



SMART (stretch) sustainability initiatives

Dr. Martyn Wakeman

martyn.wakeman@epfl.ch



Learning objectives

- Learn how to develop credible sustainability initiatives
- Greenwashing
- SMART – stretch initiatives
- Templates
- Examples

A theory of (systemic) change?

- We **cannot** change the world by ourselves, the problems are too great, or we will burn-out trying
- We need to be **true to our own core values**, what we hold precious to ourselves
- We can influence the people in **our sphere of influence**
- Our sphere of influence **will change** with time
 - Our own lives, family & friends
 - Work colleagues & company, our chosen profession

If everyone influences their stakeholders, together this catalyzes and integrates to create a powerful effect
We each target our own stakeholders & sphere of influence.

Greenwashing

- The act or practice of making a product, policy, or activity appear to be more environmentally friendly or less environmentally damaging than it really is.
- Making unsubstantiated claims to deceive stakeholders that a company's products have a greater positive environmental impact than they actually do.



Greenwashing

- Statements not backed up by concrete action plans, \$\$\$ investment on the ground, accountability, measurable outcomes, reported publicly



[Is greenwashing undermining YOUR sustainability work? - Rethink Global](#)

"eco-friendly" and "sustainable" are on our internal list of dirty, banned buzzwords.

Patagonia, Inc.



Volkswagen says diesel scandal has cost it 31.3 billion euros

By Reuters

March 17, 2020 1:19 PM GMT+1 · Updated 5 years ago

Aa
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[Volkswagen says diesel scandal has cost it 31.3 billion euros | Reuters](#)

Tesla's Avoided Emissions Are Up to 49% Overstated, A Study Claims

March 21, 2025 | Updated: March 21, 2025

By Jennifer L

[Tesla's Avoided Emissions Are Up to 49% Overstated, A Study Claims](#)



Sarah George
Published 7th February 2024

BMW and MG ordered to drop EV adverts over greenwashing concerns

MG Motor has been rapped by the UK's advertising watchdog for marketing its plug-in hybrid range as "zero emissions", despite the fact that they will generate some tailpipe emissions when not driven on their electric motor.

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[Debate on 'Zero Emission' Claims in UK Electric Vehicle Advertising](#)

- Consumers face a barrage of green-friendly messaging from companies hoping to profit from increased concern over environmental issues.
- Unfortunately, many of these environmental promises don't pan out.
- **EU research: 42% of green claims were exaggerated, false, or deceptive**, which points to greenwashing on an industrial scale. This is dangerous ground for companies. When caught by regulators, very expensive.



International Consumer Protection
and Enforcement Network

News

Screening of websites for 'greenwashing': half of green claims lack evidence

European Union | Friday, January 29, 2021

ME-2021

[Screening of websites for 'greenwashing': half of green claims lack evidence | ICPEN](#)

[Screening of websites](#)

[Home](#) > [Press corner](#) > [Screening of websites](#)

Available languages: [English](#)

PRESS RELEASE | Jan 28, 2021 | Brussels | 3 min read

Screening of websites for 'greenwashing': half of green claims lack evidence

- >50% case, trader did not provide sufficient information for consumers to judge the claim's accuracy.
- 37%, claim included vague and general statements such as “conscious”, “eco-friendly”, “sustainable”
- Aimed to convey the unsubstantiated impression to consumers that a product had no negative impact on the environment.
- 59% did not provide easily accessible evidence to support its claim.
- 42% authorities had reason to believe that the **claim may be false or deceptive**
- Could potentially amount to an unfair commercial practice under the Unfair Commercial Practices Directive (UCPD).

Coca-Cola accused of quietly dropping its 25% reusable packaging target

Exclusive: Campaigners say company's apparent abandoning of 2030 pledge is a 'masterclass in greenwashing'



 Coca-Cola has been previously found by researchers to be among the world's most polluting brands when it comes to plastic waste. Photograph: Régis Duvignau/Reuters

Coca-Cola has been accused of quietly abandoning a pledge to achieve a [25% reusable packaging target by 2030](#) in what campaigners call a "masterclass in greenwashing".

- The company has [been previously found](#) by researchers to be among the world's most polluting brands when it comes to plastic waste.
- In 2022, the company made [a promise](#) to have 25% of its drinks sold in refillable or returnable glass or plastic bottles, or in refillable containers that could be filled up at fountains or "Coca-Cola freestyle dispensers".
- But shortly before this year's [global plastics summit](#), the company [deleted](#) the page on its website outlining this promise, and it [no longer has a target](#) for reusable packaging.

[Coca-Cola accused of quietly dropping its 25% reusable packaging target | Plastics | The Guardian](#)



How these companies tried to greenwash their plastic waste

10min



Greenwashing

1. Over-promise
2. Manipulate / worst case competitive data
3. False product data
4. Shift goal posts
5. Drop commitments



Finance Research Letters
Volume 70, December 2024, 106285



International Review of Financial Analysis
Volume 93, May 2024, 103195



Shades of green: The impact of greenwashing on stock price crash risk

Xuchang Zhang ^a, Lingfeng Kong ^b , Xuetong Hu ^c

Highlights

- Greenwashing increases firms' future stock price crash risk.
- Instrumental approach and DiD design are used to establish causality.
- Greenwashing masks firms' sustainability issues and managerial opportunism.
- The impact is more pronounced for firms with stronger greenwashing incentives.
- The impact is greater for low-transparent and weakly governed firms.

