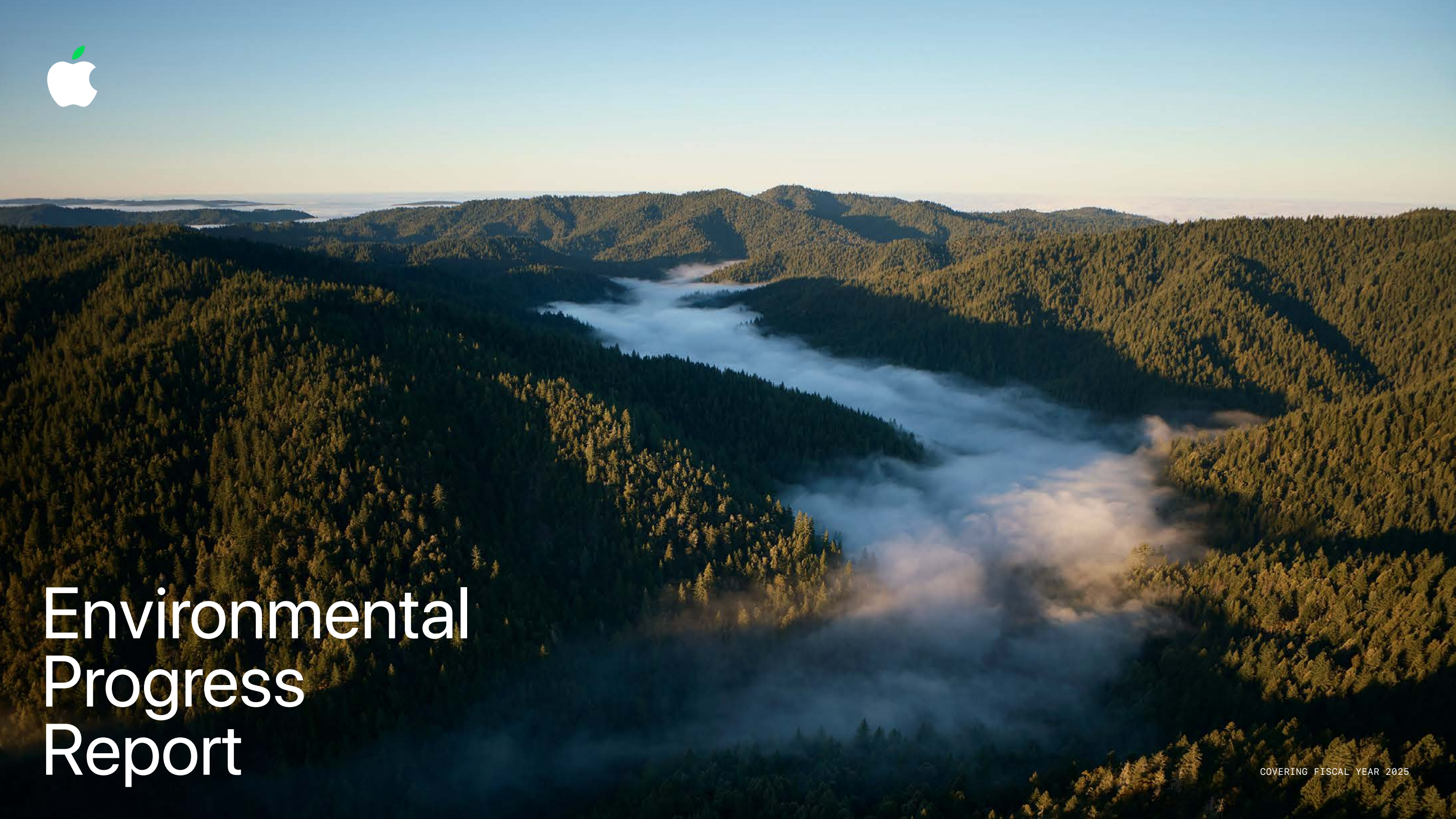




Environmental Progress Report

COVERING FISCAL YEAR 2025

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Cover photo: Apple’s new investment, with The Conservation Fund, in the restoration and sustainable management of a working redwood forest in California.



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Reflections

At Apple, we feel a deep sense of responsibility to make the best products and services for people and the planet. That responsibility shapes every stage of our work — from how we uphold high standards for labor and human rights, to how we source materials and design our products, build our products to last, and share them with the world.

With our Apple 2030 goal, we are working to become carbon neutral across our entire footprint by the end of this decade. That goal is ambitious by design — not only because the challenge is urgent, but because innovation is even more meaningful when it is guided by purpose.

This year, we achieved major environmental milestones across materials, packaging, energy use, water stewardship, and more. The launch of MacBook Neo was an environmental milestone in itself, our lowest-carbon MacBook with the highest recycled content of any Apple device to date.

As we push our environmental work forward, we have also expanded opportunities for our suppliers’ employees to learn new skills and advance in their careers. And we continue to advance our important work to ensure that all people in our supply chain understand their rights and are treated with respect.

We’re making progress for people and the planet even as we’ve grown our business — a reminder that doing what’s right can also drive resilience, efficiency, and innovation across our company. And, importantly, we’re driving high standards across our industry and bringing others along with us in our journey — sharing what we’ve learned so our positive impact can ripple beyond Apple.

To us, what matters most isn’t any one project or benchmark for progress. It’s how all these efforts come together in a way that respects the dignity of people at every level of our supply chain, and brings us closer to a more sustainable future. And at every step, we continue to raise the bar of ambition and accountability.

We’re moving with urgency and purpose to keep building on everything we’ve achieved together, and we’re so inspired by everyone — across industries and around the world — who is on this journey with us. With this report, we hope to inspire even more progress in the years ahead.



Sabih Khan
Chief Operating Officer

This year, we made exciting progress toward our Apple 2030 goals by focusing on the areas where we can have the greatest impact: reducing emissions, advancing clean electricity, and increasing the use of recycled and renewable materials in our products and packaging.

Our greenhouse gas emissions continue to be more than 60 percent lower than 2015 levels, and we are proud to keep this reduction steady even in a year of significant business growth. Additionally, a record 30 percent of the materials we shipped in our products last year came from recycled sources — including recycled cobalt in every battery we design, and recycled rare earth elements in every magnet. And after a decade of innovation, we’ve achieved our goal to remove plastic from our packaging, with every Apple product now shipping in 100 percent fiber-based packaging.

We also reached important environmental milestones in conserving natural resources. We’ve always believed that protecting water resources is essential to the health and resilience of our communities. Last year,

we worked with our suppliers to save 17 billion gallons of freshwater across our supply chain, and we replenished more than half of the freshwater we withdrew for our corporate operations. These are powerful examples of our commitment to upholding the highest standards when it comes to the impact we make on our communities, and everyone across our supply chain.

These incredible results were made possible by years of engineering, design, and close collaboration across Apple and our supply chain. Together, we’ve shown that innovation can turn ambitious goals into measurable progress — and demonstrated that businesses don’t need to choose between rapid growth and reducing emissions.

We all have a role to play in protecting our planet, and Apple is committed to doing our part. We’ll keep finding partners who share this commitment, and keep charting a course for others in our industry to follow. This is a moment of enormous opportunity — and very high stakes — and we have the power to help build a better future together.



Sarah Chandler
Vice President, Environment and Supply Chain Innovation

Report highlights

Introduced MacBook Neo, our MacBook with the highest recycled content and lowest carbon footprint



Reduced our overall GHG emissions by more than 60 percent compared with our 2015 baseline¹



Certified all eight Apple-owned data centers to the Alliance for Water Stewardship (AWS) Standard

ACHIEVED

100%

Achieved our goal to transition to 100 percent recycled cobalt, tin, gold, and rare earth elements in select components and applications²

ACHIEVED

100%

30 percent of the materials we shipped in Apple products, by weight, came from recycled or renewable sources in 2025³

30%

Achieved our goal to remove plastics from our packaging⁴



Goals and progress

Emissions Apple 2030 is our science-based commitment to achieving carbon neutrality for our entire carbon footprint, including transitioning our entire value chain to 100 percent clean electricity.⁵	GOAL Become carbon neutral for our corporate operations. Achieve carbon neutrality across our value chain by 2030.⁶	2025 PROGRESS 100% 60%	STATUS ACHIEVED IN PROGRESS
Materials We’re committed to one day using only recycled or renewable materials in our products and packaging, and to enhancing material recovery.⁷	GOAL Transition to 100 percent recycled cobalt, tin, gold, and rare earth elements in select components and applications by the end of 2025.⁸ Remove plastics from our packaging by the end of 2025.⁹	2025 PROGRESS 100% 100%	STATUS ACHIEVED ACHIEVED
Resources We’re committed to stewarding water resources and working to eliminate waste sent to landfills.	GOAL Replenish all of our corporate freshwater withdrawals by 2030.¹⁰ Certify all Apple-owned data centers to the Alliance for Water Stewardship (AWS) Standard by 2025. Increase supplier participation in the Supplier Clean Water Program, prioritizing high water stress locations and driving participants to an average 50 percent water reuse rate by 2030.¹¹ Increase corporate facilities waste diversion rate. Zero waste to landfills at all established final assembly sites.	2025 PROGRESS 55% 100% 43% 75% 100%	STATUS IN PROGRESS ACHIEVED IN PROGRESS IN PROGRESS ACHIEVED

Environmental initiatives

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- Overview
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Environmental initiatives



Apple 2030

Apple 2030 is our goal to be carbon neutral across our value chain. Our aim is to reduce our greenhouse gas emissions by 75 percent compared with 2015, before balancing the remaining emissions — starting with nature-based solutions that adhere to rigorous international standards.

READ MORE

- [Design and materials](#)
- [Electricity¹²](#)
- [Direct GHG emissions](#)
- [Nature and carbon](#)



Resources

We aim to responsibly source recycled and renewable materials, make durable, long-lasting products and enhance material recovery. And we're committed to stewarding water resources and working to eliminate waste sent to landfills.

READ MORE

- [Product longevity](#)
- [Material recovery](#)
- [Water](#)
- [Zero waste](#)



Smarter chemistry

Through chemistry innovation and material selection, we design our products to best serve our priorities of safety, performance, and the environment.

READ MORE

- [Mapping](#)
- [Assessment](#)
- [Innovation](#)

Apple 2030

IN THIS SECTION

- Approach
- Design and materials
- Electricity
- Direct GHG emissions
- Nature and carbon



Our approach to Apple 2030

We’re committed to our ambitious, science-based Apple 2030 goal to become carbon neutral across our value chain. Our aim is to reduce our greenhouse gas emissions by 75 percent compared with 2015, before balancing the remaining emissions — starting with nature-based solutions that adhere to rigorous international standards. And we’re directing our efforts toward decarbonizing the largest sources of CO₂e emissions. We’ve cut emissions across our value chain by more than 60 percent since 2015. During the same period, our revenue grew by 78 percent.

READ MORE

- [Framework Proposal for Science-aligned Corporate Climate Action](#)
- [Green Bond Impact Report](#)
- [CDP Corporate 2025 Questionnaire Response](#)
- [Product Environmental Reports](#)

We transitioned to sourcing 100 percent renewable electricity for our offices, retail stores, and data centers in 2018 and first achieved carbon neutrality for our corporate emissions in 2020. And we’ve again achieved carbon neutrality for our corporate emissions in 2025.¹³

Decarbonizing our supply chain is a crucial component of our efforts as it represents the largest portion of our carbon footprint. We’re driving progress by requiring suppliers to source renewable energy and increase the use of recycled and renewable materials in the manufacturing of our products. Our initiatives emphasize achieving emissions reductions before applying carbon credits.

Science and transparency guide our efforts. Our goal to be carbon neutral by 2030 is consistent with the Intergovernmental Panel on Climate Change’s (IPCC) recommendation for global carbon neutrality.¹⁴ And our target aligns with what current climate science shows is necessary to adhere to a 1.5°C pathway with no or limited overshoot.¹⁵

We’re also committed to working toward reaching a 90 percent reduction in emissions from our 2015 baseline by 2050. Reducing emissions by 90 percent will require a collective, global effort across industries and economies. And while reaching a 90 percent reduction in emissions is outside Apple’s or any one company’s control, we’re committed to taking actions that support this initiative. To catalyze change beyond our footprint, we’re engaging with stakeholders and communities to identify opportunities to decarbonize the broader industry. For more details, read our [Engagement and Advocacy section](#).

Apple 2030 roadmap

DESIGN AND MATERIALS

Designing products and manufacturing processes to be less carbon intensive through thoughtful material selection, increased material efficiency, greater product energy efficiency, use of recycled and renewable materials in our products and packaging, and enhanced material recovery



ELECTRICITY

Increasing energy efficiency at both ours and our suppliers’ facilities and transitioning the electricity throughout our entire value chain — including manufacturing and our customers’ product use — to 100 percent clean electricity by 2030



DIRECT GHG EMISSIONS

Reducing direct greenhouse gas emissions across our facilities and supply chain through process innovation, emissions abatement, and shifting away from fossil fuels

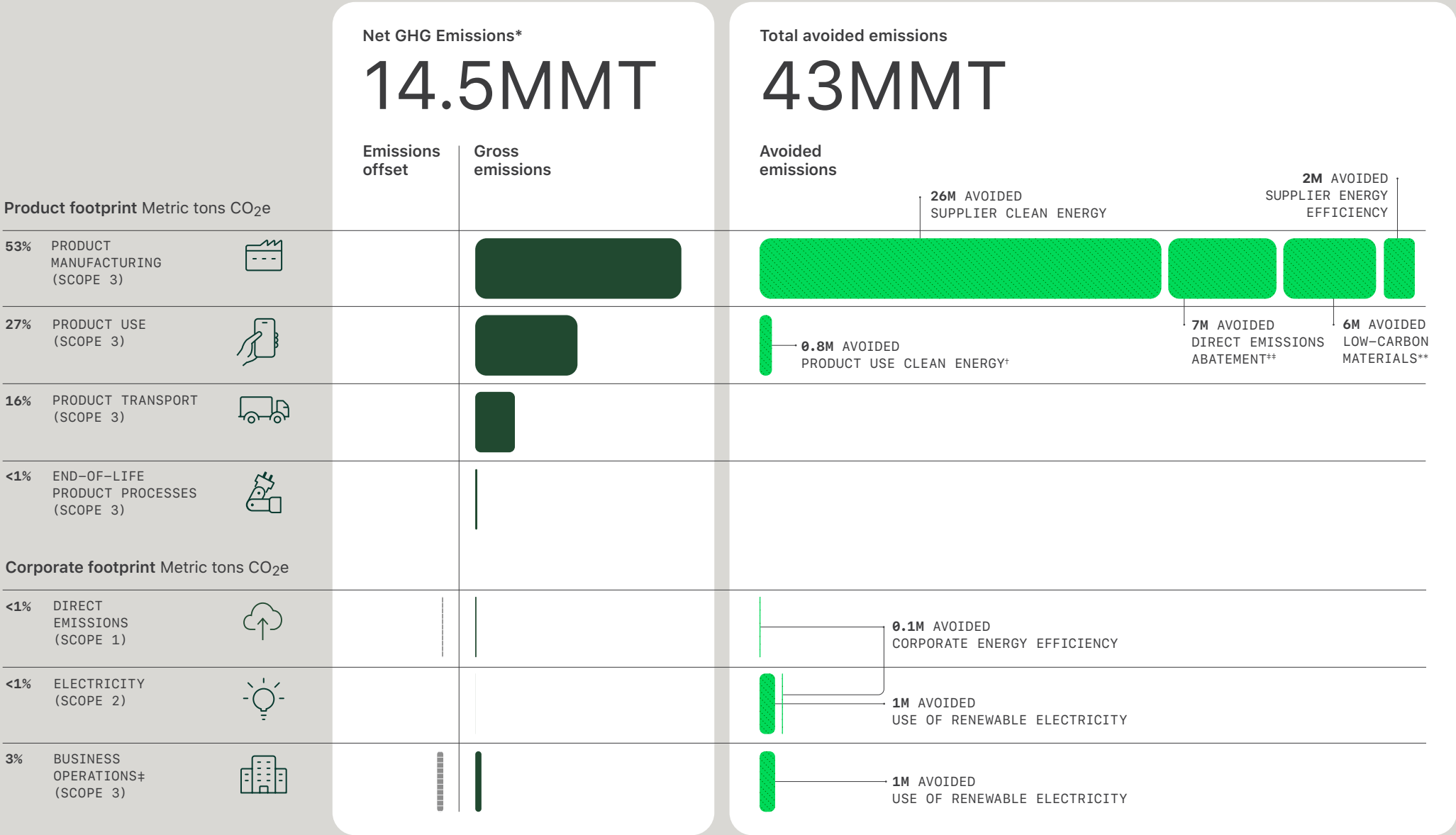


NATURE AND CARBON

In parallel with our emissions reduction efforts, scaling up investments in carbon removal projects, starting with nature-based solutions that can protect and restore ecosystems



Apple’s comprehensive carbon footprint



Design and materials

We design our products to be less carbon intensive by prioritizing the use of recycled and renewable content and low-carbon materials while focusing on the energy efficiency of our software and hardware. We’re working toward a future where every Apple product will be created from and contribute to circular supply chains. The design and material choices we make across our products support reducing our carbon footprint.

Design and materials address emissions from:



Product use
(Scope 3)

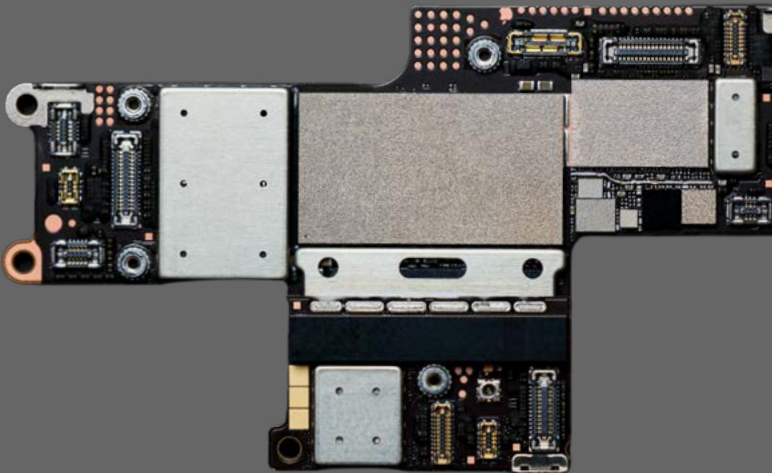


Product transport
(Scope 3)



Product manufacturing
(Scope 3)

We accomplished our goal to use 100 percent recycled cobalt in Apple-designed batteries, 100 percent recycled gold plating and tin solder in all Apple-designed printed circuit boards, and 100 percent recycled rare earth elements in all magnets.[†]



[†] This accomplishment excludes inventory for replacement and repair, as well as excess inventory purchased prior to year-end currently being consumed and representing less than 0.1% of total material usage.

iPhone Air uses 80 percent recycled titanium, a first for iPhone.



Apple Watch Ultra 3 and Apple Watch Series 11 have 3D-printed cases made with 100 percent recycled titanium, reducing the raw material needed for manufacturing by half compared to predecessors.[‡]



[‡] We compared the titanium required to make the case of Apple Watch Ultra 3 relative to Apple Watch Ultra 2.

Our approach to design and materials

Innovation drives our efforts around circularity — from the materials we source and the product design choices we make to the recycling and recovery innovations we pursue. We prioritize the materials and components that account for significant portions of our greenhouse gas emissions. This means that the choices we make product-by-product can scale toward reducing our overall footprint. These priorities inform our work to design for material efficiency and increase our use of recycled and renewable materials.

We aim to create products that use circular supply chains to one day end reliance on mined resources while meeting our rigorous standards for quality, durability, performance, and environmental and social protections. And we’re making progress in expanding our use of recycled content across our products. We accomplished our goal to transition to 100 percent recycled cobalt, tin, gold, and rare earth elements in key components and applications with higher concentrations — including 100 percent recycled content cobalt in Apple-designed batteries, 100 percent recycled gold plating and tin solder in all Apple-designed printed circuit boards, and 100 percent recycled rare earth elements in all magnets.¹⁷ And we also maintain strict standards for responsibly sourcing materials from primary, recycled, and renewable sources. Our actions can inspire others to support building circular supply chains.

Working to positively influence the markets where we work and communities worldwide, advocating for policy that enables circular supply chains, and inspiring others to follow suit — these are the opportunities that drive us through the challenging work of creating circular supply chains. Read about our efforts in Engagement and Advocacy on [page 69](#).

Using recycled materials to lower our product carbon footprint

We’re reducing the carbon footprint of our products through the materials we select. Our strategy is to transition to materials that are manufactured using low-carbon energy and recycled content.¹⁸ We’re prioritizing the materials and components that make up a large part of our products to move us closer to our goal of carbon neutrality. And to accelerate collective efforts, we signed on as a founding member of First Movers Coalition’s near-zero emissions primary aluminum commitment for 2030.

Our use of aluminum exemplifies Apple’s approach: We’re transitioning to recycled content, and where we haven’t yet, we’re moving to low-carbon suppliers and supporting technological innovations to decarbonize. We’ve continued to use 100 percent recycled aluminum in the enclosures of many Apple products, including Apple Watch Series 11, iPad, MacBook Air, and Mac Studio.

Our first priority is to tap into the potential of our own high-quality scrap by exploring innovations to recover as much as possible. Since recycled aluminum manufacturing emits less carbon than newly mined materials, we look to other post-industrial and post-consumer sources for high-quality recycled aluminum, which requires new approaches. For example, we repurpose some scrap material generated during the fabrication of our enclosures to make our 7000 series aluminum used in iPhone 17 and other products. Overall, our efforts have reduced our aluminum-related emissions by more than 70 percent since 2015.

GOAL

Transition to 100 percent recycled cobalt, tin, gold, and rare earth elements in select components and applications¹⁹

ACHIEVED

100%

Recycled cobalt in all Apple-designed batteries

ACHIEVED

100%

Recycled gold plating and tin solder in all Apple-designed printed circuit boards

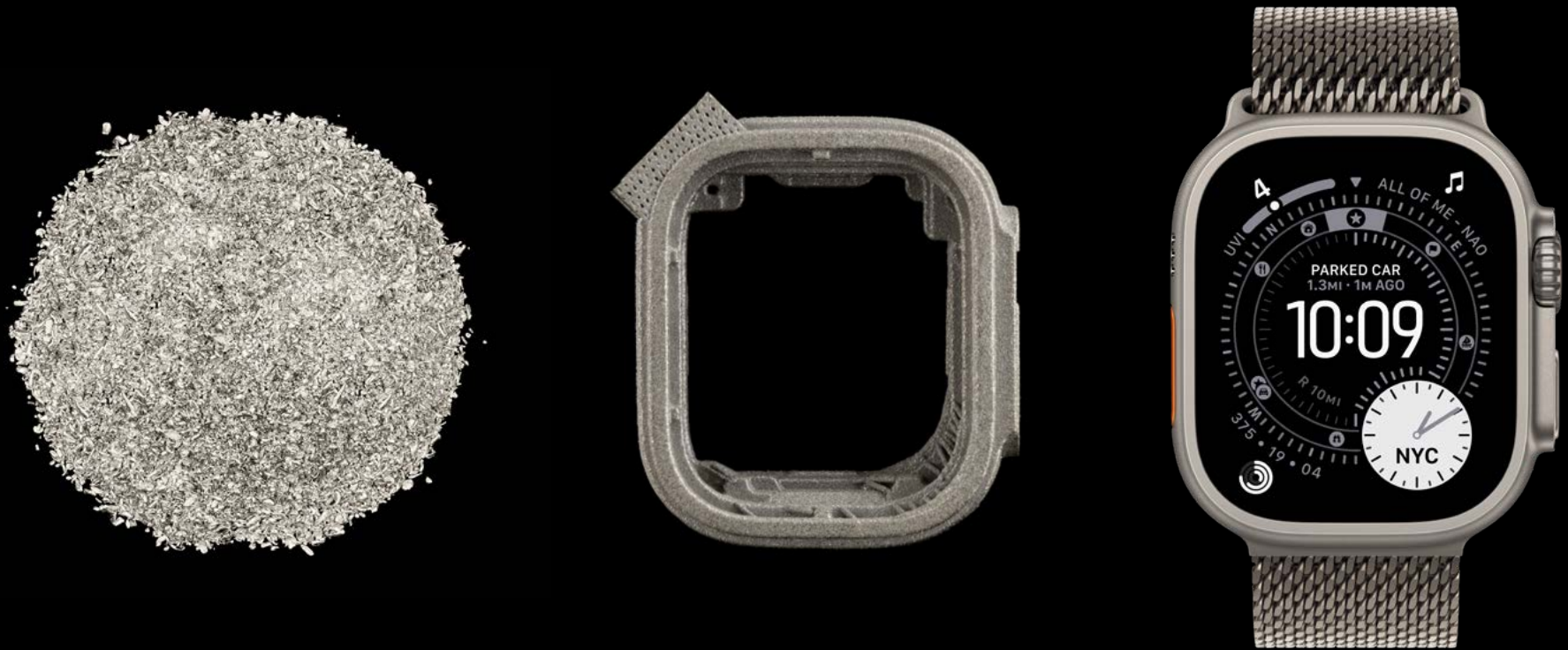
ACHIEVED

100%

Recycled rare earth elements in all magnets

Hot off the press

A novel idea transformed a prototyping approach, 3D printing, into a breakthrough production process that yielded significant savings in raw materials. This year, all Apple Watch Ultra 3 and titanium Apple Watch Series 11 cases were 3D-printed with 100 percent recycled aerospace-grade titanium powder, achieving more than 400 metric tons in raw titanium savings in 2025 and 50 percent less raw material used than the previous generation.



Prioritizing our efforts

We’re making progress toward our goal of sourcing only recycled and renewable materials for our products: In 2025, 30 percent of the materials contained in products shipped came from recycled or renewable sources.²⁰

We’ve focused our efforts on 15 priority materials based on a broad range of potential environmental, social, and supply chain impacts. Each is outlined in detail in our [Material Impact Profiles](#) white paper.²¹ Our priority materials consist of aluminum, cobalt, copper, glass, gold, lithium, paper, plastics, rare earth elements, steel, tantalum, tin, titanium, tungsten, and zinc, and they account for more than 85 percent of the total product mass shipped to our customers in 2025.

Maintaining our standards for recycled and renewable materials is essential to our journey to create a circular supply chain. Our requirements are conformant with the definitions in ISO 14021, and responsible resource management. By requiring certification to these standards, we’re able to

confirm that a material has been recycled or comes from a renewable resource — one that is managed for continual production without depleting the Earth’s natural resources. Total recycled content numbers also include supplier-reported recycled content validated by Apple. And, we hold all recycled and renewable materials to the same high standards for safety as we do for all materials, evaluating each one for the safety of the material’s chemistry. This process allows us to scale our use of materials that are safer for use in our products.

Barriers to our progress remain, but through collaboration across the value chain, we can achieve impact felt beyond our business. This work serves more than just our product needs — it helps promote the availability of competitively priced, quality recycled and renewable materials across geographies.

READ MORE

[Material Impact Profiles white paper](#)

Unlocking circular supply chains



TECHNICAL PROPERTIES

While many recycled or renewable materials have indistinguishable technical properties, some may differ from the conventional material. This needs to be accounted for during product design and manufacturing, and we innovate to avoid compromising. The composition of other recycled materials can also be impacted by some level of contamination during the recycling process.



AVAILABILITY AND ACCESS

The supply of recycled and renewable materials can be constrained by the limited availability of recoverable material or production of renewable content. When supply exists in some locations around the world, new suppliers need to be incorporated into supply chains for the material to be accessed. Technological limitations in recovering materials from complex waste streams can pose challenges to efficiency and effectiveness.



SUPPLY CHAINS

Recycled or renewable content may not be easily accessible on the market, requiring the development of new supply chains.



TRACEABILITY

Information about the source of materials — whether mined, recycled, or renewable — might not be readily available.



SCALE

A single component can utilize materials from hundreds of different suppliers, requiring exponentially more effort as we scale the use of high-quality recycled or renewable materials across components and products.



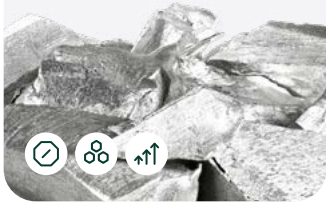
REGULATORY BARRIERS

Transboundary movement regulations — created to establish critically important protections for people and the environment — can have the unintended consequence of inhibiting material recovery and movement to recyclers or refiners for material recovery and use in new products. Apple supports the U.S. ratification of the Basel Convention to better support recycling and recovery.

Progress across our 15 priority materials

ALUMINUM

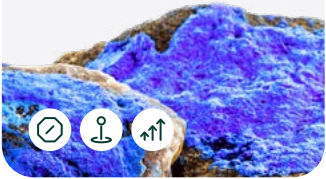
In 2025, more than 70 percent of the aluminum we shipped in products to customers came from recycled sources.





COBALT

We accomplished our goal to use 100 percent recycled cobalt in all Apple-designed batteries, bringing our total use of recycled cobalt to 95 percent across all products shipped in 2025.²²





COPPER

In 2025, more than 20 percent of the copper we shipped in products to customers came from recycled sources.





GLASS

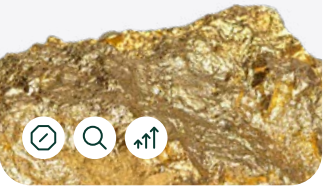
We used 40 percent recycled glass in the display glass of Apple Watch Series 11 and Apple Watch SE 3 recovered from post-industrial material, including iPhone scrap.





GOLD

We accomplished our goal to use 100 percent recycled gold plating in all Apple-designed printed circuit boards.²³





LITHIUM

In 2025, more than 90 percent of the lithium we shipped in products to customers came from recycled sources.





PAPER

We accomplished our goal to remove plastics from our packaging by the end of 2025 and now ship all new products in 100 percent fiber-based packaging.²⁴



PLASTICS

We used 65 percent recycled plastic in the MagSafe Charging Case of AirPods Pro 3.





RARE EARTH ELEMENTS

We met our goal to use 100 percent recycled rare earth elements (REE) in all magnets, bringing our total use of recycled REE to 95 percent across all products shipped in 2025.²⁵





STEEL

In 2025, more than 20 percent of the steel we shipped in products to customers came from recycled sources.





TANTALUM

We continue our efforts to source 100 percent recycled tantalum and are actively investigating recovery solutions from end-of-life electronics to expand the availability of recycled tantalum.





TIN

We accomplished our goal to use 100 percent recycled tin solder in all Apple-designed printed circuit boards.²⁶





TITANIUM

In 2025, we introduced Apple Watch Series 11 and Apple Watch Ultra 3, which contain 100 percent recycled titanium in their cases.





TUNGSTEN

In 2025, more than 95 percent of the tungsten we shipped in products to customers came from recycled sources.





ZINC

Mac Studio contains 100 percent recycled zinc in the prongs of the power cord and AC inlet prongs.





CHALLENGES

 Technical properties

 Availability and access

 Traceability

 Scale

 Regulatory barriers

 Supply chains

Maximizing the potential of post-industrial and post-consumer materials

Compared to primary materials, recycled materials generally contain lower embodied GHG emissions and cause fewer adverse environmental and societal impacts. As a result, integrating recycled materials into products has become one of the most important means of decarbonization at Apple. While we are increasing our use of recycled materials, considerable work remains to expand and scale these efforts. And we believe that both post-consumer (PC) and post-industrial (PI) sources are critical to this work.

Consumer electronics manufacturing processes, such as component machining and module assembly, integrate dozens of materials into small components for various functionalities. To achieve product reliability and performance, manufacturers often use techniques that combine dissimilar materials which generate mixed PI scrap. And since many manufacturers, including Apple, use their own aluminum alloy with specific composition ranges due to casting requirements and material properties, the available PC scrap from other manufacturers is not homogeneous enough for direct use without treatment. Apple has assessed that no more than 15 percent by weight of carefully sourced PC scrap can be utilized in manufacturing, whereas up to 100 percent of PI scrap can be used in aluminum alloy today.

To avoid downcycling, cleaning and sorting technologies are needed for unsorted, multimaterial PI scrap. Without these technologies, manufacturers can't use PI scrap in original material applications and may be forced to source primary material with higher embodied GHG emissions.

We saw opportunity for the recovery of rare earth elements that may otherwise be lost and valuable aluminum alloys that are often downcycled. To address this, we created an automated system that is able to remove magnets from audio modules intact. This process recovers approximately 13 metric tons of rare earth elements annually, avoiding the mining of 880 metric tons of rock. In our aluminum supply chain, we tackled the challenge of utilizing contaminated computer numerical control (CNC) machining scrap. By piloting a multi-stage purification system using electrostatic separation, we were able to transform mixed scrap into more than 99 percent pure aluminum feedstock. This process prevented downcycling into cast aluminum alloys with lower strength and ductility than required for our material specifications, enabling aluminum that would otherwise be forever removed from the supply chain to be used in Apple products.

As we develop innovations in recovering important materials from PI waste, we can apply those processes to PC waste to further advance sorting technologies, which can be shared across industries to achieve scalable impacts. As policymakers set and define the rules for recycled content targets, both PC and PI scrap should be incentivized equally.

To meet our environmental goals, it's imperative to maximize the potential of both post-industrial and post-consumer scrap streams.



Responsible sourcing of materials

We require our suppliers to responsibly source both primary and recycled materials. Our [Responsible Sourcing of Primary, Recycled, and Renewable Materials Standard](#) is based on leading international guidance, including the United Nations Guiding Principles on Business and Human Rights and the Organization for Economic Co-operation and Development (OECD) Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas. One hundred percent of tin, tungsten, tantalum, gold, cobalt, and lithium smelters and refiners identified in Apple’s supply chain are required to participate in an independent third-party audit annually. If smelters/refiners are unable or unwilling to meet our standards, we take necessary actions, through our suppliers, to terminate the applicable business relationships.

We require our suppliers to review reported incidents and public allegations involving their materials’ supply chains, and to mitigate identified risks. In addition, suppliers must use or source key materials in our supply chain only from smelters, refiners, and recyclers who have completed, or demonstrated progress toward completion of, third-party audits. We also map the smelters and refiners suppliers use for other materials in our products — such as mica, copper, graphite, and nickel — and we evaluate suppliers’ supply chain due diligence for compliance with our requirements. As we build supply chains for recycled materials, we partner with the smelters and refiners that are able to meet and maintain our standards.

READ MORE
[People and Environment in Our Supply Chain Annual Update](#)

Industry collaboration

We continue to drive progress in our broader industry through multiple initiatives. For example, we worked directly with the World Business Council for Sustainable Development (WBCSD) to create the Critical Materials Collective, a cross-industry partnership working to realize the opportunity of circularity to help meet overall critical material demand through pilots that can be replicated and scaled. This initiative is focused on demonstrating action, starting with a focus on supply chain solutions and materials that have immediate policy, investment, and collaboration opportunities: aluminum, rare earth elements, and copper. We’re also on the steering committee of the Responsible Minerals Initiative (RMI) — one of the most commonly engaged associations for companies working to source minerals responsibly in their supply chains. We’re a supporter of the First Movers Coalition for Aluminum, whose focus is to aggregate demand signals for low-carbon technologies and materials.

Integrated circuits are at the core of technology products and have been carbon intensive to create. We’ve prioritized improving the carbon footprint of integrated circuits and continued our work with the sustainable semiconductor technologies and systems research program of imec, a world-leading research and innovation hub in nanoelectronics and digital technologies in Belgium. We have two goals in this collaboration: to improve the carbon footprint models associated with leading nodes of integrated circuit production, and to use these models to identify carbon reduction opportunities for the entire integrated circuits industry. We aim to apply similar carbon footprint model improvements to other components to support our Apple 2030 journey.

Using recycled and renewable materials helps lower our carbon footprint, moving us closer to our climate goals. To fulfill the transition to these materials, we’re working with policymakers to support international standards that enable the use of these materials globally.

Improving material and manufacturing efficiency

Making our manufacturing processes more efficient creates less waste and helps us make the most of the materials that we use. We’re also working to design our products and packaging so that they require less material, helping reduce emissions from transporting and processing materials.

In 2025, we adapted a process typically used for prototyping — 3D printing — to manufacture the titanium cases of Apple Watch Ultra 3 and Apple Watch Series 11.

This innovation met our rigorous standards for functionality, beauty, and durability, with the scalability to meet our production needs. This process, which uses 100 percent aerospace-grade recycled titanium powder, is additive; layer after layer is printed to create the final shape of the component. Previous processes involved machining forged components, a subtractive method that generates shavings. This new approach enables us to manufacture Apple Watch Ultra 3 and the titanium cases of Apple Watch Series 11 using half the raw material compared with their previous generations.



Achieving a new vision for packaging

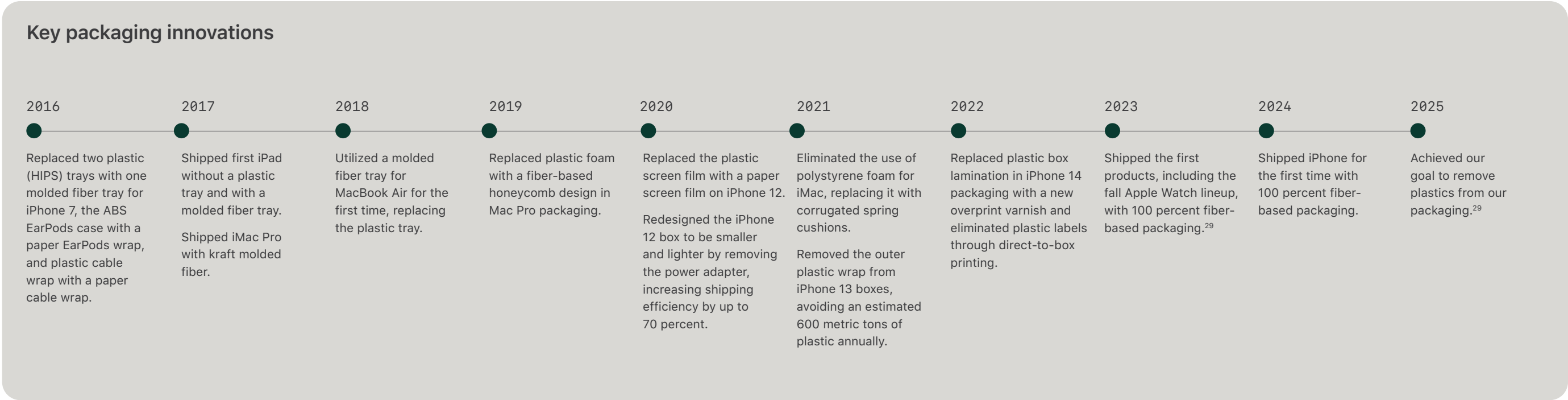
Nearly 10 years ago, we pledged to eliminate plastic waste. As part of our pledge, we set the goal to remove plastic from our packaging by 2025, which has the additional benefit of improving the recyclability of our packaging. After a decade of innovative work, we’ve met our commitment. This year, each new Apple product shipped will come in 100 percent fiber-based packaging.²⁷

To meet our commitment, our designers and engineers developed packaging innovations that utilize fiber-based alternatives for each component — from replacing foam cushioning with molded fiber structures and corrugate spring cushions for our Mac computers to removing the outer plastic wrap from iPhone boxes. The alternative components are recyclable and sourced from recycled materials or responsibly managed forests as defined in our [Responsible Fiber Specification](#).

Our teams also supported the transition to fiber-based packaging alternatives among our vendors. And second- and third-party vendors have removed plastic from their packaging, enabling them to deliver fiber-based packaging to their customers across retail categories.

Over the past decade, governing bodies around the world have regulated single-use plastics, including those used in packaging. Our proactive approach to seeking plastic alternatives has positioned us and many of our suppliers to meet emerging regulatory requirements.

The impact of this work is measurable. In the past five years alone, we’ve avoided the use of more than 15,000 metric tons of plastic, the equivalent of approximately 500 million plastic water bottles.²⁸ The majority of the materials we’ve used in its place contribute to circular supply chains, as well. As we develop our packaging, we’ll continue to utilize both recycled and renewable materials, guided by the priority to make the best use of resources.





