





Google

Sustainability at Google

Yves Gonzalez, June 14, 2023

Sustainability at Google

01 Introduction

02 Leading at Google

03 Supporting Partners

04 Enabling Everyone

An aerial photograph of a lush green forest landscape. A winding, light-colored road or path cuts through the dense greenery on the left side of the image. In the upper right corner, a small, dark, irregularly shaped body of water is visible. The forest appears to be composed of various types of trees, creating a textured green surface. The overall scene is serene and natural.

01 Introduction



Our climate pledge

On September 14, 2020, we announced our third decade of climate action—our most ambitious yet.

Leading with a bold commitment to operate on carbon-free energy by 2030.

How we'll achieve it

We're the first major company to set this goal.

Here's how we plan to get there:



Leading at Google



Supporting Partners



Enabling Everyone

An aerial photograph of a landscape. On the left, a green field is separated from a dense forest by a reddish-brown path. The forest borders a river that flows towards the bottom right. In the bottom left, there are rows of crops in a field. The river has some yellowish-green patches in it. The text '02 Leading at Google' is overlaid in the center.

02 Leading at Google

We are taking steps to
operate more sustainably.

Leading at Google

Sustainability has been a core value at Google since our founding.

In 2020, 67% of our data center electricity use was matched with regional carbon-free sources on an hourly basis.



Carbon neutral since 2007

In 2007, Google was the first major company to commit to and achieve carbon neutrality.



100% renewable energy match since 2017

Since 2017, Google has matched 100% of operational electricity consumption with renewable energy purchases.



24/7 carbon-free energy by 2030

We are working toward sourcing 24/7 carbon-free energy for all of our data centers and campuses around the world. By 2030, we aim to run our business on carbon-free energy everywhere, at all times.

Our energy journey

What's the difference between carbon neutrality, 100% renewable energy, and 24/7 carbon-free energy?



Carbon neutral

Offsets emissions

Achieved by reducing emissions and pursuing efficiencies, then purchasing high-quality carbon offsets for remaining emissions



100% renewable

Matches energy use

Achieved by purchasing enough renewable energy to match annual electricity use



24/7 carbon-free

Eliminates emissions

Achieved by sourcing carbon-free energy at every hour of every day to power Google's operations

Carbon-free energy 24/7 by 2030

In our third decade of climate action, we're going further to build a carbon-free future.



Purchase more clean energy,
and innovate new ways to
match clean energy.



Develop new technologies and
clean energy solutions.



Advance public policy around
clean energy systems.

