

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 mobile communication and media devices and personal computers, and sells a variety of related software, services, accessories, and third-party digital content and applications. The Company's products and services include iPhone®, iPad®, Mac®, Apple Watch®, AirPods®, Apple TV®, HomePod™, a portfolio of consumer and professional software applications, iOS, macOS®, watchOS® and tvOS® operating systems, iCloud®, Apple Pay® and a variety of accessory, service and support offerings. The Company sells and delivers digital content and applications through the iTunes Store®, App Store®, Mac App Store, TV App Store, Book Store and Apple Music®.

The Company sells its products worldwide through its retail stores, online stores and direct sales force, as well as through third-party cellular network carriers, wholesalers, retailers and resellers. In addition, the Company sells a variety of third-party Apple-compatible products, including application software and various accessories, through its retail and online stores. The Company sells to consumers, small and mid-sized businesses and education, enterprise and government customers. The Company's fiscal year is the 52 or 53-week period that ends on the last Saturday of September, with fiscal year 2018 ended on September 29, 2018. 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
Row 1	September 29 2017	September 29 2018	No	<Not Applicable>

C0.3

(C0.3) Select the countries/regions 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 consolidation approach to your Scope 1 and Scope 2 greenhouse gas 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.

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	Please explain
Scheduled – some meetings	Reviewing and guiding strategy Reviewing and guiding risk management policies	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)	Responsibility	Frequency of reporting to the board on climate-related issues
Chief Sustainability Officer (CSO)	Both assessing and managing climate-related risks and opportunities	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.
- ii. 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.
- iii. 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. For example, the LCA revealed that product manufacturing represented 74 percent of Apple's overall carbon footprint in fiscal year 2018. As a result, Ms. Jackson directed the creation of Apple's Supplier Clean Energy Program to reduce manufacturing emissions, with a goal of generating or procuring 4 gigawatts of new clean energy for Apple production by 2020. 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?

Yes

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

Who is entitled to benefit from these incentives?

Chief Sustainability Officer (CSO)

Types of incentives

Monetary reward

Activity incentivized

Emissions reduction project

Comment

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.

Who is entitled to benefit from these incentives?

Facilities manager

Types of incentives

Monetary reward

Activity incentivized

Energy reduction project

Comment

Our Data Center, Environment and Energy teams have specific reduction targets related to the efficiency and sustainability of their facilities, including green building goals for new facilities. Apple's leadership has publicly stated the goal of powering every Apple facility entirely with energy from renewable sources. Implementing these goals falls on the facilities managers, and their performance directly influences their monetary compensation.

Who is entitled to benefit from these incentives?

All employees

Types of incentives

Recognition (non-monetary)

Activity incentivized

Emissions reduction project

Comment

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.

Who is entitled to benefit from these incentives?

Procurement manager

Types of incentives

Monetary reward

Activity incentivized

Emissions reduction project

Comment

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 compensation for employees include performance and progress toward meeting their environmental procurement goals.

Who is entitled to benefit from these incentives?

Environment/Sustainability manager

Types of incentives

Monetary reward

Activity incentivized

Efficiency project

Comment

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) Describe what your organization considers to be short-, medium- and long-term horizons.

	From (years)	To (years)	Comment
Short-term	0	1	For environmental and climate-related initiatives, we consider short-term horizon to be between 0-1 years, medium-term between 2-6 years, and long term to be greater than 6 years. These timeframes help us best plan for risks and opportunities relating to climate change. These time horizons for assessing climate-related risks and opportunities align with our product development cycles.
Medium-term	1	6	For environmental and climate-related initiatives, we consider medium-term horizon to be between 2-6 years.
Long-term	6	30	For example, some of Apple's power purchase agreements are 25 -30 years.

C2.2

(C2.2) Select the option that best describes how your organization's processes for identifying, assessing, and managing climate-related issues are integrated into your overall risk management.

Integrated into multi-disciplinary company-wide risk identification, assessment, and management processes

C2.2a

(C2.2a) Select the options that best describe your organization's frequency and time horizon for identifying and assessing climate-related risks.

