

C0. Introduction

---

C0.1

---

**(C0.1) Give a general description and introduction to your organization.**

Apple Inc. and its wholly-owned subsidiaries (hereinafter, collectively, Apple or the Company) designs, manufactures and markets smartphones, personal computers, tablets, wearables and accessories, and sells a variety of related services. The Company's products include iPhone®, iPad®, Mac®, Apple Watch®, AirPods®, Apple TV®, Beats® products, HomePod®. The Company also offers services including digital content stores and streaming services, AppleCare®, and iCloud® among others.

The Company's customers are primarily in the consumer, small and mid-sized business, education, enterprise and government markets. The Company sells its products and resells third-party products in most of its major markets directly to consumers, small and mid-sized businesses, and education, enterprise and government customers through its retail and online stores and its direct sales force. The Company also employs a variety of indirect distribution channels, such as third-party cellular network carriers, wholesalers, retailers and resellers. The Company's fiscal year is the 52 or 53-week period that ends on the last Saturday of September, with fiscal year 2019 ending on September 28, 2019. The Company is a California corporation established in 1977.

Apple has provided responses in this Questionnaire upon the request of the CDP signatory investors. All such responses are provided solely on a non-reliance basis. Apple's responses may also contain forward-looking statements that involve risks and uncertainties. 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. Forward-looking statements are not guarantees of future performance and the Company's actual results may differ significantly from the results discussed in the forward-looking statements. Apple assumes no obligation to revise or update any information included in this Questionnaire.

C0.2

---

**(C0.2) State the start and end date of the year for which you are reporting data.**

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Reporting year	September 29 2018	September 28 2019	No	<Not Applicable>

C0.3

---

**(C0.3) Select the countries/areas for which you will be supplying data.**

Please select

C0.4

---

**(C0.4) Select the currency used for all financial information disclosed throughout your response.**

USD

C0.5

---

**(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.**

Operational control

C1. Governance

---

C1.1

---

**(C1.1) Is there board-level oversight of climate-related issues within your organization?**

Yes

## C1.1a

**(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.**

Position of individual(s)	Please explain
Director on board	Apple's Board of Directors (Board) receives briefings on a range of social and environmental topics, including climate-related issues. Apple values accessibility, education, environment, inclusion and diversity, privacy and supplier responsibility, and believes that oversight of these values, due to their importance to the Company, is best suited to the Board. Apple's Board regularly meets with management to exercise oversight and provide guidance on strategic objectives of importance to the Company. Materials are generally distributed to the Board in advance and certain items may be brought for formal Board approval, while other items are presented to the Board for their analysis, debate and discussion amongst all members of the board. Given that the Board provides input on and exercises oversight of strategy, the Company's environmental strategy, including climate-related issues, fall within this purview. An example of a climate-related Board decision was the approval, in December 2014, of a 25-year, 130-megawatt power purchase agreement for the California Flats solar project. The project, which came online in 2017, supplies renewable energy through Direct Access to Apple's facilities in northern California, like our Apple Park headquarters.

## C1.1b

**(C1.1b) Provide further details on the board's oversight of climate-related issues.**

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Scope of board-level oversight	Please explain
Scheduled – some meetings	Reviewing and guiding strategy Reviewing and guiding risk management policies	<Not Applicable>	The Vice President of Environment, Policy, and Social Initiatives briefs Apple's Board on a range of social and environmental topics, including climate-related issues as a regularly scheduled agenda item. Regular communications from the VP ensure that the Board has insight into and oversight over the Company's risks, strategy, and initiatives relating to Apple's efforts to address climate change. These governance mechanisms ensure that climate risks, opportunities, and strategies reach the highest levels of governance within Apple for review and oversight.

## C1.2

**(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.**

Name of the position(s) and/or committee(s)	Reporting line	Responsibility	Coverage of responsibility	Frequency of reporting to the board on climate-related issues
Chief Sustainability Officer (CSO)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	Annually

## C1.2a

**(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).**

i. Lisa Jackson is Apple's Vice President of Environment, Policy and Social Initiatives. Her responsibilities include those of a Chief Sustainability Officer and she reports directly to Apple's CEO, Tim Cook. Lisa Jackson, who previously was the Administrator of the U.S. Environmental Protection Agency from 2009 to 2013, oversees Apple's environmental program, including climate-related activities, as well as Apple's global Government Affairs team. Reporting directly to Apple's CEO, Tim Cook, Ms. Jackson is the most senior individual below the Board with direct oversight of climate-related activities.

ii. In this capacity, Ms. Jackson briefs the Board on Apple's climate change strategy and progress, while also addressing a variety of other environment and social issues. These briefings are scheduled annually and as important matters arise. Ms. Jackson established a centralized environment team that works with senior leaders and their teams across Apple (such as Industrial Design, Product Design, Operations, Energy, and Hardware Engineering, among others) to set climate strategy, monitor progress, engage external stakeholders, including non-governmental organizations (NGOs), and policymakers, and communicate progress on environmental issues. Strategy is set by leveraging Apple's comprehensive carbon footprint (CCF), which is based on lifecycle carbon assessment (LCA) data that quantifies the lifecycle impacts of Apple's products, as well as facilities. The CCF identifies hot spots and areas to focus Apple's emissions reduction efforts. Most recently, Apple, with the approval of Company leadership, announced an ambitious plan to reach net zero emissions for its entire CCF by 2030. This goal includes an emissions reduction target of 75 percent compared to 2015, with investment in carbon removal projects to address the remaining 25 percent of unavoidable emissions. In fiscal year 2019, we reduced our comprehensive carbon footprint for the fourth consecutive year—down 35 percent compared to 2015, when Apple's carbon emissions peaked, even as net revenue increased by 11 percent over that same period. In the past year, we avoided over 10 million metric tons from emissions reduction initiatives directed by Lisa Jackson—like our Supplier Clean Energy Program, which lowered our footprint by 4.4 million metric tons in fiscal year 2019. Progress is tracked through annual LCAs as well as by monitoring growth in renewable energy capacity at our own facilities and in our supply chain. Progress is communicated internally to employees and externally to our customers by engaging with internal communications teams, such as the Marketing Communications, Corporate Communications, and Employee Communications teams.

## C1.3

**(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?**

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	

**C1.3a**

**(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).**

Entitled to incentive	Type of incentive	Activity incentivized	Comment
Chief Sustainability Officer (CSO)	Monetary reward	Emissions reduction project Emissions reduction target	Lisa Jackson is Apple's Vice President of Environment, Policy and Social Initiatives. In this capacity, her responsibilities include those of a Chief Sustainability Officer for Apple, reporting directly to Apple's CEO, Tim Cook. She is expected to advance Apple's environmental and social initiatives. Her annual performance review and compensation components, including restricted stock units and annual salary adjustments, are tied to Apple's success in these areas, including work to minimize Apple's contribution to climate change.
Facilities manager	Monetary reward	Energy reduction project	Our Data Center, Environment and Energy teams drive the efficiency and sustainability of their facilities, including designing green buildings and reducing energy efficiency at new and existing facilities. Apple now has a number of public-facing climate goals, including maintaining 100 percent renewable energy for its facilities, as part of Apple's broader goal of reaching carbon neutrality by 2030 and. Implementing these goals falls on the facilities managers, and their performance directly influences their monetary compensation.
All employees	Non-monetary reward	Emissions reduction project	All employees at Apple are expected to uphold the values of the Company in their work and everyday activities. Apple's CEO Tim Cook has openly stated that we must leave the world better than we found it. Accordingly, Apple employees are expected to create products that benefit people as well as the environment. Significant achievements toward environmental goals that include using recycled or renewable materials, less packaging and reducing emissions from our facilities and supply chain are recognized in Apple's annual environmental report, internal companywide communications, and individual performance reviews.
Procurement manager	Monetary reward	Environmental criteria included in purchases Supply chain engagement	Apple has a procurement team dedicated to the consideration of environmental criteria in purchasing decisions. These criteria include supplier commitments and progress toward using 100 percent renewable energy for Apple production, as well as the procurement of recycled or renewable materials for use in the production of Apple products. Both of these actions have the potential to significantly reduce the carbon footprint of Apple products. Factors in determining monetary rewards for employees include performance and progress toward meeting their environmental procurement goals.
Environment/Sustainability manager	Monetary reward	Emissions reduction project Energy reduction project	Our Environmental Technologies team in Hardware Engineering tracks compliance with energy efficiency programs for product use such as Energy Star and the California Energy Commission requirements. Energy efficiency is rewarded amongst other criteria for Apple products in accordance with product sustainability standards (IEEE 1680.1 and UL110). Implementing product energy efficiency goals in collaboration with product design teams is key to the success of the Environmental Technologies manager, whose performance directly influences monetary compensation.

**C2. Risks and opportunities**

**C2.1**

**(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?**

Yes

**C2.1a**

**(C2.1a) How does your organization define short-, medium- and long-term time horizons?**

	From (years)	To (years)	Comment
Short-term	0	1	For environmental and climate-related initiatives, we consider short-term horizon to be between 0 to 1 year, medium-term between 1 to 10 years, and long term to be greater than 10 years. These timeframes help us best plan for risks and opportunities relating to climate change.
Medium-term	1	10	For environmental and climate-related initiatives, we consider medium-term horizon to be between 1 to 10 years.
Long-term	10	30	For example, some of Apple's power purchase agreements are 25 -30 years.

**C2.1b**

**(C2.1b) How does your organization define substantive financial or strategic impact on your business?**

i) In determining a "substantive financial or strategic impact", Apple considers whether the impact would be "material", where "material" means that there is a substantial likelihood that a reasonable investor would attach importance to it in determining whether to buy or sell shares. We consider the impact of climate change to be a potential risk that could make it difficult or impossible for the Company to manufacture and deliver products, create delays and inefficiencies in the Company's supply and manufacturing chain, and result in slowdowns and outages to the Company's service offerings.

In 2017, for example, Hurricane Harvey temporarily displaced Apple employees located in/around Houston, Texas and caused us to close several stores in the Houston area for a limited time. We responded to this crisis by helping our employees secure temporary housing, donating \$5 million to the Hand in Hand relief effort, and creating a simple mechanism for our customers to donate to the cause through iTunes. While these events did not have a substantive financial or strategic impact on Apple, these kinds of acute physical risks are regularly assessed.

ii) Regardless of the significance of climate change's potential financial impact on the Company, Apple strongly believes it has a responsibility to reduce its impact on climate change and consider climate change in how it plans for the future. Apple identifies the potential size and scope of climate risks relative to other business risks, considering the proportion of business units affected, the significance of those business units, and redundancies we've already built into our business to minimize impacts.

**C2.2**

---

**(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.**

**Value chain stage(s) covered**

Direct operations  
Upstream  
Downstream

**Risk management process**

A specific climate-related risk management process

**Frequency of assessment**

More than once a year

**Time horizon(s) covered**

Short-term  
Medium-term  
Long-term

**Description of process**

Climate-related risks and opportunities for Apple are identified and assessed on an ongoing basis (more frequently than every 6 months), as part of Apple's broad climate strategy. Apple recently announced a goal of becoming carbon neutral for its operations as well as the entire product lifecycle by 2030. This presents a tremendous opportunity for Apple to demonstrate meaningful leadership on climate. To reach this goal, Apple has adopted a broad climate strategy that was developed by a cross-functional working group of teams across the company that meets multiple times each year to discuss risks and opportunities. For regulatory transition risks, for example, Apple has global governmental affairs and environmental teams that monitor climate-related policies (like those relating to carbon pricing or renewable energy) at different stages of development. The significance of these policies is determined by their alignment to our strategic climate goals, such as whether a policy would enable or prevent market access to renewable energy. When teams consider that a proposed policy or regulation could affect our strategic goals and priorities, the proposed policy or regulation is escalated within the Company. In fiscal year 2019, as in previous years, Apple identified a number of potential policy or regulatory changes that raised concerns relating to advancing our climate strategy and prompted Apple to advocate accordingly. For example, in March of 2019, Apple participated in the UN Environmental Assembly and conducted bilateral discussions with a number of countries to advocate for policies that enable a circular economy and bold action on climate. Apple has a full-time energy policy advisor who tracks and advises environmental, product and operations teams across Apple on risks and opportunities from proposed or recently enacted energy-related policies at the national and state level in regions where Apple has operations. These teams work together to assess if energy policy changes will: (i) have a significant impact on our market access to robust renewable energy options or to well-priced electric power, or (ii) create a financial impact by increasing/decreasing the cost of renewables or the tariff rate for electricity. Any action taken in response to energy policy changes is coordinated through the Vice President of Environment, Policy and Social Initiatives. Climate-related physical risks are identified and assessed at an asset level on an ongoing basis. For example, we regularly conduct water risk analyses to understand facilities that are vulnerable to existing as well as future climate-related water stress. Where we have facilities located in areas of high water stress, we seek to minimize use of freshwater through rainwater capture, onsite wastewater recycling, or use of third-party-provided recycled water. Additionally, we invest further in building out alternative water sources for our non-potable needs. We currently use recycled water at our offices in Santa Clara Valley and Elk Grove, California; Singapore; India; and Taiwan; as well as at two of our three largest colocated data centers. In 2019, we increased our use of recycled water 68 percent, from 63 million gallons to 106 million gallons. We partnered with local water agencies and municipalities in Santa Clara Valley to bring recycled water to our new Apple Park and Wolfe campuses, and in 2019 those systems came online, replacing 11 million gallons of potable freshwater with recycled water.

