

# Microsoft datacenters in Iowa

As more people and businesses rely upon technology to stay connected, informed, and productive, digital needs in Iowa 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.

## 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 the Midwest region 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

For our datacenters in this region, Microsoft is procuring approximately **68 percent renewable 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. During 2021, the Des Moines datacenter facility had a PUE of 1.169. The existing datacenters are designed to run at a PUE of 1.22. **The new datacenters being built will have a 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 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.

**New Microsoft datacenters being built are designed to earn LEED Gold certification**, including the new datacenters being built in the Iowa region.

Microsoft operations in Iowa **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 Des Moines datacenters. This method of cooling **uses outside air and zero water** for cooling when temperatures are below 29.4 degrees Celsius, reducing water for cooling to less than 10 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 Iowa, the 2021 average WUE was 0.28 L/kWh. The new datacenters are designed for a **yearly average WUE of 0.04 L/kWh**.

### 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 a Des Moines 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. The Des Moines datacenter facility diverted 45.4 percent of operational waste (not construction waste) from landfills and incineration in 2021.

# Since 2017, Microsoft has invested more than \$2.5 million to support community-identified priorities across 73 partners in the Greater Des Moines community



**Increasing the tree canopy in West Des Moines:** In partnership with the Shade Crusade Program, Microsoft is working to increase the urban tree canopy in residential neighborhoods by providing high quality trees to residents at a reduced cost, encouraging tree diversity by providing a variety of native tree species, and educating residents on the proper placement, planting, and care of trees.



**Environmental education and stewardship:** With Polk County Conservation Youth Corps, Microsoft is working to engage and inspire diverse youth through hands-on environmental stewardship projects, outdoor recreation, and ecology education through a fun and challenging conservation experience for young people. Youth earn money, gain skills, and help Polk County parks and trails.



**Empowering refugees with technology skills:** Microsoft is working with the Ubuntu Technology and Financial education program to offer basic computer and financial classes to immigrant and refugee youth and adults both in person and virtually.

## 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. **More than 300 full-time employees** work across our existing datacenter campuses in Iowa.

We estimate it will require **833** construction roles annually and approximately **3.4 million work hours** to complete construction of the new datacenters. Once the new datacenter facilities are operational, we expect to hire an **additional 300 full-time employees**.



### 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