[Shades of green: The impact of greenwashing on stock price crash risk - ScienceDirect](#)

ME-203

Highlights

- Greenwashing announcements do not significantly affect CARs of companies in the days after the release of the news.
- Corporate environmental performance (CEP) is negatively related with CAR after the exposure of greenwashing companies.
- The market alone cannot identify and penalize companies that commit greenwashing practices. Intervention from governmental authorities is crucial if Europe wants to reach Climate Neutrality by 2050.
- ESG ratings do not provide a holistic representation of corporate environmental performance.

[Does greenwashing affect Company's stock Price? Evidence from Europe - ScienceDirect](#)



How Greenwashing Affects the Bottom Line

by Ioannis Ioannou, George Kassinis, and Giorgos Papagiannakis

July 21, 2022



James O'Neill/Getty Images

Summary. New research shows that when companies overcommit and/or do not deliver on promised socially responsible initiatives they damage their relationships with their customers. However, a company's reputation for product quality or innovation may partially mitigate such a negative impact on customer satisfaction. [close](#)

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[How Greenwashing Affects the Bottom Line](#)

Sustainability targets in executive pay

- Need to embed sustainability targets into employee pay especially C-suite
- Part of yearly review and performance related pay targets
- Examples, some publicly declared, others emerging

Engineered product companies	Automotive	Aerospace	Smartphone & Watch
Siemens	Toyota	Airbus	Apple
Schneider	Mercedes	Boeing	Samsung
ABB	Hyundai	Rolls-Royce	
Johnson controls		GE	

Now time for action



TCS winter



cone-icy-road-turn-car-tire (dreamstime.com)

Bringing it all together: sustainability change proposals

Assignment: Sustainability change proposal

(Submission lecture week 13, May 15th, 2025, 10:00am, 15 points)



No.	Question	Points
1	Give a minimum of three SMART ⁶ sustainability initiatives for the product /company towards becoming NetPositive	(7.5 pts.)
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SMART goals with stretch

- SMART sustainability initiatives

Stretch



[SMART objectives - Bing images](#)

What are Strategic Initiatives? How to Develop & Execute
+ Examples (cascade.app)



[How to Set SMART Goals - YouTube](#)



2min 45s

[Smart Goals vs Stretch Goals - Which One Gets You Real Results? - YouTube](#)



7min 25s

Green belt or black belt?

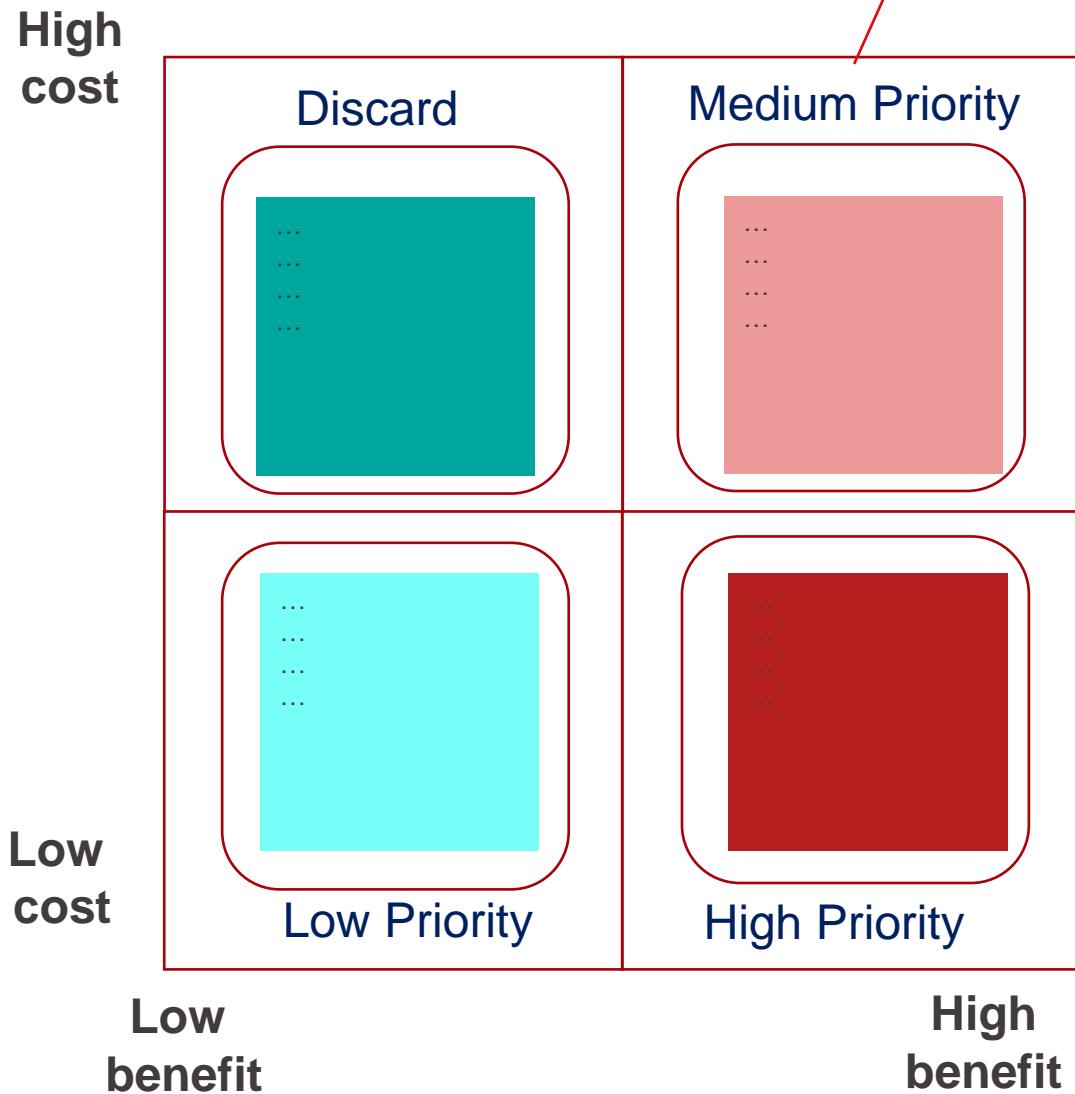


Stretch goal

Attainable

Sustainability initiatives template 1

- Brain storming of initiatives
 - Material focused
 - Product focused
 - Operations focused
 - Supply chain
 - Industry wide
- Develop strategic mix of
 - **Short**
(fast to implement, low cost/high benefit)
 - **Medium**
(transition to the future)
 - **Longer term**
(high risk, high benefit, maybe high cost)