	Frequency of monitoring	How far into the future are risks considered?	Comment
Row 1	Six-monthly or more frequently	>6 years	Short and medium-term risks associated with climate change are considered on a 0-6 year timeframe, which aligns with typical product development-release and refresh cycles. However, as Apple considers the longer-term risks associated with global climate change impacts, a time-horizon beyond 6 years is considered. Risks and opportunities are monitored on an ongoing basis, as described in our response to 2.2b.

C2.2b

(C2.2b) Provide further details on your organization's process(es) for identifying and assessing climate-related risks.

Climate-related risks for Apple are identified and assessed on an ongoing basis (more frequently than every 6 months) at the company level in various ways depending on the type of risk being considered. For regulatory 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 2018, 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, Apple filed comments to the Federal Energy Regulatory Commission (FERC), 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.

Climate-related risks are identified and assessed at an asset level on an ongoing basis. In the case of new facilities, for example we consider the potential impacts of climate change on the asset when first siting the facility and take action accordingly. Like when siting data centers, we consider the effects of 200- to 500-year flood events and floodplains, using best available data, instead of the 100-year flood events and floodplains typically used in planning.

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. An example of a time when Apple took action, after being advised by our energy policy advisory and considering assessments prepared by the relevant teams, occurred in opposition to a proposed energy policy in North Carolina. In this instance, the utility proposed new charges be added to the electric tariff rate that we believed were not related to normal electric services. Our analysis indicated the proposed change would result in more than a 3% increase in total cost, which is a target threshold we consider, so we engaged in the regulatory process. Additionally, for further impact, we coordinated our regulatory engagement with several other companies operating data centers in the utility's service area.

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.

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.

C2.2c

(C2.2c) Which of the following 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. First, 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. While this carbon footprint, if not otherwise addressed, would constitute a risk to Apple, it also represents an opportunity for Apple. 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.
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. 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. Apple also monitors the perceptions of respected NGOs. For example, in its most recently published Guide to Greener Electronics, Greenpeace rated Apple as one of the top scoring companies.
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 significantly reducing its water use. 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, such as is the case with our data center in Newark, California. 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.
Upstream	Relevant, always included	Apple’s upstream supply chain is critical to manufacturing and delivering products that are essential to our business. As a result, physical disruptions in our supply chain have the potential to negatively impact our business. Such disruptions in our supply chain are monitored by our global procurement teams utilizing internally developed software, along with on-the-ground team support to assess and mitigate physical impact. For example, were a specific metropolitan area or region to be significantly impacted by flooding (like those we saw in Houston, following Hurricane Harvey), suppliers located in that region would risk a temporary disruption of their operations. If Apple were sourcing a commodity or component from a sole supplier with its facilities in the impacted area, Apple would risk a delay in delivering products to its customers. Accordingly, Apple has created a robust supply chain that, in many instances, includes redundancies in the location and capabilities of our manufacturing partners, which in turn mitigates our exposure to a variety of supply chain risks, including the potential for drought, flooding, and extreme weather events.
Downstream	Relevant, always included	We consider customer use of our products as an element of downstream climate-related risks. Collectively, our customers’ use of products represent about 19 percent of our comprehensive carbon footprint, as calculated and monitored by our environmental teams. Driving the energy efficiency of our products to reduce this part of our footprint represents a process that begins to lessen our exposure to these downstream climate risks: All of our products exceed ENERGY STAR requirements, and we’ve reduced the average energy consumed by Apple products by 70 percent since 2008. We also consider emissions associated with end of life processing of our products as an element of downstream climate-related risks. Through Apple Trade In, a program managed by our retail and environmental teams, we encourage our customers to return purchased products that have reached the end of their life. Apple also has product recycling programs in 99 percent of the countries in which we sell our products. The recovery and reuse of materials contained in Apple products avoids greenhouse gas emissions resulting from extraction of raw materials.

C2.2d

(C2.2d) Describe your process(es) for managing climate-related risks and opportunities.

