

Impact Study

Alabama, US Data Center

2024



Google's Data Center Impact in Alabama

Google's data center in Alabama is helping to rapidly grow the digital economy. It is what you rely on to pull up a map to a new restaurant, attend online classes, or access your healthcare records.

Google's digital infrastructure investments in Alabama drive local economic development through job creation, promote environmental stewardship through carbon-free energy production, and foster thriving communities.

Since 2018, Google has invested more than [\\$980M in Alabama's digital infrastructure](#). This Impact Study provides a summary of key economic, environmental, and social metrics that Google's digital infrastructure investments have had on Alabama in recent years.

Economic

Google's investments in digital infrastructure in Alabama support jobs in construction, engineering, and the service industry. Google's data center contribution to labor income in Alabama is equal to supporting **~790 households in the state each year**.

~\$77M

Annual contribution to Alabama's GDP¹ (2021-2023)

~690

Annual jobs supported (2021-2023)

Environmental

As part of Google's commitment to operate all of its data centers using carbon-free energy by 2030, Google signed a contract with Tennessee Valley Authority to **source 308 MW of clean energy to both Google's Alabama and Tennessee data centers**.

65% (2023) | 63% (2022)

Percentage of electricity matched with carbon-free energy^{2,3} supply at every hour of every day at Google's data center in Alabama

Social

Google's community investments include support to the Northeast Alabama Community College's STEM⁴ program which helped empower ~100 students, **generating a ~\$2.40 social benefit for every Google-invested dollar** and fostering a more digitally skilled future workforce in Alabama.

~\$1.1M

Invested in Alabama communities surrounding Google's data center in 2022 and 2023

This report provides a summary of Google's data center impact. The overall impact of all Google operations is significantly larger, encompassing contributions beyond data centers, including economic benefits from its platforms, products, and services used across various sectors.

Notes: 1. GDP stands for gross domestic product. 2. Google defines [carbon-free energy](#) (CFE) as any type of electricity generation that doesn't directly emit carbon dioxide, including (but not limited to) solar, wind, geothermal, hydropower, and nuclear. Sustainable biomass and carbon capture and storage (CCS) are special cases considered on a case-by-case basis, but are often also considered carbon free energy sources. 3. Google's CFE is influenced by various factors, such as overall electricity usage, purchases of carbon-free energy, technological advancements, and changes in the broader energy landscape. 4. STEM stands for science, technology, engineering, and mathematics.

Economic Impact: 2021-2023¹



~\$77M

Annual Contribution to Local GDP

Includes ~\$42M direct, ~\$19M indirect, and ~\$16M induced



~690

Annual Jobs Supported²

Includes ~255 direct jobs, ~270 indirect, and ~165 induced



~\$47M

Annual Labor Income

Includes ~\$19M direct, ~\$20M indirect, and ~\$8M induced

Google's contribution to Alabama's GDP increased by ~21% between 2021 and 2023, compared to the state's overall GDP growth of ~8% during the same period.

Google's data center contribution to direct, indirect, and induced labor income in Alabama is equal to supporting ~790 households in the state each year.

Top GDP Contributions



Professional, scientific, and technical services³

(42% of Total GDP Contribution from Google's investments in Alabama)



Other (various sectors such as utilities and real estate)

(58%)

Spotlight: Carbon-Free Energy

Google's investments in clean energy in Alabama have created...



~\$520K

Annual Contribution to Local GDP



Jobs

Annually Supported for Construction & Maintenance



~\$230K

Annual Labor Income

Direct: includes Google employees and contractors (incl. their payroll and benefits) and annual spend on Google's suppliers

Indirect: includes Google's suppliers' employees and contractors, the suppliers' payroll and benefits due to Google orders, and suppliers spend

Induced: includes impact generated by the household spending of Google's employees and their suppliers in their local economies

Notes: 1. GDP and labor income rounded to the nearest one-million; Jobs and household numbers rounded to the nearest multiple of five. 2. Google's support to jobs includes construction, engineering, networking, renewable energy jobs, security, and services, among others. 3. Includes computer systems, data processing, software services, and other computer-related facility management support, etc.

Environmental Impact: 2022 & 2023^{1,2}

65% (2023) vs. 53% (2023 Regional Grid)

63% (2022) vs. 52% (2022 Regional Grid)

24/7 Carbon-Free Energy (CFE)

Google has matched 100% of its global annual electricity consumption with renewable energy purchases, and has further committed to operating at 24/7 CFE by 2030. This means matching electricity demand with CFE supply every hour of every day.

1.10 (2023)

1.12 (2022)

vs. 1.58 (industry average)

Avg. Power Usage Effectiveness

Compared to the industry average, Google's Alabama data center is achieving an 83% reduction in overhead power usage. For every watt of power used to run servers and network equipment, only 0.10 watts are used to run supporting infrastructure like cooling and lighting.

Spotlight: Carbon-Free Energy

To help advance Google's 24/7 CFE commitment, Google signed a deal in 2019 with the Tennessee Valley Authority (TVA) bringing 308 MW of clean energy to both Google's Alabama and Tennessee data centers in the coming years. One of the biggest solar farms will be located in Hollywood, Alabama.

In addition to carbon-free energy, the solar farm development is expected to generate additional economic benefits as TVA partners will hire hundreds of engineers, electricians, and construction workers within the region.