Powered by progress

MacBook Neo has the highest recycled content and lowest carbon footprint of our MacBook computers. The forming process used to create the enclosure reduces aluminum by 50 percent compared to traditional machining processes. The anodizing process, which creates a protective layer and allows for its distinctive colors, achieves a 70 percent water reuse rate. Its Apple silicon processor provides high-performance and enables passive cooling, which minimizes the need for openings, protecting the device from liquid ingress and supporting product durability. MacBook Neo is also designed for simpler repairs, prioritizing screws over adhesives, and is assembled with side-by-side components for easier access.

READ MORE
[Product Environmental Report](#)

Electricity

We prioritize energy efficiency in each stage of our work, from initial design through manufacturing and beyond. Achieving maximum efficiency across our footprint is essential to meeting our 2030 carbon neutrality goal. We’ve achieved 100 percent clean electricity across our operations, and we’re working toward the same for our manufacturing supply chain and use of Apple products. By using clean electricity in place of fossil fuels, we’re contributing to cleaner air and lowering greenhouse gas emissions.

Energy efficiency and renewable electricity address emissions from:



Product use
(Scope 3)

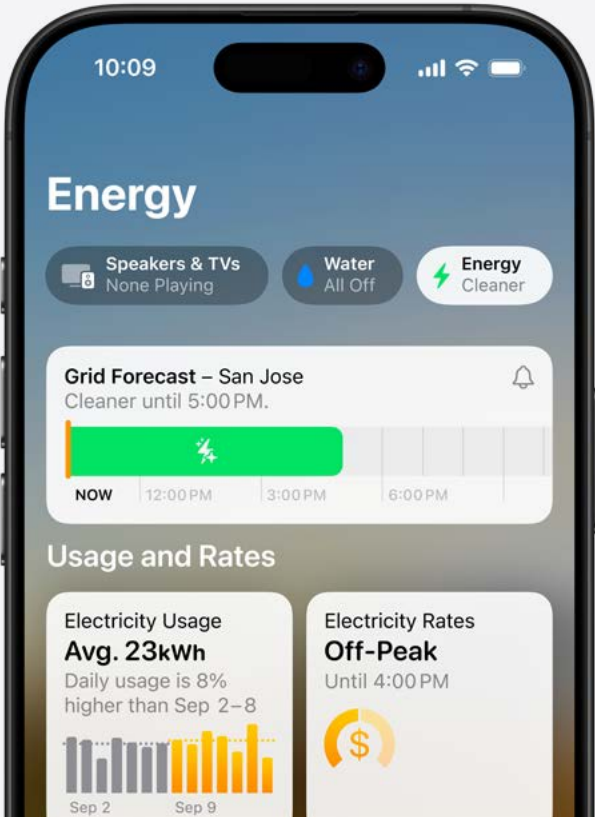


Indirect emissions
(Scope 2)



Product manufacturing
(Scope 3)

We launched EnergyKit in the contiguous U.S., a framework for developers to enable Clean Energy Guidance for devices like EVs and smart thermostats, automatically shifting usage to times when cleaner electricity is available.



In 2025, more than 20 gigawatts of renewable energy procured by suppliers and online in Apple’s supply chain generated more than 38 million megawatt-hours of clean energy.



We avoided more than 2 million metric tons of carbon dioxide, with more than 240 supplier facilities participating in our Supplier Energy Efficiency Program.



Operating Apple facilities efficiently

We source 100 percent renewable electricity for all of our data centers, retail stores, and offices, and we remain focused on implementing energy reduction measures across our facilities. We assess natural gas and electricity usage at each of these site types — as well as research and development facilities — auditing how we perform and using best practices for energy management to reduce our loads. And we design our new buildings around occupants’ and lab users’ specific needs, enabling us to use our facilities efficiently and productively.

ENABLING APPLE INTELLIGENCE

Many Apple Intelligence features run entirely on-device using the power of Apple silicon — reducing the need for cloud computing. For user requests that need even larger models, we’ve created Private Cloud Compute hosted on Apple silicon servers at our data centers that source 100 percent renewable energy. Our unique integration of hardware and software enables energy and power efficiency at every step — from the performance and efficiency of Apple silicon to the power management software features derived from iOS, which runs on these servers. And we’re optimizing inference execution and using the unique properties of Apple silicon to achieve greater efficiency.

Measuring our progress

Measurement is critical to maintaining building energy performance. In the U.S., we have a well-developed system of energy tracking and benchmarking, which includes data from utility meters that continuously monitor 15-minute electricity and daily natural gas energy consumption. This method helps us identify opportunities for performance improvement and actively manage our energy footprint.

In 2025, our energy efficiency program avoided more than 26 million kilowatt-hours of electricity, which includes savings from efficient servers, and more than 438,000 therms of natural gas through adjustments made to 5 million square feet of new and existing buildings.³⁰ Together, these recent initiatives will avoid an additional 13,000 metric tons of CO₂e per year. Combined with ongoing energy savings from past years, and accounting for the effective useful lifetime of legacy savings, we saved more than 100,000 metric tons of CO₂e in 2025.³¹

Apple facilities

EXISTING BUILDINGS

We’re driving significant energy savings across our global footprint by optimizing the buildings Apple already operates, including energy-intensive facilities like data centers. Through comprehensive performance audits, we identify and deploy targeted efficiency measures worldwide. A core part of this strategy is retrocommissioning — upgrading building controls to maximize operational efficiency and reduce overall energy consumption. Additionally, we’re accelerating our transition away from fossil fuels. By rigorously benchmarking our most gas-intensive buildings, we’re actively identifying opportunities to reduce natural gas usage and replace legacy equipment with efficient electric alternatives.

RETAIL STORES

We continue to prioritize energy efficiency and develop comprehensive energy models for stores as we work to align our design with our energy efficiency targets. We’ve also decarbonized even further by electrifying where possible.

DATA CENTERS

Data centers are traditionally energy intensive, requiring significant resources to cool heat-generating servers and IT equipment. That’s why we’re continuously monitoring and improving the controls for our cooling systems. This retrospective view often enables us to increase the cooling capacity of our existing facilities, thereby maximizing the number of servers within our data center footprint. In 2025, we continued to see energy savings at our data centers. A proprietary server design focused on energy and computing efficiency results in an additional 10 million kilowatt-hours per year in energy savings.

NEW FACILITIES

When designing new facilities or renovating existing facilities, we evaluate each major system as we manage our energy footprint. We select LED fixtures and install sensors and photocells to reduce light levels based on occupancy and the level of natural daylight. We install high-efficiency heating and cooling systems and transformers to reduce energy consumption from our plug loads. We pay special attention to design safe, productive spaces, while still prioritizing energy savings. We also prioritize energy efficiency in the process systems used in our R&D spaces, such as variable air-volume fume hoods and variable-speed compressed dry air systems.

Improving energy efficiency in our supply chain

To address the carbon impact associated with manufacturing Apple products, we collaborate closely with our suppliers to prioritize energy reductions. Together, we work to use energy as efficiently as possible across our supply chain, supporting the creation of more efficient factories all over the world. The Supplier Energy Efficiency Program, launched in 2015, helps our suppliers optimize their energy use.

We provide technical and planning support to suppliers as they build more energy-efficient systems and help them recognize optimization opportunities and identify solutions through energy assessments. To assist with implementation, we connect suppliers to extensive education and training opportunities — including technical assistance resources — and help them access external funding for energy efficiency projects.

Our suppliers have successfully implemented a range of energy efficiency projects, from installing light sensors and implementing free cooling systems to making boiler and HVAC system energy improvements.

In 2025, more than 240 supplier facilities participated in our Supplier Energy Efficiency Program, achieving more than 2.8 billion kilowatt-hours of electricity savings and more than 2.8 million MMBtu in additional energy savings. Together, we estimate that this avoided more than 2 million metric tons of CO₂, representing an increase of over 20 percent in savings since 2024.



Clean electricity

Maintaining 100 percent renewable electricity for Apple facilities

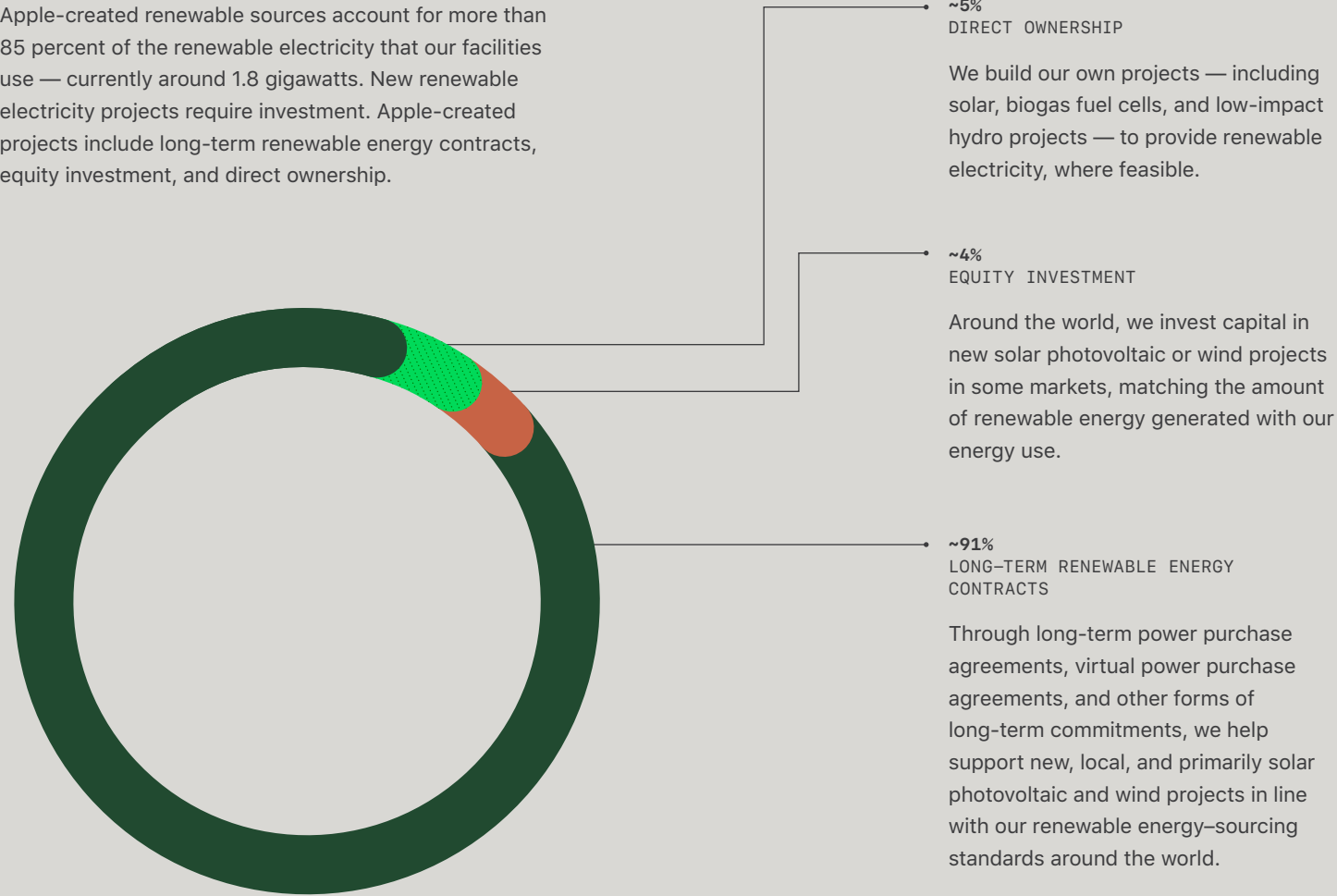
Our retail stores, data centers, R&D facilities, and offices around the world currently source 100 percent renewable electricity. We’ve focused our efforts to source renewables around several key pillars:

- Creating new renewable energy projects
- Undertaking projects that deliver benefits to local communities
- Supporting renewable energy innovations

To address gaps in our renewable energy needs beyond what’s provided by Apple-created projects, we directly purchase renewable electricity through available utility green energy programs — about 5 percent of our total corporate load in 2025. Colocation and distribution facility vendors supply about 2 percent of our total load of renewable energy. And in certain situations, we purchase renewable energy certificates (RECs), which in 2025 accounted for about 5 percent of our total load.³² When possible, we aim for our RECs to share the same power grid as the Apple facility they support. [Appendix A](#) provides additional details on Apple’s renewable energy solutions.

Apple-created projects

Apple-created renewable sources account for more than 85 percent of the renewable electricity that our facilities use — currently around 1.8 gigawatts. New renewable electricity projects require investment. Apple-created projects include long-term renewable energy contracts, equity investment, and direct ownership.



Transitioning our suppliers to renewable electricity

The largest single source of greenhouse gas emissions throughout our supply chain results from electricity that our manufacturing suppliers use. That’s why transitioning our entire supply chain to 100 percent renewable electricity is essential to reaching our 2030 carbon neutrality goal.

Our Supplier Clean Energy Program (CEP) helps enable suppliers’ transition to renewable electricity by advocating for policy changes, providing information and access to renewable energy procurement options, and creating engagement opportunities with renewable energy experts. By engaging in this program, our suppliers can implement best practices in advocating for and procuring renewable energy across their corporate operations, including those associated with Apple production. The program also equips them to share lessons learned with other partners throughout their value chains, extending benefits beyond the scope of Apple.

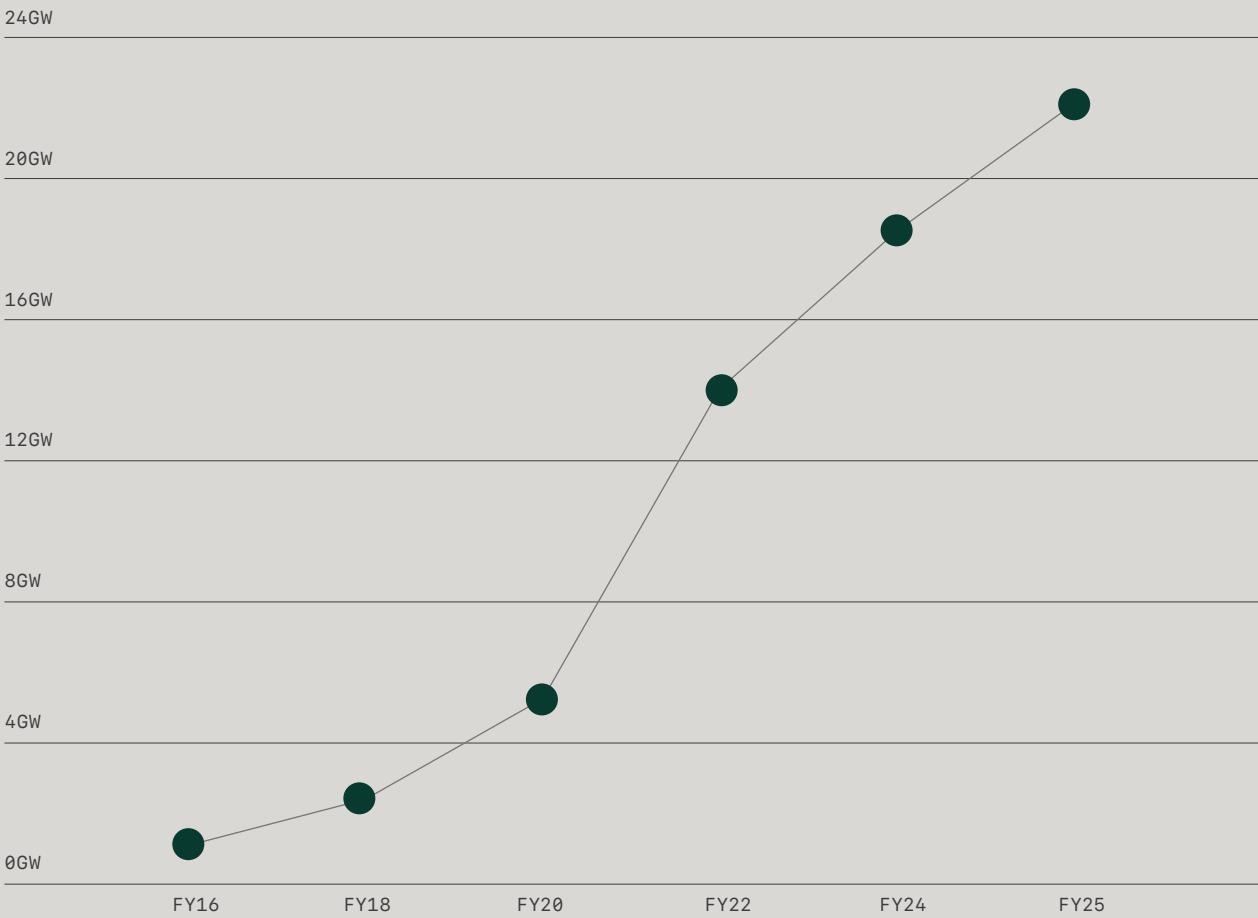
To rapidly scale and accelerate progress to Apple 2030, the [Apple Supplier Code of Conduct](#) requires our entire direct manufacturing supply chain to use 100 percent renewable electricity for all Apple production before 2030. In 2025, more than 20 gigawatts of renewable energy procured by suppliers and online in Apple’s supply chain generated more than 38 million megawatt-hours of clean energy, avoiding more than 26 million metric tons of greenhouse gas emissions.

How suppliers are responding

To transition to 100 percent renewable electricity, suppliers are using new purchasing methods, creating renewable energy businesses, and even participating in some of the world’s largest and most innovative renewable energy deals. Suppliers are also adapting to changing renewable energy markets by finding new solutions, including first-of-their-kind procurement structures in geographies that are introducing more corporate procurement options.

In China, renewable power purchase agreements are launching, and the Green Power Trading program is expanding. South Korea continues to expand options for green power, including power purchase agreements. Japan has introduced virtual and physical power purchase agreements. While we’ve seen progress in key markets, cost-effective procurement remains challenging, and we continue to advocate for policies that enable renewable energy to compete fairly with fossil fuels and subsidized power rates, opening more avenues for our suppliers to transition to sourcing 100 percent renewable electricity (see [page 30](#)).

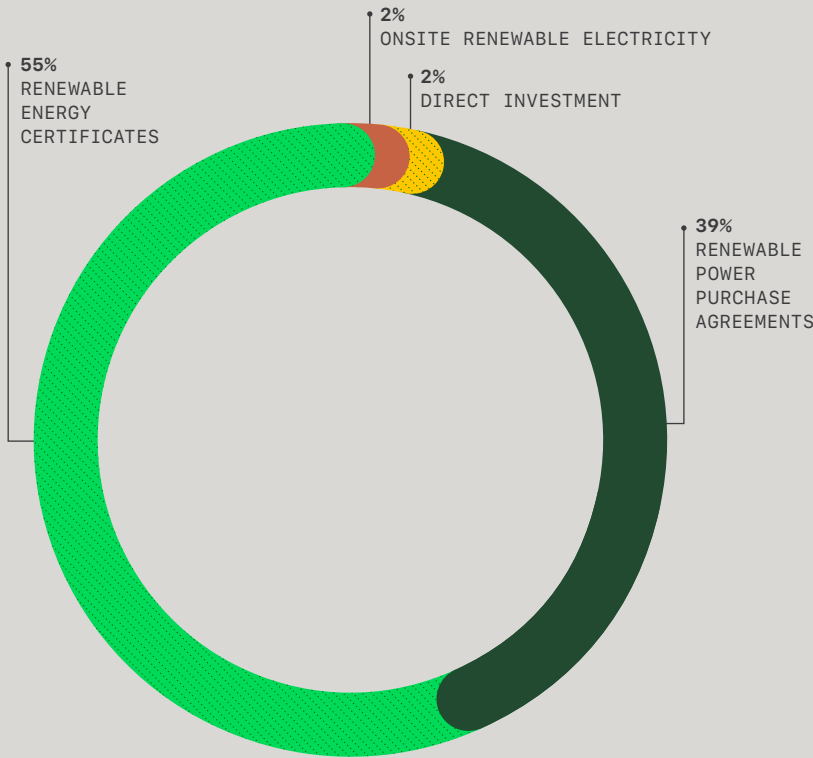
Supply chain clean energy progress in gigawatts



Supplier renewable energy

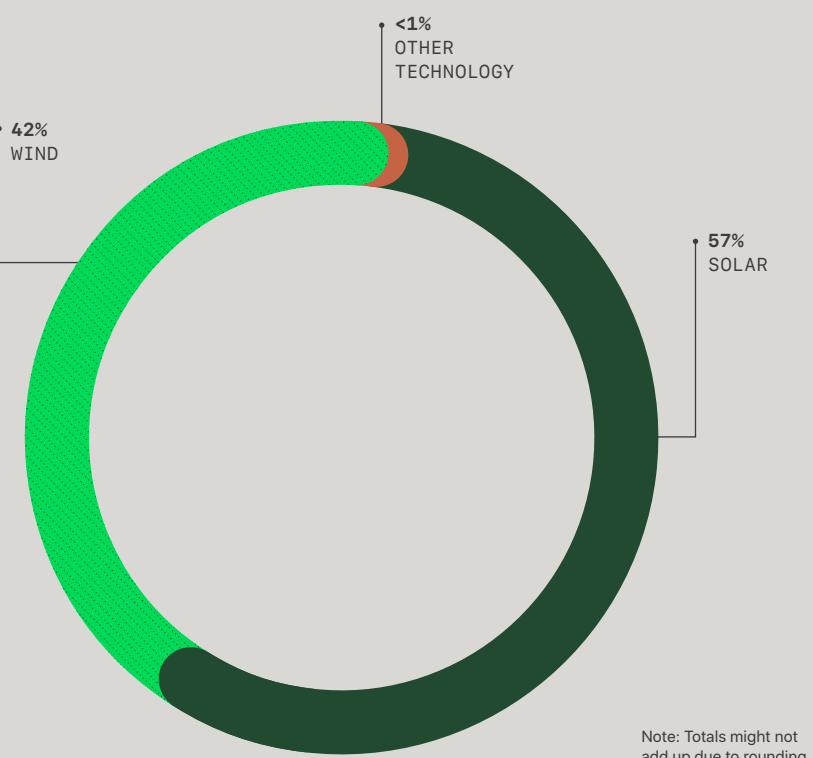
PROCUREMENT MECHANISMS

Our suppliers are implementing clean energy solutions using a variety of contracting mechanisms. In 2025, suppliers relied mostly on renewable energy certificates (RECs) to meet their CEP commitments, largely due to the expansion of China’s Green Electricity Certificate (GEC) system and the recognition of GECs as a primary instrument for tracking renewable energy consumption. We view the strategic use of well-designed REC programs as an important interim solution to longer-term procurement options like green tariffs or power purchase agreements (PPAs), which are becoming increasingly available across the globe. And we’re working closely with our supply chain on their longer-term transitions.



TECHNOLOGIES

We work with our suppliers to select projects with the greatest potential for impact and with a clear carbon, ecological, and social benefit. “Other technology” includes clean energy sources such as some forms of sustainable biomass, geothermal, and small-scale, low-impact hydro.³³



Note: Totals might not add up due to rounding.

Supporting supplier capacity

We’ve scaled the Supplier Clean Energy Program, working with teams across Apple in supplier engagement. We empower these employees with the tools to help speed a supplier’s transition to 100 percent renewable electricity. Data and transparency drive this process. We track the electricity use and renewable procurement of all our direct suppliers. By connecting our suppliers with resources and providing transparency on their supplier progress, our teams are scaling impact across our supply chain.

We’ve also continued to develop internal trainings and an engagement process for Apple employees and suppliers. We share the knowledge we’ve gained through our transition to 100 percent renewable energy with our suppliers, supplementing their efforts to identify and pursue opportunities to decarbonize as their businesses evolve. For this reason, we invest in education and training across our supply chain through platforms such as our Clean Energy Academy, which includes advanced and customized trainings and workshops with leading experts.

The Academy offers updates on available energy procurement options in suppliers’ markets, helps suppliers prepare to participate in upcoming renewable energy pilots, and provides implementation guidance from local experts. This program supplements our Clean Energy Portal, available to all supplier facilities, which provides training materials, resources, and country-specific information to guide suppliers in their transition to 100 percent renewable electricity.

We’ve continued to support the creation of a first-of-its-kind public training platform that will be available to businesses across many different industries, giving companies of all sizes — in Apple’s supply chain and beyond — access to the resources and advocacy networks we’ve cultivated for nearly a decade. We’ve partnered with the Clean Energy Buyers Institute (CEBI) and other corporations to launch the inaugural Clean Energy Procurement Academy — a shared training curriculum and delivery process — which has begun hosting workshops in key markets to equip companies with the technical readiness to advance clean energy procurement, address scope 3 emissions, and decarbonize global supply chains.

Additionally, we support the creation and growth of renewable energy industry associations that include buyers, and that our suppliers can join to learn about local opportunities, such as the Asia Clean Energy Coalition (ACEC) and Clean Energy Buyers Association (CEBA).

Expanding access to renewable electricity

To support our suppliers’ transition to renewable electricity, we help them find solutions so they can decide how best to address their specific needs.

- **China Clean Energy:** In 2025, with Apple’s help CICC Capital and Huaneng Investment formed an Apple supplier-led investment fund of more than \$150 million to invest in wind and solar power generation projects in China. The China Renewable Power Infrastructure LPF aims to add 1 million megawatt-hours to China’s grid by 2030. Like our two China Clean Energy Funds, this supplier-led fund will finance renewable energy projects in China, including those in the early stages of development.
- **Power purchase agreements (PPAs):** We continue to support the global development of high-quality programs for generating and trading renewable energy certificates. We also connect suppliers with opportunities to buy renewable energy directly from project developers and utilities as those models emerge around the globe.
- **Direct investments:** To cover emissions from suppliers we don’t contract with directly, we invest in additional renewable electricity projects.

Advocating for policy change

We engage with policymakers to support renewable energy that’s cost-effective, accessible to companies, and sourced from high-quality projects with a benefit to local markets. These efforts include encouraging governments not to subsidize or expand carbon-intensive infrastructure. We also encourage them to keep pace with the speed of technological innovation, consider the life cycle emissions of energy solutions, and support new energy solutions that effectively reduce global emissions. Additionally, we support government efforts in beneficial electrification and the build-out of necessary transmission infrastructure, all while considering cost-effectiveness. Public investments in decarbonization should be properly supported by funds generated from establishing a price on carbon pollution.

Collaborating with groups like the Asia Clean Energy Coalition and RE100 — which bring together influential businesses through commitments to use renewable electricity — we’ve identified country-level policy barriers to procuring renewable electricity. In Japan and South Korea, for example, we collaborated with other renewable energy users and called for enhancing the transparency in renewable energy certificates and increasing the supply of renewable energy.



Product use

Our emissions strategy is centered on the following four pillars:



IMPROVING PRODUCT-LEVEL ENERGY EFFICIENCY

Innovations in software and hardware that optimize and reduce energy use.



ENGAGING WITH OUR CUSTOMERS

Software features to educate and provide opportunities to support decarbonizing the grid.



SUPPORTING RENEWABLE ELECTRICITY PROJECTS GLOBALLY

Projects that aim to avoid as much carbon as charging and powering our devices emit.



CONTINUING TO ADVOCATE FOR ENERGY POLICIES

Advocacy to expedite the development and use of renewable energy around the world — critical for both our 2030 goal and for avoiding the worst impacts of climate change.

Driving product energy efficiency

We work to improve our products’ energy efficiency in the earliest phases of design, taking a holistic view of each product — from how efficiently the software operates to the power requirements of individual components. Apple products are consistently rated by ENERGY STAR, which sets specifications that reflect the 25 percent most energy-efficient devices on the market. In 2025, all eligible Apple products continued to receive an ENERGY STAR rating for energy efficiency.³⁴ [Read more about our efforts in our Product Use Electricity Strategy white paper.](#)

Clean energy projects

One of the most meaningful ways to decarbonize the global electricity system between now and 2030 is to support the development of new renewable energy generation. Our goal is to match 100 percent of our product energy use in gigawatt-hours (GWh) with clean energy, aiming to avoid as much carbon as charging and powering our devices emit. We plan to source 75 percent of renewable electricity from within the three broad geographic regions where the majority of our devices are sold — the U.S., Europe, and Asia Pacific — and

we’re maintaining geographic flexibility for the remaining emissions to maximize carbon impact. In 2025, we expanded our development of renewable energy in Europe through large-scale wind and solar projects with 650 megawatts of renewable energy capacity announced. And in Australia, we began construction of a solar project in Lancaster, Victoria, part of a portfolio of renewable energy projects in the country projected to provide 1 million megawatt-hours of clean electricity.

It has become increasingly clear that grid carbon intensity varies around the world, and we have the ability to prioritize the creation of projects that deliver even greater carbon impact than a strictly regional approach would provide. As best practices for addressing product use emissions take shape, we’re working to identify ways that we match our product energy use in megawatt-hours with clean energy, while additionally optimizing the carbon savings to help shape best practices for our industry.



Engaging with our customers

In addition to investing in renewables, we’re building features to make it easier for customers to access, understand, and make informed decisions about their overall home electricity usage.

In 2025, we introduced EnergyKit in the contiguous U.S., a framework that features Clean Energy Guidance, enabling users to optimize home energy usage. Clean Energy Guidance provides grid forecasts to help users choose when to use electricity by identifying times when there’s relatively cleaner electricity on their local grid. Utilizing the data sources that power Grid Forecast and Clean Energy Charging on iPhone, Clean Energy Guidance provides forecasts that are personalized for each user’s home location and are based on various environmental and grid inputs. Users’ electricity rate plan information is also incorporated when they’ve connected to their utility account in the Home app and are on a time-of-use rate plan. To learn more, visit our [developer page](#).

Our work in 2025 is a continuation of our prior commitment to enabling customers to efficiently use electricity. In 2024, we made the Energy category within the Home app more personal and actionable by integrating customers’ home electricity usage directly into the experience. Pacific Gas and Electric Company (PG&E) customers across Northern and Central California can connect their utility account to the Home app to view their electricity usage, access rate plan information, and explore trends. Rooftop solar customers can see when they used electricity from the grid — and when they sent it back. To learn more, visit our [support page](#).

Grid Forecast, another Home app feature that launched in the contiguous U.S. in 2023, allows customers to see times of day when electricity from relatively cleaner sources is available on the grid. Customers can help reduce emissions generated when powering their devices in the home. To learn more, visit our [support page](#).

Clean Energy Charging, which became available for iPhone in the contiguous U.S. in fall 2022, enables iPhone users to charge their devices at times of the day when the electric grid is relatively cleaner. And in 2025, we expanded Clean Energy Charging to iPhone and iPad demo devices in our retail and channel partner stores across the contiguous U.S. To learn more, visit our [support page](#).

Reaching communities across the globe with access to clean energy

Through Power for Impact, Apple supports more than 25 renewable energy projects in locations across Africa, Asia, and the Americas. Each enhances community access to clean energy, while enabling other critical needs including water, health, and employment.

The program, which we launched in 2019, funds renewable energy projects that are mutually beneficial — local communities and organizations get access to cost-effective energy, and we retain the environmental attributes of each project.



KATHMANDU INSTITUTE OF CHILD HEALTH

Nepal

The Kathmandu Institute of Child Health has served children throughout Nepal since 2017, working to improve health outcomes. We funded a 30-kilowatt rooftop solar system (with 28-kilowatt-hour storage capacity) to power the nonprofit hospital, while providing limited backup power to mitigate against frequent losses of power from the grid.



HUI MAHI'AI 'ĀINA

USA

Hui Mahi'ai 'Āina provides power to living facilities for Hawai'i residents who have previously experienced homelessness, including seniors, adults, and children. We provided power to residences with a 36-kilowatt rooftop solar system (with 513-kilowatt-hour storage capacity) for this community.



THE SOLAR VILLAGE PROJECT

India

The Solar Village Project delivers access to renewable energy for schools and medical clinics in regions with little to no power infrastructure. We supported the expansion of rooftop solar systems on these facilities, reducing energy costs and fostering environmental stewardship and sustainable development.

Direct GHG emissions

We address the direct emissions that result from the materials we use in our products, as well as how we manufacture and transport them. In some cases, these emissions can be significant, which is why we seek out technological solutions and supplier engagement to abate emissions at their source.

Direct emissions abatement addresses emissions from:

- 

Direct emissions
(Scope 1)
- 

Product transport
(Scope 3)
- 

Employee commute
(Scope 3)
- 

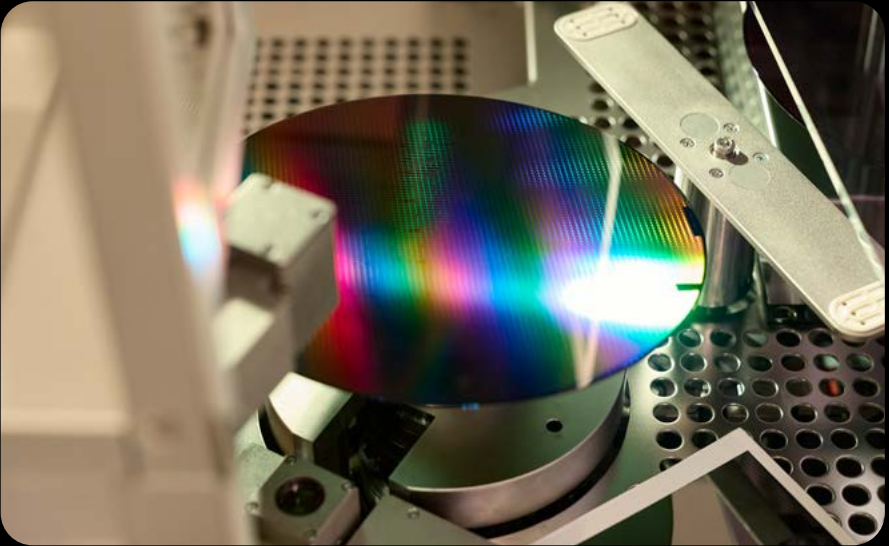
Business travel
(Scope 3)
- 

Product manufacturing
(Scope 3)

We ship 35 percent more iPhone 17 units per trip with smaller and more efficient packaging compared with the previous generation.*

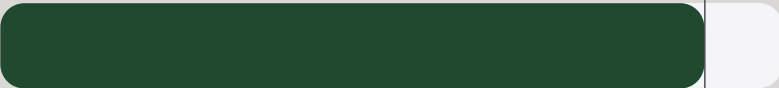


* Based on the number of 10-unit boxes that fit onto a pallet compared with iPhone 16. The following locations have different savings based on various pallet configurations: Andorra, Canada, Cyprus, Greece, Italy, Portugal, South Korea, Spain, Switzerland, and U.S.



All display suppliers committed to abating at least 90 percent of their facility F-GHG emissions by 2030.**

90%



** F-GHG abatement specification requires at least 90 percent abatement of total facility F-GHG emissions at facilities with Apple-related production.

Achieving material impact

Rethinking how aluminum is made

As part of Apple’s commitment to reduce our products’ environmental impact through innovation, we partnered with aluminum companies and the governments of Canada and Quebec to invest in ELYSIS. This joint venture aims to commercialize patented technology that eliminates direct greenhouse gas emissions from the traditional smelting process. We shipped iPhone SE devices that used ELYSIS aluminum in 2022, building on our 2019 purchase from the first-ever commercial batch of aluminum resulting from the joint venture. The commercial-purity aluminum in these products is the first to be manufactured without creating any direct greenhouse gas emissions during the smelting process. In late 2025, ELYSIS deployed the first implementation of a new commercial-size aluminum production process utilizing inert anode technology, moving closer to larger-scale, low-carbon aluminum production.

Addressing fluorinated greenhouse gas emissions

One of the largest contributors of direct emissions in our supply chain is the use of fluorinated greenhouse gases (F-GHGs). F-GHGs are notably used in the electronics manufacturing of semiconductors and flat-panel displays, and their global warming potential (GWP) is orders of magnitude higher than that of CO₂. We’re collaborating closely with our supply chain partners as they work to prevent these gases from being released into the atmosphere.

Since the launch of our engagement efforts in 2019, our largest manufacturers of displays and semiconductors have committed to a high standard of F-GHG abatement. We’re pushing these efforts forward by seeking commitments from these suppliers to abate at least 90 percent of these gases from their facilities with Apple-related production in support of our Apple 2030 goal.³⁵ And as of March 2026, 100 percent of our applicable display suppliers and over two dozen of our semiconductor suppliers with direct manufacturing for Apple have committed to these reductions.³⁶

Further, through engagement in sector-specific industry coalitions, we’re working to accelerate climate action across the whole semiconductor value chain. In 2025, we continued to partner with Semiconductor Climate Consortium (SCC) — an initiative of SEMI, the global industry trade association — to support initiatives across the semiconductor value chain to drive this work forward throughout the whole industry. As a member, we helped drive industry dialogue at key events like the Global Climate Summit Workshops in Singapore and



the Global Executive Summit in Tokyo. We’re also supporting the SCC’s Emissions Reporting Protocol working group to establish standardized data methodologies for calculating semiconductor carbon footprints, which aims to streamline supplier reporting and advance progress toward a low-carbon supply chain. Additionally, as a member of SEMI Energy Collaborative, we help accelerate the growth of renewable energy projects in key markets. Lastly, through our work with SCC’s Scope 1 Working Group, we’ve been directly involved in the creation and sharing of best practices related to minimizing fluorinated greenhouse gas emissions in the semiconductor industry.

Supporting supplier capacity

As we tackle direct emissions across our supply chain, we’re building out new educational materials and resources to help our suppliers decarbonize their direct emissions. This includes emissions from fuel combustion; heating, ventilation, and air conditioning (HVAC); refrigeration; fluorinated gases; and other physical or chemical processes. These sources vary widely and require the use of diverse technologies and solutions to abate. In 2025, we continued our virtual training series focused on reporting and abating scope 1 emissions.

Progress in motion

Transporting products

To support our Apple 2030 goal, we aim to reduce emissions from product transportation. To accomplish this, we adopt industry best practices and pursue reductions through innovation. Our strategy includes reducing the weight of shipments, maximizing shipment efficiency, optimizing shipments to the least carbon-intensive mode, and transitioning to lower-carbon fuels.

Our efforts to reduce shipment weight center on packaging and in-box content optimization. We design and develop lighter, more compact packaging to enable higher shipment density, which reduces overall transportation emissions and packaging material consumption.

Our latest products reflect this approach. For example, the compact packaging redesign of the AirPods Pro 3 box allows for 25 percent more units shipped per trip.³⁷ In addition, we redesigned packaging when shipping multiple products at once from our factories, making each shipment more efficient while using less cardboard. The new iPhone 17 packaging fits 35 percent more units on a pallet per trip compared with iPhone 16.³⁸

Shipment efficiency also helps reduce our emissions. We consolidate products from across our factories to facilitate more ocean shipping. And for Apple online store customers, we offer the option to consolidate orders with multiple products into fewer shipments for eligible product combinations.

Utilizing the lowest carbon mode for shipments — for example, ocean shipping when possible — also supports our goal. On average, ocean shipping results in at least 95 percent lower emissions than air transport.³⁹ Where full ocean transit isn’t possible due to transit time or route constraints, we began to combine ocean and air transport in a hybrid model in 2025. On select routes, this approach cuts emissions by over 35 percent compared with air-only shipping.

Technological advancements such as lower-carbon fuels hold additional promise for reducing emissions. Working with our suppliers and industry partners, we continue to explore technical innovations for transport, including alternative fuels and electric vehicles. We remain committed to exploring pathways for developing sustainable aviation fuel (SAF) through our engagement with the First Movers Coalition. We conducted a trial of the use of marine biofuels for select shipments, and we’ve continued to partner with carriers that use electric vehicles (EVs), such as trucks, e-bikes, and cars.