---

**C2.2a**

---

**(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?**

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	We consider existing regulation and climate policies, as well as areas where regulations are lacking, when assessing climate-related risks for the Company, as both can impact Apple. For regulatory risks, Apple has a global governmental affairs and environmental teams monitor existing climate-related policies (such as those relating to carbon pricing or renewable energy) at different stages of implementation. The significance of these policies is determined based on their alignment to our strategic climate goals—for example, whether a renewable energy policy would enable or prevent market access to renewable energy. For example, in fiscal year 2017, Apple joined other tech companies in signing a statement backing the renewable energy policies that the current U.S. Administration had recently taken steps to reverse: "We believe that strong clean energy and climate policies, like the Clean Power Plan, can make renewable energy supplies more robust and address the serious threat of climate change while also supporting American competitiveness, innovation, and job growth." The U.S. Administration's action to reverse clean energy policy poses a risk to all organizations exposed to the negative impacts of climate change. Our response to this action was elevated within our risk assessment process and involved coordination between our governmental affairs and environmental teams. The fact that Apple signed on to a formal statement with other companies demonstrates how significant risks with respect to current climate-related policies are elevated within the Company.
Emerging regulation	Relevant, always included	We consider emerging regulation, such as regulation that enables investments in renewable energy, as critical to our climate strategy, and therefore both monitor and support emerging regulation in this area. Apple's global governmental affairs and environment teams monitor emerging climate-related policies at different stages of development. The significance of these policies is determined based on their alignment to our strategic climate goals—for example, whether a renewable energy policy would enable or prevent market access to renewable energy. For example, in January 2018, Apple filed comments to the Federal Energy Regulatory Commission (FERC), urging it not to finalize a rule that would subsidize fossil fuels, which would limit the ability of renewables to compete in the electricity market. FERC chose not to finalize that rule. Identifying relevant emerging regulations early in the process is important to advancing Apple's climate-related goals, and opposing emerging regulations that make achieving such goals more difficult, such as where regulations may limit the financial competitiveness of renewable energy, is equally important.
Technology	Relevant, always included	Technology creates both risks and opportunities in a number of ways. Apple is a technology company that delivers products to our customers. These products have a carbon footprint, which we calculate through a carbon life cycle assessment (LCA) process. This carbon footprint, if not otherwise addressed, would constitute a risk to Apple, as it represents scope 3 emissions that Apple takes responsibility for as part of its comprehensive carbon footprint. Having committed to carbon neutrality by 2030, failure to address product-related emissions could represent a reputational risk to Apple. Product-related emissions also represent an opportunity for Apple to demonstrate leadership and drive down emissions. In particular, we leverage the LCA data in order to identify opportunities to reduce emissions associated with our products throughout their lifecycle. For example, aluminum makes up a large portion of our manufacturing carbon footprint, as it's a key material in many of Apple's products, and, for more than 130 years, it's been produced through a carbon-intensive process. Through a partnership with aluminum manufacturers Alcoa Corporation and Rio Tinto Aluminum, announced in May 2018, that's changing. The joint venture between Alcoa and Rio Tinto will commercialize patented technology that eliminates direct greenhouse gas emissions from the traditional smelting process, a key step in aluminum production. Apple believes that this is a revolutionary advancement in the manufacturing of one of the world's most widely used metals. In December 2019, we announced that Apple had bought the first ever commercial batch of direct carbon-free aluminum, which is currently being used in the development of the 16-inch MacBook Pro.
Legal	Relevant, sometimes included	We consider legal risks as part of our climate strategy in so much as climate-related regulatory risks have a legal component, in terms of compliance as well as risk of litigation. Such legal risks are monitored by our environmental, governmental affairs, and legal teams. For example, the EU has in effect a directive requiring, in management reports for certain legal entities, non-financial disclosures addressing environmental matters (including climate change), social and employee matters, human rights, and bribery and corruption. This directive applies to Apple because of our subsidiary operations in various EU member states. Regulation and policies like the non-financial reporting directive in the EU represent a compliance risk and a potential for reputational effects or litigation for non-compliance.
Market	Relevant, always included	We assess and consider market risks as part of our climate strategy by identifying challenges to deploying renewable energy within our operational footprint and in our supply chain. The robustness of a renewable energy market is an essential element to implementing renewable energy solutions. In countries where the local market conditions create a challenging environment to implement renewable energy solutions, we work with local government and other stakeholders to promote active, market-driven renewable energy projects. Challenging markets include ones with limited renewable energy availability, a lack of established renewable energy markets, or changes in policy to subsidize fossil fuels. These challenges are addressed through our assessment process—first identified by environmental or governmental affairs teams, who then bring proposals for addressing the challenges to our VP of Environment, Policy and Social Initiatives, as needed. Following the assessment process and proposal determination, we then take action, with the ultimate goal of advancing renewable energy and our ability to access it. For example, in January 2018, Apple filed comments to the Federal Energy Regulatory Commission, urging it not to finalize a rule that would subsidize fossil fuels, and, consequently, limit the ability of renewables to compete in the electricity market. FERC chose not to finalize that rule.
Reputation	Relevant, always included	How our customers and stakeholders perceive Apple's performance on climate-related issues could affect the demand for the Company's products. For example, a lack of action on climate change may result in customers opting to purchase electronics from companies that are demonstrating stronger leadership on climate change. We assess this risk by regularly conducting surveys to monitor customer perceptions. To manage this risk, we plan to continue to aggressively reduce emissions and communicate Apple's emissions reduction activities—including our most recent announcement to be carbon neutral by 2030. Apple also monitors the perceptions of respected NGOs and media. For example, in its most recently published Guide to Greener Electronics, Greenpeace rated Apple as one of the top scoring companies. And in a review of the new 13-inch MacBook Air with Retina Display, The Guardian described it as "one of the most sustainable laptops you can buy" and noted that "what makes the MacBook Air stand apart is its use of recycled material, including 100% recycled aluminum in the casing, 100% recycled tin in the solder of its logic board and at least 35% recycled plastic used in multiple components."
Acute physical	Relevant, always included	Acute physical impacts of climate change have the potential to interrupt Apple's operations. In fiscal year 2017, for example, Hurricane Harvey displaced Apple employees located in and around Houston, Texas and caused us to close several stores in the Houston area. We responded to this crisis by helping our employees secure temporary housing, donating \$5 million to the Hand in Hand relief effort, and creating a simple mechanism for our customers to donate to hurricane recovery efforts through iTunes. While these events did not substantially affect Apple financially, these kinds of acute physical risks are regularly assessed through Apple's risk assessment and planning processes described in our response to question C2.2d to understand and mitigate any potential financial impact. Teams across Apple are involved in assessing the impact of these acute physical risks, including Apple's Travel team, global Giving team, and Facilities and Operations teams. Urgent risks are escalated through Apple's Vice President of Environment, Policy and Social Initiatives, Lisa Jackson. An example of changes made directly into the planning process to account for heightened acute physical risks include the consideration of 200- to 500-year flood events / floodplains in planning for facilities, using best available data, beyond the typical 100-year flood events.
Chronic physical	Relevant, always included	We assess and respond to chronic physical impacts of climate change on our facilities. Northern California, for example, where our headquarters is located, has been subject to drought from time to time. This drought increases potential regulatory risk of water limits on Apple facilities and a perception risk if the local community believes Apple is not taking sufficient action to reduce water use. Most importantly, we believe it to be Apple's responsibility to contribute to the wellbeing of its local community by being as water efficient as possible. We consider these risks on an ongoing basis by monitoring water use and regional demands on our municipal water system. While the most recent drought has been temporarily alleviated with increased precipitation, the broader drought risk persists and as such as we are implementing landscape water reduction activities at our headquarters in Santa Clara Valley, California. In addition to drought-related landscape concerns, there are also potential increased costs from operating our facilities in a sustained warmer climate, like our data center in Reno, Nevada. These impacts include costs associated with increased air conditioning use and potential increased capital costs to replace undersized air conditioning units and related supporting equipment.

**C2.3**

**(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?**

Yes

**C2.3a**

**(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.**

**Identifier**

Risk 1

**Where in the value chain does the risk driver occur?**

Direct operations

**Risk type & Primary climate-related risk driver**

Emerging regulation	Carbon pricing mechanisms
---------------------	---------------------------

**Primary potential financial impact**

Increased indirect (operating) costs

**Climate risk type mapped to traditional financial services industry risk classification**

<Not Applicable>

**Company-specific description**

Carbon taxes, or any other regulatory scheme addressing climate change, may create upward pressure on energy prices, as low-cost but high-emission sources are replaced by lower-emitting sources. One effect of this risk is increased electricity prices, which could increase Apple's cost of operations, most notably at operating U.S. data centers in California, Oregon, North Carolina, Arizona, Nevada, as well as Denmark. We've not yet experienced any regulatory changes that have notably increased electricity prices. Were a change to occur, our behind-the-meter renewable energy projects are insulated from this risk, and certain PPAs partially insulate us. Based upon an assessment completed in 2017, we determined this climate risk was very low in the short term, considering the stance of the U.S. Administration, but still applicable to the medium-term. We have taken actions to mitigate this risk through our investments in renewable energy (see below). Our recently conducted climate scenario analysis confirmed that there is variation in the potential future costs from regulations that place a price on carbon, depending on the scenario and discount rate used. Applying the IEA SDS scenario at a 5 percent discount rate across Apple's global operations (scopes 1 and 2), shows the potential impact of carbon pricing to be approximately \$8 million per year by 2040, in the absence of any further emissions reduction for Apple. Apple's ambitious 2030 carbon neutral goal that applies to its scope 1, 2 and 3 emissions would mitigate the majority of that risk, primarily through emissions reductions and continuing to procure 100 percent renewable energy through long-term contracts for Apple's direct electricity use.

**Time horizon**

Medium-term

**Likelihood**

About as likely as not

**Magnitude of impact**

Medium-low

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

17200000

**Potential financial impact figure – minimum (currency)**

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

Climate change regulation may result in small energy price increases. We estimate that electricity spend represents less than 1 percent of Apple's annual operating expense, which in fiscal year 2019 was \$34.4 billion. A hypothetical 5 percent rise in electricity prices across the board could raise Apple's electricity spend by approximately \$17.2 million annually; while this would have minimal effect on Apple's overall financial positions, it is part of our business strategy to manage this exposure through use of renewable energy. While this impact is greater than the projected 2040 carbon pricing scenario, we still believe it to be an accurate conservative estimate.

**Cost of response to risk**

2500000000

**Description of response and explanation of cost calculation**

Our management approach for this risk is two-fold. 1) Operationally, we are making substantial investments in Apple-created renewable energy projects, which in many cases provide a price hedge against rising retail energy rates. For example, in 2015 we announced a 130-megawatt solar PV array in Monterey County, California, which directly serves renewable energy to our California Direct Access facilities with energy cost price certainty. Overall, in fiscal year 2019, 83 percent of the renewable energy we procured came from Apple-created, long-term renewable energy contracts. 2) We are also focusing on reducing our energy consumption through energy efficiency by investing in projects focused on operational efficiency, and investing in skilled energy management staff. For example, in fiscal year 2019, our energy efficiency program avoided an additional 26.4 million kilowatt-hours and 194,500 therms per year from existing buildings and retrocommissioning, as well as new building design. Together, these initiatives avoid about 7500 metric tons of CO2e per year. With these efforts, we believe we are well-positioned should energy prices rise due to climate legislation. Our renewable energy projects require substantial capital investment. We have committed over \$2.5 billion to renewable energy and energy efficiency projects since the inception of our renewable energy program. These renewable energy projects often reduce our overall cost of energy over the long term, while hedging against future increases or fluctuations in energy cost as well as bringing us non-financial benefits. Our energy efficiency program is integrated into our facilities budget, and is generally handled within existing allocations.

**Comment**

**Identifier**

Risk 2

**Where in the value chain does the risk driver occur?**

Direct operations

**Risk type & Primary climate-related risk driver**

Acute physical	Increased severity and frequency of extreme weather events such as cyclones and floods
----------------	--

**Primary potential financial impact**

Increased indirect (operating) costs

**Climate risk type mapped to traditional financial services industry risk classification**

<Not Applicable>

**Company-specific description**

Changes in water stress as well as in precipitation patterns, including more frequent extreme weather events, strain the infrastructure systems (e.g., power, water, transportation, and communication) supporting our supply chain and our operations, as well as the human resources needed to maintain normal operations at Company

facilities. Effects from severe weather events could cause a temporary disruption in production or the availability of component parts or finished products, in the availability of a data center, or in the availability or productivity of our workforce. For example, Hurricane Harvey caused record flooding beyond that for which impacted regions of Texas were prepared. Hence the region suffered significant damage to infrastructure with a significant impact on residents' lives. Though direct Apple facilities were not significantly impacted by the hurricane, many Apple employees' homes were damaged. This indirectly impacted the Company as employees had to relocate and recover. The likelihood of rain-heavy storms like Harvey in areas not typically exposed to such extreme weather increases due to climate change. Because Apple has dozens of retail locations across more than 40 U.S. states, our geographic exposure to changing extreme weather events is high. Though most of these impacts will not, by themselves, affect the Company in an immediate or significant way, there are some exceptions. For example, Apple has sales channels that depend on certain facilities and services being operational (e.g., retail stores, the iTunes Store and the App Store, which collectively supported part of Apple's total new sales of \$260,174 million in fiscal year 2019, as reported in the Form 10-K filing with the U.S. Securities and Exchange Commission). Disruptions to these facilities and services due to changes in precipitation patterns or extreme weather events such as flooding, hurricanes, etc. could create immediate lost-revenue effects. While we consider this risk to be medium-term, we experienced disruptions from hurricanes that occurred in the United States in 2018.

**Time horizon**

Medium-term

**Likelihood**

About as likely as not

**Magnitude of impact**

Medium-low

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

100000000

**Potential financial impact figure – minimum (currency)**

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

Severe weather events or water-related service disruption of an unusually long duration, or which affect an unusually widespread area, or of unusually intense force, could impact product or service availability, which may affect our financial positions. The magnitude would depend on the facilities affected and the duration of the disruption. Climate change could make it difficult or impossible for the Company to manufacture and deliver products, create delays and inefficiencies in the Company's supply and manufacturing chain, and result in slowdowns and outages to the Company's service offerings. As a hypothetical example, if a flooding event affected our ability to deliver 0.5% of product sales, based on fiscal year 2019 product sales number of \$213,883 million (based on combined net sales of iPhone, Mac, iPad, Wearables, Home, and Accessories, as reported in our Form 10-K filing with the U.S. Securities and Exchange Commission), this could potentially result in a net impact of about \$1 billion.

**Cost of response to risk**

34400000

**Description of response and explanation of cost calculation**

Because water stress and natural disasters are long-recognized climate-related risk factors, Apple has policies, practices, and contingency plans in place to seek to minimize their effects. For example, we regularly conduct water risk analyses to understand facilities that are vulnerable to existing as well as future climate-related water stress. Where we have facilities located in areas of high water stress, we seek to minimize use of freshwater through rainwater capture, onsite wastewater recycling, or use of third-party-provided recycled water. Additionally, we invest further in building out alternative water sources for our non-potable needs. We currently use recycled water at our offices in Santa Clara Valley and Elk Grove, California; Singapore; India; and Taiwan; as well as at two of our three largest collocated data centers. In 2019, we increased our use of recycled water 68 percent, from 63 million gallons to 106 million gallons. We partnered with local water agencies and municipalities in Santa Clara Valley to bring recycled water to our new Apple Park and Wolfe campuses, and in 2019 those systems came online, replacing 11 million gallons of potable freshwater with recycled water. There is no incremental cost to our current approach of managing extreme weather events potentially brought on by climate change. Because our current approach is forward-looking, and because we already manage physical risks that may arise from a variety of causes, expanding the list of potential causes—and even broadening the geographic areas of interest—does not add significant cost to Apple. Instead, we integrate climate planning into how we design and operate our facilities. The cost of managing more chronic risks such as water stress is also small. We estimate that our cost of mitigating water stress is less than 0.1% of Apple's annual operating expenses in fiscal year 2019, or less than about \$34.4 million.

**Comment**

**Identifier**

Risk 3

**Where in the value chain does the risk driver occur?**

Direct operations

**Risk type & Primary climate-related risk driver**

Reputation	Increased stakeholder concern or negative stakeholder feedback
------------	--

**Primary potential financial impact**

Decreased revenues due to reduced demand for products and services

**Climate risk type mapped to traditional financial services industry risk classification**

<Not Applicable>

**Company-specific description**

As one of the most valuable companies in the world, Apple is highly visible and attracts many diverse stakeholders—including people for whom the Company's future is of direct importance (137,000 full time employee equivalents as of the end of fiscal year 2019, customers, investors, partners, developers, suppliers, communities where we operate, etc.) and indirect stakeholders who are concerned with corporate behavior and action (non-governmental organizations, political participants, media outlets, etc.). This visibility and extensive stakeholder interest heightens the perceived impact of our operations and products. For example, on Earth Day 2019, Apple released on its YouTube channel a video entitled "Don't Mess with Mother", showing spectacular images of nature from around the world. The video was a reminder of the importance of protecting this planet we all share. It received over 37 million views, which is an indication of Apple's reach and visibility. Because the threat of climate change is held as relevant and important by a portion of Apple's direct and indirect stakeholders, Apple's actions or lack thereof concerning climate change could create reputational risk. A 2018 Nielsen Report entitled "The Evolution of the Sustainability Mindset" found that 81% of global respondents feel strongly that companies should help improve the

environment. Ever-evolving consumer data continues to show emphasis on environmental issues, including climate change, demonstrating the reputational risks to companies of poor environmental performance. For example, if Apple is not transparent and does not adequately explain its actions to its stakeholders, public misconception could create the perception that the Company is not environmentally responsible. This will limit Apple's ability to communicate effectively with our stakeholders. Though any one incident is unlikely to affect the Company's reputation, over time and cumulatively a perceived lack of transparency could detract from Apple's brand value, and could reduce people's inclination to purchase from, invest in, or work for Apple.