"Our long-standing data center efficiency efforts are important because our data centers represent the vast majority of our direct electricity use. Google's [global] data center consumption was more than 24 TWh in 2023 which translates to approximately 7-10% of global data center electricity consumption."

- 2023 & 2024 Google Environmental Reports

142.2M Gal. (2023)

94.0M Gal. (2022)

Water Consumption

Google strives to protect water quality and ecosystem health in the communities where it operates, including Alabama.³

Sustainability Spotlight

Did you know that Alabama has the highest aquatic biodiversity out of all fifty states? However, habitat degradation is widespread due to excess sediment from eroding streambanks. In partnership with The Nature Conservancy, Google and other partners are restoring streambanks at two sites within the Paint Rock River watershed.

Notes: 1. For more information on the environmental statistics, refer to the 2023 & 2024 Google Environmental Reports. 2. As applicable, the water consumption represents total water consumption across all data centers in the state; CFE and PUE are averages across data centers. 3. Google seeks to replenish 120% of the freshwater volume it consumes, on average, across its offices and data centers by 2030.

Social Impact: 2022 & 2023¹



~\$1.1M

Given to communities
in 2022 and 2023

*Surrounding Google's data center
in Alabama in addition to other
Google.Org programs²*



22

Organizations supported
in 2022 and 2023

*Focused on education, workforce,
and community development,
among other areas*



~\$2.40

Social benefit per
Google-invested dollar³

*Based on STEM educational
program⁴*

Google invested ~\$1.1M in Alabama communities, including:

STEM Programming

Google provided over \$100K to support Northeast Alabama Community College's (NACC) STEM Camp for 5-8th graders, empowering students to explore the world of engineering and mechatronics:

- Nearly 100 students built and raced their own remote-controlled robots through the school's STEM summer camp.
- The program was estimated to provide the social benefit referenced above.

"We could not have done it without the partnership with Google. Not only did we have financial assistance, but we had volunteers from the college, community and Google sent a crew."

- Melissa Ledbetter, Work Experience Coordinator, NACC

Exploring Artificial Intelligence

In 2022, Google provided \$57K to Mountain Lakes Chamber of Commerce, which:

- Provided access to YouScience® for over 7,500 students across 24 schools in Jackson County and Scottsboro City. The platform leverages artificial intelligence to help students discover their talents and skills in high-demand industries and matches them to educational and career pathways that align with their interests.
- *"Our students are our greatest resource to fill the talent pipeline of potential workers for business and industry in Jackson County. YouScience® will be a game-changer in recruiting our students to in-demand careers."* - Nancy Griggs, Mountain Lakes Chamber of Commerce

Notes: 1. When applicable, numbers were rounded to the nearest thousand. 2. The amounts listed are in addition to other Google programs, like Grow with Google, Google.Org's Impact Challenge, and other initiatives. 3. This calculation is directional and represents Google's step toward understanding social value associated with its community investments. 4. Calculation based on Northeast Alabama Community College program.

The Google Differentiator

Google recognizes that its data center operations and value chain can be engines of economic, environmental, and social progress. Google aims for its investments to catalyze positive spillover effects within Alabama.

Google thinks about its investments holistically.

Google recognizes that it can catalyze greater impact when it looks at its economic, environmental, and social efforts collectively, which is why Google's 2024 Impact Study in Alabama articulates Google's impact across these three domains. As Google considers its future strategy in Alabama, it will continue to look for opportunities to keep digital infrastructure secure and sustainable while driving local economic development, fostering thriving communities, and spurring environmental stewardship.

Google seeks to harness AI to drive innovation and accelerate climate action.

Google continues to invest in state-of-the-art infrastructure to support its artificial intelligence (AI) efforts and rapidly grow the digital economy in Alabama. However, Google recognizes that these benefits also come with increased energy usage and emissions and might have unintended consequences if not properly managed. As part of its AI for Sustainability strategy, Google is taking steps to use AI to accelerate climate progress and through its AI Opportunity Agenda, Google is providing recommendations for governments to amplify the positive impacts of AI for the broadest possible range of people.

Google seeks to engage directly with community members to advance and measure impact.

Google continues to work closely with community members in Alabama to understand its impact and refine its strategy. This report represents a step toward measuring impact as Google moves from measuring inputs to measuring impact and value. This includes Google's approximation of a "social return on investment", intended to estimate the social value created per Google-invested dollar based on educational empowerment and future job opportunities. Google will continue to find ways to be more transparent and articulate its impact to local communities across all dimensions.

Thank you!

To the many community members and Googlers who strive to make Google's ambitious economic, environmental, and social goals a reality.

For additional information or any questions please reach out to:



*Adria Troyer
Global Head of Strategy & Innovation,
Google Data Centers
adriatroyer@google.com*



*Shay Eliaz
Principal,
Deloitte Consulting LLP
seliaz@deloitte.com*

DISCLAIMER: This Impact Study was prepared by Deloitte Consulting LLP ("Deloitte") for Google LLC ("Google") during Fall 2024. The purpose of the study is to assess the economic, environmental, and social impacts of Google's data centers modeled from the years of 2021-2023. The modeling, analysis, and results shown as part of the impact are based on information provided directly by Google LLC, publicly available information, and third-party information. Any revisions to those data will affect the assessments shown as part of the study. To calculate economic impacts, this study used an input-output model developed by IMPLAN. In preparing this study, Deloitte has, without independent verification, relied on the accuracy of information made available by Google.