Google

Supplier Responsibility Report

2021

Supplier responsibility at Google

Each year, our Supplier Responsibility Report shares major accomplishments from the year before and defines our aspirations for the future. Like last year, 2021 is proving exceptional.

The COVID-19 pandemic continues to disrupt our suppliers and devastate many of our supplier communities, where access to vaccination is uneven and government mitigation strategies vary. We are continuing to adapt our supplier responsibility program to prioritize the safety of the people who make Google products and provide services.

The pandemic has also reinforced a universal truth: We're all in this together. Just as we need to work together to keep people safe from COVID-19, we must collaborate to address other global crises. At Google, our goal is to achieve net-zero emissions across all of our operations and value chain by 2030. We aim to reduce the majority of our emissions (versus our 2019 baseline) before 2030, and we plan to invest in nature-based and technology-based carbon removal solutions to neutralize our remaining emissions.

Of course, minimizing our own operational footprint will not be enough to address the urgent action required on climate change. We need our supply chain partners—and they need us. We aim to work with suppliers who share our ambition and recognize their leadership in areas such as health and safety, carbon-free energy, and circularity. We'll continue to collaborate with our suppliers and other stakeholders on our climate strategy, drawing from lessons and successes in Google's own carbon-energy and energy-efficiency efforts.

Collaboration is one key to creating broad-scale change; another is making sure we're able to see all the pieces in play. Last year, much of our work centered on increasing our visibility across Google's supply chain to help identify connection points and new areas of opportunity. In this report, you'll learn about these efforts and more, including the development and launch of our new Process Chemicals Full Material Disclosure Data Collection and Assessment program for safer chemistry, the next phase of our blockchain pilot for minerals transparency, and our efforts toward building a circular economy.

While we're proud of our progress, this is work that never ends. We believe in better for our suppliers, our communities, and our world—and we invite you to share in our vision and help shape the path to get there.

Karl Braitberg
Vice President, Supply Chain
Technical Infrastructure

Ana Corrales
Chief Operating Officer
Devices and Services

About our suppliers

We work worldwide with suppliers that support our business and operations, including hardware manufacturing and indirect services. With the support of our suppliers, Google is able to offer our core products and platforms—Android, Chrome, Gmail, Google Drive, Google Maps, Google Photos, Google Play, Search, and YouTube—each with broad and growing adoption by users around the world. The hardware in our data centers helps power all of those products as well as a broader set of cloud-based products and services, including Google Workspace collaboration tools and satellite mapping and analysis platforms like Google Earth. Our consumer hardware products include Pixel phones and earbuds, Nest products such as the Nest Thermostat, the Stadia gaming platform, and the Pixelbook Go.

We work with suppliers in over

70

countries.

About this report

Google formally launched our Supplier Responsibility program in 2012. In 2017, we published our first report, which outlined our framework, tools, and key performance metrics.

This report maintains the core structure of past reports while highlighting several key 2020 projects across our supplier network that help illustrate our program's successes, challenges, and aspirations.

The annual social and environmental performance data in this report covers our 2020 fiscal year (January 1 through December 31, 2020). The spotlights have a longer trajectory and may include some of our progress in 2021 in addition to data and stories from prior years to provide context. Unless otherwise specified, all performance data included in this report applies to Google LLC. The primary exceptions include our greenhouse gas (GHG) emissions, energy use data, and Conflict Minerals program, which cover the combined operations of Google and our Other Bets. Our supplier responsibility program includes suppliers providing a wide range of products and services. By signing our contracts, suppliers commit to adhering to our Supplier Code of Conduct. Our supplier site assessment program includes primarily hardware, logistics, and extended workforce suppliers.

For more information about our Supplier Responsibility program, including case studies, white papers, and blogs, please see our Supplier Responsibility website.

Our approach

Building the inclusive, tech-forward supply chain of the future

We aspire to create a supply chain model for the future that accomplishes the following:

- **Includes everyone.** We want to collaborate with suppliers and peers across industries and service sectors to create a safer, fairer, and more equitable supply chain.

- **Makes things better.** We want to leave every supplier's workplace, community, and ecosystem we touch better than we found it.

- **Transforms with technology.** We want to invest in and build technologies to create the world's most trusted supply chain network.

Meeting today's urgent global needs

The ongoing COVID-19 pandemic requires us to continue to adapt and rise to new challenges as we remain committed to the health and safety of every person in our supply chain. In 2020, we focused on supporting our suppliers' compliance with local, national, and global guidance and requirements for COVID-19 management as part of the Google Supplier Code of Conduct. We also introduced a new remote process for supplier assessments to lessen the potential for COVID-19 transmission in areas where the pandemic prevented on-site visits.

Now is the time for us to collectively rally to address not only issues brought about by the pandemic but also the urgent threats to our climate, resources, and human health and welfare. That's why we aspire to drive meaningful and positive change throughout each of our value chains. In response to today's challenges, we seek to be highly strategic in how we engage with suppliers, their communities, and the people and ecosystems that are integral to both.

Every decision we make has the potential to affect people, communities, and ecosystems in countless ways. So, at every stage, we strive to understand the interconnected impacts of our supply chain and to be inclusive and restorative across all areas of our work.

This work requires collaboration, both internally and with partners, to determine where we can have the most influence and make the biggest impact. It also requires ongoing transparency, dialogue, and accountability from everyone in our supply chain, along with a willingness to adjust our strategies and continually improve as we learn.

We work across industries to set expectations for ourselves and our suppliers on both social and environmental performance. By investing in areas like worker engagement, renewable energy, transparency in the mineral supply chain, and materials reuse, we're working to create stronger and more resilient communities. By partnering with nongovernmental organizations (NGOs), industry groups, peers, and suppliers, we'll continue our efforts to have a more positive impact on our suppliers and their communities.

Focusing on our people, communities, and planet

Our Supplier Responsibility program spans eight priority areas, which we've organized into three categories: putting people first, strengthening communities, and protecting the planet.

Putting people first

We're committed to a fair and inclusive supply chain that creates shared value everywhere we operate.

- Treating workers fairly
- Creating safe and healthy workplaces
- Operating ethically

Strengthening communities

We aspire to strengthen communities everywhere we do business. This includes sourcing minerals responsibly, empowering residents of mining communities to pursue alternative economic opportunities, and ensuring that we support diverse businesses throughout our supply chain.