Improving employee travel and commute

We’re focused on finding new ways to reduce the carbon footprint from our employees commuting to work. For example, we’re helping our employees transition from single-occupancy vehicles to mass transit, coach services, and campus bicycles. To incentivize the use of electric vehicles, we provide more than 2,000 EV charging stations and over 4,000 ports across our U.S. campuses. For the commute-related emissions that remain, we’re applying offsets.



Nature and carbon

We’re advancing carbon market solutions, beginning with nature-based solutions that are available today, while exploring the solutions of the future aligned with a 1.5°C pathway. Science shows that limiting the planet’s warming will require both deeply decarbonizing global emissions over the next 30 years and significantly ramping up carbon removal to address the surplus carbon dioxide already in the atmosphere.

We’re pursuing opportunities to balance remaining emissions through the following efforts:



Aligning with science



Ensuring project quality



Achieving multiple benefits



Building scalable solutions



Carbon removal is essential to any strategy to address climate change — while working alongside efforts to decarbonize industry and protect and restore Earth’s ecosystems.



Nature and carbon

The need for carbon removal

The science is clear on the need to limit the planet’s warming in order to avoid the worst impacts of climate change. Carbon removal is essential to any strategy to address climate change — while working alongside efforts to decarbonize industry and protect and restore Earth’s ecosystems. We’re committed to becoming carbon neutral for our global footprint by 2030.

This is why we’ve made a commitment to scale carbon removal solutions, aligning our goals with the Intergovernmental Panel on Climate Change (IPCC), and pushing for more aggressive reductions where possible. We plan to reach our goal of becoming carbon neutral across our entire value chain by 2030 using a wide range of solutions at our disposal, prioritizing significant emissions reductions, and balancing residual emissions with credits from long-term carbon removal initiatives and other carbon projects. We started by reducing our corporate emissions through the use of 100 percent renewable electricity and energy efficiency efforts at our facilities. But some emissions remain difficult to avoid — including the emissions from business air travel and employee commute.

For the emissions we can’t yet avoid, we use carbon credits to offset these emissions. We’re intentional about identifying avoided emissions and removal projects that adhere to rigorous international standards. We often originate our own projects working with a reputable partner, like Conservation International, or we carefully select projects from third-party-certified registries. We support our suppliers in their own

decarbonization and carbon credit procurement processes. While we’ll increasingly require carbon removal credits over time, our suppliers can use avoided emissions projects.

Nature-based carbon solutions

Nature-based solutions are among the most scalable and economically viable opportunities to mitigate climate change between now and 2030. In addition to providing climate benefits, nature-based solutions can offer multiple social and environmental benefits, including enhanced employment and local livelihoods, improved biodiversity, soil carbon and nutrient cycling, and increased timber supply that can reduce the pressure on primary forests.

The IPCC lays out a range of options to remove carbon from the atmosphere. These approaches include existing climate solutions, such as afforestation and reforestation, and relatively new technologies, such as direct air capture (DAC) and ocean alkalization. We’re continuing to look at these technologies with a focus on impact and scalability.

Based on our review of different available technologies, we believe that nature-based solutions — including afforestation, reforestation, and revegetation (ARR) and soil carbon sequestration — currently offer the most comprehensive carbon removal approach. The science also calls for the conservation and protection of existing forests and other natural ecosystems to maintain global climate targets, and we support these efforts as part of our nature and carbon strategy.





Initiating a shift in investments in voluntary carbon markets

The current carbon markets are too small to deal with the scope of impact needed to remove tens of billions of metric tons of carbon by 2050 — and to meet the necessary carbon reductions as outlined by the IPCC. We’ve set out to improve the scale, quality, and capacity of these markets — and their appeal to investors — while initiating a shift in the potential of these markets to achieve an impact. We’re also aiming to build a pipeline of projects that meet or exceed carbon market standards and that can scale to meet the growing demand for nature-based removals.

In 2021, Apple partnered with Goldman Sachs and Conservation International to launch the Restore Fund — an innovative nature-based carbon removal investment strategy. In 2023, we doubled our commitment to nature-based restoration with a second fund in partnership with Climate Asset Management. The expanded fund targets two types of investments: regenerative agriculture and other ecosystem assets, and a pipeline of landscape restoration projects that aim to remove carbon from the atmosphere. Both of these funds aim to remove 1 million metric tons of carbon dioxide annually from the atmosphere at peak, as well as provide important benefits for local communities and protect and enhance biodiversity.

We developed the Restore Fund as a pilot to pursue nature-based carbon removal and bring investable solutions to scale. And as we continue to implement the Restore Fund, we’re also exploring how we can make nature-based removal more accessible.

Verifying projects to achieve high impact

Verifying the quality of projects is essential to achieving positive impact. We screen potential Restore Fund projects, conduct site visits, and perform due diligence with the managers prior to approval. We work to assess projects against strict quality standards by carrying out detailed assessments of the carbon impacts our investments can unlock and the additionality of project finance. After a project is approved, we continue assessing quality through validation and certification processes and ongoing audits, satellite-based monitoring enabled by Upstream Tech and Space Intelligence, and ground-based inventories.

We also collaborate with like-minded organizations, such as the Beyond Alliance and the World Business Council for Sustainable Development’s Nature Climate Solutions Alliance, to support government-led climate action that incentivizes voluntary business investments in carbon market solutions. These partnerships focus on identifying opportunities and barriers to investment in natural climate solutions and broader voluntary carbon market action, and also serve as forums for knowledge sharing and technical capacity building to help natural climate solutions reach their full potential in abating climate change.

READ MORE

[Data: Carbon credits](#)

Protecting and restoring California redwoods through the Restore Fund

Along Northern California’s Pacific coast in Mendocino County, the Gualala River runs through a forest of sugar pine, black oak, and towering California coastal redwood trees — the world’s tallest trees — which store and absorb large amounts of carbon dioxide as they grow. This forestland ecosystem is home to hundreds of wildlife species, including steelhead trout and a threatened population of coho salmon. And it’s also an economic lifeblood to local communities. For Apple, this iconic redwood region offers a unique opportunity to protect a working forest while supporting our 2030 goal to be carbon neutral across our entire value chain.

In 2025, we announced a new investment in the restoration and sustainable management of the 14,000-acre Gualala River Forest, in collaboration with The Conservation Fund, a U.S.-based nonprofit that buys at-risk forests and other landscapes to safeguard them from degradation. This investment is part of Apple’s Restore Fund initiative, a global portfolio that includes projects focused on conservation and regenerative agriculture. Through the partnership, The Conservation Fund will continue to sustainably manage the forest, and Apple will receive the carbon credits generated by the forest’s growth over time. By supporting these sustainable management practices, such as ongoing forest carbon monitoring, restoring habitat for biodiversity, and managing for forest health, the partnership illustrates that well-managed forests can be economically viable.



Resources

IN THIS SECTION

- Approach
- Product longevity
- Material recovery
- Water
- Zero waste



Our approach to resources

We prioritize sourcing, using, and recycling the materials we rely on in a way that meets our high standards for labor and human rights, and environmental stewardship.

We’re committed to making the best use of the finite resources needed to make our products and operate our facilities. We take a circular approach by sourcing recycled and renewable materials, designing durable, long-lasting products, and enhancing material recovery at end of life. And we’re committed to responsible stewardship of water resources and working to eliminate waste sent to landfills.

We aim to reduce the overall resource footprint of our products by collaborating with suppliers, nongovernmental organizations (NGOs), recyclers, community stakeholders, and innovation leaders. Reaching our commitments requires broader engagement through collaborations that enable the stewardship of shared resources.

READ MORE

- [Longevity, by Design white paper](#)
- [Expanding Access to Service and Repairs for Apple Devices white paper](#)
- [Apple Trade In](#)
- [Apple Recycler Guides](#)
- [Apple’s Water Strategy white paper](#)

Areas of impact

PRODUCT LONGEVITY

Designing durable, repairable hardware, using software updates to extend functionality, providing convenient access to safe and high-quality repair services, and directing devices and parts for refurbishment and reuse



MATERIAL RECOVERY

Improving how we collect end-of-life products and developing recycling innovations to enable us and others to use old devices as raw material sources for the future



WATER

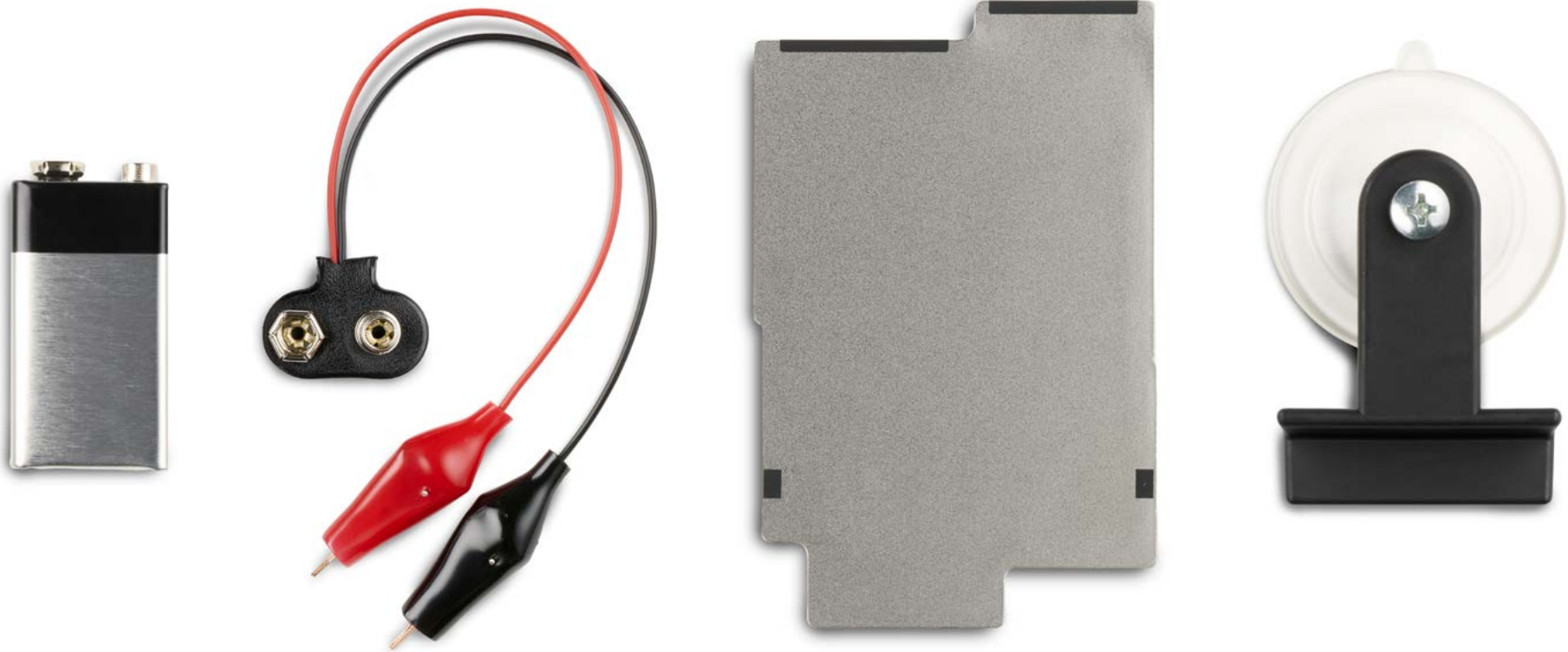
Reducing water impacts of manufacturing, service use, and operations while transitioning to alternative solutions, improving the quality of water we discharge, and protecting shared water resources for local communities



ZERO WASTE

Minimizing overall waste generated and working to eliminate waste sent to landfill from our manufacturing supply chain, corporate offices, data centers, distribution centers, and retail stores





Battery removal made simple

This year, we integrated the battery removal innovation introduced in iPhone 16 to the iPhone 17 lineup. This innovation increases the speed and ease of battery removal. The new method utilizes a low-voltage electrical current sent through the battery adhesive to release the battery from the enclosure, replacing a more manual tab removal process and enhancing the recyclability and repairability of iPhone.

Product longevity

We design our products for longevity. Longer-lasting products better serve our customers, our business, and the environment. That’s why we focus on creating durable products, providing access to repairs, and offering ongoing software support that keep devices up to date and in use. We design our products with these approaches in mind, guided by product performance data. And we turn to innovations in materials, design, and manufacturing to continuously improve product longevity.

We prioritize the following strategies to achieve product longevity:

- 

Durability
- 

Repair access
- 

Software updates
- 

Refurbishment and reuse

We expanded repair options by launching Self Service Repair in Canada and the Genuine Parts Distributor program in the United States and Europe, and introducing support for iPad repair.



iPhone Air is more durable than any previous iPhone.



We introduced Ceramic Shield 2, which has 3x better scratch resistance than the previous generation.



Designing for longevity

Durability

We believe that our customers and the environment are best served by designing and manufacturing durable products. These products stand up to everyday use, need minimal maintenance or repair, and last longer, supporting our efforts to reduce greenhouse gas emissions and use fewer resources. Because durable devices hold their value, customers are also more likely to trade them in for a second life, encouraging

reuse and reducing waste. For example, iPhone retains its value longer than other smartphones.⁴⁰ As of March 2026, iPhone 8, introduced in 2017, still had monetary value for Apple Trade In in the United States.⁴¹

We design our devices with the rigors of daily use in mind. Teams across the company work together to design durable products and rigorously test for reliability, developing high levels of durability for every material used, part, and

product. User research drives this: We establish our goals and develop validation testing based on data drawn from real-world insights into how customers use our products. This process occurs throughout the product development life cycle, with teams exploring potential points of failure before the first prototype is built to inform component and design improvements.

Launched in 2025, iPhone Air was designed with this rigorous approach to durability and testing. Despite being our thinnest phone ever, our tests show that iPhone Air is more durable than any previous iPhone. Our Reliability Testing Lab evaluated durability through a variety of methods, such as weighted scratch, bend, and drop tests. We used a scratch testing machine that applied force as it dragged across Ceramic Shield and Ceramic Shield 2, which protect the device’s back and front covers. The results revealed that Ceramic Shield 2 is three times more scratch resistant than the previous generation. We also used random and controlled drop tests on a range of surfaces, including asphalt, granite, and wood, to assess the device’s durability.

READ MORE
[Longevity, by Design white paper](#)

Designing products with repairability in mind

We continue to make progress in designing more durable products and offering customers more repair options. At the same time, we’re working to make repairs more accessible and affordable through the following efforts:

- We designed the iPhone 17 lineup with more discrete repairable components, including the main logic board and enclosure.
- The iPhone 17 lineup and iPhone Air use novel electrically debondable adhesives for faster, simpler repairs.
- We built MacBook Neo for repairability by prioritizing screw attach over adhesives, increasing ease of access to components with a side-by-side layout, and requiring minimal tools.

READ MORE
See the [Apple Support site](#) or [Apple Support app](#)



Increased durability and repairability enhance iPhone longevity



Repairable at retail stores, Apple Authorized Service Providers, and central repair locations

Features to enhance durability

* iPhone 7, iPhone X, iPhone 13, and iPhone 17 models are splash, water, and dust resistant and were tested under controlled laboratory conditions. iPhone 7 and iPhone X have a rating of IP67 under IEC standard 60529 (maximum depth of 1 meter up to 30 minutes). iPhone 13 and iPhone 17 have a rating of IP68 under IEC standard 60529 (maximum depth of 6 meters up to 30 minutes). Splash, water, and dust resistance are not permanent conditions, and resistance might decrease as a result of normal wear. Do not attempt to charge a wet iPhone; refer to the user guide for cleaning and drying instructions. Liquid damage is not covered under warranty.

Repair and refurbishment

Repair access

The ability to repair a device and access repair services is an important consideration when designing long-lasting products. But optimizing for repairability alone may not yield the best outcome for our customers or the environment. Apple strives to improve the longevity of devices by following a set of design principles that help resolve tensions between repairability and other important factors — including impact on the environment, expanding access to repair services, preserving the safety, security, and privacy of our customers, and enabling transparency in repair. If a repair is needed, we seek new ways to offer convenient access to safe, reliable, and secure repairs — whether by Apple, a third-party repair shop, or the customer directly — to help solve the issue quickly.

We’ve expanded our repair footprint over the past several years — increasing the number of professional service locations with access to genuine Apple parts, tools, and training. Repair options include Apple Store locations, Apple Authorized Service Providers, participating Independent Repair Providers, mail-in repair centers, onsite service, and more than 10,000 Independent Repair Providers and Apple Authorized Service Providers.

Since 2019, our Independent Repair Provider program has enabled repair businesses of all sizes to access genuine Apple parts, tools, diagnostics, and training. It has since expanded from the U.S., Europe, and Canada to more countries and territories. We train and certify service personnel to diagnose issues, successfully repair Apple products, and prevent damage so that devices work as they should.

Launched in April 2022, Self Service Repair gives anyone with relevant experience repairing electronic devices access to the manuals, genuine Apple parts, and tools used at Apple Store locations and Apple Authorized Service Providers. In April 2025, iPad became available for Self Service Repair, supporting iPad Air (M2 and later), iPad Pro (M4), iPad mini (A17 Pro), and iPad (A16). The program supports components including displays, batteries, cameras, and external charging ports. The Self Service Repair Store now supports more than 80 Apple products, including the recently released iPhone 17 lineup, iPad Air (M4), and MacBook Neo.

In 2025, Self Service Repair and Genuine Parts Distributor programs expanded to Canada, providing individuals and independent repair professionals with broader access to the parts, tools, and manuals needed to repair Apple devices. Self Service Repair continues to support a growing number of Apple products and is currently available in 34 countries and 25 languages.





Software features

Free software updates also support our product longevity goals. They allow customers to access the latest features available to their devices for as long as possible, enhancing their experience. This includes important security and privacy updates. As we continually improve the operating systems that power our products, we also make sure that each software release works seamlessly on all supported devices. Customers can benefit from the latest software updates whether they’re using a brand-new device or one that’s several generations older.

In 2025, we added Repair Assistant to macOS. First introduced in 2024 on iOS 18 and iPadOS 18, Repair Assistant is a powerful tool that helps customers and repair professionals complete repairs after a part has been replaced. It’s used to complete the calibration process and finish the repair, ensuring the installed part meets performance, security, privacy, safety, and reliability expectations.

Our most recent iOS release, iOS 26, extends support back to iPhone 11 (2019). iPadOS 26 compatibility goes back to the eighth-generation iPad (2020), and macOS Tahoe supports MacBook models from 2019 on. These updates provide customers with access to the newest security and privacy features.

High adoption rates clearly signal that customers value software updates. By February 2026, more than 74 percent of all iPhone devices introduced in the last 4 years had updated to iOS 26, and over 66 percent of iPad devices introduced in the last 4 years had been updated to iPadOS 26.

Refurbishment and reuse

Building our products for durability helps lower the impact that each device has on the environment, including its carbon intensity per year of life. Extending the life of our products enables them to serve more than one owner and allows our customers to return devices for an upgrade.

We collect devices for refurbishment and reuse through several programs, including Apple Trade In, the iPhone Upgrade Program, AppleCare service, and our corporate Hardware Reuse Program. In 2025, we sent over 15 million devices and accessories to new owners for reuse. The Apple Trade In program, available in 29 countries, provides customers with product end-of-life options: accessing their current device’s value by upgrading to a newer model, or recycling their device for free.

Some device parts can also be reused. We continue expanding the number of parts we recover or refurbish to meet our quality and performance standards, allowing them to be reused as replacement parts. Repair professionals can also use secondhand parts in repair, lowering costs for consumers. This reduces the need to create spare parts as we repair devices. We also remain focused on opportunities to reuse accessories sent for recycling.

Material recovery

We foster circular supply chains by recovering materials from end-of-life products and in-process scrap for use in the next generation of products. This helps reduce the need to mine new materials and saves the energy expended in material extraction and refining, driving down emissions and conserving resources.

We aim to design our products for optimal material recovery, innovate recycling technology, and work with others to help build circular supply chains.



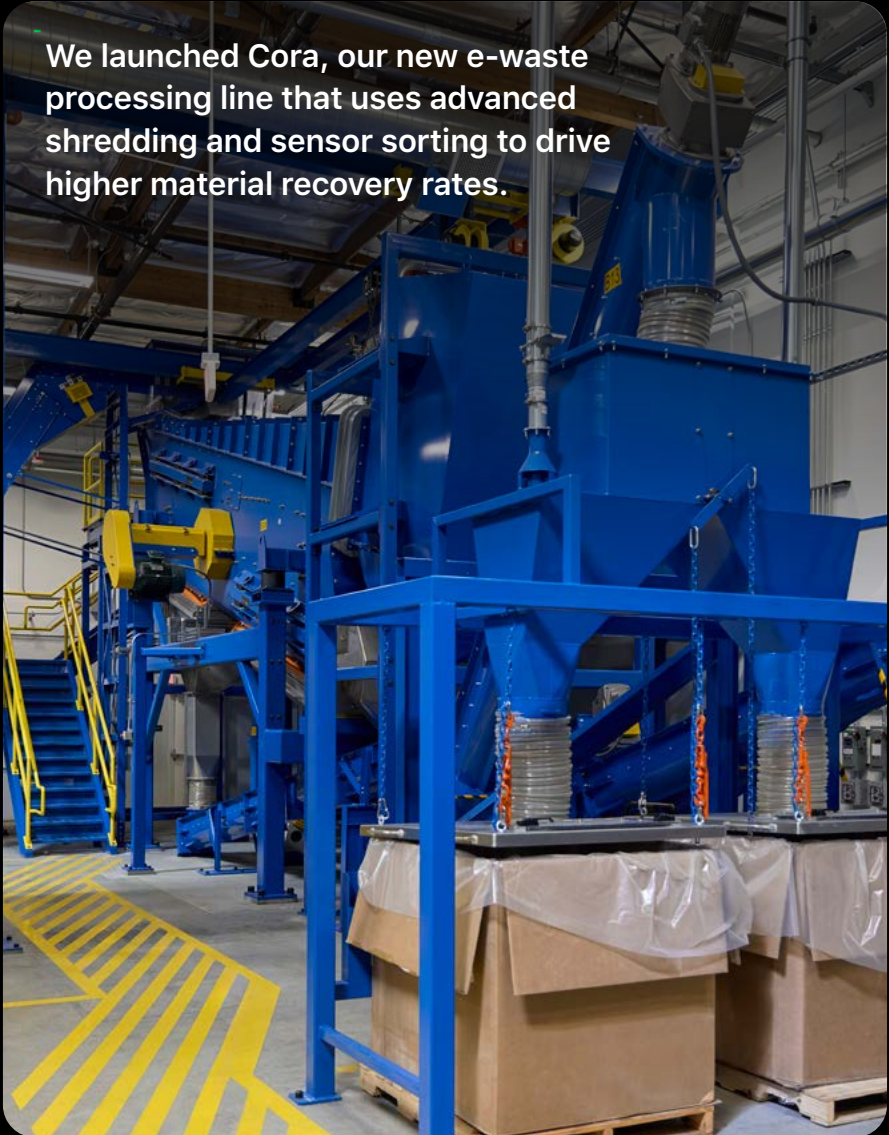
Designing for recoverability



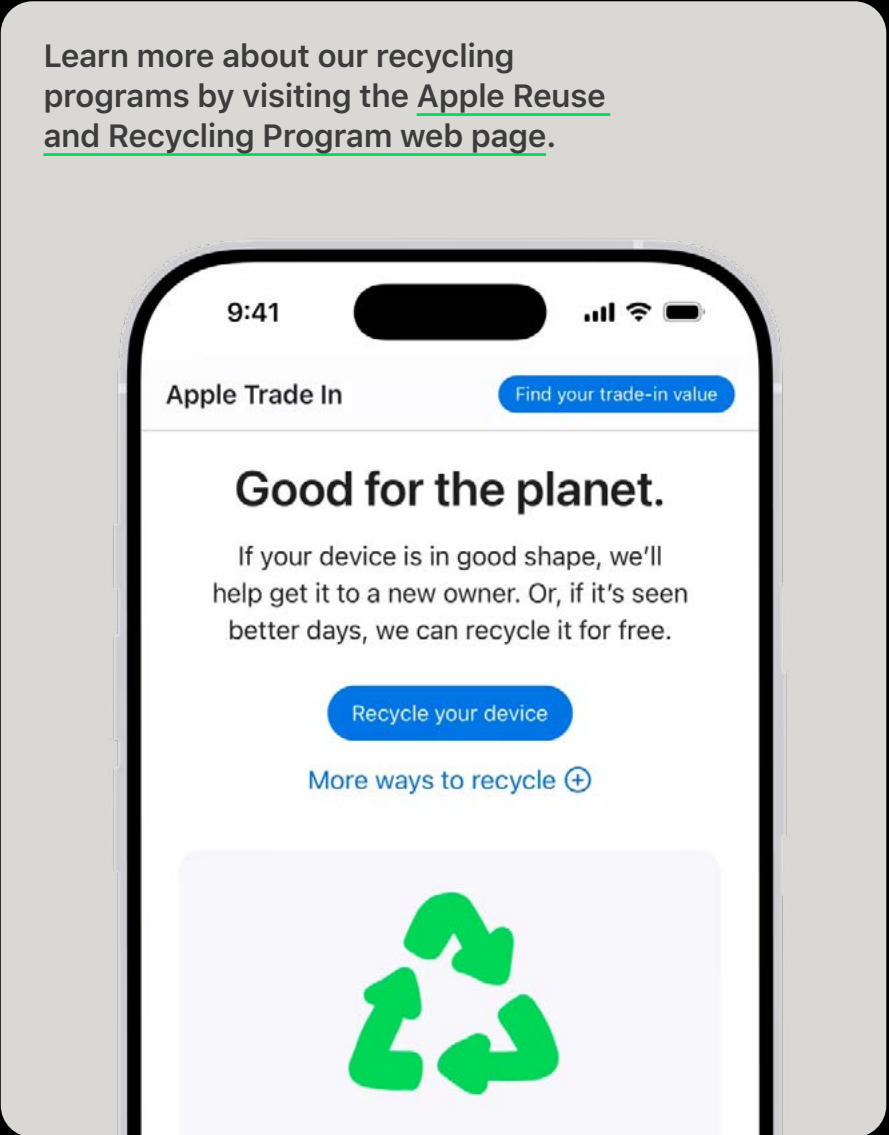
Developing processes



Optimizing collection and reuse



We launched Cora, our new e-waste processing line that uses advanced shredding and sensor sorting to drive higher material recovery rates.



Learn more about our recycling programs by visiting the [Apple Reuse and Recycling Program web page](#).

9:41

Apple Trade In [Find your trade-in value](#)

Good for the planet.

If your device is in good shape, we'll help get it to a new owner. Or, if it's seen better days, we can recycle it for free.

[Recycle your device](#)

[More ways to recycle](#) +





Rinse and repeat

We’re innovating to use more recycled material in our products, including by exploring new processes and technologies to recover post-industrial material without diminishing quality. In one example, we developed a novel process to wash, clean, and sort aluminum scrap from enclosure manufacturing. The cleaned, custom 7000 series recycled aluminum chips were used in iPhone 16 Plus.

Resourceful initiatives

Designing for next-generation recovery

We’re committed to continually improving current recycling methods while nurturing new and emerging technologies. We also continue to support initiatives that redefine disassembly and material recovery.

These efforts include supporting circular supply chains by recovering valuable resources from manufacturing loss and end-of-life products. Understanding material recoverability is crucial for informing the design process. We worked with researchers to develop a recoverability metric for electronic devices that incorporates detailed insights into the best available recycling technologies, supported by a database of material recovery rates, recovered material quality, and calculation methodology. This research has the potential to impact product design by improving material recoverability at the end of life. To learn more about how design decisions can promote better recyclability, read a [case study](#) from one of our partners in the journal *Sustainability*.

Optimizing recycling through innovative collection and reuse

Our recycling strategy plays a key role in building circular supply chains. We provide or participate in product take-back and recycling collection programs in 99 percent of the countries where we sell products. Customers can trade in devices for reuse or recycling at retail locations, through recycling programs offered by local operators globally, and through online programs like Apple Trade In. In 2025, we directed more than 43,000 metric tons of electronic scrap globally to recycling facilities with the help of customer and employee programs. To learn more about the Apple Trade In program, visit the [Apple Trade In web page](#).

In 2025, our IT Asset Disposition (ITAD) program continued to grow as a best-in-class approach to handling end-of-life materials at Apple data centers, including servers, hard drives, and network equipment. We treat data center material recovery similarly to product material recovery, emphasizing reuse and the recovery of priority materials. We’re also pursuing recovery innovations for data center components, including technology to dismantle hard drives and extract rare earth elements.



Advanced material recovery technologies

To advance the field of electronics recycling, we’ve engineered new technologies — including the disassembly robot Daisy and recycling machines Dave and Taz.

- **Daisy:** As of 2025, Daisy can disassemble 36 iPhone models into discrete components, helping us recover materials for recycling.
- **Dave:** Our robot specializes in disassembling the Taptic Engine, enabling the recovery of rare earth magnets, tungsten, and steel.
- **Taz:** Our shredder system separates magnets containing rare earth elements from audio modules, improving our overall recovery rate by accessing these valuable materials, which are typically lost in conventional shredders.

Engaging with recovery partners

In 2025, we conducted more than 85 recycler assessments. We’ve increasingly sought out specialty providers capable of handling specific material streams to enhance both the yield and quality of materials. This global footprint of recyclers helps us build a more resilient recycling supply chain and innovate with more suppliers worldwide.

We’ve invested significantly in education and training to improve recovery rates for our products. This equips recyclers with the information they need to enhance efficiency, quality, and capacity. We work with recyclers to develop new recycling solutions, sharing them through training and ongoing support. We help our partners develop the ability to disassemble our products and recover as much material as possible while minimizing waste.

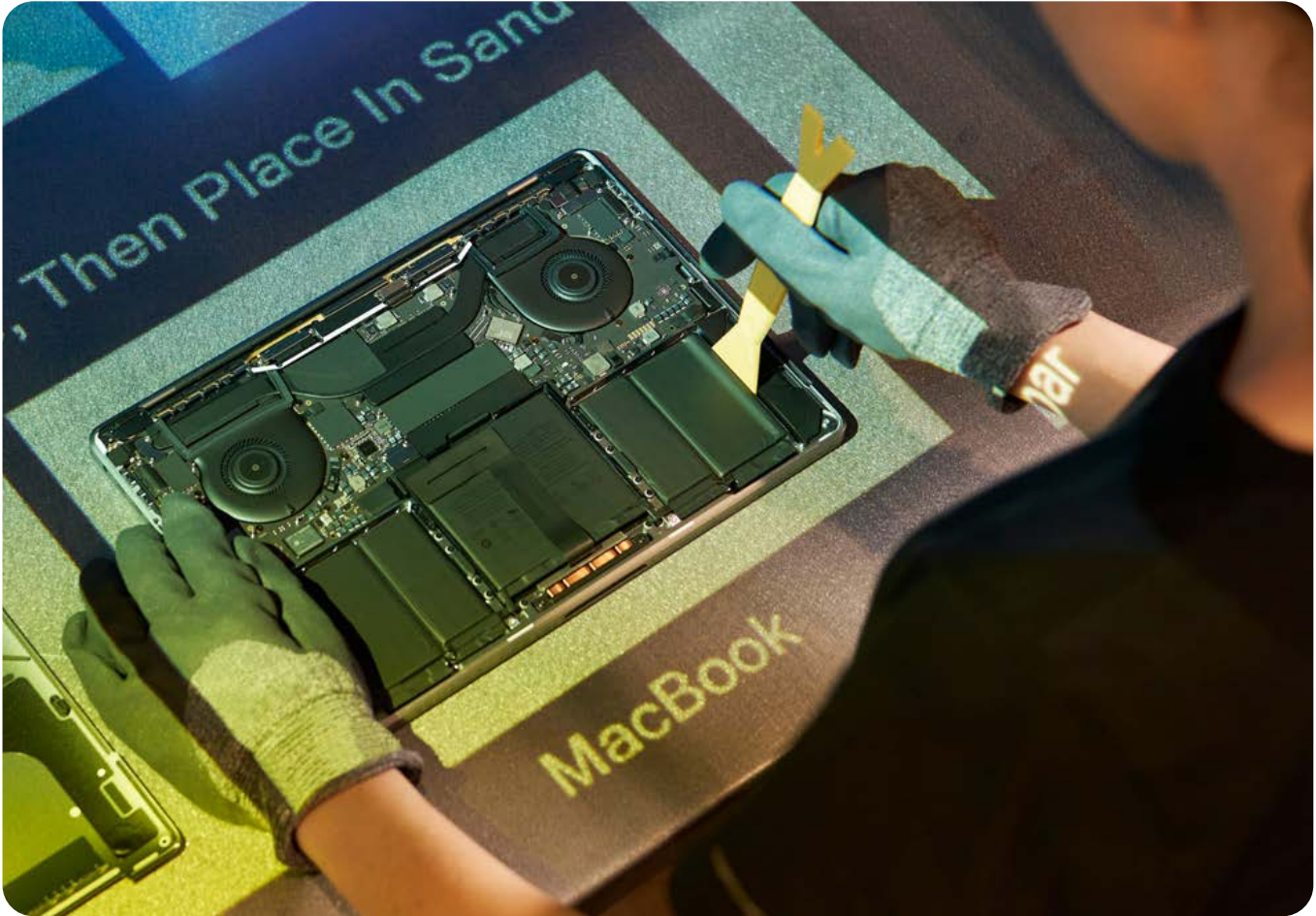
Our [Apple Recycler Guides](#) are one of the ways we’re working to increase high-quality recycled content. Our engineering teams continually expand and update these guides to provide professional recyclers the most current guidance across our products. By offering valuable insights — including information about the components inside our products — these guides help professional recyclers optimize material recovery while using standard industry tools.

We also work with best-in-class recyclers to maximize the potential of the recycling materials stream and drive our efforts to close the loop on key materials. These recyclers are defined as those capable of recovering materials at high rates with better environmental and safety performance. We verify recyclers’ compliance with our Supplier Code of Conduct and Supplier Responsibility Standards through third-party assessments. We encourage our recyclers to maintain regional leading certifications, such as WEEELABEX, e-Stewards®, and R2. We regularly assess our recyclers for compliance with standards, regulations, and best practices in labor and human rights; security; and environment, health, and safety (EHS).

Innovation is central to realizing the potential of recycling — not just for Apple devices but for products throughout our industry. We continue to work with our partners, including Atea — a leading provider of IT infrastructure solutions in the Nordic and Baltic regions — to collect end-of-life iPhone devices for recycling by our Daisy robot in the Netherlands. In addition, Staples — with over 900 stores in the U.S. — and Apple are teaming up to get iPhone, iPad, Mac, and other devices that customers no longer use into our shared recycler’s facilities in order to recover more material —

like aluminum, copper, and steel — for reuse in new products. When customers drop off an Apple product at a Staples store for recycling, it will go through detailed screenings, and eligible devices will be sent to Apple’s advanced recycling systems, like Daisy, for targeted disassembly. We encourage customers worldwide to return end-of-life devices to Apple so the materials can be reintroduced into the circular economy.

READ MORE
[Apple Reuse and Recycling Program web page](#)



Committed to excellence in disassembly and recovery

We continually develop improved ways of disassembling products to maximize material recovery while minimizing waste. Our investments in this area are important for both our business and our planet. To meet our decarbonization goal, we need to recover quality, critical materials to manufacture our products. And using recovered materials helps to reduce the need for newly mined materials.

At our Material Recovery Lab (MRL) in Austin, Texas — home to Daisy, our iPhone disassembly robot — we develop and operationalize recycling technologies and processes to maximize the recovery of key materials. These techniques are designed for large-scale use in our partners’ recycling and material processing centers worldwide.

We operate an Advanced Recovery Center (ARC) in Santa Clara Valley, California, to expand the use of advanced technologies to efficiently recover high-quality materials while prioritizing our high environmental and safety standards. By designing market-ready solutions, working with recycling equipment manufacturers to implement them, and demonstrating their effectiveness in our own facilities, we’re helping scale access to innovative solutions for the broader recycling industry. Both the ARC and MRL are R2 certified — the same qualification we require our recyclers to meet.

We’re continuing to build out our ecosystem of recycling technologies, and in 2025, we launched Cora, our new e-waste processing line built with readily available equipment, at the ARC. Cora is designed to achieve significantly higher material recovery rates than industry baselines — and to operate at the highest safety and environmental standards. It’s engineered not only for our products but for similar electronics across the industry.

Cora uses novel applications of advanced sensors to perform precision material recovery. The process begins with a single-rotor shredding system that liberates materials more efficiently than conventional shredders, reducing material loss during sortation. Advanced sensor sorters — rarely seen in electronics recycling — are coupled with high-performance magnets for precision material recovery. An X-ray fluorescence sorter identifies and recovers materials — such as titanium, rare earth elements, and tungsten — by detecting their atomic composition. An advanced hyperspectral plastic sorter identifies and separates plastics, including hard-to-recover black plastics, by polymer type.

Cora’s compact design enables it to operate safely and efficiently. Throughout the system, we’ve minimized material spillage using augers, integrated high-performance dust capture, and employed safety monitoring sensors. Cora’s smaller footprint makes it more cost effective by leaving more floor space for other activities. This is part of our broader effort to develop industry-deployable approaches that address electronics recycling challenges.



Impacting industry-wide recovery

We invest in recycling innovations that can have an industry-wide impact. For several years, we’ve worked with Carnegie Mellon University’s (CMU) Biorobotics Lab in the School of Computer Science’s Robotics Institute to identify and disassemble e-scrap. These projects have the potential to enable recyclers to recover the materials at a higher quality. The software we develop will be open source and available to others in the industry who are working to maximize the recovery of recyclable materials. In 2025, CMU extended our work to build solutions for flat-panel display recycling. Our

research and development is driving us toward intelligent disassembly technology. Learn more about Apple’s research with Carnegie Mellon University in our [white paper](#).

Material tracing has the potential to significantly improve recovery. By conducting detailed analysis at each step, we can precisely track materials through the recycling process and identify improvement opportunities — like directing certain post-industrial materials that don’t require dismantling by an e-recycler directly to refiners and smelters. This work informs our recycling and recovery models, providing insights that increase the overall yield of recycled content.

Water

We aim to advance water security and protect communities where we and our suppliers operate through actions designed to improve freshwater availability, quality, and equity.

We focus our work on five strategic pillars:

- 

Low-water design
- 

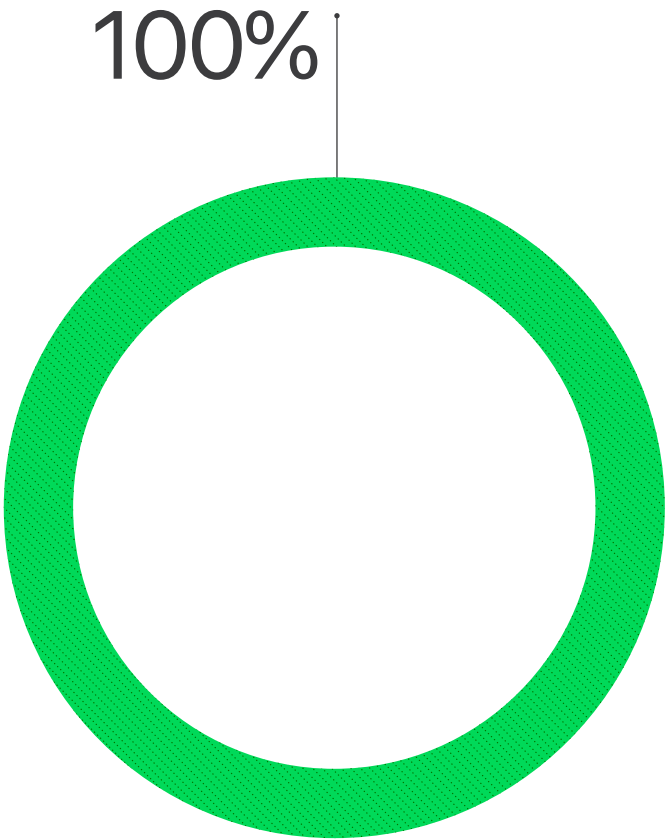
Site efficiency and conservation
- 

Site-based water stewardship
- 

Leadership and advocacy
- 

Replenishment and nature-based solutions

As of 2025, we’ve certified all eight Apple-owned data centers to the Alliance for Water Stewardship (AWS) Standard.



