



Apple's Carbon Neutral Smokescreen



The Institute of Public & Environmental Affairs (IPE)

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On 13 September 2023, Apple announced its first-ever carbon neutral products in the new Apple Watch lineup¹, stating on its website, "As our first carbon neutral product, Apple Watch marks a milestone in our plan to make all our products carbon neutral by 2030"².



(Image source: <https://www.apple.com/environment/>)

However, what is puzzling is that with the global smartphone shipments down 12%³ in 2022, Apple's supply chain emissions data, which we have collected through various channels, shows that carbon emissions from some of its suppliers have only decreased slightly, and in some cases have even increased. We believe there is a need for full disclosure and explanation of how Apple achieves carbon neutrality of its products, given the increase in carbon emissions from some of its suppliers.

Disappointingly, precisely in 2023, Apple has stopped requiring suppliers to publicly disclose greenhouse gas emissions data for a technical reason, repeatedly and explicitly responding to environmental group that *"we may not request suppliers to provide facility level carbon disclosure this year"*.

Behind the seemingly contradictory performance, does Apple's carbon neutrality 'milestone' reflect a genuine and substantial reduction in carbon emissions from the manufacturing process of various products, or is it more a case of cherry-picking limited green resources to achieve "numerical" carbon neutrality? The carbon footprint of the new flagship iPhone is

¹ <https://www.apple.com/newsroom/2023/09/apple-unveils-its-first-carbon-neutral-products/>

² <https://www.apple.com/environment/>

³ [Canalys Newsroom - Worldwide smartphone shipments fall for fourth consecutive quarter, leaving market down 12% in 2022](#)

higher than that of its predecessor - is it more carbon intensive in its design and manufacture, or has its allocation of clean electricity decreased? How does Apple's announcement that its products are carbon neutral, while the carbon emissions of some of its suppliers are increasing rather than decreasing, have any material significance in leading the way for large-scale reductions in this industry that expects its emission to keep increasing? With only seven years left till Apple to achieve its publicly stated commitment to become carbon neutral across its value chain, how does NOT requiring suppliers to disclose carbon emissions data prevent the risk of climate-washing?

Apple announces APPLE WATCH is carbon neutral

Apple has published Product Environmental Reports for all three Apple Watch models.⁴ Take Apple Watch Ultra 2⁵, using a life cycle assessment (LCA) methodology in accordance with ISO 14040, 14044, and 14067 standards, Apple states that its product carbon footprint paired with Alpine Loop is 12 kg CO₂e before offsetting and zero after offsetting.

The carbon footprint for each stage of the product life cycle is shown below:

Greenhouse gas emissions	Apple Watch Ultra 2 with Alpine Loop
Apple emissions from utility-purchased electricity (scope 2)	0 kg CO ₂ e
Life cycle product emissions (scope 3)	12 kg CO ₂ e
<ul style="list-style-type: none"> • Production <ul style="list-style-type: none"> • <i>Generation of renewable electricity - production</i> • Transportation • Product use <ul style="list-style-type: none"> • <i>Generation of renewable electricity - product use</i> • End-of-life processing 	80% 11% 16% 2% 2% 2%
GHG reductions achieved ⁹	↓81%
Product footprint before carbon credits	12 kg CO₂e
Carbon credits applied (per product)	12 kg CO ₂ e
Total product footprint after carbon credits	0 kg CO₂e