**Time horizon**

Long-term

**Likelihood**

Very unlikely

**Magnitude of impact**

Low

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

234000000

**Potential financial impact figure – minimum (currency)**

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

Reputational risk related to a perceived lack of transparency surrounding our environmental initiatives is likely to be zero or near zero in the short term. Over the longer term reduced demand could occur if stakeholder misconceptions were to persist. Interbrand's 2019 Best Global Brands report estimates Apple's brand value at over \$234 billion. A hypothetical 0.1 percent decrease in that value due to a perceived lack of transparency or a poor reputation related to climate change could represent an approximate \$234 million loss of brand value.

**Cost of response to risk**

3440000

**Description of response and explanation of cost calculation**

Apple manages this risk by taking visible actions that define and communicate our values as a Company, and by disseminating clear and factual information on an ongoing basis. Regarding climate change, Apple releases not only annual environmental reports, but also product environmental reports at every product release. Apple also creates additional opportunities to interact with stakeholders such as press interviews, conference appearances and presence on social media. For example, in June 2017, following the U.S. Administration's decision to withdraw from the 2015 Paris Agreement, Apple's CEO Tim Cook tweeted to his 10.9 million followers "Decision to withdraw from the #ParisAgreement was wrong for our planet. Apple is committed to fight climate change and we will never waver." Investing in renewable energy makes good business sense for Apple. The cost of disseminating clear, accurate information about Apple's climate change agenda is low—less than 0.01 percent of Apple's annual operating expenses, or less than \$3.44 million. However, executing the programs themselves—the actions that comprise Apple's reputation—costs more. For example, Apple recently issued a \$2.2 billion green bond to help meet our 2030 carbon neutrality goal.

**Comment**

---

C2.4

---

**(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?**

Yes

C2.4a

---

**(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.**

**Identifier**

Opp1

**Where in the value chain does the opportunity occur?**

Direct operations

**Opportunity type**

Products and services

**Primary climate-related opportunity driver**

Development and/or expansion of low emission goods and services

**Primary potential financial impact**

Increased revenues resulting from increased demand for products and services

**Company-specific description**

Jurisdictions seeking to address climate change may implement new or more stringent regulatory schemes aimed at reducing the energy consumed by electronic devices, and/or they may require energy use labeling to better inform consumer choices. For example, the California Energy Commission is developing energy efficiency standards for computers and monitors, an activity Apple is involved in, as described in 12.3a. Apple would be well positioned to benefit from such regulations, due to our ongoing focus on the energy efficiency of our products. For example, as of fiscal year 2019, Apple's entire product line exceeds ENERGY STAR standards for all products where ENERGY STAR standards exist (specifically, for Apple TV, Mac Pro, MacBook Air, MacBook Pro, MacBook, iPad, iMac and Mac Mini). Broader or more stringent standards would call upon a particular strength of Apple's product design teams, enabling us to comply rapidly if changes were required, or to demonstrate best-in-class results. This may favor Apple in competitive procurements, or become more of a differentiator among consumers; both of these effects would increase demand for Apple's products.

**Time horizon**

Medium-term

**Likelihood**

More likely than not

**Magnitude of impact**

Medium-low

**Are you able to provide a potential financial impact figure?**

Yes, an estimated range

**Potential financial impact figure (currency)**

<Not Applicable>

**Potential financial impact figure – minimum (currency)**

0

**Potential financial impact figure – maximum (currency)**

1890000000

**Explanation of financial impact figure**

If new efficiency laws are implemented, Apple should have a more broadly compliant product line than its competitors and hence be in a stronger position to sell more products, at least in the short term. For example, if a European regulation targeting portable and desk-based computers resulted in a hypothetical one to two year regulatory advantage for Apple and yielded between 0 and 1 percent increase in product sales, Apple's annual revenue could increase by between approximately \$0 and \$1.89 billion in net sales (based on Apple's fiscal year 2019 net sales figure for iPhone, iPad, and Mac of approximately \$189,401 million per our Form 10-K filing with the U.S. Securities and Exchange Commission). This financial impact could vary widely from this estimate; therefore we included a range of financial return from 0 to this estimate.

**Cost to realize opportunity**

81000000

**Strategy to realize opportunity and explanation of cost calculation**

As energy consumed by Apple's products during everyday use represents 14 percent of Apple's carbon footprint, we work to reduce the energy use of Apple products by designing: 1) more efficient power supplies to bring electricity from the wall to the device, 2) more efficient hardware, and 3) smarter power management software. For example, Mac OS puts the hard drive to sleep and runs processors in an ultralow power mode when not in use. It can even save energy when the screen is static and between keystrokes. Apple sets energy targets early in the design process for every product. As a result, Apple products not only meet but exceed ENERGY STAR standards—like the 16-inch MacBook Pro, which consumes 65 percent less energy than the ENERGY STAR® energy efficiency requirement. Thanks to these improvements, we've reduced the average energy consumed by Apple products by 73 percent since 2008. Our energy efficient product design work is embedded into product R&D budgets, and therefore an exact cost estimate cannot be allocated to this work. In aggregate, total R&D expense was approximately \$16.2 billion in fiscal year 2019 per our Form 10-K filing with the U.S. Securities and Exchange Commission. The cost of tracking and participating in regulatory developments and testing our products against energy efficiency standards, in aggregate, could be estimated at less than 0.5% of Apple's R&D expenses in fiscal year 2019, or approximately \$81 million.

**Comment**

---

**Identifier**

Opp2

**Where in the value chain does the opportunity occur?**

Direct operations

**Opportunity type**

Energy source

**Primary climate-related opportunity driver**

Use of lower-emission sources of energy

**Primary potential financial impact**

Reduced direct costs

**Company-specific description**

As international consideration of carbon regulations increases with the pressure to limit emissions and combat climate change, our corporate climate strategy represents a clear advantage and opportunity for the Company. We have extensive programs to enhance our energy efficiency, and have already transitioned our facilities to 100 percent renewable energy, with 83 percent of the renewable energy we used in 2019 coming from projects Apple helped create. This is significant progress, and reflects early investment in renewable energy at a global scale—significantly reducing our exposure to the increased cost of carbon emissions. In fact, since 2011, Apple has reduced emissions from our offices, data centers, retail stores, and fleet vehicles by 71 percent—even while our energy use increased by more than four times in this same period. We're also helping our suppliers transition to renewable energy: as part of our 2030 carbon neutrality goal, we've committed to transition all of our manufacturing supply chain to 100 percent clean energy. These actions will help both Apple and our supply chain thrive in a low-carbon economy.

**Time horizon**

Long-term

**Likelihood**

About as likely as not

**Magnitude of impact**

Low

**Are you able to provide a potential financial impact figure?**

Yes, an estimated range

**Potential financial impact figure (currency)**

<Not Applicable>

**Potential financial impact figure – minimum (currency)**

0

**Potential financial impact figure – maximum (currency)**

14000000

**Explanation of financial impact figure**

---

Apple recently conducted a comprehensive scenario planning analysis, which showed that under the IEA SDS scenario and with a 5 percent discount rate, projected reductions in scope 1 and scope 2 emissions would save about \$14 million a year by 2040 under a hypothetical global carbon tax or trade system, compared with a scenario of Apple having taken no action on reducing emissions. The financial impact may vary significantly from this estimate—higher as regulation has the potential to be far more significant, or lower given the low likelihood of a global scheme affecting 100 percent of our emissions. Regardless of this uncertainty, Apple’s initiatives have the potential to leave both our operations and those of our suppliers better adapted to low-emissions markets, in addition to other benefits like price certainty—locking in renewable pricing over a long-term while oil and gas markets may fluctuate.

**Cost to realize opportunity**

2500000000

**Strategy to realize opportunity and explanation of cost calculation**

Since January 2018, 100 percent of the electricity used at our facilities has come from renewable sources. To secure renewable energy projects, we’ve taken on project ownership, made equity investments, sparked creative new partnerships with utilities, and entered into power purchase agreements. We’ve also deployed a variety of technologies like wind, solar PV, micro-hydro projects, and biogas fuel cells. For example, we’ve invested in an Illinois wind farm and a Virginia solar PV array, with a combined capacity of 245 megawatts. We’re also helping our manufacturing partners transition to 100 percent clean energy for Apple production. The Supplier Clean Energy Program now has 7.8 gigawatts of clean energy commitments, of which 2.7 gigawatts was operational in 2019. In fiscal year 2019, renewable energy already online generated 5.7 million megawatt-hours of clean energy across 17 countries, resulting in about 4.4 million metric tons of carbon emissions avoided within our supply chain. We have committed over \$2.5 billion to renewable energy and energy efficiency projects since the inception of our renewable energy program. These renewable energy projects often reduce our overall cost of energy over the long term, while hedging against future increases or fluctuations in energy cost as well as bringing us non-financial benefits. Our energy efficiency program is integrated into our facilities budget, and is generally handled within existing allocations.

**Comment**

---

**Identifier**

Opp3

**Where in the value chain does the opportunity occur?**

Downstream

**Opportunity type**

Products and services

**Primary climate-related opportunity driver**

Shift in consumer preferences

**Primary potential financial impact**

Increased revenues resulting from increased demand for products and services

**Company-specific description**

Growing awareness and evidence of climate change can drive changes in consumer behavior on multiple fronts: (1) consumers who believe the climate is changing and want to do what they can to mitigate this harm may increasingly view their spending as an area where they can and should exercise responsibility, and where their values come into play; and (2) climate change policies may create upward pressure on electricity prices, which could alter consumer behavior regardless of personal values relating to climate change and energy use. In both cases, consumer behavior changes would favor useful, energy efficient products. And beyond energy efficiency, consumers in the first category may seek products that overtly speak to their values and beliefs and perhaps even serve as a symbol of their belief system. For these consumers, purchasing from companies that adhere to values similar to their own may become increasingly important. In other words, companies acting responsibly by caring for the climate may be favored by people making similar efforts in their own lives. Apple regularly conducts consumer sentiment surveys that have validated this approach: a more recent survey found that consumers increasingly value action against climate change and want to purchase from companies that share this value. This creates an opportunity for Apple to offer products that not only satisfy the practical needs and requirements of consumers focused on price/performance, but also to be the company of choice for consumers who make conscious efforts to align their spending with their values. For example, the recently launched 16-inch MacBook Pro consumes 65 percent less energy than the ENERGY STAR® energy efficiency requirement. Thanks to improvements in energy efficiency, since 2008, we’ve reduced the average energy consumed by Apple products by 73 percent. Best-in-class innovations that are energy efficient and speak to the value propositions of conscious consumers could result in increased demand for Apple’s products, including iPhone, iPad, MacBook, Apple Watch, etc. Further, Apple’s recently announced goal to be carbon neutral by 2030 further demonstrates to our customers Apple’s commitment to climate change leadership.

**Time horizon**

Medium-term

**Likelihood**

More likely than not

**Magnitude of impact**

Medium-low

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

1890000000

**Potential financial impact figure – minimum (currency)**

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

If Apple is successful in creating products attractive to people whose purchasing habits are changing due to concerns about climate change or rising electricity prices, it may result in a small competitive differentiator for our hardware products. Apple’s reported product sales for iPhone, iPad and Mac in fiscal year 2019 were \$189,401 million per our Form 10-K filing with the U.S. Securities and Exchange Commission. If this competitive differentiator resulted in a hypothetical 1 percent increase in net sales, it could raise annual net sales by approximately \$1.89 billion.

**Cost to realize opportunity**

2200000000

**Strategy to realize opportunity and explanation of cost calculation**

We recently announced our goal to become carbon neutral across our entire business, manufacturing supply chain, and product life cycle by 2030. We are already carbon neutral today for our global corporate operations, and this new commitment means that by 2030, every Apple device sold will have net zero climate impact. This goal builds

on Apple's prior success powering all of our facilities worldwide with 100 percent renewable energy, which is another example of our substantive, visible commitment to mitigating climate change. As part of the 2030 carbon neutrality goal, we also plan to transition Apple's entire supply chain to 100 percent clean energy, which will significantly reduce our Scope 3 emissions from manufacturing products. The Supplier Clean Energy Program now has 7.8 gigawatts of clean energy commitments, of which 2.7 gigawatts was operational in 2019. In fiscal year 2019, renewable energy already online generated 5.7 million megawatt-hours of clean energy across 17 countries, resulting in about 4.4 million metric tons of carbon emissions avoided within our supply chain. In 2019, we issued a USD\$2.2 billion green bond issued to help meet our 2030 carbon neutrality goal. We estimate that the majority of these projects will have a positive return on investment. Lisa Jackson, Apple's Vice President of Environment, Policy, and Social Initiatives, provided the following background on Apple's intention for the green bond issuance: "Apple is unwavering in its commitment to addressing the urgent threat of climate change. The time for action is now. By issuing an additional \$2.2 billion in green bonds, we will accelerate our work to lower carbon emissions across our supply chain and beyond, building on our successful transition to 100% renewable energy. Apple's progress is proof positive that businesses don't have to choose between what's right for the planet and a healthy bottom line."

#### Comment

---

### C3. Business Strategy

---

#### C3.1

---

##### **(C3.1) Have climate-related risks and opportunities influenced your organization's strategy and/or financial planning?**

Yes, and we have developed a low-carbon transition plan

#### C3.1a

---

##### **(C3.1a) Does your organization use climate-related scenario analysis to inform its strategy?**

No, but we anticipate using qualitative and/or quantitative analysis in the next two years

#### C3.1c

---

##### **(C3.1c) Why does your organization not use climate-related scenario analysis to inform its strategy?**

In alignment with the recommendations of the Task Force for Climate-related Financial Disclosure (TCFD), we conducted a comprehensive climate-related scenario analysis to better understand Apple's exposure to climate change and the impact of climate change on its operations and supply chain. The analysis was completed in fiscal year 20 and we are currently processing the results. The analysis considered the physical and transition risks to our global facilities (offices, retail stores, and data centers) as well as our top 200 suppliers, looking at multiple timeframes (short- and mid-term), as well as a strong mitigation scenario and a business-as-usual scenario.

Separately, we have already performed internal analyses on the physical impacts of climate change on our facilities, including data centers, and our global supply chain. We also perform ongoing assessments of transition risks of climate change, such as increased government regulation on carbon emissions. This is highly relevant to us as manufacturing our products and maintaining our data centers are energy-intensive activities. These assessments inform our environmental strategy and goals, including our use of 100 percent renewable energy for our own facilities, and our goal to transition our entire supply chain to 100 percent renewable energy (reference answers to C2.4, 3.1d, 3.1e). Examples of actions we've taken due to these analyses include our public support for the Clean Power Plan in the United States, our goal to transition all of the electricity used to make our products to 100 percent renewable energy, expansion in planning to consider the effects of 200- to 500-year flood events / floodplains (using best available data), and prioritizing water efficiency and mitigation initiatives in areas of high water risk and stress.