In 2025, we replenished more than 55 percent of our corporate freshwater withdrawals.

Through our Supplier Clean Water Program, we’ve engaged more than two-thirds of our priority suppliers in high water stress basins to achieve a more than 43 percent reuse rate.*



* Our priority supplier facilities are the highest water using manufacturing sites in the highest stress basins.

Our water strategy

Water is a local resource. This is why our strategy is context based and takes into account the local conditions where we and our suppliers operate. To understand our water impacts, we collect and analyze data and site-level feedback.

We use tools like the World Resources Institute (WRI) Aqueduct Water Risk Atlas to gain insights into local watershed health, such as baseline water stress. Through this analysis, we’ve identified that 70 percent of our corporate water use occurs in, or is sourced from, areas with high basin stress.⁴²

Addressing water stewardship challenges across the value chain requires working closely with others. Based on our detailed water inventory, we’ve found that our supply chain accounts for about 99 percent of our total footprint, which is why our Supplier Clean Water Program is critical to our strategy. In our supply chain, approximately 15 percent of our supplier facilities have been identified as high water users in high stress basins. We engage with communities and collaborate on stewardship, replenishment, and WASH (water access, sanitation, and hygiene) projects throughout our value chain, beyond our own operations.

Low-water design

Low-water design is minimizing water impacts through the design of products, manufacturing processes, services, and sites. Learn more about the Clean Water Program’s progress in low-water design for manufacturing on [page 55](#).

Whenever possible, we conduct a water risk evaluation to determine whether a potential site is in a water-stressed area. The results inform our decision-making and help mitigate the impact of our expected water use. We then design solutions to minimize the use of water and manage the quality of the wastewater that we return to the watershed.

In 2025, our low-water design efforts avoided 174 million gallons of freshwater use in our corporate offices and data centers. For example, at our newest campus in Austin, Texas, we’ve brought online an onsite wastewater reuse system to help achieve net-zero water use. We’re also employing condensate recovery and stormwater capture, limiting potable water use to potable purposes only. This effort will save up to 60 million gallons of freshwater annually.⁴³ Using wastewater for cooling will also allow us to achieve 28 million kilowatt-hours in energy savings annually at this campus.

Even as we grow, we look for ways to avoid water use at our facilities and improve local watershed health. For example, at our three newest data centers, we use high-efficiency air-cooled chillers instead of water-cooled systems, resulting in zero water use for cooling. We’ve also completed a 221-acre wetland restoration project at our Waukee, Iowa, data center. The land has been restored to native prairie potholes and wetlands, providing stormwater capture, groundwater recharge, and water quality benefits, as well as creating a habitat for native species.

Site efficiency and conservation

We seek out approaches to use less freshwater in our operations and to support our suppliers in doing the same, prioritizing regions where our efforts can immediately reduce stress on local watersheds.

In 2025, our facilities used about 1.8 billion gallons of water in our direct operations. Alternative water sources, primarily municipal recycled water, accounted for about 14 percent of our total corporate water usage. Through our site efficiency and conservation efforts, we saved 108 million gallons of freshwater.

We focus on the critical link between energy and water consumption in cooling systems. Careful analysis of this relationship can present opportunities for dual savings and minimized trade-offs. We investigate ways to improve our cooling systems and evaluate alternative technologies that could replace existing methods. For example, at our Maiden, North Carolina, data center, in-depth analysis and modifications to the cooling controls are expected to save approximately 14 million gallons of water per year, with a relatively small impact on energy use.

Across our data centers, we’re implementing a strategy to enhance water treatment while reducing water consumption and the use of chemical biocides and corrosion inhibitors. As part of this strategy, we deploy a combination of engineered water-softening, nature-based, and chemical-free water treatment solutions. We’re also exploring ways to use these technologies in our corporate campuses.

GOAL

Replenish 100 percent of our corporate freshwater withdrawals by 2030

IN PROGRESS

55%

GOAL

Increase supplier participation in the Supplier Clean Water Program, prioritizing locations with high water stress and supporting participants in achieving a 50 percent average water reuse rate by 2030⁴⁴

IN PROGRESS

43%

GOAL

Certify all Apple-owned data centers to the AWS Standard by 2025

ACHIEVED

100%

Because our supply chain accounts for about 99 percent of our total water footprint, we require our suppliers to maintain the high standards for water and wastewater management outlined in the [Apple Supplier Code of Conduct](#). Through our Supplier Clean Water Program, we help suppliers minimize their process water impacts and adopt best practices in water management and wastewater treatment. The program supports our suppliers in going above and beyond requirements to become stewards of their local water resources by conserving water, promoting water reuse, and preventing water pollution. Since the program launched in 2013, we’ve engaged more than two-thirds of our priority suppliers to achieve a more than 43 percent reuse rate. Our priority supplier facilities are the highest water using manufacturing sites in the highest stress basins. Our suppliers have saved 17 billion gallons of freshwater in 2025 and a cumulative total of more than 100 billion gallons of water.⁴⁵ These savings come from a range of initiatives, including reclaimed water reuse, water-efficient equipment upgrades, and countercurrent rinse methods.

Site water stewardship

To help protect local watersheds, we engage with the communities around our facilities. Since 2018, we’ve partnered with the Alliance for Water Stewardship (AWS) to advance the AWS Standard, the first global framework to measure responsible water stewardship across social, cultural, environmental, and economic criteria. In 2020, we joined the AWS board of trustees to highlight water stewardship opportunities for our suppliers and promote collective action on shared water challenges impacting the sector.

As of 2025, we’ve achieved AWS certification at all eight data centers that we own and operate: Prineville, Oregon; Reno, Nevada; Maiden, North Carolina; Mesa, Arizona; Waukee, Iowa; Viborg, Denmark; Ulanqab, China; and Gui’an, China.

Since 2018, 32 of our supplier sites have been certified to the AWS Standard, 22 of which have achieved a Platinum rating — the highest score within the AWS framework. Our work with AWS allows us to engage with suppliers at the regional level, focusing on the stewardship of basins with a high concentration of manufacturing partners. In India, we work with AWS and Frank Water to identify stewardship opportunities with our suppliers in the Bengaluru and Chennai basins, assessing the local water infrastructure and community needs.

In 2025, the Clean Water Program began training suppliers in Ecodesign principles. This culminated in our program supporting one of our partners in opening an ecological wetland garden at their Longhua, China campus. Designed and developed by employees, the garden features a rainwater circulation system that incorporates rainwater collection, purification, and storage into its landscape design. The reclaimed water supports a rich environment that includes habitats for birds, insects, and other wildlife, as well as edible fruits, vegetables, and herbs.



Replenishment and nature-based solutions

Our Corporate Watershed Resilience Program aims to improve availability, quality, and access to water at the time, place, and quality needed for people and ecosystems. These projects are designed to save, produce, clean, or secure water in ways that benefit watersheds as well as communities through long-term partnerships. Our goal is to replenish 100 percent of our corporate freshwater withdrawals by 2030.⁴⁶ In 2025, we’ve contracted projects to address over 60 percent of our expected 2030 withdrawals.

We fully replenished freshwater withdrawals in seven regions where we operate, delivering more than 800 million gallons of water benefits.

Replenishment projects

Region (Major Sites)	Project name	Project partners	2025 VWBs (million gallons)	2025 Withdrawals (million gallons)*
Northern California (Silicon Valley)	River Flow Restoration, Mill Creek	The Nature Conservancy	382	382
Lower Colorado River Basin, AZ, NV, CA, MX (Mesa Data Center, San Diego)	Forest Restoration, Cragin Watershed	Salt River Project	7	335
	River Flow Restoration, Verde River	The Nature Conservancy	100	
	Colorado River Storage and Floodplain Restoration	Bonneville Environmental Foundation	228	
Truckee River Basin, NV (Reno Data Center)	Water Quality Protection & WASH, Truckee River	Truckee Meadows Water Authority	70	40
Los Angeles, CA (Culver City)	Invasive Species Removal, Los Angeles County	Council for Watershed Health Bonneville Environmental Foundation	29	29
Puget Sound, WA (Seattle)	River Flow Restoration, Dungeness River	Washington Water Trust	14	14
India (Bengaluru & Hyderabad)	Access to Drinking Water in India	Uptime Catalyst Facility	19	18
Africa	Village Water Supply in Tanzania	Water for Good	0.7	0.7

* Freshwater withdrawals aggregate all of our corporate facilities served in the regions listed and include corporate offices, retail stores, data centers and R&D facilities, as applicable.

New 2025 projects:

Spawning habitat in Northern California

We collaborated with The Nature Conservancy on a 15-year agreement on Mill Creek, a tributary to the Sacramento River, that provides valuable spawning habitat for salmon in the foothills of the northern Sierra Nevada. Our support is expected to result in a total of 3 billion gallons over its life.

Restoring flows to the Dungeness River during a drought

We completed a one-year project, supporting the efforts of the Washington Water Trust in the Dungeness River to restore flows and mitigate drought impacts on upstream migration of salmon species.

Supporting environmental flows in Texas

We supported Texas Water Trade to secure water rights for long-term environmental benefit, including threatened and endangered aquatic species, with estimated water benefits of 1 billion gallons over the next decade.

Detecting leaks and reducing losses in North Carolina

We partnered with the City of Hickory and the Catawba-Wateree Water Management Group to pilot leak detection and water loss reduction technology in the downtown core, which will save over 70 million gallons of water each year starting in 2026.

Restoring streams and improving water quality in the Catawba River Basin

We partnered with Catawba Lands Conservancy and Foothills Conservancy of North Carolina to restore stream channels and degraded land as well as conserve riparian buffer lands in North Carolina’s Catawba Basin, delivering improved water quality and 95 million gallons of water benefits annually.

Restoring the Colorado River Delta

We’re contracting with Bonneville Environmental Foundation and its partners to lease and store irrigation water in Lake Mead, then release it to restore the Colorado River Delta floodplains. The agreement — part of an innovative financing partnership between Apple and U.S. and Mexican nongovernmental organizations — is expected to achieve water benefits of 1 billion gallons over nine years.

Ongoing projects:

Supporting environmental flows in Arizona

Our project in the Colorado River Basin, home to our Mesa Data Center, supports ongoing efforts by The Nature Conservancy and its local irrigation partners to restore streamflow to the Verde River. In spring 2025, the project collaborators completed the Verde Ditch piping project.

Addressing water quality and access in Northern Nevada

With the Truckee Meadows Water Authority, we’re providing restroom facilities along the Truckee River in downtown Reno and addressing water quality in the river upstream of one of Reno’s water treatment plants. The project also supports access to dignified toilet facilities (including water for drinking and washing) for people experiencing homelessness in Reno’s downtown river corridor.

Improving access to drinking water in India

We reached a total of 60 million gallons of drinking water provided in our partnership with Uptime Catalyst Facility and Safe Water Network.

Removing invasive species in California

We worked with the Council for Watershed Health to complete additional removals of the invasive Arundo donax cane species in the Verdugo Mountains in Los Angeles County.

Supporting access to water in Tanzania

The village water project in Tanzania that Apple funded with Water for Good supplied water to taps at 12 village locations, as well as at the local primary school and dispensary.

Advocacy efforts and local partnerships

We work with others on global water challenges because we recognize that sharing our knowledge and engaging in collective action is the most effective way to accelerate progress. These efforts include collaborating with groups — such as AWS and the Responsible Business Alliance (RBA) — and participating in conferences where we can discuss our work and engage with others driving impact within their communities and industries.

For example, we’re supporting a Texas Rural Water Association pilot project to identify water loss challenges in the area surrounding our Austin Campus, collaborate on solutions, and provide resources to address them. The project aims to develop technical and financial mechanisms to support and sustain leak detection efforts for small community water providers. And we’ve contributed to a number of publications to support best practices across the industry. These publications are highlighted in our white paper, [Apple’s Water Strategy](#).

Reducing supply chain water usage



Manufacturing uses the majority of water in our supply chain. To address this, we look for opportunities to innovate around water- and chemistry-intensive processes when possible. An example of this is a green anodizing project we initiated, which involved subject matter experts across internal design, product development, manufacturing, and quality teams in addition to an outside vendor piloting acid recovery equipment.

The anodized finish and unibody aluminum construction deliver exceptional durability to MacBook. The aluminum chassis provides structural strength while naturally dissipating

heat to protect internal components, and the anodization process creates a hardened, corrosion-resistant layer. This creates a laptop that can withstand years of use enduring chips, dents, and scratches, making longevity through engineering a key sustainability feature.

While anodizing provides a corrosion-proof exterior and the ability to add vibrant colors, the process itself can be very resource-intensive. Through a variety of material preparation steps, rinses, anodizing, and dyeing steps, a large volume of water, dyes, and acids are needed for this key durability feature.

Through the lens of our low-water design approach, our engineering and sustainability teams partnered to reimagine anodizing as a more sustainable process by incorporating technologies and strategies that achieved greater water efficiency, reduced freshwater withdrawals and waste discharge, and minimized chemical consumption.

This led to an innovative closed-loop anodizing project. The project integrated an acid recovery technology with specialized equipment; decontaminated and purified process chemistries such as sulfuric, oxalic, and phosphoric acids; as well as modular nanofiltration membrane and reverse osmosis systems, which filtered and purified water from the anodizing baths.

The team worked to ensure that the approach functioned within tight process tolerances and the specific chemistry required to maintain product quality. Part of these efforts included replacing the water and chemistry waste management process with a “bleed and feed” approach that allowed for near continuous use of the anodizing baths. Lineside water recycling reduced both the amount of wastewater discharged into and freshwater withdrawn from the local basin.

The impact was profound, resulting in a 70 percent water reuse rate and approximately 90 percent reduction in chemical use, which also helped achieve carbon savings by avoiding the embedded carbon of the acids. The project demonstrated the ability to transform a product process that requires significant water and chemical replenishment to a closed-loop system. The process efficiency of this system also made clear contributions to our efforts around carbon and safer chemistries.

Project timeline

- 2019
Concept
Assessed the opportunity with peers, suppliers, and equipment vendors.
- 2020
Pilot
Designed the experiment to test the proof of concept.
- 2021–2022
Assessment
Assessed process feasibility through studies and testing.
- 2023
Controlled production
Set up a trial environment to run production quantities.
- 2024–2025
Deploy and scale
Entered mass production on MacBook to scale for other products.

Zero waste

We’re working to eliminate waste sent to landfill — and the environmental costs that come with it. Our values drive us to protect the most vulnerable communities that disproportionately bear the costs associated with waste disposal.

Our approach focuses on eliminating waste through the following:

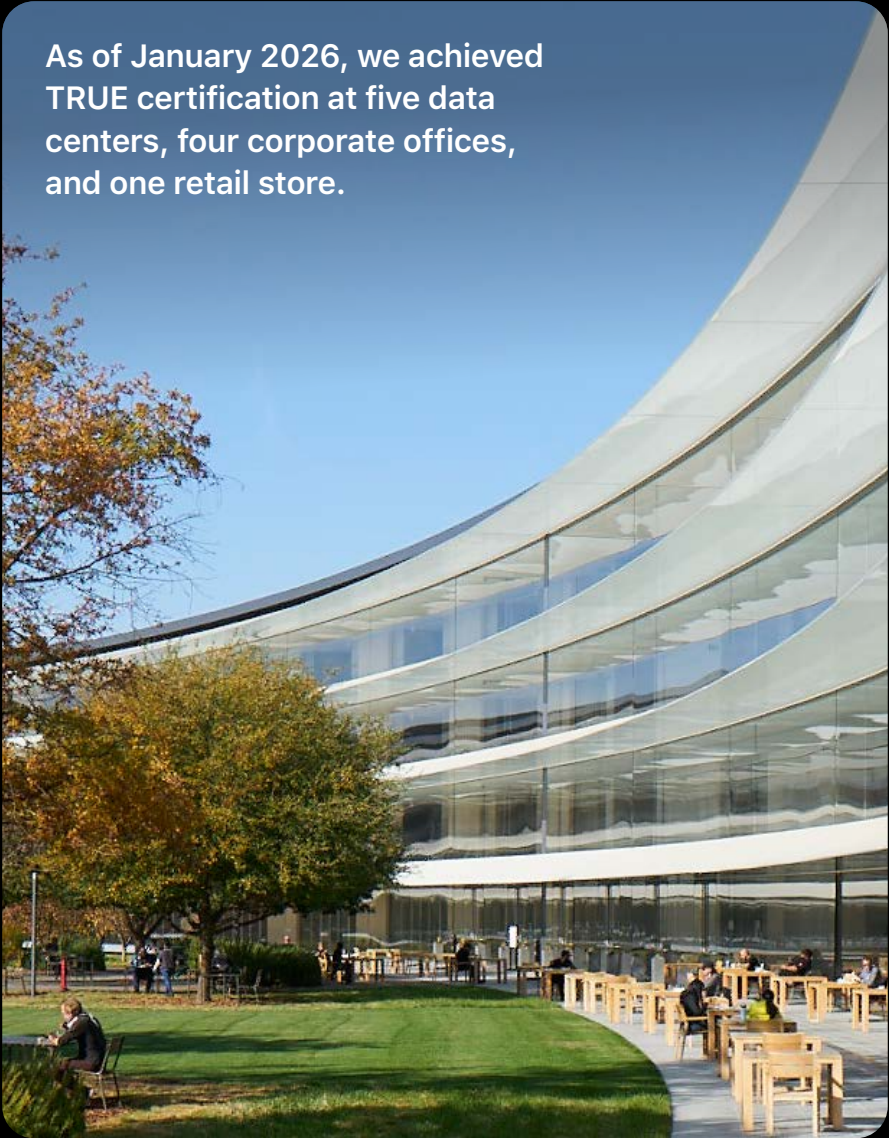
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Measuring our progress
- 

Prioritizing waste-free operations
- 

Partnering for waste reduction
- 

Driving waste diversion and elimination



Reducing waste at our corporate facilities



Focusing on increasing diversion rates across global operations

In our corporate operations, we’re reducing the amount of waste generated while directing more to recycling programs. In 2025, we achieved a waste diversion rate of 75 percent through recycling and composting efforts. We also limited landfill waste from our global operations to about 20,900 metric tons.⁴⁷

Since achieving our first zero-waste certification in 2015, we’ve continued our progress on waste diversion, including the certification of five data centers, four corporate campuses, and one retail store. In 2025, our Cork, Ireland, campus and Capital Ridge campus in Austin, Texas, achieved TRUE certification. Also, our landmark Manhattan store, Apple Fifth Avenue, became our first retail location to achieve TRUE Platinum Zero Waste certification, by meeting the requirements for design, reductions, reuse, composting, and recycling — including a 90 percent diversion rate. In 2023, our Taiwan Technology Center received the UL Solutions Zero Waste to Landfill Validation.⁴⁸ Our corporate offices in Sacramento and Los Angeles, California received TRUE certification in 2024, joining our data centers in Mesa, Arizona; Reno, Nevada; Maiden, North Carolina; Prineville, Oregon; and Viborg, Denmark.⁴⁹ These facilities achieved TRUE Platinum, the highest certification level. TRUE recognizes facilities that divert more than 90 percent of waste for recycling, compost, or reuse.

Promoting material reuse, composting, and waste diversion across our corporate and retail locations

We prioritize finding opportunities to recycle construction and demolition waste across all our global construction projects:

- In 2025, our recycling and source separation from corporate office and data center construction and demolition efforts resulted in an overall waste diversion rate of more than 80 percent — more than 17,300 metric tons.
- We’ve continued to divert materials through our specialty recycling initiatives that return them to their original suppliers, who manufacture new materials. In 2025, this program diverted over 800 metric tons of materials, including office furniture, electronics, doors, trees, HVAC equipment, and even terrazzo benches. These items were deconstructed and salvaged from existing buildings before starting demolition. The program also diverted more than 45 metric tons of ceiling and carpeting from the landfill.
- Somerville, a partner based in Belfast, Northern Ireland, refurbishes tables and other wooden fixtures for global retail stores (Americas, Europe, and Asia), and has supported our zero-waste goals by developing refurbishment and reuse processes, which have helped us achieve clear impact, including: 3,700 fixtures from 180 stores diverted from landfill, 26,000 sheets of particle board created for reuse from wooden tables and fixtures, and over 60 fixtures upcycled for use again at Apple Stores.

Driving solutions internally through communication, reporting, and education

We support employee waste reporting efforts with training, education, and access to resources. In 2025, we launched a zero-waste training program to educate employees in the Americas region on approaches to sorting waste.

We use a standardized waste reporting requirement and a centralized dashboard system across all our business units. In 2025, we conducted waste audits in more than 65 retail stores across North America. These audits helped us establish a waste profile for our stores in North America and identify opportunities to improve diversion.

We provide site-specific zero-waste training for all our data centers. Every new data center employee is required to complete this training and receive manager approval of completion.

Taking a zero-waste approach with our suppliers

We launched the Zero Waste Program for our manufacturing partners in 2015 and require our suppliers to participate in our Zero Waste Program as part of our Supplier Code of Conduct. Suppliers must implement a systematic approach that includes: identifying all waste sources and characterizing each stream in the waste inventory; developing a program or solution to quantify and monitor their waste-to-landfill diversion rate; setting waste minimization goals; and maintaining progress toward achieving zero waste to landfill.

Our Zero Waste Program provides resources, training, and tools to help suppliers meet these requirements. These include guidance on reducing waste and reusing materials, recycling, or composting waste and tools to improve waste management and, in some cases, onsite support. Facilities have also received training and templates to record and correctly classify waste data and document the visible diversion rate.

GOAL

Achieve zero waste to landfills at all established final assembly sites

ACHIEVED

100%

To verify suppliers’ waste data quality, we partner with third-party auditors to conduct sample evaluations, focusing on waste classifications, waste data recordkeeping and reporting, and reasonable waste treatment methods.

The program continues to make an impact: In 2025, suppliers redirected more than 600,000 metric tons of waste from landfills, bringing the total to over 4 million metric tons since the program’s inception. Throughout 2025, 100 percent of established final assembly sites maintained zero-waste-to-landfill operations.⁵⁰ More than 400 supplier facilities across 15 countries and regions participate in this program.

Building supplier capability

The UL 2799 Zero Waste to Landfill Environmental Claim Validation Procedure (ECVP) is foundational to the Zero Waste Program. It requires at least 90 percent diversion through methods other than waste-to-energy and allows our supplier facilities to validate against clear benchmarks for waste diversion. We’ve spent nearly the last decade expanding this program throughout our supply chain, with suppliers in China mainland, India, and Vietnam becoming UL validated. Since we switched from individual site verification to system-level verification, suppliers participating in the assurance program can easily apply the verification statements from UL Solutions to demonstrate their conformance with the UL 2799 criteria. This streamlined approach has helped bring suppliers into our program, with 230 facilities assured by UL Solutions in 2025.⁵¹

To address the challenge of waste classification for suppliers across countries and regions, we’ve created the Apple Recommended Waste Category List to provide standardized guidance on classifying different types of waste. This list has been widely implemented and used by suppliers in the Zero Waste Program. Suppliers have also received access to training and coaching on waste classification to support their efforts in separating waste while promoting waste reduction, reuse, and recycling.

We’ve organized a series of webinars with suppliers, policymakers, and industrial leaders to share their experiences in the Zero Waste Program with participating suppliers and those who plan to join. These sessions provide an opportunity to discuss the lessons learned from implementing the Zero Waste Program, best practices around the compliance requirements of waste management, and emerging recycling and waste reduction technologies.

We’re focused on expanding the impact of the Zero Waste Program in our supply chain and beyond through our Supplier Employee Development Fund. In India, we’ve implemented a zero-waste education initiative for supplier leadership, employees, and local community members since 2023. In 2025, thousands of supplier employees participated in our community-based online learning courses, equipping them with fundamental waste management skills. Globally, more

than 150 manufacturing sites participated in an online course developed to help suppliers understand and implement zero-waste programs, focusing on trends, the UL 2799 standard, implementation systems, and best practices.

Pushing toward zero-waste innovation

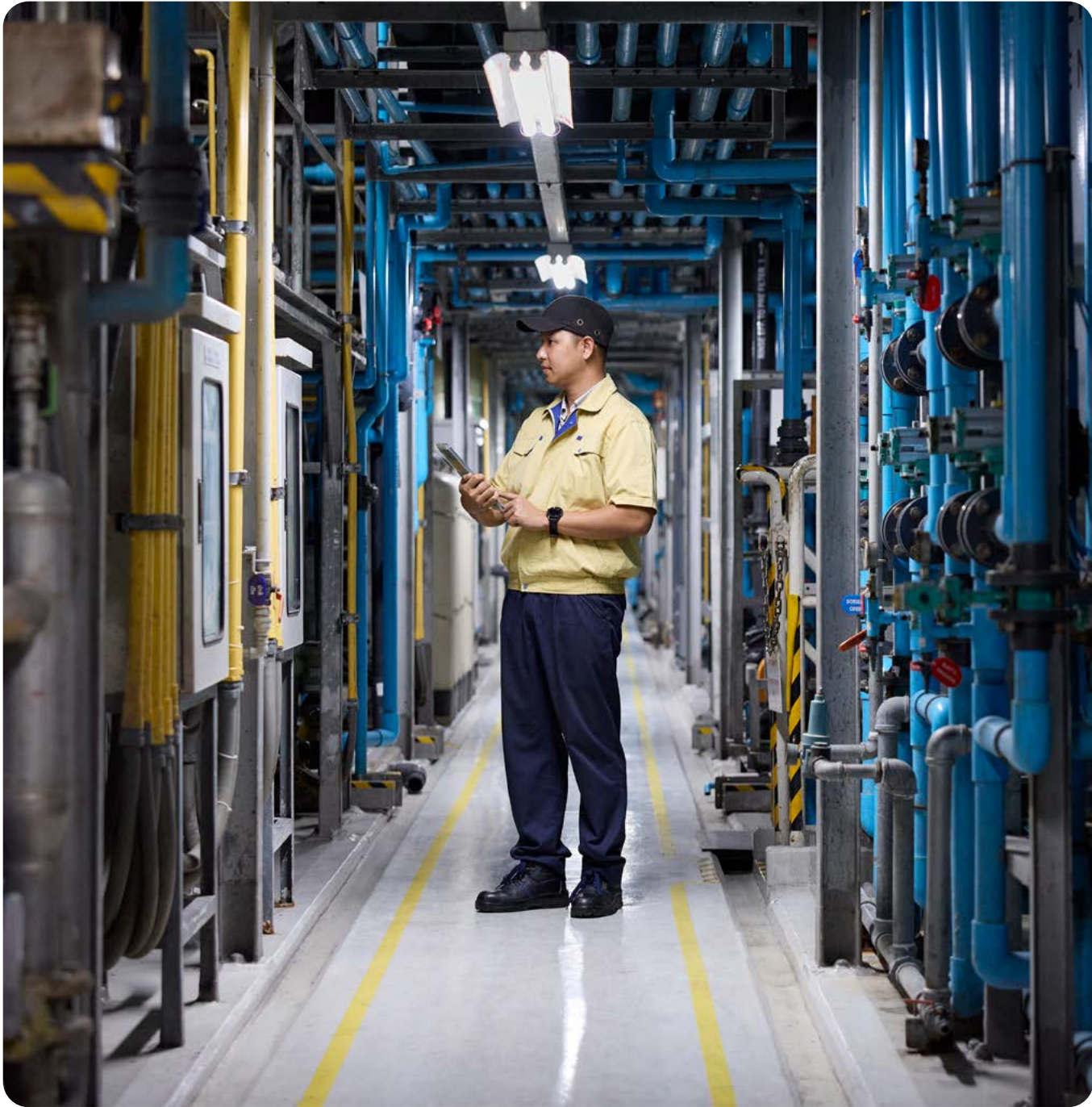
We use novel recycling approaches to divert greater quantities of waste from landfill in our supplier facilities at higher rates. We also pursue material solutions to impact the waste streams entering these facilities to simplify and maximize the recyclable content that our suppliers work with.

Waste film elimination and plastic tray reuse

To reduce plastic waste, we’ve developed recyclable protective films (RPFs) designed to protect products during the manufacturing phase and reusable trays, which allow for secure transportation of modules across various assembly locations. During 2025, we eliminated more than 5,000 metric tons of plastic films and achieved the reuse of approximately 40,000 metric tons of plastic trays across different sites in our supply chain.

Waste coolant recycling

To avoid sending coolant-containing waste to landfills or incinerators, we promoted reuse through a specific recycling practice and expanded it to more applicable facilities. In 2025, this work reduced coolant-containing waste by more than 38,000 metric tons through fine filtration, sterilization, and internal circulation of the equipment.



Waste-metal-containing liquid recycling

We focus on recovering valuable metals from waste liquids generated during printed circuit board manufacturing, including copper, gold, and palladium. These metals are efficiently separated and processed into high-quality raw materials using advanced extraction and purification technologies. The recovered metals are then reintegrated into the production cycle. In 2025, approximately 2,500 metric tons of metals and metal compounds were recovered through this process.

Waste acid reduction

We worked with suppliers to implement phosphoric-containing waste recycling practices in several plants. In 2025, these efforts reduced hundreds of metric tons of waste phosphoric acid and thousands of metric tons of phosphoric-containing sludge through filtration, impurity removal, evaporation, concentration, and reuse.

Waste special chemicals reduction

To reduce waste chemicals, several plants employed condensation and membrane filtration devices to recover high-value chemicals for onsite recycling — and to decrease the amount of waste chemicals requiring disposal and reduce the greenhouse gas emissions associated with this process.

Focusing on industry impact

We’ve worked with UL to share best practices in implementing zero-waste projects in our supply chain and leading the development of zero-waste efforts in the consumer electronics industry. UL experts also engaged us in multi-stakeholder discussions on revising the UL 2799 Zero Waste to Landfill Verification Standard. By working closely together, we’ve benefited from constructive insights for updates to the standard and deepened the integration of theory and practice in the standard. Through a learning module, we teach waste minimization best practices and how to use tracking tools.

An example of a resource benefiting the industry is a tool developed by Apple. The tool provides a brand-new supply chain zero-waste management system, enabling third-party zero-waste verification at a system level rather than a site level. The assurance procedure has enabled the significant expansion of the assurance engagement boundary and established a new model that companies across industries can employ to verify zero-waste programs at scale.

Smarter chemistry

IN THIS SECTION

Mapping
Assessment
Innovation



Our approach to smarter chemistry

We’ve dedicated ourselves to the use of safer materials and chemicals across our supply chain. Our approach to smarter chemistry is based on three components: the mapping of materials used to make our products, an assessment of the data we gather from our manufacturing partners, and the pursuit of innovation through research into safer alternatives.

We identify chemicals that balance our priorities, including safety and performance, to minimize our environmental impact. This work supports our efforts to build a circular supply chain by reducing the recirculation of potentially harmful substances. It also contributes to a healthier workplace for the people making our products. We establish safety requirements that often exceed local industry standards, and we support our suppliers and manufacturing partners in implementing them.

Our products and manufacturing processes are assessed against standards and programs that include rigorous requirements, defined in our RSS. These assessments are enabled by our supply chain engagement through our Full Material Disclosure (FMD) and Chemical Safety Disclosure (CSD) programs. Maintaining extensive information on the chemicals and materials we use while thoroughly assessing that data through industry-leading analysis is essential to protecting the people who design, make, use, and recycle our devices. It also guides our efforts to protect the environment and to innovate in safer alternatives, pushing for their broader adoption.

We work alongside leading members of the scientific community, NGOs, and industry organizations to advocate for the broader use of safer, more sustainable materials based on smarter chemistry. We share what we’ve learned from creating these systems with others in the industry — and push for change that can transform product manufacturing. And we work with our suppliers and material manufacturers to create alternatives that can help move our industry forward.

Strategic pillars

MAPPING

Engaging our supply chain partners to identify the chemicals in our manufacturing process and in the materials used to make our products — driving transparency beyond what’s required for regulatory compliance.



ASSESSMENT

Assessing potential human health and environmental risks of material chemistries using data collected on materials to evaluate compliance with our requirements and inform product design.



INNOVATION

Driving the development and use of innovative materials that enable the creation of groundbreaking products and support industry-wide change through extensive assessment of chemicals and materials in our products.



READ MORE

- [Regulated Substances Specification \(RSS\)](#)
- [Restricted Chemicals for Prolonged Skin Contact Materials](#)
- [Apple’s commitment to phasing out PFAS](#)
- [Integrating Toxicological Assessments in Material Selection for Apple Products](#)
- [A Protocol for Prioritizing Chemicals of Concern in the Electronics Industry](#)

Smarter chemistry

Our approach to smarter chemistry is based on three components: the mapping of materials used to make our products, an assessment of the data we gather from our manufacturing partners, and the pursuit of innovation through research into safer alternatives.

We focus our work on three strategic pillars:



Mapping



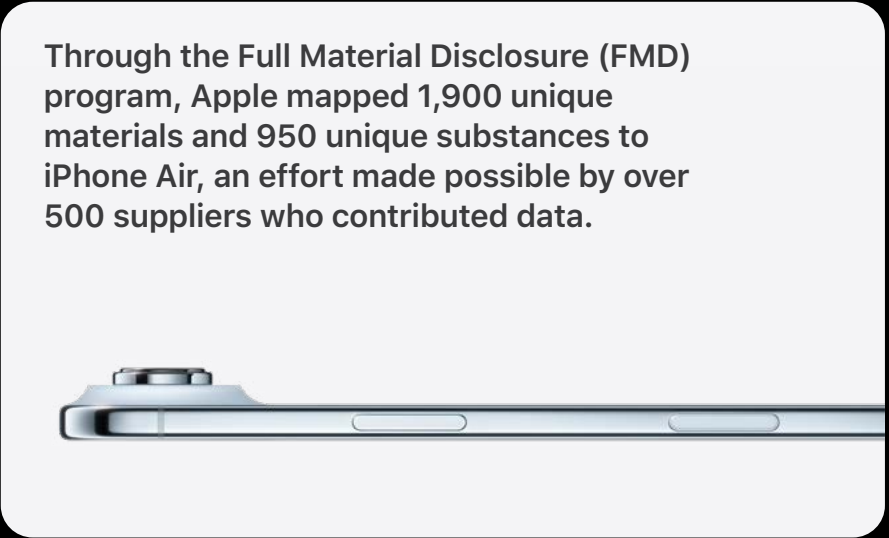
Assessment



Innovation



Achieved #1 ranking on Toxic-Free Future’s 2024 Retailer Report Card as the only company to receive an A for its commitment to safer chemistry and approach to restrictions and safer alternatives.



Through the Full Material Disclosure (FMD) program, Apple mapped 1,900 unique materials and 950 unique substances to iPhone Air, an effort made possible by over 500 suppliers who contributed data.



Approved more than 70 new safer cleaners in 2025, for a total of more than 300 safer cleaners approved for use in Apple’s supply chain.

Mapping

Programs supporting smarter chemistry

Mapping materials is central to our approach to smarter chemistry. Our Full Material Disclosure (FMD) program maps the materials and chemistries used in our parts and products, while our Chemical Safety Disclosure (CSD) program tracks the materials used in manufacturing our products. Through both programs, we have an extensive inventory and mapping of the chemistries of materials used in our products and manufacturing. This is essential for properly assessing the materials in our products and developing safer chemistries.

With our CSD program, we drive our suppliers to collect in-depth information on the material chemistries they use, including their purpose, the amount consumed, and how the chemicals are applied, stored, and handled. We also work closely with our suppliers to review the steps they’re taking to protect their employees. The data Apple collects makes this progress possible.

In parallel, we map the chemistry in our products through our FMD program to assess our products against current and future regulatory requirements, inform priority areas in line with [Apple’s Protocol for Prioritizing Chemicals of Concern in the Electronics Industry](#), and identify safer materials for our supply chain.

We also examine the effects of material chemistries across a product’s life cycle — from design and manufacturing to the customer experience and, ultimately, recycling and recovery. This information guides our decisions related to health, safety, and environmental risks. The changes we’re making have an impact beyond our footprint and across our industry, supporting our efforts to build responsible circular economies at scale.

Building an extensive view of the materials in our products

Detailed and comprehensive information guides our decision-making about smarter chemistries. The FMD program is our ongoing effort to catalog and map the chemicals in the materials and parts present in our products and collect substantiating test reports, as specified by Apple’s RSS.

We require our suppliers to participate in the program. They share information on thousands of materials used to manufacture our products. Material manufacturers provide thorough reporting on material compositions from deep within our supply chain, sharing the data through our secure data collection system. Suppliers demonstrate compliance with our requirements by providing test reports based on the type of material, which aligns with the requirements in section 9, “Demonstrating Compliance,” of Apple’s RSS.

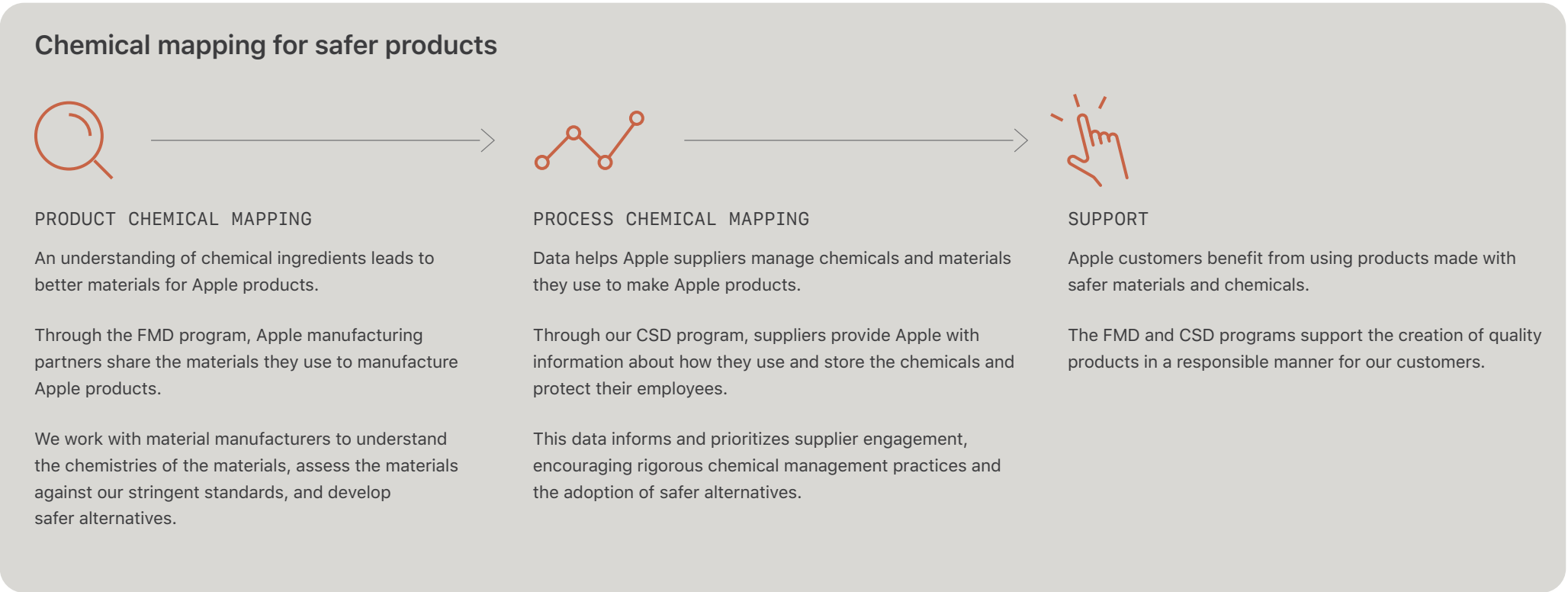
Smarter chemistry matters at every stage of the product life cycle



When we introduced iPhone Air, suppliers declared close to 1,900 unique materials through the FMD program — each with mandatory test reports — and 950 unique substances. This information wouldn’t be available without engaging our supply chain — it represents data from hundreds of suppliers across multiple tiers of our supply chain. Our advanced collection system has made this process easier for suppliers, giving them access to a library of more than 85,000 materials as of 2025.