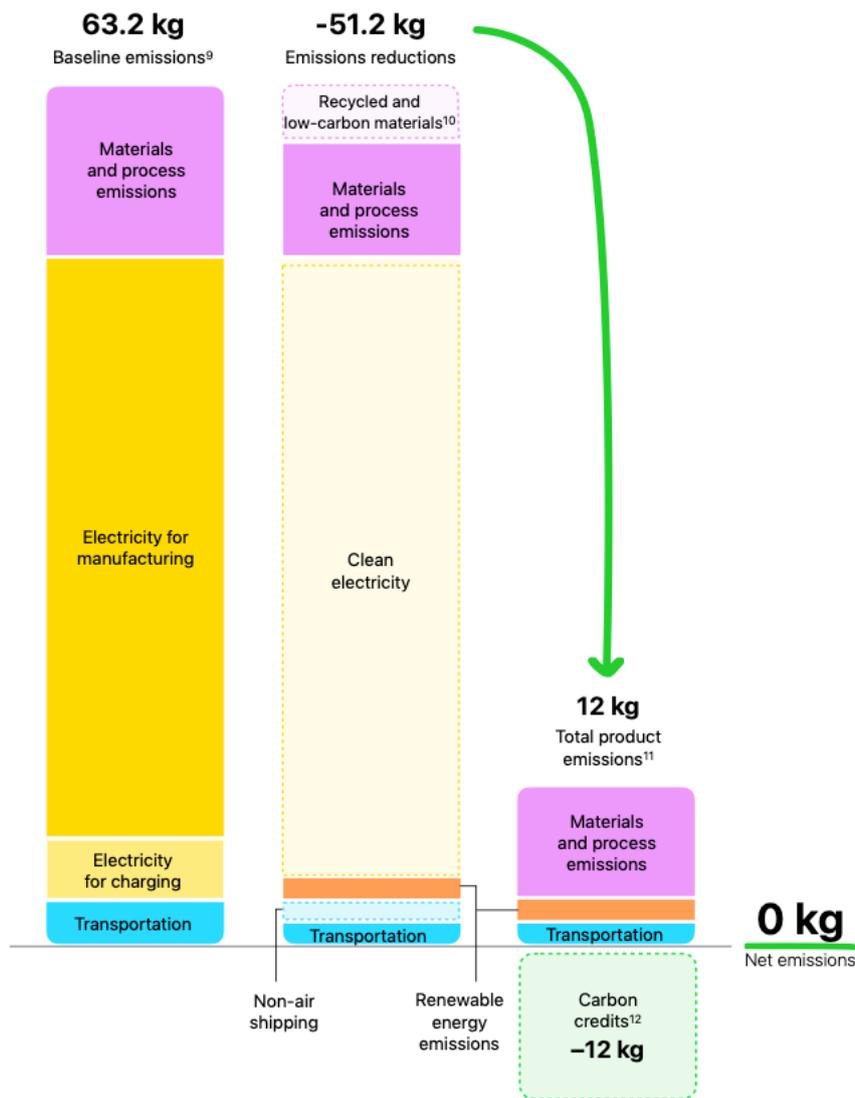
Note: Percentages may not total 100 due to rounding.

Apple also disclosed in the report the watch's cradle-to-grave baseline emissions, reduction measures (including the use of recycled and renewable materials, clean electricity for manufacturing and product charging, and the increase of non-air shipping), and emissions

⁴ <https://www.apple.com/environment/>

⁵ https://www.apple.com/environment/pdf/products/watch/Carbon_Neutral_Apple_Watch_Ultra_2_Sept2023.pdf

reduction results (see figure below).



Five questions regarding APPLE WATCH's carbon neutral

Apple's announcement of its first carbon neutral product has caused a stir in the industry and garnered much praise on social media. As an organization that has long been tracking, promoting and evaluating green supply chain practices, we are following this development and hope this can contribute to the IT/ICT industry to reduce emissions globally.

However, after analyzing Apple's product environmental reports and discussing with experts, we have the following five questions.

Q1. How to verify that only clean electricity is used to make Apple products?

In its carbon footprint calculations, Apple clearly states that for its watches and bands, 100%

of manufacturing electricity is sourced from clean energy (see screenshot below)⁶. Apple does not own any factories and outsources all of its manufacturing to suppliers. This means that all suppliers that manufacture these carbon neutral Watch are required to use 100% clean electricity in the manufacture process.

