Impact Study

Nevada, US Data Center

2024

Google

Deloitte.

Google's Data Center Impact in Nevada

Google's data centers in Nevada are helping to rapidly grow the digital economy. They are 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 Nevada drive local economic development through job creation, promote environmental stewardship through carbon-free energy production, and foster thriving communities.

Since 2019, Google has invested more than $2.2B in Nevada'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 Nevada in recent years.

Economic

Google's investments in digital infrastructure in Nevada support jobs in construction, engineering, and the service industry. Google's data center contribution to labor income in Nevada is equal to supporting ~2,720 households in the state each year.

~$309M

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

~2,595

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's partnership with NV Energy will catalyze the development of 115 MW of an enhanced geothermal project in Nevada, advancing sustainability energy solutions in the state.

26% (2023) | 27% (2022)

Percentage of electricity matched with carbon-free energy[2,3] supply at every hour of every day at Google's data centers in Nevada

Social

Google's community investments include support to the Academy for Career Education Vocational High School which helped empower undeserved workers, generating a ~$1.80 social benefit for every Google-invested dollar and fostering a diverse future workforce particularly for construction in Nevada.

~$1.9M

Invested in Nevada communities surrounding Google's data centers 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.

Economic Impact: 2021-2023[1]

~$309M

Annual Contribution to Local GDP

Includes ~$173M direct, ~$58M indirect, and ~$77M induced

~2,595

Annual Jobs Supported[2]

Includes ~390 direct jobs, ~1,540 indirect, and ~665 induced

~$197M

Annual Labor Income

Includes ~$41M direct, ~$118M indirect, and ~$38M induced

Google's contribution to Nevada's GDP increased by ~68% between 2021 and 2023, compared to the state's overall GDP growth of ~9% during the same period.

Google's data center contribution to direct, indirect, and induced labor income in Nevada is equal to supporting ~2,720 households in the state each year.

Top GDP Contributions

Professional, scientific, and technical services[3]

(25% of Total GDP Contribution from Google's investments in Nevada)

Construction

(22%)

Other (various sectors such as utilities and real estate)

(53%)

Spotlight: Small Businesses

Over 165,000 Nevada businesses used Google's free tools for day-to-day business activities, including making and receiving phone calls, making bookings, and requesting directions.

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]

26% *(2023)* vs. 26% *(2023 Regional Grid)*
27% *(2022)* vs. 27% *(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.

1.14 *(2023)*
1.11 *(2022)*
vs. 1.58 *(industry average)*

Avg. Power Usage Effectiveness[3]

Compared to the industry average, Google's Nevada data centers are achieving an 76% reduction in overhead power usage. For every watt of power used to run servers and network equipment, only 0.14 watts are used to run supporting infrastructure like cooling and lighting.

Spotlight: Carbon-Free Energy

In 2024, Google launched a clean energy partnership with NV Energy, which includes 115 MW of new, enhanced geothermal power from developer Fervo Energy, putting Nevada at the forefront of the development of this promising baseload technology.

The partnership uses a long-term energy agreement called "Clean Transition Tariffs" (CTT). If adopted across US markets, CTTs can help expand clean energy capacity, improve grid reliability, and bring economic benefits to the surrounding communities.

> *"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*

159.0M Gal. *(2023)*
82.3M Gal. *(2022)*

Water Consumption

The amount of water used is equivalent to irrigating 1.1 and <1 golf course annually in 2023 and 2022. Water usage increased year on year due to IT load growth at Google's existing water-cooled data center.[4]

Sustainability Spotlight

Working with Colorado River Indian Tribes (CRIT) and N-Drip, Google is supporting a project to install precision drip irrigation systems on tribal lands – a method that significantly reduces evaporation and runoff. This will enable a planting rotation of one year cotton and four years alfalfa – and could enable the reopening of a tribally owned cotton gin.

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's Power Usage Effectiveness (PUE) may vary from year to year and across different data centers. PUE is influenced by factors such as climatic conditions, utilization rates, and other operational factors. 4. Google seeks to replenish 120% of the freshwater volume it consumes, on average, across its offices and data centers by 2030.

Social Impact: 2022 & 2023[1]

~$1.9M

Given to communities in 2022 and 2023

Surrounding Google's data centers in Nevada in addition to other Google.Org programs[2]

38

Organizations supported in 2022 and 2023

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

~$1.80

Social benefit per Google-invested dollar[3]

Based on construction training education program[4]

Google invested ~$1.9M in Nevada communities, including:

Vocational Training

Google provided $400K to support vocational training programs that empower underserved workers and entrepreneurs in Nevada, including:

- $150K to Academy for Career Education (ACE) Vocational High School's career and technical education (CTE) program. One of the programs focused on construction training and generated the social benefit referenced above.
- $150K to Join.org's bootcamp training for underrepresented groups in the skilled trades and $100K to the Clark County School District's Career and Technical Educational program.

Supporting K-8th Graders

In 2022, Google provided $200K to Serving our Kids Foundation and Communities in Schools, to help students to stay in school, graduate, and be ready for their future careers.

- Google's investments in Serving Our Kids Foundation helped to provide an incremental 800 K-8th graders with weekly food bags. *There are thousands more food insecure children for us to serve across the valley and this donation will help us to feed hundreds more this school year."*
  - Dale Darcas, Founder, Serving Our Kids
- Google's investments in Communities in Schools was used to provide essential resources for over 60,000 students in Southern Nevada.

> *"Google's support of ACE High School Students for the past 2 years has been life changing for over 260 ACE students by allowing them to pursue their future careers in industry related fields that they would not have had the opportunity otherwise."*
>
> *- Bob DeRuse, Director, ACE High School*

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 Academy for Career Education (ACE) Vocational High School programming.

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 Nevada.

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