#### C3.1d

---

**(C3.1d) Describe where and how climate-related risks and opportunities have influenced your strategy.**

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	As a global business, we have a responsibility to our customers, employees, shareholders, and the world at large, to take strong, decisive action on climate change. That's why we recently announced our goal to be carbon neutral by 2030. This goal relates directly to our products and services, as these are included in this 10-year goal. We believe this goal is consistent with what our customers value and presents a climate-related opportunity to increase customer loyalty and brand value. We've already taken strong actions on climate change with impacts to our products and services. For example, we recently launched a 13-inch MacBook Air with Retina Display made with 100 percent recycled aluminum, which helped to reduce its carbon footprint by almost half compared to the previous model made without recycled aluminum. In a review of the new 13-inch MacBook Air with Retina Display, The Guardian described it as "one of the most sustainable laptops you can buy" and noted that "what makes the MacBook Air stand apart is its use of recycled material, including 100% recycled aluminum in the casing, 100% recycled tin in the solder of its logic board and at least 35% recycled plastic used in multiple components." In addition to changing customer perceptions, jurisdictions seeking to address climate change may implement new or more stringent regulatory schemes aimed at reducing the energy consumed by electronic devices. We have already taken action to move beyond current regulation: every Apple product not only meets, but exceeds ENERGY STAR standards--the strict guidelines set by the U.S. Environmental Protection Agency for energy efficiency. For example, our Mac mini exceeds ENERGY STAR standards by up to seven times. As a result of improvements in energy efficiency, since 2008, we've reduced the average energy consumed by Apple products by 73 percent.
Supply chain and/or value chain	Yes	Our recent climate-related scenario analysis showed the potential for increased physical climate risks like heavy precipitation and drought over the short and medium term. Our strategy to source component parts, in many cases, through multiple suppliers and facilities, mitigates our exposure to weather events of extended duration or heightened severity. Our management strategy is not limited to managing the physical risks of climate change but extends to preventing them. We have invested significantly to reduce our contribution to climate change, through generating or sourcing 100 percent renewable electricity for our own operations (as of January 2018) and our goal to transition our entire supply chain to 100 percent renewable electricity by 2030 through our Supplier Clean Energy Program. This program now has 7.8 gigawatts of clean energy commitments, of which 2.7 gigawatts was operational in 2019. In fiscal year 2019, renewable energy already online generated 5.7 million megawatt-hours of clean energy across 17 countries, resulting in about 4.4 million metric tons of carbon emissions avoided within our supply chain. To help support our suppliers' transition to renewable energy, we have integrated policy advocacy into our climate strategy. Suppliers often face regulatory barriers to cost-effective renewable energy options. Clean energy technology offers tremendous benefits to our suppliers, to electricity grids, and to countries. We believe that when policymakers fully value these benefits, clean energy becomes more cost competitive than fossil fuel energy. So we actively support policies that create cost-effective renewable energy markets, and we work closely with suppliers and other climate-leading companies to engage local, regional, and national governments. This encourages the development of country-specific policies that support scalable renewable energy solutions, with impact far beyond Apple's supply chain.
Investment in R&D	Yes	As part of our goal to become carbon neutral for our comprehensive carbon footprint by 2030, we are investing in research and development to support new technologies like the use of recycled materials in our products, which presents an opportunity to reduce emissions associated with the product lifecycle. In 2019, we issued a USD\$2.2 billion green bond issued to help meet our climate goal. The green bond included 2 tranches, one with a 6-year maturity, the other with a 12-year maturity.
Operations	Yes	Changes in climate have the potential to affect our operations at a potential low level of impact. While there have been some extreme weather events in the past (such as hurricanes Harvey and Irma) that are believed to have been exacerbated by climate change and that impacted our business, they did not have a significant impact. We anticipate our operations may be impacted by climate change on the medium and long-term, both in terms of reputational risks to our business if we do not continue to take strong action against climate change and in terms of physical risks that could cause service disruption to our data centers, offices, or retail stores, and potentially our product supply chain. To address these operational risks, we've built redundancy into our data services by having data centers in California, North Carolina, Oregon, Nevada, and Arizona, and deploying backup power supply sources at critical facilities. Not only have we mitigated our risks through expanding geographically, we've also begun planning for larger flooding events than the 100-year flood events / floodplains typically used in planning: we now are considering the effects of 200- to 500-year flood events / floodplains, using best available data.

**C3.1e**

**(C3.1e) Describe where and how climate-related risks and opportunities have influenced your financial planning.**

	Financial planning elements that have been influenced	Description of influence
Row 1	Access to capital	In February 2016, Apple issued a \$1.5 billion green bond and in June 2017 an additional \$1 billion green bond to support capital investments in environmental projects like those that reduce carbon emissions -- such as energy efficiency and renewable energy projects. The \$2.5 billion in aggregate green bond proceeds represents a substantial financial commitment to address climate change, and demonstrates how our business strategy has been influenced by climate change. In fiscal year 2018, we fully allocated the \$2.5 billion of green bond proceeds to a number of environmental projects, including renewable energy and energy efficiency projects. Most recently, in 2019, Apple issued a USD\$2.2 billion green bond issued focused on financing emissions reduction projects that would help meet our 2030 carbon neutrality goal. The green bond included 2 tranches, one with a 6-year maturity, the other with a 12-year maturity.

**C3.1f**

**(C3.1f) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).**

**C4. Targets and performance**

**C4.1**

**(C4.1) Did you have an emissions target that was active in the reporting year?**

Absolute target

**C4.1a**

**(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.**

Target reference number

Abs 1

**Year target was set**

2012

**Target coverage**

Company-wide

**Scope(s) (or Scope 3 category)**

Scope 1+2 (market-based)

**Base year**

2012

**Covered emissions in base year (metric tons CO2e)**

160400

**Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)**

100

**Target year**

2020

**Targeted reduction from base year (%)**

7

**Covered emissions in target year (metric tons CO2e) [auto-calculated]**

149172

**Covered emissions in reporting year (metric tons CO2e)**

50550

**% of target achieved [auto-calculated]**

978.357677235483

**Target status in reporting year**

Underway

**Is this a science-based target?**

Yes, we consider this a science-based target, but this target has not been approved as science-based by the Science-Based Targets initiative

**Please explain (including target coverage)**

Using the sectoral decarbonization approach (SDA) methodology, a medium term science-based reduction target would require Apple to reduce its Scope 1 and 2 emissions by 7 percent by 2020, relative to 2012 baseline emissions. We have reduced our Scope 1 and Scope 2 emissions by 68 percent since 2012, well surpassing what science-based targets call for. While we recognize we have already reached these science-based targets, we continue to drive down our emissions. As of April 2020, we are carbon neutral for scope 1, 2, and scope 3 emissions relating to Apple's operations (employee commute and business travel) beginning in fiscal year 2021. And we also set an ambitious target to be carbon neutral by 2030 and reduce emissions by 75 percent, including our entire product life cycle scope 3 emissions.

---

**Target reference number**

Abs 2

**Year target was set**

2012

**Target coverage**

Company-wide

**Scope(s) (or Scope 3 category)**

Scope 1+2 (market-based)

**Base year**

2012

**Covered emissions in base year (metric tons CO2e)**

160400

**Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)**

100

**Target year**

2036

**Targeted reduction from base year (%)**

52

**Covered emissions in target year (metric tons CO2e) [auto-calculated]**

76992

**Covered emissions in reporting year (metric tons CO2e)**

50550

**% of target achieved [auto-calculated]**

131.701995012469

**Target status in reporting year**

Underway

**Is this a science-based target?**

Yes, we consider this a science-based target, but this target has not been approved as science-based by the Science-Based Targets initiative

**Please explain (including target coverage)**

Using the sectoral decarbonization approach (SDA) methodology, a long-term science-based reduction target would require Apple to reduce its Scope 1 and 2 emissions by 52% by 2036, relative to 2012 baseline emissions. We have reduced our Scope 1 and Scope 2 emissions by 68 percent since 2012, surpassing the science-based target 17 years faster than what the approach dictates. While we recognize we have already reached these science-based targets, we continue to make yearly progress further reducing emissions within relevant boundaries. As of April 2020, we are carbon neutral for scope 1, 2, and scope 3 emissions relating to Apple's operations (employee commute and business travel) beginning in fiscal year 2021. And we also set an ambitious target to be carbon neutral by 2030 and reduce emissions by 75 percent, including our entire product life cycle scope 3 emissions.

---

**Target reference number**

Abs 3

**Year target was set**

2011

**Target coverage**

Company-wide

**Scope(s) (or Scope 3 category)**

Scope 2 (market-based)

**Base year**

2011

**Covered emissions in base year (metric tons CO2e)**

154270

**Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)**

100

**Target year**

2019

**Targeted reduction from base year (%)**

100

**Covered emissions in target year (metric tons CO2e) [auto-calculated]**

0

**Covered emissions in reporting year (metric tons CO2e)**

0

**% of target achieved [auto-calculated]**

100

**Target status in reporting year**

Achieved

**Is this a science-based target?**

No, but we are reporting another target that is science-based

**Please explain (including target coverage)**

This target of reducing 100 percent of Scope 2 emissions for all of our worldwide facilities (by powering our facilities worldwide with 100 percent renewable energy) applies to all Apple corporate facilities, data centers, and retail stores worldwide. All reductions to be achieved primarily by energy efficiency projects and new Apple-created renewable generation projects and the direct procurement of bundled renewable energy. We achieved our 100 percent Scope 2 emissions reduction target for all of our worldwide facilities in January 2018, and have maintained it through fiscal year 2019.

---

**Target reference number**

Abs 4

**Year target was set**

2020

**Target coverage**

Company-wide

**Scope(s) (or Scope 3 category)**

Scope 1+2 (market-based) +3 (upstream & downstream)

**Base year**

2015

**Covered emissions in base year (metric tons CO2e)**

38400000

**Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)**

100

**Target year**

2030

**Targeted reduction from base year (%)**

75

**Covered emissions in target year (metric tons CO2e) [auto-calculated]**

9600000

**Covered emissions in reporting year (metric tons CO2e)**

25100000

**% of target achieved [auto-calculated]**

46.1805555555556

---

**Target status in reporting year**

New

**Is this a science-based target?**

Yes, we consider this a science-based target, but this target has not been approved as science-based by the Science-Based Targets initiative

**Please explain (including target coverage)**

In 2020, we set a new goal to become carbon neutral for our entire carbon footprint by 2030. We plan to reduce emissions by 75 percent by 2030, compared to 2015 levels, through product design and engineering, energy efficiency and renewable energy, and direct emissions abatement. A science-based target aligned with 1.5 C trajectory calls for a 4.2% annual linear reduction. Since this equates to a 47% reduction over our target period, we consider our target to well-exceed the requirements for a science-based target.

---

C4.2

---

**(C4.2) Did you have any other climate-related targets that were active in the reporting year?**

Target(s) to increase low-carbon energy consumption or production

Other climate-related target(s)

C4.2a

---

**(C4.2a) Provide details of your target(s) to increase low-carbon energy consumption or production.**

**Target reference number**

Low 1

**Year target was set**

2011

**Target coverage**

Company-wide

**Target type: absolute or intensity**

Absolute

**Target type: energy carrier**

Electricity

**Target type: activity**

Consumption

**Target type: energy source**

Renewable energy source(s) only

**Metric (target numerator if reporting an intensity target)**

Percentage

**Target denominator (intensity targets only)**

<Not Applicable>

**Base year**

2011

**Figure or percentage in base year**

24

**Target year**

2019

**Figure or percentage in target year**

100

**Figure or percentage in reporting year**

100

**% of target achieved [auto-calculated]**

100

**Target status in reporting year**

Achieved

**Is this target part of an emissions target?**

Abs 3

**Is this target part of an overarching initiative?**

RE100

**Please explain (including target coverage)**

We set an ambitious goal to power 100% of our global facilities with 100% renewable energy. We reached this goal in 2018 and have since maintained it, driving our scope 2 emissions from electricity to zero.

---

C4.2b

(C4.2b) Provide details of any other climate-related targets, including methane reduction targets.

**Target reference number**

Oth 1

**Year target was set**

2015

**Target coverage**

Company-wide

**Target type: absolute or intensity**

Absolute

**Target type: category & Metric (target numerator if reporting an intensity target)**

Energy consumption or efficiency	Other, please specify (Gigawatts)
----------------------------------	-----------------------------------

**Target denominator (intensity targets only)**

<Not Applicable>

**Base year**

2015

**Figure or percentage in base year**

0

**Target year**

2020

**Figure or percentage in target year**

4

**Figure or percentage in reporting year**

2.7

**% of target achieved [auto-calculated]**

67.5

**Target status in reporting year**

Underway

**Is this target part of an emissions target?**

No

**Is this target part of an overarching initiative?**

Other, please specify (RE100)

**Please explain (including target coverage)**

Through our Supplier Clean Energy Program, we're working with suppliers to source from or install more than 4 gigawatts of new renewable energy projects worldwide, by 2020. The Supplier Clean Energy Program now has 7.8 gigawatts of clean energy commitments, of which 2.7 gigawatts was operational in 2019. Once completed, these commitments will avoid over 14.3 million metric tons of CO2e annually—the equivalent of taking more than 3 million cars off the road each year. In fiscal year 2019, renewable energy already online generated 5.7 million megawatt-hours of clean energy across 17 countries, resulting in about 4.4 million metric tons of carbon emissions avoided within our supply chain.

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	9	
To be implemented*	10	14308000
Implementation commenced*	10	1174000
Implemented*	7	2520000
Not to be implemented	0	0

**(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.**

**Initiative category & Initiative type**

Waste reduction and material circularity	Product or service design
--	---------------------------

**Estimated annual CO2e savings (metric tonnes CO2e)**

6780

**Scope(s)**

Scope 3

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

0

**Investment required (unit currency – as specified in C0.4)**

0

**Payback period**

No payback

**Estimated lifetime of the initiative**

Ongoing

**Comment**

Through innovative manufacturing techniques, we've reduced the carbon emissions associated with the steel band of iPhone 11 Pro & iPhone 11 Pro Max by 10 percent. Emissions reductions compare changes in steel fabrication to those techniques used for the previous generation.

**Initiative category & Initiative type**

Low-carbon energy consumption	Other, please specify (Solar PV, Solar CSP, Wind, Hydropower, Biomass)
-------------------------------	--

**Estimated annual CO2e savings (metric tonnes CO2e)**

900000

**Scope(s)**

Scope 3

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

0

**Investment required (unit currency – as specified in C0.4)**

0

**Payback period**

No payback

**Estimated lifetime of the initiative**

Ongoing

**Comment**

We launched the Supplier Clean Energy Program in 2015 to advance the use of clean energy in our supply chain. Through this program, Apple supports supplier transitions to clean energy: working with them to advocate for policy change in key markets, connecting them with high-quality clean energy projects and developers, and educating them on how they can take full advantage of the benefits of clean energy. To date, 71 manufacturing partners in 17 countries have committed to 100 percent renewable energy for Apple production. Apple itself has invested directly in renewable energy projects to cover a portion of upstream emissions. The Supplier Clean Energy Program now has 7.8 gigawatts of clean energy commitments. Once completed, these commitments will avoid over 14.3 million metric tons of CO2e annually—the equivalent of taking over 3 million cars off the road each year. Suppliers are responsible for the financial investments in clean energy projects and benefit from any monetary savings. Because supplier investments and potential savings are unknown, we are unable to estimate the total investments and savings associated with the clean energy program. Per CDP guidance, we only report incremental emissions savings from initiatives that became operational during the reporting year. However, all suppliers engaged in the Clean Energy Program avoided more than 4.4 million metric tons of emissions in fiscal year 2019.

