



With the Launch of New
Carbon-neutral Products,

What Changes has Apple Made?



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In September 2024, Apple released the new carbon-neutral Apple Watch Series 10. After the launch of Apple's first carbon-neutral product in 2023, we [released a report](#) raising five questions. **A year has passed, have these issues been resolved?**

After studying Apple's *Environmental Product Reports* for Apple Watch Series 10, iPhone 16 Pro, and iPhone 16 Pro Max, as well as the *Apple Supplier Code of Conduct*, *Environmental Progress Report*, and *People and Environment in Our Supply Chain: 2024 Annual Progress Report*, and reviewing Apple's green supply chain work over the past year, we identified a number of positive actions.

Among them, the most significant change is the revision Apple made towards its *Apple Supplier Code of Conduct*¹. The current version 4.10 (hereinafter referred to as the new *Code*), incorporates the requirement for suppliers to 'maintain a company-wide GHG inventory, which also identifies facility-level GHG emissions from all facilities involved with Apple products'. This change is important because, as a globally sourcing brand, Apple's supplier management are primarily based on Code of Conduct. Previously, Apple was unable to effectively promote facility-level carbon disclosure due in part to the lack of facility-level requirements in the Code.

In addition to including facility-level emissions into the inventory, the new *Code* also requires suppliers to assign dedicated personnel to manage facility-level GHG emissions, identify a Directly Responsible Individual (DRI) for managing GHG emissions related to the 'covered carbon footprint'² of Apple products and suppliers, identify facility-level greenhouse gas emissions for all facilities related to Apple products, develop and implement relevant plans to reduce emissions for each facility involved in the production of Apple products, and engage in communication and training. See Table 1 for more.

¹ https://s203.q4cdn.com/367071867/files/doc_downloads/2024/04/Supplier-Code-of-Conduct-and-Supplier-Responsibility-Standards.pdf

² Supplier shall identify and allocate GHG emissions from its operations related to Apple products, in accordance with one of the Apple-approved Emissions Allocation Methods, and make such inventory its Covered Carbon Footprint.

**Table 1 Facility-Level Greenhouse Gas Management-related Requirements
in Apple Supplier Code of Conduct version 4.10**

Supplier Management Requirements	Content
Directly Responsible Individual(s)	Supplier shall also identify a specific DRI(s) who will be responsible for all aspects of GHG emissions management related to Apple products and Supplier’s Covered Carbon Footprint. This DRI(s) shall be responsible for identifying and coordinating designated DRIs within each facility and companywide to collectively manage all aspects of GHG emissions management in relation to Apple products. This DRI(s) shall disclose GHG management activities to designated DRIs within each facility, including but not limited to, relevant requirements, agreements, and supporting documentation.
GHG Emission Inventory	Supplier shall identify GHG emissions sources from its company-wide operations and, identify facility-level GHG emissions from all facilities involved with Apple products.
Implementing GHG Emission Reductions	Supplier shall develop and implement its plan to reduce emissions for each facility associated with the manufacture of Apple products.
Communication and Training	Supplier shall train, disclose, and make relevant documentation available to its DRI(s), including designated DRI(s) within each facility: <ul style="list-style-type: none"> • On its company-wide and Apple-related GHG emissions management strategy, including emissions inventories, targets, reduction progress, evidence of emission reduction measures, relevant documents such as signed agreements, and all other related activities and documents

The new *Code* also require suppliers to retain evidence of greenhouse gas reductions, carbon emission permits, and other decarbonization measures, as well as carbon and climate-related certifications and claims for review by Apple upon request.

We believe that Apple's new *Code* will lay an important foundation for the facility-level carbon data disclosure. As an industry leader, Apple's new Code make it one of the first major global brands to propose requirements for facility-level carbon accounting and management in the supply chain. This will help Apple to drive suppliers to take concrete climate actions and set a benchmark for the industry.

The second positive change is Apple's mandatory requirement for suppliers to utilize clean energy in the new *Code* : 'Supplier shall consume, develop, invest in, and procure electrical power from Clean Energy Sources equal to 100% of the electrical power used in connection with its global manufacturing operations related to Apple products (and goods for use therein) in accordance to the Apple Specification for Clean Energy'. This is the first time Apple has included requiring suppliers to 'transition to renewable energy in the manufacturing of Apple products' in the new *Code* as it works to further expand the use of clean energy in the supply chain.