At the asset level, line employees from teams across the Company identify and assess on a continual basis (more frequently than every 6 months) risks and opportunities that could affect their area of responsibility. For climate change, teams like Environmental Initiatives, Facilities, Energy, Product, Government Affairs, and Operations all take part. They communicate relevant findings to their managers, who take needed actions and, if appropriate, pass the findings from the asset level to the company level. At the company level, team members from Environmental Initiatives, Facilities, Energy, Product, Government Affairs and Operations teams communicate climate change-related issues centrally to Lisa Jackson, Apple's Vice President of Environment, Policy and Social Initiatives, who presents findings to Apple's CEO on a regular basis, including recommendations for any shifts in strategy, and to Apple's Board, annually and on an as-needed basis. Once a strategy shift is determined necessary, it is communicated back down to the asset level, where teams across Apple that are responsible for climate-related issues (such as Apple's clean energy teams, environmental technologies team within hardware engineering, energy efficiency teams, as well as operations teams) execute agreed upon solutions. Climate change-related issues range from supply chain opportunities to renewable energy strategy, but are managed similarly as Ms. Jackson acts as a centralized clearing house for assessing risks escalated to her. One example of a company-wide transition risk that was addressed in this way was the U.S. Administration's decision to withdraw from the 2015 Paris Agreement. The failure on the part of the U.S. Administration to engage in international efforts to address climate change exposes Apple to the risk of decelerating the transition to a low carbon economy. Members of our governmental affairs team identified the U.S. policy shift and brought this information to Ms. Jackson, who in turn considered the finding with Apple's CEO. In response, Apple issued \$1 billion in green bonds in June 2017, shortly after the U.S. Administration announced its intention to withdraw from the 2015 Paris Agreement. This was Apple's second green bond, having issued a \$1.5 billion green bond in February 2016 to demonstrate the importance of businesses taking leadership in reducing global emissions. These two green bonds reflect Apple's unwavering commitment to take strong action on climate change, both in terms of publicly demonstrating leadership as well as committing substantial funds to reduce carbon emissions. An example of a physical risk that we managed as described above was at Apple Park, Apple's headquarters in California. When developing the conceptual plans for Apple Park, Apple's CEO hired a full time arborist to develop a robust tree landscape for Apple Park. The arborist considered long term climate impacts when selecting the trees to be planted at Apple Park. Specifically, he diversified the selection of trees, creating a drought-tolerant landscape, and installing natural berms designed to retain rain, in order to create a landscape resilient to a changing climate. These plans were raised to the executive level and considered as part of the overall plans for Apple Park.

Prioritizing risks is not completed in isolation. Any risk or opportunity for the Company is assessed and prioritized in the context of other risks and opportunities that affect the same asset. At all critical stages of the risk discovery process, Apple has strong and empowered decision-makers who are responsible for an effort's outcome. Final prioritization and decision-making regarding all risks and opportunities for a specific business decision lie with the relevant decision-maker for that business unit unless investment levels or other triggers require CFO, CEO or Board input for the decision. Several sources of information help the responsible decision-makers prioritize environmental and climate change information including carbon life cycle assessment (LCA) data, which is published for every Apple product, and facility-specific information such as water and energy use. The LCA and facility-specific information let decision-makers understand which processes, components or materials present the most impactful short and long-term climate change risks. For example, integrated circuits, or chips, make up a large portion of our manufacturing carbon footprint. That information prompted internal teams to prioritize the carbon emissions from integrated circuit production. Turning a silicon wafer into an integrated circuit is an energy-intensive process. So we sought out ways to reduce the amount of silicon used in chips, while maximizing their performance. The A11 and A12 chips used in iPhone 8, X, XS, XS Max, and XR allow more processing power to be packed into smaller silicon dies, which reduced Apple's fiscal year 2018 carbon footprint by 160,000 metric tons.

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

Transition risk

Primary climate-related risk driver

Policy and legal: Increased pricing of GHG emissions

Type of financial impact

Increased operating costs (e.g., higher compliance costs, increased insurance premiums)

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. The 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 and Nevada. Our behind-the-meter renewable energy projects are insulated from this risk, and certain PPAs partially insulate us. Based upon an assessment completed in fiscal year 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.

