For a better reality

Meta

2024 SUSTAINABILITY REPORT

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A message from

Rachel Peterson

VICE PRESIDENT,
INFRASTRUCTURE DATA CENTERS

In early 2024, we celebrated the 20th anniversary of the launch of Facebook, coming off a year focused on efficiency and artificial intelligence (AI) in 2023. We challenged ourselves to uncover new opportunities to streamline our processes and deliver the additional data center capacity to support the AI demand, while keeping our eye on our sustainability progress.

Since 2020, we have maintained net zero emissions in our global operations. To get there we reduced our emissions by 94% from a 2017 baseline, primarily by matching 100% of the electricity use of our data centers and offices with renewable energy and addressing the remaining emissions with projects that remove carbon from the atmosphere.

Meeting our goal to achieve net zero value chain emissions in 2030 will be significantly harder. The challenge of reaching our sustainability goals given the increased demand for energy and resources driven by AI is not unique to Meta. And it will require major shifts in how companies like ours operate.

Since breaking ground on our first data center back in 2010, we've built a global infrastructure that serves as the engine for the more than three billion people who use our technologies and programs every day. AI has been an important part of these systems for many years. (CONT.)

We are designing our data centers to be future-flexible while considering the short- and long-term impacts on our decarbonization efforts. Our new data centers will be optimized for AI, supporting liquid-cooled hardware and a high-performance network.

Our approach to reach our goal will evolve over time as we transform our business and explore climate solutions. This report details more collaboration examples, highlights our progress in 2023 and looks to the challenges facing us in 2024 and beyond.

Rachel Peterson

VICE PRESIDENT, INFRASTRUCTURE DATA CENTERS

A message from

Blair Swedeen and Leslie Collins

GLOBAL HEAD OF NET ZERO AND SUSTAINABILITY, META

DIRECTOR OF SUSTAINABILITY, META

Meta believes sustainability is about more than operating responsibly; it is an opportunity to support the communities we are part of and have a positive impact on the world. The mission of our Net Zero and Sustainability Team is to enable Meta to operate and grow sustainably and responsibly.

We envision a world at the end of the decade where Meta has met our science-based emissions reduction target, achieved net zero emissions across our value chain, restored more water than our operations consume and consistently upheld the human rights, safety and well-being of workers in our manufacturing supply chain.

Throughout this report, we share updates on our progress toward our goals and share how we are advancing programs that protect workers and the environment in our supply chain.

In 2023 we focused on investing in the foundation for us to scale the program ramping up to 2030. We aim to deliver data-driven reports to internal and external stakeholders to both meet regulatory and pre-regulatory commitments as well as to support company policy, legal and reputational objectives. (CONT.)

Meta strives to have a positive impact on the communities and environment where we operate and collaborate to scale our knowledge across the industry. Our size and scale enable us to influence the future of decarbonization, the expansion of renewable energy and the integrity of climate solutions — and to help others in the industry benefit from the resources we've developed through decades of learning and improvement.

Our investment as a founding member of the Clean Energy Procurement Academy (CEPA) is one such example. Launched to support the decarbonization of global supply chains, CEPA encourages renewable energy purchases through education.

Meta worked with five other leading corporations to create a shared training curriculum to educate suppliers on the benefits of renewable energy purchases.

This report details how we are working toward our goals while continuing to support our increased focus on AI and the metaverse by identifying, avoiding and mitigating operational, supply chain and reputational risks; monitoring market intelligence; and enhancing best-in-class management systems.

Blair Swedeen

GLOBAL HEAD OF NET ZERO AND SUSTAINABILITY

Leslie Collins

DIRECTOR OF SUSTAINABILITY

Executive summary

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About Meta

Our mission is to give people the power to build community and bring the world closer together. We build technology that helps people connect, find communities and grow businesses. Our products enable people to share with friends and family through mobile devices, personal computers, virtual reality (VR) and mixed reality (MR) headsets, and wearables. More information can be found in our Annual Report on Form 10-K↗.

Meta is moving our offerings beyond 2D screens toward immersive experiences like augmented and virtual reality to help build the metaverse, which we believe is the next evolution in social technology. All of our technologies and programs share the vision of helping to bring the metaverse to life. Across our work, we are innovating in AI technologies to build new experiences that help make our technologies more social, useful and immersive.

We generate the majority of our revenue from selling advertising placements. Ads enable marketers to reach people based on a variety of factors, including age, gender, location, interests and behaviors, serving people who use our technologies and programs with content that is relevant and of interest to them. Marketers purchase ads that can appear in multiple places, including Facebook, Messenger, Instagram, third-party applications and websites.

We ended 2023 with offices in more than 90 cities across North America, Europe, the Middle East, Africa, Asia Pacific and Latin America. We also had 21 data center locations in operation or under construction globally. Headcount was 67,317 as of December 31, 2023.

About this report

The 2024 Sustainability Report reflects our work and supporting data through the 2023 fiscal year (January 1–December 31, 2023) unless otherwise noted. This year's report was prepared in reference to Global Reporting Intiative (GRI) standards, the Sustainability Accounting Standards Board (SASB), Internet and Media Services Industry Standards, the United Nations Global Compact and the Task Force for Climate-related Financial Disclosures (TCFD). Meta obtains limited assurance conducted by Ernst & Young LLP for select environmental metrics. For more information refer to the Independent Accountants' Review Report↗.

Stakeholder engagement

Disclosures included in this report stem from priority topics identified through stakeholder conversations. Maintaining open lines of communications with our stakeholders helps us understand their needs, expectations and concerns. We engage through a combination of formal and informal meetings with stakeholders, including people who use our technologies and programs, colleagues, communities, suppliers, industry peers, nongovernmental organizations (NGOs), policymakers and investors. These conversations help inform our sustainability programs and advance our work. For more information, please view our Responsible Business Practices Report↗.

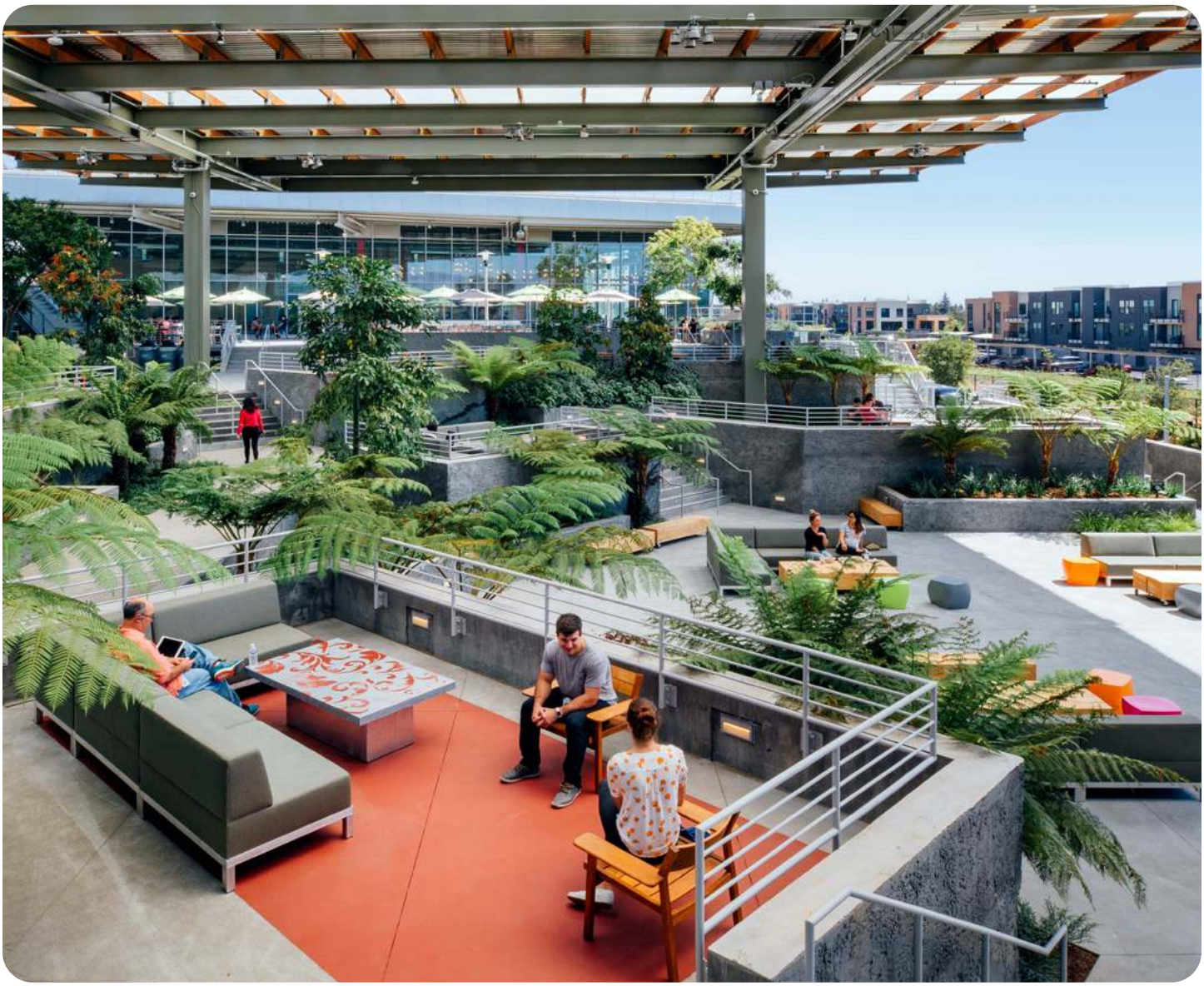
Sustainability governance

The Audit and Risk Oversight Committee (AROC) of our Board of Directors receives regular updates on key sustainability priorities, including climate change and supply chain initiatives, as well as the overall Net Zero and Sustainability program strategy.

At least annually, management reviews our sustainability programs, policies and risks with the committee, including steps taken to monitor and mitigate exposures. AROC receives briefings from senior leaders, including the Vice President of Infrastructure Data Centers, the Global Head of Net Zero and Sustainability and the Director of Sustainability, ensuring AROC is well-informed on company sustainability efforts and progress.

Sustainability vision

We are in the business of building better realities — and not just virtual ones. We are working in partnership with others to scale inclusive solutions that support the transition to a zero-carbon economy and help create a healthier planet for all.



For a better reality

We see our role as protecting people and the planet through responsible operations — reducing our emissions and the energy and water used to power our data centers that enable access to our technologies — while protecting workers and the environment in our supply chain.

We set expectations with respect to the environment, labor and human rights in our operations and supply chain. This means ensuring that suppliers that produce and procure hardware adhere to standards that support safe, healthy and fair working conditions.

At the same time, we acknowledge we will not realize this vision on our own. We continue to collaborate with multi-stakeholder groups, community members, climate action leaders and scientists to innovate beyond what is possible today and work to achieve net zero emissions across our value chain and become water positive in 2030.

Our approach

Our strategy is anchored by three components — how we operate, what we create and how we collaborate — to help drive change across the many communities in which we operate.

How we operate

We are committed to protecting what is truly important: the well-being of people and our planet.

What we create

We push the boundaries of what's possible, creating solutions where none existed and building technologies and programs that enable change.

How we collaborate

Our collaborations underpin how we operate and what we create because we know it will take everyone working together to make the systems-level changes required to build a climate-resilient better reality: sustainability experts, researchers, local utilities, nonprofit organizations and our employees.

How we operate

We are committed to protecting what is truly important: the well-being of people and our planet.

- Take bold climate action by reducing our environmental footprint, championing renewable energy, restoring water resources and engaging our suppliers.
- Respect human rights and protect the environment within our operations and supply chain.
- Boost energy and water efficiency in our data centers.

What we create

We push the boundaries of what's possible, creating solutions where none existed and building technologies and programs that enable change.

- Provide access to new ideas, accurate information and ways to take action via content on our technologies.
- Design new technologies and programs with diverse needs and values in mind.
- Integrate circular practices in our facilities and hardware manufacturing processes.

How we collaborate

Our collaborations underpin how we operate and what we create because we know it will take everyone working together to make the systems-level changes required to build a climate-resilient better reality: sustainability experts, researchers, local utilities, nonprofit organizations and our employees. We create partnerships and join initiatives that help us to scale our efforts to prepare people and communities to adapt to the risks associated with climate and social change.

- Engage experts to guide our sustainability and social impact initiatives.
- Generate learnings that help inform and shape our standards.
- Connect researchers with insights.
- Work with businesses, NGOs and community organizations to create and implement locally beneficial environmental projects and initiatives.
- Share our environmental learnings and practices throughout the tech industry and beyond.

Goals and commitments

Since 2020, we have maintained net zero emissions across our global operations. We have publicly committed to achieving net zero emissions across our value chain and becoming water positive in 2030.

In support of these goals and our vision for a transition to a zero-carbon economy and a healthier planet for all, we have identified additional objectives and commitments.

Aiming for these targets drives our day-to-day strategy and efforts to achieve a better reality.

- Reduce our Scope 1 and 2 emissions by 42% in 2031 from a 2021 baseline.
- Enable at least two-thirds of our suppliers to set science-aligned emissions reduction targets by 2026.
- Not exceed our 2021 baseline Scope 3 emissions by the end of 2031.
- Restore 200% of the water we consume in high water stress regions and 100% of the water we consume in medium water stress regions.
- Continue to match 100% of our electricity use with renewable energy to support our operations.
- Positively impact the communities and environment where we operate.
- Expect supply chain partners to uphold high human rights and environmental standards.

2023 highlights

- Along with several other companies, Meta partnered with the Clean Energy Buyers Institute to launch the Clean Energy Procurement Academy (CEPA). CEPA builds solutions and offers training to help suppliers source renewable energy.
- We have set a science-based emissions reduction target and have roadmapped a decarbonization strategy to systematically transform the way we do business.
- Our portfolio of more than 11,700 megawatts (MW) of contracted renewable energy makes Meta one of the largest corporate buyers of renewable energy globally, and the corporate buyer with the largest operating renewable energy portfolio in the US in 2023 with more than 6,700 MW online.
- We expanded the reach of our process chemicals program to additional hardware suppliers to inform their capacity-building needs, corrective actions and improvement plans to further protect worker safety.
- We updated our Responsible Minerals Sourcing Policy ↗ to continue to address evolving expectations for the responsible sourcing of minerals and reinforce our alignment with the Organisation for Economic Co-operation and Development (OECD) Due Diligence Guidance and related laws.
- By the end of 2023, 28% of our suppliers, based on their contribution to our emissions, have set science-aligned emissions reduction targets.
- Our 18 operational water restoration projects returned 1.5 billion gallons of water to high and medium water stress regions.
- We recycled 91% of data center construction waste.

How we operate

We work to be good stewards of our planet and uphold the human rights, safety and well-being of our employees, suppliers, customers and partners. To do so, we must operate sustainably, responsibly and ethically and transparently share our progress.

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Path to net zero

As climate change impacts become increasingly prevalent, decarbonizing our business is a critical step for Meta to do our part in supporting a healthier planet and more resilient communities. Since 2020, we have maintained net zero emissions in our global operations and matched 100% of our electricity use with renewable energy. We have also set a goal to achieve net zero emissions across our value chain in 2030.

Our value chain emissions continue to fluctuate as our business expands and recently constructed data centers come online. This underscores the long-term efforts needed to decouple emissions growth from anticipated business growth. In order to reliably reverse the trajectory of our emissions in the coming years, we must expand our decarbonization measures today — both at Meta and with our suppliers — so that the design of our infrastructure and global operations are compatible with a zero-carbon future. We are prioritizing action toward near-term efforts, while also setting targets and making long-term decisions that indicate where we want the world to be in the future.

Our net zero program focuses on three pillars:

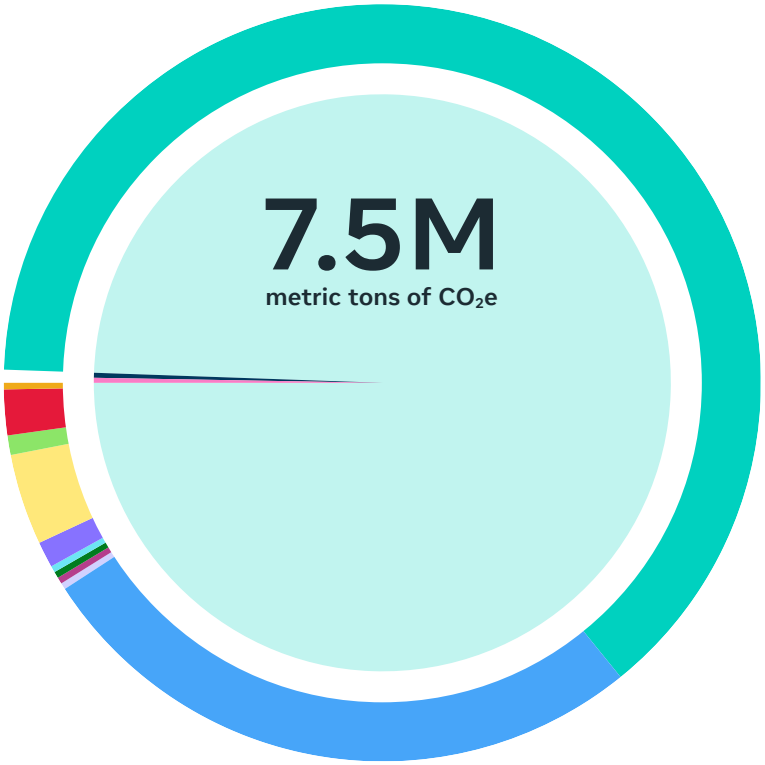
Understanding our emissions

Reducing our emissions

Removing any remaining emissions

In 2023, our net emissions equaled 7.4 million metric tons of CO_2e. We report on all relevant emissions as defined by the GHG Protocol. Our annual data and methodology for calculating our environmental footprint can be found in our data index.

