2023

Amazon Sustainability Report

AWS Summary

About AWS

AWS is the world's most comprehensive and broadly adopted cloud offering, with millions of global users depending on it every day. To build a more sustainable business for our customers and for the world we all share, we're designing data centers that provide the efficient, resilient service our customers expect while minimizing our environmental footprint—and theirs.

All financial figures are reported in U.S. dollars ($), unless otherwise stated. The data within this summary reflects progress from January 1 through December 31, 2023, unless otherwise indicated.

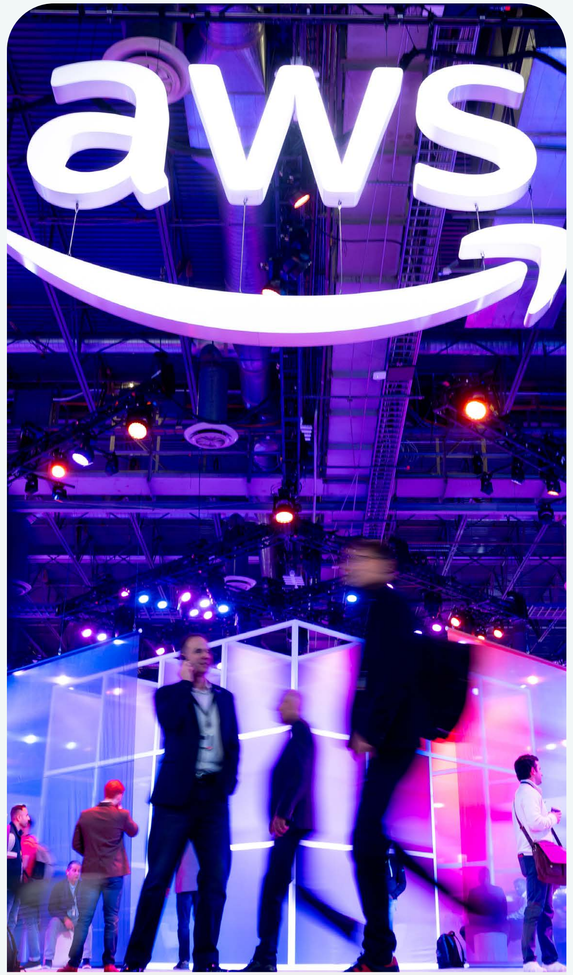
How to Navigate This Report

Look for these symbols throughout the report:

- A link that directs you to a website
- A link to a download

On the cover
The Baldy Mesa Solar and Storage Project (developed and operated by AES), located in Adelanto, California.

Contents



Employees at AWS re:Invent 2023, our biggest cloud event of the year, featuring keynote speakers, builder labs, and sustainability demos.

2023 Year in Review

As we reflect on 2023, we are proud of the progress we made. We worked hard to reduce our carbon and water footprints, drive progress throughout our value chain, create a safer, more inclusive workplace, and provide skills development opportunities, empowering our people to grow. These actions are accelerating our journey toward a more sustainable business at AWS.

Carbon

6.6K
Metric tons of hardware components on cargo ships transported by AWS, as opposed to airfreight, avoiding approximately 65,000 metric tons of CO_2e

6M+
Liters of sustainable aviation fuel purchased, which avoided approximately 15,600 metric tons of CO_2e compared to conventional aviation fuel

Water

41%
Of the way toward meeting our water positive goal to return more water to the communities where we operate than is used in our direct operations

5%
Improvement in water use effectiveness for AWS data centers from 2022, demonstrating our leadership in water use effectiveness among cloud providers

15
Water replenishment projects around the globe invested in by AWS as of the end of 2023

3.5B
Liters of water returned to communities from replenishment projects in 2023, with additional volume contracted and replenishment expected to grow annually to reach our 2030 water positive goal

690K
People provided with clean water and sanitation through AWS and Amazon partnerships with Water.org and WaterAid

Carbon-Free Energy

100%
Of electricity consumed by Amazon was matched with renewable energy sources, up from 90% in 2022, including 22 AWS data center regions

Waste and Circularity

14.6M
Hardware components diverted from landfills by being recycled or sold into the secondary market for reuse

Responsible Supply Chain

100%
Of our product manufacturing suppliers screened for environmental violations in China

Community Impact

$16.8M
In cloud computing credits distributed to 125 organizations globally to promote equal access to health resources, totaling more than $32 million distributed to 229 organizations since 2021

21M
People supported globally to grow their technical skills through free cloud computing training, up from 13 million in 2022

Nearly 16.5K
Ukrainians trained via AWS's ITSkills4U training program, exceeding our goal to train 10,000 people who are interested in expanding their job opportunities in non-IT roles, switching to IT, or advancing their IT careers

Employee Experience

1.6K+
Employees enrolled as Tech U learners to hone the technical and professional skills needed to thrive at AWS

Carbon

We have an opportunity—and responsibility—to use our size, scale, and resources to do our part to solve global challenges, like climate change. Amazon's goal is to reach net-zero carbon emissions by 2040. To help achieve this, AWS is taking actions to reduce carbon emissions throughout our value chain.

Data Center Construction and Operations

We take a holistic approach to minimizing energy and water consumption in our operations, including in data centers. For example, we are increasing the use of free-air cooling systems that cool servers with outside air. This avoids the need for energy-intensive compressor-based cooling systems throughout much of the year. Even during peak summer temperatures, data centers can utilize direct evaporative cooling, a process that uses water to cool the air and remove heat from servers.

In 2023, we built 36 data centers with lower-carbon concrete, up from 16 in 2022. We also tested a low-carbon, performance-based ASTM C1157 Hydraulic Cement by Ozinga, a concrete, bulk materials, and logistics solutions supplier, which achieved a 64% reduction in embodied carbon compared to the industry average. In January 2024, we updated our AWS design standards to require the use of concrete with 35% less embodied carbon than the industry average in new data centers around the world.