■ **Transitioned to 100% clean electricity for manufacturing:** To reduce emissions from the electricity used to make products, we're working to transition our entire supply chain to 100 percent clean electricity and prioritizing energy efficiency in manufacturing. For Apple Watch Ultra 2, Alpine Loop, and Trail Loop, 100 percent of manufacturing electricity is sourced from clean energy.

In its 2023 Environmental Progress Report⁷, Apple announced that “As of March 2023, over 250 suppliers have committed to transitioning to 100 percent renewable electricity for their Apple production, with over 85 percent of Apple's direct spend for materials, manufacturing, and assembly of our products worldwide included in those commitments.”

However, most of the suppliers listed in Apple's 2023 Environmental Progress Report as having committed to using 100% clean electricity to manufacture Apple products have not yet publicly disclosed their renewable energy use, clean electricity usage percentage, or greenhouse gas emissions data to the public. Some of the corporate-level data that has been disclosed shows that the amount of renewable energy used is quite limited compared to the total electricity consumption and cannot be attributed to specific manufacturing facilities.

What is puzzling is that with the global smartphone shipments down 12%⁸ in 2022, Apple's supply chain emissions data, which we have collected through various channels, shows that carbon emissions from some of its suppliers have only decreased slightly, and in some cases are even increasing. Since emissions from electricity consumption generally account for a high percentage of greenhouse gas emissions in the IT/ICT industry, common sense would suggest that if suppliers had effectively replaced electricity with cleaner alternatives, their carbon emissions would have declined significantly. But this is not the case. So does this mean that the amount of so-called clean electricity these Apple suppliers use is in fact very limited?

Given that Apple's suppliers do not publicly disclose their clean energy use and greenhouse gas emissions data, how can it be publicly verified that the manufacturing process for the three carbon neutral Apple Watch products uses 100% clean electricity?

⁶ https://www.apple.com/environment/pdf/products/watch/Carbon_Neutral_Apple_Watch_Ultra_2_Sept2023.pdf

⁷ https://www.apple.com/environment/pdf/Apple_Environmental_Progress_Report_2023.pdf

⁸ [Canalys Newsroom - Worldwide smartphone shipments fall for fourth consecutive quarter, leaving market down 12% in 2022](#)

Q2. Is Apple cherry-picking limited green resources to achieve the “numerical” carbon neutral of a relatively niche product?

Of course, in announcing that Apple will "support our goal of 100 percent clean electricity across our operations, manufacturing supply chain, and charging of Apple products,"⁹ Apple has always emphasized that its supplier commitment is to use "100 percent renewable electricity for Apple production".

It is well acknowledged that the global energy transition is still a challenge. In spite the fact that renewable energy installations, especially in countries and regions where global supply chain factories reside continue to grow, their share is still limited in the total energy consumption. Under these circumstances, it is still difficult for the supply chain of most industries to directly access renewable energy on a large scale, or to achieve a high proportion of substitution through renewable energy purchases or renewable energy certificates.

As has been analyzed above, the carbon emissions of some of Apple's suppliers have decreased only slightly, and in other cases even show a trend of increase. This raises the question of clean electricity use in Apple's supply chain is actually quite limited. If that is the case, does Apple announcing carbon neutrality for its watch means that suppliers have to allocate the limited amount of clean electricity to the production process of particular products?

If this assumption is correct, is Apple's carbon neutrality 'milestone' really a significant reduction in the carbon emissions of its product manufacturing process, or just a mathematical equation whereby Apple cherry picks the limited green electricity from its suppliers and allocate them to one relatively niche product? Will this affect the carbon footprint of its more popular products?

Take Apple's most iconic produce, iPhone, whose carbon footprint and sales volume is much higher than that of the Apple Watch, as example. The newly released iPhone 15 Pro (128GB) has a carbon footprint of 66 kg CO₂e¹⁰, which is actually about 1 kg higher than that of iPhone 14 Pro (128G)¹¹. In terms of the carbon emissions from the production process, iPhone 15 Pro is about 2 kg CO₂e higher than that of iPhone 14 Pro.