Learn more



Our 2023 carbon footprint

		mt CO_2e
<1%	Scope 1	48,952
<1%	Scope 2	1,658
99%	Scope 3	7,445,621
27%	Purchased goods and services	2,045,470
65%	Capital goods	4,835,270
<1%	Fuel and energy-related activities	8,454
2%	Upstream transportation and distribution	124,324
1%	Waste generated in operations	38,468
4%	Business travel	317,841
1%	Employee commuting	54,256
<1%	Upstream leased assets	2,249
<1%	Downstream transportation and distribution	47
<1%	Use of sold products	16,476
<1%	End-of-life treatment of sold products	2,765

We removed 53,050 tons of CO_2 through carbon removal projects to cover our Scope 1 and 2 emissions.

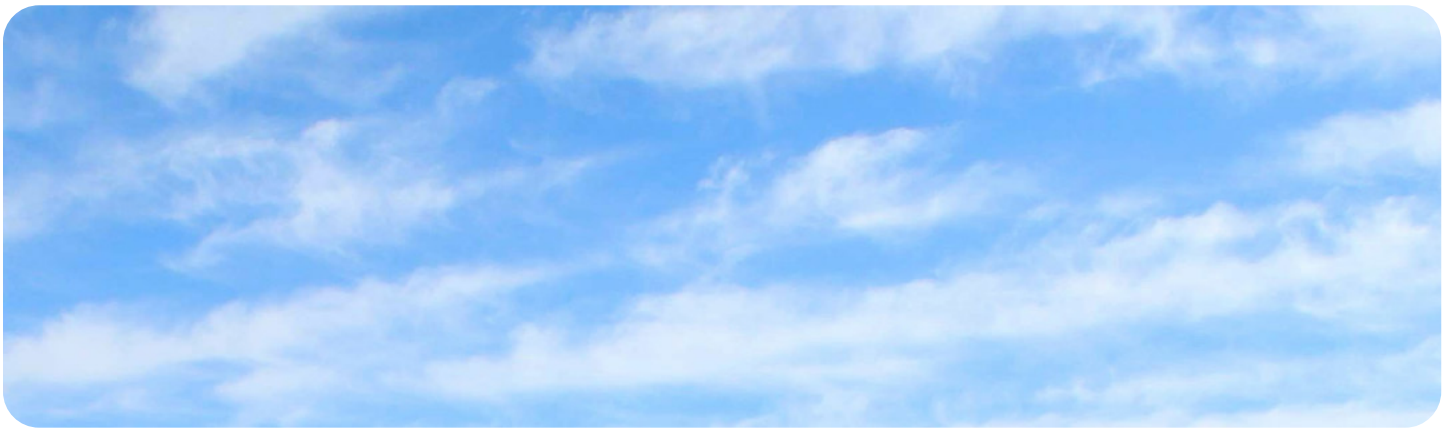
Understanding our emissions

Identifying the sources of our emissions from our direct operations to our supply chain enables us to prioritize emission reductions where we can make the most impactful progress on our path to net zero. As Meta decarbonizes its operations and value chain, the data and tools that help us to understand our emissions will evolve, enabling us to more efficiently deploy interventions to reduce our emissions.

In 2023, we leveraged our expertise in data science to increase the granularity and speed with which we track our emissions. We created a unified data model (UDM) for our emissions, which consolidates several GHG data sources from our global offices and data centers into a single point of access. This consolidation helps us to streamline our data collection process, improving data governance and enabling us to quickly measure and manage our emissions.

We also improved our ability to measure and reduce the emissions from our data center hardware through an innovative approach for estimating server component emissions. Calculating emissions at the component-level is a challenge because many of the companies manufacturing source materials do not have the scale or resources to quantify and track GHG metrics. As a response, we developed a methodology to estimate and track the carbon emissions of hundreds of millions of components in our data centers.

The methodology incorporates component-level, cost-based estimates and resource-intensive Life Cycle Assessments (LCAs). We complement calculations with internal materials modeling and third party tools and databases such as the imec.netzero↗ tool and ACT↗ tool. This suite of methods and the associated data pipelines enable a more comprehensive and detailed overview of the embodied carbon in our entire IT hardware fleet.

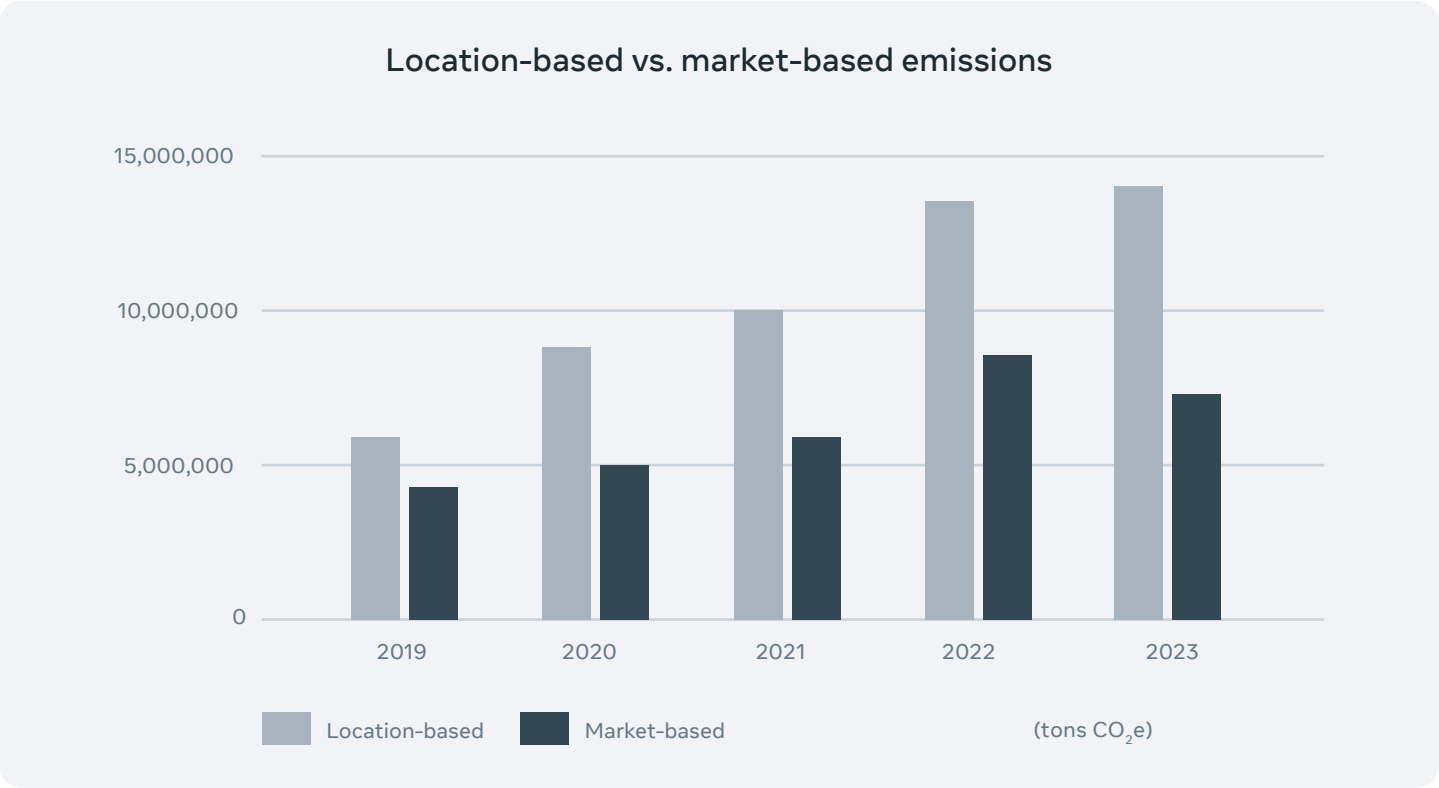


Reducing our emissions

Reducing GHG emissions across our global operations and value chain remains the most effective strategy to reach net zero. Failure to reduce emissions today will lock in high-carbon intensity business tomorrow. We have set a science-based emissions reduction target in line with what is necessary to transition to a zero-carbon future, and have roadmapped our strategy to systematically transform the way we do business.

We've committed to:

- Reducing our Scope 1 and 2 emissions by 42% in 2031 from a 2021 baseline.
- Enabling at least two-thirds of our suppliers to set science-aligned GHG reduction targets by 2026.
- Not exceeding our 2021 baseline Scope 3 emissions by the end of 2031.



Our 2023 market-based emissions were 47% less than our location-based emissions (14 M tons CO_2e). Our market-based emissions reflect emissions reductions from purchasing decisions we have made. This includes our contracting of over 11,700 MW of renewable energy and purchase of nearly 3 million gallons of sustainable aviation fuel for business travel, which has up to an 80% lower carbon footprint than traditional jet fuel.

Q and A with

David Hitchings

SUSTAINABILITY PROGRAM MANAGER, ENVIRONMENTAL METRICS ACCOUNTING

Tell us about your role with Meta.

I regularly engage with data owners across Meta to collect data for our environmental disclosures. My objective is to facilitate complete, accurate and transparent disclosures.

How has the company's approach to data changed over time?

When we began collecting environmental data in 2011, reporting was voluntary. Initially, it was challenging to collect data and ensure it was complete, accurate, transparent and traceable.

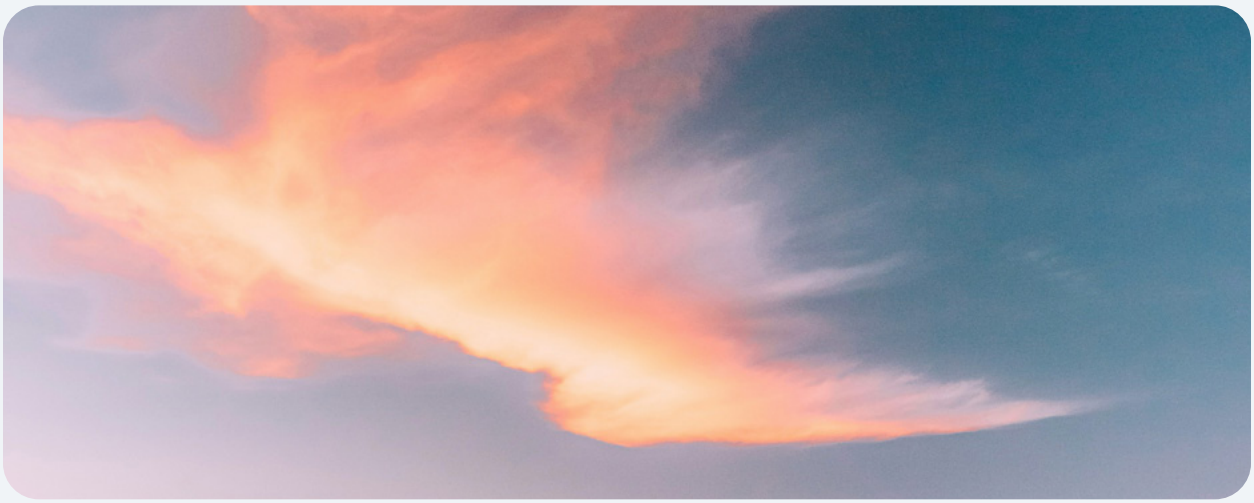
Now, instead of relying on only our own team, data collection is spread across stakeholders on over 30 teams! Empowering stakeholders to take ownership of the data has helped us successfully integrate our efforts with those of the teams responsible for collecting and reporting company environmental data.

Much of my approach to data collection and analysis now is a focus on automation and implementing and adjusting processes to improve efficiency. We recently launched an internal, integrated data model designed to make the process less labor intensive for our internal stakeholders and to enable data-driven solutions for our emissions reduction strategies. (CONT.)

Reporting and assurance seems to be constantly changing. Is this evolution beneficial or is stability what everyone's really craving?

As demand for non-financial reporting increases, assurance can drive continuous improvement and provide that extra stamp of confidence for the data that is being disclosed. Corporate sustainability is going through a huge growth phase and is constantly evolving so it is important for reporting and assurance to adapt to these changes.

The evolution of reporting and assurance is beneficial for standardizing data across companies, which will ideally stabilize and remove some of the uncertainties for companies who choose to continue voluntary disclosures in addition to complying with new regulations. Data standardization also drives increased confidence in decision making. It is important, however, to allow for continuous evolution as new technologies are developed and new solutions for organizations to operate more sustainably are identified and implemented.



Renewable energy highlights

For more than a decade, part of our strategy to reduce our operational emissions has been through adding new renewable energy to grids where we have data center operations. Meta is one of the largest corporate buyers of renewable energy, with over 11,700 MW of contracted renewable energy. We matched 100% of our electricity use with renewable energy by adding new wind and solar projects to local grids, including those where our data centers are located, which helps drive the transition to renewable energy. We have the largest operating corporate renewable energy portfolio in the US for the second year running, with more than 6,700 MW online.

By the end of 2023, Meta globally supported 98 projects, 76 of which were operational.

In 2023, we conducted an economic impact study ↗ that looked at the renewable energy contracts Meta had entered into in the US through the end of 2022. It found that by 2025, the 86 studied Meta-supported wind and solar projects located across 24 US states and 74 counties will add up to 9,800 MW of renewable energy to local grids and support more than $8 billion in GDP throughout the US economy.

As a result of the renewable energy that we have procured, we have reduced our operational emissions by 5.1 million tons of CO_2e in 2023. We also apply additional renewable energy certificates to our Scope 3 emissions to reduce emissions associated with fuel- and energy-related activities, customer use of our consumer hardware, including Meta Quest headsets, and employees working from home. As a result, we have reduced our value chain emissions by 1.4 M tons of CO_2e in 2023. Renewable energy procurement has helped us reduce our overall emissions by a total of 16.4 M tons of CO_2e since 2021.

Q and A with

Carolyn Campbell

HEAD OF RENEWABLE ENERGY, EAST

Describe your day-to-day role at Meta.

I oversee a team tasked with securing new renewable energy projects to continue matching 100% of our electricity use with renewable energy. This includes understanding data center capacity and electricity demand signals from the business, sourcing projects opportunities and negotiating agreements.

How has the company's approach to renewable energy changed over time?

From the early days of the program, we have always looked to add new renewable energy projects in close proximity to our operations. As we've continued to add renewable energy to the markets in which we operate, we've started to think more about the impact of each incremental MWh of clean energy we add to the grid. At the same time, we are working to maximize emissions reductions across the electricity system.

To achieve this, we focus on staying ahead of the curve and thinking creatively. We are working with partners across the industry to increase the level of detailed data available about the actual emissions coming from electricity consumed at our facilities and the emissions avoided by electricity produced by the renewable energy projects supporting our operations. (CONT.)

A key component of this work is partnering with standards setting bodies to ensure companies can access the tools needed to support their electricity emissions strategies.

Meta has joined several leading companies on the Emissions First partnership↗, a set of new objectives and principles to update purchased electricity GHG emissions accounting systems (Scope 2) and help ensure we have clear ways to measure emissions reductions to unlock decarbonization investments at scale. This strategy will help Meta and others assess the emissions impact of purchased clean and renewable electricity, and optimize those purchases to maximize their emissions-reduction impacts.

How is Meta working to extend the availability of renewable energy in its supply chain?

We want to align with industry to reduce barriers to supplier decarbonization. We see how inefficient it is for individual companies to reach out to suppliers with bespoke asks, bespoke training systems. We can move much more quickly together.

A key example of our efforts is our contribution as a founding member of the Clean Energy Procurement Academy (CEPA)↗.

Engaging in meaningful partnerships is critical to the success of our efforts to accelerate decarbonization for our suppliers and broader industry.

HOW WE COLLABORATE:

Renewable energy partnerships

ZEROgrid

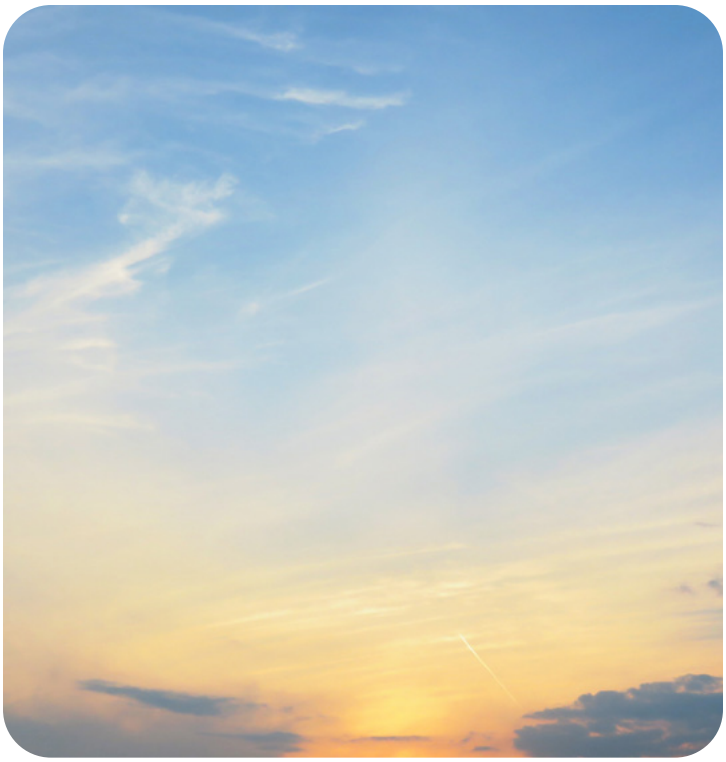
We've seen the impact corporate renewable energy commitments have had in adding clean energy to the grid. We are partnering with Rocky Mountain Institute (RMI) and other leading companies on a new effort, the Zero Emissions | Reliability Optimized Grid Initiative or ZEROgrid↗, that will develop a roadmap and action plan to foster increased corporate climate investments that maximize the potential for moving to truly zero emissions, and a more reliable grid.