- Sourcing minerals responsibly
- Increasing community resilience
- Advancing supplier diversity

Protecting the planet

We're working to build an energy-efficient, low-carbon, circular supply chain that makes smart use of the earth's resources, protects ecosystems, and helps lead the fight against climate change.

- Addressing the climate crisis
- Working to end reliance on raw material extraction

These areas are interwoven and mutually reinforcing. For example, treating workers with dignity and respect creates stronger, more empowered communities. Investing in infrastructure in supplier communities generates more social and economic opportunities and helps reduce reliance on extractive industries such as mining. Replacing dirty energy sources with renewable options contributes to reducing GHG emissions and increases community and global well-being.

How we make it happen

Our program strategy is built on four major pillars that help mitigate risk and benefit people and places through responsible sourcing.

1. **Supplier Code of Conduct.** Our Supplier Code of Conduct sets expectations designed to protect the health, safety, and treatment of workers. This includes the prohibition of any form of modern slavery, such as forced, bonded (including debt bondage), or indentured labor; involuntary prison labor; sex trafficking; and slavery or trafficking. Our Supplier Code of Conduct is included in our supplier contract templates, and suppliers are expected to actively drive adherence to the Code.

2. **Supplier engagement.** Through mechanisms such as supplier self-assessments, risk assessments, and third-party on-site audits, we gauge how suppliers are performing relative to our standards, identify potential risks, and address concerns. We also work closely with manufacturing suppliers to build capabilities in areas like improving environmental performance, protecting workers from hazardous manufacturing process chemicals, and increasing transparency in the mineral supply chain.

3. **Community investment.** We work with supplier and upstream communities to minimize the negative impacts of manufacturing, improve lives, and protect the local environment. This includes collaborating with a range of local and global partners, stakeholders, and researchers to ensure community access to clean energy and related economic opportunities. We also work with communities and authorities to support conflict-free mining, including investing in programs that create economic alternatives to mining for local citizens.

4. **Partnerships.** We partner with NGOs, industry groups, suppliers, and peers to tackle issues bigger than any company could address alone. Our partners bring a wide range of expertise and creative thinking to issues like improving worker well-being, advancing impact sourcing, increasing transparency in minerals mining, reducing reliance on raw materials, bringing electricity to mining communities, and expanding renewable energy markets.

2020 highlights

Putting people first

26

We performed on-site or remote assessments at 26 supplier sites, giving us a cumulative total of 309 site assessments since we launched our program.

1,850

We engaged more than 1,850 workers through third-party surveys and interviews, giving us important insights into worker priorities.

118

Through 2020 and early 2021, to strengthen protection for workers, we evaluated 118 chemical processes and hazard controls used at strategic manufacturing sites.

Strengthening communities

100%

For the third year in a row, 100% of the smelters or refiners we used for four conflict minerals—tantalum, tin, tungsten, and gold—were Compliant.[1]

9,300

The eight projects completed by the Congo Power program between 2018 and 2020 have provided renewable energy access to nearly 9,300 people in the Democratic Republic of Congo.

Protecting the planet

490

Our suppliers implemented 490 GHG emissions-saving initiatives in 2020—the majority focused on energy efficiency—according to the CDP reporting of 120 of our suppliers.

50

According to their CDP supply chain reporting, 50 of our suppliers are overseeing clean energy initiatives that help reduce GHG emissions, such as sourcing renewable energy for operations or installing clean energy facilities on-site.

99%

Of the suppliers participating in our environmental surveys, 99% responded to our climate change survey requests and 79% have integrated climate risk into their long-term business objectives.

Putting people first

Overview

We're committed to building a healthy, inclusive supply chain. In practice, this means honoring and respecting everyone who engages with the Google supply chain and striving to ensure that their workplaces promote worker well-being. Our baseline is to ensure that Google treats workers with dignity and respect, maintains safe and healthy workplaces, and holds suppliers to high ethical standards. But our long-term goal is more extensive: We aim to unlock the power of partnerships and change the dynamic between companies, suppliers, and users so that together we can create a safer, fairer, and more equitable supply chain.

Laying a foundation for fairness

We believe every person working in our supply chain should be treated fairly and with dignity and respect. We accomplish this by deploying throughout our supply chain policies and processes that are designed to protect the people who make our products and provide valuable services to our company.

The foundation of this work is our Supplier Code of Conduct, which includes our expectations for labor and human rights, health and safety, environmental responsibility, and ethics and compliance. We expect all suppliers in our operations and supply chain—and their suppliers—to ensure that employment is freely chosen and that workers pay zero recruitment fees. Our suppliers also must prohibit the use of child labor, guard against sexual harassment and verbal abuse, prevent discrimination, and support freedom of association and collective bargaining rights.

We hold suppliers accountable to our Supplier Code of Conduct through a multi-step assessment process, which includes self-assessments, risk assessments, and independent third-party audits. See page 39 for our site assessment performance in this area.

Engaging workers

Through our site assessments, we can detect areas of nonconformance where they're occurring. One crucial component of our audits and broader supplier engagement is hearing directly from the employees working for our suppliers, as they often provide some of the most valuable insights into what's working and what needs improvement. To hear from workers, we engage with third parties to gather feedback through anonymous worker surveys and face-to-face interviews. Workers are invited to share their concerns and satisfaction in areas such as working conditions, health and safety, wages and benefits, working hours, and communication with management. This information influences our strategies, while giving suppliers valuable insights into improving worker recruitment and retention.

In 2020, we heard from more than 1,850 people throughout our supply chain via our third-party audit process or our worker surveys.

Creating safe and healthy workplaces

Workplace safety is a top priority, now more than ever. We remain committed to ensuring that everyone who makes our products or provides us with services works in a healthy and safe environment. In accordance with our Supplier Code of Conduct, our suppliers are expected to maintain safe and healthful workplaces that comply with all applicable laws and to implement a management system to identify and resolve related issues.

Suppliers' health and safety management systems must identify, evaluate, and control worker exposure to all safety and health hazards—including chemical, biological, physical, and ergonomic stressors—and provide proper design, controls, procedures, and guidance in factory production and other work environments. We also expect suppliers to plan for potential emergencies and provide workers with ready access to clean toilet facilities, potable water, and sanitary food preparation, storage, and eating facilities. If applicable, housing facilities must be clean, safe, and fair and include adequate personal space and hot water for bathing and showering.

In addition, suppliers are expected to continue to implement COVID-19 management practices that adhere to local guidance, such as maintaining an infectious disease preparedness and response plan, enacting infection prevention, creating procedures for identifying and isolating sick people, promoting workplace flexibility and protections, and monitoring and evaluating their COVID-19 strategies and plans going forward.