⁹ https://www.apple.com.cn/environment/pdf/Apple_Environmental_Progress_Report_2023.pdf

¹⁰ https://www.apple.com/environment/pdf/products/iphone/iPhone_15_Pro_and_iPhone_15_Pro_Max_Sept2023.pdf

¹¹ https://www.apple.com/environment/pdf/products/iphone/iPhone_14_Pro_PER_Sept2022.pdf

Product	 iPhone 15 Pro 128GB	 iPhone 14 Pro 128GB
Release Time	September 2023	September 2022
Size	6.1"	6.1"
Carbon footprint	66 kgCO₂e (with the use of clean energy)	65 kgCO₂e
Baseline emissions	92 kgCO ₂ e	-
Production	66×83%=54.78 kgCO₂e	65×81%=52.65 kgCO₂e
Transportation	66×3%=1.98 kgCO ₂ e	65×3%=1.95 kgCO ₂ e
Product use	66×15%=9.90 kgCO ₂ e	65×15%=9.75 kgCO ₂ e
End-of-life processing	66×(<1%)≈0.66 kgCO ₂ e	65×(<1%)≈0.65 kgCO ₂ e

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.

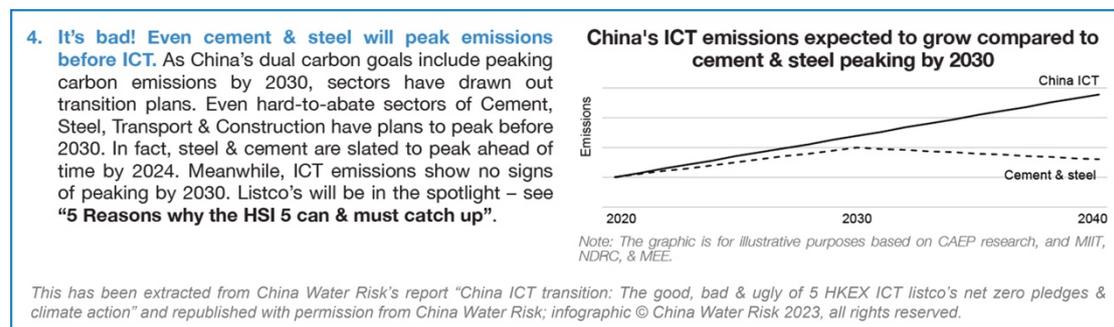
Product images and data in this figure are from Apple's website. The above chart is translated and created by IPE. If any questions arise related to the accuracy of the information contained in this translation, please refer to Apple's website.

A closer look into the Product Environmental Reports released by Apple shows that the production of iPhone 15 Pro consumes 21% of clean electricity, with a baseline emission of 92 kg of CO₂e. In contrast, Apple has not disclosed whether iPhone 14 Pro uses any clean electricity.

With the carbon footprint of the manufacturing process for the new generation of iPhone products higher than that of its predecessor, does it mean the product design or raw material use is more carbon-intensive, or because the amount of clean electricity allocated to the new generation of iPhone products has decreased?

Q3 How does Apple's products being carbon neutral while some of its suppliers' carbon emissions increase has any significance for the IT/ICT industry to achieve carbon reduction and low-carbon transition?

According to China Water Risk's report entitled *China ICT Transition: The good, bad & ugly of 5 HKEX ICT listco's net zero pledges & climate action*¹², “the China ICT sector is showing no signs of “peak carbon” before 2030 while other carbon heavy sectors of steel and cement are/have peaked in line with China’s national dual carbon targets.” (See screenshot below)



To change this unfavorable situation, it is necessary for leading brands to leverage their purchasing power to guide and empower suppliers to implement large-scale renewable energy substitution, energy conservation and emission reduction measures, so as to significantly reduce greenhouse gas emissions.

Global leading IT/ICT brands and industrial enterprises should promote the transition to a zero-carbon supply chain for IT/ICT industry starting with measurement and disclosure, and support the global Race to Zero.