Simple SMART Initiative template 1

Detail your top (minimum three) initiatives and detail how you will make them SMART (quantified absolute and accountable targets). What is the expected impact?

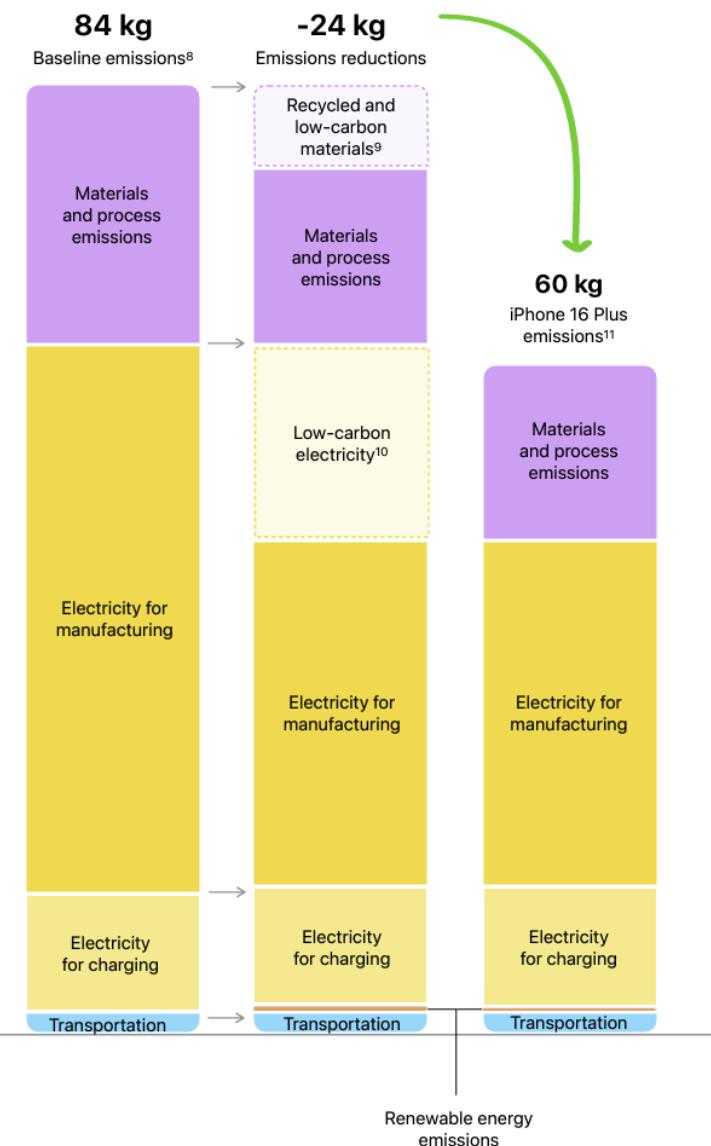
SMART objectives	1.	2.	3.
Specific	Install PV panels on 1000m ² of factory roof Generate 540 kWh/day		
Measurable	Reduce CO2e from oil heating (25.2 g CO2e vs. 1kg CO2e / kWh fossil fuels) PV production impact recovered in 1 year		
Attainable (with stretch)	Factory has sufficient roof space and the payback period is believed to be acceptable		
Relevant	Reduce scope 2 emissions by 30%		
Time-oriented	Operational within 12 months		
Expected IMPACT	Abate 30 tonnes CO2e/yr		

Product decarbonization

- Iphone 16 plus 128 GB = \$899
- 60kg CO₂e at \$200/tonne
- $60/1000 = 0.06$
- $0.06 * 200$
- **Cost of carbon = \$12 (1.3%) { \$60 @ \$1000/t}**