With each revision of the RSS, Apple adds new reportable substances that the supply chain is required to report. This list is informed by the chemistries proactively mapped through our FMD program. Using this data, we partner with suppliers to replace substances in groups like flame retardants and UV stabilizers with safer alternatives. Flame retardants and UV stabilizers were added to the Reportable Substances list in the latest revision of the RSS. We’ve identified specific chemicals — substances like Melamine, which was added to the last RSS revision — thanks to the materials data we collect from suppliers through the FMD program.

The FMD program and the materials library help inform decisions across our product life cycles and drive our suppliers to make better material selections that align with our RSS and PSC. We use innovative approaches, including machine learning, to digitize chemical test data so this information is easier to assess. These efforts support our aim of improving the safety of our products, as well as the broader electronics industry and beyond.



Creating an inventory of chemicals used in manufacturing

The Apple Supplier Code of Conduct and Supplier Responsibility Standards outline our requirements for suppliers in the areas of health and safety, labor and human rights, the environment, ethics, and management systems, including requirements related to their use of chemicals. We also account for how chemicals are selected and managed within our supply chain — and the impact it can have on the health and safety of people working in our supply chain. Read more about this work in our [People and Environment in our Supply Chain Report](#).

Through the Chemical Safety Disclosure (CSD) program, suppliers are required to provide this data as part of a rigorous disclosure process. The detailed chemical inventory from our suppliers allows us to support our supply chain partners in identifying risks and opportunities to implement safer alternatives.

In 2025, more than 1,100 supplier facilities — including suppliers representing the majority of our direct spend — shared their chemical inventories as well as their storage and control information as part of the CSD program. Through this initiative, we’ve identified more than 14,000 unique materials and chemicals used in the manufacturing process. All these efforts contribute to a safer work environment for people across our supply chain.

Through CSD, we’ve identified more than 14,000 unique materials and chemicals used in the manufacturing process.

14,000

Assessment

Setting and maintaining rigorous chemical safety requirements

The main tool for assessing materials is our [Regulated Substances Specification \(RSS\)](#), enabled by our chemical, material, and part data collection program and infrastructure. We first published the RSS over 20 years ago, establishing requirements for the use of chemicals or materials in our products, accessories, manufacturing processes, and packaging, and it’s the basis for how we benchmark and assess those materials for safety for customers, workers, and the environment. Our specifications are incorporated into contractual obligations for our suppliers, and each specification helps us maintain stringent requirements. The RSS builds on our history of advancements in material safety — and reflects our dedication to the collection of necessary data to uphold these requirements.

We continue to evolve the RSS with new chemicals and restrictions based on the latest scientific research and standards, drawing from regulations, international standards, and voluntary requirements. Many of the specification’s restrictions exceed the most stringent local regulatory requirements to protect workers’ health and the environment. The specification contains restrictions on substances and requires reporting on additional substances. We’ve also revised it to include updated testing requirements for heavy metals in dyes and a section that addresses substitution of materials with appropriate alternatives. This section outlines

requirements for our material suppliers to work to confirm that phased-out chemicals are replaced by appropriate alternatives and also requires suppliers to exclusively use verified materials for specific uses, such as cleaners used at final assembly sites. This update makes Apple one of the first companies to codify a clear policy to enforce substitution with safer materials, creating greater awareness and true accountability among our supply chain partners.

Our Green Chemistry Advisory Board — an independent group of leading researchers and academics — provides feedback on key initiatives, including potential updates to the RSS. Their diverse experience and perspectives help us lead the way in protecting our customers and those who make or recycle our products.

We apply controls to materials that come into prolonged skin contact (as outlined in our [Restricted Chemicals for Prolonged Skin Contact Materials](#) list). These restrictions focus on substances that are potential skin sensitizers, minimizing reactions commonly reported across wearable products like jewelry. We derive these restrictions from leading standards, recommendations from toxicologists and dermatologists, international laws and directives, and Apple policies. We perform analytical testing on each material that comes into prolonged contact with skin according to Apple’s requirements, and we review compliance with these requirements.



Verifying and developing in the Environmental Testing Lab

We evaluate the safety of our products and materials through chemical analyses at our Environmental Testing Lab and third-party laboratories. We establish material specifications that suppliers are required to meet, and we conduct targeted testing as part of our compliance processes. The lab continues to grow in its mission and capacity — expanding its testing facilities with new technologies to conduct chemical analysis. Our teams also review test reports from suppliers to evaluate substances against the Regulated Substances Specification and Restricted Chemicals for Prolonged Skin Contact Materials specification. In 2025, we performed toxicological assessments on more than 1,900 new materials to proactively evaluate and eliminate potentially harmful substances from our products.

The data we collect from our disclosure programs drives our assessments. We develop toxicological profiles for new chemicals using scientific literature and internal assessments. These profiles detail the potential health impacts of each chemical, enabling us to evaluate the safety of using a substance in a specific product. We also continue to expand the scope of biocompatibility testing beyond individual materials to include modules and whole products. Through this work, we have an extensive view of our products. The information we share through material specifications benefits our suppliers and those we collaborate with in the industry.

Working with suppliers to meet global requirements

We’ve created systems to help our suppliers learn about our material specifications, track and assess the materials they use, and regularly communicate their material usage. This helps our suppliers meet global standards and regulations governing their operations. The FMD and CSD programs require suppliers to gather, understand, and share information on the materials they use, beyond regulatory requirements.

We support suppliers’ engagement with these programs — and the RSS — through ongoing training, which is central to our partnership and shared efforts to promote smarter chemistry in our products and processes. The RSS describes Apple’s global requirements and restrictions on the use of certain chemical substances or materials in Apple products, accessories packaging, ingredient formulations, and manufacturing processes. We provide supplemental support to our suppliers through training and workshops on our specifications. We’re also working with our suppliers to identify and develop alternative materials that meet the regulatory requirements for complex per- and polyfluoroalkyl substances (PFAS).

Our suppliers in China mainland have been working since 2020 under regulations governing the use of materials containing volatile organic compounds (VOCs). In 2025, we continued providing additional support to suppliers through trainings on regulations, attended by more than 2,200 participants. These attendees helped validate over 400 materials for low-VOC compliance. By deploying a VOC specification worldwide, we’re also helping drive the global adoption of low-VOC alternatives.

Creating a list of safer cleaners

Our efforts are making an immediate and lasting impact in protecting workers and the environment through our approach to the application of cleaners and degreasers — some of the highest-use materials at final assembly sites. Regulators and environmental health and safety organizations have focused considerable attention on the chemistries of cleaners and degreasers.

We’ve restricted the use of cleaners that contain known carcinogens, mutagens, reproductive toxicants, strong sensitizers, and persistent bioaccumulative toxins from cleaners and degreasers used at our supplier final assembly sites.⁵² This work was guided by globally recognized standards (such as EPA Safer Choice, GreenScreen Certified®, and ToxFMD®) — standards that are based on chemical hazard assessments, a more rigorous and robust hazard approach than eliminating individual substances of concern.

Over the past several years, we’ve evaluated hundreds of cleaner formulations for specific manufacturing uses, holding each to rigorous disclosure requirements and low-hazard criteria consistent with those leading standards. In 2025, we approved more than 70 additional safer cleaners for use in our supply chain, bringing the total number of safer cleaners we’ve approved over the past three years to more than 300. We also took the next step of compiling a carefully vetted list of approved cleaning products, all of which satisfy the requirements of the Apple RSS, and sharing this list directly with Apple suppliers for their own proactive use.

These efforts have had a direct impact on health and safety — and have the potential to transform how our industry operates. We’re promoting the use of safer cleaners across our supply chain by making it easier for suppliers to select safer alternatives at the outset. We’ve consistently expanded this work deeper into our supply chain to suppliers and processes beyond final assembly, helping them identify and implement opportunities to use safer alternatives in their operations.

We also look outside our supply chain to promote a broader transition to safer chemicals across our industry. See [page 68](#) for more information on how we’re advocating for safer cleaners and degreasers.

Shaping the industry through innovative PFAS assessment methods

We’ve advanced testing methodologies in our Environmental Testing Lab, including testing that enables the detection of PFAS. Our lab developed a more sensitive and accurate testing protocol to detect fluorine in polymeric samples through calibration methods that use standardized polycarbonate samples. We published the results of our work in a study, sharing improved methods for detecting PFAS in polymeric materials (such as plastics), which allows other electronics manufacturers to more accurately assess whether their products may contain PFAS.

Innovation

Creating new, safer chemistries to move the industry forward

Our strict requirements around potentially harmful substances in our products and processes drive our manufacturing partners to prioritize safer materials and help create a market for better alternatives. We lend our expertise on safer chemistries to support our manufacturing partners, including material manufacturers, as they meet the growing demand for safer materials. We also drive efforts to phase out chemistries that don't meet our specifications and invest in alternatives to drive change across our industry.

We've used our research and analysis of materials to create appropriate alternatives — including for substances where none currently exist — in partnership with our suppliers. In these cases, we lend our technical capabilities in material science to work with suppliers to develop entirely new chemistries. We maintain the same high-safety, performance, and environmental standards for new alternative materials, submitting them through rigorous testing and evaluation to avoid regrettable substitutions.

Since the late 1990s, we've led in the identification and successful removal of potentially harmful substances. This process has involved rigorously assessing chemicals and removing those that don't align with our goals and standards — in some cases before removal becomes a requirement and industry standard. We've been working to phase out the use of PFAS in our products, engaging with our supply chain partners and developing safer alternatives.

While our analysis indicates that PFAS used in our products are safe during product use, it was important to expand our scope to consider manufacturing throughout the supply chain. We're prioritizing phaseout activities in applications that result in the highest volumes of PFAS reductions and the most meaningful environmental impact. We're pursuing our phaseout in three steps: compiling an extensive inventory of PFAS uses in our products, identifying and developing non-PFAS alternatives that can meet our performance needs, and confirming that non-PFAS alternatives align with our safety and environmental goals. We've created new formulations of plastics, adhesives, and lubricants, replacing PFAS with other existing technologies to achieve similar performance in flame resistance and friction reduction.

READ MORE

[Apple's commitment to phasing out per- and polyfluoroalkyl substances white paper](#)



Advocating for safer alternatives across our industry

We continually push for safer alternatives to be accessible to others in our industry. Our work in smarter chemistry helps facilitate this important transition. Identifying and promoting the use of safer cleaners beyond Apple is a way to increase the impact of safer alternatives. The criteria we set for chemicals in materials — and how our suppliers use them — help establish even more stringent standards around health and safety across the electronics industry. We set criteria for alternatives in our recent publication of the RSS. Across many substance groups — including cleaners, flame retardants, and photoinitiators — our suppliers are required to ensure that when replacing a chemistry, the alternative is safer.

We also collaborate with standards-setting bodies, trade associations, and NGOs to achieve this, developing tools, standards, and mechanisms to drive the identification and adoption of smarter chemistries throughout our supply chain.

With our focus on cleaners and degreasers, we’ve built multiple pathways to advance industry innovation in safer cleaners. Our efforts to use safer cleaners in our supply chain have been central to our advocacy for greater industry collaboration and instrumental to our participation as a founding signatory of the Toward Zero Exposure program led by the Clean Electronics Production Network (CEPN).



Engagement and advocacy

IN THIS SECTION

Learning with others
Collaborative impact
Supporting communities

Engagement and advocacy

We collaborate with policymakers and other organizations working to address environmental challenges at the local, national, or global level. We believe our global platform comes with the responsibility to lead and to influence others to address urgent challenges that impact the environment and people. We can't solve complex environmental challenges alone. By working with others, we can catalyze the systemic changes needed to achieve lasting global impact.

Stakeholders



Industry associations



Policymakers



Communities



Nongovernmental organizations (NGOs)



Focus areas



RESEARCH
Informing environmental research and best practices



PARTNERSHIPS
Collaborating with NGOs and other partners on programmatic solutions



COALITIONS
Promoting environmental leadership with others in the industry



EVENTS AND BILATERAL MEETINGS
Sharing our perspectives with multisectoral leaders



ADVOCACY
Taking action to drive environmental policy

Learning with others

The communities we engage with help shape how we evaluate regulations, approaches, and emerging technologies. We consult with the scientific community to better understand emerging approaches, technologies, and tools that can support our environmental work. For example, we continue to engage our Green Chemistry Advisory Board, an independent group of toxicologists and experts who advise on our smarter chemistry initiatives, including potential updates to the RSS.

We engage with cross-sector organizations to share our experiences and learn from them. This type of engagement is especially important for our work to improve access to water for all, and, for example, it includes working with Frank Water to identify stewardship opportunities with our suppliers in the Bengaluru and Chennai basins, assessing the local water infrastructure and community needs. Our participation also extends to international conferences, including Electronics Goes Green, the International Electronics Reuse and Recycling Congress, and Going Green CARE — INNOVATION, where we’ve served as members of the steering committee.

The business community — including our customers, suppliers, industry partners, and investors — also serves as a valuable source of collaboration. For example, as co-chair of the United States Information Technology Office (USITO) — a trade association representing the U.S. information and communications technology industry in China — we lead the environmental protection and energy efficiency working groups. In this role, we engage with other companies in China as we work to comply with new environmental regulations and with policymakers on future standards. And we engage with government and other member companies as chair of the product stewardship working group in the Australian

Information Industry Association (AIIA) to advocate for policies that promote circularity and drive progress toward carbon neutrality.

Supply chain

Engaging with our suppliers on our climate and environmental goals is critical to achieving impact across our footprint. We establish programs, platforms, and surveys to communicate with suppliers, to help them understand our requirements, and to share data. Our supplier engagement programs for clean energy, energy efficiency, and clean water serve as the foundation for our working relationships.

Through these programs, we help facilitate efforts to decarbonize operations, drive water reuse, establish standards to source and use resources responsibly in manufacturing, and more across our supply chain. Additionally, we’ve offered our suppliers trainings, workshops, educational materials, webinars, and connections to external funding and support throughout our supplier capability-building programs.

Industry engagement

Through partnerships and coalitions, we collaborate with various industries by sharing tools and standards, and pursuing policy objectives that drive our shared objectives. We regularly evaluate our engagement with trade associations. As part of this process, we’ve assessed relevant trade association positions on climate and identify areas to improve alignment with our values and principles.



Collaborative impact

We make public commitments alongside our partners to support and signal the change we’re working to create. We’re transparent about the progress we make toward these commitments, ensuring accountability for results and inspiring broader action.

We engage in partnerships that align with our strategic objectives and involve organizations and institutions operating across the globe. We participate at all levels, from acting in leadership as founders, members, and sponsors to working alongside others.

SELECT GLOBAL CLIMATE PARTNERSHIPS AND MEMBERSHIPS

America Is All In

Coalition of leaders in the United States who champion a whole-of-society mobilization to deliver the transformational change that will meet the challenge of the climate crisis and secure a healthy, prosperous, equitable, and sustainable future for everybody

✓ MEMBER

BSR

Sustainable business network and consultancy focused on creating a world in which all people can thrive on a healthy planet

✓ MEMBER

Ceres

Nonprofit dedicated to taking action to stabilize the climate, protect water and natural resources, and build a just and inclusive economy

✓ MEMBER OF THE CERES COMPANY NETWORK

Climate Group

International nonprofit with a network of over 500 multinational businesses in 175 markets worldwide focused on the goal of a world of net-zero carbon emissions by 2050, with greater prosperity for all

✓ RE100 MEMBER

CN100 Alliance

Industry alliance launched in 2024 to advocate for industry actions and policies promoting carbon neutrality and circular supply chains in China

✓ MEMBER

Conservation International (CI)

A nonprofit that empowers societies to responsibly and sustainably care for nature and our global biodiversity, for the well-being of humanity

✓ PARTNER

Corporate Eco Forum (CEF)

Invitation-only forum for senior executives representing large, influential companies that demonstrate a serious commitment to sustainability as core to business strategy

✓ MEMBER

Exponential Roadmap Initiative (ERI)

Accredited initiative of the UN Climate Change High-Level Champions’ Race to Zero, with the mission to halve emissions before 2030 through climate action and groundbreaking projects

✓ MEMBER

MIT Climate & Sustainability Consortium (MCSC)

Academia and industry collaboration galvanizing the business community to impact broad and intersecting environmental challenges

✓ INDUSTRY ADVISORY BOARD MEMBER

Natural Climate Solutions Alliance (NCSA)

Convened by WBCSD and WEF, bringing together businesses, NGOs, and solutions providers to mobilize a high-integrity demand for high-quality natural climate solutions

✓ MEMBER

Responsible Business Alliance (RBA)

Industry coalition dedicated to responsible business conduct in global supply chains

✓ FULL MEMBER, SERVING ON THE BOARD OF DIRECTORS AND STEERING COMMITTEE OF THE RESPONSIBLE MINERALS INITIATIVE

SEMI Sustainability and Climate Initiatives

Coalition accelerating climate action across the semiconductor value chain through direct emissions reductions in semiconductor manufacturing and Scope 3 transparency, Energy Collaborative for renewables procurement, and water and waste management working groups

✓ MEMBER

The Coalition to Grow Carbon Markets

A government-led initiative to strengthen high-integrity corporate demand for carbon credits

✓ MEMBER

World Business Council for Sustainable Development (WBCSD)

Community of the world’s leading sustainable businesses working toward a net-zero, nature-positive, and more equitable future

✓ MEMBER

World Economic Forum (WEF)

The International Organization for Public-Private Cooperation, providing a global, impartial, and not-for-profit platform for meaningful connection between stakeholders to establish trust and build initiatives for cooperation and progress

✓ MEMBER

World Wildlife Fund (WWF)

The world’s leading conservation organization, working to sustain the natural world for the benefit of people and wildlife and collaborating with partners from local to global levels in nearly 100 countries

✓ PARTNER

Supporting communities

We work directly with groups and individuals striving for global environmental impact and addressing environmental injustice in their communities. We evaluate each opportunity based on our strategic framework for engagement with partners and alignment with Apple 2030.

Our work combines collaboration with philanthropic contributions, determined based on each organization’s focus and potential to effect change. We direct our support toward urgently needed environmental solutions of all sizes, driven by people-first organizations that share our values. Our intention is for the work we support to have impact and endure long after our contributions are complete. We aim to achieve this through deep partnerships with communities, working toward sustainable models for transformative change.

We’re also focused on developing leadership to sustain the impact of our work. In 2025, two efforts demonstrate our commitment to this. We’ve engaged the China Green Carbon Foundation in a three-year project to build management capacity within China’s national park service aimed at enhancing practical skills and strategic perspectives in adaptive management, scientific monitoring, nature education, and green finance. With Conservation International, we’ve pursued a yearlong program in Ecuador aimed at preparing the next generation of conservation leaders, focused on individuals from Afro-descendant communities. The initiative integrates traditional knowledge with cutting-edge science, while providing hands-on experience and professional development. Partnerships with universities provide program participants with mentorship that helps them to address urgent conservation challenges and foster sustainable management of tropical biodiversity.



JANE GOODALL INSTITUTE

We support the Jane Goodall Institute’s efforts to amplify community-led conservation, youth engagement, and biodiversity science. Our grant focuses on enhancing conservation impacts and sharing insights, particularly in the Democratic Republic of the Congo where JGI is leading the implementation and revision of the Conservation Action Plan for Great Apes. This work brings together public, private, and community stakeholders to identify, implement, and monitor priority conservation strategies.



CITY BLOSSOMS

This project supports City Blossoms in creating new school gardens and green spaces in Washington, DC’s underserved communities. The initiative integrates climate education with hands-on learning, installs green infrastructure for climate resilience, and fosters youth development through a fellowship program, aiming to engage thousands of children and youth annually.



GRAVITY WATER

We’re working with Gravity Water to deploy integrated rainwater harvesting and treatment systems in rural schools in Vietnam, providing safe, year-round drinking water for thousands of children and community members, while also establishing a scalable model for climate-resilient water access across the region. We launched our partnership in 2023, in the Hoa Binh province, where systems installed at 131 schools have provided over 41,000 students and teachers with improved water supply. In 2025, we expanded our collaboration to address the critical issue of saltwater-contaminated groundwater in Vietnam’s Mekong River Delta.

Deepening our community work in Australia

Since 2022, Apple has partnered with the Karrkad Kanjdji Trust (KKT), an organization established by Traditional Owners of the Warddeken and Djelk Indigenous Protected Areas across West and Central Arnhem Land. KKT’s efforts center on protecting native ecosystems, supporting those living and working on ancestral lands, investing in women rangers, educating future custodians, mitigating the impacts of fire and climate change, and safeguarding Indigenous culture.

We have worked closely with the Trust, supporting their partners’ conservation activities across these protected areas. These programs foster the transfer of essential knowledge between generations of women, blending traditional and cultural practices with cutting-edge science, strengthening environmental regeneration efforts, and helping combat climate change.

Our partnership with the Trust has expanded to include supporting the building of three new homeland schools, each serving a distinct language group, part of our efforts to help bolster current and upcoming community-owned education initiatives. This ensures that First Nations families and rangers in remote communities have access to quality, full-time, bicultural learning, blending ancient and contemporary traditional knowledge with the Australian curriculum and modern technology. The community has also integrated the use of iPhone, iPad, and Mac into the extensive archaeological survey and mapping data work by their rock art archaeological team, as they preserve some of the oldest stories in the world.



Data

IN THIS SECTION

- Greenhouse gas emissions
- Carbon credits
- Carbon footprints
- Energy
- Resources
- Normalizing factors



Greenhouse gas emissions

We account for our carbon footprint by following internationally recognized standards, like the World Resources Institute (WRI) Greenhouse Gas (GHG) Protocol and ISO 14040/14044.¹ Improving the accuracy of our carbon footprint is an ongoing process — as we learn more, we refine our carbon models and adjust our climate roadmap. We also regularly revisit the boundary of our carbon footprint as our data sources improve and our business evolves.

		Fiscal year				
		2025	2024	2023	2022	2021
Corporate emissions (metric tons CO ₂ e) ²	Gross emissions	570,100	666,800	471,400	324,000	166,380
	Scope 1	55,200	55,200	55,200	55,200	55,200
	Natural gas, diesel, propane	35,400	37,400	35,300	39,700	40,070
	Fleet vehicles	10,100	15,400	17,000	12,600	12,090
	Other emissions ³	9,700	2,400	2,900	2,900	3,040
	Scope 2 (market-based)	1,100	3,300	3,400	3,000	2,780
	Electricity	0	0	0	0	0
	Steam, heating, and cooling ⁴	1,100	3,300	3,400	3,000	2,780
	Scope 3	513,700	608,300	412,800	265,800	108,400
	Business travel	201,700	284,500	225,700	113,500	22,850
	Employee commute ⁵	143,600	152,700	164,100	134,200	85,570
	Other fuel and energy-related activities ⁶	163,000	166,400	18,300	10,600	0
	Work from home (market-based)	5,400	4,700	4,700	7,500	0
	Transmission and distribution loss (market-based)	0	0	0	0	N/A
	Other cloud (market-based)	0	0	0	0	0
Product life cycle emissions (metric tons CO ₂ e) ¹²	Carbon removals					
	Corporate carbon offsets	-570,100 ⁷	-666,800 ⁸	-471,400 ⁹	-324,100 ¹⁰	-167,000 ¹¹
	Gross emissions (Scope 3)	14,710,000	14,600,000	15,570,000	20,280,000	23,020,000
	Manufacturing (purchased goods and services)	8,150,000	8,200,000	9,400,000	13,400,000	16,200,000
	Product transportation (upstream and downstream)	2,370,000	1,950,000	1,500,000	1,900,000	1,750,000
	Product use (use of sold products)	4,120,000	4,400,000	4,600,000	4,900,000	4,990,000
	End-of-life processing	70,000	70,000	70,000	80,000	80,000
	Carbon removals					
	Product carbon offsets	-167,980 ⁷	-70,300	-13,500	0	-500,000 ¹³
	Total gross carbon footprint (without offsets) (metric tons CO ₂ e) ¹⁴	15,300,000	15,300,000	16,100,000	20,600,000	23,200,000
	Total net carbon footprint (after applying offsets) (metric tons CO ₂ e) ¹⁴	14,500,000	14,500,000	15,600,000	20,300,000	22,530,000

- Notes:
- For data on years prior to 2020, please reference past Environmental Progress Reports.
- Totals might not add up due to rounding.
- 1

Apple's carbon footprint boundary is aligned with the Greenhouse Gas (GHG) Protocol framework and includes emissions that are material and relevant to Apple, where data is available. Apple's carbon footprint includes direct scope 1 emissions; indirect scope 2 emissions from purchased electricity, steam, heating, and cooling; and indirect scope 3 emissions from purchased goods and services, other fuel and energy-related activities, transportation and distribution, business travel, employee commute, product use, and end of life.
- 2

Since April 2020, Apple has purchased certified carbon credits to offset the remaining corporate emissions that it did not offset by direct emission reduction. Beginning in fiscal year 2022, we've expanded our footprint boundary to include scope 3 emissions associated with work from home, other cloud services, electricity transmission and distribution losses, and other fuel and energy-related activities.
- 3

Emissions from R&D processes and refrigerant leaks.
- 4

Beginning in fiscal year 2021, we're accounting for scope 2 emissions from the purchase of district heating, chilled water, and steam.
- 5

Beginning in fiscal year 2020, we updated our methodology for calculating emissions from employee commute to reflect employees working from home during COVID-19.
- 6

Impacts such as upstream emissions for scope 1 fuels and life cycle emissions associated with renewable electricity are included.
- 7

For a detailed breakdown of carbon offset purchases applied to our corporate footprint, see the carbon offsets table on the following page.
- 8

We retired 666,800 metric tons of carbon credits from the Chyulu Hills project in Kenya, the Guinan project in the Guizhou Province of China, the Guyana REDD+ project in Guyana, the AF Forestal Apepu Expansion project in Paraguay, and the Abaro Forestal San Pedro project in Paraguay to maintain carbon neutrality for our corporate emissions in fiscal year 2024. These projects were certified to the VCS and CCB standards at time of purchase.
- 9

We retired 471,400 metric tons of carbon credits from the Chyulu Hills project in Kenya and Guinan Project in the Guizhou Province of China to maintain carbon neutrality for our corporate emissions in fiscal year 2023. These projects were certified to the VCS and CCB standards at the time of purchase.
- 10

We retired 324,100 metric tons of carbon credits from the Alto Mayo project in Peru and Chyulu Hills project in Kenya to maintain carbon neutrality for our corporate emissions in fiscal year 2022. These projects were certified to the VCS and CCB standards at the time of purchase.
- 11

We retired 167,000 metric tons of carbon credits from the Chyulu Hills project in Kenya to maintain carbon neutrality for our corporate emissions in fiscal year 2021. This project was certified to the VCS and CCB standards at the time of purchase.
- 12

Because we're committed to accuracy and transparency, we regularly refine our product life cycle assessment model and sources of data.
- 13

For fiscal year 2021, we retired credits from the Chyulu Hills project in Kenya and purchased carbon credits from two additional projects to offset a total of 500,000 metric tons of direct emissions across our value chain. The first project, a REDD+ coastal conservation project in Guatemala, protects and conserves forests from deforestation and degradation. The second project aims to establish forests on about 46,000 hectares of barren land that isn't otherwise in use across seven counties in the Guizhou province of China. Both projects were certified to the same high standards that we require for projects in the Restore Fund, including VCS and CCB standards at the time of purchase.
- 14

Due to rounding, our gross and net carbon footprints do not always equal the sum of the subtotals disclosed above.

Carbon credits

We retired the following carbon credits toward our corporate and product emissions footprint for 2025.

Project name	Project description	Vintage	Volume retired (metric tons CO ₂ e)	Registry link
Lumin	The Lumin/Eucapine project in Uruguay will convert nearly 19,000 hectares of degraded grasslands under extensive grazing by beef cattle to productive forest plantations. Certified to the Climate Community and Biodiversity (CCB) standard, the project serves to produce high-value, long-lived timber products and to sequester large amounts of carbon dioxide from the atmosphere.	2020	422,395	https://registry.verra.org/app/projectDetail/VCS/960
Windrock	The Windrock Land Company Improved Forest Management (IFM) carbon project supports the responsible management of 73,000 acres of forest in eastern Tennessee, maintaining timber harvest levels below the growth rate to encourage the health and value of the forest while increasing carbon stored. Windrock’s forest is certified by the Forest Stewardship Council program, demonstrating sustainable forest management.	2022	319,785	https://acr2.apx.com/mymodule/reg/prjView.asp?id1=701

Carbon footprints

The following tables list the carbon footprints (in kilograms) of select Apple products sold as of March 11, 2026.¹

iPhone	Unit	Storage configurations				
		128GB	256GB	512GB	1TB	2TB
iPhone 17	kg CO ₂ e	–	55	61	–	–
iPhone 17 Pro	kg CO ₂ e	–	64	74	93	–
iPhone 17 Pro Max	kg CO ₂ e	–	67	77	95	134
iPhone 17e	kg CO ₂ e	–	47	57	–	–
iPhone Air	kg CO ₂ e	–	55	64	84	–
iPhone 16	kg CO ₂ e	56	61	74	–	–
iPhone 16 Plus	kg CO ₂ e	60	64	77	–	–

Note: Dashes indicate that the configuration does not exist.

¹ Product carbon footprint data for Apple products are published in our [Product Environmental Reports](#) and are accurate as of product launch. In instances where carbon models were developed prior to product launch, we use preproduction units.

iPad	Unit	Storage configurations				
		128GB	256GB	512GB	1TB	2TB
iPad Pro 13-inch (M5) Wi-Fi + Cellular	kg CO ₂ e	–	120	129	149	187
iPad Pro 11-inch (M5) Wi-Fi + Cellular	kg CO ₂ e	–	103	112	132	170
iPad Air 13-inch (M4) Wi-Fi + Cellular	kg CO ₂ e	89	95	108	132	–
iPad Air 11-inch (M4) Wi-Fi + Cellular	kg CO ₂ e	74	80	93	117	–
iPad (A16) Wi-Fi + Cellular	kg CO ₂ e	74	77	86	–	–
iPad mini (A17 Pro) Wi-Fi + Cellular	kg CO ₂ e	65	71	–	–	–

Apple Watch	Unit	Select product configurations		
		Aluminum case with Sport Loop	Titanium case with Sport Loop	Titanium case with Titanium Milanese Loop
Apple Watch Ultra 3	kg CO ₂ e	–	–	11.0
Apple Watch Series 11	kg CO ₂ e	8.1	8.1	–
Apple Watch SE 3	kg CO ₂ e	8.2	–	–

Laptops	Unit	Storage configurations							
		256GB	512GB	1TB, 16GB memory	1TB, 24GB memory	1TB, 48GB memory	2TB, 24GB memory	2TB, 36GB memory	2TB, 48GB memory
16-inch MacBook Pro (2026), Apple M5 Pro chip	kg CO ₂ e	–	–	–	280	284	–	–	–
16-inch MacBook Pro (2026), Apple M5 Max chip	kg CO ₂ e	–	–	–	–	–	–	324	326
15-inch MacBook Air (2026), Apple M5 chip	kg CO ₂ e	–	145	165	167	–	–	–	–
14-inch MacBook Pro (2025), Apple M5 chip	kg CO ₂ e	–	164	183	185	–	–	–	–
14-inch MacBook Pro (2026), Apple M5 Pro chip	kg CO ₂ e	–	–	–	212	–	246	–	–
14-inch MacBook Pro (2026), Apple M5 Max chip	kg CO ₂ e	–	–	–	–	–	–	261	–
13-inch MacBook Air (2026), Apple M5 chip	kg CO ₂ e	–	119	139	140	–	–	–	–
MacBook Neo	kg CO ₂ e	103	116	–	–	–	–	–	–

Desktops	Unit	Storage configurations				
		256GB	512GB	1TB	4TB	8TB
iMac, Two ports	kg CO ₂ e	346	–	–	–	–
iMac, Four ports	kg CO ₂ e	–	391	–	–	–
Mac mini (2024), Apple M4 Pro chip	kg CO ₂ e	–	50	–	–	121
Mac mini (2024), Apple M4 chip	kg CO ₂ e	32	35	–	–	–
Mac Studio (2025), Apple M4 Max chip	kg CO ₂ e	–	276	–	–	–
Mac Studio (2025), Apple M3 Ultra chip	kg CO ₂ e	–	–	382	–	–
Mac Pro (2023)	kg CO ₂ e	–	–	1,572	–	–

HomePod	Unit	Storage configurations			
		Apple TV		Unit	
HomePod (2nd generation)	kg CO ₂ e	92		kg CO ₂ e	43
HomePod mini	kg CO ₂ e	42		kg CO ₂ e	–
					46

Apple Vision Pro	Unit	AirPods			
				Unit	
Apple Vision Pro	kg CO ₂ e	335		kg CO ₂ e	13

Energy

	Unit	2025	2024	2023	2022	2021
Corporate facilities energy	Electricity					
	Total	MWh	3,737,000	3,777,000	3,487,000	3,199,000
	U.S.	MWh	2,933,000	3,000,000	2,830,000	2,614,000
	International	MWh	804,000	777,000	657,000	585,000
	Fuel					
	Total	MWh	416,680	591,770	662,950	334,260
	Natural gas	MWh	160,640	307,390	312,490	188,630
	Biogas	MWh	190,100	183,330	218,780	76,280
	Propane liquid	MWh	580	1,760	1,030	1,830
	Gasoline	MWh	30,320	45,140	50,760	38,790
	Diesel (other)	MWh	23,740	36,150	57,030	15,610
	Diesel (mobile combustion)	MWh	11,300	18,000	22,860	13,120
Energy efficiency	Other					
	Steam, heating, and cooling ¹	MWh	30,090	18,130	45,370	19,800
	Corporate facilities ²					
	Electricity savings	MWh/year	382,130	355,390	298,360	290,080
	Fuel savings	MMBtu/year	199,340	155,450	124,030	113,690
	Supplier facilities ³					
	Electricity savings	MWh/year	2,889,000,000	2,469,000,000	2,040,000,000	1,620,000,000
	Fuel savings	MMBtu/year	2,832,000	2,361,000	2,281,000	2,038,000
Renewable electricity	Corporate facilities					
	Renewable electricity used	MWh	3,737,000	3,777,000	3,487,000	3,199,000
	Renewable electricity percentage ⁴	% of total energy	100	100	100	100
	Scope 2 emissions avoided	metric tons CO ₂ e	1,140,000	1,214,000	1,144,000	1,201,000
	Supply chain ⁵					
	Renewable electricity capacity (operational) GW		20.7	18.9	16.5	13.7
	Renewable electricity capacity (committed) ⁶ GW		–	–	21.0	6.8
	Renewable electricity used	MWh	38,300,000	31,300,000	25,500,000	23,700,000

- 1
- Beginning in fiscal year 2021, we’re accounting for the purchase of district heating, chilled water, and steam.
- 2
- Because energy efficiency measures have lasting benefits, energy efficiency savings are calculated cumulatively since 2012. All efficiency measures are retired based on their effective useful lifetime as documented by the California Energy Commission.
- 3
- Energy savings from supplier energy efficiency improvements are reported as annualized numbers. Beginning in 2020, supplier energy savings are calculated based on the fiscal year instead of on a calendar-year basis.
- 4
- Beginning January 1, 2018, 100 percent of the electricity we use to power our global facilities is sourced from renewable energy.
- 5
- Supply chain renewable electricity capacity (operational) and renewable electricity use for fiscal year 2021 do not include REC purchases Apple made, equivalent to 0.3 GW and 500,000 MWh, respectively, to address a small increase to its carbon footprint.
- 6
- In an effort to rapidly scale and accelerate progress to Apple 2030, beginning in fiscal year 2024 the Apple Supplier Code of Conduct requires our entire direct manufacturing supply chain to use 100 percent renewable electricity for all Apple production before 2030.

Resources

		Fiscal year					
		Unit	2025	2024	2023	2022	2021
Water	Corporate facilities						
	Total	million gallons	1,796	1,756	1,610	1,527	1,407
	Freshwater ¹	million gallons	1,551	1,532	1,411	1,380	1,259
	Recycled water ²	million gallons	218	197	151	142	141
	Other alternative sources ³	million gallons	27	27	48	5	7
	Supply chain						
	Freshwater saved	million gallons	17,000	14,000	12,700	13,000	12,300
Waste	Corporate facilities						
	Landfill diversion rate	%	75	70	74	71	68
	Landfilled (municipal solid waste)	pounds	46,062,100	41,401,830	38,343,490	33,260,990	33,202,200
	Recycled	pounds	99,725,250	81,025,310	81,781,660	78,618,250	73,489,220
	Composted	pounds	32,476,240	9,002,990	14,803,510	8,726,170	4,844,960
	Hazardous waste	pounds	3,858,180	2,537,960	7,321,130	2,780,610	3,525,840
	Waste to energy	pounds	2,539,580	2,148,950	5,713,790	1,197,570	657,890
	Supply chain						
Product packaging footprint	Waste diverted from landfill	metric tons	600,000	600,000	497,000	523,000	419,000
	Packaging						
	Total packaging ⁴	metric tons	293,400	240,110	254,300	276,100	257,000
	Recycled fiber	% of total	62	60	62	66	63
	Responsibly sourced virgin fiber ⁵	% of total	37.6	39	35	30	33
		Plastic	% of total	0.4	~1	3	4

- 1

We define freshwater as water that is drinking-water quality. The majority of our freshwater comes from municipal sources, and less than 5 percent comes from onsite groundwater sources.
- 2

Recycled water represents a key alternative water source. Our recycled water is sourced primarily from municipal treatment plants, with less than 5 percent coming from onsite treatment. Recycled water is primarily used for irrigation, makeup water in cooling, and toilet flushing.
- 3

Other alternative sources of water include rainwater and recovered condensate captured onsite. Water used for construction activities like dust control is not included in this total. Beginning with our fiscal year 2023 water footprint, we began allocating our Prineville data center water use, which comes from an Aquifer Storage and Recovery system, to alternative sources to better represent the impact of our water use.
- 4

Beginning in fiscal year 2022, we expanded our packaging goal boundary to better reflect our impact to include retail bags, all finished goods boxes (including plastic content in labels and in-box documentation), packaging sent to our customers as part of Apple Trade In, AppleCare packaging for whole units and service modules (with the exception of plastics needed to protect items from electrostatic discharge), and secondary packaging of Apple products and accessories sold by Apple. Our goal boundary does not include the inks, coatings, or adhesives used in our packaging in addition to our packaging footprint.
- 5

Responsible sourcing of wood fiber is defined in Apple's Sustainable Fiber Specification. Since 2017, all the virgin wood fiber used in our packaging has come from responsible sources.

Normalizing factors*

	Fiscal year				
	2025	2024	2023	2022	2021
Net sales (in millions, US\$)	416,161	391,035	383,285	394,328	365,817
Number of full-time equivalent employees	166,000	164,000	161,000	164,000	154,000

* As reported in Apple’s Form 10-K Annual Report filed with the SEC.

Green Bond Impact Report

Fiscal Year 2025 Update

IN THIS SECTION

- Apple's green bonds
- Cumulative allocation: 2019 Green Bond
- Featured projects
- Sustainable Fitch Annual Review
- Ernst & Young LLP Use of Proceeds Examination

Apple’s green bonds

Apple is committed to leaving the world better than we found it, and that commitment is considered in everything we do — from how we design our products to the processes we use to make and recycle them.

We have long sought to model how businesses can lead in driving the reduction of global carbon emissions to address climate change, and our green bonds have helped Apple to demonstrate that leadership. Since the 2015 United Nations Climate Change Conference (COP21) in Paris, Apple has issued and invested proceeds from three green bonds to support global efforts to reduce carbon emissions. We issued our first \$1.5 billion green bond in February 2016 and our second \$1 billion green bond in June 2017 to help advance projects to mitigate our impact on climate change and inspire others to do the same. Both of these green bonds are fully allocated.