With some suppliers' emissions still increasing, would "numerically" achieving carbon neutrality by cherry-picking the limited green resources of suppliers and allocating them to a specific product by Apple's order be meaningful in terms of leading a high-emitting industry to achieve significant emissions reductions?

¹² <https://chinawaterrisk.org/research-reports/china-ict-transition-the-good-bad-ugly-of-5-hkex-ict-listcos-net-zero-pledges-climate-action/>

Q4 Why did Apple stop requiring suppliers to disclose carbon emissions data in the first year after announcing carbon neutrality of its products?

The increase in carbon emissions of some suppliers reflects the fact that they have not achieved large-scale renewable energy substitution or a high proportion of green electricity substitution. In this case, how is the limited amount of renewable energy being cherry-picked for Apple's production? How to ensure that the green attributes Apple claims in its own supply chain won't be "double counted" in the supply chains of other brands or products? To answer these questions, companies that have announced that they have achieved carbon neutrality for their products have the responsibility to make full disclosure and explanation, especially requiring their suppliers to publicly disclose their greenhouse gas emissions data.

Disappointingly, however, just recently in 2023, Apple stopped requiring its suppliers to disclose carbon emissions data to the public, citing a technical reason. Due to Apple's leading position in the IT/ICT industry, its non-disclosure policy may have a negative demonstration effect on the industry. With Apple's previous leading position in the Corporate Climate Action (CATI) Index evaluation¹³ conducted, IPE has repeatedly checked with Apple about the change in its disclosure policy. Apple has reiterated that: "We may not request suppliers to provide facility level carbon disclosure this year".

On the issue of whether supply chain environmental information should be disclosed, IPE and other environmental groups had long discussions with Apple twelve years ago, when Apple, faced with repeated questions about supply chain pollution, responded with only one sentence: "our long-term policy is to not disclose any of our suppliers".

After more than a year of investigations by a number of environmental groups and two investigative reports titled "The Other Side of Apple", Apple finally started communicating with environmental groups regarding the impacts of its supply chain on environment and communities, and take strong action to address them. Apple also began to establish and improve its supply chain environmental management mechanism in China, starting with increasing the transparency of its supply chain environmental performance.

Today, environmental transparency in general has been mandated by laws and regulations, and the mechanism of corporate environmental disclosure has been gradually improved. Against the background of the normalization of environmental information disclosure, it is disappointing and even more puzzling that Apple, which has long been a leader in the IT/ICT industry, has begun to backtrack on its environmental information disclosure stance.

¹³ <https://www.ipe.org.cn/GreenSupplyChain/CATI.aspx>

Based on the requirements of the Administrative Measures for Legal Disclosure of Environmental Information issued by the Ministry of Ecology and Environment, or requests from other brand customers, some Apple suppliers have disclosed their greenhouse gas emissions data to the public. Analyzing the data, we can see that while global smartphone shipments dropped by 12%¹⁴ in 2022, the total carbon emissions of some of Apple's suppliers in 2022 have only decreased slightly, and some of them even show year-on-year increase.

Announcing that its products are carbon neutral against this background, the brand should have cleared the air through full disclosure. Refusing to request suppliers to disclose carbon emissions data may mask the disconnection in the short term, but in the long term it will make it difficult to publicly validate carbon neutral products, and even lead to skepticism about the concept of carbon neutral product.

Q5 Carbon Neutral Certification Claims for product and High-Quality Carbon Credits yet to be made public?

Apple's official press release mentions that three of its carbon neutral products have been verified by a third-party organization¹⁵, but we have yet to find a carbon neutrality statement issued by that organization, nor have we seen any specific information about carbon offsets. In the case of the Apple Watch Ultra 2, for example, Apple's product environmental report¹⁶ states that the watch offsets 12 kgCO₂e through "nature-based solutions" and "programs like the Restore Fund, that result in high-quality carbon credits" but fails to disclose which carbon credits were used.