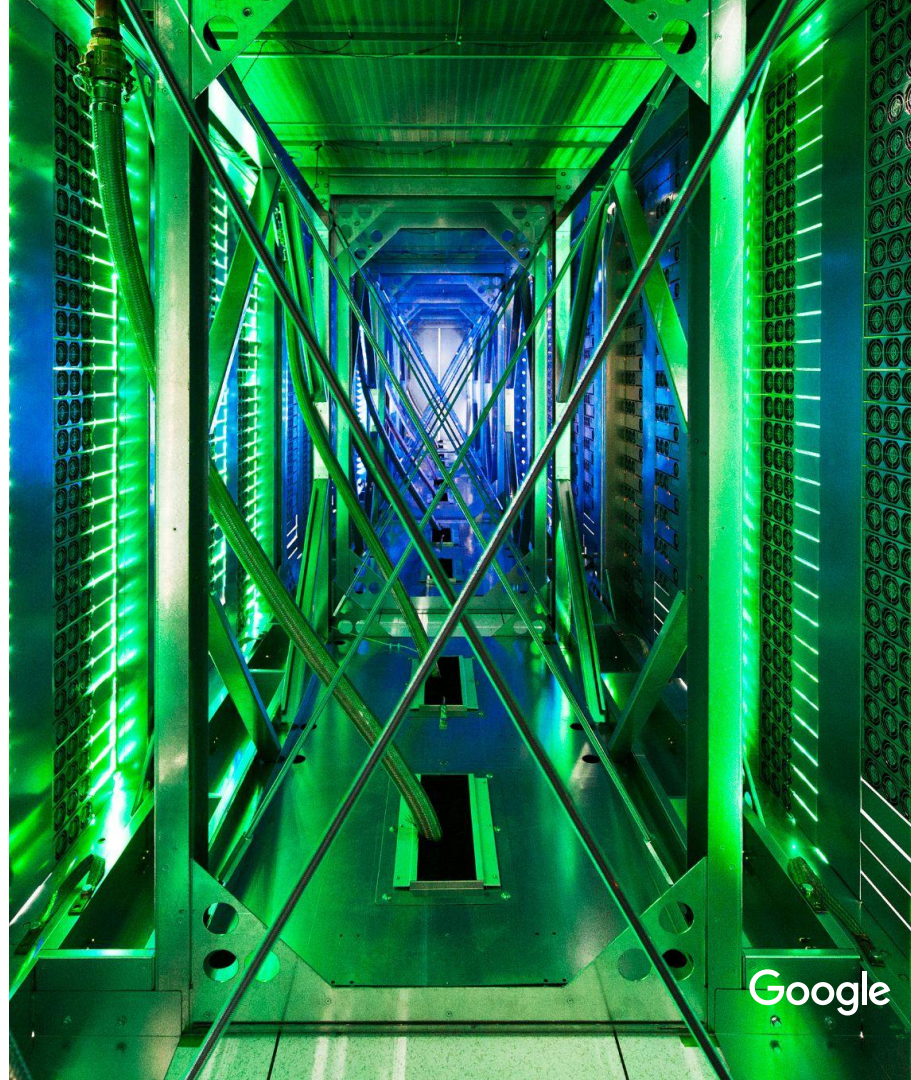
Spotlight on our data centers

Google's data centers are industry leading

2x as energy efficient as a typical
enterprise data center.

Achieving 30% energy savings on
cooling by utilizing AI.

Sustainability Confidential. Do not distribute.



Google

Google's cloud-based products and services

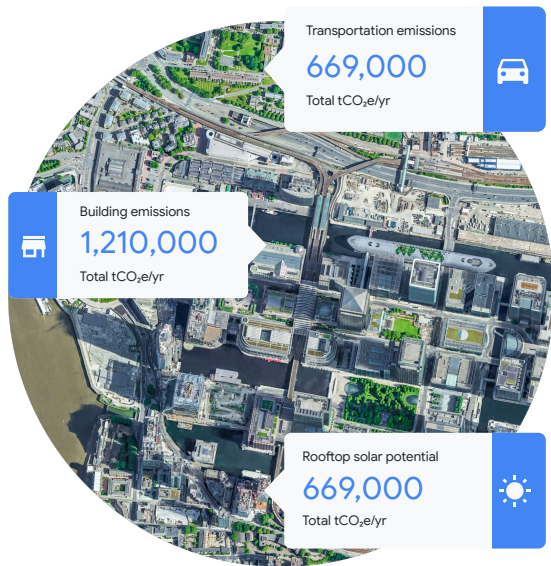


Including those with over 1 billion users—are powered from
Google's carbon-neutral data centers.



03 Supporting Partners

We're committed to helping
organizations transition to resilient,
carbon-free systems.



EIE overview

We launched the Environmental Insights Explorer in 2018.

This tool empowers cities with actionable data and insights.

We've committed to helping 500+ cities reduce an aggregate of one gigaton of carbon emissions annually by 2030.

In 2021, over 450 cities were exploring EIE data for climate action planning efforts.

EIE Case studies

EIE in action

Like many local governments, Australia's councils have been working hard to quantify which activities, such as cars and public transport, contribute to greenhouse gas emissions, or GHGs.



From a council's perspective, the Snapshot tool and associated EIE data is particularly valuable because the tool enables resources to be allocated towards achievable action. In place of spending time and money on data, methodology and complex protocols, the tool is easy to understand and navigate, supporting decision-making that's effective and efficient.



Imogen Jubb
Zero Carbon Communities National
Manager, Beyond Zero Emissions

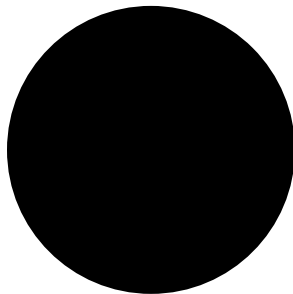
AI for climate mitigation and adaptation

We're using technology to empower partners to mitigate and adapt to climate change.