Driving healthier manufacturing processes

We continue to work with our suppliers and industry partners to identify and eliminate harmful substances from our manufacturing process by giving our suppliers the knowledge and support they need to transition to safer alternatives. These programs demonstrate our commitment to help our suppliers protect workers and promote environmental health and safety in supplier communities.

In 2017, we began incorporating substances from our Manufacturing Restricted Substances List (MRSL) into our Restricted Substances Specification for consumer hardware. To further support this initiative, in 2018, we rolled out a comprehensive training program, which included webinars, workshops, in-person training sessions at supplier factories, and e-learning courses in English and Chinese. We also started conducting specialized on-site chemical management assessments in 2018, and in 2019, we continued to expand our MRSL assessment and declaration process to additional suppliers supporting data center machines.

In 2020, 38 suppliers that had never before participated in our MRSL assessment took part in the assessment and declaration process, and 53 individual factories completed chemical management surveys, bringing the total number of suppliers participating to over 300.

We also took another step forward in 2020 with the development and implementation of the Process Chemicals Full Material Disclosure (FMD) Data Collection and Assessment program. This program gives us an in-depth understanding of what and how process chemicals are used during manufacturing or maintenance. The FMD program collects data on chemical use during manufacturing to assess occupational exposure risks from hazardous chemicals and help suppliers identify safer alternatives. In the program's first year, we completed FMD training and data collection for 21 key final assembly and manufacturing facilities, evaluated 118 chemical processes for their applications and exposure control measures, and substituted 12 chemicals with safer alternatives. We plan to expand the FMD program to more strategic manufacturing partners in the coming years.

Setting a high bar for ethics

We expect our suppliers to uphold high ethical standards, including not engaging—directly or indirectly—in corruption, bribery, extortion, embezzlement, or other illegal practices. To meet these standards, we encourage companies to disclose information about their business activities, financial situations, and performance in line with regulations and industry practices. We also expect our suppliers to protect Google's intellectual property and information privacy from attacks by third parties.

Addressing ethical conduct and the prevention of modern slavery

Forced labor, indentured labor, debt bondage, and other forms of modern slavery can occur in industries with many workers and few regulations. We have zero tolerance for any form of modern slavery in our supply chain.

Our contracts require Google suppliers to comply with laws against international human trafficking, forced labor, and modern slavery. We reserve the right to audit any facility where modern slavery is reported and to terminate our agreements for any violation of these policies.

We also train our vendors, temporary staff, and independent contractors to report concerns of illegal or unethical activity and to avoid working with parties that engage in modern slavery or other illegal practices. In addition, we have an online training course that includes anti-modern slavery education for workers in roles related to hardware supplier management.

We also continue our commitment to supply chain integrity through our anti-modern slavery program. For more information, please see our Policy Against Modern Slavery, which defines modern slavery, lists prohibited actions, and provides channels for reporting suspected instances.

Read our 2020 Statement Against Modern Slavery.

Assessing conformance with our Supplier Code of Conduct requirements

We follow a multi-step process for evaluating our suppliers. Performing regular assessments helps us address potential issues early on and support our suppliers in taking corrective actions.

Supplier self-assessment process

We ask new suppliers to complete a detailed self-assessment. The company's responses help us identify potential risks of nonconformance with the requirements in our Supplier Code of Conduct. Many suppliers already have strong programs to address our requirements. When a self-assessment indicates that a supplier does not meet our expectations, we follow up to ensure it develops programs to address our concerns. As one component of our Supplier Risk Assessment process, self-assessments can help gauge suppliers' understanding of and commitment to our expectations.

Understanding and evaluating risks in our supply chains

Along with having suppliers evaluate their operations, we perform our own due diligence to understand our supply chain's current and potential risks. Our extensive Supplier Risk Assessment process evaluates the social, environmental, and ethical risks of working with individual suppliers or groups of suppliers. The results give our supplier managers insights to make better-informed sourcing decisions and proactively manage their supplier relationships.

When performing a Supplier Risk Assessment, we look at a variety of factors, such as:

- **Country-level risks.** Are certain countries at higher risk for water scarcity, corruption, or child labor?

- **Product-specific risks.** Do suppliers use chemically intensive manufacturing processes? How physically demanding is the work involved?

- **Supplier fines or convictions.** Has the supplier previously been fined for human rights, environmental, or corruption violations?

- **Google's supplier-engagement efforts.** Has the supplier submitted a self-assessment? If problems were found during an audit, has the supplier taken steps to resolve them?

- **Supplier relationship.** How strategic is the supplier to our business? Do we influence the design of the product or the selection of the components?

Expanding our assessment approach

We continue to perform independent third-party site assessments at our suppliers' facilities to determine whether the supplier is meeting our standards, hear directly from workers, and identify and help resolve issues. Our audits also provide valuable opportunities to raise suppliers' awareness of their social and environmental responsibilities, promote accountability, understand leading practices, and encourage greater transparency.

The audits include in-depth factory, facility, and dormitory tours; management meetings; on-site worker interviews; and reviews of documents and records. Our audit program prioritizes our contract manufacturers, original equipment manufacturers, and suppliers initially identified as high risk.

In 2020, we implemented remote assessments that allowed us to continue evaluating higher-risk suppliers in locations where COVID-19 made it difficult for our third-party assessment teams to visit sites. Our Technical Desktop Assessments focus on a remote desktop review of a supplier's management system to assess whether that supplier has policies and procedures to address our Supplier Code of Conduct requirements.

Since the inception of our program in 2013, we have performed 309 on-site and remote assessments.

In addition to having suppliers take part in our audits, we encourage them to participate in the Responsible Business Alliance Validated Assessment Program.