Apple has stated that it uses 100% clean electricity to manufacture all three Apple Watch products. However, data disclosed in Apple's Environmental Progress Report shows¹⁷ that of the more than 250 suppliers that have committed to using renewable energy to manufacture Apple products, 24% are unable to achieve clean energy substitution through onsite renewable electricity or renewable power purchases, etc., and need to purchase renewable energy certificates.

According to PAS 2060 (Carbon Neutrality Standard and Certification)¹⁸ issued by the British

¹⁴ [Canalys Newsroom - Worldwide smartphone shipments fall for fourth consecutive quarter, leaving market down 12% in 2022](#)

¹⁵ <https://www.apple.com/newsroom/2023/09/apple-unveils-its-first-carbon-neutral-products/>

¹⁶ https://www.apple.com/environment/pdf/products/watch/Carbon_Neutral_Apple_Watch_Ultra_2_Sept2023.pdf

¹⁷ https://www.apple.com/environment/pdf/Apple_Environmental_Progress_Report_2023.pdf

¹⁸ <https://www.bsigroup.com/en-GB/PAS-2060-Carbon-Neutrality/>

Standards Institution (BSI), when submitting an application for carbon neutrality verification to a verification body, the entity shall prepare documentation substantiating the carbon offset including: which GHG emissions have been offset; the actual amount of carbon credit required; the type of offset and projects involved; assurance that the carbon offset scheme used is in accordance with its provisions and no conflict with the principles of offset projects development, carbon credits generation and independent verification; the number and type of carbon credits used, the time period over which the credits have been generated and the date of retirement; information regarding the retirement/cancellation of carbon credits sufficient to prevent their use by others including a link to the registry where the credit has been retired.

A new decree¹⁹ issued in France that went into effect in January 2023 also requires companies to disclose the type, description, and cost of offsets and projects involved. In the report Apple published for the three Apple Watch products, we did not see the above information disclosed.

How brands can guide consumers towards a zero-carbon lifestyle

In response to climate change, the world came together and signed the Paris Agreement. Nearly 150 countries and regions and 1,000 major companies and financial institutions from around the world have made commitments to limit global warming to below 2°C and to aim for under 1.5°C. However, we must acknowledge that progress in global climate action has not been smooth in the face of many challenges, and for two consecutive years, global emissions have increased rather than decreased. Given the seriousness of the situation, all parties need to be more pragmatic in advancing implementation and putting an end to climate-washing.

As public awareness of climate change increases and more consumers begin to pay attention to the carbon emissions embedded in their own consumption behavior, green and low-carbon products are gaining more and more popularity. Forward-thinking companies are recognizing that green has become a new selling point and are beginning to add various green and low-carbon labels to their products. Among these, carbon neutral products are undoubtedly the most eye-catching, as they give consumers a sense that the product is in line with the global efforts to achieve carbon neutrality.

But the labelling itself remains controversial. There are no clear criteria for "carbon neutrality", and issues such as the proportion of reductions versus the need for a threshold of carbon offsets remain to be resolved.

¹⁹ <https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000045570611>

In the case *SBTi Corporate Net-Zero Standard*²⁰, the Science-Based Targets Initiative (SBTi) for example clearly states that: “Neutralize residual emissions: After a company has achieved its long-term target and cut emissions by >90%, it must use permanent carbon removal and storage to counterbalance the final <10% of residual emissions that cannot be eliminated.”

As the term "carbon neutral" may mislead consumers and the public into believing that the product does not result in carbon emissions, and due to the lack of credibility of the emission reduction and offsetting measures taken by some brands in the course of launching carbon neutral products, some Chinese and global brands that launched carbon neutral products in the early stage have decided to withdraw their carbon neutral labels.

Regulatory authorities in some countries and regions are also concerned about the challenges of certifying carbon neutral products and have begun to take regulatory action.

