

Microsoft datacenters in Arizona

As more people and businesses rely upon technology to stay connected, informed, and productive, digital needs in Arizona and around the globe are growing. And that means the need for hyperscale datacenters is growing too.

Hyperscale brings hyper efficiency. Microsoft cloud services offer customers an energy efficient and carbon neutral alternative to running their own private datacenters. [Research](#) shows that Microsoft cloud services are up to 93 percent more energy efficient than traditional enterprise datacenters.

Microsoft strives to empower the communities where our employees live, work, and operate our datacenters. With that, it's important we share information to ensure you understand why datacenters are needed, Microsoft's approach for responsible operations, and the benefits of hosting a datacenter in your community.

[Why datacenters >](#)

[Microsoft commitments >](#)

[Community benefits >](#)

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The cloud powers our digital world

Cloud computing is the delivery of computing services over the internet. Common daily activities are made possible through cloud computing, such as:



Email



Online banking



File storage



Streaming videos



Collaboration



Online shopping



Mobile apps

Cloud computing can provide consumers and businesses with the benefits of enhanced security, privacy, compliance protection, lower costs, easier access, higher reliability, and a lower carbon footprint.

The Microsoft Cloud is for everyone

The Microsoft Cloud serves over 1 billion customers and 20 million companies worldwide.

Organizations in Arizona relying on the Microsoft Cloud are made up of a variety of sectors, such as large enterprises, startups, governments, hospitals, banks, schools, or other organizations that contribute to a modern society.



When Microsoft joins a community, we bring our commitments for a better world

Support inclusive economic opportunity

Commit to a sustainable future

Earn trust



Microsoft datacenters are key to our sustainability goals

Carbon negative by 2030

Microsoft operates datacenters near Goodyear and El Mirage, and we are expanding these sites during the next three years. For our datacenters in this region, Microsoft is procuring **approximately 55 percent renewable energy** from wind, solar, and hydro resources. We have signed power purchase agreements with AES and Longroad Energy.

[Power usage effectiveness \(PUE\)](#) measures cloud energy efficiency. The calculation is total power consumption divided by IT power consumption. A lower PUE score indicates more energy efficient datacenters, with a PUE of 1.0 being the best score. Our datacenter facilities in Phoenix have a design average PUE of 1.15 for the operational datacenters and new datacenters will have a **design average PUE of 1.12**.

Globally, Microsoft datacenters use fossil fuel generators for backup power and account for **less than 1 percent of our overall emissions**. In Phoenix and other specific regions, Microsoft is **piloting running backup generators with renewable blend, cleaner-burning fuels**, and is also **piloting the replacement of datacenter generators with long-duration batteries**.

[Leadership in Energy and Environmental Design \(LEED\)](#) is the world's largest green building certification program. LEED provides the framework for healthy, highly efficient, and cost-saving green buildings with lower carbon emissions. LEED certification is a

globally recognized symbol of sustainability achievement and leadership. **All the datacenters in Phoenix will be LEED Gold certified.**

Microsoft operations in Arizona **comply with applicable air quality requirements.**

Water positive by 2030

[Water usage effectiveness \(WUE\)](#) is another key metric relating to the efficient and sustainable operations of our datacenters and is a crucial aspect as we work towards our commitment to be water positive by 2030. WUE is calculated by dividing the number of liters of water used for humidification and cooling by the total annual amount of power (measured in kWh) needed to operate our datacenter IT equipment.

Microsoft uses outdoor air with direct evaporative cooling at our Phoenix datacenters. This method of cooling **uses outside air and zero water** for cooling when temperatures are below 29.4 degree Celsius, reducing water for cooling to less than 50 percent of the year. This system is highly efficient, using less electricity and a fraction of water used by other water-based cooling systems, such as cooling towers.

For our datacenters in Arizona, the operating WUE during 2021 was 2.69 L/kWh. This higher operating WUE is typical with newly operational datacenters, like in Phoenix, as it takes some time to

gain efficiencies with power and water usage.

Zero waste by 2030

Microsoft has a goal to achieve 90 percent diversion of datacenter operational waste by 2030. To reach this goal, we're working closely with our waste haulers to optimize waste diversion programs across our global datacenter portfolio. We have achieved Zero Waste certifications for our San Antonio, Texas; Quincy, Washington; Boydton, Virginia; and Dublin, Ireland datacenter locations.

In 2020, we opened our **first Microsoft Circular Center in our North Holland datacenters**, which is designed to extend the life cycle of servers through reuse and to support a circular economy for the Microsoft Cloud. Because it takes five to six years from when a datacenter is operational to generate reusable assets, we are planning an Arizona Circular Center to open once the new datacenters are in use and servers are ready to be decommissioned. Microsoft Circular Centers are able to process 12,000 servers per month for reuse.

Globally, Microsoft datacenters reuse **78 percent of our end-of-life assets and components; the remaining 22 percent of materials are recycled.** Additionally, Microsoft is conducting research and development to improve waste diversion by determining new recycling solutions for used air filters and fiber optic cables.

Since 2019, Microsoft has invested more than \$1.7 million to support community-identified priorities across 60 partners in the Phoenix West Valley



Providing pathways for datacenter careers: Microsoft collaborated with local education partners Estrella Mountain Community College and Glendale Community College to open a [West Valley Datacenter Academy](#) to help job seekers and students pursue these in-demand technology skills. With more than a dozen Datacenter Academy locations globally, Microsoft provides education partners with guidance on curriculum; donations of servers, laptops, and datacenter equipment for labs; and opportunities for mentorship and work experience in Microsoft datacenters.



Helping to support community connectivity with NTUA: Microsoft partnered with the Navajo Tribal Utility Authority (NTUA) to help address the Navajo Nation's lack of access to the internet and [supply connectivity to five chapter houses](#).



Expanding the Dysart Center Learning Lab: Microsoft provided Dysart Community Center with funding that will go towards a learning lab that consists of 15 desktop computers. The learning lab serves as a place where under-resourced adults in the community can build resumes, apply for jobs, take ESL classes, and complete GED courses.

Microsoft datacenters create family-wage operations and construction jobs as well as positive impacts to the local economy

Microsoft datacenters represent a capital-intensive investment and long-term commitment to the community. Existing Microsoft datacenter campuses in Arizona currently employ over 80 full-time employees and 140 vendors in the region. In July 2022, we plan to add an additional 70 full-time employees for a total of 150. Building these facilities required more than 1.9 million work hours across 389 jobs since construction began in 2019.

We estimate it will take approximately **3.4 million work hours across 833 roles** to complete construction of the new greater Phoenix datacenters.

Once fully operational, we anticipate an additional 400 full-time employees will work at those facilities.



Construction jobs

- Electricians
- Plumbers and pipefitters
- Carpenters
- Structural iron and steel workers
- Concrete workers
- Earth movers



Datacenter operations

- Campus management
- People management
- Critical environment operations
- Learning and development
- IT operations
- Mechanical engineers
- Electrical engineers
- Security contractors
- Building maintenance