2020 audit overview[2]

26

supplier site assessments

405

nonconformance issues identified

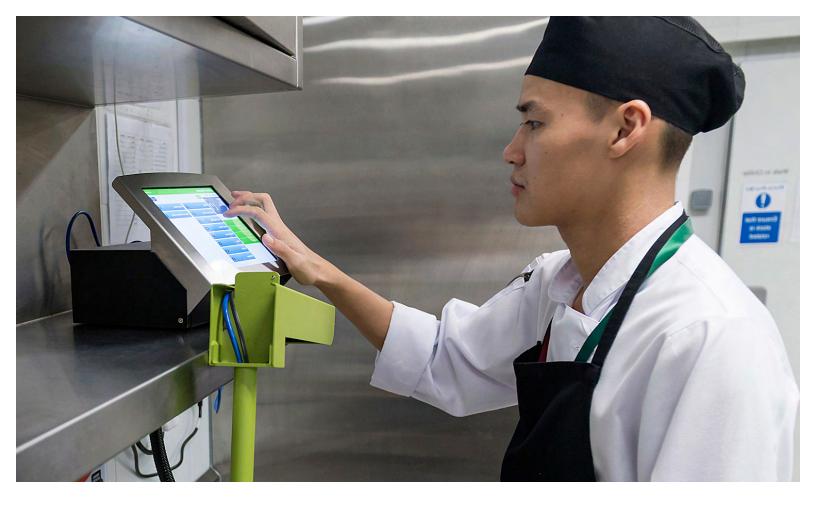# Using audits to identify—and correct—noncompliance

Although our suppliers adjusted their operations in 2020 due to COVID-19, working hours and emergency preparedness remained the most common nonconformance issues. Wages and benefits and fair terms and conditions also continued to be important focus areas.

When we find that a supplier is not conforming, we expect that supplier to provide a corrective action plan (CAP) that outlines the root cause of the finding, how and when that company will resolve the issue, and what steps it will take to prevent recurrence. We determine whether the plan is acceptable based on the severity of the nonconformance and the effort and time required to resolve the issue.

We expect suppliers to demonstrate improvements in order to continue working with us. Our goal is to resolve the most severe issues immediately. We expect all other findings to be resolved in accordance with our guidelines as quickly as is practical. While we work with our suppliers to help them address our findings, in some instances, we may decide to no longer pursue a relationship or to terminate our current relationship with a supplier.

Once a CAP is approved, we expect the supplier to provide evidence of resolution and commit to improving over time, which may require follow-up verification. Once the supplier is able to demonstrate that it has successfully implemented the approved CAP, we change the plan's status to "closed."

Audit findings by category in 2020

Nonconformance category	Percentage
■ Labor	**45%**
■ Health & Safety	**34%**
■ Environment	**7%**
■ Ethics	**3%**
■ Management System	**11%**

Most common nonconformance findings in 2020

Nonconformance criteria	Percentage
Working hours Excessive hours (over 60 per week) or more than six consecutive workdays without rest	**15%**
Emergency preparedness Fire code violations, inadequate drills, or inadequate fire alarm systems	**13%**
Wages and benefits Workers not receiving or delayed in receiving legally required wages and benefits	**9%**
Freely chosen employment Excessive termination notification requirements; monetary penalties for early termination; inadequate or missing policies or practices related to repatriation of foreign migrant workers	**8%**
Occupational injury and illness Bodily damage or illness caused by exposure to adverse substances or conditions during work	**5%**

Strengthening communities

Overview

We aspire to create stronger, more resilient communities everywhere we do business. We're taking action on more responsible sourcing of raw materials, including making broad, multi-industry commitments to ensure that minerals are mined responsibly. We're also working on strategies to responsibly transition into and out of supplier communities, including investing in local infrastructure and vital services so that people have access to economic opportunities beyond mining and manufacturing. As we work to end our reliance on raw materials altogether, these investments may prove critical to helping these communities persist and adapt in the face of change. At a minimum, our supply chain should do no harm. We aspire to leave communities better than we found them.

Sourcing minerals responsibly

We take proactive measures to manage the social and environmental impacts associated with the sourcing and extraction of raw materials for our consumer devices and data center equipment. This includes sourcing minerals for our electronics—specifically tin, tantalum, tungsten, and gold—exclusively from mines that aren't financing armed conflicts in the Democratic Republic of Congo (DRC) and other high-risk locations.

We launched our Conflict Minerals program in 2012 to improve transparency and develop conflict-free sources of these materials. From the beginning, our strategy has been to work collaboratively with governmental organizations and NGOs across the electronics industry and others to enable conflict-free sourcing for everyone. We're one of more than 400 members of the Responsible Minerals Initiative (RMI), which provides independent third-party audits to ensure that smelters and refiners meet current conflict-free standards.

In 2020, for the third year in a row, 100% of the smelters or refiners we used were conformant, active,[3] or verified by a third party as sourced from countries other than those covered in the 2010 Dodd-Frank Act (collectively referred to as "Compliant" smelters or refiners for the purposes of this report).

Three straight years of working with

100%

Compliant[4] smelters or refiners of tin, tungsten, tantalum, and gold

We are committed to zero child labor everywhere in our supply chain, including in mining. In addition to focusing on tin, tantalum, tungsten, and gold, we are working with peer companies and partners to help ensure zero child labor in cobalt mining and to strengthen cobalt tracing. In 2019, we joined the Cobalt for Development project, a multi-sector public-private initiative that seeks to promote responsible mining practices and improve conditions at artisanal cobalt mining sites in a southern province of the DRC. In 2020, we funded new research with RMI to investigate the challenges surrounding cobalt and how upstream and downstream parties can work together. In 2021, the Responsible Sourcing Network published this research in its Cobalt Baseline Study, which will inform future action toward responsibility in cobalt mining.

Empowering minerals transparency

To continue to build visibility into the source of every mineral used in the electronics industry, we invest in ways to make the minerals-tracking process more transparent for everyone along the supply chain. In 2020, we built on the success of our 2018 blockchain technology pilot with a new phase two blockchain pilot in Rwanda.

In collaboration with RMI, Berlin-based tech company Minespider, and Rwandan tin smelter LuNa, we expanded on the lessons we learned in Peru—with an added focus on exploring how multiple blockchains and digital traceability mechanisms could work together in an open-source environment in support of RMI's blockchain guidelines. By using blockchain technology to enable the creation, trading, and tracking of certificates and other documents along the supply chain, the pilot is working toward end-to-end minerals traceability. To date, more than 200 tons of tin with Minespider QR codes have been shipped from LuNa to global markets.

In the next year, we plan to explore further traceability collaborations in gold, cobalt, and copper. These are the next steps toward our ultimate vision: an open collaboration model that any industry player can join, one that inspires greater traceability across the mining and minerals industry and better connects our value chain and handoffs—from mine to supplier to consumer device.

Increasing community resilience

Roughly 44.5 million people work in artisanal and small-scale mining,[5] and many have few options outside the minerals trade. Reducing our reliance on mining will have many potential impacts on mining communities and people who work in the extractives industry. As we begin to understand these consequences more fully, we're making investment initiatives in select communities to enhance local infrastructure and empower people to pursue alternative livelihoods.