Earth Engine and GCP

Helping businesses become more climate resilient with Earth Engine and Google Cloud Platform integration.



Wildfire Detection, Prediction

Faster fire detection through IR satellite data, propagation models using ML.



Flood Forecasting and Alerts

Hyper-local public alerts covering 240M people in India and Bangladesh.

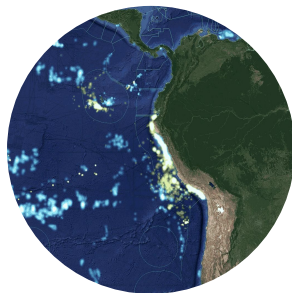
Google Earth Engine

We're democratizing access to environmental data to enable monitoring, compliance, and enforcement.



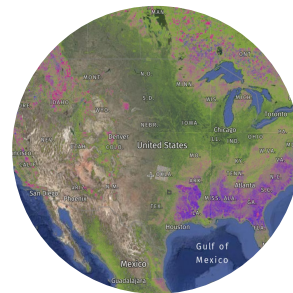
Global Surface Water Explorer

Tracking surface water change, used by UNEP and UN Member states to measure progress toward SDG 6.6.1.



Global Fishing Watch

Tracking commercial fishing fleets with ML algorithms enables authorities to take action against illegal fishing.



Global Forest Watch

Helps governments, companies, and NGOs manage and protect forests and enables illegal deforestation alerts to help enforcement.

A satellite image of a rugged, mountainous landscape. The terrain is brown and rocky, with several patches of white snow or ice. A winding river or stream flows through the valleys. The sky is a deep blue.

04 Enabling Everyone

We're committed to enabling a billion people to make new sustainable choices by 2022.

Maps

Google Maps helps users limit carbon emissions

Each day, Google Maps offers 621+ million miles of transit results, for ~11,000 agencies and 4.3+ million stations, in 100+ countries.

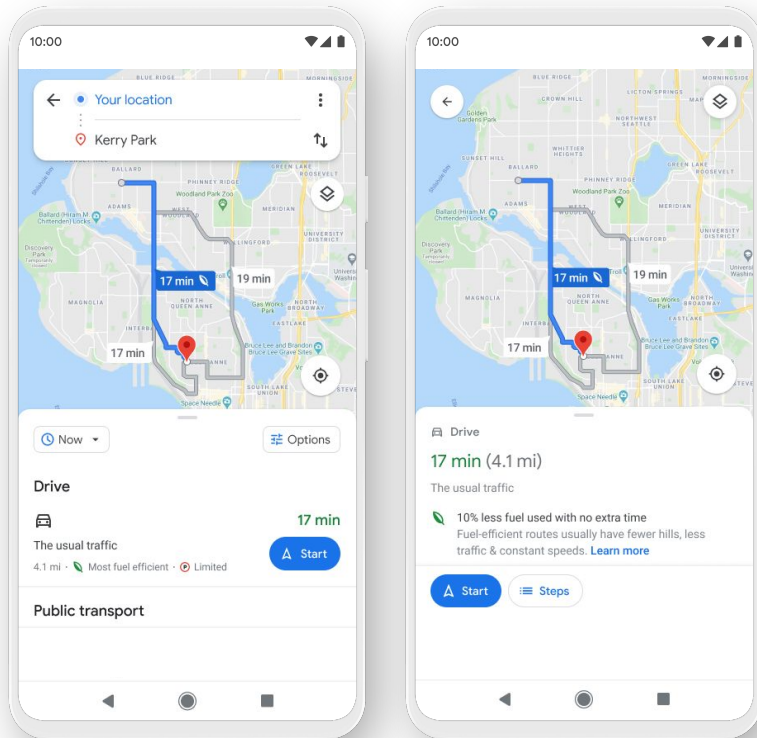
New features get us even closer to a sustainable future.