We can also mitigate a building's carbon footprint by using higher-strength structural steel, which is made by cooling the metal quickly during manufacturing. The manufacturing process of lower-carbon steel gives it a higher strength-to-weight ratio, which means that less material—and as a result, less embodied carbon—is used to perform the same function. By incorporating higher-strength steel into our data center structural designs, we have reduced steel content by 70 tons for each two-story data center and 137 tons for each three-story data center, decreasing emissions by 63 and 124 metric tons of CO_2e, respectively. In 2023, we built 31 data centers with lower-carbon steel, up from 10 in 2022.

Using lower-carbon steel and concrete enabled us to avoid over 46,700 metric tons of CO_2e in 2023—equivalent to the carbon emissions generated from driving over 11,100 cars in the U.S. for one year. We will continue working with suppliers to achieve even greater carbon savings in future AWS data centers by increasing the use of lower-carbon materials in their construction.

In 2023, we started transitioning to hydrotreated vegetable oil (HVO) to power backup generators at our data centers in the U.S. and Europe. HVO is a type of renewable diesel made from waste cooking oil or vegetable, plant, and residue oils. AWS sites in Ireland, Sweden, and Oregon were among the first to make the switch to HVO. Renewable diesel is readily available in regions such as the U.S. West and parts of Europe, but sourcing in areas such as the U.S. East and Midwest remains a challenge due to the lack of distribution terminals and established supply chains for this type of fuel. In response, fuel distributors are beginning to invest in renewable diesel terminals along the U.S. East Coast, and we plan to explore these sourcing opportunities once they are available.

We're matching 100% of the electricity consumed by our global operations—including this data center—with renewable energy.

Servers and Hardware

As the world's most comprehensive and broadly adopted cloud provider, AWS is committed to building a lower-carbon business for our customers and the planet. We design AWS data centers—including servers and hardware—for efficiency, resiliency, and a lower carbon footprint.

AWS's scale allows for higher resource utilization and energy efficiency than the typical on-premises data center. From the infrastructure that powers our servers to the techniques that keep them cool, efficiency is a primary goal for every part of the AWS Global Cloud Infrastructure.

The AWS Global Cloud Infrastructure is built on our own custom hardware and optimized for workloads run by AWS customers. Research shows that in North America, we can lower AWS customers' workload carbon footprints by up to 96% compared to on-premises computing workloads when the electricity we use is matched with 100% renewable energy—a goal that Amazon, including AWS, achieved in 2023.

Enhancing Chip Efficiency

One of the most visible ways we are innovating for power efficiency is through our investment in purpose-built chips. A chip is a tiny wafer of semiconducting material with an embedded electronic circuit. It contains millions of microscopic electronic components called transistors that transmit data signals. Chips today are high-performance processors that power all types of advanced analytics, graphics, and machine learning applications.

In 2023, we launched Inferentia2, the second generation of our Inferentia chip, developed to deliver the highest performance at the lowest cost per watt. Inferentia2 is up to 50% more energy-efficient and can reduce costs by up to 40% against comparable Amazon Elastic Compute Cloud (EC2) instances.

Meanwhile, AWS Graviton4 is the latest generation of chips and the most powerful and energy-efficient chip we have built as of 2023. Graviton4 provides up to 30% better computing performance, 50% more cores, and 75% more memory bandwidth than Graviton3 processors while being more energy efficient.

Partnering to Reduce Carbon Emissions

We know that by collaborating across the entire semiconductor industry, we can drive carbon emission reductions at a scale greater than what is possible on our own. To that end, we are partnering with our suppliers to decrease their operational emissions and engage their own upstream supply chains to do the same.

In 2023, we joined the Semiconductor Climate Consortium (SCC), an organization focused on reducing carbon emissions across the global semiconductor supply chain. The SCC collaboration accelerates decarbonization for member company operations and enables new solutions and approaches for adoption.

Reducing Emissions from the Transportation of Data Center Hardware

We are reducing emissions from transporting hardware, including racks and their related components, by using more sustainable fuels and less carbon-intensive modes of shipping where possible.

Increasing Ocean Freight

In 2023, we transported approximately 6,600 metric tons of hardware components on cargo ships, avoiding approximately 65,000 metric tons of CO_2e by reducing airfreight in favor of ocean freight where possible.

Investing in Lower-Carbon Fuels

We are encouraging our suppliers to decarbonize long-haul transportation, including through the use of sustainable aviation fuel (SAF). In 2023, we purchased over 6 million liters of SAF, which avoided approximately 15,600 metric tons of CO_2e compared to conventional aviation fuel.

Making Ground Deliveries Using Electric Vehicles

We are increasing the use of electric vehicles for equipment-related ground deliveries. In Dublin and Singapore, for example, we worked with transportation providers to transport racks, loose gear, and other components to data center locations using electric trucks.

Reducing Deforestation

We are supporting the government of the State of Pará, Brazil, in designing and deploying SeloVerde (Green Seal), a cutting-edge artificial intelligence (AI) tool to address climate change challenges and traceability in supply chains with a high risk of deforestation. SeloVerde combines government databases, innovative map services, and land-use data from high spatial resolution satellite imagery. This allows industry stakeholders access to information that helps them make environmentally responsive, data-based purchasing decisions for commodities such as cattle and soy.

AWS is supporting the government of the State of Pará, Brazil, in their efforts to improve access to information on deforestation.