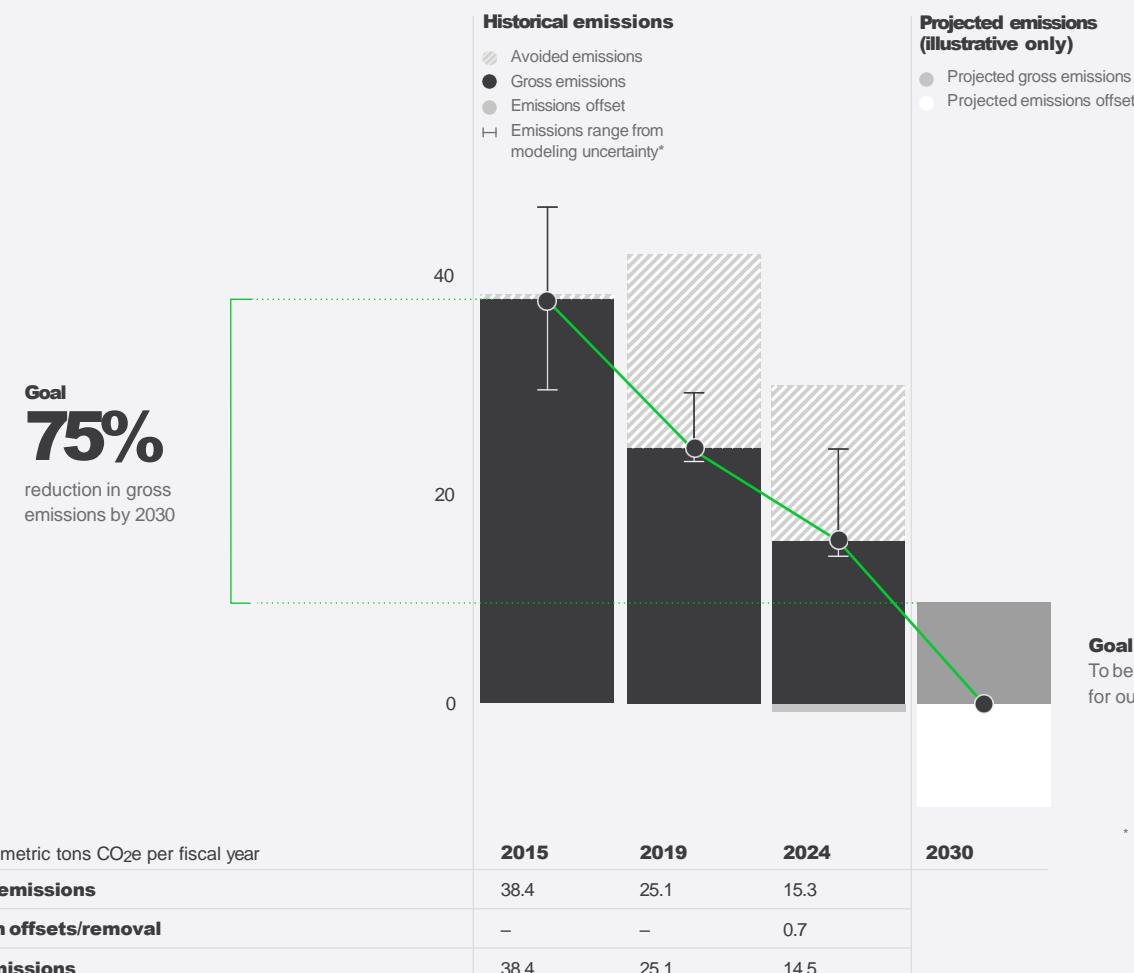
Reduce
Rethink
Refuse



[iPhone_16_and_iPhone_16_Plus_PER_Sept2024.pdf](#)

Apple's progress toward carbon neutrality

We've reduced our entire carbon footprint by more than 60 percent compared with 2015



Achieving progress that benefits business

We underpin our climate strategy with strong business principles and innovation, harnessing the power of markets to replicate our solutions at scale — aiming to create the impact necessary to meet global reduction targets. We're also working to accelerate the global transition toward decarbonization, exploring the next generation of solutions, and advocating for more effective policies. These efforts include fostering new and strengthened collaborations in public and private partnerships and investing in technological advancements. We've issued \$4.7 billion in green bonds to model how businesses can drive investments to reduce global emissions. Our most recent offering in 2019 supported 74 global projects that will mitigate or offset 33.4 million metric tons of CO₂e. To learn more about our work, read our [Green Bond Impact Report](#).

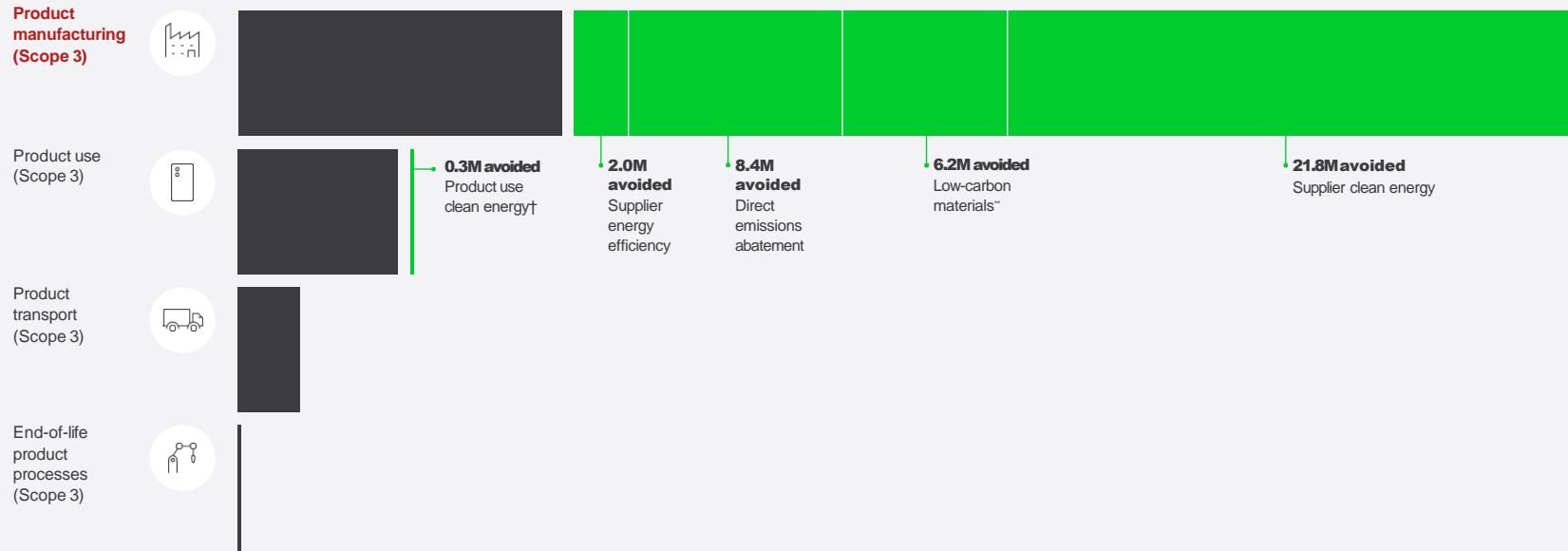
Science and transparency guide our efforts. Our emissions reduction targets align with what current climate science shows is necessary to adhere to a 1.5° C pathway with no or limited overshoot. We calculate our footprint across our entire value chain, covering both direct and product-related emissions — from sourcing materials to end of life. We use the results of our detailed carbon accounting to adjust our Apple 2030 roadmap, which lays out our plan to become carbon neutral. And we're committed to disclosing our carbon footprint, as well as our climate strategy and progress. Transparency and disclosure are essential not only for sharing our climate strategy and progress, but also for inviting others to collaborate with us. Our annual Environmental Progress Report, as well as our response to the global disclosure nonprofit CDP, provides details on our progress. Read our latest response to the [CDP Climate Change 2024 questionnaire \(PDF\)](#).