In France, legislation was enacted in August 2021 to regulate corporate communication on environmental issues, followed by Decree No. 2022-539²¹ (came into force on January 1, 2023), which imposes mandatory disclosure requirements for the advertising and promotion of "carbon neutral" products, requiring companies to publish reports on the carbon footprint of their products, their emission reduction plans, and the status of their carbon offsets. Disclosure of the product carbon footprint also needs to be broken down into electricity data and information on the region where the emissions occurred.

According to an article²² published by Financial Times on September 20, the EU is cracking down on greenwashing of consumer products: “By 2026, the EU will ban sweeping environmental claims such as “climate neutral” or “eco” unless companies can prove the claim is accurate. The rules will also outlaw claims based on emissions offsetting — often used as the basis for assertions that products are carbon neutral or have reduced environmental impact — along with green labels that are not from approved sustainability schemes. The change, which will come into effect by 2026, would make the EU the toughest region of the world in terms of its approach to green claims made to the public. It still requires approval from the EU parliament and member states, but it is rare for EU lawmakers to refuse that approval.”

In an effort to curb climate-washing, IPE released the Global Business Accountability Map²³ in

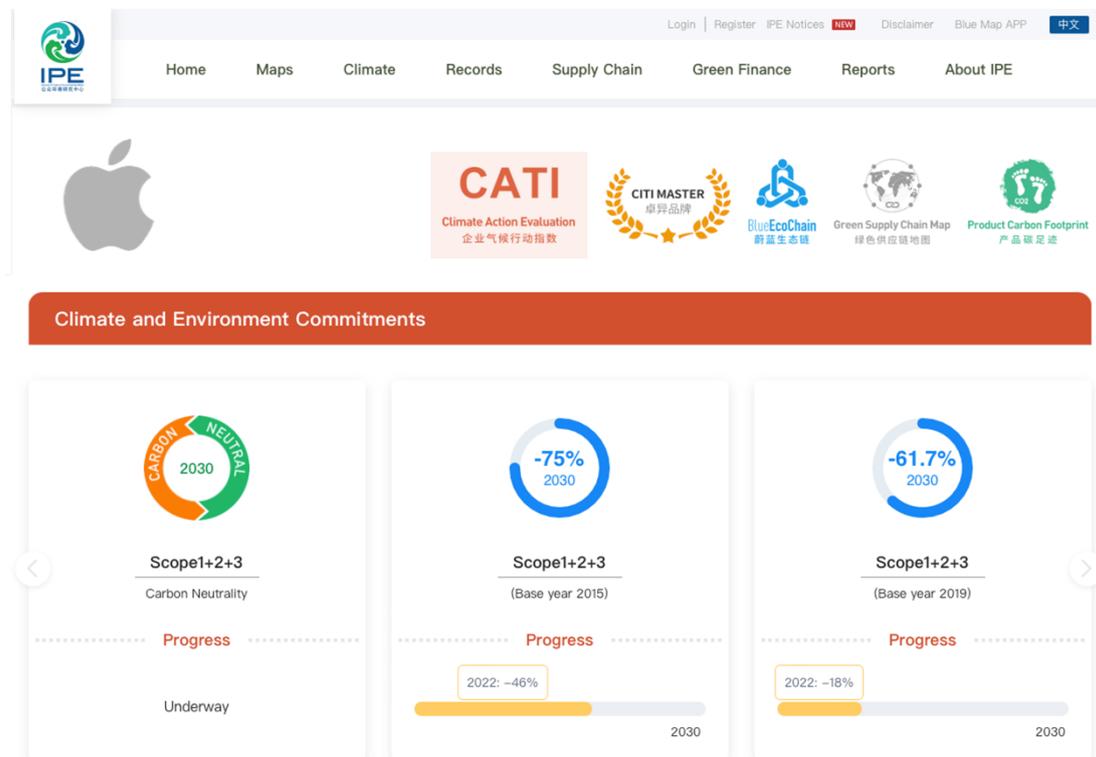
²⁰ <https://sciencebasedtargets.org/resources/files/Net-Zero-Standard.pdf>

²¹ <https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000045570611>

²² <https://www.ft.com/content/53f84f03-1f1c-4240-977f-9de0e4893377>

²³ <http://www.ipe.org.cn/MapSCMBrand/BrandMap.aspx?q=6>

2022, which shows not only companies' climate and environmental commitments, but also their progress in implementing them and the actions they have actually taken.