In collaboration with nonprofit, academic, technical, and community partners, our initial investments have focused on solar energy projects in the DRC, where only 9% of the nation has access to electricity.[6] Our Congo Power team has completed eight community power projects since the program's launch in 2017, delivering power to 9,288 people in the DRC as well as conservation areas and national parks that are of vital importance to the Congolese and the planet.

In 2020, with the support of Google's Earth Outreach team, we have improved our ability to identify new sites suitable for renewable energy infrastructure in the DRC and to monitor landscape changes, such as those resulting from cobalt or gold mining, using a neural network designed for mapping land cover over time. These advances in Google technology provide spatial resolution that's 10 times greater than the next best data from other methods and will be invaluable for the Congo Power program going forward.

Google also visited the DRC and Rwanda in 2019 as a part of the Public-Private Alliance for Responsible Minerals Trade (PPA). PPA is a multi-sector initiative between leaders in civil society, industry, and government that supports projects in the DRC and the surrounding Great Lakes Region of Central Africa that improve the due diligence and governance systems needed for ethical supply chains. In 2020, Google joined other PPA member companies in funding Panzi Foundation and V-Day's City of Joy to support programs focused on expanding care, training, and aid for survivors of gender-based violence.

As we move into the third phase of Congo Power, we'll continue to work with stakeholders through Congo Power and initiatives like PPA to support community-led efforts and to deepen our collaborations with RMI and the Panzi Foundation to address the nexus of conflict, minerals mining, and women's empowerment and livelihoods in the DRC. We'll continue to expand real-time impact and data dashboards on key metrics. And we'll grow our collaborations with responsible supply chain partners and continue research with the Renewable and Appropriate Energy Lab at the University of California, Berkeley, to create energy and climate change data sets, models, and use cases for clean energy deployment in emerging and conflict economies.

Advancing supplier diversity

Google is committed to advancing supplier diversity, equity, and inclusion in how Google conducts business globally. In recognition of the role that an inclusive supply chain plays in creating racial equity, Google committed to accelerating our progress in supplier diversity through investment to rebuild and transform our Supplier Diversity program. In October 2020, we announced a new goal to spend at least $100 million with Black-owned suppliers and $1 billion with diverse-owned suppliers in the United States by the end of 2021 and every year after.[7]

Protecting
the planet

Overview

We're committed to building an energy-efficient, low-carbon, circular supply chain that makes smart use of the earth's resources, protects ecosystems, and helps lead the fight against climate change. This starts with areas where we can make an immediate and long-term impact, such as helping our suppliers adopt high-quality energy-efficiency measures (EEMs); improve their environmental performance; and integrate inclusivity, climate resilience, water stewardship, and circular design into our supply chain. We believe these principles can play a key role in reducing environmental impact and in protecting human rights and community health.

Addressing the climate crisis

Climate risks, such as floods or extreme temperatures, can threaten the availability of materials and water for suppliers, disrupt operations, and damage community health. To help our suppliers reduce GHG emissions and build toward a carbon-free energy future, we're incorporating climate-resilience strategies across our supplier network.

490

GHG emissions-saving initiatives—the majority focused on energy efficiency—implemented by suppliers in 2020

Going big on renewables

Google works with suppliers around the world. The electricity grids in many countries where our suppliers operate lack sufficient carbon-free energy capacity to support rapidly growing demand and may even face energy shortages that affect not just manufacturing but also the communities and livelihoods of the people in these regions.

Our long-term vision is that all of our direct and indirect suppliers and their communities have access to reliable, cost-effective carbon-free energy. But we'll get there only through significant global investment in new wind, solar, and other clean energy capacity, as well as more robust grid systems.

In 2020, Google committed to enabling 5 gigawatts (GW) of new carbon-free energy across our key supply chain manufacturing regions by 2030, through investment. This commitment is expected to avoid the global GHG emissions equivalent of taking more than 1 million cars off the road each year.[8] Investment in renewable capacity is a scalable approach to creating system-level change, driving grid decarbonization, and enabling greater access to carbon-free energy.

This is especially significant in markets where credible procurement mechanisms for clean energy are nascent or nonexistent. Our 5 GW commitment is expected to catalyze the additional investment of more than $5 billion in new wind, solar, and other clean energy technologies, driving broad sustainability benefits.

Of course, bringing new clean energy online is only one piece of the puzzle. We're committed to directly reducing our supply chain footprint by supporting our suppliers' transition to carbon-free energy for their operations and adopting EEMs that draw on Google's expertise in the areas of predictive analytics and machine learning—for example, helping suppliers schedule energy-intensive activities for periods when more clean energy is on the grid and driving further energy efficiency across their operations. We expect that these efforts will reduce our suppliers' GHG emissions.

In 2019, we announced our plan to develop an open-source collaborative platform to help address climate change by making renewable energy more affordable and accessible in manufacturing markets. In the months following the announcement, we launched an extensive fact-finding mission to learn the current state of renewable energy procurement in key supply chain markets and identify barriers and gaps. We then shared our findings with our industry peers and started mobilizing a network of peers and suppliers to address them.

The high cost of renewables is the most persistent barrier in markets outside the United States and Europe. In addition, many energy markets have few mechanisms—or none at all—through which companies can credibly purchase renewable energy.

As part of the open-source collaborative platform, our first major initiative has been to leverage the collective influence of our peers and manufacturing partners to push the boundaries for renewable energy in Japan, a key manufacturing market. In partnership with seven other major corporations, strategic supply chain partners, and regional utilities, we're currently rolling out pilot mechanisms for this new open-source model. Our goal is to make renewable energy so cost-effective in Japan that suppliers no longer have to choose between what's best for their businesses, the environment, or the communities in which they operate.

In 2020, the coalition collaborated on the identification of strategies to add new clean energy and completed environmental and social due diligence. The collaborative and local partners will continue to adapt or find new models that will provide greater access to affordable clean energy.

Our work in increasing supplier access to renewable energy is intentionally inclusive. We aim for our investments in renewable energy and energy efficiency to drive better manufacturing across Google's supply chain and—importantly—to reduce the environmental impact of manufacturing for people and communities around the world.

99%

of surveyed suppliers provide primary data on environmental programs.

Maximizing potential energy savings

We work closely with suppliers to improve their environmental performance by helping them get more out of every watt of energy they consume. This includes performing energy-efficiency evaluations at supplier sites, making recommendations for EEMs, following up on implementation, and encouraging the adoption of robust energy-management systems.