And progress needs to include low-income and historically marginalized communities that often bear the brunt of climate change. We're pursuing ways to directly support these communities in our climate programs. To learn more about our work, read our feature on our [Power for Impact program](#).

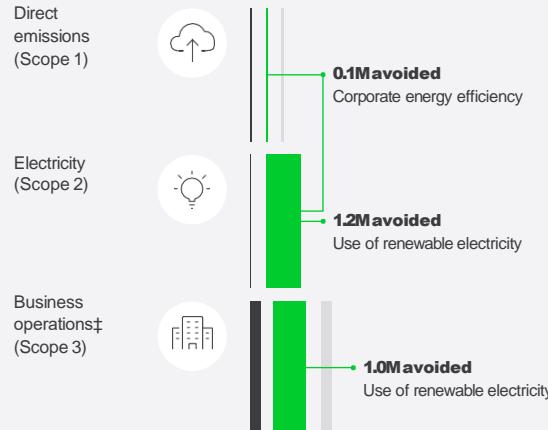
Apple's comprehensive carbon footprint

Metric tons CO₂e

Product footprint



Corporate footprint



● Gross emissions

● Avoided emissions

● Emissions offset

Goal

Achieve carbon neutrality for our entire carbon footprint by 2030 — reducing related emissions by 75 percent compared with 2015.

Progress

We estimate that in 2024, our environmental programs avoided 41 million metric tons of emissions across all scopes. Our long-standing initiatives continue to yield clear results, including sourcing 100 percent renewable energy for our facilities, transitioning suppliers to renewable energy, and using low-carbon materials in our products.²⁴ While our revenue has grown by more than 65 percent since 2015, our gross emissions have decreased by more than 60 percent during the same period.



Total avoided emissions

41Mmt

Net Greenhouse Gas Emissions*

14.5Mmt

* Net greenhouse gas emissions represents our total gross footprint minus carbon offsets. Percentages shown for each emissions category represent the share of Apple's gross footprint. Annual avoided emissions may exceed the reduction in emissions from our baseline footprint due to various factors, such as business growth. Totals add up to more than 100 percent due to rounding.

** Low-carbon materials represent emissions savings from transitioning to recycled materials in our products and using low-carbon aluminum. For details, see [page 30](#).

† Clean energy represents emissions savings from clean energy procured by Apple or its suppliers.

‡ Business operations includes business travel, employee commutes, working from home, fuels and other energy-related activities, and the use of other cloud services.

Apple 2030 journey

Where we've been

Launched
Supplier Clean Energy and Energy Efficiency Programs established, partnering with global suppliers to transition the energy used to manufacture Apple products to renewable energy

✓ Achieved
Carbon neutrality for our corporate operations and announced 2030 targets

Codified
100% renewable energy mandate added to our Supplier Code of Conduct applicable to all suppliers for the manufacturing of Apple products

2015

2018

2020

2021

2023

✓ Achieved
100% renewable electricity generated or sourced for our corporate operations

Launched
Restore Fund to advance nature-based carbon removal projects

Introduced
our first carbon neutral products in the Apple Watch lineup¹⁵

2024 activities

24%
of the material shipped in products came from recycled or renewable sources¹⁶

Introduced
supplier commitments to abate at least 90% of their facilitywide F-GHG emissions in support of our Apple 2030 goal

2025

2030

Where we're going

Goal

Use

100% recycled cobalt in all Apple-designed batteries¹⁷

100% recycled tin soldering and 100% recycled gold plating in all Apple-designed rigid and flexible printed circuit boards¹⁸

100% recycled rare earth elements in all magnets across all products¹⁹

Apple 2030
To be carbon neutral for our entire carbon footprint by 2030²¹

2025

2030

Goal

Transition

to 100% fiber-based packaging by the end of 2025²⁰

Bring sustainability initiatives to life ...

Kotter's eight-step process for leading change within an organization includes:

- 1. Create a sense of urgency.** Rather than simply presenting a change that's going to happen, **present an opportunity** that helps the team **see the need for change and want to make it happen.**
- 2. Build a guiding coalition.** This group of **early adopters** from among the diverse many will help communicate needs and initiatives to **guide change.**
- 3. Form a strategic vision and initiatives.** **Draw a picture** of what life will look like after the change. **Help everyone see**—and long for—the direction you're headed, rather than focusing myopically on the steps in front of them right now.
- 4. Enlist volunteers.** You'll need massive **buy-in across the organization** to effectively implement change. Use your coalition to keep up the momentum on the **sense of urgency** and continue to **communicate the vision.**

Bring sustainability initiatives to life ...