In the *People and Environment in Our Supply Chain: 2024 Annual Progress Report*³, Apple declares, 'As part of our Code of Conduct assessment process, we validate the electricity usage reported by suppliers, their methodology for calculating their Apple production footprint, and all renewable energy procurement documentation.' Given that the production and manufacturing of Apple products are entirely outsourced to suppliers, we believe that the aforementioned measures will help increase the traceability and verifiability of clean energy usage in the supply chain, enhancing the credibility of its carbon-neutral claims.

³ https://s203.q4cdn.com/367071867/files/doc_downloads/PeopleandEnvironment/2024/Apple-Supply-Chain-2024-Progress-Report.pdf

The third positive change is that Apple disclosed in the carbon-neutral watch Apple Watch Series 10's *Product Environmental Report*⁴, the registration information of the carbon credit projects used to compensate the remaining emissions, namely the Forest Apepu Carbon Project in eastern Paraguay, and the Guinan Afforestation Project in Guizhou, China (Figure 1). When Apple released its first carbon-neutral watch in September 2023, we raised questions regarding its carbon credit projects and the lack of registration information in [our previous report](#).

The high-quality carbon credit projects used to compensate the remaining emissions may include the following:




Project name	Project description	Accounting methodology used	Registry link
Forestal Apepu Carbon Project (Part of the Restore Fund)	Forestal Apepu S.A. is a company established in 2019 by an international forestry fund to conduct sustainable reforestation in Eastern Paraguay. The aim of the company is the sequestration of carbon and the production of quality timber in a highly deforested landscape. Forestal Apepu purchased two contiguous properties of 2,658 ha in the Department of San Pedro. As most private properties in the region, the land was deforested decades ago and then used for agriculture and beef production. Currently, the property maintains around 20 percent of its area with natural forest cover, albeit heavily degraded due to the informal extraction of biomass and other forest resources. Through fast-growing eucalypt plantations, trials of plantations with native species, and the strict protection of the remaining natural forest, Forestal Apepu aims at restoring forest cover. A target production area of 1,850 ha of forest plantations is planned to be established until 2021, of which 1,126 ha were already planted in 2019 and 2020 (first instance). The company may expand even further in the future, upon identification of potential expansion areas in the region.	AR-ACM0003 Afforestation and reforestation of lands except wetlands	https://registry.verra.org/app/projectDetail/VCS/2369
Guinan	The Guinan Afforestation Project is located in the Guizhou Province of China and contributes to carbon removal and local sustainable development by planting trees on barren lands. The project is planting across 46,000 ha on barren hills and degraded lands. The project activity aims to enhance biodiversity conservation by increasing the connectivity of forests, improving soil and water conservation, and generating income and job opportunities for local communities.	AR-ACM0003 Afforestation and reforestation of lands except wetlands	https://registry.verra.org/app/projectDetail/VCS/2070

Figure 1 Information on carbon credit projects used to offset remaining emissions of the Apple Watch Series 10 product

We believe that Apple's proactive measures in promoting carbon data accounting and management at the facility level, the use of clean energy, and the disclosure of carbon credit information are worthy of attention and can serve as a reference for the industry. Nevertheless, analyzing Apple's disclosures and reviewing its green supply chain work over the past year, we see that **Apple still faces challenges in fulfilling its commitment to be carbon neutral across its entire footprint by 2030.**

⁴ https://www.apple.com/environment/pdf/products/watch/Apple_Watch_Series_10_PER_Sept2024.pdf

In the first place, the carbon footprint of its mobile products has not decreased: iPhone 16 Pro 128GB has reduced carbon emissions during the production phase compared to iPhone 15 Pro 128GB, but the carbon emissions during the usage phase have increased, resulting in no change in the product's lifecycle carbon footprint (Figure 2).

型号 Product	 iPhone 16 Pro 128GB	 iPhone 15 Pro 128GB	 iPhone 14 Pro 128GB
上市时间 Release Time	2024年9月 September 2024	2023年9月 September 2023	2022年9月 September 2022
产品尺寸 Size	6.3"	6.1"	6.1"
碳足迹 Carbon footprint	66 kgCO₂e	66 kgCO₂e (分配清洁电力后的碳足迹) (with the use of clean energy)	65 kgCO₂e
基准排放 Baseline emissions	-	92 kgCO ₂ e	-
生产环节 Production	66×81%=53.46 kgCO₂e	66×83%=54.78 kgCO₂e	65×81%=52.65 kgCO₂e
运输环节 Transportation	66×3%=1.98 kgCO ₂ e	66×3%=1.98 kgCO ₂ e	65×3%=1.95 kgCO ₂ e
使用环节 Product use	66×17%=11.22 kgCO ₂ e	66×15%=9.90 kgCO ₂ e	65×15%=9.75 kgCO ₂ e
回收环节 End-of-life processing	66×(<1%)≈0.66 kgCO ₂ e	66×(<1%)≈0.66 kgCO ₂ e	65×(<1%)≈0.65 kgCO ₂ e