In November 2019, we proceeded with our third green bond issuance, and our first in Europe — raising €2 billion (approximately \$2.2 billion) across two tranches (the “2019 Green Bond”). The 2019 Green Bond supports environmental efforts across the company, as well as our ambitious goal to reach carbon neutrality across Apple’s entire carbon footprint, including the full product life cycle, by 2030.¹ Our aim is to leverage low-carbon product design, energy efficiency, clean electricity, and direct emissions abatement to reduce our greenhouse gas emissions by 75 percent compared with 2015, before balancing the remaining emissions — starting with nature-based solutions that adhere to rigorous international standards.

This year’s annual impact report covers the cumulative allocation of Apple’s 2019 Green Bond proceeds to environmental projects that incurred spend between September 29, 2019, and September 27, 2025 — Apple’s 2020 through 2025 fiscal years.

Process for selecting projects and quantifying benefits

The 2019 Green Bond proceeds are intended to prioritize projects that mitigate our carbon emissions, including

supporting the execution of our Apple 2030 roadmap. In fiscal year 2025, the final allocation of net proceeds to eligible projects was determined by our Vice President, Environment and Supply Chain Innovation, based on each project’s alignment with the 2019 Green Bond eligibility criteria: low-carbon design and engineering, energy efficiency, renewable energy, carbon mitigation, and carbon sequestration.²

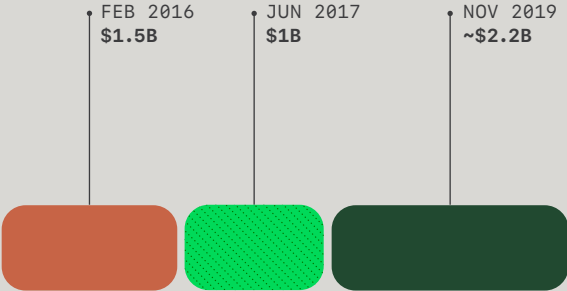
Apple allocated proceeds to a variety of project types across the eligible categories, including operational projects with immediate direct carbon benefits, capacity-building projects that enable suppliers to achieve carbon emissions reductions, and research and development that will unlock future carbon reductions once scaled.

For many projects, we’re able to quantify a direct carbon benefit. When this is possible, we calculate the carbon impact over the project’s lifetime by estimating the annual carbon emissions reductions or removals of each project³ and multiplying it by the project’s expected lifetime based on the underlying contracts.

We’re also quantifying the new renewable energy capacity we’re adding to the grid through the projects to which we’ve allocated green bond proceeds based on the terms of our agreements with project developers.

Issuance

Since February 2016, Apple has issued a total of \$4.7 billion in green bonds.



¹ We plan to reach carbon neutrality beginning with our fiscal year 2030 carbon footprint.

² Across our other environmental reporting, we also use the term “direct emissions” and “emissions abatement” for “carbon mitigation” and “carbon removal” for “carbon sequestration.”

³ Notes on Projected Environmental Benefits:

- We estimated future environmental benefits of projects that are not yet fully operational, including carbon emissions avoided or removed, energy capacity, and annual renewable energy generation. To estimate carbon emissions avoided for renewable energy projects and renewable energy certificates (RECs), we use regional grid emissions factors as well as projections for annual electricity generation or the MWh associated with RECs. For the Restore Fund, we estimated the total carbon removal potential over the lifetime of the projects.

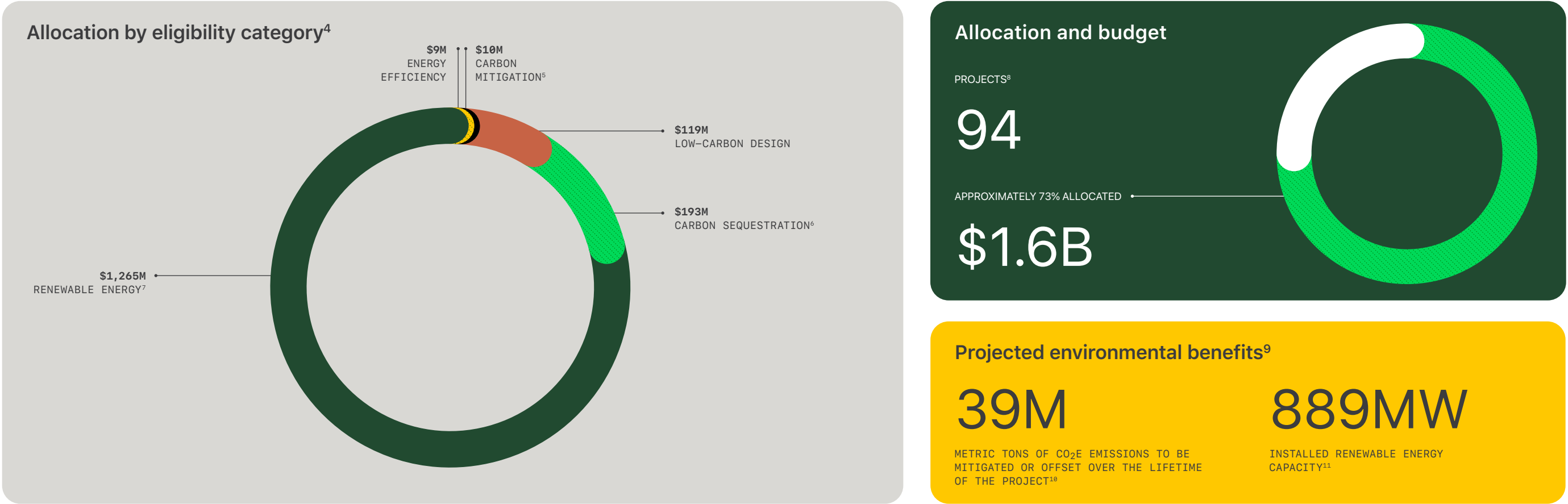
There is inherent uncertainty in all of these projections. There is currently no generally accepted accounting principle to measure or account for many of these metrics, and our measurement methodologies may change. Projects dedicated to research and development or capacity building are not quantified, as their carbon benefit — which we believe is often sizable — is indirect and may take place across Apple’s global supply chain.

- Proceeds from Apple’s 2019 Green Bond were allocated to new and ongoing projects. For ongoing, multiyear projects, we included the spend that occurred during the fiscal year allocation period and the estimated environmental benefits of the entire completed project.

- Starting in fiscal year 2022, we changed our methodology for quantifying the benefits of eligible projects to a project lifetime calculation. We believe a lifetime calculation to be a better method of quantifying the impact of these projects compared to the prior calculation methodology that entailed estimating annual emissions reductions, as our projects range from 1 to 25 years — well beyond the maturity of the 2019 Green Bond and related impact reporting.

Cumulative allocation: 2019 Green Bond

Fiscal year 2025 update



4 The green bond allocations do not capture financial returns from project investments. As a result, the information provided does not capture a full view of the net abatement costs to Apple.

5 Across our other environmental reporting, we also use the term “direct emissions” for “carbon mitigation” and “carbon removal” for “carbon sequestration.”

6 See footnote 5.

7 Renewable energy allocation includes equity investments, long-term contracts such as power purchase agreements and virtual power purchase agreements, long-term environmental attribute purchase agreements, and certain renewable energy

credits. Proceeds are considered allocated upon the date of commercial operations for these long-term renewable energy spend projects. The allocated amount is calculated as the net present value of future cash flows based on estimated annual production of the renewable energy projects over the contract term. Actual results could differ from those estimates and those differences may be material. Because of this allocation methodology, the financial allocations to the 2019 Green Bond use of proceeds may not proportionally match the carbon contributions that we expect from each category of Apple’s 2030 roadmap.

8 The “project count” represents projects or groups of projects comprised of similar project types within the eligibility criteria that Apple funds and tracks in aggregate.

9 A number of projects to which green bond proceeds were allocated since issuance are dedicated to research and development, capacity building, and policy advocacy. These types of projects have an indirect carbon benefit and therefore are not reflected in the projected environmental benefits quantified above.

10 We calculate greenhouse gas emissions mitigated or offset using the projected lifetime benefits of eligible projects from cumulative allocations for the period from fiscal year 2020 to fiscal year 2025. Project lifetimes range from 1 to 25 years. This

number includes 7.3 million metric tons of CO₂e emissions mitigated or offset that were previously inadvertently not reported under the project lifetime calculation.

11 This number represents PPAs and vPPAs where Apple is the sole investor, and obtains environmental attributes that are applied to our corporate carbon footprint. Apple’s investments also support capacity from which we do not directly obtain environmental attributes. We also co-invest with other partners. The capacity from both of these kinds of investments are not included in the number above. Apple’s combined investments, including those made with partners, have resulted in over 2,200 MW installed renewable energy capacity from fiscal year 2020.

Featured projects

In fiscal year 2025, we continued to expand the projects that support our Apple 2030 roadmap, with investments in R&D, renewable energy, and other environmental initiatives. The table at right describes the project types and eligibility criteria for projects to which Apple allocated green bond funds in fiscal year 2025. In addition to continuing to fund our long-term environmental initiatives, we introduced several new projects in fiscal year 2025, the majority of our spend remained allocated to continuing long-term environmental initiatives necessary to reach our carbon neutrality goal. The complete list of projects with detailed descriptions and key performance indicators was provided to Sustainable Fitch for their second-party review (see the [Sustainable Fitch Annual Review](#) section for the review statement).

ELIGIBILITY CRITERIA	PROJECT TYPE	PROJECT DESCRIPTION
Renewable energy 	Clean energy for product use	To meet our Apple 2030 goal, we aim to generate enough clean energy to match the annual electricity consumption of our products used by customers. Our efforts include large-scale investments in new renewable energy in markets globally, as part of a broader effort to minimize emissions from product use. To learn more, read the Product use section of our Environmental Progress Report.
	Supplier Clean Energy Program	Our Supplier Clean Energy Program is aimed at enabling suppliers’ transition to clean, renewable electricity through levers such as policy advocacy, information about renewable energy procurement options, data insights, and engagement opportunities with renewable energy experts. To learn more about our program progress, read the Transitioning our suppliers to renewable electricity section of our Environmental Progress Report.
Energy efficiency 	Supplier Energy Efficiency Program	The Supplier Energy Efficiency Program aims to help our suppliers optimize energy use in their facilities by focusing on approaches to reduce energy use and avoid energy waste. We provide technical and planning support to suppliers as they build more energy-efficient systems by helping them recognize optimization opportunities and identify solutions through assessments and audits. To learn more about our program progress, read the Improving energy efficiency in our supply chain section of our Environmental Progress Report.
Low-carbon design 	Recycled materials	The use of recycled materials is central to our goal of one day making our products solely from responsibly sourced recycled or renewable materials. Incorporating recovered materials into our design process has already helped us lower the carbon footprint of the products we create. But to maximize the use of recycled content, additional research and development is needed. We continue to allocate green bond proceeds to further investigate ways to address challenges in improving the purity of recovered materials so they can be reused in Apple products instead of being downcycled. To learn more about our work in low-carbon design, read the Design and materials section of our Environmental Progress Report.
Carbon mitigation 	Direct emissions abatement	One of the largest contributors of direct emissions in our supply chain is the use of fluorinated greenhouse gases (F-GHGs), which have a higher global warming potential (GWP) than CO ₂ and are notably used in the electronics manufacturing of semiconductors and flat-panel displays. We’ve continued to allocate green bond proceeds to support our close collaboration with our supply chain partners as they work to prevent F-GHGs from being released into the atmosphere. While the use of F-GHGs in certain manufacturing processes today is difficult to avoid, emissions can be reduced by switching to alternative low-GWP gases, optimizing production processes to use and emit fewer F-GHGs, and installing gas abatement tools. To learn more about our work, read the Direct GHG emissions section of our Environmental Progress Report.
Carbon sequestration 	Nature-based solutions	To reach our goal of carbon neutrality for our entire carbon footprint by 2030, we continue to allocate green bond proceeds to invest in carbon removal projects through Apple’s Restore Fund, with the aim of addressing the portion of emissions that we’re not yet able to avoid through other methods. To learn more about our carbon removals efforts, read the Nature and carbon section of our Environmental Progress Report.

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Annual Review



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Apple Inc.

Post-Issuance Review – Green Bond Issuance

Summary Components

Allocations		Disclosure and Assessment	Aligned	Use of proceeds (UoP) allocated in line with the issuance framework
Impact		Disclosure and Assessment	Aligned	Impact reporting in line with the issuance framework

Scope of Work

Apple Inc. issued two green bonds under its 2019 green bond framework. The proceeds support Apple's environmental priorities by funding projects that Apple believes have the potential to reduce its GHG emissions throughout its operations and value chain.

In March 2026, Apple engaged Sustainable Fitch to provide a Post-Issuance Review focusing on:

- disclosure of the allocations for the green bonds;
- alignment of allocations with the issuance framework for the green bonds;
- disclosure of impact reporting metrics for the green bonds; and
- alignment of impact reporting metrics with the issuance framework for the green bonds.

The current Post-Issuance Review is not a limited (or reasonable) assurance.

This review provides our assessment of the use of proceeds (UoP) allocation and impact reporting performed against the criteria outlined in the issuance framework and the respective prospectus supplement.

Our assessment is based on the information provided by the entity and presented in its allocation and impact report. The entity is responsible for the preparation of the report, including the application of methods and internal control procedures designed to ensure that the information is free from material misstatement. We rely on, and have not verified independently, any information included in the entity's report.

Our assessment does not consider any information other than the information disclosed in the entity's report and obtained by the entity itself. We do not opine on the potential impact that such other information may have on the conformance of the allocations with the standards established by the relevant framework.

Bond Information
Bond Prospectus and Framework
2019 Green Bond Framework
2019 Prospectus Supplement
Instrument(s)
0.000% Notes EUR1bn due November 2025 (matured)
0.500% Notes EUR1bn due November 2031

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Allocations - Disclosure and Assessment Versus the Issuance Framework

UoP – Disclosure

The following table shows the net proceeds of USD532.0 million and their allocation across eligible projects for Apple's fiscal year ending 27 September 2025 (FY2025).

Projects		Amount allocated		
UoP	Description	CCY	Amount (million)	Percentage
Low-carbon design	Development of less carbon-intensive products and materials.	USD	9.6	1.8%
Emissions abatement	Projects to reduce direct and process emissions from own operations and suppliers.	USD	0.6	0.1%
Renewable energy	Renewable energy projects to reduce emissions in corporate facilities and value chain.	USD	454.3	85.4%
Energy efficiency	Energy efficiency projects to reduce emissions in corporate and supply chain facilities.	USD	1.2	0.2%
Carbon removal	Projects that sequester carbon (eg, habitat restoration, conservation).	USD	66.4	12.5%
Total proceeds allocated for FY2025		USD	532.0 ¹	100%
Total proceeds allocated, cumulative		USD	1,596.1	73%
Net proceeds raised		USD	2,192.9	

Source: Sustainable Fitch, Apple project list FY2025, project cumulative impact data (FY2020-FY2025), green bond impact report 2025, green bond framework 2019, prospectus supplement 2019

Apple disclosed that around 73% of the total net proceeds raised of USD2,192.9 million has been cumulatively allocated to projects as of FY2025. This corresponds to roughly USD1,596.1 million directed to eligible projects. For a breakdown of cumulative allocations by UoP category, see Appendix 1, Table 1.

UoP – Assessment Versus Issuance Framework

Apple has confirmed that the financed projects meet the UoP eligibility criteria specified in its 2019 green bond framework and comply with its reporting commitments. For more details, see Appendix 1, Table 2.

¹ Note: The total proceeds allocated may not sum precisely due to rounding.



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Project Evaluation and Selection – Assessment Versus Issuance Framework

Apple has confirmed that its project evaluation and selection process aligns with the commitments described in the issuance framework. The Environment, Policy and Social Initiatives team evaluates and selects eligible projects annually to ensure they meet the UoP framework criteria. Final approval and allocation of net proceeds to eligible projects is determined by the Vice President of Environment and Supply Chain Innovation.

Management of Proceeds – Assessment Versus Issuance Framework

Apple has confirmed that its finance department oversees the proceeds using an internal system to track spending on allocated projects. Payment of principal and interest on the green bonds will be made from Apple's general funds and will not be directly linked to the performance of any eligible project.

Reporting – Assessment Versus Issuance Framework

Apple has confirmed that its reporting meets the requirements of the issuance framework.

Source: Sustainable Fitch, Apple green bond framework 2019



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Impact – Disclosure and Assessment Versus the Issuance Framework

Impact Metrics – Disclosure

The following table presents the reported impact of net proceeds, totalling USD532.0 million, allocated across various eligible projects. KPIs disclosed include lifetime carbon benefit² (megatonnes [Mt] of CO₂) and renewable energy capacity³ (MW) for cumulative data since FY2020 to FY2025.

Category	Metric	Unit	Value	Period
	Lifetime carbon benefit	MtCO ₂	39,000,000	Cumulative since FY2020 to FY2025
	Renewable energy capacity	MW	889	Cumulative since FY2020 to FY2025

Source: Apple project list FY2025, project cumulative impact data (FY2020-FY2025), green bond impact report 2025

Impact Metrics – Assessment Versus Commitment in Issuance Framework

Apple's 2025 green bond impact report aligns with the commitments outlined in its framework. The report details annual project allocations, the estimated carbon savings, and descriptions of select projects that received net proceeds from the 2019 green bond issuance.

These projects meet the eligibility criteria by financing renewable energy generation, energy efficiency improvements, low-carbon design initiatives, carbon mitigation, and carbon removal/sequestration activities, all of which directly support efforts to reduce GHG emissions and the transition to a lower carbon footprint in Apple's operations and supply chain.



² Apple calculates the GHG emissions mitigated or offset using the projected lifetime benefits of eligible projects from cumulative allocations for the period since FY2020 to FY2025. Project lifetimes range from one to 25 years.

³ This number represents power purchase agreements and virtual power purchase agreements where Apple obtains environmental attributes. Apple's investments also support capacity from which they do not directly obtain environmental attributes. Apple also co-invests with other partners. The capacity from both of these kinds of investments is not included in the number above. Apple's combined investments, including those made with partners, have resulted in over 3,400 MW installed renewable energy capacity since FY2020.



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Appendix 1: Allocation of Proceeds

Table 1: Allocation of proceeds under the 2019 green bond framework

UoP Category	Proceeds allocated, FY2025 (USD million)	Proceeds allocated, cumulative (USD million)
Low-carbon design	9.6	119.3
Emissions abatement	0.6	9.9
Renewable energy	454.3	1,264.8
Energy efficiency	1.2	8.7
Carbon removal	66.4	193.5
Total proceeds allocated	532.0	1,596.1
Net proceeds raised (USD million)		2,192.9
Percentage allocation		73%

Source: Sustainable Fitch, Apple project list FY2025, project cumulative impact data (FY2020-FY2025), green bond impact report 2025

Table 2: Assessment versus Issuance Framework

UoP	Type	ICMA Category	Eligibility Criteria from issuance framework (IF)	Aligned with IF
Low-carbon design	E	Eco-efficiency Circular economy	Expenditures for less carbon-intensive products/materials, improved efficiency, or use of recycled/renewable content.	✓
Emissions abatement	E	Pollution prevention and control	Expenditures to reduce emissions or improve energy use in facilities and supply chain.	✓
Renewable energy	E	Renewable energy	Expenditures for renewable energy projects (eg. solar, wind, storage) in operations and value chain.	✓
Energy efficiency	E	Energy efficiency	Expenditures to reduce direct/process emissions or use low-carbon fuels.	✓
Carbon removal	E	Sustainable management of living natural resources and land use	Expenditures for projects that sequester carbon, such as habitat restoration and conservation.	✓

Source: Sustainable Fitch, Apple project list FY2025, project cumulative impact data (FY2020-FY2025), green bond framework 2019



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SOLICITATION STATUS

The Post-Issuance Review was solicited and assigned or maintained by Sustainable Fitch at the request of the entity.

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Ernst & Young LLP

Use of Proceeds Examination

Report of Independent Accountants

To the Management of Apple Inc.:

We have examined management’s assertion, in Exhibit A, that \$1.6 billion of net proceeds from the 0.000% notes due 2025 and 0.500% notes due 2031 issued by Apple Inc. (“Apple”) were allocated, during the period from September 29, 2019 to September 27, 2025 (the “Reporting Period”), to qualifying Eligible Projects that meet one or more of the Eligibility Criteria (each as defined in the “Use of Proceeds” section of the Prospectus Supplement dated November 7, 2019, to the Prospectus dated November 5, 2018, filed by Apple on November 8, 2019, with the Securities and Exchange Commission pursuant to Rule 424(b)(2) under the Securities Act of 1933, as amended). Apple’s management is responsible for the assertion, having a reasonable basis for its assertion, selection of the Eligibility Criteria and the allocation, during the Reporting Period, of amounts to Eligible Projects that meet one or more of the Eligibility Criteria. Our responsibility is to express an opinion on the assertion based on our examination.

Our examination was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants (“AICPA”). Those standards require that we plan and perform the examination to obtain reasonable assurance about whether management’s assertion is fairly stated, in all material respects. An examination involves performing procedures to obtain evidence about management’s assertion. The nature, timing, and extent of the procedures selected depend on our judgment, including an assessment of the risks of material misstatement of management’s assertion, whether due to fraud or error. We believe that the evidence we obtained is sufficient and appropriate to provide a reasonable basis for our opinion.

We are required to be independent of Apple and to meet our other ethical responsibilities, as applicable for examination engagements set forth in the Preface: Applicable to All Members and Part 1 – Members in Public Practice of the Code of Professional Conduct established by the AICPA.

Our examination was not conducted for the purpose of evaluating (i) whether funds in excess of the net proceeds were allocated to Eligible Projects during the Reporting Period, (ii) the amount allocated to each category of Eligible Projects during the Reporting Period, (iii) that any payments made pursuant to any power purchase agreements or virtual power purchase agreements to which amounts were allocated during the Reporting Period were in accordance with such agreements, (iv) the environmental benefits of the Eligible Projects, (v) conformance of any Eligible Projects with any third-party published principles, standards or frameworks, such as the Green Bond Principles, dated June 2018, published by the International Capital Market Association or (vi) any information included in Apple’s Annual Green Bond Impact Report, Fiscal Year 2025 Update, other than management’s assertion. Accordingly, we do not express an opinion or any other form of assurance other than on management’s assertion included in Exhibit A.

In our opinion, management’s assertion, included in Exhibit A, that \$1.6 billion in net proceeds from the 0.000% notes due 2025 and 0.500% notes due 2031 issued by Apple were allocated during the Reporting Period to qualifying Eligible Projects that met one or more of the Eligibility Criteria is fairly stated, in all material respects.

Ernst & Young LLP

San Jose, California
April 3 2026



Exhibit A

Apple Inc. Management’s Assertion

We assert that \$1.6 billion of net proceeds were allocated from our issuance of the 0.000% notes due 2025 and 0.500% notes due 2031, during the period from September 29, 2019 to September 27, 2025 (the “Reporting Period”), to qualifying Eligible Projects that meet one or more of the Eligibility Criteria (each as defined in the “Use of Proceeds” section of the Prospectus Supplement dated November 7, 2019, to the Prospectus dated November 5, 2018, filed by Apple Inc. (“Apple”) on November 8, 2019, with the Securities and Exchange Commission pursuant to Rule 424(b)(2) under the Securities Act of 1933, as amended). The Eligibility Criteria are also set forth in Table 1 below. Apple’s management is responsible for this assertion, including selection of the Eligibility Criteria and the allocation, during the Reporting Period, of amounts to Eligible Projects that meet one or more of the Eligibility Criteria. We worked with an outside party, a leading provider of second-party opinions for green, social, sustainability and KPI-linked bonds and loans, to provide a second party opinion on the Apple Green Bond framework at the time of issuance. We have engaged a reputable second-party opinion provider annually thereafter to review the projects to which net proceeds were allocated and provide an assessment as to whether the projects met the Use of Proceeds criteria and the reporting commitments outlined in our Green Bond framework.

Table 1: Eligibility Criteria

Low carbon design and engineering	expenditures related to the development or procurement of less carbon-intensive products and materials (compared to an established “pre-activity” baseline), such as improving product power usage efficiency, using materials produced from manufacturing processes requiring lesser greenhouse gas emissions, or sourcing materials with recycled or renewable content,
Energy efficiency	expenditures related to the development of energy efficiency projects intended to reduce emissions in new or existing corporate and supply chain facilities, such as sensors and controls, energy management systems, and facility design, commissioning, and retrofits,
Renewable energy	building on our successful transition to 100% renewable electricity at our facilities, expenditures related to the development of renewable energy projects intended to reduce emissions in our corporate facilities and supply chain, such as solar and wind projects, or associated energy storage solutions, including work to advance market structures, regulations and policy that support renewable energy through coalition and capacity building,
Carbon mitigation	expenditures related to the development of projects intended to reduce direct and process emissions (compared to an established “pre-activity” baseline) from Apple’s and our supplier’s operations, such as abating direct emissions from manufacturing or sourcing non-fossil low carbon fuels, and
Carbon sequestration	expenditures related to the development of projects that sequester carbon, such as habitat restoration and conservation.

Note 1: Apple Inc. or its subsidiaries directly invest in Eligible Projects for its own operations or its suppliers’ operations.
Note 2: Renewable energy allocation includes equity investments, long-term contracts such as power purchase agreements and virtual power purchase agreements, long-term environmental attribute purchase agreements, and certain renewable energy credits. Proceeds are considered allocated upon the date of commercial operations for these long-term renewable energy spend projects. The allocated amount is calculated as the net present value of future cash flows based on estimated annual production of the renewable energy projects over the contract term. Actual results could differ from those estimates and those differences may be material.
Note 3: The net proceeds allocated to carbon sequestration projects include the purchase of carbon offsets.
Note 4: The net proceeds allocated to renewable energy projects include amounts used to finance renewable energy projects by purchasing Investment Tax Credits (ITCs) generated by the underlying projects. Such allocations reflect the actual purchase price paid for the ITCs and does not reflect any fair market value assigned to such ITCs.

End notes

This Green Bond Report (the “Report”) contains forward-looking statements, within the meaning of the Private Securities Litigation Reform Act of 1995, that involve risks and uncertainties. Such forward-looking statements provide current expectations of future events based on certain assumptions and include any statement that does not directly relate to any historical or current fact. For example, statements in this Report regarding the potential future impact of allocated projects are forward-looking statements. Forward-looking statements can also be identified by words such as “future,” “goal,” “anticipates,” “believes,” “estimates,” “expects,” “intends,” “aims,” “plans,” “predicts,” “projected,” “will,” “would,” “could,” “can,” “may,” and similar terms. Forward-looking statements are not guarantees of future performance and Apple’s actual results may differ significantly from the results discussed in the forward-looking statements. Factors that might cause such differences include, but are not limited to, those discussed in the “Risk Factors” sections of Apple’s most recently filed periodic reports on Form 10-K and Form 10-Q and subsequent filings as filed with the Securities and Exchange Commission. Apple assumes no obligation to revise or update any forward-looking statements for any reason, except as required by law. This Report has been prepared for information purposes only. Apple does not make any warranties or representations as to the completeness or reliability of the information, opinions or conclusions expressed herein. This Report is not intended to provide the basis for the evaluation of any securities issued by Apple. This Report should not be construed and does not constitute an invitation, recommendation or offer to subscribe for or purchase any of Apple’s securities. Under no circumstances shall Apple or its affiliates be liable for any loss, damage, liability or expense incurred or suffered which is claimed to have resulted from use of this Report.

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Appendix

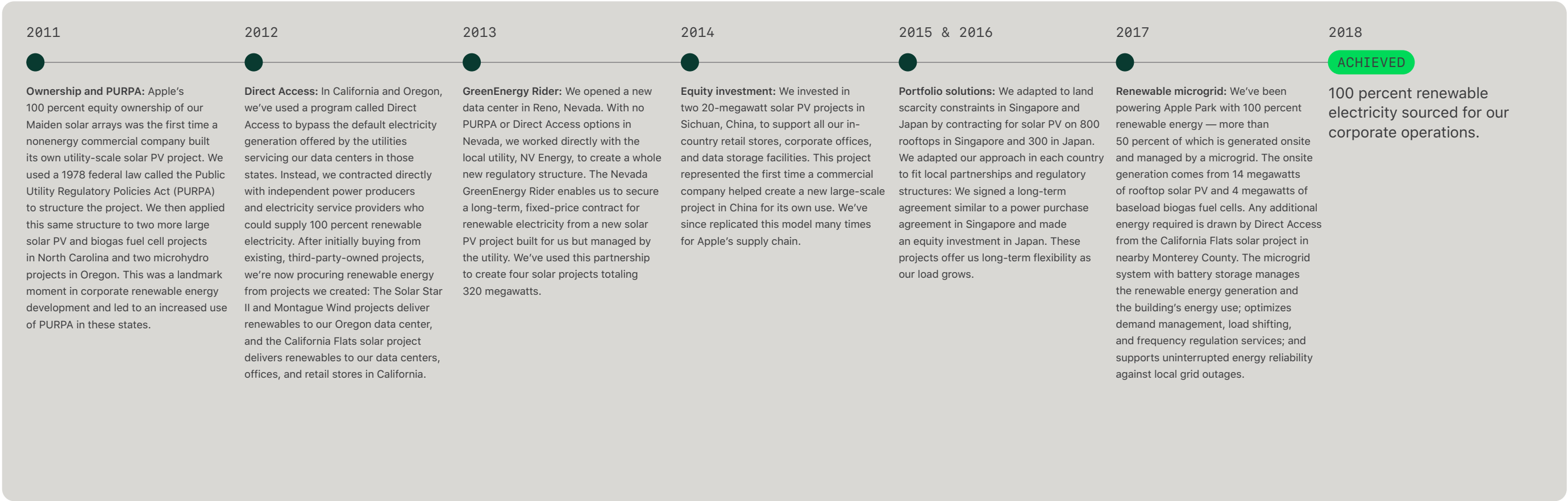
IN THIS SECTION

- A: Corporate facilities energy supplement
- B: Apple’s life cycle assessment methodology
- C: Assurance and review statements
- D: Environment, Health and Safety Policy
- E: ISO 14001 certification
- Report notes
- End notes

Appendix A: Corporate facilities energy supplement

Our corporate renewable energy procurement journey

Use of renewable energy at our facilities has been a central component of our emissions reduction strategy since 2011, and has evolved over time with the ambition to create the most positive impact. We’ve learned a lot about how best to secure renewable energy, which has helped us educate suppliers and expand our renewable energy efforts into our supply chain. This appendix summarizes the types of renewable energy solutions we’ve deployed, and it details how we implement renewable energy at our data centers — our largest energy loads.



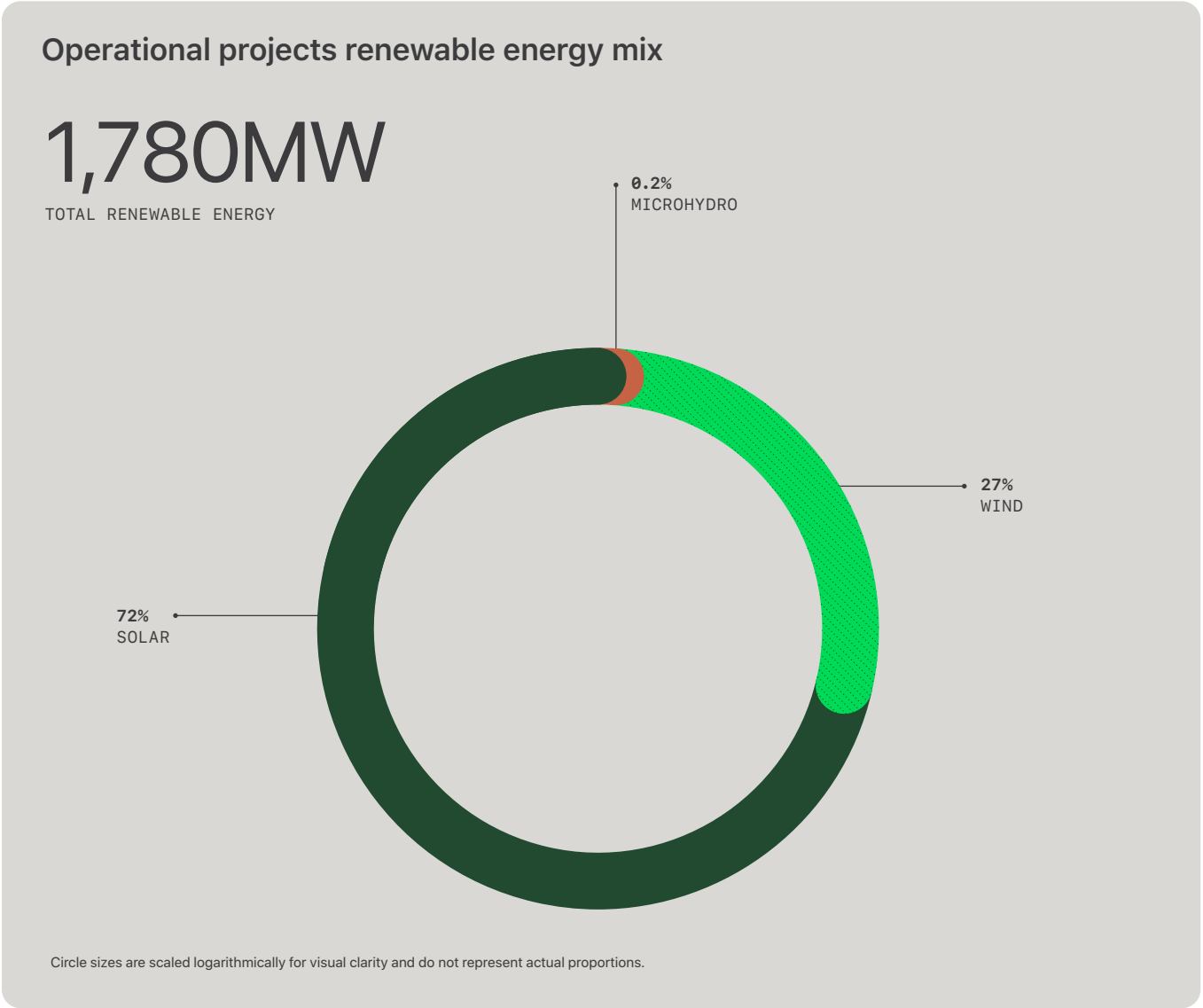
Appendix A: Corporate facilities energy supplement

Facilities renewable energy projects

To reach 100 percent renewable electricity for Apple’s own facilities, Apple has helped create 1,780 megawatts of renewable energy around the world. The projects listed represent Apple-created renewable energy projects that support Apple facilities’ electricity use and contribute to cleaner grids around the world. Operational projects apply a mix of renewable energy technology, mostly wind and solar. This table represents all operational renewable energy projects that Apple has helped create.

Location	Renewable energy technology	Size (MW)
Australia	PV	0.5
Brazil	Wind	0.5
China mainland	PV	195
China mainland	Wind	130
Denmark	PV	42
Denmark	Wind	17
India	PV	16
Israel	PV	5
Japan	PV	12
Mexico	Wind	0.8
Rooftop solar projects	PV	24
Power for Impact projects	PV	8
Singapore	PV	54
Taiwan	PV	1
Turkey	PV	4
Arizona, U.S.	PV	57
California, U.S.	PV	130
Illinois, U.S.	Wind	112
Nevada, U.S.	PV	320
North Carolina, U.S.	PV	164
Oregon, U.S.	Microhydro	3
Oregon, U.S.	PV	125
Oregon, U.S.	Wind	200
Texas, U.S.	Wind	26
Virginia, U.S.	PV	134
Total		1,780

Note: Data current as of March 2026 (operational). Totals might not add up due to rounding.



Appendix A: Corporate facilities energy supplement

Facilities energy and carbon footprint

The table provides a detailed breakdown of 2025 energy use, which we used to calculate our greenhouse gas emissions.

Fiscal year 2025 energy and carbon footprint (corporate facilities)

Location	Scope 1		
	Total gas (MMBtu)	Renewable biogas (MMBtu)	Scope 1 emissions (metric tons CO ₂ e)
Corporate	504,855	648,652	48,110
Santa Clara Valley, CA	201,946	648,652	10,875
Elk Grove, CA	11,331	0	602
Austin, TX	30,636	0	3,174
Other U.S.	166,936	0	16,767
Cork, Ireland	19,983	0	1,077
Singapore	0	0	420
China	1,404	0	2,320
Other international	72,619	0	12,875
Data center	901	0	4,756
Maiden, NC	0	0	707
Mesa, AZ	0	0	440
Newark, CA ²	0	0	N/A
Prineville, OR	901	0	730
Reno, NV	0	0	1,066
Viborg, Denmark	0	0	16
Waukee, Iowa	0	0	303
Colocation facilities (U.S.)	N/A	N/A	N/A
Colocation facilities (international)	N/A	N/A	N/A
China	0	0	1,494
Retail stores	42,386	-	2,331
Domestic (U.S.)	27,025	-	1,435
International	15,361	-	896
Total	548,142	648,652	55,197

Scope 2		
Electricity (million kWh)	Renewable electricity (million kWh)	Scope 2 emissions (location-based, metric tons CO ₂ e) ¹
949	949	237,566
410	410	22,029
12	12	1,372
85	85	27,619
156	156	44,924
23	23	8,472
22	22	8,350
59	59	34,968
183	183	89,832
2,585	2,585	828,456
470	470	121,147
563	563	180,733
0	0	0
267	267	79,418
422	422	136,433
71	71	29,925
30	30	13,469
423	423	88,386
121	121	49,712
218	218	129,233
201	201	74,209
95	95	28,584
106	106	45,625
3,737	3,737	1,140,231

Dash indicates unavailable data.

N/A = Gas use at colocation facilities is considered outside of Apple's operational control. Totals may not add up due to rounding.

1 Scope 2 market-based emissions from purchased electricity is zero. But, we also account for purchased steam, heating, and cooling, which resulted in 1,100 metric tons of emissions in fiscal year 2025.

2 Starting with fiscal year 2023, we no longer include the Newark, CA, data center as it was sold in fiscal year 2022.

Appendix A: Corporate facilities energy supplement

A focus on data centers

We now own eight data centers.³ These data centers are spread across North America, Europe, and Asia. Each has unique design features that conserve energy and reflect the climate, as well as other aspects, of its location.

In 2025, we used over 2.5 billion kWh of electricity to power our data centers and colocation facilities around the world. We’re proud that 100 percent of that electricity came from renewable sources including solar, wind, and low-impact hydropower. To cover our needs, we build our own renewable power projects and work with utilities to purchase clean energy from locally obtained resources. We’re staying at 100 percent even as Apple’s data center capacity continues to grow.

Maiden, North Carolina

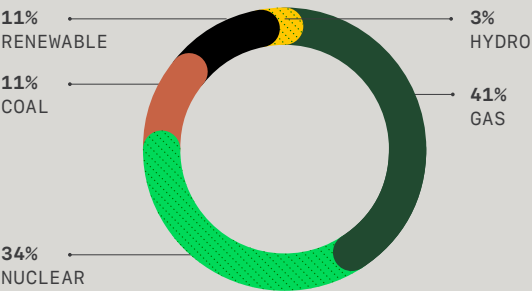
100 percent renewable since opening June 2010

Between 2011 and 2015, we installed 68 megawatts of Apple-created projects: two 20-megawatt solar projects, an 18-megawatt solar project, and 10 megawatts of biogas fuel cells. We then worked with the local utility, Duke Energy, to help build five solar projects through its Green Source Rider program. These solar projects came online beginning in 2015 and were Duke Energy’s first Green Source Rider projects to become operational. We worked with Duke Energy for several years to develop this green energy tariff option, which allowed Apple and Duke Energy to develop new renewable energy projects. The five Green Source Rider projects have a combined capacity of 22 megawatts. In 2017, we made long-term commitments to five more solar projects in North Carolina, for an additional 85 megawatts of renewable energy.