Kotter's eight-step process for leading change within an organization includes:

5. **Enable action by removing barriers.** Learn where employees face challenges to implementing a change because of structural issues like silos, poor communication or inefficient processes, and break them down to facilitate progress.
6. **Generate short-term wins.** Keep up the momentum and motivation by recognizing early successes on the path to change. Continue to recognize and celebrate small wins to keep everyone energized and aware of your progress.
7. **Sustain acceleration.** Lean into change harder after the first few small wins. Use those successes as a springboard to move forward further and faster.
8. **Institute change.** Celebrate the results of successful change. Quantify how changed processes or initiatives contributed to the organization's overall success and helped employees contribute to the mission they care about.



Bringing it all together: sustainability change proposals

Assignment: Sustainability change proposal

(Submission lecture week 13, May 15th, 2025, 10:00am, 15 points)



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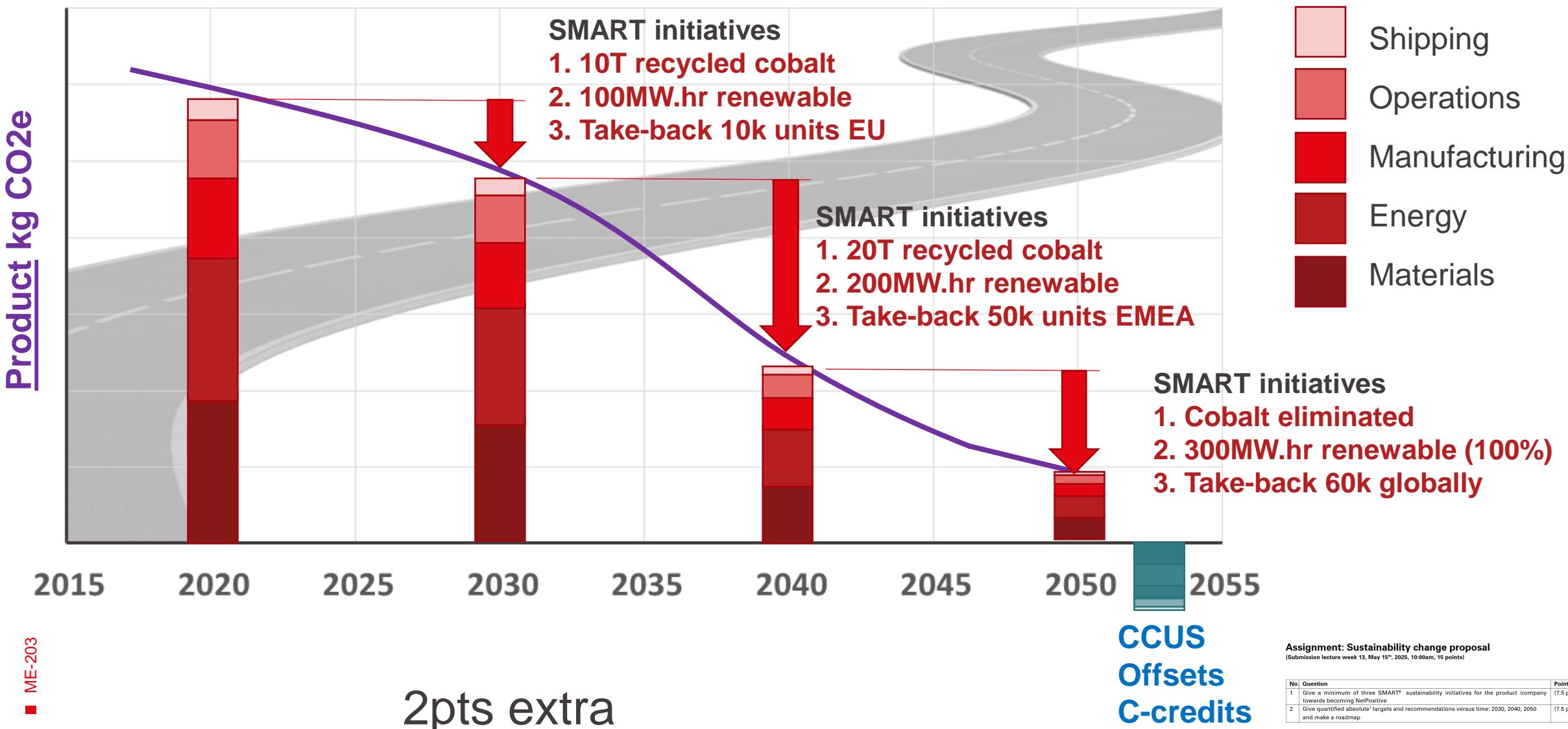
Quantified absolute targets versus time: 2030, 2040, 2050 Template 2

No.	Question	Points
1	Give a minimum of three SMART ¹ sustainability initiatives for the product /company towards becoming NetPositive	(7.5 pts.)
2	Give quantified absolute ² targets and recommendations versus time: 2030, 2040, 2050 and make a roadmap	(7.5 pts.)