Our teams have worked with suppliers to support the implementation of measures with the greatest potential for payback and assist in the transition to renewable energy on-site. These efforts include training and coaching; support for continuous improvements in energy efficiency and performance, cost savings, and productivity; and internal recognition. EEMs with the most savings potential include replacing high-density lighting with LED lighting, optimizing and automating chilled-water distribution systems, replacing outdated chillers and other major equipment, and implementing fully integrated building management systems.
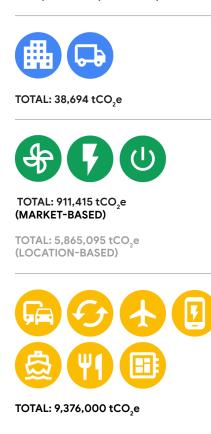
Our energy-efficiency assessments also have an impact beyond Google's supply chain. In many cases, the recommendations we make to suppliers should benefit all the customers they serve. We also encourage our suppliers to share best practices with other facilities owned by the same company. As with renewable energy, these long-term initiatives are intended to reduce GHG emissions across the sector and, ultimately, benefit the communities where our suppliers operate.

Integrating climate change criteria into supplier management processes

We're continuing to integrate climate change criteria into our supplier sourcing, assessing our suppliers' reporting, management, and emissions reduction processes. We're using this data to set goals and priorities for our sustainability program by supplier, commodity, and region and to continually improve our analyses of our supply chain GHG emissions.

In 2020, we requested environmental data from 193 suppliers (9% more suppliers than in 2019); 99% (the same as in 2019) responded to our climate change survey requests, 97% (up from 95% in 2019) reported at least one scope of GHG emissions (Scope 1, Scope 2, or both), and 73% (up from 71% in 2019) reported having set a GHG emissions reduction target.

Google's 2020 GHG emissions: 10,326,109 metric tons of carbon dioxide equivalent (tCO$_2$e)*,†

● Scope 1   ● Scope 2   ● Scope 3

TOTAL: 38,694 tCO$_2$e

TOTAL: 911,415 tCO$_2$e (MARKET-BASED)

TOTAL: 5,865,095 tCO$_2$e (LOCATION-BASED)

TOTAL: 9,376,000 tCO$_2$e

Tracking our supply chain GHG emissions

To estimate our manufacturing Scope 3 GHG emissions, we collected supplier Scope 1 and 2 GHG emissions data directly from our Tier 1 contract manufacturers and component suppliers. We work with our suppliers to report GHG emissions data through the CDP supply chain platform. GHG emissions were estimated using facility- and company-level emissions allocated to Google, as reported by suppliers or calculated based on GHG intensity and spend data, to collectively represent 100% of the spend. For fabless suppliers, GHG emissions were estimated by using their company-level Scope 1 and 2 emissions allocated to Google as well as, when reported by these suppliers, Scope 3 emissions from their manufacturing partners. Data gaps were estimated using industry-average GHG intensities by sector and spend data.

GHG emissions beyond our Tier 1 suppliers were estimated by applying a multiplier based on Google's past carbon footprints using the Economic Input-Output Life Cycle Assessment method and that is consistent with Scope 3 data reported by our suppliers through the CDP supply chain platform. Although these figures are estimated with a high degree of uncertainty, this method is a common approach that aligns with emissions reporting standards.

We calculated Scope 3 GHG emissions from transportation and warehousing of our consumer products, data center equipment, and Google Shopping deliveries by third-party logistics providers, both inbound and outbound, paid for by Alphabet. Some transportation providers reported customer-allocated GHG emissions that they calculated in alignment with the GHG Protocol based on fuel use or weight-distance data and routing associated with a shipment. We estimated GHG emissions based on the number of units shipped and activity data obtained from the other transportation providers.

We obtained energy data, when available, directly from the warehouses, and estimated emissions using electricity and fuel factors. In cases where data was not available, we estimated electricity and natural gas use in warehousing by using average energy consumption per square foot from the 2012 Commercial Buildings Energy Consumption Survey, multiplied by the square feet allocated to Alphabet.[9]

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* Our total emissions are the sum of our Scope 1, Scope 2 (market-based), and Scope 3 emissions. Scope 1, 2, and part of Scope 3 emissions are assured by an independent, accredited auditor. Our electricity use is also part of our Scope 2 verification.

† Scope 1 emissions are direct emissions from sources we own or control, such as company vehicles or generators at Google's offices and data centers.

Scope 2 emissions are indirect emissions from the production of electricity we purchase to run our operations and the production of space heating for our offices. The location-based category reflects the average carbon intensity of the electric grids where our operations are located and, thus, where our energy consumption occurs. The market-based category incorporates our procurement choices (i.e., our renewable energy purchases via contractual mechanisms like power purchase agreements).

Scope 3 emissions are indirect emissions from other sources in our value chain, such as our manufacturing and food suppliers, logistics providers, business travel, employee commuting, and use and end-of-life treatment of Google products.

Working to end reliance on raw materials

At Google, we have a company-level commitment to maximize the reuse of finite resources across our operations, products, and supply chains and to enable others to do the same. Accelerating the transition to a circular economy will include rethinking the way we build our products and working to keep materials and resources in use for as long as possible. An important part of this framework is going beyond sourcing minerals more responsibly and working to end our collective reliance on raw materials altogether.

This means we need to continue to innovate the materials we use. In pursuit of our commitment to using recycled materials in all Made by Google products by 2022, we developed a new 100% recycled aluminum alloy that our material suppliers can make available to the consumer electronics industry as a whole. Our recycled materials projects play a critical role in how we're building a more circular Google.

Progress and commitments

Creating a more inclusive, resilient, transparent, and connected supply chain is a long-term process. We've set a number of goals for our own operations and those of our suppliers to help accelerate our progress. Here's a look at some of the commitments we've made, our progress in 2020, and new commitments for 2021.