Renewable energy and battery storage

In partnership with the local electrical utility (Salt River Project) and with the renewable developer Ørsted, a new solar plus storage project announced in 2023 will help match our Mesa, Arizona data center's electricity use with 100% renewable energy. Under the agreement, Meta will receive the majority portion of the energy generated by Ørsted's Eleven Mile Solar Center, a 300 MW solar farm and 300 MW, four-hour battery energy storage system currently under construction in Pinal County, Arizona.

Green tariffs

We partner with many of the largest utilities in the US to add renewable energy onto their systems in ways that benefit both Meta and other customers. Not all utilities offer electric rates (or tariffs, as utilities call them) that allow customers to support their facilities with renewable energy projects. When this is the case, we work with utility partners to create green tariffs that provide our facilities, and other energy customers, with the opportunity to pursue renewable energy projects via their retail electricity service and support their own sustainability goals. In 2023, under Idaho's Green Energy Your Way program, a special contract was approved to support our data center in Kuna, Idaho with renewable energy.



Net zero supplier engagement program

The majority of our carbon footprint is Scope 3 emissions. For these emissions outside of our operational control, we have developed the Net Zero Supplier Engagement Program to set expectations with key suppliers for committing to emissions reduction targets and support them in meeting those targets. These expectations are incorporated into the supplier life cycle, including requests for proposals, contracts and supplier business reviews.

"Engaging suppliers is key to reaching our net zero in 2030 goal. We have worked to identify key suppliers, assess their climate maturity level and integrate them into our decarbonization journey. In a dynamic technology landscape, we are constantly adapting and learning to build a scalable program. Close supplier partnerships and cross-industry collaborations are key to creating a lasting GHG reduction plan."

JORDAN TSE,
HEAD OF NET ZERO SUPPLIER ENGAGEMENT PROGRAM

We take supplier-provided data and information gathered through detailed conversations, and work with suppliers to focus emissions reductions in five main areas:

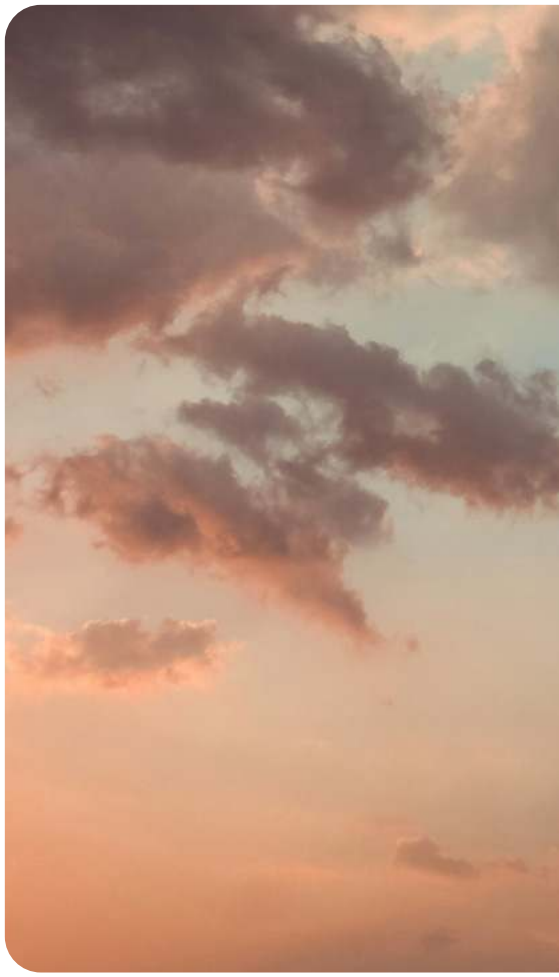
1. Energy efficiency
2. Renewable energy
3. Circularity
4. Transportation
5. Supplier engagement

In 2023, we provided capacity-building training to our suppliers on calculating emissions, setting science-aligned GHG targets, building and operationalizing a GHG roadmap, creating a renewable energy procurement strategy and understanding renewable energy markets.

At the same time, we work to help suppliers identify actions they can take to meet near-term reduction targets. Through initiatives like energy assessments, we have uncovered opportunities for suppliers to install more efficient equipment, replace damaged parts and implement variable operation controls for chilled water pumps and air handling units.

In 2021, we began working with a pilot group of 39 key suppliers to calculate and report their GHG emissions and look for emissions reduction opportunities. In 2022, we scaled the program to a total of 114 suppliers. By the end of 2026, we intend to engage with at least two-thirds of our suppliers to set science-aligned GHG reduction targets and we were more than half way to our supplier engagement goal at the end of 2023.

By the end of 2023, 28% of our suppliers, based on their contribution to our emissions, have set science-aligned emissions reduction targets.



When we look to 2024, we have identified two priority efforts:

1. Continuing progress against our near-term supplier engagement targets.
2. Piloting and scaling supplier decarbonization solutions.

HOW WE COLLABORATE:

Clean Energy Procurement Academy

In 2023, Meta and five other leading corporations launched CEPA ↗ to support and encourage supplier renewable energy purchases, to further decarbonization of global supply chains. The founding organizations pooled their expertise and internal training resources to design a shared training curriculum and delivery processes that enable trainees to rapidly mature as clean energy customers.

Recognizing that clean energy purchases in the supply chain are one of the core strategies most companies can leverage to reduce Scope 3 emissions, the Academy will educate supplier partners on how they can achieve climate progress through renewable energy purchases. CEPA will also foster new renewable energy buying communities, particularly in key manufacturing regions with an initial focus on Asia.

Sustainable business travel

We promote sustainable travel practices for our employees through internal resources around planning trips with a reduced carbon footprint, including notifications within our travel booking tool to inform employees of more sustainable routes or aircraft types. Employees are encouraged to meet virtually when possible and travel by train for short trips.

HOW WE COLLABORATE:

Scaling the supply of sustainable aviation fuel

As a founding member of the Sustainable Aviation Buyers Alliance (SABA), we are supporting efforts to drive market demand for sustainable aviation fuel (SAF). Over the next five years, SABA members have committed to purchase SAF certificates representing nearly 50 million gallons of high-integrity SAF, which is equivalent to approximately 500,000 tons of abated CO_2e. Since 2021, Meta has purchased nearly 2.5 million gallons of SAF certificates.

SAF is a drop-in fuel made with renewable or waste feedstocks that has up to an 80% lower carbon footprint than traditional jet fuel. The SAF we procure is certified by accredited third parties that independently verify that biofuel feedstocks are managed responsibly. Currently, SAF makes up less than 0.5% of global jet fuel supply. Through SABA and in coordination with our airline partners, Meta will continue to adopt SAF to help decrease the environmental footprint of business travel.

Sustainable product design

We have embedded sustainability considerations into the product development process for all new consumer hardware such as our Meta Quest headsets. This includes ease of repairing and recycling, using sustainable materials, having extended lifespans and using low-carbon manufacturing and transportation methods.

Decarbonizing data centers with biofuel

Reliable power is critical to bring our technologies to life and anticipating grid power disruption is part of our facilities contingency planning. Decarbonizing necessary emergency backup power generators is critical to reach our net zero target while keeping our data centers operational.

Diesel consumption from backup power generation accounts for a considerable portion of the operational emissions from our data centers. As part of our ongoing efforts to improve efficiency, we’ve recently streamlined our backup generator maintenance procedures to significantly reduce our diesel fuel consumption. Additionally, we have begun piloting the use of hydrotreated vegetable oil (HVO) as a viable low-carbon alternative fuel that can help us address backup power generation emissions. Sustainably sourced HVO, made with renewable feedstock, is a drop-in substitute for the diesel we rely on today and has the potential to reduce life-cycle emissions from 40-85%, depending on the feedstock. We are transitioning our backup generator fleet at our Clonee, Ireland data center to use HVO in 2024 to determine if the solution is a viable option for our full data center fleet.

Investing in value chain interventions for emissions reductions

We believe the urgency of the climate crisis requires us to work to address emission sources across our value chain, even where we are unable to attribute the reductions to a particular value chain partner and need alternative approaches to measuring and claiming the emissions reductions.

Value chain interventions for emissions reduction across our value chain offer a significant opportunity to decarbonize our business at the pace and scale required to achieve our emissions reduction targets. They also have the potential to spur the development of early-stage decarbonization technologies, build markets and transform the sectors in which we and our value chain partners operate. The voluntary renewable energy market has shown the influence of market-based instruments and project-level investment to drive system-level decarbonization by enabling investors and purchasing companies to deploy clean technologies at scale. We see value in replicating these systems and markets for other decarbonization technologies that can scale investment across sectors and countries.

Our LCAs and supplier-reported emissions data show that the majority of our emissions are created multiple tiers upstream in our supply chain and often from commodities where there is currently no viable approach to trace emissions through our partners. While we may not be able to pinpoint the exact supplier and source of emissions, or when we know the source but the solutions to decarbonize are not available in a region, investing in value chain emission reduction projects can drive near-term reductions at scale.

In order to accelerate decarbonization, Meta launched a request for information (RFI) for value chain interventions for emissions reduction. The results of the RFI have enabled our team to shorten the time and resources required to evaluate and pursue projects across the following sectors:

- Trucking and lighter duty road transportation of durable goods
- Maritime shipping
- Aviation shipping
- Increasing the production or offtake of low-carbon cement and concrete
- Increasing the production or offtake of low-carbon copper
- Increasing the production or offtake of low-carbon steel
- Abating fluorinated greenhouse gases in electronics manufacturing
- Heating and cooling of commercial and industrial facilities
- Increasing production and offtake of green hydrogen

We believe these early stage projects can serve as demonstrations of the remarkable potential for decarbonization at scale throughout corporate value chains. Meta will be conducting an RFP for these types of projects in 2024, and we will share updates on these projects in future reports and how they contribute to our emissions reduction goals.

HOW WE COLLABORATE:

Zero emissions shipping solutions

In September 2023, Meta joined Zero Emission Maritime Buyers Alliance (ZEMBA)↗. As a non-profit organization and initiative of Cargo Owners for Zero Emissions Vessels (coZEV), the mission of ZEMBA is to enable companies to access zero-emission shipping solutions that are not widely available.

Through ZEMBA, member companies such as Meta have aggregated their demand for zero-emission shipping services into a tender for the green premium associated with zero-emissions fuels. As an innovative buyers group, our long-term commitments for the offtake of zero emissions fuels will stimulate growth in a new marketplace through building confidence among investors, carriers, ship owners and producers of zero-emission fuels and vessels.

Removing remaining emissions

While our climate strategy prioritizes emissions reduction, some residual emissions from hard-to-abate sectors will remain by 2030. Any residual emissions we cannot eliminate will require carbon removal projects to reach our net zero goal.

Our carbon removal strategy seeks to expand the voluntary carbon market toward projects that offer environmental and social benefits beyond carbon sequestration alone, as well as to drive innovation in new carbon removal technologies. We will help scale the market through forward contracts, such as our agreement with Catona Climate ↗ to secure 6.75 million metric tons of nature-based carbon removal credits to be delivered from 2027 through 2035, as well as through advance market commitments with our peers, such as the Symbiosis Coalition ↗ announced in 2024. We also seek to support the market via other technological contributions that overcome barriers to scale, such as remote sensing ↗ to ultimately aid in the monitoring and verification of forest carbon.

We believe we have an important role to play in advancing the development and accessibility of both natural and technological carbon removal ↗ solutions. Each project type offers different pathways to impact at scale, on both immediate and longer-term timelines.

Emerging technologies like direct air capture (DAC) offer a high global climate mitigation potential and will be a necessary complement to emissions reductions and nature-based removals for the world to reach a zero-carbon future. Nature-based carbon removal via things like forests or soils is deployable now and can offer solutions to both mitigate climate change and address the biodiversity crisis. We prioritize ecological restoration ↗ as well as projects that directly benefit people's lives and livelihoods, such as by increasing food security or providing additional sources of income. These types of projects are especially important for communities most affected by the impacts of climate change.

HOW WE COLLABORATE:

Carbon removal partnerships

National Indian Carbon Coalition

Through 1t.org, the National Indian Carbon Coalition and Meta have pledged↗ to promote a model for carbon removal projects that centers on the leadership, traditional ecological knowledge and vision of Indigenous Peoples for themselves and the land they caretake. Through this partnership, we pledge to develop no fewer than three carbon removal credit generating projects that protect and restore forest lands through Indigenous/tribal and community leadership.

Emerging carbon removal technologies

In 2023, Meta signed contracts with CarbonCapture and Heirloom↗ to deliver carbon removal credits from DAC projects. When paired with geologic storage, DAC offers high carbon storage durability and a limited physical footprint making it a potentially readily scalable and promising carbon removal pathway. Meta also signed a contract with Charm Industrial↗, which sequesters carbon by storing pyrolyzed waste biomass into geologic formations deep underground. Novel carbon removal technologies like these require early adoption from companies like Meta to help scale up and bring costs down, and we will continue to support technologies like these to accelerate additional tools to help the world reach a zero carbon future.

Data centers

Data centers are part of the global infrastructure that brings our technologies and programs to life. Meta designs and operates some of the most sustainable data centers in the industry, but they still account for the highest percentage of our energy and water use.

We approach data center sustainability from the ground up — from design and construction to operations — by prioritizing energy efficiency, renewable energy, water stewardship and responsible management of the end of life of our equipment. In 2023, 91% of data center construction waste was recycled.

Our comprehensive approach has led to 100% of our operational data center buildings earning, at minimum, LEED Gold certification.

Since our Prineville data center building earned LEED Gold certification in 2011, we have continued to achieve Gold certification levels, or higher, for all of our operational data center buildings. To date, we have certified 42 LEED Gold data center buildings, totaling nearly 28 million square feet.

We measure the water and energy efficiency of our data centers and report metrics annually. Our operational data centers, on average, in 2023 exhibited a Power Usage Effectiveness (PUE) of 1.08 and Water Usage Effectiveness (WUE) of 0.18.

In 2023, eight buildings at the following Meta data centers earned LEED Gold certification:

- Clonee, Ireland
- Luleå, Sweden
- Huntsville, Alabama
- Los Lunas, New Mexico
- Prineville, Oregon
- Eagle Mountain, Utah
- Fort Worth, Texas
- Newton County, Georgia

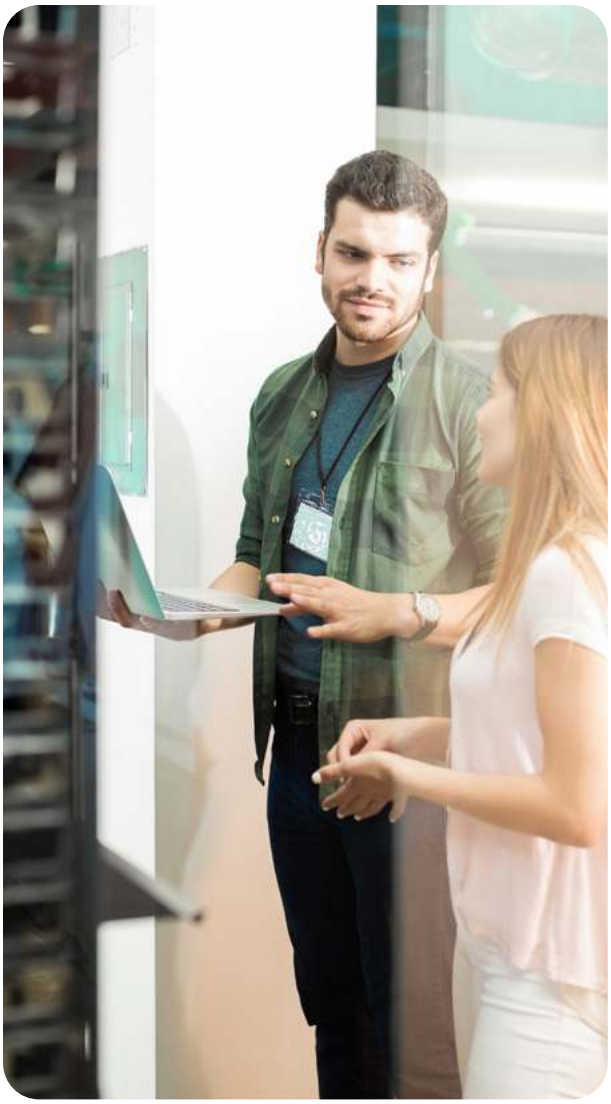
HOW WE COLLABORATE:

Open Compute Project

The Open Compute Project (OCP) is a collaborative community whose mission is to design, use and enable mainstream delivery of the most efficient designs for scalable computing.

Meta is working on a project started by the iMasons Climate Accord (iCA) and OCP to address the impact of embodied carbon on data center sustainability. The project's primary objective is to develop a standardized framework for disclosing and managing embodied carbon in data center construction and operation.

Establishing a clear and consistent approach to carbon measurement will enable data center operators to make informed decisions and take effective actions to reduce their environmental impact.



Designing data centers with AI in mind

Building and delivering world-class AI capabilities is critical to our company's near-term product and business success and long-term vision for the metaverse. AI enables better personalization; safer, fairer products; and richer experiences for people on our technologies while also helping businesses reach the audiences they care about most.

To enable transformative AI experiences — like those based on generative AI — we have invested in creating scalable infrastructure to support our needs today, and for years to come. We have been building and deploying world-class infrastructure since we broke ground with our first data center in 2010. Meta is proud to build generations of industry leading data centers.

Our next-generation data center will support our current products while enabling future generations of AI hardware. Our vision blends high-performance and power-efficient computing with a mix of custom hardware solutions specific to the unique needs of our environment. Built with efficiency, flexibility and sustainability in mind, this new data center is an AI-optimized design, featuring denser racks to support large-scale AI clusters, along with future liquid-cooled AI hardware and network infrastructure. The design requires a smaller footprint to provide similar compute capacity to previous data center designs, improving delivery time and cost efficiency.