SMART Initiative	2030	2040	2050
Cobalt use, invest XX\$	10 tonnes recycled (50% recycled)	20 tonnes recycled (100% recycled)	eliminated
Renewable energy	100MW.hr renewables (33% green electricity)	200MW.hr renewables (66% green electricity)	300MWhr.renewables (100% renewables)
Take back program for remanufacture	10'000 devices in EU (5%, no region)	50'000 devices in EU (25%, no region)	60'000 in EMEA, APAC, NA
Block chain certified supply chain	Trial on specific product (Trial one product)	Back to primary raws (Upstream)	To recycling plant (Downstream)
Plastic: Use mass-balanced bio-attributed plastic	20% ABS in technical lego kits, estimated 1kT/yr (In 20% lego products)	50% ABS in technical lego kits, estimated 2.5kT per year (In 50% lego products)	100% ABS in all lego kits, estimated 5kT/yr (In 100% lego products)
Staff travel	Rail <4hrs, SAF 50% flights (20% CO2e reduction)	Rail <6hrs, SAF 50% flights 80% (30% CO2e reduction)	Rail <8hrs, SAF 80% flights (80% CO2e reduction)
Waste treatment	0.1T landfill non-haz, incineration 10T/yr (Ban landfill, 100% incineration)	Ban landfill, incineration 8T/yr, 2T/yr recycled (Ban landfill, 80% incineration, 20% recycled)	Ban landfill, incineration 6T/yr, 4T/yr recycled (Ban landfill, 80% incineration, 20% recycled)

Roadmap: template 3, place your initiatives on a chart

- NetPositive vs. time and table of initiatives



SUM across all material species in all products:

kgCO₂e/kg * kg/product * number_products/yr

We exclude market behavior
and stay at product level

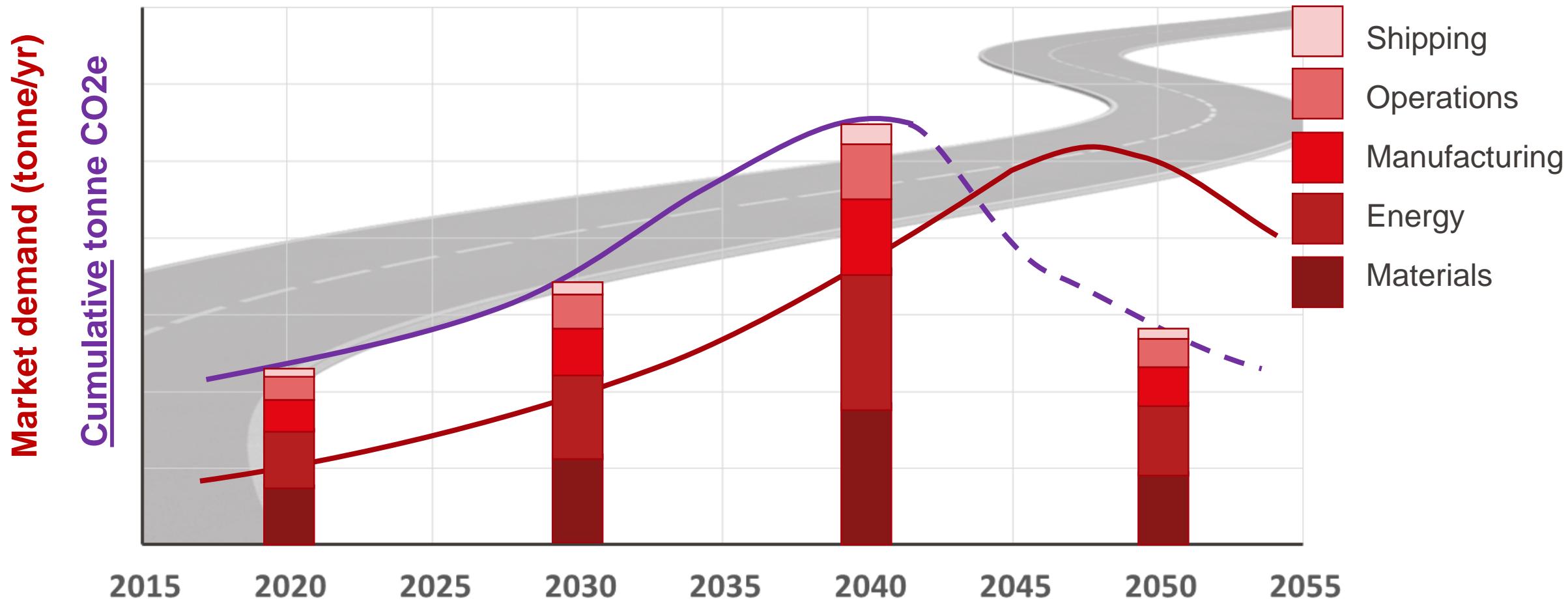
= cumulative (GT) CO₂e of each material species in the product

Add manufacturing, operational, shipping kgCO₂e per product

Completing variables of:

- 1) SMART initiatives to reduce kgCO₂e/kg per material and kg/product vs.**
- 2) Increasing (?) number_products/yr**