**Initiative category & Initiative type**

Low-carbon energy consumption	Hydropower
-------------------------------	------------

**Estimated annual CO2e savings (metric tonnes CO2e)**

610000

**Scope(s)**

Scope 3

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

0

**Investment required (unit currency – as specified in C0.4)**

0

**Payback period**

No payback

**Estimated lifetime of the initiative**

Ongoing

**Comment**

In 2015, aluminum smelting was the single largest contributor to Apple's carbon footprint. So we prioritized aluminum that was smelted using hydroelectricity rather than fossil fuels. This reduced emissions from a number of products launched since 2015. For example, with its 100 percent recycled aluminum enclosure, the 13-inch MacBook Air with Retina display has the lowest carbon footprint of any Mac. These projects are operating expenditures, not capital expenditures, so they do not require a capital investment. They also do not generate monetary savings and therefore the payback period does not apply.

**Initiative category & Initiative type**

Energy efficiency in buildings	Other, please specify (Lighting; Heating, ventilation, and air conditioning (HVAC); )
--------------------------------	---

**Estimated annual CO2e savings (metric tonnes CO2e)**

313000

**Scope(s)**

Scope 3

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

0

**Investment required (unit currency – as specified in C0.4)**

0

**Payback period**

No payback

**Estimated lifetime of the initiative**

6-10 years

**Comment**

In 2015, Apple started engaging directly with suppliers to help them reduce their energy use. Apple's aims were to educate them about energy efficiency, identify energy efficiency project opportunities, and manage those projects to completion. We prioritize facilities with the highest energy use and potential for improvement. Then we conduct energy audits and train suppliers to uncover opportunities for energy efficiency—like replacing outdated or inefficient heating, cooling, and lighting systems; repairing compressed air leaks; and recovering waste heat. The assessments provide suppliers with a cost-benefit analysis for implementing energy efficiency improvements. The number of facilities participating in our Energy Efficiency program grew to 92 in 2019 and we prevented more than 779,000 annualized metric tons of supply chain greenhouse gas emissions during the fiscal year. However, we report here only the incremental increase in annual emissions savings compared to last year per CDP guidance. Relevant investments were made by our suppliers, not Apple, and so there is no Apple investment or cost savings to report and no payback period applies.

**Initiative category & Initiative type**

Energy efficiency in buildings	Other, please specify (HVAC optimization, efficient lighting and controls, building envelope and glazing, building controls, energy modeling, and energy audits)
--------------------------------	--

**Estimated annual CO2e savings (metric tonnes CO2e)**

7500

**Scope(s)**

Scope 1

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

4500000

**Investment required (unit currency – as specified in C0.4)**

22500000

**Payback period**

4-10 years

**Estimated lifetime of the initiative**

6-10 years

**Comment**

Apple's energy efficiency program targets natural gas and electricity use at data centers, retail stores, offices, and R&D facilities located around the world. Initiatives address primarily Scope 2 emissions, but some Scope 1 emissions to a lesser extent as well. For existing buildings, we take a methodical approach, auditing building performance, and then deploying identified energy reduction measures. For new buildings and substantial renovations, we integrate energy efficiency early in the design process when developing new offices or Apple stores, facilitating design that accommodates local conditions, such as temperature and humidity. And once a building is operational, we continue to monitor energy performance to ensure it is performing optimally throughout its lifetime. In fiscal year 2019, our energy efficiency program avoided an additional 26.4 million kilowatt-hours and 194,500 therms per year from existing buildings and retrocommissioning, as well as new building design. Together,

these initiatives avoid about 7500 metric tons of CO2e per year.

---

**Initiative category & Initiative type**

Low-carbon energy consumption	Other, please specify (Solar PV, Wind, REC purchases)
-------------------------------	---

**Estimated annual CO2e savings (metric tonnes CO2e)**

440880

**Scope(s)**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

0

**Investment required (unit currency – as specified in C0.4)**

0

**Payback period**

No payback

**Estimated lifetime of the initiative**

11-15 years

**Comment**

Facilities renewable energy projects: we've undertaken a number of renewable energy projects to meet our 100% renewable energy goal for our facilities, retail stores, and data centers. These projects include solar PV or wind projects in Arizona, Nevada, Illinois, Denmark, and Israel. Apple made bundled renewable energy and market renewable energy credit purchases in various state markets in the United States and other national markets to augment the renewable generation from our Apple-created projects to ensure we meet our renewable goals. These mostly small renewable energy projects are not structured as capital expenditures and therefore do not represent investments. Rather, they are structured as fixed-price operational expenses. Apple's participation in these projects is for the first 10 to 15 years following the project's commercial operation date. Initiatives address primarily Scope 2 emissions, but some Scope 1 emissions to a lesser extent as well. Per CDP guidance, we only report emissions savings initiatives that became operational during the reporting year. However, overall renewable energy use avoided more than 800,000 metric tons of emissions in fiscal year 2019.

---

**Initiative category & Initiative type**

Non-energy industrial process emissions reductions	Other, please specify (f-ghg abatement)
--	---

**Estimated annual CO2e savings (metric tonnes CO2e)**

242000

**Scope(s)**

Scope 3

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

0

**Investment required (unit currency – as specified in C0.4)**

0

**Payback period**

No payback

**Estimated lifetime of the initiative**

16-20 years

**Comment**

Fluorinated gases, such as sulfur hexafluoride (SF6) and nitrogen trifluoride (NF3), are key chemicals used in the manufacturing of integrated circuit (IC) chips and display panels. These gases have high global warming potentials when emitted to the atmosphere as fluorinated greenhouse gas (F-GHG). Since 2018, we have partnered with our IC and display suppliers to better understand F-GHG emissions related to the manufacturing of Apple products and to evaluate emission reduction strategies. We encourage our suppliers to reduce the F-GHG emissions by implementing reduction strategies recognized by international and industry standards.<sup>9</sup> In 2019, we worked with key display panel suppliers to establish baseline emissions and implement reduction strategies. To date, our key display suppliers have reduced F-GHG emissions by more than 242,000 annualized metric tons CO2e. Relevant investments were made by our suppliers, not Apple, and so there is no Apple investment or cost savings to report and no payback period applies.

---

C4.3c

**(C4.3c) What methods do you use to drive investment in emissions reduction activities?**

Method	Comment
Compliance with regulatory requirements/standards	We always use the state's standards for determining eligibility of renewable resources; abide by Green-e requirements.
Dedicated budget for low-carbon product R&D	Research and Development for new materials and processes with lower carbon emissions.
Internal incentives/recognition programs	In the form of Company-wide publicly-stated goals, internal targets, and annual reporting.
Lower return on investment (ROI) specification	ROI is not the only criteria for selecting emissions reduction investments.
Other	We calculate a comprehensive carbon footprint using product life cycle analyses, which enables us to prioritize investments.

**C4.5**

**(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?**

Yes

**C4.5a**

**(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.**

**Level of aggregation**

Group of products

**Description of product/Group of products**

Apple is targeting emissions reductions across all major product lines, including iPhone, iPad, Apple Watch, Mac, and HomePod.

**Are these low-carbon product(s) or do they enable avoided emissions?**

Avoided emissions

**Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions**

Other, please specify (ENERGY STAR)

**% revenue from low carbon product(s) in the reporting year**

100

**% of total portfolio value**

<Not Applicable>

**Asset classes/ product types**

<Not Applicable>

**Comment**

Apple looks at three ways to reduce a product's energy consumption: more efficient power supplies to bring electricity from the wall to the device, more efficient hardware, and smarter power management software. As a result of these energy efficiency improvements, we've decreased the average product energy use across all major product lines by 73 percent since 2008. We use U.S. Environmental Protection Agency's ENERGY STAR standards to measure our progress. Every single product not only meets but exceeds the U.S. Environmental Protection Agency's strict guidelines for efficiency, when applicable. For example, the 16-inch MacBook Pro consumes 65 percent less energy than the ENERGY STAR energy efficiency requirement. Pro Display XDR uses efficient backlight control to deliver outstanding brightness and contrast, while using 40 percent less energy than required by ENERGY STAR. And the Super Retina XDR display in iPhone 11 Pro is up to 15 percent more efficient, contributing to our largest leap ever in battery life. We seek to increase energy efficiency across all of our products. It is therefore difficult to isolate R&D spend on these efforts. In addition, due to the highly confidential nature of Apple's R&D projects, even within Apple, it is virtually impossible to estimate R&D spend relating to energy efficiency on unannounced products.

**C5. Emissions methodology**

**C5.1**

**(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).**

**Scope 1**

**Base year start**

October 26 2010

**Base year end**

October 25 2011

**Base year emissions (metric tons CO2e)**

21700

**Comment**

**Scope 2 (location-based)**

**Base year start**

**Base year end**

**Base year emissions (metric tons CO2e)**

**Comment**

**Scope 2 (market-based)**

**Base year start**

October 26 2010

**Base year end**

October 25 2011

**Base year emissions (metric tons CO2e)**

154300

**Comment**

**C5.2**

---

**(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.**

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

US EPA Center for Corporate Climate Leadership: Direct Emissions from Stationary Combustion Sources

US EPA Center for Corporate Climate Leadership: Direct Emissions from Mobile Combustion Sources

**C6. Emissions data**

---

**C6.1**

---

**(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?**

**Reporting year**

**Gross global Scope 1 emissions (metric tons CO2e)**

50549

**Start date**

<Not Applicable>

**End date**

<Not Applicable>

**Comment**

FY19

**C6.2**

---

**(C6.2) Describe your organization's approach to reporting Scope 2 emissions.**

**Row 1**

**Scope 2, location-based**

We are reporting a Scope 2, location-based figure

**Scope 2, market-based**

We are reporting a Scope 2, market-based figure

**Comment**

We believe our market-based Scope 2 emissions figure most accurately represents our emissions profile since generating and sourcing renewable energy is a key aspect of our environmental strategy.

**C6.3**

---

**(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?**

**Reporting year**

**Scope 2, location-based**

862127

**Scope 2, market-based (if applicable)**

0

**Start date**

<Not Applicable>

**End date**

<Not Applicable>

**Comment**

FY19

**C6.4**

---

**(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?**

Yes

**C6.4a**

---

**(C6.4a) Provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure.**

**Source**

Fire suppressant

**Relevance of Scope 1 emissions from this source**

Emissions are not relevant

**Relevance of location-based Scope 2 emissions from this source**

No emissions excluded

**Relevance of market-based Scope 2 emissions from this source (if applicable)**

No emissions excluded

**Explain why this source is excluded**

We have not included fire suppressant systems or refrigerant leakage in our Scope 1 emissions as it accounts for far less than 1 percent of our total CO2e emissions. Nevertheless, reducing emissions from these systems is of importance to us and we are deploying technologies and operational practices to reduce refrigerant leakage through improved maintenance and equipment replacement, combined with a program using refrigerants with low global warming potential.

---

**Source**

Fertilizer use

**Relevance of Scope 1 emissions from this source**

Emissions are not relevant

**Relevance of location-based Scope 2 emissions from this source**

No emissions excluded

**Relevance of market-based Scope 2 emissions from this source (if applicable)**

No emissions excluded

**Explain why this source is excluded**

We have not included fertilizer use from landscape applications in our Scope 1 emissions as it accounts for far less than 1 percent of our total CO2e emissions. Our landscape practices focus on composting our green waste trimmings collected onsite and reusing them as mulch, supplemented only as needed with additional organic fertilizers and a limited amount of slow-release fertilizer products. Apple also employs a robust integrated pest management system, which reduces the need for fertilizer application.

---

**C6.5**

**(C6.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.**

**Purchased goods and services**

**Evaluation status**

Relevant, calculated

**Metric tonnes CO2e**

18900000

**Emissions calculation methodology**

We evaluate and publish the life cycle carbon footprint of all hardware products, including impacts farther up the value chain than our first-tier suppliers. The scope includes the extraction, production, and transportation of raw materials, as well as the manufacture, transport, and assembly of all parts and product packaging. We calculate this footprint using life cycle assessment ("LCA") software whose inputs have been modified to reflect components used to manufacture our products, and reflect their location of manufacture, as well as the weights of each component and number purchased and sold. Calculated in accordance to ISO 14040 and ISO 14044. For more detail, refer to our "Five-Step LCA Process" in the Comments section.

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

50

**Please explain**

We compile primary data for components or materials we know to be carbon-intensive, regardless of their position in our value chain. Each year, we make adjustments in our model to better account for Apple's specific value chain. Approximately 50 percent of our manufacturing emissions are calculated using primary data. We focus our attention on aspects of the product life cycle where our choices can have a material impact on emissions reduction, and use our LCAs to prioritize our work. We purchase third-party computing services, which we approximate to be less than 1 percent of total emissions from purchased goods and services.

## Capital goods

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

### Please explain

We have chosen not to report this metric, because data availability is limited. To calculate emissions from capital goods, data on Apple's capital expenditures are used along with Economic Input-Output (EIO) LCA models. This method relies upon emissions factors for each broad category of capital expenditures. While it provides an overall magnitude of CO2e emissions associated with capital goods, it is not specific, and therefore not up to the standard of data applicability used elsewhere in Apple carbon emissions calculations. In addition, the lack of granular, up-to-date data across countries further creates concerns about accuracy. The most reputable, publicly available emissions factors for EIO LCA models are from the U.S. in 2007. More recent data, and data specific to the geographies in which many of these capital expenditures occur, are not available. We take climate change seriously and have undertaken real action to reduce our footprint. Our transition to renewable energy has reduced our scope 1 and scope 2 emissions by 71 percent since 2011, preventing over 3.6 million metric tons of carbon from entering the atmosphere over that period—even as our energy use increased by more than 4 times in this same period. We are also tackling Scope 3 emissions by committing to 100 percent renewable energy in our supply chain. This is to say that we focus on where our impacts are largest and where we can affect the most change.

## Fuel-and-energy-related activities (not included in Scope 1 or 2)

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

### Please explain

Line losses do not result in material Scope 3 emissions. We calculated this figure in a previous CDP submission (covering fiscal year 2013), and found that it represented less than 0.1 percent of our Scope 3 carbon footprint. This amount has not increased substantively and therefore is still not relevant.

## Upstream transportation and distribution

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

486000

### Emissions calculation methodology

To calculate product transportation and distribution (both upstream and downstream), we used data provided by Worldwide Logistics at Apple based on fiscal year 2019 shipment data. The detailed dataset provides resolution to final destinations at the country level. Two shipment scenarios are created based on the operation of Worldwide Logistics: 1) Hub shipping refers to shipments that are from final assembly site to an Apple operated or affiliated logistics hub, and then delivered to retail stores. 2) Direct shipping refers to shipment sent from final assembly site directly to a customer. Before point of sale shipment includes shipments that are shipped from final assembly site to an Apple operated or affiliated logistics hub, and then delivered to retail stores. Representative hub locations are modeled using the location of major logistics hubs in use. Final truck shipment from distribution centers to final destination is estimated as 200 kilometers. [Calculated in accordance to ISO 14040 and ISO 14044.]

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

80

### Please explain

We use actual data provided from worldwide logistics, though some assumptions are still made regarding average trip distances. From the data we collect for product logistics, we are not able to entirely align with the "post-sale" and "pre-sale" delimitations of this upstream/downstream transportation emissions calculation. As a result, this upstream figure incorporates a small portion of downstream transportation emissions associated with products that have been sold and shipped directly from a final assembly site or to third party retail stores (which technically occurs post sale to these third-party stores). However, the net total for downstream and upstream transportation and distribution emissions account for all emissions in the product transportation category.