Carbon-Free Energy

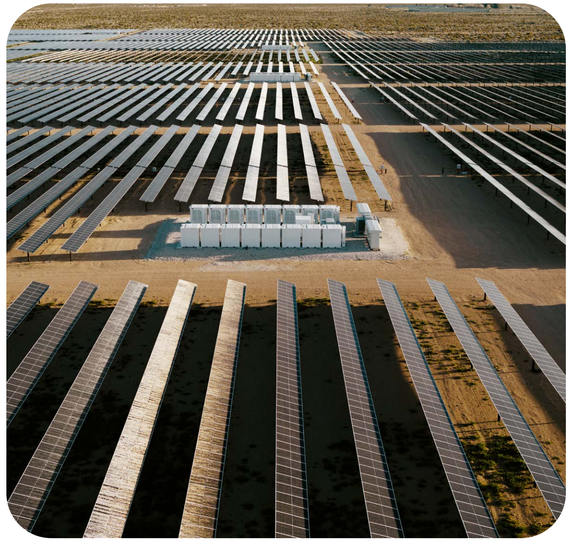
Transitioning to carbon-free energy sources—which include renewable energy sources such as wind and solar as well as other sources such as nuclear power—is one of the most effective ways to lower Scope 2 emissions. It can also create real economic growth in communities where energy projects are built and operate, while helping advance the modernization and management of energy infrastructure. As our customers' needs for computing power, products, and services grow, so does our demand for energy. That means we must diversify our energy portfolio with additional reliable carbon-free sources, so we remain on track to reach net-zero carbon emissions by 2040. Amazon's goal to match 100% of the electricity consumed by our global operations with renewable energy by 2025 is a milestone that is now part of Amazon's broader carbon-free energy strategy.

Data Centers Powered with Renewable Energy

In 2019, we set an ambitious goal to match 100% of the electricity we use with renewable energy by 2030.* In 2023, 100% of the electricity consumed by Amazon was matched with renewable energy sources, up from 90% in 2022. Amazon's energy supply from utilities, combined with the renewable energy we procure globally, means that 100% of the electricity consumed by 22 AWS data center regions is matched with renewable energy sources—an increase from 19 regions in 2022.

Across Amazon, we work with utilities and regulators on green tariffs so that more companies can buy clean energy directly from renewable energy projects. In eastern Oregon, for instance, AWS partnered with Umatilla Electric Cooperative—the utility serving our data centers in the area—to create a first-of-its-kind deal structure in the state that allows us to directly choose the energy supply powering our data centers, including renewable energy sources.

Also in Oregon, Amazon's investment in the Gilliam County wind farm is expected to add capacity by replacing older wind turbine blades and equipment with modern technology, allowing for more efficient production of wind energy. This investment builds on Amazon's 2023 announcement that we will work with local utilities to power AWS data centers in eastern Oregon with renewable energy.



The Baldy Mesa Solar and Storage Project in Adelanto, California (developed and operated by AES), represents one of the solar projects that we added to our portfolio that includes storage capacity.

Diversifying Carbon-Free Energy Sources

As the demand for energy increases around the world, Amazon is expanding its investments in carbon-free energy solutions, including nuclear. For example, in early 2023, Amazon purchased a nuclear-powered data center in Pennsylvania that is directly powered by the adjacent Susquehanna Steam Electric Station.

Nuclear energy is a strong option that already has a proven track record of providing a constant source of reliable power for communities around the world. Nuclear energy is the most reliable, abundant, and stable energy source on the grid, and Amazon's investment in nuclear power is part of its broader efforts to decarbonize the energy sector, and its business.

Anticipating Future Energy Demand

We are collaborating with Duke Energy, which operates the largest electrical grid in the U.S., to build new smart grid software and services that anticipate future energy demand and identify where and how to update the power grid. By running on AWS, Duke Energy's Intelligent Grid Services will provide more accurate forecasting of electricity needs in a matter of minutes, rather than the weeks it would take with traditional information technology hardware. This in turn enables Duke Energy to make smarter decisions, including about where to replace equipment or implement non-wire alternatives, which are electrical grid investments intended to defer or eliminate the need to construct or upgrade components.

Promoting Robust Renewable Energy Policies

We are working with legislators, advocacy organizations, and corporate partners to drive permitting efficiencies across Europe and help reduce delays. We are collaborating with WindEurope and Accenture to develop EasyPermits, a digital permitting solution running on AWS that increased the efficiency of the administrative permitting process, enabling shortened permitting timelines to help the EU meet its 2030 renewable energy targets. EasyPermits is a secure web-based cloud solution that addresses key challenges faced by permitting agents and project developers to increase the speed and amount of renewable energy on the grid. This tool is currently available to support onshore wind projects, has been successfully tested in two municipalities in Denmark, and will continue to scale to support carbon-free energy policy objectives. Through our Danish pilot, EasyPermits reportedly enabled concurrent processing of up to three times as many permit applications and delivered a 50% reduction in administrative workload by improving transparency and information management.

100%

Of the electricity consumed by 22 AWS data center regions is matched with renewable energy sources—an increase from 19 regions in 2022

* As detailed in our Renewable Energy Methodology, to calculate the percentage of renewable energy consumed by Amazon's operations, we evaluate both the amount of renewable energy from Amazon's projects and the renewable energy in the grid. This total renewable energy is then compared to Amazon's total energy use.

Waste and Circularity

At AWS, we strive to be a responsible steward of our planet's finite resources. We know that contributing to a circular economy will help mitigate the effects of climate change, reduce biodiversity loss, and alleviate other global challenges by decoupling economic activity from resource consumption. With this in mind, we are working to increase what we resell, reuse, and recycle across our business and to reduce what we ultimately send to landfills.

Embracing Circular Economy Principles

AWS embraces circular economy principles for our server racks by designing reusable and lower-carbon rack systems from the outset. In addition, we work to keep equipment operating efficiently and to recover value from securely decommissioned equipment through reuse, repair, and recycling. By working to maximize resource value for as long as possible, we reduce waste generation from our global operations, decrease the use of raw materials, and reduce carbon emissions across our supply chain.

Design Better

For our server racks, we concentrate on avoiding excess material such as steel or plastic, increasing recycled and bio-based content, and planning for repair, reuse, and recycling from the beginning. We have worked with suppliers to require that plastic parts of server racks launched since July 2023 contain at least 30% recycled or bio-based plastic. In 2023, we began to transition to plastic containing recycled and bio-based content in parts including air ducts, power distribution board covers, card holders, solid state drive (SSD) carriers/ cages, riser brackets, latches, and trays. The carbon footprint of these plastic parts is up to 14% lower than that of older platforms with only virgin content. We are also working to use steel from electric arc furnaces, which use scrap steel in rack enclosures, increasing the recycled content from 10% to 90%.