On the Global Business Accountability Map, we see that Apple has committed to achieving carbon neutrality across its entire value chain (including Scope 1, 2, and 3) by 2030, and has also disclosed its carbon reduction progress against the 2015 and 2019 baselines (as shown above). However, because Apple has discontinued its requirement for suppliers to disclose carbon emissions data for a technical reason, it will be difficult for various parties to verify and monitor the status of Apple's progress. This backtrack will also be reflected in the decrease of Apple's CATI score for relevant indicators.

Climate-washing has raised more questions in recent years. The new regulations stated above indicate that there is still room for improvement in the identification of product carbon neutral, and even in corporate carbon neutrality. Thus, the starting point for curbing climate-washing must be, and can only be, full and complete information disclosure.

On September 21, 2023, we had a candid conversation with Apple regarding the carbon neutral products and related issues.

On September 22, we had another round of communications with Apple and after that, received the following written response from Apple via email, including carbon neutral

certificates for the three Apple Watch products. Below is a screenshot of the original email response:

Like IPE, Apple strongly supports corporate climate disclosures across scopes 1, 2 and 3. We believe that accurate measurement and mandatory reporting of these emissions are critical to addressing corporate emissions and product level claims. Reporting should use common frameworks and standards for all companies. We strongly prefer using existing internationally recognized reporting frameworks and international harmonization. Additionally, we strongly support third party review and assurance of the disclosures.

Per our conversation today, we want to make one important point of clarification to our response on CATI 5.0 (and use of the phrase “this year”): there has been no regression in our requirements around supplier emissions reporting to Apple. Suppliers continue to submit their full greenhouse gas inventory each year, audited by a third party, as has been required by our Supplier Code of Conduct since 2018; active — Code of Conduct (<https://www.apple.com/supplier-responsibility/pdf/Apple-Supplier-Code-of-Conduct-and-Supplier-Responsibility-Standards.pdf>) GHG, version 4.8.

As we always have, we continue to encourage suppliers to publicly disclose their Scope 1 and Scope 2 emissions, to participate in IPE initiatives, and advocate for transparency. To our knowledge, a majority of our major suppliers report into IPE, which we have acknowledged and praised. Leading examples include Avary Holding & Hon Hai Technology Group.

As we have shared, we have received third party validated certifications for our carbon neutral products. You can find these attached below for your reference. Apple products are Carbon Neutral Certified by SCS Global Services under the internationally recognized SCS -108 Certification Standard for Carbon Neutrality. The certification accounts for carbon emissions, from extraction of raw materials, through the product and packaging end of life.

We are deeply committed to doing our part in the fight against climate change, and will continue to support our supply chain partners in their journey as well. As you know, many of our suppliers in China are committed to 100% clean electricity for all their Apple production by 2030, and every day we work to build on that progress.

We suggest that Apple make the third-party certificates publicly available so as to be accountable to stakeholders.

With only seven years to go before Apple's goal of “making all our products carbon neutral by 2030”²⁴, we call on Apple to change its policy of no longer requiring supplier factories to disclose their carbon emissions data, to pay more attention to energy conservation and emissions reduction across its product line, and to put its carbon neutral products, and the progress of carbon neutrality of its entire value chain under public scrutiny, so as to prevent climate-washing and inspire the synergies of all parties to empower the supply chain to achieve emissions reductions at scale, help consumers move toward zero carbon lifestyle, and contribute to the global Race to Zero.

²⁴ <https://www.apple.com/apple-events/>



Apple Event

Introducing iPhone 15 Pro, iPhone 15, Apple Watch Series 9, Apple Watch Ultra 2, and a major step toward making all our products carbon neutral by 2030.

[Watch the event](#) [Watch our ASL recap](#)