BUT ... Interaction of demand and product impact

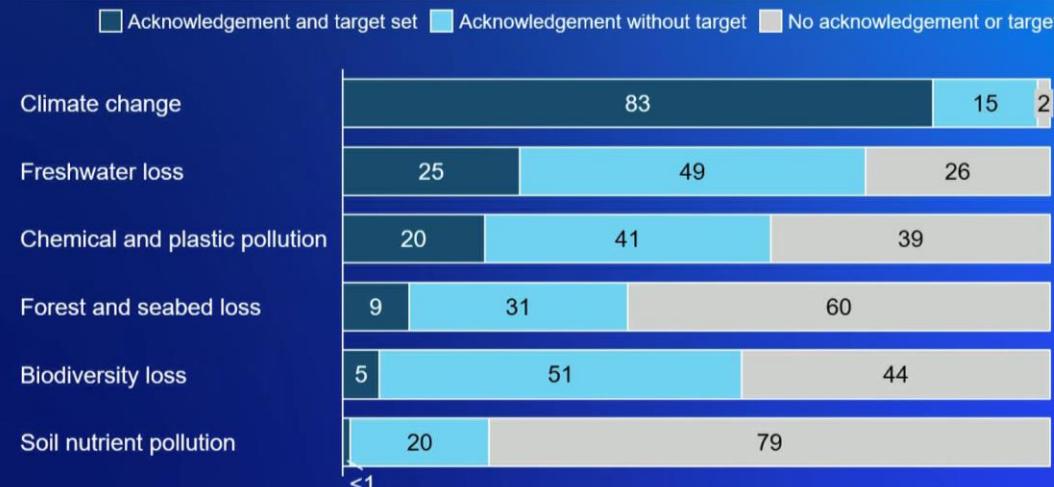


Wider metrics beyond climate change, environment and society

Redirect capital to locations which will see the strongest effects of climate change yet have contributed less towards cumulative emissions

Many global F500 clients have defined targets for climate change, but few have commitments on other dimensions of nature

Global 500 nature-related targets and acknowledgements
Percent of Global 500 companies¹



- Of the 460 F500 companies assessed ~83% have targets defined on climate
- Several F500 clients care and have acknowledged nature dimensions, though only few have committed specific targets (~5% for biodiversity)
- As clients embark on their nature goals, they will need to better assess business-specific nature risks and opportunities

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

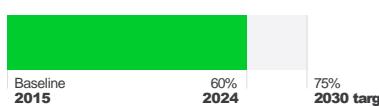
Become carbon neutral for our corporate operations.

Read more on our [approach to carbon neutrality](#)



Achieve carbon neutrality for our entire carbon footprint by 2030 — reducing related greenhouse gas emissions by 75 percent compared with 2015.⁸

Read more on our [Apple 2030 goal](#)



Materials

We're committed to one day **using only recycled or renewable materials** in our products and packaging, and to enhance material recovery.⁷

Recycled gold



Transition to 100 percent recycled cobalt, tin, gold, and rare earth elements in select components and applications by the end of 2025.⁸

- Gold plating in all Apple-designed rigid and flexible printed circuit boards
- Tin soldering in all Apple-designed rigid and flexible printed circuit boards
- Cobalt in all Apple-designed batteries⁹
- Rare earth elements in all magnets

Read more on the [expansion of recycled materials in our products](#)

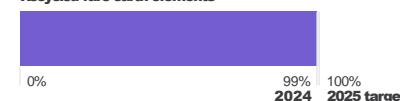
Recycled tin



Recycled cobalt



Recycled rare earth elements



Remove plastics from our packaging by the end of 2025.¹⁰

Read more about our [efforts to shift to 100 percent fiber-based packaging](#)

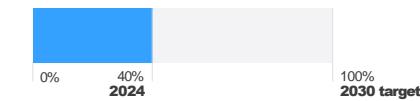


Resources

We're committed to stewarding water resources and working to eliminate waste sent to landfills.

Replenish all of our corporate **freshwater** withdrawals in high-stress locations by 2030.¹¹

Read more about our [water strategy and progress](#)



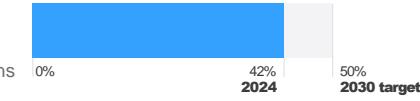
Certify all Apple-owned data centers to the Alliance for **Water Stewardship** (AWS) Standard by 2025.¹²

Read more about our [water strategy and progress](#)



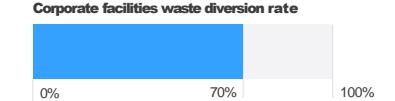
Increase supplier participation in the **Supplier Clean Water** program, prioritizing high water stress locations and driving participants to an average 50 percent water reuse rate by 2030.¹³

Read more about our [water strategy and progress](#)



Eliminate **waste** sent to landfill from our corporate facilities and our suppliers.

Read more about our [Zero Waste Program and progress](#)



Zero waste to landfills at all established final assembly sites



✓ Achieved

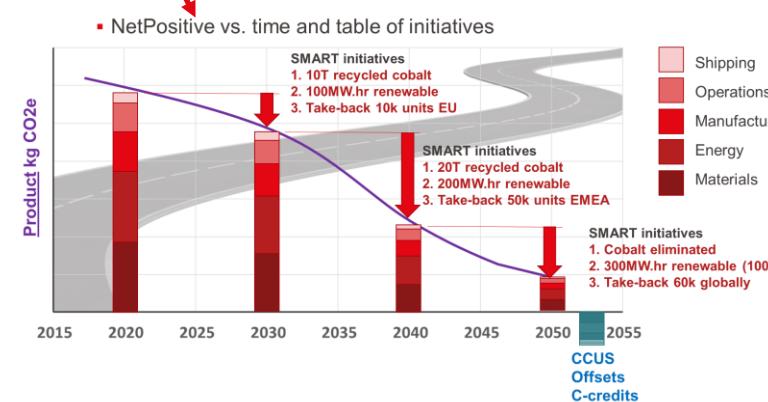
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Measurable	Reduce CO ₂ e from oil heating (25.2 g CO ₂ e vs. 1kg CO ₂ e / kWh fossil fuels) PV production impact recovered in 1 year		
Achievable	Factory has sufficient roof space and the payback period is believed to be acceptable		
Relevant	Reduce scope 2 emissions by 30%		
Time-oriented	Operational within 12 months		
Expected IMPACT	Abate 30 tonnes CO ₂ e/yr		



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- Greenwashing reduces credibility and can damage brands
- We need to set decarbonization goals
- We need to be held accountable for them
- SMART goals with stretch
- Need to be time specific, built into roadmaps

“Don’t let the perfect
be the enemy
of the good.”

~ Voltaire