Impact Study

North Carolina, US Data Center

2024

Google

Deloitte.

Google's Data Center Impact in North Carolina

Google's data center in North Carolina 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 North Carolina drive local economic development through job creation, promote environmental stewardship through carbon-free energy production, and foster thriving communities.

Since 2007, Google has invested more than $1.2B in North Carolina'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 North Carolina in recent years.

Economic

Google's investments in digital infrastructure in North Carolina support jobs in construction, engineering, and the service industry. Google's data center contribution to labor income in North Carolina is equal to supporting ~2,745 households in the state each year.

~$311M

Annual contribution to North Carolina's GDP[1] (2021-2023)

~2,195

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, in conjunction with others, signed a Memorandum of Understanding with Duke Energy to support and deploy renewable energy generation in North and South Carolina.

63% (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 North Carolina

Social

Google's community investments include support to the North Carolina School of Science and Mathematics' STEM[4] program which helped empower 245 students, generating a ~$24 social benefit for every Google-invested dollar and fostering a more digitally skilled future workforce in North Carolina.

~$1.7M

Invested in North Carolina 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: 2021-2023[1]

~$311M

Annual Contribution to Local GDP

Includes ~$162M direct, ~$77M indirect, and ~$72M induced

~2,195

Annual Jobs Supported[2]

Includes ~600 direct jobs, ~915 indirect, and ~685 induced

~$185M

Annual Labor Income

Includes ~$67M direct, ~$79M indirect, and ~$39M induced

Google's contribution to North Carolina's GDP increased by ~42% 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 North Carolina is equal to supporting ~2,745 households in the state each year.

Top GDP Contributions

Professional, scientific, and technical services[3]

(40% of Total GDP Contribution from Google's investments in North Carolina)

Other (various sectors such as utilities and real estate)

(60%)

Spotlight: Carbon-Free Energy

Google's investments in clean energy in North Carolina have created...

~$890K
Annual Contribution to Local GDP

Jobs
Annually Supported for Construction & Maintenance

~$403K
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]

63% *(2023)* vs. 59% *(2023 Regional Grid)*
63% *(2022)* vs. 59% *(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.

1.09 *(2023)*
1.09 *(2022)* vs. 1.58 *(industry average)*

Avg. Power Usage Effectiveness

Compared to the industry average, Google's North Carolina data center is achieving an 84% reduction in overhead power usage. For every watt of power used to run servers and network equipment, only 0.09 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 had over 70 MW worth of operational renewable energy contracts in North Carolina at the end of 2023. In fact, Google was an early advocate of a program that enabled companies to buy large amounts of renewable power directly from their utilities.

Google is also helping to lower the cost of clean energy for businesses and communities, such as through a Memorandum of Understanding it signed with Duke Energy and others to support renewable energy generation through "Accelerating Clean Energy" (ACE) tariffs[3].

"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

336.8M Gal. *(2023)*
320.5M Gal. *(2022)*

Water Consumption

Google strives to protect water quality and ecosystem health in the communities where it operates, including North Carolina.[4]

Sustainability Spotlight

As part of Google's Data Center Community Grants, Google partnered with Sol Systems and provided $400K in 2022 and 2023 to Roanoke Cooperative to fund critical home repairs and weatherization upgrades. The investments will help reduce the energy burden for dozens of low- to moderate-income households in North Carolina and South Carolina.

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. ACE tariffs are new rate structures that aim to lower long-term costs of emerging clean energy technologies, such as nuclear or long-duration storage. 4. Google seeks to replenish 120% of the freshwater it consumes, on average, across its offices and data centers by 2030.

Social Impact: 2022 & 2023[1]

~$1.7M

Given to communities in 2022 and 2023

Surrounding Google's data center in North Carolina in addition to other Google.Org programs[2]

25

Organizations supported in 2022 and 2023

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

~$24

Social benefit per Google-invested dollar[3]

Based on STEM educational program[4]

Google invested ~$1.7M in North Carolina communities, including:

Empowering Students

From 2020-2023, Google invested $525K to support the annual Gravity Games:

- 36 teams designed, built, and raced their own gravity-powered vehicles across the streets of downtown Lenoir. As a Team Mentor described it, *"Overall, it was a fantastic experience and [my team is] already talking about next year's car. Thank you for putting on the event!"*
- Recruitment efforts and team sponsorships increased diversity among participants - with Black representation growing from 5% to 17%, compared to 2019, and Asian representation growing from 2% to 10%.

STEM Programming

Google supported North Carolina School of Science and Mathematics' (NCSSM) student-led hackathon in 2023, which:

- Empowered 245 students to write code, build hardware, and develop apps to address societal challenges, generating the social benefit referenced above.
- In addition to support for the hackathon, Google.Org provided $125K to NCSSM to upskill 970 teachers on integrating AI and data science into their curriculum.

> *"It's never been more important for teachers to understand the impact that artificial intelligence will have in their classroom and in their students' lives. North Carolina School of Science and Mathematics is thankful for the incredible support we've received from Google to enable us to equip teachers to prepare students for an AI-enabled world."*
>
> *-Taylor Gibson, NCSSM Dean of Data Science and Interdisciplinary Initiatives*

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 the North Carolina School of Science and Mathematics 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 North Carolina.

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 North Carolina articulates Google's impact across these three domains. As Google considers its future strategy in North Carolina, 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 North Carolina. 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 North Carolina 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:

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