Our two newest buildings at Maiden utilize indirect evaporative cooling, that leverages outside air, evaporative cooling and heat exchangers to minimize the use of traditional mechanical cooling. This approach improves energy efficiency while eliminating water use at lower outside air temperatures.

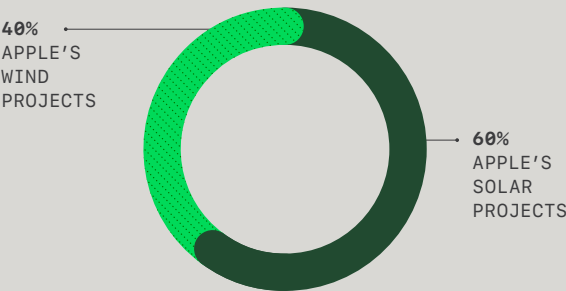
Grid mix versus Apple-sourced renewable energy

DEFAULT GRID MIX



Source: eGRID 2025 Publication (2023 data).

APPLE ACTUAL RENEWABLE ENERGY ALLOCATION



Source: 2025 energy data.

ELECTRICITY USE IN 2025

470M_{KWH}

EMISSIONS AVOIDED IN 2025

121K_{MT CO₂E⁴}

³ Starting with fiscal year 2023, we no longer include the Newark, CA, data center as it was sold in fiscal year 2022. In October 2024, we opened our Waukee data center in Iowa, bringing our total Apple-owned data center count to eight.

⁴ Emissions avoided are calculated using the GHG Protocol methodology for calculating market-based emissions.

Prineville, Oregon

100 percent renewable since opening May 2012

To support our Prineville data center, we signed a 200-megawatt power purchase agreement for a new wind farm, the Montague Wind Power Facility, which entered commercial operation at the end of 2019. This is in addition to our power purchase agreement for the 56-megawatt Solar Star Oregon II project located near our data center. This solar PV project began supporting the data center in 2017. To strengthen the connection between Apple and these projects, we use Oregon’s Direct Access program to supply the renewable energy directly to our data center.

Also supporting the data center are two microhydro projects utilizing flow from local irrigation canals. To supplement this, we executed a long-term power purchase agreement for all environmental attributes from a 69-megawatt portfolio of eight solar projects in Oregon.

The site minimizes cooling energy by utilizing highly energy- and water-efficient direct evaporative cooling systems to cool the data halls. This allows the servers to be cooled entirely by outside air for the majority of the year.

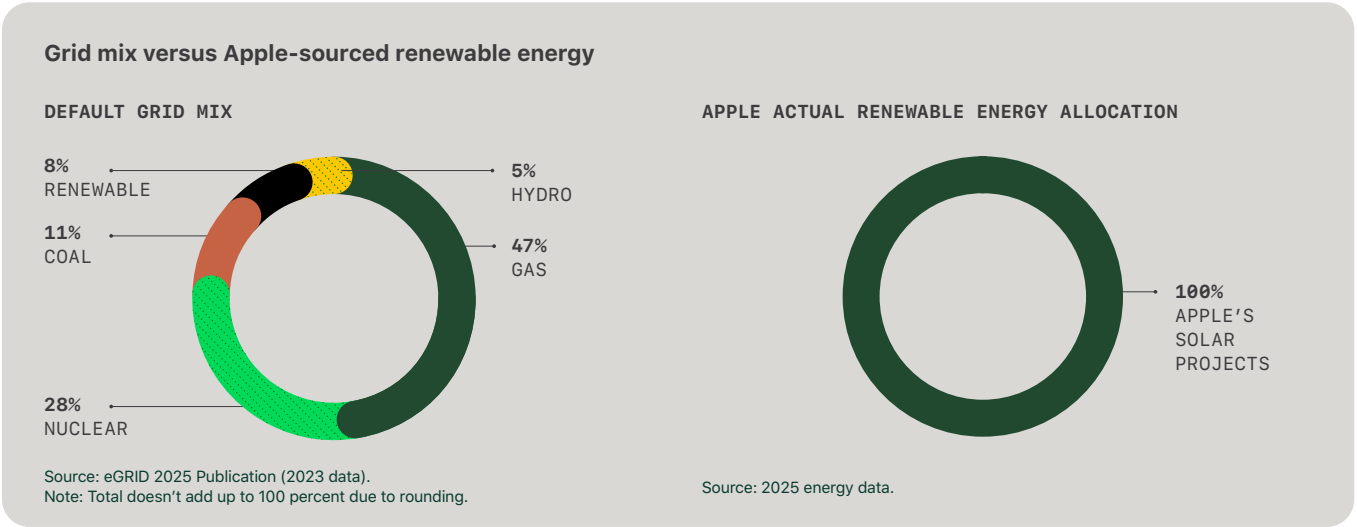
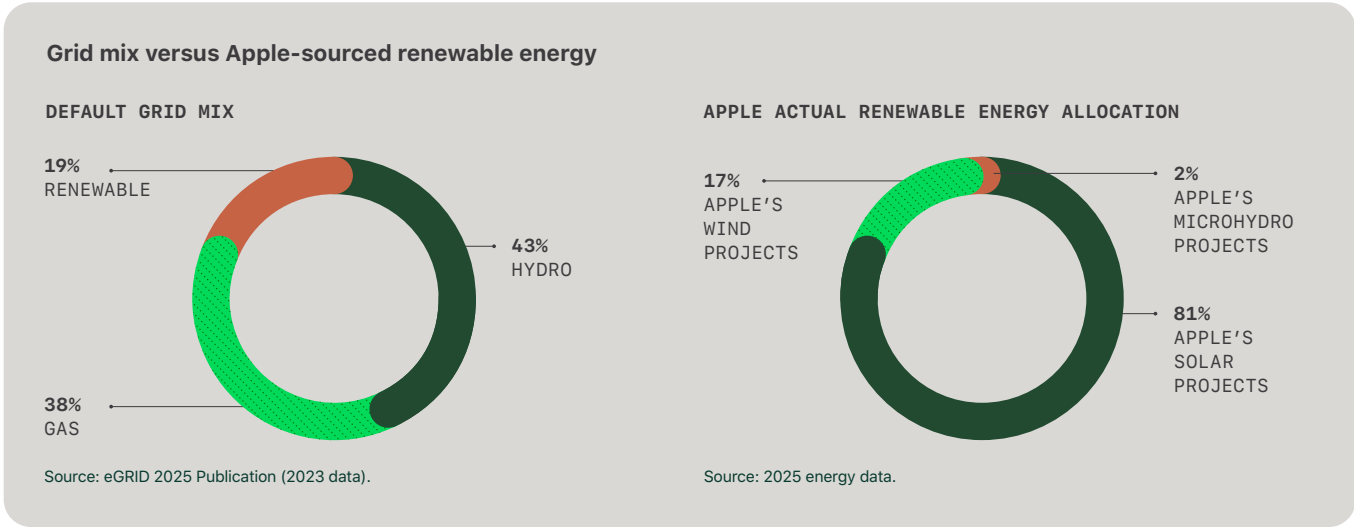
Mesa, Arizona

100 percent renewable since opening March 2017⁶

Our global command data center in Mesa, Arizona, came online in 2016. To support this facility, we partnered with the local utility, Salt River Project (SRP), to build the 50-megawatt Bonnybrooke solar project, which became operational in December 2016.

As the Mesa data center grew, it became apparent that we needed additional sources of renewable energy to maintain our 100 percent renewable electricity goal.

We began to explore onsite solar options at the data center and determined that we could provide valuable shaded parking that paid for itself through energy bill reductions while adding to our renewable energy portfolio. The resulting PV facility includes five elevated parking canopies and three ground-mounted arrays, for a total generating capacity of 4.67 megawatts. The onsite PV system began commercial operation in February 2019.



ELECTRICITY USE IN 2025

267M KWH

EMISSIONS AVOIDED IN 2025

79K MT CO₂E⁵

5 Emissions avoided are calculated using the GHG Protocol methodology for calculating market-based emissions.

ELECTRICITY USE IN 2025

563M KWH

EMISSIONS AVOIDED IN 2025

181K MT CO₂E⁷

6 Apple took operational control of the building in October 2015 and converted it to a data center that began servicing customers in March 2017.

7 Emissions avoided are calculated using the GHG Protocol methodology for calculating market-based emissions.

Reno, Nevada

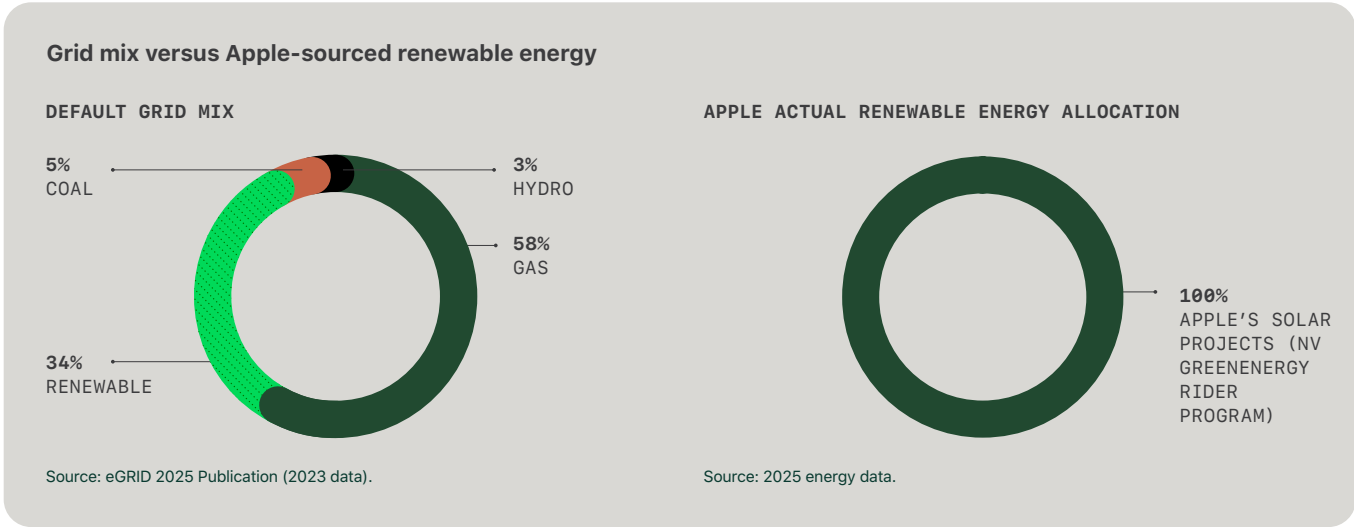
100 percent renewable since opening December 2012

In 2013, we created a partnership with the local utility, NV Energy, to develop the Fort Churchill Solar project. Apple designed, financed, and constructed the project. NV Energy owns and operates the facility and directs all the renewable energy it produces to our data center. The nearly 20-megawatt project was based on a unique tracker with curved mirrors that concentrate sunlight onto photovoltaic cells.

Apple also worked with NV Energy and the Public Utility Commission of Nevada to create a green energy option open

to all commercial customers, called the NV GreenEnergy Rider, that does not require the customer to fund project development up front. In 2015, we announced our second Nevada solar project, the 50-megawatt Boulder Solar II project. We’ve utilized the rider program to create two additional projects: the 200-megawatt Techren II solar project and the 50-megawatt Turquoise Project.

The site minimizes cooling energy by utilizing highly energy and water-efficient direct evaporative cooling systems to cool the data halls. This allows the servers to be cooled entirely by outside air for the majority of the year.



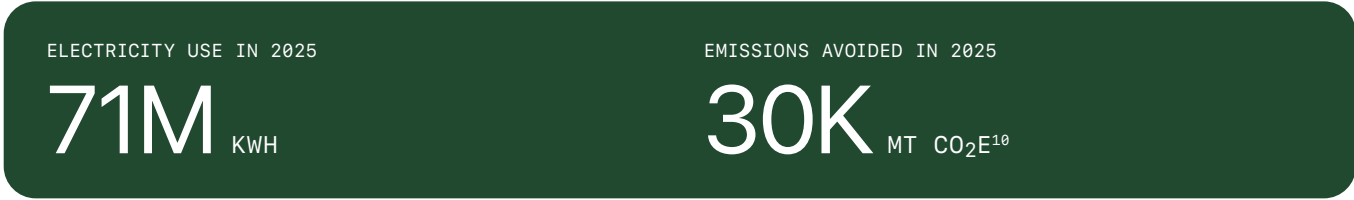
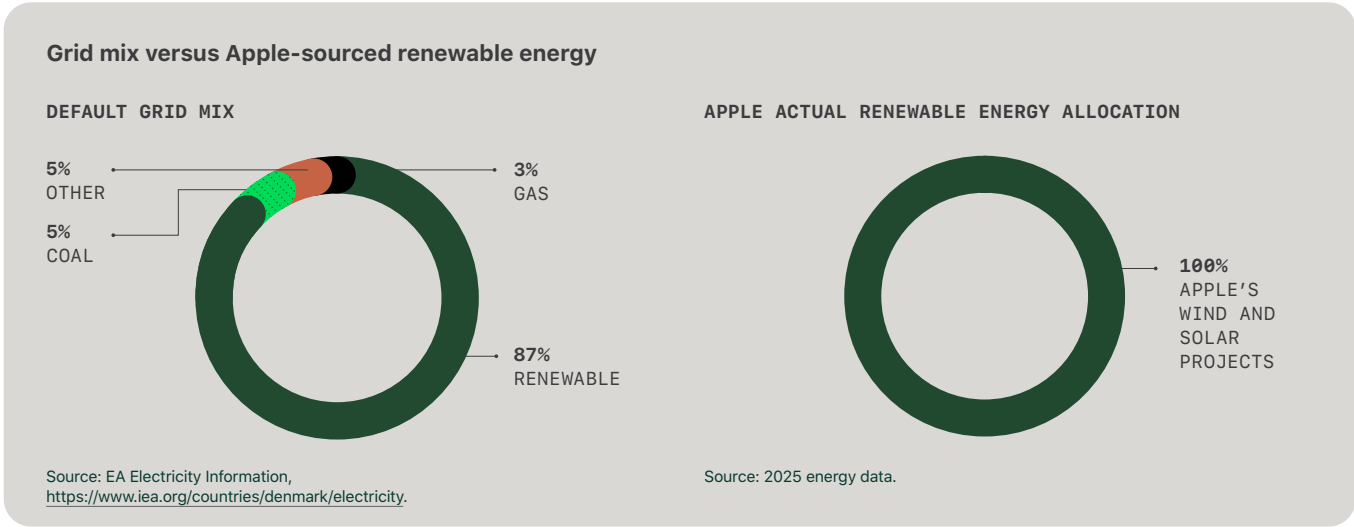
Denmark

100 percent renewable since opening in 2020

The data center’s construction phase was powered with 100 percent wind energy from a local renewable energy retailer in Denmark. Our Northern Jutland PV project achieved commercial operation in late 2019 and meets all the data center’s near-term energy needs. This 42-megawatt project is one of Denmark’s largest solar power plants. Our second renewable project in Denmark, a 17-megawatt wind project, also came online in late 2020. We’ve secured long-term supply contracts with both Danish renewable projects, which will scale up as our data center loads grow.

The power system design at the data center is based on a resilient substation that eliminates the need for backup diesel generators. This reduces the carbon footprint of the data center and completely eliminates the need for large diesel fuel storage systems and diesel engine emissions that would impact the local community.

Like our Prineville and Reno data centers, this site minimizes cooling energy by utilizing highly energy- and water-efficient direct evaporative cooling systems to cool the data halls. This allows the servers to be cooled entirely by outside air for the majority of the year.



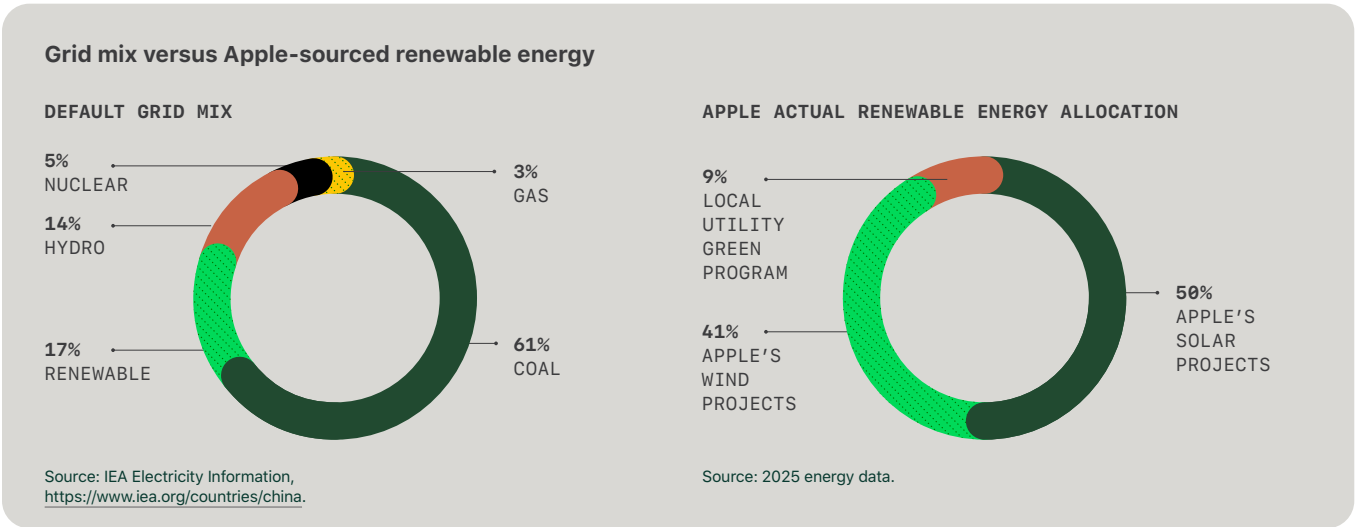
10 Emissions avoided are calculated using the GHG Protocol methodology for calculating market-based emissions.

China

100 percent renewable energy since opening in 2021

To cover the electricity load at our two data centers in China, we secured long-term agreements with solar and wind projects in China — both operational.

As the data centers further expand, we’ll continue to source renewable electricity in-country to support the growth with renewable electricity.



11 Emissions avoided are calculated using the GHG Protocol methodology for calculating market-based emissions.

Appendix A: Corporate facilities energy supplement

Our colocation facilities

The majority of our online services are provided by our own data centers; however, we also use third-party colocation facilities for additional data center capacity. While we don’t own these shared facilities and use only a portion of their total capacity, we include our portion of their energy use in our renewable energy goals.

Starting in January 2018, 100 percent of our power for colocation facilities was matched with renewable energy generated within the same country or regional grid. As our loads grow over time, we’ll continue working with our colocation suppliers to match 100 percent of our energy use with renewables.

Our colocation facility energy use

	Total energy use (kWh)	Renewable energy (kWh)	Default utility emissions (metric tons CO ₂ e) ¹²	Apple’s emissions — including renewable energy (metric tons CO ₂ e) ¹³	Percent renewable energy (%) ¹⁴
FY 2013	79,462,900	46,966,900	31,800	14,500	1
FY 2014	108,659,700	88,553,400	44,300	11,000	81
FY 2015	142,615,000	121,086,100	60,500	12,700	85
FY 2016	145,520,900	143,083,200	66,300	1,600	98
FY 2017	289,195,800	286,378,100	125,600	1,500	99
FY 2018 ¹⁵	327,663,800	326,959,700	146,600	400	100
FY 2019	339,047,649	339,047,649	146,400	0	100
FY 2020	372,901,398	372,901,398	153,459	0	100
FY 2021	384,727,076	384,727,076	146,780	0	100
FY 2022	487,921,930	487,921,930	182,700	0	100
FY 2023	483,299,062	483,299,062	186,141	0	100
FY 2024	527,655,650	527,655,650	182,944	0	100
FY 2025	543,594,587	543,594,587	190,356	0	100

THIRD-PARTY COMPUTING

Beyond the use of our own data centers and colocation facilities, we also use third-party services to support some of our on-demand cloud computing and storage services. As of 2023, all the electricity associated with Apple’s load at our third-party computing vendors is matched with 100 percent clean energy.

12 We calculate default utility emissions to provide baseline emissions of what our carbon footprint would have been without the use of renewable energy. This allows us to demonstrate the savings resulting from our renewable energy program.

13 Apple’s greenhouse gas emissions are calculated using the World Resources Institute Greenhouse Gas Protocol methodology for calculating market-based emissions.

14 We calculate our progress toward our 100 percent renewable energy goal on a calendar-year basis, while the numbers reported in this table are based on fiscal year. Beginning January 1, 2018, all the electricity use at our colocation facilities is from 100 percent renewable energy.

15 Over the past few years, we’ve been installing submeters in colocation facilities to better track electricity usage. Beginning in fiscal year 2016, we started reporting this submetered electricity usage. Prior to fiscal year 2016, reported electricity usage was conservatively estimated based on maximum contract capacity quantities. We’ve updated our fiscal year 2016 colocation facilities footprint to more accurately reflect Apple’s operational boundaries. Per the GHG Protocol, we’ve removed from our electricity usage and scope 2 calculations those emissions associated with colocation facility cooling and building operations.

Apple’s life cycle assessment methodology

When conducting a product life cycle assessment (LCA), we calculate greenhouse gas emissions using the 100-year time horizon global warming potentials (GWP100) from the 2023 IPCC Sixth Assessment Report (AR6),¹ including biogenic carbon.

There’s inherent uncertainty in modeling greenhouse gas emissions due primarily to data limitations. For the top component contributors to Apple’s greenhouse gas emissions, Apple develops detailed process-based environmental models with Apple-specific parameters. For the remaining elements of Apple’s carbon footprint, we rely on industry-average data and assumptions.

We continuously improve our abilities to accurately calculate our emissions, seeking more detailed data and models to reflect the impact of our products as new information becomes available. In 2026, we updated our modeling process for display panels and system on chip. For display, we partnered with key suppliers to leverage primary data and industry groups to refresh our carbon model with more detailed inputs for operational renewable energy and emissions abatement that’s applicable to Apple products and other consumer electronics.² For system on chip, we implemented models developed by imec’s Sustainable Semiconductor Technologies and System program — which was third-party validated in 2024. We use primary data for complementary metal-oxide semiconductor logic technology nodes — including effective die size, regional electricity grid mix, and supplier greenhouse gas abatement.

How Apple conducts our product greenhouse gas life cycle assessment

	To model the manufacturing phase	We use part-by-part measurements of the entire product along with data on part production. In some cases where part-by-part data is not readily available, we also use design-level data for size and weight detail. The measurements help us determine the size and weight of the components and materials in the product, while data on manufacturing processes and yield loss during production allows us to account for the impact of manufacturing. The LCA includes accessories and packaging, as well as decreased emissions through Apple’s Supplier Clean Energy Program. When calculating Apple’s comprehensive carbon footprint, we also include units that are repaired and replaced through AppleCare.
	To model transportation	We use data collected on shipments of single products and multipack units by land, sea, and air. We account for transporting materials between manufacturing sites; transporting products from manufacturing sites to regional distribution hubs; transporting products from regional distribution hubs to individual customers; and transporting products from final customers to recycling facilities.
	To model customer use	Apple assumes three years of use time for iPhone, Watch, and AirPods, and four years of use time for iPad, Mac, and other devices including Vision Pro and Apple TV. The total energy use over that period is based on use patterns of historically similar products calculated using data from a variety of sources including, but not limited to, field telemetry from users who opt-in to sharing device analytics and modeling battery drain from activities such as movie and music playback. Geographic differences in power grid mix are accounted for at a regional level. Measurement practices follow Apple’s Privacy guidelines/policies, which can be found on Apple’s privacy website . More information on our product energy use is provided in our Product Environmental Reports .
	To model end of life	We use material composition data on our products and estimate the ratio of products that are sent to recycling or disposal. For products sent to recycling, we capture the initial processing by the recycler to prepare the product for recovery of electronic, metal, plastic, and glass material streams. Subsequent downstream recycling processes are not included, as these are considered stages of production and not end-of-life processing. For products sent to disposal, we capture the emissions associated with landfilling or incineration of each type of material.
	Putting it all together	After we collect data about manufacturing, use, transportation, and end of life, we combine it with detailed greenhouse gas emission data. This emission data is based on a combination of Apple-specific and industry-average data sets for material production, manufacturing processes, electricity generation, and transportation. Renewable energy used in the supply chain, initiated by suppliers independently or through the Apple Supplier Clean Energy Program, is also accounted for within the LCA model. Combining product-specific information with emission data in our LCA allows us to compile detailed results for greenhouse gas emissions as they relate to each product. The data and modeling approaches are checked for quality and accuracy by the Fraunhofer Institute in Germany.

¹ Intergovernmental Panel on Climate Change (IPCC), Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II, and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, ed. Hoesung Lee, José Romero, and the Core Writing Team (Geneva: IPCC, 2023), 35–115, doi.org/10.59327/IPCC/AR6-9789291691647.

² The updates to our display panel model brings our average carbon intensity to 0.16 kg CO₂e/cm² for OLED and 0.03 kg CO₂e/cm² for LCD displays.

Appendix C

Net comprehensive carbon footprint, facilities energy, carbon, waste, paper, and water data (Apex)

INDEPENDENT ASSURANCE STATEMENT



To: The Stakeholders of Apple Inc.

Introduction and objectives of work

Apex Companies, LLC (Apex) was engaged by Apple Inc. (Apple) to conduct an independent assurance of select environmental data reported in its 2025 environmental report (the Report). This assurance statement applies to the related information included within the scope of work described below. The intended users of the assurance statement are the stakeholders of Apple. The overall aim of this process is to provide assurance to Apple's stakeholders on the accuracy, reliability and objectivity of Subject Matter included in the Report.

This information and its presentation in the Report are the sole responsibility of the management of Apple. Apex was not involved in the collection of the information or the drafting of the Report.

Scope of Work

Apple requested Apex to include in its independent review the following (Subject Matter):

- Assurance of select environmental data and information included in the Report for the fiscal year 2025 reporting period (September 29, 2024 through September 27, 2025), specifically, in accordance with Apple's definitions and World Resources Institute (WRI)/World Business Council for Sustainable Development (WBCSD) Greenhouse Gas Protocol:
 - Energy: Direct (Million Therms) and Indirect (Million kilowatt hours (mKWh))
 - Renewable Energy (mKWh)
 - Water Withdrawal and discharge (Million Gallons)
 - Greenhouse Gas (GHG) Emissions: Direct Scope 1 emissions by weight, Indirect Scope 2 emissions by weight, Indirect Scope 3 emissions by weight (Purchased Goods and Services, Fuel and Energy Related Activities, Employee Commute and Business Travel) (Metric Tonnes of Carbon Dioxide equivalent)
 - Apple's Comprehensive Carbon Footprint
 - Waste Quantities and Disposition (Metric Tonnes)
 - Paper Quantities (Metric Tonnes)
 - Product end use avoided emissions

Excluded from the scope of our work is any assurance of information relating to:

- Text or other written statements associated with the Report
- Activities outside the defined assurance period

Assessment Standards

Our work was conducted against Apex's standard procedures and guidelines for external Verification of Sustainability Reports, based on current best practice in independent assurance. Apex procedures are based on principles and methods described in the International Standard on Assurance Engagements (ISAE) 3000 Revised, Assurance Engagements Other than Audits or Reviews of Historical Financial Information (effective for assurance reports dated on or after Dec. 15, 2015), issued by the International Auditing and Assurance Standards Board and ISO 14084-3: Greenhouse gases -- Part 3: Specification with guidance for the validation and verification of greenhouse gas statements.

Methodology

Apex undertook the following activities:

- Site visits, with associated data review, to Apple facilities in Austin, Texas and Japan;
- Interviews with relevant personnel of Apple;
- Review of internal and external documentary evidence produced by Apple;
- Audit of environmental performance data presented in the Report, including a detailed review of a sample of data against source data; and
- Review of Apple information systems for collection, aggregation, analysis and internal verification and review of environmental data.

The work was planned and carried out to provide reasonable assurance for the following indicators, and we believe it provides an appropriate basis for our conclusions:

- Energy: Direct (Million Therms) and Indirect (Million kilowatt hours (mKWh))

- Renewable Energy (mKWh)
- Water Withdrawal and discharge (Million Gallons)
- Greenhouse Gas (GHG) Emissions: Direct Scope 1 emissions by weight, Indirect Scope 2 emissions by weight (Metric Tonnes of Carbon Dioxide equivalent)
- Paper Quantities (Metric Tonnes)

The work was planned and carried out to provide limited assurance for the following indicators, and we believe it provides an appropriate basis for our conclusions:

- Greenhouse Gas (GHG) Emissions: Indirect Scope 3 emissions by weight (Purchased Goods and Services, Fuel and Energy-Related Activities, Employee Commuting and Business Travel) (Metric Tonnes of Carbon Dioxide equivalent)
- Product Use (Metric Tonnes of Carbon Dioxide equivalent)
- Apple Comprehensive Carbon Footprint
- Waste Quantities and Disposition (Metric Tonnes)

Our Findings

Apex verified the following indicators for Apple's fiscal year 2025 reporting period (September 29, 2024 through September 27, 2025):

Parameter	Quantity	Units	Boundary / Protocol
Natural Gas Consumption	1,196,800	Metric million British thermal unit	Worldwide occupied properties / Apple Internal Protocol
Electricity Consumption	6,900	Million kilowatt hours (mKWh)	Worldwide occupied properties / Apple Internal Protocol
Renewable Energy	6,900	Million kilowatt hours (mKWh)	Worldwide / Invoiced quantities & self-generated
Scope 1 GHG Emissions	55,200	Metric tonnes of carbon dioxide equivalent (tCO ₂ e)	Worldwide occupied properties / WRI/WBCSD GHG Protocol
Scope 2 GHG Emissions (Location-Based)	1,210,200	tCO ₂ e	Worldwide occupied properties / WRI/WBCSD GHG Protocol
Scope 2 GHG Emissions (Market-Based)	1,100	tCO ₂ e	Worldwide occupied properties / WRI/WBCSD GHG Protocol
Scope 3 Transmission and Distribution Losses -- Electricity (Market-Based)	0	tCO ₂ e	Worldwide occupied properties / WRI/WBCSD GHG Protocol Value Chain (Scope 3)
Scope 3 GHG Emissions -- Upstream Fuel and Energy-Related Activities	163,000	tCO ₂ e	Worldwide occupied properties / WRI/WBCSD GHG Protocol Value Chain (Scope 3)

Scope 3 GHG Emissions -- Business Travel	201,700	tCO ₂ e	Worldwide occupied properties / WRI/WBCSD GHG Protocol Value Chain (Scope 3)
Scope 3 GHG Emissions -- Employee Commute	143,600	tCO ₂ e	Worldwide occupied properties / WRI/WBCSD GHG Protocol Value Chain (Scope 3)
Scope 3 GHG Emissions - Work from Home Emissions (Employee Commute) (Location-Based)	23,300	tCO ₂ e	Worldwide occupied properties / WRI/WBCSD GHG Protocol Value Chain (Scope 3)
Scope 3 GHG Emissions -- Work from Home Emissions (Employee Commute) (Market-Based)	5,400	tCO ₂ e	Worldwide occupied properties / WRI/WBCSD GHG Protocol Value Chain (Scope 3)
Scope 3 GHG Emissions - Other Cloud Services (Purchased Goods and Services) (Location-Based)	1,045,600	tCO ₂ e	Worldwide occupied properties / WRI/WBCSD GHG Protocol Value Chain (Scope 3)
Scope 3 GHG Emissions - Other Cloud Services (Purchased Goods and Services) (Market-Based)	0	tCO ₂ e	Worldwide occupied properties / WRI/WBCSD GHG Protocol Value Chain (Scope 3)
Water Withdrawal	1,800	Million gallons	Worldwide occupied properties / Apple Internal Protocol
Water Discharge	900	Million gallons	Worldwide occupied properties / Apple Internal Protocol
Trash Disposed in Landfill	20,900	Metric tonnes	Worldwide occupied properties / Apple Internal Protocol
Hazardous Waste (Regulated waste)	1,800	Metric tonnes	Worldwide occupied properties / Apple Internal Protocol
Recycled Material (Removal by recycling contractor)	45,000	Metric tonnes	Worldwide occupied properties / Apple Internal Protocol
Composted Material	14,700	Metric tonnes	Worldwide occupied properties / Apple Internal Protocol
Waste to Energy	1,200	Metric tonnes	Worldwide occupied properties / Apple Internal Protocol



Construction & Demolition Waste Landfilled	4,000	Metric tonnes	Worldwide occupied properties / Apple Internal Protocol
Construction and Demolition Waste Recycled	17,300	Metric tonnes	Worldwide occupied properties / Apple Internal Protocol
Paper Used	1,800	Metric tonnes	Worldwide occupied properties / Apple Internal Protocol
Product end use avoided emissions	800,000	tCO ₂ e	Worldwide occupied properties / WRI/WBCSD GHG Protocol Value Chain (Scope 3)

Comprehensive Carbon Footprint (Market Based)			
Corporate GHG Emissions (Market-Based) ¹	570,000	tCO ₂ e	Worldwide occupied properties / WRI/WBCSD GHG Protocol
Product Use ²	4,120,000	tCO ₂ e	Worldwide occupied properties / WRI/WBCSD GHG Protocol
Manufacturing ³	8,150,000	tCO ₂ e	Worldwide occupied properties / WRI/WBCSD GHG Protocol
Product Transportation ⁴	2,370,000	tCO ₂ e	Worldwide occupied properties / WRI/WBCSD GHG Protocol
Recycling ⁴	70,000	tCO ₂ e	Worldwide occupied properties / WRI/WBCSD GHG Protocol
Comprehensive Carbon Footprint ⁵	15,280,000	tCO ₂ e	Worldwide occupied properties / WRI/WBCSD GHG Protocol

Parameter	Quantity	Units	Boundary / Protocol
Carbon Offsets	738,080	tCO ₂ e	Worldwide occupied properties / WRI/WBCSD GHG Protocol Value Chain
Net Footprint ⁶	14,500,000	tCO ₂ e	Worldwide occupied properties / WRI/WBCSD GHG Protocol Value Chain

1. Corporate GHG Emissions = Scope 1 GHG Emissions + Scope 2 (Market-Based) GHG Emissions + Scope 3 GHG Emissions

2. Product Use emissions (4.92 million metric tonnes) verified by a non-Apex third-party provider contracted to Apple. Apex verified 0.8 million metric tonnes emissions reduction.

3. Manufacturing emissions (32.34 million metric tonnes) verified by a non-Apex third-party provider contracted to Apple. Apex verified 24.19 million metric tonnes emissions reduction.

4. Not verified by Apex. Verified by a non-Apex third-party provider contracted to Apple.

5. Comprehensive Carbon Footprint = Corporate GHG Emissions + Product Use + Manufacturing + Transportation + Recycling

6. Net Footprint = Comprehensive Carbon Footprint – Carbon Offsets



Our Conclusion

Based on the assurance process and procedures conducted regarding the Subject Matter, we conclude that:

- The Energy, Water, Paper, and Scope 1, Scope 2, Scope 3 (Business Travel & Employee Commute) GHG Emissions assertions shown above are materially correct and are a fair representation of the data and information;
- There is no evidence that the Scope 3 (Business Travel, Employee Commute Work from Home, Waste, Other Cloud Services, and Fuel and Energy Related Activities) GHG emissions, and Comprehensive Carbon Footprint assertions shown above are not materially correct and are not a fair representation of the data and information;
- Apple has established appropriate systems for the collection, aggregation and analysis of relevant environmental information, and has implemented underlying internal assurance practices that provide a reasonable degree of confidence that such information is complete and accurate.

Statement of independence, integrity and competence

Apex has implemented a Code of Ethics across the business to maintain high ethical standards among staff in their day to day business activities. We are particularly vigilant in the prevention of conflicts of interest.

No member of the assurance team has a business relationship with Apple, its Directors or Managers beyond that required of this assignment. We have conducted this verification independently, and there has been no conflict of interest.

The assurance team has extensive experience in conducting verification and assurance over environmental, social, ethical and health and safety information, systems and processes, has over 30 years combined experience in this field and an excellent understanding of Apex standard methodology for the Assurance of Sustainability Data and Reports.

Attestation:

Scott Johnston, Lead Verifier
ESG Principal Consultant
Scott.Johnston@apexcos.com
Apex Companies, LLC

David Reilly, Technical Reviewer
ESG Principal Consultant
David.Reilly@apexcos.com
Apex Companies, LLC

April 15th, 2026

This independent assurance statement, including the opinion expressed herein, is provided to Apple Inc. and is solely for the benefit of Apple in accordance with the terms of our agreement. We consent to the release of this statement by you in order to satisfy public disclosure requirements but without accepting or assuming any responsibility or liability on our part to any party who may have access to this statement.



Product carbon footprint (Fraunhofer Institute)



Letter of Assurance

Comprehensive Carbon Footprint – Scope 3: Product related Carbon Footprint for Fiscal Year 2025

Fraunhofer IZM experts reviewed Apple's scope 3 carbon footprint data related to the products manufactured and sold by Apple Inc. in fiscal year 2025.

1 Summary

This review checks transparency of data and calculations, appropriateness of supporting product related data and assumptions, and overall plausibility of the calculated comprehensive annual carbon footprint comprised of emissions derived from the life cycle assessment (LCA) of Apple products shipped in fiscal year 2025. This review and verification focuses on Scope 3 emissions for products sold by Apple Inc. (as defined by WRI/WBCSD/Greenhouse Gas Protocol – Scope 3 Accounting and Reporting Standard). Confidential data relating to product sales and shipments were excluded from the scope of this verification.

This review and verification covers Apple's annual greenhouse gas emissions and does not replace reviews conducted for individual product LCAs for greenhouse gas emissions (GHGs). The life cycle emissions data produced by Apple for individual products has been calculated in accordance to the standard ISO 14040/14044: Environmental management – Life cycle assessment – Principles and framework / Requirements and guidelines and ISO 14067: Greenhouse gases - Carbon footprint of products - Requirements and guidelines for quantification. This letter of assurance furthermore complies with verification report requirements of ISO 14064-3: Greenhouse gases – Part 3: Specification with guidance for the verification and validation of greenhouse gas statements.

The review of the annual carbon footprint has considered the following criteria:

- The system, boundaries and functional unit are clearly defined
- Assumptions and estimations made are appropriate
- Selection of primary and secondary data is appropriate and methodologies used are adequately disclosed

These criteria are also fundamental to the review of LCAs conducted for individual product emissions. The reviewers note that the largest share of Apple Inc. annual carbon footprint is comprised of scope 3 emissions from individual products. The aforementioned criteria have



been regularly reviewed by Fraunhofer IZM experts since 2007 with a view to providing independent feedback that can facilitate continuous improvement and refinement in the LCA methodology applied by Apple Inc.

Data reported by Apple is as follows:

	Manufacturing	Transportation	Product Use	Recycling	Total base product footprint
2025	32.34	2.37	4.92	0.07	39.71
	[MMT CO ₂ e]	[MMT CO ₂ e]	[MMT CO ₂ e]	[MMT CO ₂ e]	[MMT CO ₂ e]

MMT CO₂e: million metric tons carbon dioxide equivalents

The total scope 3 product related carbon footprint is reported to be 39.71 million metric tons CO₂e, applying a location-based method reflecting the average emissions intensity of grids on which energy consumption occurs. This figure does not include greenhouse gas emissions reductions for manufacturing resulting from Apple renewable energy projects, supplier renewable electricity purchases, and supplier renewable electricity installations.

Based on the process and procedures conducted, there is no evidence that the Greenhouse Gas (GHG) assertion with regards to scope 3 carbon footprint

- is not materially correct and is not a fair representation of GHG data and information, and
- has not been prepared in accordance with the related International Standard on GHG quantification, monitoring and reporting.

2 Reviewed Data and Plausibility Check

A verification and sampling plan as required by ISO 14046-3 has been established for the comprehensive carbon footprint review and verification, defining the level of assurance, objectives, criteria, scope and materiality of the verification.

