured information is subject to inherent uncertainties, given the available methods for determining, calculating or estimating the underlying information. It is important to understand our assurance conclusions in this context.

#### Our independence, integrity and quality control

ERM CVS is an independent certification and verification body accredited by UKAS to ISO 17021:2015. Accordingly we maintain a comprehensive system of quality control, including documented policies and procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements. Our quality management system is at least as demanding as the relevant sections of ISQM-1 and ISQM-2 (2022).

ERM CVS applies a Code of Conduct and related policies to ensure that its employees maintain integrity, objectivity, professional competence and high ethical standards in their work. Our processes are designed and implemented to ensure that the work we undertake is objective, impartial and free from bias and conflict of interest. Our certified management system covers independence and ethical requirements that are at least as demanding as the relevant sections of Parts A & B of the IESBA Code relating to assurance engagements.

The team that has undertaken this assurance engagement has extensive experience in conducting assurance on environmental, social, ethical and health and safety information, systems and processes, and provides no consultancy related services to Applied Materials in any respect.

*Beth C. B. Wyke*

Beth Wyke  
Head of Corporate Assurance Services  
Malvern, PA

April, 20 2023

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