注： 1、基准排放是在不使用清洁电力与回收材料，采用2017年到2019年三年平均运输模式计算的排放量。

Carbon reductions are calculated against a baseline scenario: 1) No use of clean electricity for manufacturing or product use, beyond what is already available on the grid (based on regional emissions factors). 2) Apple's carbon intensity of key materials as of 2015 (our baseline year for our 2030 product carbon neutrality goal). Carbon intensity of materials reflects use of recycled content and production technology. 3) Apple's average mix of transportation modes (air, rail, ocean, ground) by product line across three years (fiscal years 2017 to 2019) to best capture the baseline transportation emissions of our products.

2、产品图片和数据均来自苹果官网，由IPE翻译并制表。如中英文版本出现不一致，以苹果发布的版本为准。

Product images and data in this figure are from Apple's website. The above chart is translated and created by IPE. If any questions arise related to the accuracy of the information contained in this translation, please refer to Apple's website.

Figure 2 Comparison of the product carbon footprints of iPhone 16 Pro, iPhone 15 Pro, and iPhone 14 Pro

Moreover, data disclosed in its *Environmental Progress Report*⁵ shows that in 2023, Apple reduced its overall greenhouse gas emissions across scopes 1, 2, and 3 by more than 55% compared with its 2015 baseline year, with nearly 60% coming from supplier clean energy projects. However, suppliers mainly rely on Renewable Energy Certificates (RECs) to fulfill their commitments (Figure 3). Although using RECs to offset carbon emissions from purchased electricity is widely applied as a solution in the energy transition process, whether it can drive suppliers to decarbonize in areas such as extraction, transportation, and production processing remains to be confirmed.

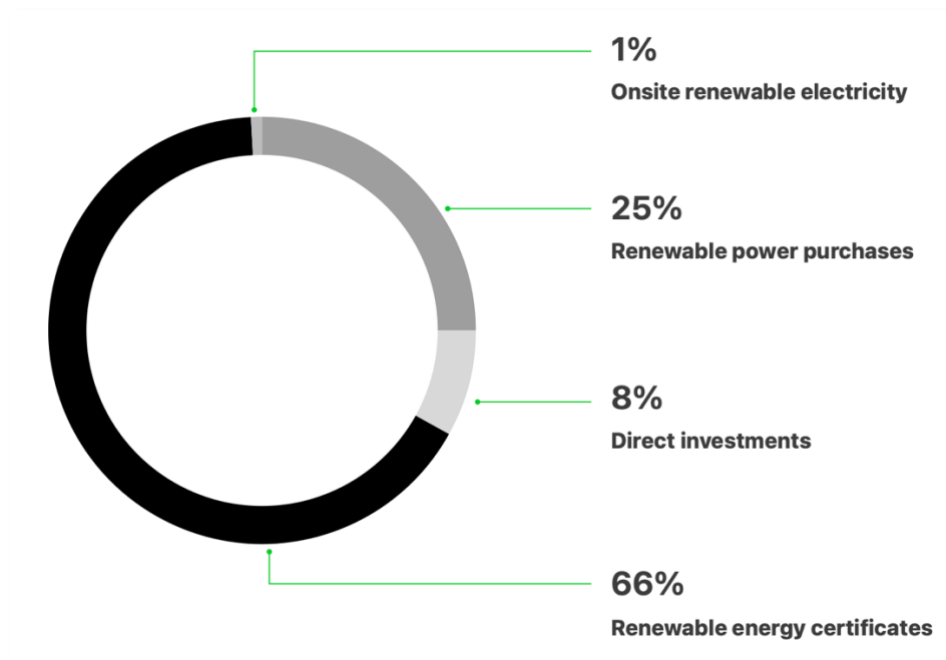


Figure 3 Apple discloses supplier renewable energy procurement mechanisms

In studying the renewable energy usage and carbon emissions of some of Apple's core suppliers, we found that although the renewable energy usage of Apple's suppliers has increased to varying degrees in 2024, the carbon emissions of some are still on an upward trend. We believe that with limited renewable energy supply in the market and overall carbon emissions of the IT/ICT industry still rising, companies

⁵ https://www.apple.com/environment/pdf/Apple_Environmental_Progress_Report_2024.pdf

that insist on high-profile releases of carbon-neutral products must achieve full information disclosure to dispel doubts about cherry-picking limited green electricity and other resources to achieve carbon neutrality. However, on this critical issue, Apple's progress in promoting supply chain GHG disclosure remains limited.