Operate Longer

When we use equipment for as long as operationally efficient, we reduce the carbon footprint associated with manufacturing and using new hardware and avoid unnecessary waste. In February 2024, we announced that the average expected server lifetime had improved from five to six years. We also successfully completed a proof of concept that extends the lifespan of S3 hard disk drives (HDDs) by up to two years. This program consolidates individual functional drives from multiple aging racks into fewer, fully functional racks (see the figure, right, on hard drive consolidation). This consolidation means we move from powering and cooling a greater number of aging racks to fewer racks with optimized utility, saving water and energy. Additionally, as a result of consolidation, we send only the broken drives for recycling, avoiding early retirement of healthy and working hard drives on the same rack. We send the decommissioned rack to a reverse logistics hub for reuse assessment. In 2023, this program prevented the purchase of over 8,100 new hard drives, avoiding associated carbon emissions and costs while also increasing capacity efficiency. This program is now operational and we expect it to grow, avoiding even more carbon emissions in the future.

Recover More

When it is time for server racks to be decommissioned, we remove all customer data through secure and thorough sanitation processes. We then send retired infrastructure hardware from around the world to our regional reverse logistics hubs. These hubs help us consolidate, assess, repair, and recirculate functional equipment back into our inventory or to third parties to be sold for reuse. They also enable us to optimize component reuse across our data centers, taking decommissioned equipment from one facility and redeploying it to serve demand elsewhere. In 2023, we expanded our reverse logistics global square footage and capacity by making investments in three additional sites located in the U.S., Europe, and Asia. The added scale and enhanced capabilities provide global coverage for AWS's decommissioned server and network hardware to be tested, repaired, reused, or recycled. As a result, in 2023, 14.6 million hardware components were diverted from landfills by being recycled or sold into the secondary market for reuse.

14.6M

AWS hardware components diverted from landfills by being recycled or sold into the secondary market for reuse

AWS Hard Drive Consolidation

1 Broken drives are identified and sent to recycling.

2 Functioning drives are consolidated into fewer racks, which prevents waste generation and displaces energy and materials use with new drives.

Water

Water is an essential resource for AWS. We primarily use it to cool our global data centers, which give customers continuous access to our technologies. As a leader in water use effectiveness (WUE) among cloud providers, we aim to do our part to help solve water scarcity challenges. That is why we have set a goal to become water positive by 2030, meaning we will return more water to communities and the environment than our direct operations use. Through this goal, we are focused on reducing overall water withdrawal and replenishing water in basins facing water scarcity located in communities around data centers.

Water Positive in Data Centers

In 2022, AWS announced our commitment to being water positive by 2030. To meet this goal, we are delivering on four strategies:

- Water use effectiveness
- Using more sustainable sources
- Reusing cooling water in communities
- Delivering water replenishment

41%

Of the way toward meeting our water positive goal

At the end of 2023, AWS was 41% of the way toward achieving our water positive goal and had 15 replenishment projects in 10 countries and 26 data centers using more sustainable water sources.

In 2023, we used water footprint analysis to inform where and how we can use more sustainable water sources (including recycled water and harvested rainwater), improve WUE, expand water reuse, and grow water replenishment investments.

We work toward our water positive goal through cross-team collaboration, with input from civil and environmental engineers, data center operations specialists, and water stewardship experts.

Water Use Effectiveness

We minimize water use by using real-time data to identify leaks, piloting new treatment technologies, and exploring a range of operational changes, such as installing sensors and alerts to track water use and detect anomalies.

Global teams deploy water monitoring technology in AWS data centers to determine where they need to take action to maintain or improve WUE. In 2023, we installed thousands of sensors in our data centers to track water use. Automatic alerts inform us of any anomalies so that operators can investigate in near-real time. We also invested in on-site water treatment systems that remove scale-forming minerals and allow us to recycle more water on-site and minimize the water consumed for cooling. These technologies helped improve our industry-leading global data center WUE to 0.18 liters of water per kilowatt-hour (L/kWh) in 2023 from 0.19 L/kWh in 2022—a 5% improvement year over year and a 28% improvement since 2021.

AWS Water Use Effectiveness

	2021	2022	2023	YoY%
Water use effectiveness (L/kWh)	0.25	0.19	0.18	-5%

Using More Sustainable Sources

Recycled water typically has limited uses, including irrigation and industrial use. We use recycled water for cooling, which helps preserve drinking water for local communities.

In 2023, we increased the number of data centers using recycled water for cooling from 20 to 24, including two data centers in Virginia, one in California, and one in Singapore.

We have additionally begun harvesting rainwater as a sustainable water source. Using rainwater minimizes demands on community water resources and reduces potential surface water pollution from stormwater runoff. In Brazil, two of our data centers collect rainwater, reducing how much potable water we need for cooling.

Reusing Cooling Water in Communities

Our data centers circulate water through our cooling systems as many times as possible, but eventually it needs to be replaced with new water. While spent water can no longer be used for cooling, it may be used for other purposes, such as irrigation.

Delivering Water Replenishment

By the end of 2023, we had invested in 15 water replenishment activities, returning water to the communities where we operate across 12 of our global infrastructure regions. These investments have expanded AWS replenishment activities to three new countries, bringing the total to 10: Australia, Brazil, India, Indonesia, Ireland, South Africa, Spain, Sweden, the UK, and the U.S. These activities help recharge groundwater, build wetlands, improve water quality, and reduce water loss in utility systems. In 2023, our water replenishment portfolio returned 3.5 billion liters to local communities.