Our newest AI-optimized data centers currently under construction will feature dry-cooling technology. Dry cooling uses air as the cooling medium minimizing water usage, making it the most efficient cooling technology for these geographic locations.

Data center circularity

We leverage the principles of circularity to limit the use of new materials in product development and construction, help us minimize and prevent waste and avoid upstream emissions.

To enable greater circularity within our supply chain, we focus on eliminating the use of hazardous substances and prioritizing the responsible reuse and recycling of electronic equipment. Our Materials of Concern Standard and Electronics Reuse and Recycling Standard are updated regularly to support safe and healthy environments for anyone who manufactures, uses or recycles Meta hardware.

We also prioritize the use of post-consumer recycled (PCR) plastics and recycled metal in our hardware to enable a more circular supply chain, and thus, reduce the embedded carbon in our hardware.

Avoiding emissions in our upstream supply chain means using less, where possible. To achieve this, we are investing in systems that will extend the life of our hardware and reusing as many components as possible in our data center hardware.

Since 2021, we have been validating the reliability and quality of reused components through a rigorous evaluation process and have landed hundreds of new server racks containing reused components within our fleet. The quality of the reused components continues to show excellent results; some of our oldest racks with reused components are already at two years of age and continue to perform well under real-world production workloads.

HOW WE COLLABORATE:

Data center community action highlight

Our Data Center Community Action Grants↗ are one of many ways that Meta gives back to communities where we have an operational data center. These grants support projects that build connections, put technology to use for community benefit and enhance local education in science, technology, engineering and math (STEM).

- **STEM education:** More than $1 million+ in direct giving to support schools and nonprofits building and enhancing STEM labs focused on educational themes ranging from energy and biodiversity to recycling and robotics.
- **Access to technology:** Expanded broadband deployment to 6,400 residences through Center on Rural Innovation grants.
- **Workforce development:** Visited by more than 65,000 students at our Junior Achievement exhibits that look like data centers where students were able to pair their in-classroom learning on career pathways with interactive experiences.
- **Small business training:** Provided free trainings and shareable resources through trainings attended by 1,700 small businesses and nonprofits across 21 data center communities that focused on tools and resources to help local small business owners and nonprofits get the most out of our technologies and programs to grow their reach online.

$ 40M+

Since 2011, Meta has provided more than $40 million in direct funding to schools and nonprofits in communities where we have a data center.

Climate risks and resilience

Climate resilience enhances our ability to prepare for, recover from and adapt to the acute and chronic physical risks from climate change while we transition to net zero. As we continue on our journey to enhance our resilience to climate change, we are embedding climate action into our business strategies, financial planning and governance structure. We are committed to sound corporate governance practices and encouraging effective, efficient and climate-informed policy- and decision-making.

To understand the impacts we may experience in the near-, medium- and long-term under variety of future climate scenarios we conduct ongoing transition and physical risk and opportunity assessments across our operations, infrastructure and supply chain. This helps us take the right measures to enhance our adaptive capacity and resilience to these risks.

Our findings show our most noteworthy risks to be:

- **Transition:** The stigmatization of the sector due to the perception of GHG impacts of global technology infrastructure, challenged by new global regulations that may lead to increased operational costs.
- **Physical**: Climate-related extreme weather events, especially in the US where the majority of our data centers are located, causing disruptions that may lead to incremental data center operation costs and interruptions to our programs.

We rely on scenario analysis to understand our exposure and vulnerability to climate risks in the future including physical chronic (e.g., sea level rise, higher annual average temperatures, changing precipitation patterns), physical acute (e.g., heat waves, floods, hurricanes and typhoons, wildfires, cold waves) and risks associated with the global transition to a low carbon economy.

HOW WE COLLABORATE:

Supporting climate resilience

We are partnering with the Center for Climate and Energy Solutions (C2ES), Resilience First and Resilience Rising to co-design and implement the Corporate Climate Resilience Pathways Initiative↗, a multiyear initiative to establish a robust business framework that enables companies to build climate resilience, disclose corporate actions and track leadership and impact.

We have also partnered with the World Business Council for Sustainable Development (WBCSD) to design The Business Leaders Guide to Climate Adaptation and Resilience↗, a resource intended to support senior decision-makers and their functional teams to integrate climate adaptation and resilience into organizational strategy, governance and operations. We are already using these resources across Meta to further operationalize climate risk, adaptation and resilience and embed climate considerations within our governance structure, business strategy, risk management processes and metrics and targets.

Water positive in 2030

Water is a vital resource for life on earth, and we strive to approach its management with the technical expertise and responsibility it necessitates. We have set a goal to become water positive in 2030 and have joined the Water Resilience Coalition↗ of the UN CEO Water Mandate↗, a cross-sector initiative to raise the ambition of corporate water stewardship and foster collective impact in priority basins.

Water stewardship

Three pillars drive our water stewardship program:

Minimizing water use | **Transparency** | **Water restoration**

Reducing operational water use

The bulk of water consumption in data centers is attributed to the management of air flow and cooling of the server halls. This involves managing temperature and humidity levels to ensure optimal performance and longevity of the IT equipment. Cooling the servers is crucial due to the heat they generate. Humidity control prevents equipment damage, electrostatic issues and corrosion, and supports efficient cooling and a comfortable working environment.

Meta is continuously striving to design and operate data centers as water-efficiently as possible. As a Platinum member ↗ of the US Green Building Council and its LEED Advisory and Technical committees, we help shape the future of its green rating system for data centers.

Transparency

We report on our water stewardship program and progress toward the Water Positive goal annually in our Sustainability Report. We also publish detailed information on each of our water restoration projects in our annual Volumetric Water Benefits Report ↗. Detailed information on how we calculate these values and assess water risk can be found here.

Water restoration

Meta will restore more water than we consume in our operations through water restoration projects that address shared water challenges in the watersheds where we operate. At the watershed level, we will restore 200% of consumption in high water stress regions, and 100% of consumption in medium water stress regions — and overall we will be water positive in 2030.

Water data (megaliters)

	2019	2020	2021	2022	2023
Water withdrawal	3,430	3,726	5,043	4,893	5,274
Water consumption	1,971	2,202	2,569	2,638	3,078
Water restoration	145	2,250	2,336	2,352	5,889

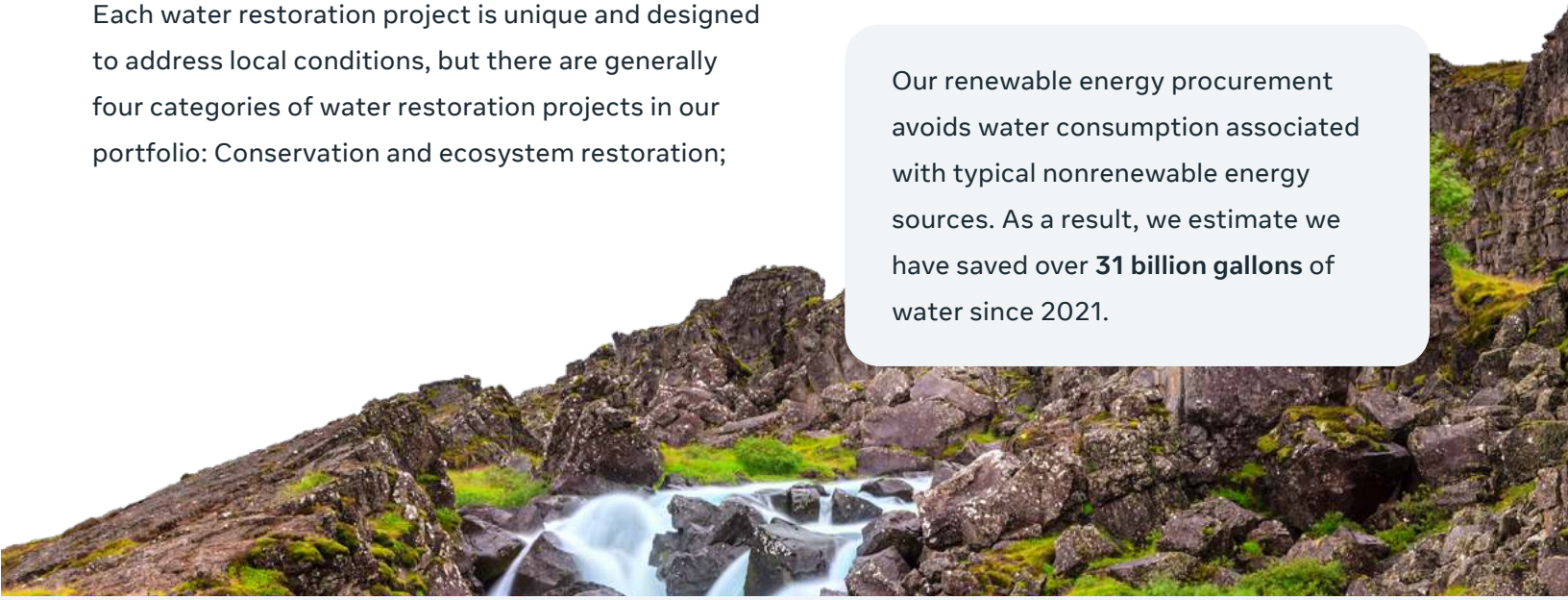
Water withdrawal, consumption and restoration definitions can be found in our environmental metrics methodology.

Since 2017, we have funded or supported more than 25 water restoration projects in eight watersheds where we operate. Once all projects are fully implemented, they will restore 1.9 billion gallons of water annually. In 2023, the operational restoration projects returned over 1.5 billion gallons of water to high and medium water stress regions.

Each water restoration project is unique and designed to address local conditions, but there are generally four categories of water restoration projects in our portfolio: Conservation and ecosystem restoration; Water supply and reliability; Water Access, Sanitation and Hygiene (WASH); and Water quality.

For most water restoration projects, we work with NGO partners to identify and develop projects to address local water challenges. These are long term partnerships, lasting up to 10 years.

Our renewable energy procurement avoids water consumption associated with typical nonrenewable energy sources. As a result, we estimate we have saved over **31 billion gallons** of water since 2021.



HOW WE COLLABORATE:

Water restoration projects

Longleaf pine forest restoration

Trinity River Watershed, Texas

Meta partnered with Texan by Nature, the Texas Longleaf Team and several companies to invest nearly $1M to restore 2,000 acres of longleaf pine forest in Trinity County, Texas. The restoration includes managing and removing invasive plants, conducting prescribed fires and planting 100,000 seedlings over the course of five to ten years.

A healthy longleaf pine ecosystem will filter and store freshwater, sequester carbon, support biodiversity and benefit the community. Through restoration of the 2,000 acres, increased water filtration is projected to provide over 200 million gallons per year.

Alta Harris Creek side channel

Boise River Watershed, Idaho

The Barber Dam, in the Boise River, acts as a barrier to migrating fish. Meta is supporting Trout Unlimited in constructing a passage allowing fish to bypass the dam by reconnecting the Alta Harris Creek Side Channel with the Boise River.

This will reestablish a robust riparian corridor, improve aquatic spawning and rearing habitat for salmonid fishes and provide continuous fish passage to the Boise River.

This project ensures that the Alta Harris Creek Side Channel will have a consistent flow of water from the Boise river, preventing “no-flow” periods in the creek, thereby supporting this ecosystem in being more resilient to climate change-related droughts and decreasing snowpack availability. This project will increase streamflow by 149 million gallons of water per year.

HOW WE COLLABORATE:

Water restoration projects

SRP forest and water restoration

Colorado River Watershed, Arizona

The Verde River is one of Arizona's most important waterways, providing water to people in the Phoenix Metropolitan Area and its surroundings as part of the Salt River Project (SRP). The first stretch of the Verde River's flow is supplied by water that emerges from springs, but these springs are currently under threat from increasing water consumption.

The 1990 Dude Fire, a high-severity wildfire that occurred near Payson, Arizona, led to the widespread destruction of forests in the Verde River watershed. Restoring parts of the Verde River watershed that are at high risk of or have been degraded from wildfire presents an opportunity to repair the damage that has already been caused and to improve hydrologic function to enhance SRP's ability to provide resilient water supplies for the Phoenix Metro area. Meta is partnering with SRP, state, federal, local and private partners on a forest restoration project that will improve the wildfire resilience of the area, decrease the vegetative water demand, avoid water quality degradation and increase surface water flows by more than 5 million gallons per year.

Colorado River Indian Tribes (CRIT) drip irrigation

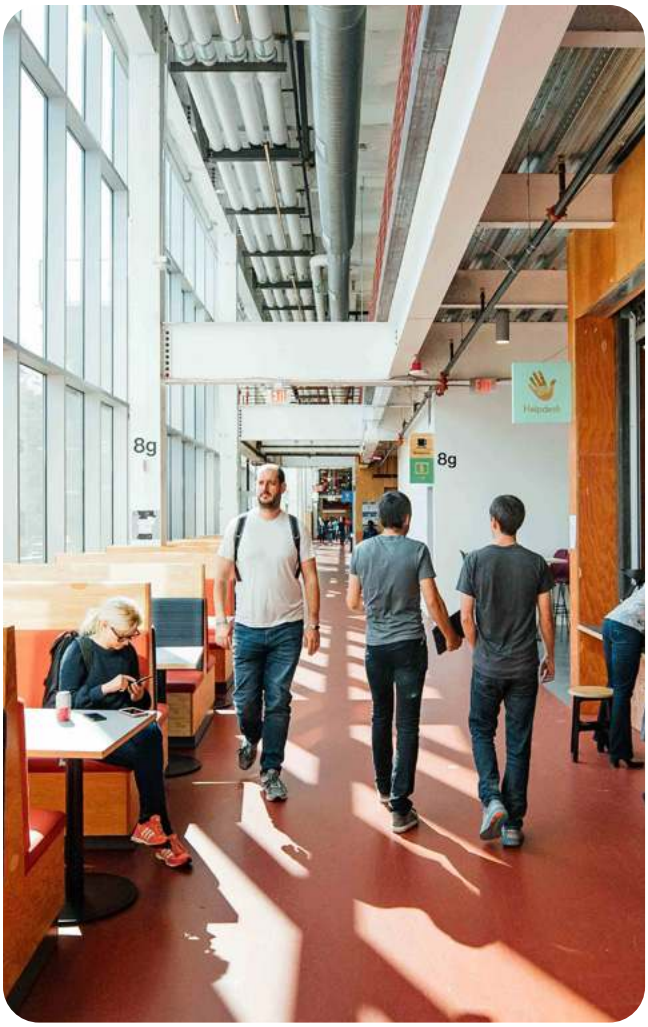
Colorado River Watershed, Arizona

Scarce water and increasing federal cutbacks are fueling the need to reduce water waste in the Colorado River basin. In Arizona, where agriculture is critical to the economy of the Colorado River Indian Tribes (CRIT), Meta is partnering with the CRIT and N-Drip to replace flood irrigation with drip irrigation, reducing water usage, evaporation and runoff by providing water directly to the soil slowly.
The application of N-Drip technology will result in a savings of 96.4 million gallons of water per year. Such savings will help support resilient economic development on the reservation through agriculture while also helping to create more flexibility in how the CRIT uses its water, opening the door for tribal water management that can support system conservation agreements to leave water in Lake Mead.

Offices

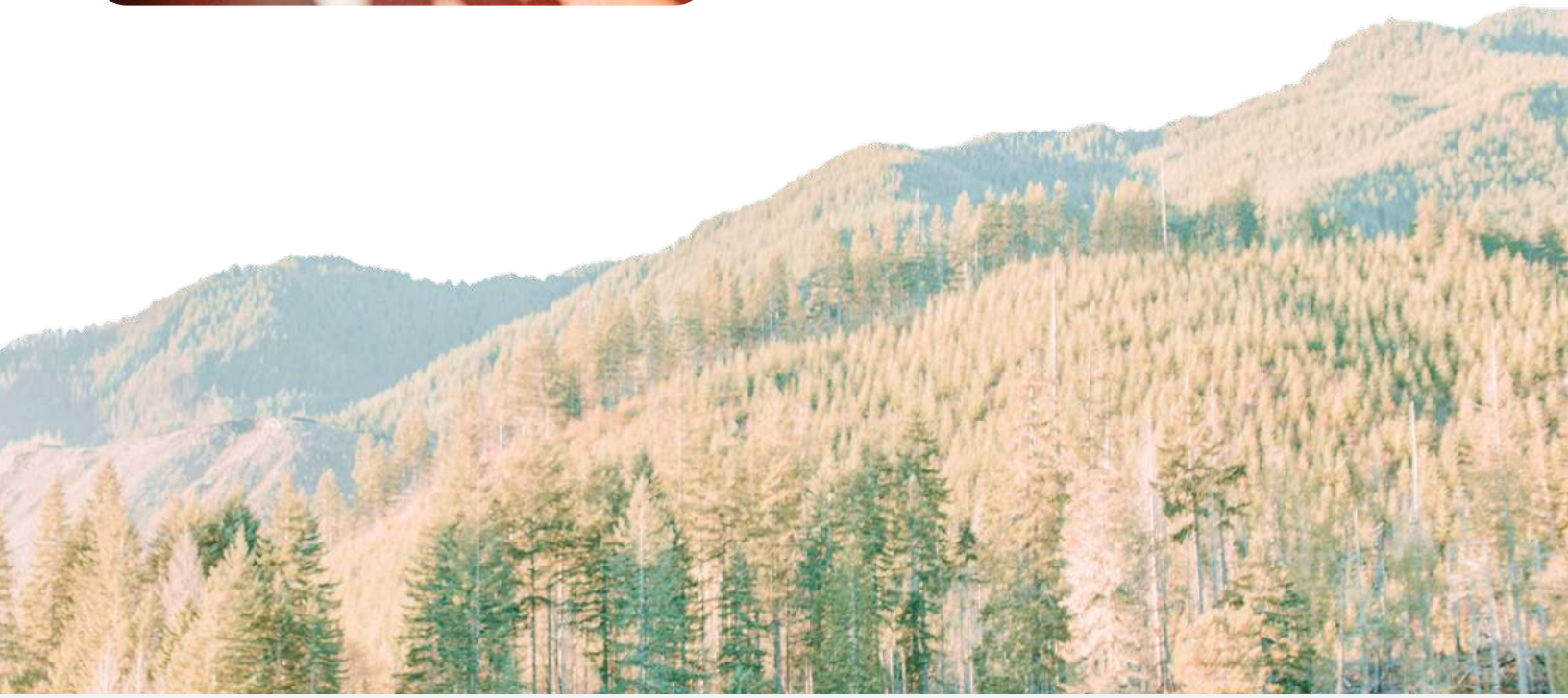
Providing offices that are healthy, safe and sustainable exemplifies our commitment to building a better reality. We are targeting a 50% reduction in office carbon emissions in 2030 (from a 2019 baseline), which we aim to achieve through the following reduction goals:

- 32% reduction in office energy consumption
- 50% reduction in waste generated in office operations
- 35% reduction in employee commute emissions
- 40% reduction in embodied carbon of building materials and furniture
- 54% reduction in carbon intensity of culinary offerings



We design for resource efficiency across our global offices, and require that our largest offices globally be certified by third-party sustainable building programs. All Meta offices over 100,000 square feet are required to be LEED Gold or higher, and some offices also adhere to Fitwel, GreenStar, ISO 50001 and WELL standards. Our facilities teams monitor building resource consumption trends and prioritize performance optimizations to ensure energy and water efficiency.