It is worth noting that with the exposure of more greenwashing, regulations and supervisions on product green labels are becoming increasingly stringent. New regulations have been introduced to promote corporate climate information transparency and climate commitments credibility. Among them, the EU's 2023 proposal for the *Green Claim Directive* requires more regulations on green claims and prohibits vague labels without evidence, unverified sustainability labels, and claims of environmental neutrality or positivity through offsets^{6 7} (Figure 4).



Figure 4 EU *Green Claim Directive*⁸

⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2023%3A0166%3AFIN>

⁷ <https://www.europarl.europa.eu/topics/en/article/20240111STO16722/stopping-greenwashing-how-the-eu-regulates-green-claims>

⁸ https://environment.ec.europa.eu/topics/circular-economy/green-claims_en

France's *Decree No. 539*, implemented at the beginning of 2023, requires companies promoting carbon-neutral products to publicly disclose product carbon footprints, emission reduction plans, and carbon offset details⁹. The *Voluntary Carbon Market Disclosures Act*, effective in early 2024 in California, USA, requires entities claiming organizational or product carbon neutrality to publicly disclose information on carbon credits used for offsets, pathways to achieving carbon neutrality, carbon footprint data, and third-party verification of carbon neutrality claims¹⁰.

Meanwhile, **China's policy direction for corporate information disclosure has become clearer**. In May 2024, the Ministry of Finance released the *Corporate Sustainability Disclosure Standards—Basic Standards* (Draft for Comments), which incorporates the widely used framework of Governance, Strategy, Risk Management, and Metrics and Targets, which aligns with international standards such as that of ISS¹¹. The *Self-Regulation of Listed Companies—Sustainability Report (Trial)* issued by the Shanghai Stock Exchange, Shenzhen Stock Exchange, and Beijing Stock Exchange respectively provide China's listed companies with a framework for sustainable development disclosure¹².

In July 2024, the *Resolution of the Central Committee of the Communist Party of China on Further Deepening Reform Comprehensively to Advance Chinese Modernization* proposed to deepen the reform of the environmental information disclosure system according to law¹³. To implement the strategic decision and deployment of carbon peaking and carbon neutrality, standardize and guide enterprises' GHG emission information disclosure, and enhance enterprises' GHG management capabilities, the China Ecological Civilization Research and Promotion Association (CECRPA) submitted

⁹ <https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000045570611>

¹⁰ https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=202320240AB1305

¹¹ <https://kjs.mof.gov.cn/gongzuotongzhi/202405/P020240527389900448286.pdf>

¹² http://www.sse.com.cn/lawandrules/sselawsrules/stocks/mainipo/c/c_20240412_5737862.shtml

¹³ https://www.gov.cn/zhengce/202407/content_6963770.htm

the drafting of *Guidelines for Enterprise Greenhouse Gas Information Disclosure Part 1: General Principles*. Experts from the Chinese Research Academy of Environmental Sciences (CRAES), China Certification Center (Beijing), National Center for Climate Change Strategy and International Cooperation (NCSC), Environmental Planning Institute of the Ministry of Ecology and Environment (CAEP), Policy Research Center for Environmental Economics (PRCEE) of the Ministry of Ecology and Environment, and the Institute of Public and Environmental Affairs (IPE) took part in the drafting process.

With only 6 years to achieve its proposed goal of achieving carbon neutrality for its entire carbon footprint by 2030, and in the face of increasingly stringent green declarations in regions such as the EU, as well as China's policy direction on environmental information and carbon data disclosure, **we recommend Apple build on the new *Code* and lays out explicit requirement for suppliers to disclose facility-level carbon data. We believe this will enhance the traceability and verifiability of supply chain emission reduction performance in its pursuit of carbon neutrality, and contribute to the low-carbon transition of the IT/ICT industry.**

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