As part of this review and verification Apple disclosed following data to Fraunhofer IZM:

- Sales data for FY2025, including accessories and including AppleCare, Apple's extended warranty and technical support plans for their devices.
- Life cycle GHG emissions for all products, differentiating the actual product configurations (e.g. memory capacity and processor variant)
- Calculation methodology for the comprehensive carbon footprint
- Detailed analysis of the comprehensive carbon footprint including:



- The breakdown of the carbon footprint into life cycle phases manufacturing, transportation, product use and recycling
- Detailed product specific split into life cycle phases
- The contribution of individual products and product families to the overall carbon footprint

The data and information supporting the GHG assertion were projected (use phase and recycling) and historical (i.e. fiscal year 2025 data regarding sales figures, manufacturing, transportation, use patterns where available).

This review comprises a check of selected data, which are most influential to the overall carbon footprint. The overall plausibility check addressed the following questions:

- Are product LCAs referenced and updated with more recent data correctly?
- Are results for products, for which no full LCA review was undertaken, plausible?

This review was done remotely, including two review meetings.

3 Findings

As not all individual product configurations were assessed with a full LCA, in some cases data from similar configurations was used as a proxy. The resulting error is insignificant.

In FY2025 22 recent product LCA studies have been reviewed successfully against ISO 14040/44 and ISO 14067. These LCAs include several that were first reviewed at the product launch three years ago and have now been updated and subjected to a renewed review. Recently reviewed LCAs cover product segments iPhone, iPad, iPad Air, iPad mini, iPad Pro, MacBook Air, MacBook Pro, Studio Display, and Apple Watch. Representatives of other product segments (iMac, Mac mini, Mac Pro, HomePod, AirPods Express / AirPods Extreme, Apple TV, AirPods and Beats products) underwent no or only minor design changes compared to those which went through a full LCA review in former years. All reviewed LCA studies up to now, including also products which are configuration variants, cover in total 86.6% of the total scope 3 carbon footprint.

All questions raised in the course of the review were answered by Apple and related evidence was provided where needed.



4 Conclusions

Apple’s assessment approach is excellent in terms of granularity of the used calculation data. A significant share of components is modelled with accurate primary data from Apple’s suppliers.

The review has not found assumptions or calculation errors on the carbon footprint data level that indicate the scope 3 carbon footprint has been materially misstated. The excellent analysis meets the principles of good scientific practice.

Berlin, March 5, 2026

- Karsten Schischke -
Fraunhofer IZM
Dept. Environmental and
Reliability Engineering

- David Sánchez -
Fraunhofer IZM
Dept. Environmental and
Reliability Engineering

Reviewer Credentials and Qualification

Karsten Schischke: Experience and background in the field of Life Cycle Assessments include

- Life Cycle Assessment course and exam as part of the Environmental Engineering studies (Dipl.-Ing. Technischer Umweltschutz, Technische Universität Berlin, 1999)
- more than 230 Critical Reviews of LCA and PCF studies since 2005 (batteries, displays, mobile devices, networked ICT equipment, home automation devices, servers, desktop computers, inverters, welding equipment, heat pumps) for 8 different industry clients and of the EPEAT Environmental Benefits Calculator
- coordination of and contribution to compilation of more than 100 ELCD datasets (available at www.lca2go.eu; product groups: hard disk drives, semiconductors, printed circuit boards, photovoltaics)
- Environmental Lifecycle Assessments following the MEEUp / MEErP methodology in several Ecodesign Product Group Studies under the European Ecodesign Directive since 2007 (external power supplies, complex settop-boxes, machine tools, welding equipment, mobile phones, tablets, computers, electronic displays)
- comparative Life Cycle Assessment of SIM technologies
- various environmental gate-to-gate assessments in research projects since 2000 (wafer bumping, printed circuit board manufacturing)
- coordination of PCR development for various ICT products

Further updated information at: www.linkedin.com/in/karsten-schischke

David Sánchez: Experience and background in the field of Life Cycle Assessments include

- Life Cycle Assessment course and exam as part of Environmental Engineering and Energy Efficiency studies at Universitat Rovira i Virgili (URV) in Tarragona, Spain (M-Eng, 2016-2017).
- LCA practitioner since 2018, including Life Cycle Assessment of modular smartphones and accessories (Fairphone 4 and 5, FairBuds XL), comparative Life Cycle Assessment of a physical SIM card and an eSIM (G+D), Life Cycle Assessments of different electronic modules and populated boards as part of research projects at German and European level (GreenICT, Sustronics), screening PCFs for various electronics companies at product and module level (project scope3transparent).
- studies in preparation of EU ecodesign regulations (smartphones, tablets, computers)

Further updated information at: www.linkedin.com/in/dsanchez94

Appendix C

Supplier Clean Energy Program (Apex)

INDEPENDENT ASSURANCE STATEMENT



To: The Stakeholders of Apple Inc.

Introduction and objectives of work

Apex Companies, LLC (Apex) was engaged by Apple Inc. (Apple) to conduct independent limited assurance of its Supplier Clean Energy Program data reported in its 2025 environmental report (the Report). This assurance statement applies to the related information included within the scope of work described below. The intended users of the assurance statement are the stakeholders of Apple. The overall aim of this process is to provide assurance to Apple's stakeholders on the accuracy, reliability and objectivity of select information included in the Report.

This information and its presentation in the Report are the sole responsibility of the management of Apple. Apex was not involved in the collection of the information or the drafting of the Report.

Scope of Work

Apple requested Apex to include in its independent review the following:

- Methodology for tracking and verifying supplier clean energy contributions, including the Energy Survey, Renewable Energy Agreement, and other forms of supporting documentation provided by suppliers where available.
- Assurance of Clean Energy Program data and information for the fiscal year 2025 reporting period (September 29, 2024 through September 27, 2025), specifically, in accordance with Apple's definitions:
 - Energy - Reported megawatt-hours (MWh) of clean energy attributed to the Clean Energy Program for suppliers;
 - Avoided Greenhouse Gas (GHG) emissions associated with clean energy attributed to the Clean Energy Program;
 - Operational Capacity in megawatts of alternating current output capacity (MWac) of clean energy in support of Apple manufacturing as a part of Apple's Supplier Clean Energy Program;
 - Appropriateness and robustness of underlying reporting systems and processes, used to collect, analyze, and review the information reported.

Excluded from the scope of our work is any assurance of information relating to:

- Text or other written statements associated with the Report, and
- Activities outside the defined assurance period.

Assessment Standards

Our work was conducted against Apex's standard procedures and guidelines for External Verification of Sustainability Reports, based on current best practice in independent assurance. Apex procedures are based on principles and methods described in the International Standard on Assurance Engagements (ISAE) 3000 Revised, Assurance Engagements Other than Audits or Reviews of Historical Financial Information (effective for assurance reports dated on or after Dec. 15, 2015), issued by the International Auditing and Assurance Standards Board and ISO 14064-3 (2019-04): Greenhouse gases -- Part 3: Specification with guidance for the verification and validation of greenhouse gas statements.

Methodology

- Interviews with relevant personnel of Apple;
- Review of internal and external documentary evidence produced by Apple;
- Audit of environmental performance data presented in the Report, including a detailed review of a sample of data against source data; and,

- Review of Apple information systems for collection, aggregation, analysis and internal verification and review of environmental data.

The work was planned and carried out to provide limited assurance for all indicators and we believe it provides an appropriate basis for our conclusions.

Our Findings

Apex verified the following indicators for Apple's Fiscal Year 2025 reporting period (September 29, 2024 through September 27, 2025):

Parameter	Quantity	Units	Boundary / Protocol
Clean Energy Use	38.3	Million megawatt hours (mMWh)	Apple suppliers / Apple Internal Protocol
Avoided GHG Emissions	26.1	Million metric tons of carbon dioxide equivalent (mMtCO ₂ e)	Apple suppliers / Apple Internal Protocol
Operational Capacity	20,712	Megawatts (MWac)	Apple suppliers / Apple Internal Protocol

Our Conclusion

Based on the assurance process and procedures conducted, we conclude that:

- Nothing has come to our attention to indicate that the reviewed Clean Energy Use, Avoided GHG Emissions, and Operational Capacity assertions within the scope of our verification are inaccurate and the information included therein is not fairly stated and have not been prepared in accordance with Apple's stated protocols for the Supplier Clean Energy Program; and
- It is our opinion that Apple has established appropriate systems for the collection, aggregation and analysis of relevant environmental information, and has implemented underlying internal assurance practices that provide a reasonable degree of confidence that such information is complete and accurate.

Statement of independence, integrity and competence

Apex has implemented a Code of Ethics across the business to maintain high ethical standards among staff in their day-to-day business activities. We are particularly vigilant in the prevention of conflicts of interest.

No member of the assurance team has a business relationship with Apple, its Directors or Managers beyond that required of this assignment. We have conducted this verification independently, and there has been no conflict of interest.

The assurance team has extensive experience in conducting verification and assurance over environmental, social, ethical and health and safety information, systems and processes, has over 30 years combined experience in this field and an excellent understanding of Apex standard methodology for the Assurance of Sustainability Reports.

Attestation:

Scott Johnston, Lead Verifier
ESG Principal Consultant
Apex Companies, LLC

Jessica Jacobs, Technical Reviewer
ESG Program Manager
Apex Companies, LLC

April 1st, 2026



Appendix C

Supplier Energy Efficiency Program (Apex)

INDEPENDENT ASSURANCE STATEMENT



To: The Stakeholders of Apple Inc.

Introduction and objectives of work

Apex Companies, LLC (Apex) was engaged by Apple Inc. (Apple) to conduct an independent limited assurance of its Supplier Energy Efficiency Program data. This assurance statement applies to the related information included within the scope of work described below. The intended users of the assurance statement are the stakeholders of Apple. The overall aim of this process is to provide assurance to Apple's stakeholders on the accuracy, reliability and objectivity of the reported information.

This information and its presentation are the sole responsibility of the management of Apple. Apex was not involved in the collection of the information or the drafting of the reported information.

Scope of work

Apple requested Apex to include in its independent review the following:

- Methodology for tracking and verifying supplier energy efficiency projects, including supplier energy audit reports, supplier progress reports, energy efficiency project verifications, and other forms of supporting documentation provided by suppliers where available;
- Assurance of Energy Efficiency Program data and information for the fiscal year 2025 reporting period (September 29, 2024 through September 27, 2025), specifically, in accordance with Apple's definitions:
 - Avoided Greenhouse Gas (GHG) emissions associated with energy reductions attributed to the Energy Efficiency Program;
 - Appropriateness and robustness of underlying reporting systems and processes, used to collect, analyze, and review the information reported.

Excluded from the scope of our work is any assurance of information relating to:

- Activities outside the defined assurance period.

Methodology

As part of its independent verification, Apex undertook the following activities:

- Interviews with relevant personnel of Apple;
- Review of documentary evidence produced by Apple;
- Audit of performance data;
- Review of Apple's systems for quantitative data aggregation.

Our work was conducted against Apex's standard procedures and guidelines for External Verification of Sustainability Reports, based on current best practice in independent assurance. Apex procedures are based on principles and methods described in the International Standard on Assurance Engagements (ISAE) 3000 Revised, Assurance Engagements Other than Audits or Reviews of Historical Financial Information (effective for assurance reports dated on or after Dec. 15, 2015), issued by the International Auditing and Assurance Standards Board and ISO 14064-3 Second Edition 2019-04: Greenhouse gases -- Part 3: Specification with guidance for the verification and validation greenhouse gas statements.

Apex Companies, LLC



Page 1 of 2

The work was planned and carried out to provide limited, rather than reasonable assurance and we believe it provides an appropriate basis for our conclusions.

Our Findings

Apex verified cumulative Avoided Greenhouse Gas emissions for the fiscal year 2025 reporting period:

Period	Quantity	Units	Boundary / Protocol
FY 2025 (09/29/2024 - 9/27/2025)	2.45	Million Metric tons of Carbon Dioxide	Apple suppliers / Apple Internal Protocol

On the basis of our methodology and the activities described above:

- Nothing has come to our attention to indicate that the reviewed emissions data within the scope of our verification are inaccurate and the information included therein is not fairly stated and have not been prepared in accordance with Apple's stated protocols for the Supplier Energy Efficiency Program;
- It is our opinion that Apple has established appropriate systems for the collection, aggregation and analysis of quantitative data such as energy and associated GHG emissions reductions.

This independent statement should not be relied upon to detect all errors, omissions or misstatements that may exist.

Statement of independence, integrity and competence

Apex has implemented a Code of Ethics across the business to maintain high ethical standards among staff in their day to day business activities. We are particularly vigilant in the prevention of conflicts of interest.

No member of the assurance team has a business relationship with Apple, its Directors or Managers beyond that required of this assignment. We have conducted this verification independently, and there has been no conflict of interest.

The assurance team has extensive experience in conducting verification and assurance over environmental, social, ethical and health and safety information, systems and processes, has over 20 years combined experience in this field and an excellent understanding of Apex standard methodology for the Assurance of Sustainability Reports.

Attestation:



Scott Johnston, Lead Verifier
ESG Principal Consultant
Apex Companies, LLC.



Jessica Jacobs, Technical Reviewer
ESG Program Manager
Apex Companies, LLC.

April 3rd, 2026

Apex Companies, LLC



Page 2 of 2

Packaging fiber and plastic footprint (Fraunhofer Institute)



Review Statement

Corporate Packaging Fiber and Plastic Footprint

Fraunhofer IZM experts reviewed Apple’s corporate packaging fiber and plastic footprint data related to corporate packaging fiber and plastic usage from products, retail and service operations in fiscal year 2025.

1Summary

This review checks transparency of data and calculations, appropriateness of supporting product and packaging related data and assumptions, and overall plausibility of the calculated corporate annual packaging fiber and plastic footprint of Apple products shipped in fiscal year 2025 and of retail and service operations in the same period.

As there is no standardised method available for calculating a packaging fiber and plastic footprint Apple defined a methodology for internal use. The scope of the fiber and plastic packaging footprint includes Apple’s corporate packaging fiber and plastic usage from products (including trade-in packaging, in-box material and re-pack packaging), retail operations, AppleCare services, and facilities. The packaging fiber and plastic footprint tracks the total amount of plastic, virgin and recycled wood fibre, that Apple uses in packaging. Apple obtains and analyses supplier-specific data for each product line and sums up these figures for the entire company using sell-in numbers. For some products, a representative supplier is chosen to calculate the product-specific packaging. The output is a total packaging fiber and plastic footprint. For Beats products and accessories, individual sell-in numbers were only available for a share of products. These were extrapolated for the whole category. Some types of polymer material are excluded from the packaging plastic footprint. These are ESD material, adhesives, ink, varnish, coating. Also metal foils might be used on some packaging, but is not covered by fiber or plastic footprint data.

The review of the corporate annual packaging fiber and plastic footprint has considered the following criteria:

- The system boundaries are clearly defined
- Assumptions and estimations made are appropriate
- Use of supplier data is appropriate and methodologies used are adequately disclosed

Corporate Packaging Fiber and Plastic Footprint Review

1



Data reported by Apple is as follows:			
2025	Total	Virgin	Recycled
Plastic w/o adhesives	1,040	1,040	--
Fiber	303,400	113,300	190,100
	(metric tons)	(metric tons)	(metric tons)

All results and figures reviewed for fiscal year 2025 are plausible.

2Reviewed Data and Findings

As part of this review Apple disclosed following data to Fraunhofer IZM:

- Calculation methodology for the corporate packaging fiber and plastic footprint
- Sales data for FY2025, including accessories
- Product specific data on packaging materials, and fiber and plastics content, including adhesives and inks, which are polymers in packaging materials, but are excluded from reported figures
- Fiber consumption of corporate facilities, and fiber and plastics consumption for retail bags
- Aggregated packaging fiber and plastic data for all products and the total corporate packaging fiber and plastic footprint for the fiscal year 2025
- Comparison with results of prior fiscal year

The methodology papers provided by Apple (Packaging Plastic Footprint at Apple – Methodology Description – V2.0, dated March 2025, Fiber Footprint at Apple - Methodology Description – V1.1, dated 2017), is considered a sound and appropriate guidance for determining the company packaging fiber and plastic. Where appropriate, this approach follows methodological principles applied for state-of-the-art Life Cycle Assessments.

This review comprises a check of packaging fiber and plastic data against data reported in prior years. The cases in which the package design has been modified have been discussed in detail.

Corporate Packaging Fiber and Plastic Footprint Review

2

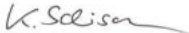


Plausibility of some data has been questioned and discussed with Apple. All questions raised in the course of the review were answered by Apple and related explanation was provided where needed.

This review was done remotely, including 4 remote review sessions.

Based on the process and procedures conducted, there is no evidence that the corporate packaging fiber and plastic footprint, as reported in its final version on March 4, 2026, is not materially correct and is not a fair representation of fiber and plastic data and information.

Berlin, March 6, 2026



- Karsten Schischke -
Fraunhofer IZM
Dept. Environmental and
Reliability Engineering



- David Sánchez -
Fraunhofer IZM
Dept. Environmental and
Reliability Engineering

Corporate Packaging Fiber and Plastic Footprint Review

3

Fluorinated greenhouse gas (F-GHG) data (Trinity Consultants)

Trinity
Consultants



INDEPENDENT REVIEW STATEMENT

To: The Stakeholders of Apple, Inc.

Introduction and Objectives of Work

Trinity Consultants, Inc. (Trinity) was engaged by Apple, Inc. (Apple) to conduct an independent general review of Apple’s identified top emitting semiconductor and display manufacturers, herein referred to as the suppliers, fluorinated greenhouse gas emissions (F-GHG) and claimed point-of-use (POU) abatement system installations and performance (e.g., destruction and removal efficiency). This statement applies to the related information included within the scope of work described below for Apple’s fiscal year 2025 (October 2024 – September 2025).

This information and its presentation are the sole responsibility of the management of Apple.

Scope of Work

Apple requested Trinity to include in its independent general review the following:

- ▶ Desktop review of supplier certified and reported F-GHG usage of the Apple portion of commodity production, gas usage by process type, POU abatement equipment installation rates and POU abatement claimed destruction and removal efficiencies.
 - This review was completed by collecting information via a web-based survey distributed by Apple to suppliers and then reviewing supplier reported process gas usage data and answers regarding POU abatement equipment design, installation, maintenance, and operation.
- ▶ Desktop review of supplier provided third-party greenhouse gas verification reports of entity wide Scope 1 emissions.
- ▶ Identify Apple suppliers to qualify for inclusion in the calculated metric presented in Table 1 of this part. The following methods were used to determine if a supplier’s reported data qualified for verification, and if qualified, it was included in the metric presented in Table 1.
 - Apple supplier submitted complete survey responses to Apple’s fiscal year survey.
 - Apple supplier provided a third-party greenhouse gas verification report which met the following minimum criteria:
 - ◆ The verification statement issued by an independent third-party
 - ◆ The verification statement employed a verification protocol accepted by the Carbon Disclosure Project (CDP)
 - ◆ The verification statement covered full Scope 1 greenhouse gas emissions, including F-GHG, for a supplier on an entity wide basis or manufacturing site basis
 - ◆ The verification statement covered at least a portion of the fiscal year included in the scope of review statement
 - ◆ The verification statement did not identify any adverse findings
- ▶ Excluded from the scope of our work is any detailed verification relating to:
 - Activities outside the defined assurance period or scope.

111 SW Columbia St. Suite 1100, Portland, OR 97201
P 503.713.5550

April 1, 2026

INDEPENDENT REVIEW STATEMENT

Page 2 of 3

Methodology

As part of its independent review, Trinity undertook the following activities:

- ▶ Interviews with relevant personnel of Apple;
- ▶ Review of documentary evidence reported by Apple suppliers;
- ▶ Verified the Apple reportable F-GHG avoided emissions by Apple’s suppliers included in the scope of this review statement. Avoided emissions were calculated using default emission factors from the IPCC 2019 Refinement Tier 2c methodology including applying default DREs.¹
- ▶ Where available, comparison to prior fiscal year supplier reported survey data (e.g., process gas usage, abatement installation rate) was conducted for Apple’s suppliers included in the scope of this review statement to identify justifiable trends in year over year data.

Our Findings

Trinity reviewed data from Apple’s suppliers included in the scope of this review statement and verified the minimum reportable F-GHG avoided emissions for the fiscal year of 2025 were calculated in accordance with industry accepted emission calculation methodology. Table 1 below details the verified reportable minimum F-GHG avoided emissions for Apple’s suppliers included in the scope of this review statement:

Table 1. Apple Supplier Avoided F-GHG Emissions

Fiscal Year 2025 Period Metric	Quantity	Units	Boundary
Total F-GHG Emissions Reduced from Abatement	7,445,755	Metric Tons CO ₂ e	Suppliers included in this statement’s scope of work
Total N ₂ O Emissions Reduced from Abatement	211,159	Metric Tons CO ₂ e	Suppliers included in this statement’s scope of work
Total (F-GHG + N ₂ O) Emissions Reduced from Abatement	7,656,913	Metric Tons CO ₂ e	Suppliers included in this statement’s scope of work

¹ As detailed in the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories

April 1, 2026

INDEPENDENT REVIEW STATEMENT

Page 3 of 3

Statement of Qualifications

Trinity is an independent professional services firm specializing in environmental, health and safety, and sustainability compliance, risk, and performance management. The work performed by the Trinity project team has been assessed against the company’s standard procedures and guidelines, including its established Quality Assurance and Quality Control (QA/QC) procedures. Trinity’s headquarters office holds ISO 9001:2015 certification, with a strong emphasis on quality and effective project management. Additionally, all individual offices adhere to internal QA/QC procedures aligned with the ISO 9001-certified protocols of the headquarters office. This verification has been conducted independently, and it is our professional judgment that no conflict of interest has affected the assessment.



Rich Pandullo – Director, EHS & Energy Management / Sustainability and Assurance

Trinity Consultants, Incorporated
Dallas Texas Corporate Headquarters
April 1, 2026

Appendix D

Environment, Health and Safety Policy

Mission Statement

Apple Inc. is committed to protecting the environment, health and safety (EHS) of our employees, customers, and contractors in the design, research, manufacture, distribution, and use of our products and services in the global communities where we operate.

We recognize that by integrating best EHS management practices into all aspects of our business, we can offer technologically innovative products and services while conserving and enhancing resources for future generations.

Apple strives for continuous improvement in our EHS management systems and in the environmental quality of our products, processes, and services.

Guiding Principles

Meet or exceed all applicable EHS requirements through the design and safe management of our facilities.

Apply higher standards to protect human health and the environment, where laws and regulations do not provide adequate controls.

Promote responsible management and stewardship of clean energy, water, waste, resources, and biodiversity.

Encourage contractors, vendors, and suppliers to provide safe working conditions, treat workers with dignity and respect, and act fairly and ethically.

Support and promote best scientific principles, best practices, and public policy initiatives that enhance environmental quality, health and safety performance, and the responsible sourcing of materials.

Communicate EHS policies and programs to Apple employees and stakeholders, and hold its suppliers accountable to Apple’s Supplier Code of Conduct: apple.com/supplychain.

Strive to create products that are safe in their intended use and are manufactured in alignment with our strict environmental standards.

Pursue continual improvement through the evaluation of our EHS performance by monitoring ongoing performance results through periodic management reviews, and committing to correct EHS nonconformities.

Ensure that all employees are aware of their role and responsibility to fulfill and sustain Apple’s EHS management systems and policy by providing training and tools in the user’s primary language.

February 2026

Appendix E

ISO 14001 certification

Apple operates manufacturing facilities in Cork, Ireland. We certify 100 percent of these facilities with ISO 14001.



Building trust together.

Certificate

NSAI has issued an IQNET recognized certificate that the organization:

Apple Operations International Limited
Hollyhill Industrial Estate, HH01 Building, Hollyhill, Cork, Ireland, 7340DEF

has implemented and maintains an
Environmental Management System

for the following scope:
The management of all EMEA operational activities related to manufacturing, sales, delivery and after sales support for direct retail and channel customers

which fulfils the requirements of the following standard:

I.S. EN ISO 14001:2015

Issued on: **11 July 2024**
First issued on: **20 March 2001**
Expires on: **10 July 2027**

Registration Number: **IE-14.0202**



Alex Stoichitolu
President of IQNET



Stewart Hickey
Head - Business Excellence, NSAI



This attestation is directly linked to the IQNET Member's original certificate and shall not be used as a stand-alone document.

IQNET Members*:
AENOR Spain **AFNOR Certification** France **APCER** Portugal **CCC** Cyprus **CISO** Italy **COC** China **COM** China **OQS** Czech Republic **Cro Cert** Croatia **DQS Holding GmbH** Germany **EAGLE Certification Group** USA **FCAV** Brazil **FONDONORMA** Venezuela **ICONTEC** Colombia **ICS** Bosnia and Herzegovina **Inspecta Sertifikaati Oy** Finland **INATECO** Costa Rica **IRAM** Argentina **JOA** Japan **KFO** Korea **LSQA** Uruguay **MIRTEC** Greece **MSZT** Hungary **Nemko AS** Norway **NSAI** Ireland **NYCE-SIGE** Mexico **PCBC** Poland **Quali** Austria **SII** Israel **SIO** Slovenia **SIRIM QAS International** Malaysia **SQS** Switzerland **SRAC** Romania **TSE** Turkey **YUQS** Serbia

* The list of IQNET Members is valid at the time of issue of this certificate. Updated information is available under www.iqnet-certification.com

CERT-06714001 – NSAI IQNET 14001:2015 A4 (3)



NSAI

Certificate of Registration of Environmental Management System to I.S. EN ISO 14001:2015

Apple Operations International Limited

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NSAI certifies that the aforementioned company has been assessed and deemed to comply with the provisions of the standard referred to above in respect of:-

The management of all EMEA operational activities related to manufacturing, sales, delivery and after sales support for direct retail and channel customers



Approved by:
Stewart Hickey
Head - Business Excellence, NSAI



Registration Number: **14.0202**
Original Registration: **20 March 2001**
Last amended on: **11 July 2024**
Valid from: **11 July 2024**
Remains valid to: **10 July 2027**

This certificate remains valid on condition that the Approved Environmental Management System is maintained in an adequate and efficacious manner. NSAI is a partner of IQNet – the international certification network (www.iqnet-certification.com)

Partner of:


All valid certifications are listed on NSAI's website – www.nsa.ie. The continued validity of this certificate may be verified under "Certified Company Search"



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CERT-161 WM: 14001 2015 INAB (4)

Report notes

About this report

This report addresses our environmental programs and initiatives across our business. To provide feedback on this report, please contact environment-report@apple.com.

This report does not cover all information about our business. References in this report to information should not be interpreted as an indication of the materiality of such information to Apple’s financial results or for purposes of U.S. securities laws, or any other laws or requirements. Additionally, certain terminology used in this report, such as “value chain,” “impacts,” “risks,” “opportunities,” and “targets” may differ from the terminology used in legal reporting frameworks. Also, any reference in this report to sustainable activities should not be interpreted as an indication of the classification of such activity under any legal classification framework, which could be subject to specific criteria and requirements, that may differ from the general references made in this report.

Reporting year

We track our environmental progress based on Apple’s fiscal year. All references to a year throughout the report refer to Apple’s fiscal years, unless “calendar year” is specified. Apple’s fiscal year is the 52- or 53-week period that ends on the last Saturday of September.

Data assurance

We obtain third-party verification for some of the information in this report from organizations such as Apex Companies and the Fraunhofer Institute in Germany (as denoted in [Appendix C](#)). Data in this report, including data or verification from third parties, reflects estimates using methodologies and assumptions believed to be reasonable and accurate. Those estimates, methodologies, and assumptions may change in the future as a result of new information or subsequent developments, or they ultimately may prove to be inaccurate. The bulk of Apple’s recycled content data is certified and thus verified by a third party with less than 5 percent of the total mass shipped in Apple products representing content that was either supplier verified, meaning it was reported by the supplier and verified by Apple, or supplier reported based on production and allocation values. In all cases, Apple defines recycled content in alignment with ISO 14021. Product claims are made as of the launch date of those individual products, and they are accurate as of product launch. We assume no obligation, and expressly disclaim any duty to update any product claims, unless otherwise required by law.

Forward-looking statements

The information covered by the report contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, including statements regarding our environmental or sustainability goals or targets, commitments, and strategies and related business and stakeholder impacts. Forward-looking statements can be identified by words such as “future,” “anticipates,” “believes,” “estimates,” “expects,” “intends,” “plans,” “predicts,” “will,” “would,” “could,” “can,” “may,” “aim,” “strive,” and similar terms. These statements involve risks and uncertainties, and actual results may differ materially from any future results expressed or implied by the forward-looking statements.

These risks and uncertainties include, without limitation, any failure to meet stated environmental or sustainability targets, goals, and commitments, and execute our strategies in the time frame expected or at all; global sociodemographic, political, and economic trends, including energy prices and other costs; changing government regulations or policies; technological innovations, climate-related conditions and weather events; our ability to gather and verify data regarding environmental impacts; the compliance of various third parties, including our suppliers with our policies and procedures, or their commitments to us; and our expansion into new products, services, technologies, and geographic

regions. More information on risks, uncertainties, and other potential factors that could affect our business and performance is included in our filings with the U.S. Securities and Exchange Commission, including in the “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” sections of the company’s most recently filed periodic reports on Form 10-K and Form 10-Q and subsequent filings. Further, from time to time we engage in various initiatives (including voluntary disclosures, policies, and programs), but we cannot guarantee that these initiatives will have the desired effect. We assume no obligation, and expressly disclaim any duty (including in response to new or changed information) to update any statements or information, which speak as of their respective dates. Readers should not place undue reliance on the forward-looking statements made in this report. Moreover, many of the assumptions, standards, metrics, and measurements used in preparing this report continue to evolve, are sourced from third parties, and are based on assumptions believed to be reasonable at the time of preparation, but should not be considered guarantees. Given the inherent uncertainty of the estimates, assumptions, and timelines contained in this report, we may not be able to anticipate whether, or the degree to which, we’ll be able to meet our plans, targets, or goals in advance.

End notes

Introduction

- 1

Apple follows the GHG Protocol Corporate Accounting and Reporting Standard (GHG Protocol) to calculate value chain emissions. The GHG Protocol currently defines scope 1 emissions as direct greenhouse gas emissions that occur from sources that are owned or controlled by the company; scope 2 emissions as the indirect greenhouse gas emissions from the generation of purchased electricity, steam, heat, and cooling consumed by the company; and scope 3 emissions as all “other indirect emissions” that occur in the value chain of the reporting company, including both upstream and downstream emissions. Apple currently sets an operational boundary for its emissions and excludes the following scope 3 categories, as defined by the GHG Protocol, which collectively make up less than 10 percent of our 2015 base year scope 3 emissions currently: “capital goods” due to limited data availability, which limits our ability to influence these emissions, and “waste generated in operations,” as these emissions are negligible. The following subset of greenhouse gas categories recognized in the Kyoto Protocol are included: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆), nitrogen trifluoride (NF₃).
- 2

We accomplished our goal to use 100 percent recycled cobalt in all Apple-designed batteries, 100 percent recycled tin soldering and 100 percent recycled gold plating in all Apple-designed rigid and flexible printed circuit boards, and 100 percent recycled rare earth elements in all magnets. This accomplishment excludes inventory for replacement and repair, as well as excess inventory purchased prior to year-end currently being consumed and representing less than 0.1 percent of total material usage.
- 3

Apple reports data about the recycled content of its products at different levels of fidelity, based on the level of independent data verification. The bulk of Apple’s recycled content data is certified and thus verified by a third party. Less than 1 percent of the total mass shipped in Apple products in fiscal year 2025 contained recycled content that was not third party certified and verified and is either supplier-verified (meaning it has been reported by the supplier and cross-checked by Apple) or supplier-reported (meaning it has been reported by the supplier based on production and allocation values). In all cases, Apple defines recycled content in alignment with ISO 14021. We do not currently include industry-average recycled content, which may result in underreporting actual recycled content. Total recycled material shipped in products is driven by product material composition and total sales — as a result, this overall recycled or renewable content percentage may fluctuate based on the number and type of products sold each year.
- 4

Apple achieved its goal of eliminating plastic in our packaging and transitioning to 100 percent fiber-based packaging. Apple’s goal to remove plastic from packaging included retail bags, all finished goods boxes (including plastic content in labels and in-box documentation), packaging sent to our customers as part of Apple Trade In, AppleCare packaging for whole units and service modules (with the exception of plastics needed to protect items from electrostatic discharge), and secondary packaging of Apple products and accessories sold by Apple. Our goal excluded the inks, coatings, or adhesives used in our packaging. We plan to remove plastic from the packaging of refurbished products by 2027, once old product packaging designs are phased out. We’ll continue selling existing inventory of AppleCare packaging for whole units and service modules that contain plastics for vintage and products at end of life and a select subset of vintage products launched prior to December 2023 until consumed. This approach will enable us to avoid waste generated by repackaging goods in new 100 percent fiber-based packaging and represents less than 0.4 percent of our total packaging footprint.
- 5

In addition to working toward transitioning our entire product value chain to using 100 percent clean electricity by 2030, we’re prioritizing energy efficiency and emissions reductions within supplier facilities and operations.
- 6

We plan to reach carbon neutrality for our fiscal year 2030 carbon footprint.
- 7

Refer to footnote 3.
- 8

Refer to footnote 2.
- 9

Refer to footnote 4.
- 10

By 2030, we plan to replenish 100 percent of our corporate freshwater withdrawals in high-stress locations, as determined by a World Resources Institute (WRI) Aqueduct Baseline Water Stress Indicator and further refined through local context and analysis.
- 11

We continuously monitor overall water stress, as defined by WRI Aqueduct, to identify priority suppliers and drive their enrollment in our Supplier Clean Water Program. Apple prioritizes supplier facilities by overall basin stress indicator, onsite activity type, and annual water volume usage.

Environmental Initiatives

- 12

Renewable electricity refers to fossil fuel-free sources of energy from renewable sources, like wind, solar, and low-impact hydroelectricity projects. Clean electricity refers to both renewable electricity as well as other projects that Apple considers “low carbon” but not “renewable,” like nuclear and large-impact hydroelectricity projects. Apple currently only allows for clean electricity sources to address electricity for product use when part of a residual grid factor, in markets where there is sufficient data to ensure that the clean electricity is not already claimed. For Apple’s corporate footprint, supply chain manufacturing, and the portion of our product use impact that is not already clean electricity, Apple is investing in only new renewable electricity sources.
- 26

Refer to footnote 2.
- 27

Refer to footnote 4.
- 28

Savings from 2021 to 2025 were calculated by multiplying each year’s sales volume by the previous year’s estimated plastic per unit for each product line, and then subtracting that year’s estimated plastic use. The water bottle equivalent assumes each bottle weighs 30 grams.
- 29

Refer to footnote 4.
- 30

In fiscal year 2025, we exceeded the requirements of criterion 4.9.3.1 in IEEE 1680.1 by achieving 7.2 percent of energy savings in Apple facilities that consumed more than 72 million kWh/yr energy consumption.
- 31

All efficiency measures are retired based on their effective useful lifetime as documented by the California Energy Commission.
- 32

Our use of the term RECs covers both U.S. and international renewable energy certificates and similar certifications around the world, such as Guarantees of Origin (GOs) in Europe (including international renewable energy certificates or I-RECs), Large-Scale Generation Certificates (LGCs) in Australia, and Green Electricity Certificates (GECs) in China.
- 33

In 2024, suppliers relied predominantly on U.S. or international renewable energy certificates (RECs) to meet their CEP commitments, as an interim solution to longer-term procurement options like power purchase agreements (PPAs), which are becoming increasingly available across the globe. With the evolution of renewable procurement options in China, suppliers have started transitioning to the expanded Green Energy Certificate (GEC) and Green Power Trading mechanism, which are nationally recognized ways of procuring renewable energy in China today.
- 34

Eligible products are those in a product category for which ENERGY STAR certification exists. For more information, visit www.energystar.gov. ENERGY STAR and the ENERGY STAR mark are registered trademarks owned by the U.S. Environmental Protection Agency.
- 35

We’re working with our suppliers on commitments to our F-GHG abatement specification requiring at least 90 percent abatement of total facility F-GHG emissions in support of our Apple 2030 goal. We define F-GHGs as certain perfluorocarbons (e.g., CF₄, C₂F₆, and C₄F₈), trifluoromethane (CHF₃), nitrogen trifluoride (NF₃), and sulfur hexafluoride (SF₆). Suppliers’ F-GHG emissions and abatement rate should conform to the requirements of the 2019 Refinement Intergovernmental Panel on Climate Change (“IPCC”) Guidelines for National Greenhouse Gas Inventories Tier 2c calculation methodologies and use the most up-to-date GWP values if applicable.
- 36

The applicable display and semiconductor manufacturing refers to suppliers who perform the relevant processes outlined in the IPCC Tier2c methodology. Fabless suppliers were not in scope for the engagement.
- 37

Based on the number of multi-unit boxes that fit onto a pallet compared to AirPods Pro 2. This increase in efficiency excludes pallets shipped to Brazil.
- 38

Based on the number of 10-unit boxes that fit onto a pallet compared with iPhone 16. The following locations have different savings based on various pallet configurations: Andorra, Canada, Cyprus, Greece, Italy, Portugal, South Korea, Spain, Switzerland, U.S.
- 39

Based on the methodology Apple uses to calculate transportation emissions, which is regularly reviewed by a third party, Fraunhofer IZM.

Environmental Initiatives continued

Resources

- 40 Based on data from FDM | CCS Insight from 2023 to mid-2025, comparing average trade-in price of working-condition smartphones from major brands in key markets.
- 41 This applies specifically to our U.S.-based Apple Trade In program.
- 42 We define facility water use as high stress if the area is located within, or withdraws water from, a basin that has high or extremely high baseline water stress, based on the Aqueduct Water Risk Atlas V4.0 tool from the World Resources Institute and refined by additional local knowledge and third-party research.
- 43 Based on previous estimated consumption.
- 44 Refer to footnote 11.
- 45 We account for savings through this program on a fiscal-year basis rather than a calendar-year basis, as reported in publications before fiscal year 2021.
- 46 By the end of fiscal year 2030, we plan to replenish 100 percent of our corporate freshwater withdrawals, starting in high-stress locations, as determined by a WRI Aqueduct Baseline Water Stress Indicator and further refined through local context and analysis.
- 47 Waste diversion rates do not include construction and demolition waste or electronic waste for fiscal year 2025. Electronic waste is accounted for in the total metric tons of electronic waste that we sent to recycling, found on [page 82](#).
- 48 Taiwan Technology Center has been third-party verified by UL Solutions against the UL 2799 Zero Waste to Landfill Environmental Claim Validation Procedure (ECVP). UL Solutions requires at least 90 percent diversion through methods other than waste-to-energy to achieve Zero Waste to Landfill (Silver: 90–94 percent, Gold: 95–99 percent, and Platinum: 100 percent) designations.
- 49 Our Mesa and Prineville data centers are third-party certified as Zero Waste by USGBC TRUE, receiving their certifications in 2021. Corporate offices in Sacramento and Los Angeles, California, and data centers in Reno, Nevada, and Maiden, North Carolina, received TRUE certification in 2024; Cork, Ireland, and Capital Ridge in Austin, Texas, received it in 2025. Our retail store, Apple Fifth Avenue received TRUE certification in 2026. TRUE requires 90 percent diversion or higher from the landfill without the use of waste-to-energy to achieve the TRUE-certified project designation.
- 50 All established final assembly supplier sites — or those that have been Apple suppliers for more than one year — for iPhone, iPad, Mac, Apple Watch, AirPods, HomePod, Apple TV, and Apple Vision Pro have been third-party verified by UL Solutions against the UL 2799 Zero Waste to Landfill Environmental Claim Validation Procedure (ECVP). UL Solutions requires at least 90 percent diversion through methods other than waste-to-energy to achieve Zero Waste to Landfill (Silver: 90–94 percent, Gold: 95–99 percent, and Platinum: 100 percent) designations.
- 51 Refer to footnote 48.

Smarter chemistry

- 52 Final assembly, test, and packout (FATP) facilities do not include all facilities that support Accessories and Beats.