We have been meeting our annual interim reduction targets to-date and remain on track to achieve our 2030 goals.



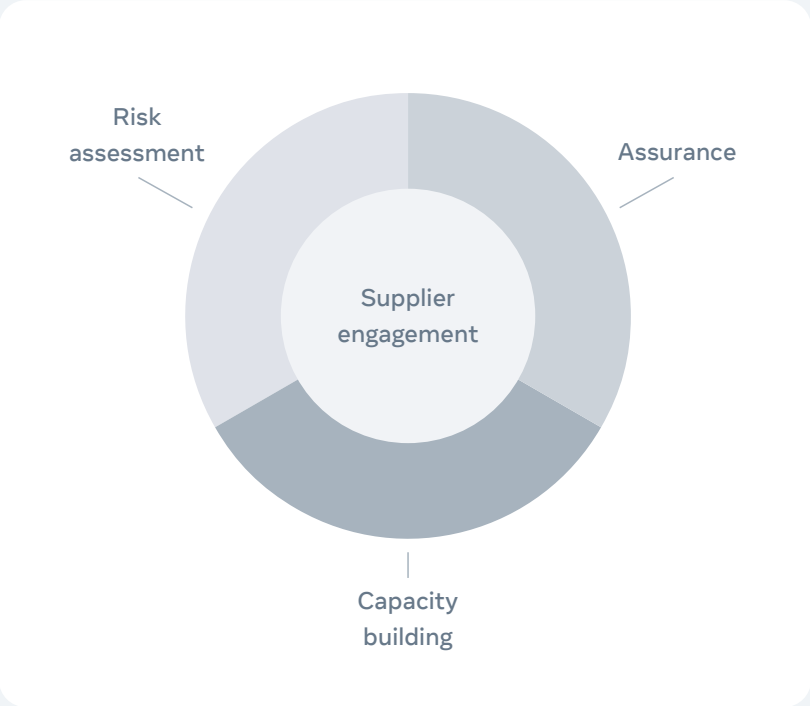
Responsible supply chain

Meta is part of a complex value chain that impacts lives and communities around the globe. Our Responsible Supply Chain (RSC) program strives to empower workers and protect the environment — through open and frequent communication with our suppliers; initiatives that support safe, healthy and fair working conditions; and a deep understanding of core sustainability issues. Focusing on social and environmental responsibility within our manufacturing supply chain enables us to protect workers; proactively identify, assess and mitigate risks to our business; and drive responsible manufacturing practices.

Established policies

Our approach begins with establishing clear expectations with our manufacturing suppliers through our standards and policies. The Responsible Business Alliance (RBA) Code of Conduct↗, our Anti-Slavery and Human Trafficking Statement↗ and our Responsible Minerals Sourcing Policy↗ form the basis of our program.

Our approach to supplier development is based on a continuous improvement model, working closely with suppliers to help them understand, prevent and mitigate risks in and to their business.



RBA Code of Conduct

We are committed to improving the working conditions and sustained performance of our hardware supply chain. We use a risk-based methodology to regularly assess suppliers' social and environmental risks, then engage with them to build their capabilities to meet company expectations. We assess suppliers' conformance to the RBA Code of Conduct and other Responsible Supply Chain policies and standards via independent third-party audits, supplier questionnaires and other types of on-site assessments.

As part of these assurance efforts, we utilize the RBA Validated Assessment Program (VAP) and also oversee third-party audits managed by Meta. For any identified areas of concern, we work with suppliers to understand root causes, develop corrective action plans and assess closure. For the audits completed in 2023, the most common nonconformance findings were in the labor category and were related to working hours and wages and benefits.

The chart below shows the distribution of audit findings across the RBA Code of Conduct sections.

2023 supplier audit findings by RBA Code of Conduct sections

Labor	47.00%
Health and safety	30.48%
Environment	9.98%
Management systems	9.46%
Ethics	3.08%

Throughout this process, ongoing supplier dialogue and engagement are key. We engage with suppliers in an array of programs that aim to improve working conditions, support worker well-being, maximize resource efficiency, reduce risks and lead to sustained progress.

We have brought renewed focus on ensuring efficient responsible supply chain operations and programs through investing in scalable management systems that support our continued prioritization of salient issues and business priorities. These efforts have resulted in an expanded reach of the RSC program to suppliers, improved supplier performance monitoring, enhanced risk management and increased analytical capabilities.

HOW WE COLLABORATE:

Supply chain partnerships

Collaborating with external partners to develop solutions helps us advance our own responsible supply chain work and amplify positive impact beyond our industry. Our key responsible supply chain partnerships include the Responsible Business Alliance↗, the Responsible Labor Initiative↗, the Responsible Factory Initiative↗ and the Responsible Minerals Initiative↗.

Responsible minerals sourcing

Meta recognizes the risk of adverse impacts, including human rights abuses and conflict, associated with the extraction and export of minerals originating from conflict-affected and high-risk areas. Cassiterite, columbite-tantelite (coltan), wolframite and gold, and their derivatives tin, tantalum and tungsten — or "3TG" — are known as conflict minerals, and have been linked to armed conflict and human rights abuses.

Meta is committed to the responsible sourcing of minerals used in our products and we comply with conflict minerals-related legal obligations where they are applicable. Our Responsible Minerals Sourcing Policy ↗ guides our responsible minerals sourcing practices and expectations for our suppliers. In 2023, we updated this policy to ensure that our program continues to address evolving expectations for the responsible sourcing of minerals and reinforces our ongoing alignment with the OECD Due Diligence Guidance and related laws.

Anti-slavery and human trafficking

Meta is opposed to all forms of human trafficking, slavery, servitude, forced or compulsory labor, child labor and all other trafficking-related activities. Our 8th annual Anti-Slavery and Human Trafficking Statement ↗ outlines our commitment, policies and practices to prevent and address forced labor issues in our business operations and supply chains.

Protecting workers in the manufacturing process

Protecting workers from environmental, health and safety risks is a key part of our RSC mission and the RBA Code of Conduct. Our Materials of Concern Standard and Electronics Reuse and Recycling Standard support safe and healthy environments for anyone who manufactures, uses or recycles Meta hardware. We are building our in-house expertise and partnering with leading industry experts who support conducting specialized assessments on specific topics like machine safeguarding or environmental impact assessments.

We have advanced our programmatic focus on reducing exposure to hazardous chemicals by supporting safe process chemical management at supplier sites, utilizing the RBA Industry Focus Process Chemicals (IFPC) Policy↗ as a foundation and engaging in the industry's efforts to move towards substitution and elimination. Our Supplier IFPC Engagement Strategy aims to support supplier conformance to IFPC requirements, build the capacity of suppliers to safely manage process chemicals and encourage their use of safer alternatives.

In 2023, we expanded the reach of our process chemicals program to additional hardware suppliers. We used surveying tools, desktop reviews and in-person chemical management assessments to evaluate the use of process chemicals by key supplier sites and assess their policies and procedures to protect worker safety. We used the results of these assessments to inform suppliers' capacity-building needs, corrective actions and improvement plans, and continue monitoring for process chemical use on an annual basis.

Reducing forced labor risks

Excessive working hours is a persistent challenge throughout the electronics manufacturing industry and represents an ILO risk factor that could lead to forced labor incidents. Meta requires that suppliers conform with the RBA Code of Conduct, which is aligned to global standards on working hours and local laws at manufacturing locations. Our team works on managing risks and remediating audit findings related to excessive overtime through several activities including on-site visits, corrective action plan (CAP) management, key performance indicator data, supplier training and worker surveys, if needed. For example, worker surveys provide employees an anonymous channel to share their experiences with overtime and if it is voluntary. Through this holistic approach, we are reducing the risks of forced labor incidents within our supply chain.

Responsible Factory Initiative

In 2023, we worked with select hardware suppliers and the RBA's Responsible Factory Initiative (RFI) ↗ to focus on improvements to health and safety protocols, labor conditions and environmental practices. Through this initiative, participating suppliers received on-site assessments and ongoing consulting support from industry experts to improve their alignment with the RBA Code of Conduct, enhance their management systems and continue to advance overall social and environmental performance. Following these engagements, we track supplier progress as part of our company's focus on supplier development and continuous improvement.

Focusing on worker resilience

Our worker wellbeing program is designed to support the safe working conditions and sustained performance of our hardware supply chain by keeping workers at the core of what we do. We use worker surveys, capacity building programs and other worker engagement activities at strategic supplier sites to understand workers' needs and perspectives. Survey results inform supplier management teams on how to shape action plans to address root cause issues and further support workers. We also analyze results to understand performance trends over time in comparison to benchmark data where available.

In 2023, we expanded the reach of the worker wellbeing program to new data centers and Reality Labs supplier sites.

Through a cross-functional partnership in 2023, for example, we deployed a worker resilience program to further support safe and resilient workplaces for hardware supply chain workers. Through a supplier-led model, the program provided hands-on educational training at a key supplier site that focused on fire safety, first aid and worker satisfaction.

Photo courtesy of Meta Supplier

The worker resilience program brings internal sourcing and operations teams together to work with suppliers. By supporting ways to improve working conditions and job satisfaction, for example, we can further enable productive and safe operations as well as positive supplier relationships.

Biodiversity

The loss of biodiversity has critical implications for humanity, from the collapse of food chains and health systems to the disruption of entire supply chains. According to the World Economic Forum's 2024 Global Risks Report↗, biodiversity loss is listed as the third most severe risk on a global scale over the next 10 years.

We know that our operations and facilities have an impact on local habitats and we aim to preserve and restore more land than we impact. To do so, we are taking steps to avoid harmful practices, reduce negative impacts on nature, lead on nature restoration at scale and accelerate the nature positive movement.

Between 2022 and 2023, we conducted a hotspot assessment of our full value chain and a detailed natural capital assessment of a selection of our operational sites. We are building upon these assessments and using the Taskforce on Nature-related Financial Disclosures (TNFD) as a framework to inform our biodiversity strategy.

During site diligence for our data centers, sensitive biodiversity areas are identified, and during design and construction, impacts to them are avoided, minimized or mitigated. Historically, they are left alone and/or no further harm is done once the site is operational.

Each Meta data center site is designed to promote biodiversity through the planting of native and adaptive landscape, mimicking the site's natural hydrology and reducing urban heat island effect. In 2023, we implemented a program to standardize our development approach that prioritizes the restoration of biodiverse native habitat over all of the non-built space across our new offices and data center campuses — eliminating the use of nonnative ornamental species and largely avoiding turf everywhere.

>50%

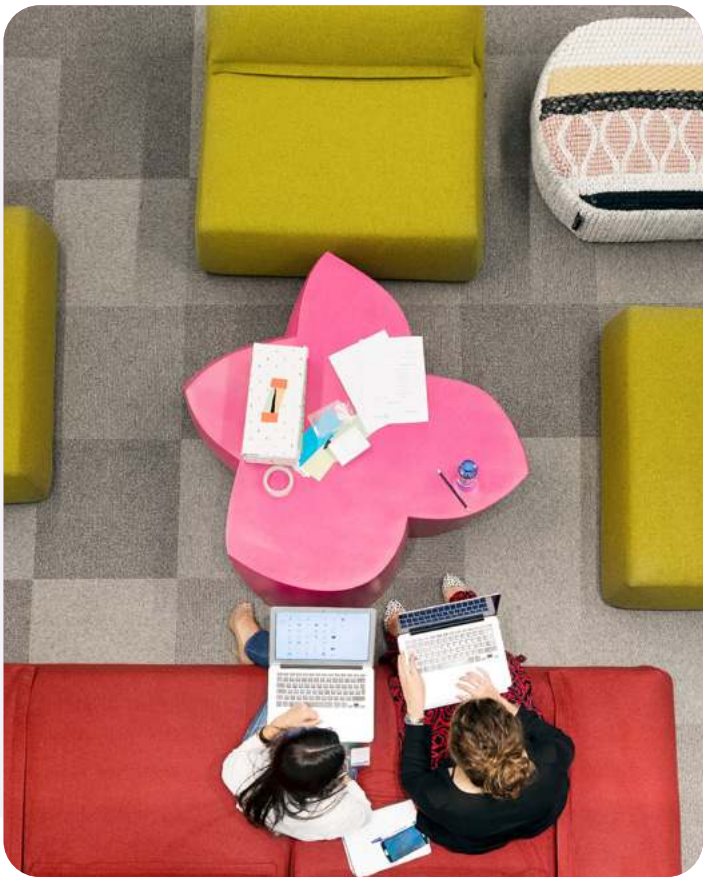
More than half of the total area of our US data center campuses is dedicated to native and biodiverse habitat. This includes preserved areas and areas with planned or already initiated restoration of native species.

Dublin office biodiversity spotlight

In partnership with the Ringsend Irishtown Community Centre (RICC) and Grow It Yourself (GIY), Meta Ireland designed, built and helped maintain a community garden.

The Culinary team uses a garden allotment and raised beds to grow vegetables, herbs, lettuces and other edible greens for their menus.

Four onsite beehives have circa 80,000 bees. The first harvest collected 87 kgs of honey. These 400 jars were then sold at a Christmas market in aid of a local bee charity in Ireland.



HOW WE COLLABORATE:

Preventing wildlife trafficking

We are committed to combating illegal wildlife trafficking across our platforms and are part of the Coalition to End Wildlife Trafficking Online. The coalition brings together tech companies and wildlife experts at World Wildlife Fund, TRAFFIC and International Fund for Animal Welfare. The coalition's aim is to end the trafficking of wildlife parts and products across online platforms that have eased the exchange of products between poachers and buyers. We regularly collaborate with our conservation partners to better understand the data and methods in which illegal wildlife trade might be facilitated across our technologies. In addition, we actively monitor endangered species content per our Community Standards and maintain ongoing enforcement in this space.

What we create

We create solutions that connect people not only with each other but also with resources, information, tools and opportunities.

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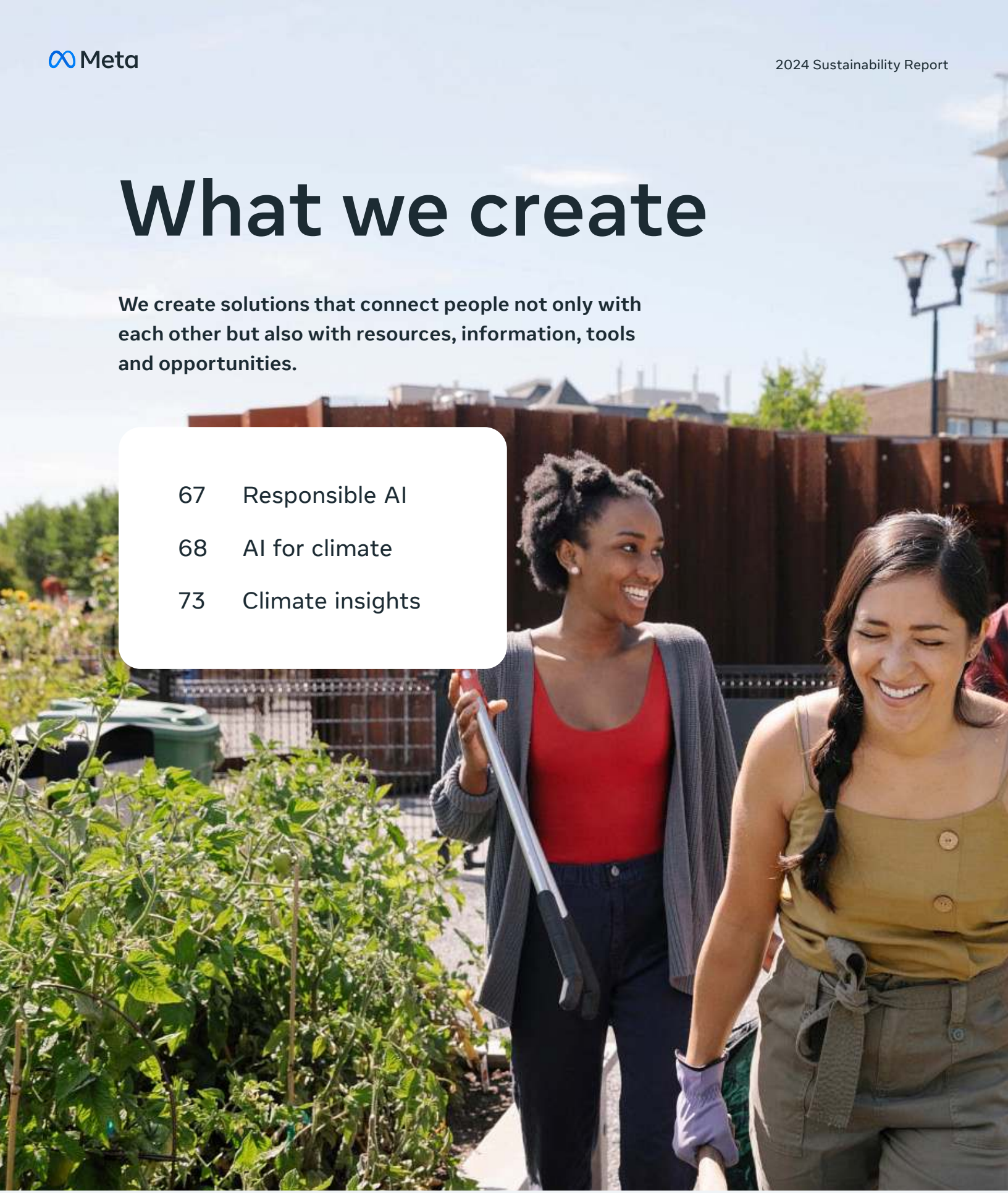


Responsible AI

We are responsibly advancing AI and sharing our data, models and learnings with the AI and broader community. Open sourcing foundational AI technologies reduces the barriers to entry so AI can be deployed not only by the technology companies that have the computing infrastructure to train large models, but by the broader community of developers and organizations that stand to benefit from these innovations.