## Waste generated in operations

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

### Please explain

Waste generated does not result in material Scope 3 emissions. We calculated this figure in our CDP submission covering fiscal year 2013, and it represented less than 0.1 percent of our corporate carbon footprint. This amount has not increased substantively and therefore is still not relevant. That said, reducing waste and use of materials is a central element of our environmental strategy. We've created robust recycling and composting programs to minimize the environmental impact of the waste we produce in our corporate facilities: (i) This work begins by first understanding what we throw away. In some cases, we've installed remote waste monitoring systems to accurately measure waste generation and contamination.(ii) We prevent waste by closely managing what comes to our sites. For example, we've amended construction contracts to include waste reporting and diversion requirements. (iii)We've also worked on enhancing how we recycle and reuse materials. For example, at our Nevada data center, a new scrap metal and cardboard collection program diverted an additional 10 percent of materials from landfills. In fiscal year 2019, Apple facilities generated 58,000 metric tons of waste and diverted about 66 percent from landfill through recycling and composting. We also support our suppliers in the journey to zero waste. By 2019, all final assembly facilities for iPhone, iPad, Mac, Apple Watch, AirPods, HomePod and Apple TV have been UL Zero Waste to Landfill certified. Altogether, suppliers involved in our Zero Waste program diverted 322,000 metric tonnes of waste in 2019.

## Business travel

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

325500

### Emissions calculation methodology

Flight numbers and distances, and car rental numbers are collected from our global travel service provider. Emissions are estimated from these, using the guidance and emission factors provided by: (i) U.S. Environmental Protection Agency's The Climate Leaders Greenhouse Gas Inventory Protocol - Direct Emissions from Mobile Combustion Sources; (ii) U.S. Environmental Protection Agency's The Climate Leaders Greenhouse Gas Inventory Protocol - Direct Emissions from Stationary Combustion Sources; (iii) U.S. Environmental Protection Agency's The Climate Leaders Greenhouse Gas Inventory Protocol - Optional Emissions from Commuting, Business Travel and Product Transport; (iv) 2011 Guidelines to Defra / DECC's GHG Conversion Factors for Company Reporting: Methodology Paper for Emissions Factors; and (v) The Climate Registry's 2013 Default Emissions Factors. We are constantly revisiting our methodology to hold ourselves to high accountability standards. So in fiscal year 2018, we changed how we calculate emissions from business travel in order to better account for classes of service in air travel.

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

90

### Please explain

Emissions from employee travel are calculated using trip distance data obtained from our travel partner that manages all travel for Apple employees. We consider the data we obtain from our travel partner to be real data that provides roughly 90 percent of the calculation. However, we do not use carrier-specific fuel consumption data (which we would also interpret as primary data).

## Employee commuting

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

194700

### Emissions calculation methodology

Our commute emissions are estimated based on particular commute methods and our commute programs, and account for emissions across our employee base. Emission factors for vehicles and other guidance is taken from: (i) U.S. Environmental Protection Agency's The Climate Leaders Greenhouse Gas Inventory Protocol - Direct Emissions from Mobile Combustion Sources; (ii) U.S. Environmental Protection Agency's The Climate Leaders Greenhouse Gas Inventory Protocol - Direct Emissions from Stationary Combustion Sources; (iii) U.S. Environmental Protection Agency's The Climate Leaders Greenhouse Gas Inventory Protocol - Optional Emissions from Commuting, Business Travel and Product Transport; (iv) 2011 Guidelines to Defra / DECC's GHG Conversion Factors for Company Reporting: Methodology Paper for Emissions Factors; and (v) The Climate Registry's 2013 Default Emissions Factors.

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

### Please explain

We do not ask employees to report commute mileage directly, nor do we track fuel receipts. We do use employee demographic data (e.g., zip codes) and survey results of commute habits to estimate the average commute distance and to distribute the commuters among single-occupancy cars, car pools, bicycles, transit, Apple Transit, work-from-home, and other commute modes.

## Upstream leased assets

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

### Please explain

Any upstream leased asset is included in our Scope 1 and Scope 2 emissions. So 100% of the emissions from our leased assets are captured in Scope 1 and 2, leaving 0 emissions relevant to our Scope 3 calculations.

## Downstream transportation and distribution

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

999000

### Emissions calculation methodology

To calculate product transportation and distribution (both upstream and downstream), we used data provided by the Worldwide Logistics team at Apple based on fiscal year 2019 shipment data. The detailed dataset provides resolution to final destinations at the country level. Two shipment scenarios are created based on the operation of Worldwide Logistics: 1) Hub shipping refers to shipments that are from final assembly site to an Apple operated or affiliated logistics hub, and then delivered to retail stores. 2) Direct shipping refers to shipment sent from final assembly site directly to a customer. "Downstream transportation and distribution" includes shipments from the final assembly site directly via air to a customer. Final truck shipment from the airport to customer is estimated as 100 kilometers. [Calculated in accordance to ISO 14040 and ISO 14044.]

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

50

### Please explain

We use actual data provided from our Worldwide Logistics team, though some assumptions are still made regarding average trip distances. Due to differences in how we collect data for product logistics, we are not able to perfectly align with the "post-sale" and "pre-sale" delimitations of this upstream/downstream transportation emissions calculation. As a result, this downstream figure incorporates a small portion of upstream transportation emissions associated with products that travel from our final assembly sites to our own retail stores (therefore are not yet technically post-sale). However, the net total for downstream and upstream transportation and distribution emissions account for all emissions in the product transportation category. Transportation emissions associated with customer travel from their homes to Apple retail stores are not material to this calculation for two reasons: 1) This number is very small compared to the total downstream transportation and distribution emissions. 2) Many of our stores are located in dense urban environments and often accessible by public transportation.

## Processing of sold products

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

### Please explain

Not applicable as Apple does not produce intermediate goods, so we do not have activities that fall into this category.

## Use of sold products

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

4100000

### Emissions calculation methodology

Use phase emissions are calculated based on the energy consumed by a product over a three- or four-year use period (depending on the product type). Energy consumption patterns are modeled according to European Commission and the U.S. Environmental Protection Agency's computer eco-design studies that reflect aggressive assumptions on daily product usage. For example, for a computer, the calculation reflects the power consumed in off, sleep, idle and active-modes and the time in each mode of operation, over a four-year use period. The total power is then multiplied by the carbon coefficient appropriate for the geographic region and the number of products sold in that region in a given fiscal year. Carbon coefficients for each geographic region are based on published data and are reviewed by the Fraunhofer Institute on an annual basis to ensure consistency with best business practices. [Calculated in accordance to ISO 14040 and ISO 14044. For more detail, refer to our "Five-Step LCA Process" in the Further Information section below.]

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

80

### Please explain

We use detailed primary data regarding the quantity of energy our products consume when in certain operational modes. Daily usage patterns are specific to each product and are based on historical customer use data.

## End of life treatment of sold products

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

60000

### Emissions calculation methodology

Includes transportation from collection hubs to recycling centers as well as the energy used in mechanical separation and shredding of parts. [Calculated in accordance to ISO 14040 and ISO 14044. For more detail, refer to our "Five-Step LCA Process" in the Further Information section below.] We use industry-average data regarding recycling processes to evaluate the impact of end-of-life treatment of sold products. When Apple-specific processes are used, for example, Apple's automated disassembly robot Daisy, primary measured data from that equipment is used.

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

50

### Please explain

We use industry-average data regarding recycling processes to evaluate the impact of end-of-life treatment of sold products. When Apple-specific processes are used, for example, Apple's automated disassembly robot Daisy, primary measured data from that equipment is used.

## Downstream leased assets

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

### Please explain

Downstream leased assets (such as Apple-operated product recycling facilities) are included in our Scope 1 and Scope 2 emissions; so there are no emissions in this category that fall under our Scope 3 emissions.

## Franchises

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

### Please explain

Not applicable as we don't own or sell franchises; so we have 0 emissions from this Scope 3 category.

## Investments

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

### Please explain

As per our form 10-K filing with the U.S. Securities and Exchange Commission, "the Company's investment policy and strategy are focused on the preservation of capital and supporting the Company's liquidity requirements." As a result, investments and their interest income are not a significant revenue stream for Apple and are not considered core to our business. Therefore, emissions from this category do not reach our threshold for relevance to our business.

## Other (upstream)

### Evaluation status

### Metric tonnes CO2e

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

### Please explain

**Other (downstream)**

**Evaluation status**

**Metric tonnes CO2e**

<Not Applicable>

**Emissions calculation methodology**

<Not Applicable>

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

**Please explain**

C6.7

---

**(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?**

No

C6.10

---

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

**Intensity figure**

1.9e-7

**Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)**

50549

**Metric denominator**

unit total revenue

**Metric denominator: Unit total**

26017400000

**Scope 2 figure used**

Market-based

**% change from previous year**

18

**Direction of change**

Decreased

**Reason for change**

We estimate that gross global combined effective Scope 1 and Scope 2 emissions intensity per unit total revenue decreased by 18 percent from fiscal years 2018 to 2019, though it's key to note that both years' intensity metrics were extremely small. Apple's global Scope 1 and 2 emissions decreased from 63,320 in fiscal year 2018 to 50,549 in fiscal year 2019 due to scope 1 and scope 2 emissions reduction activities including low-carbon energy purchase, installation, and consumption, and building energy efficiency initiatives outlined in 4.3b. Note that revenue is so much greater than our Scope 1 and 2 emissions as to render both years' intensity factors essentially zero.

---

**Intensity figure**

0.36

**Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)**

50549

**Metric denominator**

full time equivalent (FTE) employee

**Metric denominator: Unit total**

137000

**Scope 2 figure used**

Market-based

**% change from previous year**

23

**Direction of change**

Decreased

**Reason for change**

We estimate that gross global combined Scope 1 and Scope 2 emissions intensity per full time equivalent (FTE) employee decreased by 23% percent primarily due to an increase in Apple's FTE headcount and a decrease in Scope 1 and 2 emissions. Emissions reductions were due to scope 1 and scope 2 emissions reduction activities including low-carbon energy purchase, installation, and consumption, and building energy efficiency initiatives outlined in 4.3b. For fiscal year 2018, we had an FTE count of 132,000 and a combined Scope 1 and Scope 2 emissions of 63,320 metric tons CO2e for an intensity figure of 0.48 metric tons CO2e per FTE. For fiscal year 2019, we had an average annual FTE count of 137,000 and a combined Scope 1 and Scope 2 emissions of 50,549 metric tons CO2e for an intensity figure of 0.36 metric tons CO2e per FTE.

---

**Intensity figure**

0.02

**Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)**

50549

**Metric denominator**

megawatt hour transmitted (MWh)

**Metric denominator: Unit total**

2247000

**Scope 2 figure used**

Market-based

**% change from previous year**

28

**Direction of change**

Decreased

**Reason for change**

We estimate that gross global combined Scope 1 and Scope 2 emissions intensity per megawatt hour (MWh) decreased by 28 percent between fiscal years 2018 and 2019 due to an increase in Apple's electricity consumption and a decrease in Scope 1 and 2 emissions due to emissions reduction activities including low-carbon energy purchase, installation, and consumption, and building energy efficiency initiatives outlined in 4.3b. For fiscal year 2019, we used approximately 2,427,000 MWh of electricity and had combined Scope 1 and Scope 2 emissions of 50,549 metric tons CO2e for an intensity figure of 0.02 metric tons CO2e per MWh. For fiscal year 2018, we used approximately 2,182,000 MWh of electricity and had combined Scope 1 and Scope 2 emissions of 63,320 metric tons CO2e.

## C7. Emissions breakdowns

### C7.1

**(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?**

Yes

### C7.1a

**(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).**

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	50332	IPCC Fifth Assessment Report (AR5 – 100 year)
CH4	51	IPCC Fifth Assessment Report (AR5 – 100 year)
N2O	80	IPCC Fifth Assessment Report (AR5 – 100 year)

### C7.2

**(C7.2) Break down your total gross global Scope 1 emissions by country/region.**

Country/Region	Scope 1 emissions (metric tons CO2e)
United States of America	40969
Other, please specify (All countries not including the US)	9580

### C7.3

**(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.**

By business division

### C7.3a

**(C7.3a) Break down your total gross global Scope 1 emissions by business division.**

Business division	Scope 1 emissions (metric ton CO2e)
Corporate	45799
Data Centers	80
Retail Stores	4670

### C7.5

**(C7.5) Break down your total gross global Scope 2 emissions by country/region.**

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted for in Scope 2 market-based approach (MWh)
United States of America		0	552553	552553
Other, please specify (Americas except for the US)		0	0	
Other, please specify (Europe, Middle East, India, Africa)		0	219539	219539
Other, please specify (Asia Pacific)		0	119400	119400

### C7.6

**(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.**

By business division

C7.6a

(C7.6a) Break down your total gross global Scope 2 emissions by business division.

Business division	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Corporate Facilities		0
Data centers		0
Retail Stores		0
Distribution Centers		0
Co-located data centers		0

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Decreased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	208823	Decreased	330	Last year, additional consumption of renewable energy reduced emissions by 208,832 tCO2e, and our total S1 and S2 emissions in the previous year was 63,320 tCO2e, therefore we arrived at -330%: $(208,832/63,320)*100 = -330\%$
Other emissions reduction activities	7500	Decreased	12	Last year, new emissions reductions activities--energy efficiency gains--reduced 7,500 tCO2e, and our total S1 and S2 emissions in the previous year was 63,320 tCO2e, therefore we arrived at -12%: $(-7,500/63,320)*100 = -12\%$
Divestment		<Not Applicable >		
Acquisitions		<Not Applicable >		
Mergers		<Not Applicable >		
Change in output	203539	Increased	321	Last year, our increase in energy consumption due to a change in output had an additional 203,539 tonnes of associated emissions, and our total S1 and S2 emissions in the previous year was 63,320 tCO2e, therefore we arrived at 321%: $(203,539/63,320)*100 = 321\%$
Change in methodology		<Not Applicable >		
Change in boundary		<Not Applicable >		
Change in physical operating conditions		<Not Applicable >		
Unidentified		<Not Applicable >		
Other		<Not Applicable >		

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Market-based

C8. Energy

C8.1

**(C8.1) What percentage of your total operational spend in the reporting year was on energy?**

More than 0% but less than or equal to 5%

**C8.2**

**(C8.2) Select which energy-related activities your organization has undertaken.**

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

**C8.2a**

**(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.**

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	217141	233454	450595
Consumption of purchased or acquired electricity	<Not Applicable>	891493	0	891493
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	1453717	<Not Applicable>	1453717
Total energy consumption	<Not Applicable>	2562351	233454	2795805

**C8.2b**

**(C8.2b) Select the applications of your organization's consumption of fuel.**

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	Yes
Consumption of fuel for the generation of steam	No
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	No

**C8.2c**

**(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.**

**Fuels (excluding feedstocks)**

Natural Gas

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

190258

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

190258

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self-cogeneration or self-trigeneration**

<Not Applicable>

**Emission factor**

0.1791

**Unit**

metric tons CO2e per MWh

**Emissions factor source**

[https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors\\_mar\\_2018\\_0.pdf](https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf)

**Comment**

---

**Fuels (excluding feedstocks)**

Biogas

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

217141

**MWh fuel consumed for self-generation of electricity**

217141

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self-cogeneration or self-trigeneration**

<Not Applicable>

**Emission factor**

0.0003

**Unit**

metric tons CO2e per MWh

**Emissions factor source**

[https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors\\_mar\\_2018\\_0.pdf](https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf)

**Comment**

---

**Fuels (excluding feedstocks)**

Propane Liquid

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

282

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

282

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self-cogeneration or self-trigeneration**

<Not Applicable>

**Emission factor**

0.2297

**Unit**

metric tons CO2 per MWh

**Emissions factor source**

[https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors\\_mar\\_2018\\_0.pdf](https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf)

**Comment**

---

**Fuels (excluding feedstocks)**

Other, please specify (Gasoline)

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

23945

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

&lt;Not Applicable&gt;

**MWh fuel consumed for self-generation of cooling**

&lt;Not Applicable&gt;

**MWh fuel consumed for self-cogeneration or self-trigeneration**

&lt;Not Applicable&gt;

**Emission factor**

0.2621

**Unit**

metric tons CO2e per MWh

**Emissions factor source**[https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors\\_mar\\_2018\\_0.pdf](https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf)**Comment**

---

**Fuels (excluding feedstocks)**

Diesel

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

16452

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

&lt;Not Applicable&gt;

**MWh fuel consumed for self-generation of cooling**

&lt;Not Applicable&gt;

**MWh fuel consumed for self-cogeneration or self-trigeneration**

&lt;Not Applicable&gt;

**Emission factor**

0.2703

**Unit**

metric tons CO2 per MWh

**Emissions factor source**[https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors\\_mar\\_2018\\_0.pdf](https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf)**Comment**

---

**Fuels (excluding feedstocks)**

Other, please specify (Diesel (mobile combustion))

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

2517

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

&lt;Not Applicable&gt;

**MWh fuel consumed for self-generation of cooling**

&lt;Not Applicable&gt;

**MWh fuel consumed for self-cogeneration or self-trigeneration**

&lt;Not Applicable&gt;

**Emission factor**

0.2695

**Unit**

metric tons CO2e per MWh

**Emissions factor source**[https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors\\_mar\\_2018\\_0.pdf](https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf)

---

Comment

---

C8.2d

---

(C8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	1453717	1453717	1453717	1453717
Heat	0	0	0	0
Steam	0	0	0	0
Cooling	0	0	0	0

C8.2e

---

(C8.2e) Provide details on the electricity, heat, steam, and/or cooling amounts that were accounted for at a zero emission factor in the market-based Scope 2 figure reported in C6.3.

