BUILDING BETTER DEVICES AND SERVICES

GHG emissions

100%
of shipments are carbon neutral

All shipments of Made by Google products to and from direct customers are carbon neutral.[5]

38%
emissions reduction per metric ton shipped

From 2019 to 2020, we reduced total transportation emissions of Google hardware products by 38% per metric ton shipped.

Materials

100%
of Made by Google products contain recycled materials

All Made by Google products launched since 2020 are built with recycled materials.[6]

100%
recycled aluminum in Pixel 5 enclosure

Pixel 5 is designed with recycled aluminum to reduce its carbon footprint. The aluminum in the enclosure is 100% recycled content.[7]

Energy

65 billion kWh
of energy savings

From 2011 to 2020, Nest thermostats helped customers cumulatively save more than 65 billion kWh of energy—enough to power all of San Francisco's electricity consumption for over 11 years.

18 billion kWh
of energy savings

In 2020 alone, Nest thermostats helped customers save more than 18 billion kWh of energy—more energy than Google used in 2020.

10%–15%
energy savings

On average, Nest thermostats have proven energy savings of 10%–12% for heating and 15% for cooling,[8] which means they pay for themselves in under two years.[9]

Waste

32 countries
with take-back programs

In 2020, we expanded our take-back program to all 32 countries where we ship Made by Google products, allowing customers to responsibly recycle old and unused devices for free—whether made by Google or not.

EMPOWERING USERS WITH TECHNOLOGY

Products

1 billion km
of transit results on Google Maps

Google Maps provides, on average, more than 1 billion kilometers' (621 million miles') worth of transit results per day, helping to limit carbon emissions by giving people access to mass transit options, bike routes, and traffic information.

180,000
EV charging locations on Google Maps

By the end of 2020, Google Maps contained nearly 180,000 EV charging locations globally.

Tools

400 cities
using Environmental Insights Explorer

By the end of 2020, more than 400 cities worldwide were using the Environmental Insights Explorer, a tool that empowers city planners and policymakers with actionable data to help reduce global emissions.

170 million
rooftops mapped with solar data

By the end of 2020, Project Sunroof contained data for more than 170 million rooftops across 21,500 cities, helping users estimate the impact and potential savings from installing solar panels.

Tools (continued)

40 petabytes
of freely available geospatial data

Earth Engine has enabled tens of thousands of active users around the world to easily analyze over 40 petabytes[10] of freely available geospatial information, resulting in a deeper understanding of the planet.

Programs

€10 million
Impact Challenge on Climate

In 2020, Google.org launched the Impact Challenge on Climate, committing €10 million to fund bold ideas that aim to use technology to accelerate Europe's progress toward a greener, more resilient future.

Progress against targets

As a data-driven company, we believe it is critical to regularly track progress toward our commitments and share updates with our stakeholders. The following section provides an overview of our 2020 progress toward our various environmental targets.

For a more complete overview of our performance over time, see the environmental data table.

DESIGNING EFFICIENT DATA CENTERS

Target	Deadline	2020 progress	Status
Energy			
Maintain or improve average annual fleet-wide PUE across Google data centers year over year.	2020 (Annual)	In 2020, the average annual PUE for our global fleet of data centers was 1.10. Since 2012, our average annual fleet-wide PUE has stayed at or below 1.12, even as demand for our products has dramatically risen.	●
Certifications			
Maintain ISO 50001 energy management system certification for Google-owned data centers that meet certain operational milestones.	2020 (Annual)	In 2020, we maintained our ISO 50001 certification for our operational European data centers. We were the first major internet company to achieve a multi-site energy management system certification to ISO 50001, which we first attained in 2013.	●
Waste			
Achieve Zero Waste to Landfill for our global data center operations.	Not applicable	In 2020, our global landfill diversion rate for data center operations was 81%.	◒
Water			
Replenish 120% of the water we consume, on average, across our offices and data centers.	2030	This target was set in 2021.	◒

● Achieved ◒ In progress ⊘ Missed

ADVANCING CARBON-FREE ENERGY

Target	Deadline	2020 progress	Status
Energy			
Match 100% of the electricity consumption of our operations with renewable energy purchases.	2020 (Annual)	In 2020, we purchased enough renewable energy, from sources such as wind and solar, to match 100% of the electricity consumption of our data centers and offices. We were the first company of our size to reach this milestone back in 2017, and we've achieved it for four consecutive years.[11]	●
Operate on carbon-free energy 24/7 by 2030.	2030	In 2020, on an hourly basis, 67% of our data center electricity use was matched with regional carbon-free sources.	◒
Enable 5 GW of new carbon-free energy in our key manufacturing regions by 2030.	2030	We're working toward this target.	◒
GHG emissions			
Achieve net-zero emissions across all of our operations and value chain by 2030.	2030	This target was set in 2021.	◒
Maintain carbon neutrality for our operations.	2020 (Annual)	In 2020, we purchased enough renewable energy and high-quality carbon credits to compensate for all our operational GHG emissions. Google has been carbon neutral since 2007—for 14 consecutive years.	●
Compensate for our legacy carbon footprint since our founding through high-quality carbon credits.	2020	As of September 14, 2020, we had purchased enough high-quality carbon credits to compensate for our entire legacy carbon footprint since our founding, making Google the first major company to be carbon neutral for its entire operating history.	●

CREATING SUSTAINABLE WORKPLACES

Target	Deadline	2020 progress	Status
Commuting			
Reduce single-occupancy vehicle commuting at our Bay Area headquarters[12] to 45% of workers commuting on any given day.	Not applicable	We're working toward this target.	◒
Provide EV charging stations for 10% of total parking spaces at our Bay Area headquarters.	Not applicable	Of the total parking spaces at our Bay Area headquarters, more than 7% were designated EV parking spaces with charging stations in 2020.	◒
Certifications			
Pursue the ILFI Living Building Challenge Certification for our Charleston East and Bay View campuses—two of Google's first ground-up development projects at our Bay Area headquarters.	2023	At our Charleston East campus, we're working to achieve the Living Building Challenge Materials Petal (which includes Red List Free materials and net-zero waste), and at our Bay View campus, we're working to achieve the Living Building Challenge Water Petal (which includes net-positive water use).	◒

● Achieved ◒ In progress ⊘ Missed