Time horizon

Medium-term

Likelihood

Very unlikely

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)

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. Electricity spend represents about 0.5 percent of Apple's annual operating expense, which in fiscal year 2018 was \$30.9 billion. A hypothetical 10 percent rise in electricity prices across the board could raise Apple's electricity spend by approximately \$15.45 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 with renewables.

Management method

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. 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, energy efficiency improvements we made at our facilities over the past six years saved about 113 million kilowatt-hours of electricity and 2.5 million therms of natural gas in fiscal year 2018, and avoided 43,199 metric tons of CO₂e. 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 have long payback periods (5 to 15 years), but often reduce our overall cost of renewable energy while bringing us non-financial benefits. Our energy efficiency program is integrated into our facilities budget, and is generally handled within existing allocations.

Cost of management

2500000000

Comment**Identifier**

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Physical risk

Primary climate-related risk driver

Chronic: Changes in precipitation patterns and extreme variability in weather patterns

Type of financial impact

Reduced revenue from decreased production capacity (e.g., delayed planning approvals, supply chain interruptions)

Company- specific description

Change 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). 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 fiscal year 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)

1140000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Severe weather events 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 2018 product sales number of \$228.405 billion, this could potentially result in a net impact of \$1.14 billion.

Management method

Because natural disasters are long-recognized climate-related risk factors, Apple has policies, practices, and contingency plans in place to seek to minimize the effects of

such events. Examples include sourcing, in many cases, component parts from multiple suppliers and facilities, building redundancy and resiliency into our data services by having data centers in California, North Carolina, Oregon, Nevada, and Arizona, deploying backup power supply sources at critical facilities. An example of changes made directly into the planning process to account for heightened 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. There is no incremental cost to our current approach of managing physical risks 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. As an estimate, costs associated with managing these risks overall are currently less than 0.01% of Apple's annual operating expenses in fiscal year 2018, or approximately \$3.09 million.

Cost of management

3090000

Comment

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Reputation: Increased stakeholder concern or negative stakeholder feedback

Type of financial impact

Reduced revenue from decreased demand for goods/services

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 (132,000 full time employee equivalents, 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. The 2015 Nielsen Global Corporate Sustainability Report found that a brand's commitment to the environment has the power to sway the purchases of more than 45 percent of global customers surveyed. And 66 percent of global consumers surveyed stated they were willing to pay more for sustainable brands. 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)

214000000

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 2018 Best Global Brands report estimates Apple's brand value at nearly \$214.5 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 \$214 million loss of brand value.

Management method

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 \$3.09 million. However, executing the programs themselves—the actions that comprise Apple's reputation—costs more. For example, Apple has committed over \$2.5 billion to renewable energy and energy efficiency projects since the inception of our renewable energy program. As of the end of fiscal year 2018, Apple had allocated the entirety of its \$2.5 billion of green bond funds, as reported in its most recent Annual Green Bond Impact Report.

Cost of management

3090000

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

Type of financial impact

Increased revenue through demand for lower emissions 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, 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)

2100000000

Explanation of financial impact figure

If new efficiency laws are implemented, Apple should have a broader 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 a 1 percent increase in sales, Apple's annual revenue could increase by approximately \$2.1 billion in net sales (based on Apple's fiscal year 2018 net sales figure for iPhone, iPad and Mac of approximately \$210.988 billion 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.

Strategy to realize opportunity

As energy consumed by Apple's products during everyday use represents 19% 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 11-inch iPad Pro, which is over 69 percent more efficient than the ENERGY STAR standard. Thanks to these improvements, we've reduced the average energy consumed by Apple products by 70% 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 \$14.2 billion in fiscal year 2018 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 2018, or approximately \$71 million.

Cost to realize opportunity

71000000

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

Type of financial impact

Reduced exposure to future fossil fuel price increases

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 66 percent of the renewable energy we used in 2018 coming from projects we've created. 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 64 percent—even while our energy use increased by more than 3 times in this same period. We're also helping our suppliers transition to renewable energy; by 2020, Apple and our suppliers expect to generate or procure at least 4 gigawatts of clean energy in our supply chain. These actions will help both Apple and our supply chain thrive in a low-carbon economy.