**Sourcing method**

Power purchase agreement (PPA) with a grid-connected generator with energy attribute certificates

**Low-carbon technology type**

Other, please specify (Low-carbon technology type includes both solar PV and wind sources.)

**Country/region of consumption of low-carbon electricity, heat, steam or cooling**

North America

**MWh consumed accounted for at a zero emission factor**

505091

**Comment**

Includes our Oregon Direct Access purchases of Oregon wind to support our Prineville, Oregon data center; our California Direct Access purchases of mostly California wind and solar PV to support our facilities in northern California, including our Apple Park headquarters. Low-carbon technology type includes both solar PV and wind sources.

---

**Sourcing method**

Green electricity products (e.g. green tariffs) from an energy supplier, not supported by energy attribute certificates

**Low-carbon technology type**

Other, please specify (Low-carbon technology type includes both solar PV, wind sources, hydropower, and biomass.)

**Country/region of consumption of low-carbon electricity, heat, steam or cooling**

Other, please specify (Australia, Europe, the U.S.)

**MWh consumed accounted for at a zero emission factor**

222478

**Comment**

Includes numerous robust utility green energy programs in Australia, Europe and the United States that create additionality and source certificates from local or nearby renewable projects. A portion of generation in this row has a small, non-zero emissions factor, but on average it is de minimis. Low-carbon technology type includes both solar PV, wind sources, hydropower, and biomass.

---

**Sourcing method**

Other, please specify (Renewables provided by the operators of our co-location data centers.)

**Low-carbon technology type**

Other, please specify (Low-carbon technology type includes both solar PV and wind sources.)

**Country/region of consumption of low-carbon electricity, heat, steam or cooling**

Other, please specify (global)

**MWh consumed accounted for at a zero emission factor**

52513

**Comment**

Renewables provided by the operators of our co-location data centers. Low-carbon technology type includes both solar PV and wind sources.

---

**Sourcing method**

Unbundled energy attribute certificates, Renewable Energy Certificates (RECs)

**Low-carbon technology type**

Solar

**Country/region of consumption of low-carbon electricity, heat, steam or cooling**

Other, please specify (global)

**MWh consumed accounted for at a zero emission factor**

23210

---

**Comment**

Used to cover (i) the initial start-up period while we develop and bring online new Apple-created grid-connected generation, (ii) annual true-up, as needed, and (iii) for facilities where the electric meter is not in Apple's name. When Apple acquires RECs, we require that they are Green-e Energy certified and come from the same region—and preferably the same state—as the Apple facility they support, and we register and retire these RECs in certified tracking systems. Low-carbon technology type includes both solar PV and wind sources.

**Sourcing method**

Unbundled energy attribute certificates, Guarantees of Origin

**Low-carbon technology type**

Other, please specify (Wind and solar)

**Country/region of consumption of low-carbon electricity, heat, steam or cooling**

Europe

**MWh consumed accounted for at a zero emission factor**

15300

**Comment**

Used for European facilities where the electric meter is not in Apple's name.

**Sourcing method**

Unbundled energy attribute certificates, International REC Standard (I-RECs)

**Low-carbon technology type**

Other, please specify (Solar, wind, hydropower)

**Country/region of consumption of low-carbon electricity, heat, steam or cooling**

Other, please specify (Taiwan, Hong Kong, China, Israel, South Africa)

**MWh consumed accounted for at a zero emission factor**

69200

**Comment**

Used in Taiwan, Hong Kong, China, Israel, South Africa and other markets to cover the initial start-up period while we develop and bring online new regional Apple-created grid-connected generation. Long-term renewable contracts with new wind and solar PV projects have been executed in a number of these countries. Low-carbon technology type includes both solar PV, wind sources, and micro-hydro.

**Sourcing method**

Unbundled energy attribute certificates, other - please specify (Australia LGCs used for facilities in Australia where the electric meter is not in Apple's name)

**Low-carbon technology type**

Other, please specify (Solar PV and wind)

**Country/region of consumption of low-carbon electricity, heat, steam or cooling**

Australia

**MWh consumed accounted for at a zero emission factor**

700

**Comment**

Australia LGCs used for facilities in Australia where the electric meter is not in Apple's name. Low-carbon technology type includes both solar PV and wind sources.

**Sourcing method**

Unbundled energy attribute certificates, other - please specify (China GC used for additional facilities in China.)

**Low-carbon technology type**

Other, please specify (Solar and wind)

**Country/region of consumption of low-carbon electricity, heat, steam or cooling**

China

**MWh consumed accounted for at a zero emission factor**

3000

**Comment**

China green certificates used for additional facilities in China. Low-carbon technology type includes both solar PV and wind sources.

## C9. Additional metrics

### C9.1

**(C9.1) Provide any additional climate-related metrics relevant to your business.**

## C10. Verification

## C10.1

---

**(C10.1) Indicate the verification/assurance status that applies to your reported emissions.**

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

## C10.1a

---

**(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.**

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Reasonable assurance

**Attach the statement**

1

Apple\_Corporate\_FY2019\_Assurance\_Statement.pdf

**Page/ section reference**

Document page 2 shows the data assured. Document page 3 shows the degree of assurance.

**Relevant standard**

ISAE3000

**Proportion of reported emissions verified (%)**

100

---

## C10.1b

---

(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.

**Scope 2 approach**

Scope 2 location-based

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Reasonable assurance

**Attach the statement**

1

Apple\_Corporate\_FY2019\_Assurance\_Statement.pdf

**Page/ section reference**

Document page 2 shows the data assured. Document page 3 shows the degree of assurance.

**Relevant standard**

ISAE3000

**Proportion of reported emissions verified (%)**

100

---

**Scope 2 approach**

Scope 2 market-based

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Reasonable assurance

**Attach the statement**

a

Apple\_Corporate\_FY2019\_Assurance\_Statement.pdf

**Page/ section reference**

Document page 2 shows the data assured. Document page 3 shows the degree of assurance.

**Relevant standard**

ISAE3000

**Proportion of reported emissions verified (%)**

100

---

## C10.1c

---

(C10.1c) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.

**Scope 3 category**

Scope 3: Business travel

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Reasonable assurance

**Attach the statement**

1

Apple\_Corporate\_FY2019\_Assurance\_Statement.pdf

**Page/section reference**

Document page 2 shows the data assured. Document page 3 shows the degree of assurance.

**Relevant standard**

ISAE3000

**Proportion of reported emissions verified (%)**

100

---

**Scope 3 category**

Scope 3: Employee commuting

**Verification or assurance cycle in place**

Annual process

---

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Reasonable assurance

**Attach the statement**

Apple\_Corporate\_FY2019\_Assurance\_Statement.pdf

**Page/section reference**

Document page 2 shows the data assured. Document page 3 shows the degree of assurance.

**Relevant standard**

ISAE3000

**Proportion of reported emissions verified (%)**

100

---

**Scope 3 category**

Scope 3: Purchased goods and services

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Not applicable

**Attach the statement**

Apple\_CCF\_Review\_Statement\_FY2019.pdf

**Page/section reference**

document page 2 shows the data assured and 4 shows conclusions

**Relevant standard**

ISO14064-3

**Proportion of reported emissions verified (%)**

100

---

**Scope 3 category**

Scope 3: Upstream transportation and distribution

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Not applicable

**Attach the statement**

Apple\_CCF\_Review\_Statement\_FY2019.pdf

**Page/section reference**

document page 2 shows the data assured and 4 shows conclusions

**Relevant standard**

ISO14064-3

**Proportion of reported emissions verified (%)**

100

---

**Scope 3 category**

Scope 3: Downstream transportation and distribution

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Not applicable

**Attach the statement**

Apple\_CCF\_Review\_Statement\_FY2019.pdf

**Page/section reference**

document page 2 shows the data assured and 4 shows conclusions

**Relevant standard**

ISO14064-3

**Proportion of reported emissions verified (%)**

100

---

**Scope 3 category**

Scope 3: Use of sold products

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Not applicable

**Attach the statement**

Apple\_CCF\_Review\_Statement\_FY2019.pdf

**Page/section reference**

document page 2 shows the data assured and 4 shows conclusions

**Relevant standard**

ISO14064-3

**Proportion of reported emissions verified (%)**

100

**Scope 3 category**

Scope 3: End-of-life treatment of sold products

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Not applicable

**Attach the statement**

Apple\_CCF\_Review\_Statement\_FY2019.pdf

**Page/section reference**

document page 2 shows the data assured and 4 shows conclusions

**Relevant standard**

ISO14064-3

**Proportion of reported emissions verified (%)**

100

**C10.2****(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?**

Yes

**C10.2a****(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?**

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C8. Energy	Renewable energy products	ISAE3000	The verification document attached also includes verification of renewable energy consumption (pages 2) both self-generated and purchased including certificates from our Apple-created projects, renewable energy supplied to our facilities via utility green energy programs, renewable energy procured on Apple's behalf from the wholesale market via Direct Access programs, and market purchases of renewable energy certificates. This number is referenced in 8.2e and 7.5 (MWh of low-carbon electricity consumed). Apple_Corporate_FY2019_Assurance_Statement.pdf
C8. Energy	Energy consumption	ISAE3000	The verification document also includes verification of total Natural Gas consumption referenced in 8.2c (found on page 2 of attached document). Apple_Corporate_FY2019_Assurance_Statement.pdf
C8. Energy	Energy consumption	ISAE3000	The verification document also includes verification of total electricity consumption (page 2), referenced in This number is referenced in 8.2e and 7.5 (MWh of electricity consumed) Apple_Corporate_FY2019_Assurance_Statement.pdf
C4. Targets and performance	Other, please specify (Progress against renewable target)	ISAE3000	The attached assurance document shows verification of our progress towards our 4-gigawatt goal referenced in c4.2, 4.3b. Apple FY2019 CEP Assurance Statement.pdf

**C11. Carbon pricing**

C11.1

---

**(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?**

No, and we do not anticipate being regulated in the next three years

C11.2

---

**(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?**

No

C11.3

---

**(C11.3) Does your organization use an internal price on carbon?**

No, and we do not currently anticipate doing so in the next two years

C12. Engagement

---

C12.1

---

**(C12.1) Do you engage with your value chain on climate-related issues?**

Yes, our suppliers

Yes, our customers

C12.1a

---

**(C12.1a) Provide details of your climate-related supplier engagement strategy.**

**Type of engagement**

Innovation & collaboration (changing markets)

**Details of engagement**

Run a campaign to encourage innovation to reduce climate impacts on products and services

**% of suppliers by number**

100

**% total procurement spend (direct and indirect)**

**% of supplier-related Scope 3 emissions as reported in C6.5**

32

**Rationale for the coverage of your engagement**

Based on our comprehensive carbon footprint, we know that the manufacturing of our products—from mining to final assembly—represents the most significant source of our carbon emissions—about 76 percent in fiscal year 2019. That is why we've engaged deeply with our suppliers to reduce our footprint from manufacturing, with a focus on energy use and material selection. Through these programs, we've engaged 100% of all of Apple-managed direct suppliers. This pool of suppliers extends beyond our top 200 suppliers by spend, to all direct suppliers involved in the manufacturing of Apple products. The Apple Supplier Code of Conduct requires all Apple suppliers to "regularly quantify, set targets, monitor progress, and reduce its emissions of greenhouse gasses through conservation, use of clean energy, or other measures." Apple suppliers sign and are required to uphold the provisions set forth in the Apple Supplier Code of Conduct and associated Supplier Responsibility Standards. In 2016, our Supplier Energy Efficiency Program launched a supplier energy training program to increase the suppliers' awareness of energy conservation and to stimulate energy efficiency improvement activities. As part of this engagement, Apple conducts energy audits to identify energy saving opportunities and offers technical assistance. In 2019, we developed a supplier GHG emission inventory reporting tool and distributed it to 100% of Apple-managed supplier facilities. The GHG tool helps suppliers calculate their Scope 1 and Scope 2 GHG emissions. For the energy that is needed, we launched our Supplier Clean Energy Program in 2015 to help suppliers transition to renewable energy through a combination of direct engagement and online resources. The program's Clean Energy portal of resources is available to all our suppliers, while suppliers who commit to addressing 100 percent of their global manufacturing footprint for Apple become official Supplier Clean Energy Program participants. We also work with suppliers to innovate around the materials used in our products. We've worked with suppliers to switch to aluminum smelted using hydroelectricity rather than fossil fuels, and are engaging with suppliers to transition to recycled materials, reducing the carbon emissions associated with manufacturing.

**Impact of engagement, including measures of success**

To measure the success of the Supplier Clean Energy Program, participants are asked to update their annual renewable energy information and progress to date, and this information is then verified through third party assurances; this allows us to track suppliers' progress towards powering 100 percent of their Apple production with renewable energy. To-date 71 suppliers have committed to procuring 100 percent clean energy for their Apple-related load, and even more have engaged with the Supplier Clean Energy Program. The Supplier Clean Energy Program has 7.8 gigawatts of clean energy commitments. Once completed, these commitments will avoid over 14.3 million metric tons of CO2e annually. Regarding energy efficiency, we measure success based on level of engagement in our program and reduction in energy use. The number of facilities participating in our Supplier Energy Efficiency Program grew to 92 in 2019—an 8 percent increase over the previous year—and suppliers engaged in our program saved more than 900,000,000 kWh of electricity through efficiency efforts. To measure the success of our work to use recycled materials, we measure the use of recycled materials in each of our products, as well as the impact on the product's carbon footprint, and release this information in our Product Environmental Reports. For example, through these efforts, we reduced iPad (7th generation) emissions by about 10 percent compared to the previous generation.