Watershed Restoration in Australia

We are working with the Great Eastern Ranges (GER)—a nongovernmental organization whose aim is to protect, connect, and regenerate wildlife habitats across eastern Australia—to enhance the health and functioning of the major watershed serving Sydney. Catastrophic bushfires in late 2019 and early 2020 damaged large areas of this watershed. This joint project is restoring the local environment in key locations to improve water yield and quality, boost biodiversity, and enhance the resilience of local communities against the effects of climate change. Together, AWS and GER have supported initiatives that are reducing polluted stormwater runoff, increasing groundwater recharge, enhancing local biodiversity, and supporting wildlife, including 15 endangered species in the affected area. Once complete, the project is expected to deliver an additional 32 million liters of water each year to the Sydney watershed.

Tackling Water Leaks in Spain

Spain is considered one of the most water-stressed industrialized countries in the world. It has experienced long-term drought since 2022, driven in part by water loss from aging infrastructure. To help address this, we worked with FIDO Tech, a cloud-based water leak detection company that uses our technology, to identify and reduce leakages in the water system in Spain's Villanueva de Gállego community. This municipality is located in the province of Zaragoza, Aragon, between Barcelona and Madrid, where our data centers are located.

Acoustic sensors placed on water pipes and meters used FIDO's machine learning algorithm—built on AWS—to identify the location and size of leaks so the community could prioritize fixing the largest ones first.

In total, the sensors identified 21 leaks and other types of water loss. By repairing the largest, highest-priority leaks first, the project is reducing water loss by an estimated 33 million liters per year.

Supplying Water to Farmers in India and Indonesia

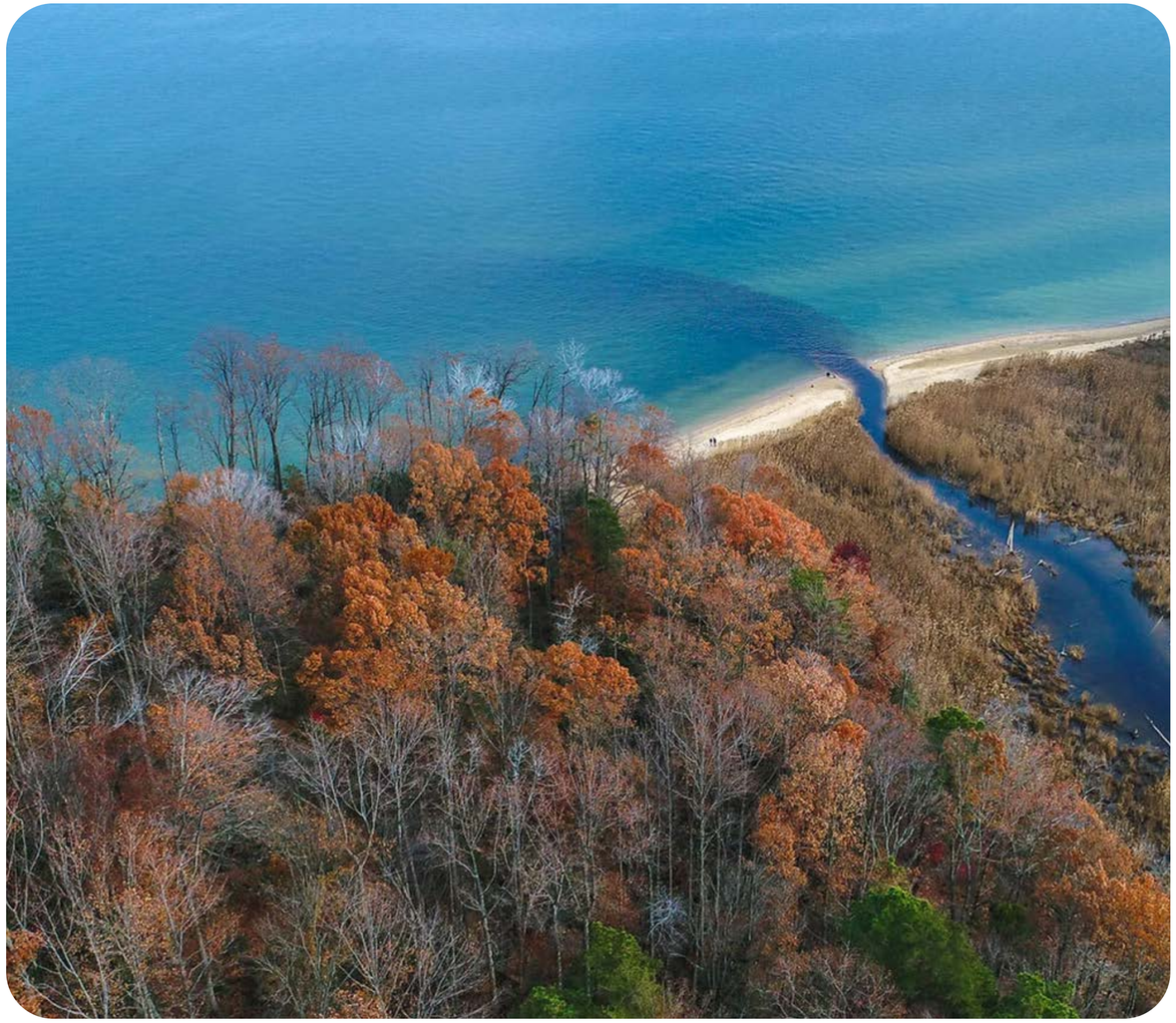
To improve access to water across India and Indonesia, we work with Water.org and WaterAid on a variety of projects, such as microfinance loans, rainwater harvesting, groundwater recharge, and piped water supply projects. For example, loans have helped communities finance water pipe connections and toilet installations in homes. Altogether, our investments in Water.org and WaterAid initiatives have benefited 290,000 people.