Meta has invested in the responsible development of AI for more than a decade, because we believe that AI has the potential to bring immense benefits to humanity. This investment has enabled us to play a significant role in identifying and addressing existing and emerging societal challenges, including those related to climate and society.

AI for climate

Our climate-related AI initiatives, including Open Catalyst ↗ and the Llama Impact Grants ↗ program, are advancing climate action for the broader community.

Open sourcing our model for sustainable concrete

Concrete currently accounts for over 8% of carbon emissions worldwide.[1] This can be reduced by making adjustments to concrete formulas that optimize for sustainability performance and technical performance criteria such as compressive strength gain and workability. The formulation and testing of concrete mixes to optimize for multiple variables can be costly and time-consuming without the use of AI.

To address this challenge, Meta developed an open source model ↗ that uses an innovative approach to concrete formulation, integrating multiple performance requirements in collaboration with researchers at the University of Illinois at Urbana-Champaign ↗.

The model outputs were refined in partnership with a local industry partner (Ozinga) to generate concrete mixtures with up to a 40% lower carbon footprint than the regional industry standard. This lower-carbon concrete was used in multiple applications at our DeKalb, IL, data center campus. Variations of these mixtures have subsequently been used in at least two other sites, and enabled Meta to scale requirements to use low carbon concrete across its entire portfolio for future designs in specific applications.

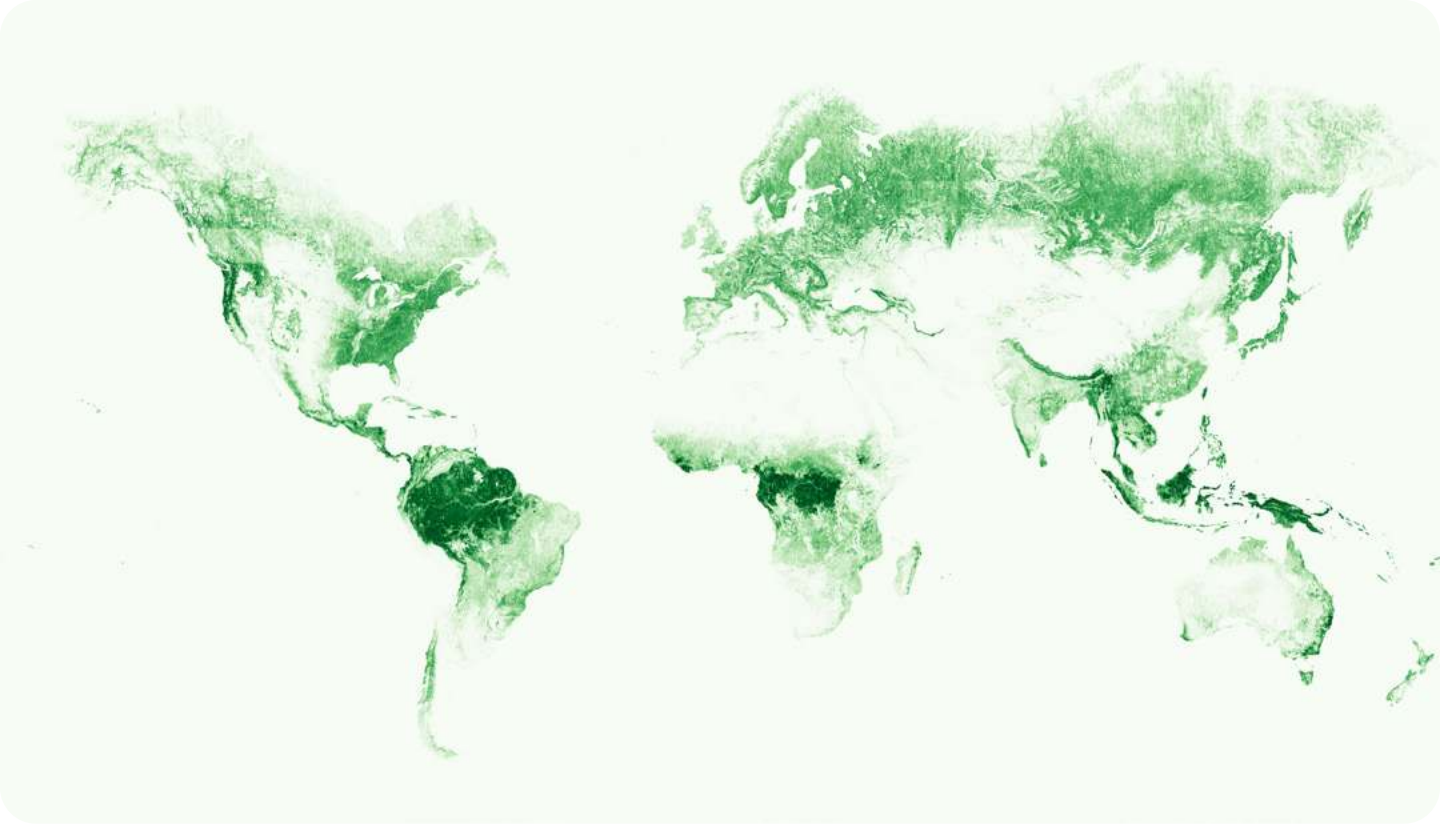
We are partnering with top leaders in sustainable construction to collaborate on the expansion of this project, and utilize and fine tune this model for their needs. It is our hope that large-scale construction initiatives across the world will reduce the cost and carbon footprint of their projects by utilizing this model.

[1] Miller SA, Horvath A, Monteiro PJM. Readily implementable techniques can cut annual CO_2 emissions from the production of concrete by over 20% Environ. Res. Lett. 2016;11:074029. doi: 10.1088/1748-9326/11/7/074029.

Using AI to map the Earth's forests

Forests harbor most of Earth's terrestrial biodiversity and play a critical role in the uptake of carbon dioxide from the atmosphere. Ecosystem services provided by forests underpin an essential defense against the climate and biodiversity crises. However, critical gaps remain in the scientific understanding of the structure and extent of global forests, particularly in dynamic and more dispersed forest systems such as agroforestry, drylands forests and alpine forests, which together constitute more than a third of the world's forests. Higher resolution forest data has the potential to dramatically improve the monitoring of conservation and restoration efforts globally. This is important for both forest-based carbon credit projects and other conservation efforts focused on the preservation of forests.

We leveraged our DINOv2 AI training algorithm ↗ and collaborated with World Resources Institute (WRI) ↗ to launch an open source map of global tree canopy height ↗ at a 1-meter resolution, allowing the detection of individual trees. We hope this high resolution canopy height data can ultimately be applied to forest biomass and carbon stock monitoring. Remote sensing can make the monitoring and verification of carbon removal projects more efficient and more accessible, especially for smaller scale projects in communities or initiatives that have a higher barrier to participate in the carbon market.



OpenDAC

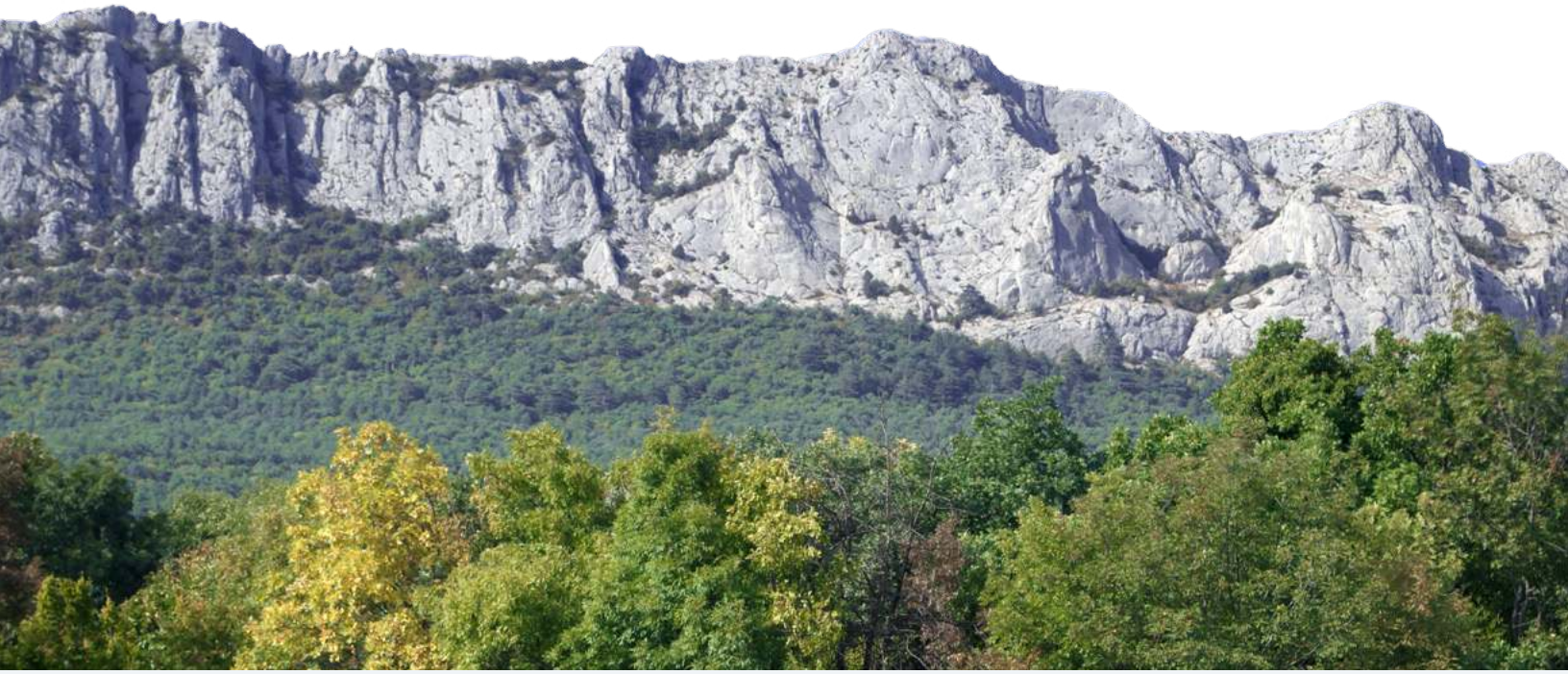
A carbon removal solution with the potential for large-scale impact, DAC pulls CO_2 out of ambient air through a recurring cycle facilitated by a sorbent or solvent. The resulting stream of liquified CO_2 can then be sequestered through geologic storage.

Despite its potential, the broad implementation of DAC has been impeded by high costs. The discovery of novel sorbents is one method to increase efficiency and reduce cost.

The OpenDAC↗ project is a collaborative research project between Fundamental AI Research (FAIR) at Meta and Georgia Tech, aimed at significantly reducing DAC costs. Along with the dataset, we released state-of-the-art versions of our machine learning (ML) models trained on the dataset.

Since releasing the dataset, more than 200 promising sorbents for DAC have been identified, most of which were previously unknown candidates for this application.

Open sourcing foundational AI technologies reduces the barriers to entry so AI can be deployed not only by the technology companies that have the computing infrastructure to train large models, but by the broader community of developers and organizations that stand to benefit from these innovations.



Data center operational efficiency

Efficiency efforts in our data centers are not new to Meta and will continue as we work to meet the increasing energy and server demands of AI.

Some examples of our data center efficiency efforts include:

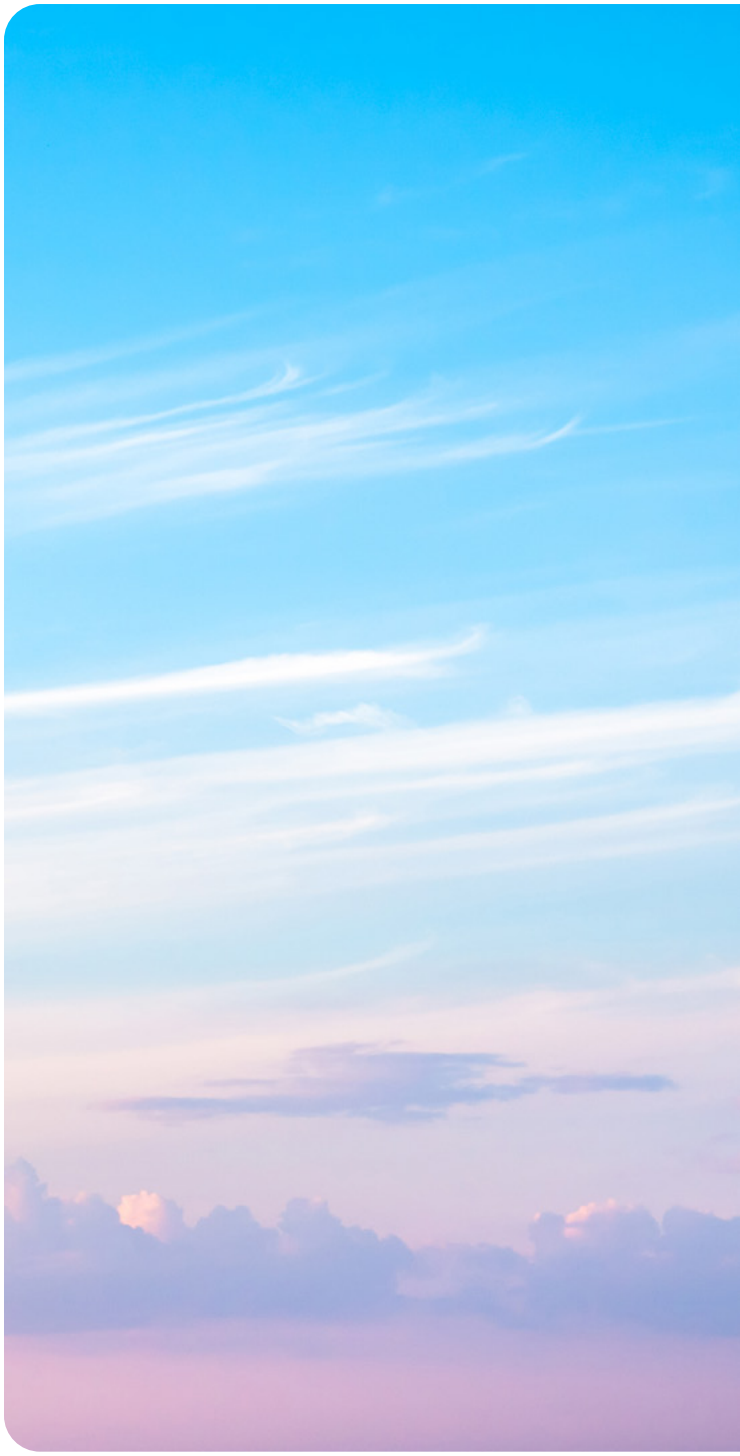
1. **Custom power profiles:** Since data center provisioned power is a limited resource, we only enable higher power configurations for servers running workloads which significantly benefit from extra power. This allows us to efficiently use both energy and server capacity, reducing our overall footprint. More information can be found in our research paper, "Expanding Datacenter Capacity with DVFS Boosting: A safe and scalable deployment experience"↗.
2. **Reuse existing capacity:** We work to identify and safely repurpose idle capacity for workloads that tolerate lower availability requirements. More details on this effort could be found in this presentation, "Dynamic Leasing of Spare Capacity to Improve Fleet Utilization with Optimus"↗.
3. **Improve workload efficiency:** Efficiency efforts rely on observability tools like our open-sourced Dynolog↗ to understand the root-causes of inefficiencies in the systems.

HOW WE COLLABORATE:

Ad Net Zero

Meta is a founding member of Ad Net Zero↗, a global coalition of leading advertising trade bodies, agencies, brands and media organizations aiming to reduce the carbon impact of the advertising industry to net zero. Via an Ad Net Zero working group, Meta is actively contributing to the development of a global media emissions measurement framework↗ that launched in 2024.

In the UK, we've signed up for the AdGreen levy, which will help fund continued efforts to reduce emissions from the production of ads. While our company's global operations, including its infrastructure, have been net zero since 2020 and 100% of our electricity use is matched with renewable energy, we will continue to work with Ad Net Zero to help the industry decarbonize and align on standardized benchmarks for measuring environmental impact.



Climate insights

Leveraging insights from our global community can help organizations better deliver programs and improve climate focused research to make scientific advances more quickly.