**Comment**

---

**C12.1b**

---

**(C12.1b) Give details of your climate-related engagement strategy with your customers.**

**Type of engagement**

Collaboration & innovation

**Details of engagement**

Run a campaign to encourage innovation to reduce climate change impacts

**% of customers by number**

100

**% of customer - related Scope 3 emissions as reported in C6.5**

100

**Portfolio coverage (total or outstanding)**

<Not Applicable>

**Please explain the rationale for selecting this group of customers and scope of engagement**

We engage with our customers to address emissions from use and manufacturing of our products. To address the impact from product use, we aim to reduce energy consumption associated with the use of products. We do so by designing more efficient power supplies to bring electricity from the wall to the device, more efficient hardware, and smarter power management software. To address the impact of use of services, our data centers are powered by 100% renewable energy and we are requiring third-party computing services to adopt a 100 percent renewable energy strategy for their Apple energy use. And to avoid greenhouse gas emissions from extraction of new raw materials, we also encourage our customers to return Apple products that have reached the end of their life for recycling. Through Apple Trade In, customers can trade in eligible devices for credit toward a purchase or an Apple Store Gift Card. If a device is not eligible for credit, we recycle it for free. We also offer and participate in product take-back and recycling collection programs for 99 percent of the countries where we sell products—and we hold our recyclers to high standards. Beyond product collection, we're working to enhance recycling technology. We designed disassembly robots, Daisy and Dave, to take apart iPhone devices and components so that recyclers can recover more important materials and at a higher quality than traditional recycling technologies. We communicate to our customers about product energy efficiency and recycling options both on our website and through Product Environmental Reports. These reports, released for core products at launch, also communicate the full lifecycle carbon footprint of the product to customers. These engagements and communications target emissions from product use and select manufacturing emissions (through promoting use of recycled rather than newly-extracted materials. We selected this group of customers—all those who use our energy efficient products and/or have products for which we offer recycling—in order to best address the emissions relating to customers.

**Impact of engagement, including measures of success**

We use U.S. Environmental Protection Agency's ENERGY STAR standards to measure our progress on product energy efficiency. We measure our success by continuing to meet this standard as we introduce new products: In 2019, 100 percent of our eligible products received an ENERGY STAR rating for superior energy efficiency. And we disclose how each product's energy performance compares to the ENERGY STAR standard in our Product Environmental Reports. We also measure success by our ability to decrease overall product energy use as well: as a result of energy efficiency improvements, we've decreased the average product energy use across all major product lines by 73 percent since 2008, an improvement from 2018. Engagement success for end of life initiatives is measured by tracking the quantity of products returned to us through our programs and re-directed to refurbishing or recycling for recovery of materials. We sent more than 11 million devices collected from customers and other stakeholders to be refurbished for new users in 2019, a 42 percent increase from the previous year. And we directed 47,000 metric tons of e-waste—including devices returned to us by customers—to recycling globally in 2019. Aluminum and cobalt recovered from iPhone devices disassembled by Daisy have been redirected back into our supply chain for use in new products. The recovery and reuse of materials helps avoid greenhouse gas emissions resulting from extraction of raw materials.

**C12.3**

**(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?**

- Direct engagement with policy makers
- Trade associations
- Other

**C12.3a**

**(C12.3a) On what issues have you been engaging directly with policy makers?**

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Energy efficiency	Support with minor exceptions	We are engaged with the California Energy Commission to develop energy efficiency standards for computers and monitors. Our engagement centers on ensuring the energy efficiency standards that are being developed are strong, clear, and actionable. As a result of energy efficiency improvements, we've decreased the average product energy use across all major product lines by 73 percent since 2008. Every Apple product not only meets but exceeds, ENERGY STAR standards, where applicable.	Enhanced California energy efficiency standards for computers and monitors.
Clean energy generation	Support	Apple filed comments with the Japanese government, calling for the development of a renewable energy credit trading system better designed for market involvement and offering more detailed project data to accompany credits.	Development of a renewable energy credit trading system
Clean energy generation	Oppose	Apple urged the United States Environmental Protection Agency (EPA) not to not withdraw the Clean Power Plan, which would have reduced greenhouse gas emissions from the electricity sector.	Retain existing Clean Power Plan
Clean energy generation	Support	We joined China's Green Electricity Consumption Cooperative, a group of business and NGOs working with the Chinese government, in June 2017 to promote renewable energy procurement in China.	Provided feedback on China's renewable energy certificate market design following the launch of the voluntary green certificate market.

**C12.3b**

**(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?**

Yes

## C12.3c

---

**(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.**

**Trade association**

Information Technology Industry Council

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association's position**

The Information Technology Industry Council (ITI) has a clear position supporting innovation leading to increased energy efficiency and the promotion of clean, renewable energy sources, as indicated on their website (<https://www.itic.org/policy/energy>): "ITI and our members seek to continuously improve the energy efficiency landscape in the U.S. and globally to leverage energy-efficient technologies. ITI works on behalf of our member companies to advocate for policies that advance both intelligent efficiency and product efficiency... On energy efficiency, ITI unites the tech sector and the NGO community to advance policies that drive sustainable economic growth through technology-enabled energy and product efficiency innovation. ITI works proactively with the Environmental Protection Agency as an active partner in and advisor to the ENERGY STAR program."

**How have you influenced, or are you attempting to influence their position?**

Our position and their positions are in alignment; we are not attempting to influence their position.

---

**Trade association**

Advanced Energy Economy ("AEE")

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association's position**

AEE is an association of businesses working to make energy secure, clean, and affordable. Its mission is to transform public policy to enable rapid growth of "advanced energy" companies. Advanced energy encompasses a broad range of products and services that constitute the best available technologies to meet energy needs today and tomorrow—these include energy efficiency, demand response, natural gas electric generation, solar, wind, hydro, nuclear, electric vehicles, biofuels, and smart grid. AEE's vision is of a prosperous world that runs on secure, clean, affordable energy. During the reporting year, Apple was a Leadership Council Member with Lisa Jackson on the leadership council. As of fall 2019, Apple is no longer on the board of AEE. Additional information is available on AEE's website: <https://www.aee.net/about/aee>

**How have you influenced, or are you attempting to influence their position?**

We are supporting the activities of AEE, whose positions are in alignment with ours.

---

**Trade association**

Center for Climate and Energy Solutions (C2ES)

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association's position**

As indicated on their website (<https://www.c2es.org/>), their mission is to advance strong policy and action to reduce greenhouse gas emissions, promote clean energy, and strengthen resilience to climate impacts. Apple is on their Business Environment Leadership Council.

**How have you influenced, or are you attempting to influence their position?**

Our position and their positions are in alignment; we are not attempting to influence their position.

---

**Trade association**

Japan Climate Leadership Partners

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association's position**

JCLP advocates that companies should work aggressively to decarbonize their operations, and should speak up on climate policy. It is a coalition of Japanese companies, and companies that do business in Japan.

**How have you influenced, or are you attempting to influence their position?**

We are the first non-Japanese members, and are active in leadership, participating in the Executive Committee and the Advocacy Working Group.

---

## C12.3e

---

**(C12.3e) Provide details of the other engagement activities that you undertake.**

We engage with industry, sustainability, and cross-sector organizations to share knowledge while learning from subject-matter experts in strategic areas. We prioritize associations that share our values, passion, and deeply held belief that companies can make a difference.

Great relationships are built over time. So we have renewed our commitments to Ceres, Corporate Eco Forum, the World Business Council for Sustainable Development (WBCSD), the GreenBiz Executive Network, and the Paulson Institute, among others. We joined several organizations, including the Business Environmental Leadership Council of the Center for Climate and Energy Solutions (C2ES), Japan Climate Leaders Partnership, and the Green Electricity Consumption Cooperative as a Board Member Company. We believe that sharing our vision and our commitment can make a difference well beyond Apple's business. To increase our impact, our team presented at several notable events and hosted multi-stakeholder engagements throughout fiscal year 2019. We hosted our first in-person training for over 30 suppliers in China, equipping them with tools and insights needed to drive renewable energy solutions. We hosted our first in-person training for over 30 suppliers in China. The intensive, two-day training equipped suppliers with the market insights, policy analysis, and tools needed to drive renewable energy solutions— within Apple's supply chain and beyond. In Korea and Vietnam, we sat down with policymakers to advocate for energy market reform, including allowing businesses to purchase power directly from renewable power plants. We've held roundtables with companies and NGOs to identify possible solutions to some of the challenges for creating renewable energy projects in Korea, Singapore, and Taiwan. We've undertaken similar efforts in Japan, where we joined other companies to formally encourage the Japanese government to promote corporate renewable energy use and set more ambitious renewable energy targets.

**C12.3f**

**(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?**

Apple's Vice President of Environment, Policy and Social Initiatives, Lisa Jackson, oversees Apple's worldwide governmental affairs team to ensure alignment of policy-influencing activities with our climate change strategy. Ms. Jackson reviews all significant legislative, public policy, and communications initiatives related to climate and environment, as well as all substantive participation requests for environmental advocacy. Apple believes that its clear and forceful position on climate action—through direct communications to employees and the broader public from both Ms. Jackson and Apple's CEO Tim Cook—leaves no ambiguity among its policy teams about Apple's stance on climate change. This clear direction from leadership also enables a unified approach to climate action regardless of employees' geographic location or business division. Apple works with various groups including those listed in C12.3c, to drive U.S. state, federal, and foreign-government policies that support climate action, such as increased access to renewable energy. When deciding whether to join or maintain membership in a trade association, that trade association's position and activity on climate change is a factor Apple considers. If direct or indirect engagement activities become inconsistent with our overall climate change strategy, we may disengage. For example, in 2009, Apple resigned its membership at the U.S. Chamber of Commerce directly as a result of the Chamber's public statements opposing the regulation of GHG emissions and its opposition to climate change legislation.

**C12.4**

**(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).**

**Publication**

In mainstream reports

**Status**

Complete

**Attach the document**

1  
Apple Proxy Statement FY19.pdf

**Page/Section reference**

Page 9

**Content elements**

Strategy  
Emission targets  
Other metrics

**Comment**

Includes our high-level strategy to look across both products and facilities, with a link to our environment website and full strategy disclosure. It includes renewable energy use targets to reduce emissions both for facilities and supply chain. And it speaks to our commitment to using recycled materials, which also supports the reduction of our overall carbon footprint.

**Publication**

In mainstream reports

**Status**

Complete

**Attach the document**

\_10-K-2019-(As-Filed).pdf

**Page/Section reference**

Page 7,8,12

**Content elements**

Risks & opportunities

**Comment**

**Publication**

In voluntary communications

**Status**

Complete

**Attach the document**

Apple\_SR\_2020\_Progress\_Report.pdf

**Page/Section reference**

Pages 55-73

**Content elements**

Strategy  
Risks & opportunities  
Emissions figures  
Other metrics

**Comment**

---

**Publication**

In voluntary communications

**Status**

Complete

**Attach the document**

Apple-Supplier-Responsible-Standards-2.pdf

**Page/Section reference**

Pages 78-80

**Content elements**

Governance

**Comment**

---

**Publication**

In voluntary sustainability report

**Status**

Complete

**Attach the document**

PER.pdf

**Page/Section reference**

Page 2

**Content elements**

Strategy  
Emissions figures  
Other metrics

**Comment**

---

**Publication**

In voluntary sustainability report

**Status**

Complete

**Attach the document**

Apple\_Environmental\_Progress\_Report\_2020.pdf

**Page/Section reference**

All

**Content elements**

Governance  
Strategy  
Risks & opportunities  
Emissions figures  
Emission targets  
Other metrics

**Comment**

---

C15. Signoff

---

C-FI

---

**(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.**

**Apple uses five steps when conducting a product life cycle assessment (LCA):**

To model the manufacturing phase, we use part-by-part measurements of the entire product along with data on part production. The measurements help us accurately 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 customer use, we measure the power consumed by a product while it is running in a simulated scenario. Daily usage patterns are specific to each product and are a mixture of actual and modeled customer use data. For the purposes of our assessment, years of use, which are based on first owners, are modeled to be four years for macOS and tvOS devices and three years for iOS, iPad OS and watchOS devices. Most Apple products last longer and are often passed along, resold, or returned to Apple by the first owner for others to use. More information on our product energy use is provided in our Product Environmental Reports.

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 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.

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 datasets 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.

There is inherent uncertainty in modeling carbon emissions due primarily to data limitations. For the top component contributors to Apple's ca

**C15.1**

**(C15.1) Provide details for the person that has signed off (approved) your CDP climate change response.**

	Job title	Corresponding job category
Row 1	Vice President, Environment, Policy & Social Initiatives	Chief Sustainability Officer (CSO)

**SC. Supply chain module**

**SC0.0**

**(SC0.0) If you would like to do so, please provide a separate introduction to this module.**

We have a number of programs to reduce product-related emissions. We recently announced our goal to become carbon neutral across our entire business, manufacturing supply chain, and product life cycle by 2030. Apple is already carbon neutral today for its global corporate operations, and this new commitment means that by 2030, every Apple device sold will have net zero climate impact. This goal builds on Apple's prior success powering all of our facilities worldwide with 100 percent renewable energy, which is another example of our substantive, visible commitment to mitigating climate change. As part of its carbon neutrality goal, Apple also plans to transition its entire supply chain to 100 percent renewable energy, which will significantly reduce our Scope 3 emissions from manufacturing products. The Supplier Clean Energy Program now has 7.8 gigawatts of clean energy commitments, of which 2.7 gigawatts was operational in 2019. In fiscal year 2019, renewable energy already online generated 5.7 million megawatt-hours of clean energy across 17 countries, resulting in about 4.4 million metric tons of carbon emissions avoided within our supply chain.

**SC0.1**

**(SC0.1) What is your company's annual revenue for the stated reporting period?**

	Annual Revenue
Row 1	

**SC0.2**

**(SC0.2) Do you have an ISIN for your company that you would be willing to share with CDP?**

Please select

SC1.1

(SC1.1) Allocate your emissions to your customers listed below according to the goods or services you have sold them in this reporting period.

SC1.2

(SC1.2) Where published information has been used in completing SC1.1, please provide a reference(s).

SC1.3

(SC1.3) What are the challenges in allocating emissions to different customers, and what would help you to overcome these challenges?

Allocation challenges	Please explain what would help you overcome these challenges
Doing so would require we disclose business sensitive/proprietary information	

SC1.4

(SC1.4) Do you plan to develop your capabilities to allocate emissions to your customers in the future?

Please select

SC2.1

(SC2.1) Please propose any mutually beneficial climate-related projects you could collaborate on with specific CDP Supply Chain members.

SC2.2

(SC2.2) Have requests or initiatives by CDP Supply Chain members prompted your organization to take organizational-level emissions reduction initiatives?

Please select

SC3.1

(SC3.1) Do you want to enroll in the 2020-2021 CDP Action Exchange initiative?

Please select

SC3.2

(SC3.2) Is your company a participating supplier in CDP's 2019-2020 Action Exchange initiative?

Please select

SC4.1

(SC4.1) Are you providing product level data for your organization's goods or services?

Please select

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	I am submitting to	Public or Non-Public Submission	Are you ready to submit the additional Supply Chain Questions?
I am submitting my response	Investors Customers	Public	Yes, submit Supply Chain Questions now

**Please confirm below**

I have read and accept the applicable Terms