Time horizon

Long-term

Likelihood

Unlikely

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

Even if the Company does not take additional action to reduce our emissions, current reductions would save \$14 million each year under a hypothetical global carbon tax or trade system similar to the current prices of the EU ETS. 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.

Strategy to realize opportunity

Since January 2018, 100% 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% clean energy for Apple production. In fiscal year 2018, we partnered with suppliers across the globe to secure over 3.7 gigawatts of clean energy commitments, including 29 suppliers that have committed to powering their Apple production with 100 percent renewable energy. As of April 2019, 44 suppliers with operations in 16 countries have pledged to power their Apple production entirely with renewable energy by 2020. With these pledges, we are on track to far exceed our 2020 goal to bring at least 4 gigawatts of new clean energy into 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. This includes funds allocated through our 2016 and 2017 green bonds, representing more than \$1 billion allocated to renewable energy and energy efficiency programs across our direct operations.

Cost to realize opportunity

1000000000

Comment**Identifier**

Opp3

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

Shift in consumer preferences

Type of financial impact

Increased revenue through demand for lower emissions 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. 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 11-inch iPad Pro is more than 69 percent more efficient than the ENERGY STAR

standard. Thanks to improvements in energy efficiency, since 2008, we've reduced the average energy consumed by Apple products by 70 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. Over the long term, it's our hope that other companies will follow our lead and decarbonize their product offerings in similar ways. As such, this opportunity will hopefully lessen over time as companies transition to a 1.5 degree warming scenario.

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)

2200000000

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 in fiscal year 2018 were \$228.405 billion 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 \$2.2 billion.

Strategy to realize opportunity

We are making significant strides in reducing our impact on climate change by using renewable energy and driving energy efficiency in our products and in our supply chain. Apple's success in meeting its goal to power all of its facilities worldwide with 100 percent renewable energy is just one example of our substantive, visible commitment to mitigating climate change. Apple has also launched ambitious programs to support our manufacturing partners' transition to 100 percent renewable energy and to reduce energy consumption in manufacturing, in an effort to reduce our Scope 3 emissions from production.. In fiscal year 2018, we partnered with suppliers across the globe to secure over 3.7 gigawatts of clean energy commitments, including 29 suppliers that have committed to powering their Apple production with 100 percent renewable energy, which avoided 3.6 million metric tons of CO₂e. These efforts have contributed to a 35 percent reduction of our comprehensive carbon footprint compared to 2015. Our energy efficient product design work is embedded into product R&D budgets. In fiscal year 2018, R&D operating expense was \$14.236 billion, or 5% of total net sales, as reported in our Form 10-K filing with the U.S. Securities and Exchange Commission. Our renewable energy projects require substantial capital investment. Apple has committed over \$2.5 billion to renewable energy and energy efficiency projects since the inception of our renewable energy program.

Cost to realize opportunity

2500000000

Comment

C2.5

(C2.5) Describe where and how the identified risks and opportunities have impacted your business.