Data for Good

Data for Good at Meta empowers partners with privacy-preserving data to strengthen communities and advance social issues. The majority of Data for Good tools are shared in an open source format, an approach that reduces barriers to entry, removes bureaucratic roadblocks to collaboration and increases the team's global impact.

In collaboration with the Yale Program on Climate Change Communication and Rare's Center for Behavior & the Environment, Meta fielded the 2023 Climate Opinion Survey from August 3–September 3, 2023 in 187 countries and territories worldwide. This survey and associated report found that although hundreds of millions of people worldwide still know little to nothing about climate change, once informed, majorities in nearly every area say they are "somewhat" or "very" worried about the subject[2]. Analyzing information from people who use Facebook in countries defined as low-emissions and low per-capita income, Yale and Rare also found that majorities of respondents reported experiencing at least one extreme weather event and that respondents in nearly all areas were more likely to say they had experienced long periods of unusually hot weather[3].

[2] https://climatecommunication.yale.edu/publications/international-public-opinion-on-climate-change-2023/

[3] https://climatecommunication.yale.edu/publications/international-public-opinion-extreme-weather-vulnerability-2023/

Support for climate policy

Climate action is critical to achieving a sustainable economy and protecting our planet. We are working internally to decarbonize our overall business operations and supply chain and reduce our overall environmental footprint.

Meta also acknowledges that comprehensive and well-designed climate and clean energy policy is central to transitioning to a future that avoids the worst impacts of climate change. We work with policy makers, partner organizations, trade groups and industry peers to advance climate and clean energy policies. This includes membership in the Clean Energy Buyers Alliance (CEBA), Advanced Energy United (AEU), American Council on Renewable Energy (ACORE), Center for Climate and Energy Solutions (C2ES) and Clean Grid Alliance (CGA). Our memberships should not be viewed as an endorsement of every policy position that individual organizations or their leadership take.

We believe that for Meta to reach our own net zero emissions goal, we need governments around the world to move toward a net zero economy. Outside of the US, we are members of the European Climate Pact, Climate Neutral Data Centre Pact, Digital Europe, Re-Source and Asia Clean Energy Coalition (ACEC) to support well-designed climate and clean energy policy around the world.

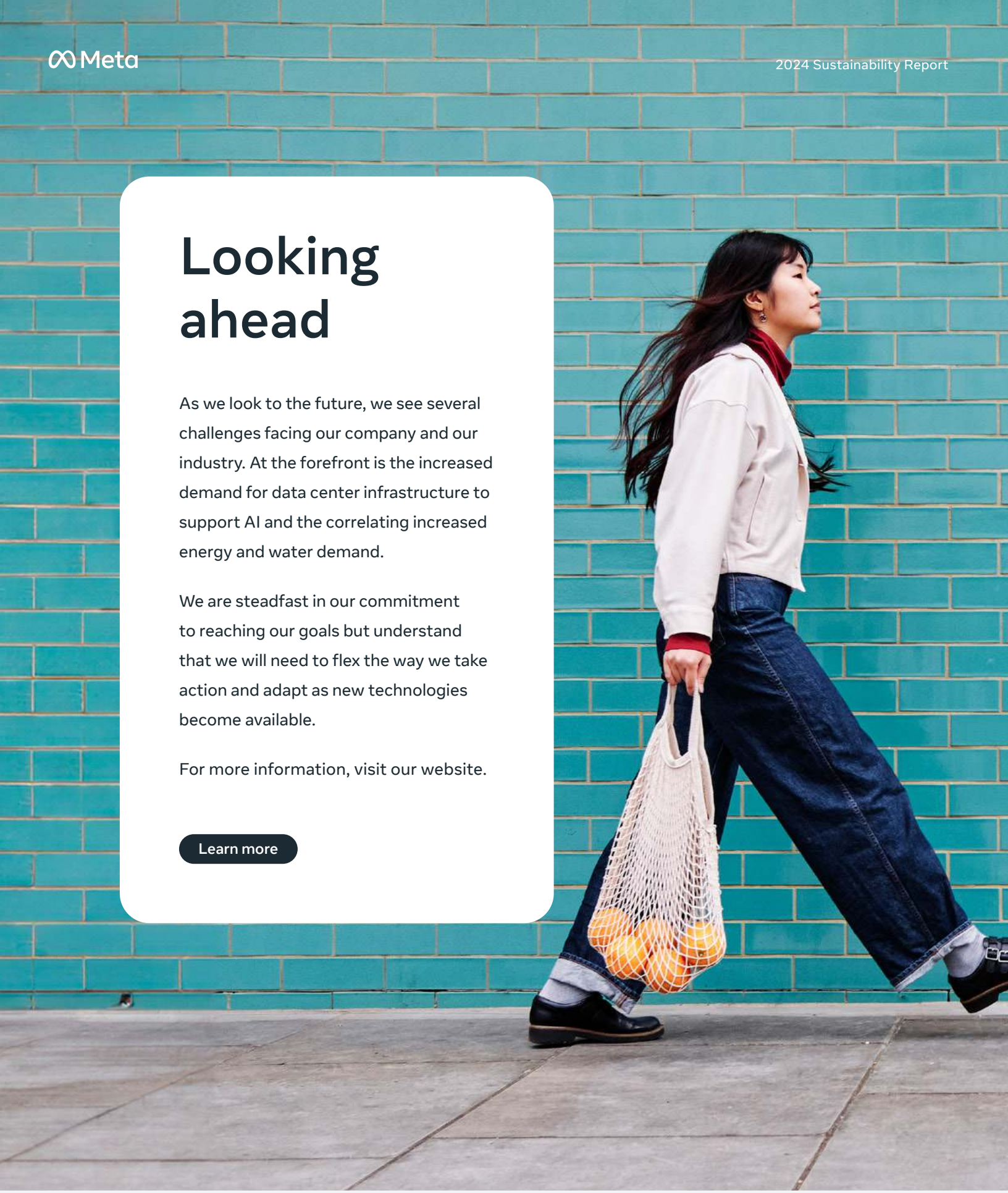
Looking ahead

As we look to the future, we see several challenges facing our company and our industry. At the forefront is the increased demand for data center infrastructure to support AI and the correlating increased energy and water demand.

We are steadfast in our commitment to reaching our goals but understand that we will need to flex the way we take action and adapt as new technologies become available.

For more information, visit our website.

Learn more



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B Forward-looking statements

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Forward-looking statements

This report covers only the Meta business and does not address the performance or operations of our suppliers, contractors or partners. Statements regarding targets, goals and commitments are aspirational and may also be based on estimates and assumptions under developing standards that may change in the future. As such, no guarantees or promises are made that they will be met or successfully executed, and actual results may differ, possibly materially. In addition, data, statistics and metrics included in this report are non-audited estimates, not necessarily prepared in accordance with generally accepted accounting principles, continue to evolve and may be based on assumptions believed to be reasonable at the time of preparation but may be subject to revision. This report has not been externally assured or verified by an independent third party unless otherwise noted. This report represents our current policy and intent and is not intended to create legal rights or obligations.

In this report, our use of the terms “material,” “materiality” and other similar terms is consistent with that of GRI, SASB, TCFD and other standards referenced in the preparation of this report, or refers to topics that reflect our significant economic, social and environmental impacts or that substantially influence the assessments and decisions of a diverse set of stakeholders. We are not using these terms as they are used under the securities or other laws of the United States or any other jurisdiction or as these terms are used in the context of financial statements and financial reporting. This report is not comprehensive, and for that reason, should be read in conjunction with our most recent Annual Report on Form 10-K, our subsequent reports on Forms 10-Q and 8-K and other filings made with the Securities and Exchange Commission (SEC).

This report contains forward-looking statements. All statements contained in this report other than statements of historical fact, including statements regarding our future results of operations and financial position, our business strategy and plans and our objectives for future operations, as well statements regarding targets, goals and commitments, are forward-looking statements. The words “believe,” “may,” “will,” “estimate,” “continue,” “anticipate,” “intend,” “expect” and similar expressions are intended to identify forward-looking statements. We have based these forward-looking statements largely on our current expectations and projections about future events and trends that we believe may affect our financial condition, results of operations, business strategy, short-term and longterm business operations and objectives, and financial needs.

Especially with respect to the matters discussed in this report, many factors and uncertainties relating to our operations and business environment, all of which are difficult to predict and many of which are outside of our control, influence whether any forward-looking statements can or will be achieved. Any one of those factors, including as the result of changes in circumstances, estimates that turn out to be incorrect, standards of measurement that change over time, assumptions not being realized or other risks or uncertainties, could cause our actual results, including the achievement of targets, goals or commitments, to differ materially from those expressed or implied in writing in any forward-looking statements made by Meta or on its behalf.

Environmental footprint[1,2,3,4,5,6]

1.1 GHG emissions

Total GHG emissions					
Market-based (in metric tons CO_2e)					
	2019	**2020**	**2021**	**2022**	**2023**
Net total	4,330,000	4,984,000	5,740,244	8,453,471	7,443,182
Carbon removal (carbon credits applied)	-	145,000	90,000	80,000	53,050
Total	4,330,000	5,129,000	5,830,244	8,533,471	7,496,232
Scope 1	44,000	29,000	55,173	66,934	48,952
Scope 2	208,000	9,000	2,487	273	1,658
Scope 3	4,078,000	5,091,000	5,772,583	8,466,264	7,445,621
Location-based (in metric tons CO_2e)					
	2019	**2020**	**2021**	**2022**	**2023**
Total	6,295,000	8,559,000	10,163,476	14,007,222	14,067,104

Greenhouse gas intensity					
Market-based Scope 1 and 2 emissions (in metric tons CO_2e/unit of key performance indicators)					
	2019	**2020**	**2021**	**2022**	**2023**
GHG intensity per monthly active person	0.00008	0.00001	0.00002	0.00002	0.00001
GHG intensity per million USD of revenue	-	-	0.49	0.58	0.43
GHG intensity per MWh	-	-	0.0061	0.0058	0.0033

1.1 GHG emissions

Operational GHG emissions					
Market-based Scope 1 and 2 emissions (in metric tons CO_2e)					
	2019	**2020**	**2021**	**2022**	**2023**
Total operational GHG emissions	252,000	38,000	57,661	67,207	50,610
Data centers total	207,000	14,000	25,240	22,163	12,283
Altoona (IA)	2,000	1,000	2,118	920	525
Clonee (Ireland)	<500	1,000	1,364	264	591
DeKalb (IL)	-	-	0	1,859	37
Eagle Mountain (UT)	-	-	3,250	3,609	251
Forest City (NC)	9,000	<500	1,401	587	409
Fort Worth (TX)	1,000	<500	779	625	1,532
Gallatin (TN)	-	-	-	138	141
Henrico (VA)	<500	<500	4,822	821	609
Huntsville (AL)	-	-	261	1,788	693
Los Lunas (NM)	1,000	<500	1,067	1,298	1,404
Luleå (Sweden)	<500	<500	374	79	95
New Albany (OH)	<500	2,000	408	2,605	741
Odense (Denmark)	<500	<500	2,824	655	258
Prineville (OR)	1,000	3,000	3,862	4,501	1,231
Sarpy (NE)	<500	3,000	2,348	1,642	570
Stanton Springs (GA)	-	-	300	535	462
Leased data center facilities	188,000	-	25	72	0
Other data center-related facilities	4,000	2,000	40	166	2,731
Offices total	44,000	24,000	32,421	45,044	38,328

1.1 GHG emissions

Market-based vs. location-based

Scope 2 emissions (in metric tons CO_2e)

	2019		2020		2021		2022		2023	
	Market-based	Location-based	Market-based	Location-based	Market-based	Location-based	Market-based	Location-based	Market-based	Location-based
Total facilities GHG emissions	205,000	1,885,000	9,000	2,718,000	2,487	3,080,194	273	3,921,611	1,658	5,141,350
Data centers total	197,000	1,813,000	2,000	2,650,000	2,487	2,987,964	273	3,821,450	733	5,036,131
Altoona (IA)	-	483,000	-	555,000	-	425,377	-	474,826	-	532,158
Clonee (Ireland)	-	143,000	-	159,000	-	187,475	-	178,367	-	302,256
DeKalb (IL)	-	-	-	-	-	2,122	-	8,087	-	63,407
Eagle Mountain (UT)	-	-	-	-	-	62,962	-	145,985	-	216,510
Forest City (NC)	8,000	208,000	-	202,000	-	165,026	-	143,754	-	144,050
Fort Worth (TX)	-	295,000	-	399,000	-	378,198	-	355,696	-	361,674
Gallatin (TN)	-	-	-	-	-	-	-	2,664	-	49,617
Henrico (VA)	-	3,000	-	69,000	-	146,396	-	204,494	-	228,705
Huntsville (AL)	-	-	-	-	-	32,464	-	156,885	-	261,541
Los Lunas (NM)	-	135,000	-	266,000	-	276,795	-	347,033	-	392,487
Luleå (Sweden)	-	6,000	-	7,000	-	3,917	-	2,782	-	4,009
New Albany (OH)	-	20,000	-	157,000	-	229,785	-	335,561	-	361,857
Odense (Denmark)	<500	18,000	-	57,000	2,487	51,171	273	49,198	-	56,451
Prineville (OR)	-	167,000	-	200,000	-	245,996	-	284,462	-	378,007
Sarpy (NE)	-	101,000	-	294,000	-	329,674	-	458,460	-	491,404
Stanton Springs (GA)	-	-	-	-	-	84,402	-	258,773	-	394,369
Leased data center facilities	188,000	193,000	-	223,000	-	272,848	-	323,060	-	678,861
Other data center-related facilities	1,000	41,000	2,000	62,000	-	93,354	-	91,364	733	118,767
Offices total	8,000	72,000	7,000	68,000	-	92,230	-	100,160	925	105,220

1.1 GHG emissions

Market-based vs. location-based					
Scope 3 emissions (in metric tons CO_2e)					
	2019	**2020**	**2021**	**2022**	**2023**
Total	4,078,000	5,091,000	5,772,583	8,466,264	7,445,621
Category 1: Purchased goods and services	1,428,000	1,846,000	2,956,909	2,545,466	2,045,470
Category 2: Capital goods	1,671,000	2,516,000	2,466,041	5,346,583	4,835,270
Category 3: Fuel and energy- related activities	264,000	56,000	10,483	12,658	8,454
Category 4: Upstream transportation and distribution	65,000	49,000	180,183	176,636	124,324
Category 5: Waste generated in operations	4,000	10,000	18,430	18,519	38,468
Category 6: Business travel	529,000	129,000	8,653	251,807	317,841
Category 7: Employee commuting	90,000	61,000	23,163	45,054	54,256
Category 8: Upstream leased assets	16,000	24,000	1,185	3,444	2,249
Category 9: Downstream transportation and distribution	5,000	10,000	37	16	47
Category 11: Use of sold products	5,000	390,000	106,232	62,306	16,476
Category 12: End-of-life treatment of sold products	<500	<500	1,267	3,775	2,765

2.1 Electricity

Electricity consumption					
Electricity consumption by facility (in MWh)					
	2019	**2020**	**2021**	**2022**	**2023**
Total electricity consumption	5,140,000	7,170,000	9,420,839	11,508,131	15,325,314
Electricity from grid (%)	100%	100%	>99%	>99%	>99%
Data centers total	4,918,000	6,966,000	9,117,122	11,167,416	14,975,435
Altoona (IA)	853,000	980,000	950,705	1,043,606	1,243,306
Clonee (Ireland)	382,000	487,000	634,648	668,290	953,837
DeKalb (IL)	-	-	4,724	16,934	138,965
Eagle Mountain (UT)	-	-	229,946	504,049	787,740
Forest City (NC)	614,000	595,000	580,842	492,786	507,068
Fort Worth (TX)	695,000	941,000	1,014,447	959,419	1,029,570
Gallatin (TN)	-	-	0	6,264	116,520
Henrico (VA)	10,000	204,000	515,270	701,003	805,061
Huntsville (AL)	-	-	85,286	368,841	614,198
Los Lunas (NM)	289,000	571,000	717,932	929,488	1,110,100
Luleå (Sweden)	373,000	369,000	306,054	267,471	351,931
New Albany (OH)	38,000	270,000	511,414	702,694	793,063
Odense (Denmark)	128,000	343,000	500,863	517,718	518,005
Prineville (OR)	573,000	686,000	898,409	982,177	1,375,321
Sarpy (NE)	178,000	519,000	736,810	1,007,635	1,148,091
Stanton Springs (GA)	-	-	215,279	636,266	968,565
Leased data center facilities	647,000	795,000	964,650	1,105,834	2,187,020
Other data center-related facilities	113,000	206,000	249,843	256,939	327,073
Offices total	222,000	204,000	303,717	340,657	349,878

2.1 Electricity

Electricity intensity (in MWh/unit of key performance indicators)					
	2019	2020	2021	2022	2023
Electricity intensity per monthly active person	-	-	0.0026	0.0031	0.0041
Electricity intensity per million USD revenue	-	-	79.9	98.7	131.42

Electricity mix (in % of total electricity used)					
	2019	2020	2021	2022	2023
Renewable	86%	100%	100%	100%	100%
Non-renewable	14%	0%	0%	0%	0%

2.2 Total energy consumed

Energy consumption (in GJ)					
	2019	2020	2021	2022	2023
Total energy consumption	-	27,075,000	34,882,163	42,560,221	55,956,522
Direct energy consumption	-	438,000	853,042	1,138,794	787,114
Indirect energy consumption	-	26,638,000	34,029,121	41,421,428	55,169,408
Heating consumption	-	-	-	-	9,518
Cooling consumption	-	-	-	-	13,190

2.3 Fuels

Fuel consumption					
	2019	2020	2021	2022	2023
Non-renewable fuels					
Natural gas (therms)	-	-	6,153,856	7,539,592	4,818,116
Diesel — distillate fuel oil No. 2 (gal)	-	-	363,082	1,376,871	1,025,707
Diesel — distillate fuel oil No. 4 (gal)	-	-	842,460	724,151	699,427
Gasoline (gal)	-	-	52,375	119,955	22,309
Renewable fuels					
Hydrotreated vegetable oil (gal)	-	-	0	0	1,144