In 2023, we announced new projects with SEARCH, a nonprofit organization that enables marginalized groups in rural India to enhance their socioeconomic status. These projects will help provide a consistent water supply to farmers in villages surrounding Hyderabad, where we have operations, by rehabilitating existing water storage ponds and constructing new ones. Once complete, the ponds are expected to deliver 86 million liters of water back to the community each year and help increase agricultural output. The ponds will also help recharge groundwater in an area designated as a semi-critical exploitation zone due to overpumping of its underlying aquifer. In 2023, SEARCH began a detailed community engagement process to ensure projects are implemented to maximize benefits for villagers.

We will focus on making ongoing progress toward our water positive goal, investing in efforts to restore watersheds and increase access to water, sanitation, and hygiene for people who need it most.

690K

People provided with clean water and sanitation through AWS and Amazon partnerships with Water.org and WaterAid



In Northern Virginia, AWS collaborates with Stroud Water Research Center on stream-friendly projects that increase groundwater recharge and deliver better-protected water resources to more people in the Chesapeake Bay area.

Human Rights

Our activities affect millions of people around the globe, including those far beyond our direct operations. This means we have a critical role to play in respecting and promoting human rights. We believe everyone should be treated with fundamental dignity and respect and provided an equal opportunity to thrive, which is why at AWS, respecting human rights is everyone's responsibility—one we are always working to embed into the business decisions we make every day. Our work is informed by the United Nations Guiding Principles on Business and Human Rights (UNGPs), and we have high standards in place that support our long-standing commitment to advancing the human rights of all people connected to our business—including our employees, people who work in our supply chain, customers, and people who live in the communities where we operate.

Our human rights strategy is informed by leading international standards and frameworks developed by the United Nations (UN) and the International Labour Organization (ILO). Amazon is committed to respecting and supporting the UNGPs, the UN Universal Declaration of Human Rights, the Core Conventions of the ILO, and the ILO Declaration on Fundamental Principles and Rights at Work.

Our strategy to deliver on these commitments is based on the UNGPs and has five pillars: develop and maintain strong policies and standards; embed human rights into our business operations and decision-making; assess, prioritize, and address risk; engage with stakeholders; and improve access to effective grievance mechanisms and remediation.

Meaningful Consultation with Stakeholders

We collaborate with credible, knowledgeable, and innovative partner organizations around the world who share our vision. Together, we examine assessment findings, help remediate our salient human rights risks, and advance effective solutions that improve working conditions for people throughout our supply chain. We also rely on experts and affected rights-holders to inform our approach and validate our efforts. Examples of our partnerships include:

- **National Center for Missing and Exploited Children (NCMEC),** a child protection organization committed to aiding the search for missing children, reducing child sexual exploitation, and preventing child victimization. NCMEC utilizes AWS solutions to support several of its programs and an AWS representative serves on NCMEC's Board of Directors. In 2023, NCMEC received hundreds of thousands of dollars in AWS credits to support critical applications that help make sure every child has a safe childhood. Additionally, Amazon's subsidiary Ring works with NCMEC to distribute geo-targeted missing child posters in its app and across social media.
- **Polaris,** a nonprofit AWS customer that leads a survivor-centered, justice- and equity-driven movement to end human trafficking in the U.S. AWS provides financial and technical support to enhance Polaris's data collection and operations and improve trafficking identification and prevention. In 2023, AWS delivered hundreds of thousands of dollars in AWS credits to help fund Polaris's work. Since 2007, Polaris has identified over 82,300 situations of human trafficking.
- **Thorn,** a nonprofit that builds technology to combat child sexual abuse. Amazon provides millions of dollars in AWS credits to power Thorn's tools, and Thorn leverages a variety of our solutions to support Safer, a tool that uses advanced AI and machine learning models to detect child sexual abuse material (CSAM) at scale. Safer helps companies identify, review, and report CSAM from content-hosting platforms, detecting over 3.8 million CSAM files in 2023.

Responsible Supply Chain

We are laser focused on requiring safe and healthy working conditions throughout our supply chain. We have dedicated teams in key sourcing regions that engage directly with suppliers to communicate our standards, evaluate risks in our supply chain, and help suppliers build their capacities to provide working environments that are safe and respectful of human rights. We also work closely with strategic partners across the globe to enhance our influence.

Our Supply Chain Standards are the backbone of our efforts to enable a responsible supply chain. They apply to all suppliers of goods and services for Amazon, including service providers, vendors, contractors, and subcontractors.

Environmental Protection

In 2023, we screened 100% of our product manufacturing suppliers in China. When we identified environmental concerns, we worked with suppliers to remediate them. We also encouraged suppliers to publicly disclose their corrective actions to drive transparency and accountability.

Community Impact

Our culture is built around finding effective solutions to difficult problems, and we apply this thinking to support the communities where our employees live and work. We leverage our people, technology, and logistics networks to build programs and products that help enable future generations to thrive in our communities. Our community impact efforts are focused on three key areas:

- **Empowering students and adults through education and skills training:** We believe in the transformative power of education, which is why we invest in programs that help young learners, higher education students, and adults unlock their full potential. Our goal is to help 29 million people globally grow their technical skills with free cloud computing training by 2025 through AWS-designed programs. Additionally, with the rapid growth of AI and the need for an AI-savvy workforce, Amazon has pledged through its AI Ready initiative to provide free AI skills training to 2 million people globally by 2025.
- **Supporting disaster relief and response efforts:** Our global logistics capabilities, combined with AWS technology, make us uniquely suited to help people when natural disasters strike. Our disaster relief and response efforts help provide fast, effective aid for affected communities.
- **Addressing health equity:** We are focused on providing equitable access to health resources. In 2021, we launched the AWS Health Equity Initiative (HEI), a three-year program with the goal of enhancing health outcomes for underserved and historically marginalized communities. We aim to distribute up to $60 million in cloud computing credits to support organizations promoting health equity globally by the end of 2024.

Empowering Students and Adults through Education and Skills Training

Amazon invests in programs to increase youth and adult access to science, technology, education, and math (STEM) opportunities. Our aim is to help young learners and workforce professionals alike develop valuable skills needed for careers in STEM fields through a broad range of education and training programs. AWS has designed several initiatives aimed at enhancing STEM education for young learners and skills training for students and adults.