Eco-friendly routing

Low emission zone alerts

Lite navigation for biking

Bike and scooter sharing

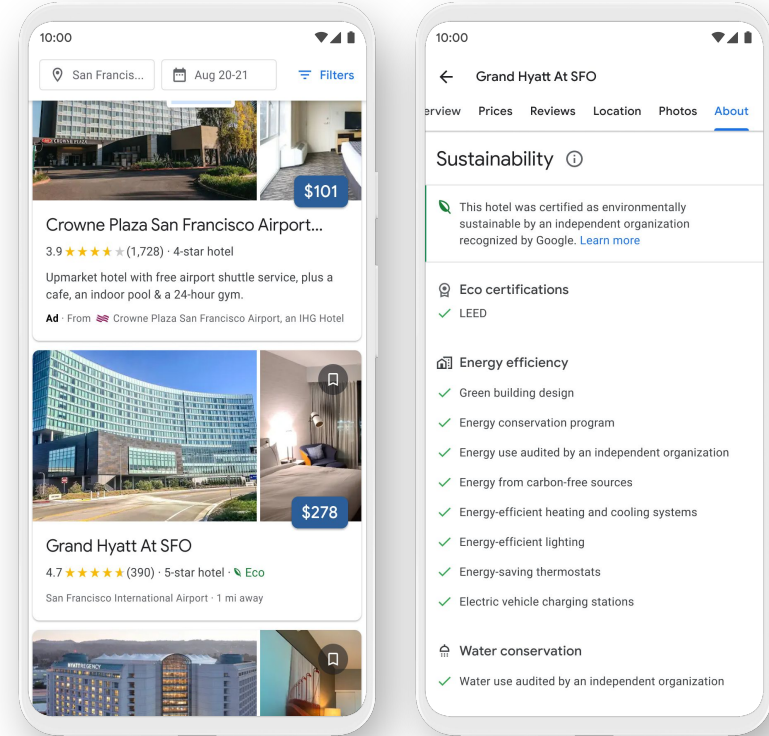


Travel

Google empowers customers with sustainable travel options

Identify flights that emit the least amount of CO₂, and compare impact, price, and convenience.

Search for hotels and see how properties address energy and water use, waste, and sourcing.

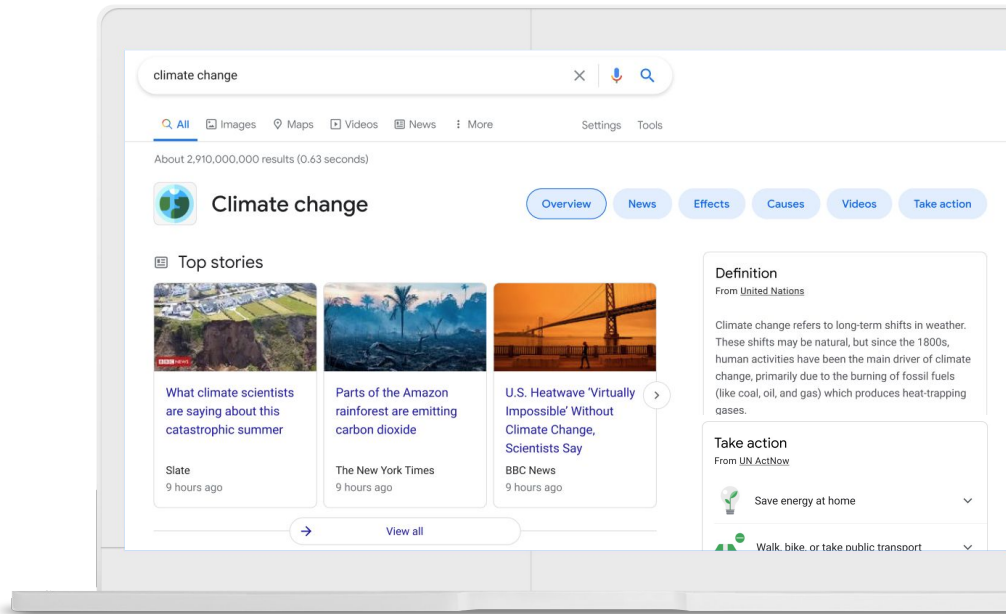


Search

We want to help people make more sustainable choices every day.

Climate change information is more comprehensive, authoritative, and visual.

Details about electric vehicles are easier to find and understand.



We're committed to operating on 24/7 carbon-free energy by 2030.

In our next decade of climate action, we'll continue to harness new technologies, invest in clean infrastructure and tools, and empower others.

We're proud to do our part to help move the world closer to a carbon-free future for all.



Google

Thank you.

Learn more at sustainability.google

A view of our planet from Google Earth ©2020 Landsat/Copernicus