2.4 Data center operations and design

Power usage effectiveness (PUE)					
	2019	**2020**	**2021**	**2022**	**2023**
PUE (data center energy efficiency)	1.11	1.10	1.09	1.08	1.08

Sustainable design					
Green building standards for data centers and offices (% of sq ft covered by green building standards and/or EnMS)					
	2019	**2020**	**2021**	**2022**	**2023**
Total	-	-	98%	99%	>99%
Data centers (LEED Gold or above, or ISO 50001)	-	-	100%	100%	100%
Offices (LEED Gold or above, or ISO 50001)	-	-	97%	98%	98%

3.1 Water withdrawal

Water withdrawal					
Water withdrawal by facility (in megaliters)					
	2019	**2020**	**2021**	**2022**	**2023**
Total water withdrawal	3,430	3,726	5,043	4,893	5,274
Data centers total	2,731	3,000	3,418	3,618	3,881
Altoona (IA)	145	151	140	199	173
Clonee (Ireland)	395	615	928	839	659
DeKalb (IL)	-	-	0	30	55
Eagle Mountain (UT)	-	-	58	89	87
Forest City (NC)	85	68	64	63	55
Fort Worth (TX)	322	300	254	346	404
Gallatin (TN)	-	-	0	0	3
Henrico (VA)	-	42	80	55	42
Huntsville (AL)	-	-	39	104	152
Los Lunas (NM)	92	140	153	161	283
Luleå (Sweden)	58	49	39	25	50
New Albany (OH)	33	35	121	87	72
Odense (Denmark)	266	360	373	428	371
Prineville (OR)	208	445	354	240	180
Sarpy (NE)	62	108	106	101	123
Stanton Springs (GA)	-	-	105	77	61
Leased data center facilities	1,011	645	604	773	1,102
Other data center-related facilities	54	42	45	0	10
Offices total	699	726	1,625	1,275	1,393

3.1 Water withdrawal

Water withdrawal by source					
Water withdrawal by source (in megaliters)					
	2019	**2020**	**2021**	**2022**	**2023**
From groundwater	-	37	33	37	88
From third-party water (e.g., municipal water supply)	-	3,689	5,009	4,856	5,186
Water usage effectiveness (WUE)					
	2019	**2020**	**2021**	**2022**	**2023**
Annual data center WUE	0.27	0.30	0.26	0.20	0.18
Water withdrawal intensity (in liters/unit of key performance indicators)					
	2019	**2020**	**2021**	**2022**	**2023**
Water withdrawal per monthly active person	0.001200	0.001130	0.001405	0.001308	0.001410
Water withdrawal per million USD revenue	-	-	42.8	42.0	45.0
Water withdrawal from areas with water stress (in megaliters)					
	2019	**2020**	**2021**	**2022**	**2023**
Total from areas with high or extremely high baseline water stress	-	-	1,390	1,130	1,360
From groundwater	-	-	-	-	88
From third-party water (e.g., municipal water supply)	-	-	-	-	1,272
From areas without water stress	-	-	3,652	3,763	3,914
Recycled water (in megaliters)					
	2019	**2020**	**2021**	**2022**	**2023**
Total water recycled	854	643	580	266	720

3.2 Water consumption

Water consumption (in megaliters)					
	2019	**2020**	**2021**	**2022**	**2023**
Total water consumption	1,971	2,202	2,569	2,638	3,078
Data centers total	-	2,197	162	2,511	2,938
Offices total	-	73	2,406	128	140
Water consumption from areas with water stress (in megaliters)					
	2019	**2020**	**2021**	**2022**	**2023**
From areas with high or extremely high baseline water stress	-	-	162	443	504
From areas without water stress	-	-	2,406	2,195	2,573

3.3 Water discharge

Water discharge by source (in megaliters)					
	2019	**2020**	**2021**	**2022**	**2023**
Total water discharge	-	1,524	2,473	2,254	2,196
To third-party water (e.g., municipal sewers)	-	1,524	2,473	2,254	2,196
Water discharge to areas with water stress (in megaliters)					
	2019	**2020**	**2021**	**2022**	**2023**
Total water discharge to high or extremely high baseline water stress	-	-	864	687	856
To third-party water (e.g., municipal sewers)	-	-	-	-	856

3.4 Water stewardship

Water restoration (in megaliters)					
	2019	**2020**	**2021**	**2022**	**2023**
Volumetric water restoration benefits	145	2,250	2,336	2,352	5,889

Water use embedded in purchased electricity (in megaliters)					
	2019	**2020**	**2021**	**2022**	**2023**
Total embedded water consumption in purchased electricity	-	-	31,924	41,172	55,475
Total embedded water consumption in purchased electricity for our contracted renewable energy	-	-	3,313	2,895	3,810
Avoided water consumption	-	-	28,611	38,278	51,664

Footnotes

1. The environmental metrics represented in this report are rounded to the nearest whole digit on a line item basis. Due to rounding applied to all individual line items, the total values may not directly match the summation of the individual line items. Prior to 2021, values were rounded and totals were calculated before rounding throughout this report.
2. "Net" total GHG emissions reflects total market-based emissions adjusted for application of carbon credits.
3. "Other data center-related facilities" includes facilities where Meta used less than 100,000 MWh of electricity in the reporting year, such as warehouses, network infrastructure or colocation facilities. Owned, online data centers are always reported by site, even if they were below this threshold.
4. Our methodology for calculating environmental metrics can be found on page AK.
5. We regularly apply updates to our annual inventories. For each year below, changes are reflected in the corresponding year and later inventories:
   a. 2021:
      i. Data from Life Cycle Assessments for our hardware and sold products were used to calculate our Scope 3 emissions.
      ii. 2021 Category 1, 2, 8 and 11 emissions were recalculated with higher quality data inputs to improve accuracy.
      iii. All Scope 3 Categories were broken out individually to improve transparency and eliminate the previously reported "Other Applicable Categories."
      iv. Emissions associated with third-party construction-related energy usage were recategorized into Category 1 instead of Category 3 to better align with the GHG Protocol Scope 3 Category Boundaries.
      v. Emissions associated with overhead electricity load at leased data centers was recategorized into Category 8 Instead of Category 3 to better align with the GHG Protocol Scope 3 Category Boundaries. These emissions were further recategorized in the 2023 inventory into Scope 2 (see footnote 5.c).
      vi. 2021 Category 6 emissions were recalculated to incorporate more accurate and transparent methodologies for applying sustainable aviation fuel emissions reductions.
      vii. 2021 Total Fuel and Energy Consumption were recalculated to eliminate third-party construction-related fuel use outside of our operational control.
   b. 2022:
      i. A new Category 5 estimation methodology was developed to improve completeness across all operations.
      ii. Employee commuting now includes emissions calculations on a well-to-tank basis.
      iii. A new Category 1 and Category 2 methodology was developed to improve the completeness, accuracy and reliability of the underlying activity and financial data.
   c. 2023:
      i. A new Category 6 estimation methodology was developed to improve completeness across all operations.
      ii. Usage from Ray-Ban | Meta smart glasses were incorporated into Category 11 as a newly sold-by-Meta product.
      iii. Emissions associated with overhead electricity load at our leased data centers were recategorized into Scope 2 instead of Scope 3 to better align with the GHG Protocol Operational Control Approach.
6. In accordance with the GHG Protocol, Meta reports CO_2 emissions from biogenic emissions sources separately from other Scope 1 GHG emissions. These emissions represent 160 metric tons of CO_2.
7. Not included in our 2023 water withdrawal numbers are an additional 1,724 megaliters of water withdrawn for the construction of Meta data centers.

2023 environmental metrics methodology

At Meta, our sustainability work helps us to operate efficiently and responsibly in our mission to build community and bring the world closer together. As a global company, we recognize the tech industry's environmental impact and role to play in addressing climate change. We embrace the responsibility to understand the full scope of our footprint and be transparent and accountable in our mission to reduce our emissions.

Identifying the source of our emissions on an annual basis enables us to prioritize emissions reduction where we can make the most meaningful progress on our path to net zero emissions across our value chain in 2030. Similarly, minimizing our water use, being transparent with our water data and restoring water in the same watersheds where our data centers are located are vital to reach our commitment to restore more water than we use by 2030.

Greenhouse gas emissions

Our GHG footprint includes the emissions associated with running our business and data centers, as well as the indirect emissions upstream and downstream of our global operations. These emissions correspond to Scope 1, Scope 2 and Scope 3 emissions as defined by World Resources Institute's (WRI) GHG Protocol↗. Meta uses the operational control approach when calculating our GHG footprint, in which we account for 100% of the GHG emissions over which we have operational control.

Operational emissions

Scope 1 and 2 emissions are considered our operational emissions. Scope 1 emissions come from our direct operations, such as combustion of natural gas to heat our offices and the fuel burned in our employee shuttles. Scope 2 includes indirect emissions from purchased energy, such as the electricity powering our data centers. We consider purchased electricity for construction outside of our operational control and therefore report these in Scope 3.

Scope 1 emissions Direct emissions from our data centers, offices and transportation fleet	• Stationary combustion (e.g., natural gas consumed at our Menlo Park campus for heating) • Mobile combustion (e.g., diesel emissions from our intercampus shuttles) • Fugitive emissions (e.g., refrigerant losses)
Scope 2 emissions Indirect emissions from purchased energy for our data centers and offices	• Purchased electricity • District heating • Stationary combustion from leased sites

In 2020, Meta reduced our operational emissions by 94% from a 2017 baseline and addressed the residual emissions with high-quality carbon removal projects. As a result, our operations have produced net zero emissions since then.

Full value chain emissions[1]

Scope 3 emissions come from sources within our full value chain beyond our operations and comprise the largest component of our footprint. Scope 3 includes:

1. Upstream emissions, such as the emissions from manufacturing our data center servers or emissions from employee commuting; and
2. Downstream emissions, such as the emissions associated with consumers using our Meta Quest VR headset devices.

1. Category 10: Processing of sold products, Category 13: Downstream leased assets, Category 14: Franchises and Category 15: Investments are determined to not be relevant.

Scope 3 emissions Our value chain emissions upstream and downstream of our operations	**Upstream:** • Purchased goods and services (e.g., upstream emissions from purchased office supplies) • Capital goods (e.g., server hardware) • Fuel and energy-related activities • Upstream transportation and distribution (e.g., emissions associated with the transportation of our augmented and virtual reality related consumer hardware) • Waste generated from our operations • Business travel • Employee commuting (including telecommuting) • Upstream leased assets (including leased data center overhead electricity use)
	Downstream: • Downstream transportation and distribution • Direct use of our augmented and virtual reality related consumer hardware • End-of-life treatment of our augmented and virtual reality related consumer hardware

How we calculate our GHG emissions

Meta is aligning our emissions reduction targets with the Science Based Targets initiative ↗ and takes a scientific, standardized approach to calculating its GHG emissions in accordance with the GHG Protocol ↗. Furthermore, our GHG emissions data undergoes limited assurance conducted by a third party. This is completed annually to provide additional confidence to our publicly reported metrics.

We quantify our GHG emissions via activity data, Life Cycle Assessments (LCAs) and financial data. We prioritize calculating our emissions through activity data, which directly measures an activity that results in GHG emissions such as kilowatt hours (kWh) of electricity. Due to the complex nature of our business and value chain, we use other methods to help calculate our emissions when activity data is not available.

> We measure our emissions by metric tons of carbon dioxide equivalent, or CO_2e, units. CO_2e is used to standardize the emissions from different greenhouse gases based on their global warming potentials.

Activity data

For activity data, we take the quantity of a specific measured activity and multiply it by an associated emissions factor to calculate the total emissions from that activity. For example, the kWh of electricity consumed at a Meta site is multiplied by the appropriate country-specific or regional-specific, publicly available emissions factor to calculate the total emissions from that site's electricity use. We use activity data to calculate:

- Scope 1 and Scope 2 emissions
- Fuel and energy-related activities
- Waste generated in operations
- Upstream Transportation and Distribution where supplier specific data is available
- Business travel (including radiative forcing)
- Employee commuting
- Direct use of our augmented and virtual reality related consumer hardware

Where activity data is incomplete or unavailable for an operation that results in GHG emissions, existing activity data is used as a proxy to estimate these emissions. This ensures we are reporting a complete GHG inventory across all of our operations. For example, the weight of waste at several Meta sites is used as a proxy to estimate waste at other sites in the same region that do not have final waste weight data.

Life cycle assessments (LCAs)

To understand cradle-to-gate emissions and/or upstream emissions that are released before certain assets are used (e.g., the emissions released from the production of concrete before it is poured), we conduct third-party LCA studies or utilize LCA tools to measure our impact. This is applicable in our most recent GHG inventory for the following emissions:

- Upstream emissions associated with the materials used in the construction of our data centers
- Upstream emissions of materials in office renovations and new construction
- Cradle-to-gate emissions of our augmented and virtual reality related consumer hardware, such as our Meta Quest VR headset devices
- Cradle-to-gate emissions in key data center hardware components, such as hard drives
- End-of-life treatment of our augmented and virtual reality related consumer hardware

Financial

Our Environmentally Extended Input Output (EEIO) method utilizes financial spend data and applies industry-specific emission factors (e.g., kg CO_2e per dollar spent on electronic manufacturing) published by the U.S. Environmental Protection Agency (EPA) ↗ to calculate "cradle-to-gate" emissions. We apply the EEIO method to the following:

- Purchased goods and services
- Capital goods not related to data center and office construction, augmented and virtual reality related consumer hardware and key data center hardware components
- Upstream transportation and distribution where supplier specific data is unavailable
- Upstream leased assets

Market-based instruments

We have publicly committed to matching 100% of our electricity use with renewable energy including wind, solar and hydropower. We procure and retire one Energy Attribute Certificate (EAC) for every megawatt hour of electricity used to power our global operations. Meta also procures and retires one EAC for every megawatt hour of electricity use in select Scope 3 categories.[2] Additionally, Meta procures Sustainable Aviation Fuel (SAF) and applies the associated emissions reductions from SAF allocated in the reporting year as a market-based instrument to Category 6: Business Travel.

A core focus of Meta's renewable energy program is adding new renewable energy projects to the electricity grids that support our data centers to drive the transition to renewable energy in our communities. In alignment with these principles, Meta adheres to the following EAC market boundaries:

1. Owned data centers[3]: EACs from the same grid region[4]
2. Leased data centers[5]: EACs from the same grid region or same geographic region[6]
3. Other Scope 2 loads (offices, points-of-presence): EACs from same grid region or same geographic region
4. Scope 3 loads: EACs from same grid region; once exhausted, EACs from same geographic region

2. This includes data center construction in Category 1: Purchased Goods and Services, transmission and distribution loss in Category 3: Fuel and Energy Related Activities, employee work from home in Category 7: Employee Commuting and United States-based electricity consumption from our products in Category 11: Use of Sold Products.
3. Owned data centers include all completed data centers owned and operated by Meta. Data center loads while under construction are treated in line with Leased data centers.
4. Grid Regions: WECC, ERCOT, MISO/SPP, PJM/NC, SERC, Nordpool (Europe), Singapore/Southeast Asia.
5. For our most recent reporting year, all leased data center load was in the United States and covered by EACs generated in-country.
6. Geographic Regions: Americas (AMER); Europe, Middle East and Africa (EMEA); Asia Pacific (APAC)

Improving our GHG methodology

As Meta decarbonizes our value chain over the next decade, the data and methodology that drives our climate work will evolve and improve each year. We have disclosed our Scope 1 and 2 emissions for the last decade. We began reporting on some Scope 3 categories in 2015 and have reported on every relevant category defined by the GHG Protocol since 2019. As techniques to calculate our emissions improve, we will apply those methods to previous years to refine our GHG footprint. For example, in 2020 we used the EPA's updated EEIO emission factors for our Scope 3 calculations and updated our 2019 data accordingly.

Going forward, we will focus on increasing accuracy and granularity of our data. For example, we recalculated our 2020 data based on updated LCA data for key data center hardware and our augmented and virtual reality related consumer hardware. We will use activity data for more emissions categories as methods to do so become available. We will continue reporting and updating our emissions boundaries as our business grows on our path to net zero emissions.

PUE/WUE

Each year, we calculate the Power Usage Effectiveness (PUE) and Water Usage Effectiveness (WUE) of our data centers. PUE measures how efficiently our data centers consume the energy to operate our servers and network infrastructure. It is calculated by dividing the energy consumed at the data center by IT electricity load. The closer our annual PUE is to "1" indicates how efficient our data centers are designed to consume electricity.

Annual WUE is calculated by dividing our water withdrawal, in liters, by IT electricity load, in kWh. The closer WUE is to "0," the more efficient consumption of water to cool our IT-related infrastructure.

These metrics are calculated based on best available data, including internal meters, design estimates and utility bills where applicable.

Water withdrawal

The water that we use in our offices and at our data centers are withdrawn from our local water utilities or local aquifers. We report our water withdrawals based on data from our local water utilities or meter data, where available. We also report our water withdrawal during construction, based on reported data from our construction partners. Not included in our 2022 operational water withdrawal numbers are an additional 1,780,000 cubic meters of water withdrawn for the construction of Meta data centers.

Water consumption

For our data centers, we determine our water consumption via two methods:

1. Calculating the difference between water withdrawal and wastewater discharge
2. Calculating consumption based on cycles of concentration from our cooling systems

For our offices, we estimate our water consumption based on industry averages. All of our wastewater is discharged to local wastewater facilities.

Water risk

We use water stress metrics in the World Resources Institute's Aqueduct tool ↗ to conduct initial assessments of our water risks. When appropriate, we increase the level of water risk based on additional local knowledge.

Meta

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