For young learners, Amazon's programs are designed to excite curiosity about career opportunities in STEM, computer science, and beyond. For adults, Amazon offers a range of free courses for individuals with technical and non-technical backgrounds to help them learn new skills and accelerate their careers in cloud computing and other cloud-enabled fields, including AI.

Young Learner Education

In 2023, AWS provided STEM education to young learners through the following programs:

- **AWS Girls' Tech Day,** a learning event for women and girls that focuses on each STEM area, with activities designed to educate and inspire. The program's aim is to use the cloud to build a network of like-minded girls and young women across the globe. To celebrate the five-year anniversary of Girls' Tech Day in 2023, we expanded the program into a recurring Girls' Tech Series that includes STEM clubs, a women-in-tech speaker series, and student competitions. In 2023, we supported nearly 5,700 students through the Girls' Tech Series.
- **AWS Think Big Spaces,** educational STEM labs that serve as a place beyond the typical classroom where the technology, curriculum, and even furniture promote hands-on learning. As of the end of 2023, AWS had 72 Think Big Spaces around the world.
- **AWS CloudRoom,** a global program created to help students ages 9 to 14 gain a deeper understanding of the cloud and what it makes possible. In 2023, nearly 1,940 students and 17 schools participated in AWS CloudRoom.
- **AWS GetIT,** an educational program and competition designed to inspire 12- to 14-year-old students, especially girls and young people from underrepresented communities, to consider a future in STEM.

2M

People globally will receive free AI skills training by 2025 through Amazon's AI Ready initiative, which is removing cost as a barrier to accessing these critical skills

Student Programs

We launched several new educational and skills training programs in 2023 to complement our existing cloud computing offerings, including the AWS Skills to Jobs Tech Alliance. Through a coalition of partners, this program aims to address the skills gap in community college and university technology curricula and better prepare students for entry-level technology careers. Launched in June 2023, the Skills to Jobs Tech Alliance supported 725 educational institutions that collectively serve more than 73,000 students in the U.S., Egypt, and Spain, with plans to expand to more countries.

Other opportunities AWS provides include:

- **AWS Educate,** an on-demand learning platform that offers hundreds of hours of free, self-paced training and resources for new-to-cloud learners—including hands-on labs, generative AI courses, and an exclusive job board. The program is available to learners as young as 13 in over 200 countries and territories.
- **AWS Academy,** which provides higher education institutions with a free, ready-to-teach cloud computing curriculum that prepares students to pursue industry-recognized certifications and in-demand cloud jobs. In 2023, over 6,800 institutions used the curriculum.
- **AWS AI ML Scholarships,** a scholarship program providing underserved or underrepresented high school and higher education students globally with opportunities to learn the AI and machine learning (ML) skills needed to prepare for careers in technology. We awarded a total of 2,500 AWS AI ML Scholarships in 2023.

Skills Programs for Adults

We are investing hundreds of millions of dollars to help 29 million people around the world grow their technology skills with free cloud computing skills training through AWS-designed programs by 2025. The trainings are designed to meet a wide variety of schedules, learning preferences, and career goals, offering something for everyone. Since 2020, Amazon and AWS have helped 21 million people globally gain access to these training opportunities.

We supported upskilling initiatives through the following programs:

- **AWS re/Start,** a free-to-learner, cohort-based workforce development training program that helps unemployed or underemployed individuals with little or no tech experience build the skills needed for entry-level cloud careers. In 2023, AWS re/Start was delivered to more than 200 cities in 60 countries. Through this program, 90% of participants have been connected to job interview opportunities.
- **AWS Skill Builder,** an online learning center that offers more than 600 free, on-demand cloud courses in up to 17 languages. Skill Builder provides subscriptions with access to game-based learning, labs, scenario-based challenges, and practice exams for select AWS Certifications.
- **AWS Skills Centers,** in-person learning that offers no-cost, on-site and virtual cloud computing classes, physical learning spaces, and networking events. Skills Centers are located in Seattle, Washington; Arlington, Virginia; and Cape Town, South Africa.
- **AI Ready**, a new commitment by Amazon, announced in 2023, to provide free AI skills training to 2 million people globally by 2025, with tracking to begin in 2024. As part of this initiative, we launched eight new, free AI and generative AI courses; an AWS Generative AI Scholarship that provides high school and university students with access to a new generative AI course on Udacity; and a new collaboration with Code.org designed to help students learn about generative AI.
- **AWS Cloud Institute**, a new, structured, hands-on training program that helps learners launch their cloud careers in as little as one year—regardless of their technical background. The first AWS Cloud Institute cohort began classes in January 2024.

Supporting Disaster Relief and Response Efforts

We mobilize the full breadth of our infrastructure, cloud technology, and global logistics network to help communities affected by natural disasters. Disaster Relief by Amazon delivers speed in the form of logistics and inventory, while AWS Disaster Response delivers information through access to connectivity and data.

Amazon brings AWS cloud technology to areas hard-hit by natural disasters to support mapping, establish connectivity, and quickly increase capacity for emergency call centers. In 2023, AWS responded to 14 disasters and provided 103 affected customers with $3.5 million worth of cloud credit donations to facilitate emergency services. We also provided our technology to assist responders in Hawaii, helping coordinate support and make it possible for community members to contact loved ones following the historic wildfires in Maui.

Addressing Health Equity

We are harnessing the power of the cloud to advance health equity globally. Through the AWS HEI, we have pledged to provide up to $60 million in cloud computing credits to organizations that are using cloud computing technology to address health disparities that impact underserved or underrepresented communities around the world. We have already awarded over $32 million and supported 229 global organizations to promote equal access to health resources, up from 90 organizations in 2022.