Progress against targets

Putting people first

Target	Deadline	2020 progress	Status
Maintain suppliers' commitments to our Supplier Code of Conduct and perform risk assessments for all suppliers.	Annual	We continue to embed our Supplier Code of Conduct in our supplier contract templates across Google. We continue to conduct assessments of our suppliers' conformance at higher-risk sites.	🟢
Continue to conduct worker surveys to increase transparency and identify opportunities for improvement in the areas most important to workers.	Annual	We engaged more than 1,850 workers through third-party surveys and interviews, giving us important insights into worker priorities.	🟢
Expand Supplier Code of Conduct trainings for strategic suppliers and supplier managers in areas like humane treatment of workers, forced labor, and modern slavery.	Annual	We train our vendors, temporary staff, and independent contractors to report concerns of illegal or unethical activity and to avoid working with parties that engage in modern slavery or other illegal practices. In addition, we have an online training course that includes anti-modern slavery education for workers in roles related to hardware supplier management.	🟢
Launch Google's Process Chemicals Full Material Disclosure (FMD) Data Collection and Assessment program to contract manufacturers to enhance data transparency, evaluate hazardous chemicals, and verify manufacturing restricted substances (MRS) conformance for safer chemistry.	2020	We expanded our Responsible Chemicals Program by developing and launching the FMD program with all key contract manufacturers.	🟢

2021 goals

Continue to integrate our Supplier Code of Conduct expectations into all contractual agreements with our suppliers.

Conduct assessments of our higher-risk supplier sites to identify and improve conformance with our Supplier Code of Conduct expectations.

Continue to gather worker feedback through interviews and surveys to identify opportunities for improvement in the areas most important to workers.

Expand Supplier Code of Conduct trainings for strategic suppliers and supplier managers in areas like humane treatment of workers, forced labor, and modern slavery.

Continue to train manufacturing suppliers on the identification and elimination of MRS and responsible chemical management guidance to build their capacity and promote best practices.

Progress against targets (continued)

Strengthening communities

Target	Deadline	2020 progress	Status
Continue to work toward ensuring that our suppliers source from smelters that are 100% conformant with the Conflict-Free Smelter Program assessment protocols.	Annual	100% of the smelters or refiners we used in 2020 were conformant, active,[10] or verified by a third party as sourced from countries other than those covered in the 2010 Dodd-Frank Act.	🟢
Continue engaging with cross-industry groups to expand conflict-free and responsible sourcing options through initiatives such as smelter audits and materials chain-of-custody verifications in multiple high-risk areas.	Annual	We funded research with the Responsible Minerals Initiative (RMI) and the Responsible Sourcing Network to analyze the cobalt sector and identify recommendations to address ongoing issues. This 2020 research led to the publication of the Cobalt Baseline Study in 2021.	🟢
Continue to collaborate with external stakeholders and cross-industry groups that reinforce responsible sourcing of minerals and improved human rights outcomes.	Annual	We continue to engage with external stakeholder and industry groups such as the International Conference on the Great Lakes Region Audit Committee, the Public-Private Alliance for Responsible Minerals Trade (PPA), Panzi Foundation, and V-Day's City of Joy, along with DRC-specific groups like the Responsible Artisanal Gold Solutions Forum and RMI. We also collaborated with RMI, PPA, and the Panzi Foundation on a research initiative that examines the links between conflict, the minerals trade, and women's empowerment and livelihoods.	🟢
Continue to develop strategies to ensure zero child labor in cobalt supply chains and increase renewable energy access in mining communities.	Annual	We continue our engagement with the Cobalt for Development project, a multi-sector public-private initiative that seeks to promote responsible mining practices and improve conditions at artisanal cobalt mining sites in a southern province of the DRC. We also work with our peers via the artisanal and small-scale mining subcommittee of RMI and funded the Cobalt Baseline Study with RMI.	🟢
Continue to drive increased transparency and traceability in minerals value chains and support root-cause interventions that reinforce responsible and ethical supply chains.	Annual	We began the second phase of our blockchain traceability pilot for tin supply chains in a collaboration with Minespider, RMI, and Rwandan tin smelter LuNa, and we explored how multiple blockchains and digital traceability mechanisms could work together in an open-source environment.	🟢

2021 goals

Continue to work toward ensuring that our suppliers source from smelters that are 100% conformant with the Responsible Minerals Assurance Process assessment protocols.

Continue to engage with cross-industry groups to expand conflict-free and responsible sourcing options through initiatives such as smelter audits and materials chain-of-custody verifications in multiple high-risk areas.

Continue to collaborate with external stakeholders and cross-industry groups that reinforce responsible sourcing of minerals and improved human rights outcomes.

Continue to develop strategies to help ensure zero child labor in cobalt supply chains and increase renewable energy access in mining communities.

Continue to drive increased transparency and traceability in minerals value chains and support root-cause interventions that reinforce responsible and ethical supply chains.

Progress against targets (continued)

Protecting the planet

Target	Deadline	2020 progress	Status
Continue to work toward ensuring that 90% of our suppliers responding to our environmental surveys report GHG emissions and at least 50% report GHG emissions reduction targets through the CDP supply chain platform.	Annual	In 2020, 99% of our suppliers responded to our climate change survey requests, 97% reported at least one scope of GHG emissions, and 73% reported having GHG emissions reduction targets. We also encourage suppliers to respond through the CDP supply chain platform; of these suppliers, 75% reported GHG emissions reduction goals.	🟢
Complete pilot study to drive emissions and energy reductions using advanced analytics and machine learning techniques. Through policy, technical, and market support, continue to develop programs that accelerate the transition of supplier sites to renewable energy.	2020	We selected a participant in 2020 and completed the pilot design. Deployment was put on hold due to COVID-19.	🟡
Invest in one clean energy project as part of Google's commitment to enable 5 GW of new clean energy in manufacturing markets by 2030.	2020	We're currently conducting due diligence on a project pipeline and on track to support Google's 2030 clean energy target.	🟡
Work toward increasing renewable energy use in our supply chain through direct supplier engagement, renewable energy investments, and the open-source collaborative platform. Replicate successes from our initiative in Japan to reduce the cost and accelerate supplier adoption of renewable energy in other key supply markets around the world.	2020	Of our suppliers reporting through the CDP supply chain program, 50 reported that they are implementing clean energy projects such as installing on-site solar photovoltaic potential. In addition, in 2020, we committed to enable 5 GW of carbon-free energy in key manufacturing regions by 2030. With a coalition of peers and suppliers, we collaborated to identify—and completed environmental and social due diligence for—strategies for adding new clean energy in key supply markets.	🟢
Continue to improve and refine the way we calculate the carbon footprint associated with our products throughout their life cycle and work to increase the proportion of suppliers providing data to 90% of our supplier spend.	2020	We conducted life cycle assessments and published product environmental reports for Google's flagship products. Additionally, we estimated and reported Alphabet's manufacturing Scope 3 emissions, including 100% of the manufacturing inventory spend. We received primary data from suppliers representing 86% of the manufacturing inventory spend.	🟡

2021 goals

Continue to engage with suppliers (including hardware manufacturing as well as indirect services suppliers) to reduce their GHG emissions, as mandated in our Supplier Code of Conduct. We expect all our suppliers to report their environmental impacts and maintain GHG reduction targets.