In December 2023, we joined the Health Electrification and Telecommunications Alliance (HETA), Power Africa's initiative for health facility electrification and digital connectivity in sub-Saharan Africa. Power Africa is part of the United States Agency for International Development (USAID) and harnesses the collective resources of public and private sectors to expand electricity in sub-Saharan Africa. We have pledged to support efforts across the initiative's target countries, contributing cash and AWS promotional credits to help health facilities keep the lights on for nighttime services, reliably provide patients with oxygen and other lifesaving care, refrigerate vaccines and other temperature sensitive medical commodities, and use the digital tools that modern medicine relies on. AWS is also collaborating with HETA to develop a cloud-based solution for real-time monitoring, analytics, predictive maintenance of energy and connectivity infrastructure.

The AWS Disaster Response team develops and tests new innovations that utilize cloud technology to enable more efficient disaster response capabilities for our customers and relief organizations.

AWS InCommunities

AWS InCommunities is a community outreach program that aims to positively influence the communities where we build and operate our global infrastructure. This work is anchored in Science, Technology, Engineering, Arts, and Mathematics (STEAM) Education, Local Skills Development, Sustainability, and Hyperlocal Social Impact.

Through our programming, in 2023, AWS InCommunities drove nearly 6 million positive community interactions—defined as an engagement with a community member that results in a benefit for the recipient. One of our most notable initiatives is the AWS InCommunities Fund, a microgrant program that supports local individuals and organizations driving positive change. We launched 10 of these microgrants in 2023, helping renovate schools and rural hospitals in India, establish community health care facilities in Indonesia, implement food access programs in Australia, support sustainability programs such as textile recycling in the U.S., and more.

Since its launch in 2021, AWS InCommunities has allocated over $2.1 million in microgrants to bolster hyperlocal projects in communities around the world. In 2023 alone, more than 5,800 AWS employees volunteered nearly 22,000 hours to support AWS InCommunities programs across its four areas of focus.

Employee Experience

We are empowering our employees to build the skills they need to remain competitive, grow their careers, and move into higher-paying roles.

Upskilling Our Employees

We're building a strong pipeline of talent to fill current and future in-demand jobs at Amazon by continuously working to enhance our AWS upskilling programs.

AWS Grow Our Own Talent

AWS Grow Our Own Talent helps individuals with nontraditional experience and backgrounds develop skills needed for AWS data center roles through on-the-job training and placement opportunities. In 2023, we launched this program in new countries across Europe, the Middle East, Africa, and Asia-Pacific.

AWS Intelligence Initiative

The AWS Intelligence Initiative is a 12- to 14-month rotational onboarding and technical upskilling program for engineers supporting Amazon Dedicated Cloud (ADC) regions. In 2023, there were 115 program participants in the U.S. and 193 outside the U.S., with 60 promoted to ADC engineers after completing the program. In the UK, 63% of our ADC workforce are graduates of this program.

AWS Tech U

AWS Tech U is an accelerated workforce development program that empowers people to establish and hone the technical and professional skills needed to thrive at AWS. This program provides training for Amazon employees who want to pursue cloud-based technical careers and involves working on products that reflect real-world AWS solutions and interacting with customers. In 2023, approximately 1,670 employees enrolled as Tech U learners.

Employee Engagement in Sustainability

Through Amazon's Sustainability Ambassador program, operational employees across our business support sustainability projects—both on-site at Amazon campuses and in their communities—as well as employee engagement reporting and educational events to inspire fellow employees and share best practices across teams, business units, and locations. For example, AWS Sustainability Ambassadors continued their implementation of the LED Everywhere Project, an initiative started in 2021 that aims to replace fluorescent or less energy-efficient lighting with LED alternatives in all AWS data centers. In 2023, 10,500 light bulbs were replaced with LEDs, resulting in an energy use reduction of over 3,100 megawatt-hours (MWh) annually compared to the old bulbs.

63%

Of our Amazon Dedicated Cloud workforce in the UK are graduates of the AWS Intelligence Initiative

Built for employees, the Spheres provide a tranquil green workspace in the middle of Amazon's Seattle, Washington, headquarters.

Inclusive Experiences

AWS creates inclusive technology and experiences that connect our diverse world. We are delivering inclusive experiences for our employees, customers, and communities in over 60 countries.

Building Equity and Inclusion into Our Talent Management

We welcomed 89 youth apprentices in 2023 to Amazon JumpStart, a program that employs emerging talent from high schools in underserved communities. Seven different Amazon organizations—Devices & Services, Amazon Advertising, AWS, Worldwide Amazon Stores, Finance, Audio, and Twitch & Games—provided apprentices with on-the-job learning experiences.

Accelerating Inclusive Experiences Globally

We support programs that connect our employees globally through shared experiences. Employees can participate in networking programs that organize learning opportunities, lead service projects, and host activities around cultural celebrations. In 2023, nearly 148,200 employees across more than 2,500 chapters in 60 countries participated in one or more of Amazon's affinity groups. AWS employees can take part in the Inclusive Ambassador program, which is dedicated to scaling an inclusive, fair, and respectful culture at AWS. More than 19,000 AWS employees across 52 chapters globally participated in the Inclusive Ambassador program in 2023.

Through our ITSkills4U program, we provide virtual and in-person training to people who are interested in expanding their job opportunities in non-IT roles, switching to IT, or advancing their IT careers. By the end of 2023, ITSkills4U had provided training to nearly 16,500 Ukrainians globally, including refugees—exceeding our goal of training 10,000 Ukrainians.

We are creating opportunities for alignment with the greater community through programs such as the AWS Impact Accelerator, a $30 million fund that provides Black, Latino/e, women, and LGBTQIA+ founders with equitable access to funds, training, mentorship, tools, and resources. In 2023, 20 companies participated in the AWS Impact Accelerator Latino Founders Cohort, giving pre-seed Latino/e founders the support they need to accelerate their businesses.

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Companies participated in the AWS Impact Accelerator Latino Founders Cohort

ITSkills4U is our free workforce-development program to help Ukrainians pursue cloud computing careers.

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