Complete pilot study to drive emissions and energy reductions using advanced analytics and machine learning techniques. Through policy, technical, and market support, continue to develop programs that accelerate the transition of supplier sites to renewable energy.

Enable 5 GW of new carbon-free energy in key manufacturing regions by 2030.

Work toward increasing renewable energy use in our supply chain through direct supplier engagement, renewable energy investments, and the open-source collaborative platform. Replicate successes from the platform in Japan to reduce the cost and accelerate supplier adoption of renewable energy in other key supply markets around the world.

Continue to improve and refine the way we calculate the carbon footprint associated with our products throughout their life cycle and work to increase the proportion of suppliers (including hardware manufacturing as well as indirect services suppliers) providing data to 90% of our supplier spend.

Appendix

Appendix

Audit conformance data

When we audit suppliers, we gauge their conformance to our Supplier Code of Conduct within several audit categories—labor, health and safety, environment, ethics, and management system—and specific criteria within each category. The relative amount of new findings within each category tends to be similar year over year because we are continuously adding new suppliers.

In the table below, the second column shows the percentage of audited suppliers with nonconformance findings prior to corrective action plans (CAPs), and the third column shows the percentage increase of suppliers in conformance after CAPs. A value of 100% in the fourth column means that all audited suppliers were in conformance after CAPs.

Due to rounding, the difference between the figures in the second and third columns may not exactly equal the difference between 100% and the figure in the fourth column.

Audit criteria	Unique audited supplier facilities with non-conformance findings	Improvement in conformance after CAP	Audited supplier facilities in conformance after CAP
Labor			
Freely Chosen Employment	34.58%	31.25%	96.67%
Child Labor Avoidance; Student Interns	32.08%	29.17%	97.08%
Working Hours	83.33%	78.33%	95.00%
Wages and Benefits	55.42%	51.67%	96.25%
Humane Treatment	14.58%	11.67%	97.08%
Non-Discrimination	16.25%	15.42%	99.17%
Freedom of Association and Collective Bargaining	15.00%	14.17%	99.17%
Immigration Law and Compliance	1.25%	1.25%	100.00%
Other	5.00%	5.00%	100.00%
Health & Safety			
Health & Safety Management System	3.75%	3.75%	100.00%
Occupational Safety	57.50%	57.08%	99.58%
Emergency Preparedness	66.67%	62.08%	95.42%
Occupational Injury and Illness	39.58%	36.67%	97.08%
Industrial Hygiene	32.50%	31.67%	99.17%
Physically Demanding Work	19.58%	17.50%	97.92%
Machine Safeguarding	20.00%	20.00%	100.00%
Sanitation, Food, and Housing	27.50%	27.08%	99.58%
Emotional Well-Being	2.92%	1.67%	98.75%
Other	2.08%	2.08%	100.00%

Appendix

Audit criteria	Unique audited supplier facilities with non-conformance findings	Improvement in conformance after CAP	Audited supplier facilities in conformance after CAP
Environment			
Environmental Management System	2.92%	2.92%	100.00%
Environmental Permits and Reporting	20.83%	20.42%	99.58%
Hazardous Substances	50.83%	49.17%	98.33%
Wastewater and Solid Waste	19.58%	19.17%	99.58%
Air Emissions	10.42%	10.00%	99.58%
Product Content Restrictions	3.33%	3.33%	100.00%
Resource Efficiency	10.42%	10.00%	99.58%
Ethics			
Business Integrity; No Improper Advantage	19.58%	18.75%	99.17%
Disclosure of Information	2.08%	2.08%	100.00%
Intellectual Property	7.50%	6.67%	99.17%
Fair Business, Advertising, and Competition	3.33%	2.92%	99.58%
Responsible Sourcing of Minerals	2.50%	2.50%	100.00%
Privacy	5.42%	5.42%	100.00%
Non-Retaliation	14.58%	14.17%	99.58%
Other	0.83%	0.83%	100.00%
Management System			
Company Commitment	5.00%	5.00%	100.00%
Management Accountability and Responsibility	19.17%	18.33%	99.17%
Legal and Customer Requirements	21.67%	20.83%	99.17%
Risk Assessment and Risk Management	29.17%	27.92%	98.75%
Improvement Objectives	24.58%	23.33%	98.75%
Training	13.33%	12.92%	99.58%
Communication	12.08%	12.08%	100.00%
Worker Feedback and Participation	10.00%	10.00%	100.00%
Audits and Assessments	23.75%	22.08%	98.33%
Corrective Action Process	9.58%	9.17%	99.58%
Documentation and Records	1.67%	1.67%	100.00%
Supplier Responsibility	3.33%	2.92%	99.58%

Appendix

Endnotes

1. For the purposes of this report, "Compliant" smelters or refiners are those that are conformant, active, or verified by a third party to source from countries other than those covered in the 2010 Dodd-Frank Act. See Alphabet's Conflict Minerals Policy and Report for more information.

2. Audits in 2020 took place in Brazil, China, India, Indonesia, Malaysia, Philippines, Poland, Taiwan, the United States, and Vietnam.

3. Smelters and refiners are defined as "conformant" or "active" by the Responsible Minerals Initiative. Conformant smelters or refiners are those that have been audited and meet the criteria for not directly or indirectly supporting the conflict; active smelters or refiners are those in the process of being audited.

4. See note 1 above.

5. Delve (website), accessed 2021.

6. "Democratic Republic of the Congo," Power Africa fact sheet, USAID, April 2020.

7. Sundar Pichai, "Progress on Our Racial Equity Commitments," *The Keyword* (blog), October 22, 2020.

8. "Greenhouse Gas Equivalencies Calculator," U.S. Environmental Protection Agency, accessed 2021.

9. This approach excluded any refrigerants and likely overestimated natural gas use.

10. See note 3 above.

Google

Additional resources

Statements Against Modern Slavery (2020, 2019, 2018, 2017, 2016)

Supplier Code of Conduct

SEC filings (2020, 2019, 2018, 2017, 2016, 2015, 2014)

Supplier Responsibility Reports (2020, 2019, 2018, 2017)

Google