	Impact	Description
Products and services	Not yet impacted	We have yet to find evidence that climate change risks or opportunities have significantly affected our business through changes in demand for or regulation of our products and services. However, we do believe there are low to medium level opportunities for our emissions reduction activities and energy efficiency to differentiate Apple from competing product brands over the medium term as customers and regulators increasingly value companies that take strong action against climate change. For example, Apple's transition to use 100 percent renewable energy takes advantage of the climate-related opportunity of creating increased customer loyalty and brand value. Apple's data centers, which power services like customer text messages, FaceTime calls, Siri, are powered by 100 percent renewable electricity. While we understand from customer surveys that customers are increasingly valuing brands with strong environmental performance, we do not yet believe our renewable energy work has significantly impacted customer perception to date. 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 70 percent.
Supply chain and/or value chain	Not yet impacted	Our supply chain was not substantially impacted by climate-related risks or opportunities in fiscal year 2018. We anticipate our supply chain will be exposed to increasing physical climate risks like flooding and extreme weather events over the long term, with a low to medium level of impact due to the forward-looking nature of efforts to manage physical risk. 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 our goal of generating or sourcing 100 percent renewable electricity for our own operations, our goal of generating or procuring at least 4 gigawatts of new clean energy in our supply chain, and our efforts to enhance product energy efficiency. As of the close of fiscal year 2018, Apple has allocated the entire \$2.5 billion of its green bond funds in support of qualifying environmental projects. Through this work, we aim to help reduce the physical climate risks the Company and all people experience.
Adaptation and mitigation activities	Impacted for some suppliers, facilities, or product lines	Climate change has already impacted our business through necessitating adaptation and mitigation activities in the design and construction of new facilities. At Apple Park, Apple's headquarters in California, we have invested in diversifying trees, creating a drought-tolerant landscape, and installing natural berms designed to retain rain, in order to create a landscape resilient to a changing climate. In fiscal year 2017, the impact of these investments—which can be viewed as an early impact of climate change—was low, representing approximately \$60 million.
Investment in R&D	Impacted for some suppliers, facilities, or product lines	To support our investments in renewable energy, we have invested in R&D for clean energy as well as for energy storage solutions. These investments represent less than 0.1 percent of our overall R&D expenses, which were approximately \$14.2 billion in fiscal year 2018 per our Form 10-K filing with the U.S. Securities and Exchange Commission.
Operations	Not yet impacted	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. As mentioned previously, failure to deliver even 1 percent of services to our customers could result in a financial impact of approximately \$372 million (based on fiscal year 2018 Services net sales). 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. Should power supply to one data center become unavailable due to changes in precipitation patterns or extreme weather events such as flooding, hurricanes, etc., our back-up generator power supply and our other data center locations would be able to provide the same services to ensure our productive capacity is not diminished. 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.
Other, please specify	Please select	

C2.6

(C2.6) Describe where and how the identified risks and opportunities have been factored into your financial planning process.

	Relevance	Description
Revenues	Not yet impacted	We anticipate a shifting customer perception of environmental issues to affect purchasing decisions on the medium- to long-term, but have not yet observed a significant effect on our revenues of these shifting perceptions. We regularly conduct customer surveys to better understand whether communication about our environmental initiatives is influencing how customers perceive Apple's brand. In addition, we use the results of these surveys to inform how we prioritize our environmental efforts.
Operating costs	Impacted for some suppliers, facilities, or product lines	Apple has reached its goal of 100 percent renewable electricity for its global facilities as a way to reduce its contribution to climate change. As described in C2.4, this activity may also help minimize climate-related regulatory risks. To-date, we have made a substantial financial commitment of over \$2.5 billion of operating and capital expenses to renewable energy and energy efficiency projects since the inception of our renewable energy program.
Capital expenditures / capital allocation	Impacted for some suppliers, facilities, or product lines	Apple's pursuit of 100 percent renewable energy for our global facilities could be perceived as expenditures made to both mitigate and adapt to climate change. As described in C2.4, this activity may help not only lessen our contribution to climate change, but also minimize climate-related regulatory risks. To-date, we have made a substantial financial commitment of over \$2.5 billion of operating and capital expenses in clean energy and energy efficiency projects since the inception of our renewable energy program—an amount reflective of the financial impact of climate change on our capital expenditures.
Acquisitions and divestments	Not yet impacted	We have not identified climate-related risks or opportunities in our acquisitions and divestments.
Access to capital	Impacted for some suppliers, facilities, or product lines	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.
Assets	Impacted for some suppliers, facilities, or product lines	We want our commitment to the environment to show in everything we do—not just in our products, but also at the offices where our employees work, in the services that our customers use, and in the spaces where our customers shop. There is a potential reputational risk associated with not addressing the environmental impacts of our own assets. So we actively apply green building principles to all of our office, data center, and retail store projects. This means we're creating these spaces to be environmentally responsible and use resources efficiently. For most projects, we are able to meet the U.S. Green Building Council's LEED Gold requirements, and sometimes LEED Platinum—the highest level. These investments represent approximately less than 5 percent of the initial cost of these projects.
Liabilities	Not impacted	We have not identified any risks or opportunities associated with Apple Liabilities.
Other	Please select	

C3. Business Strategy

C3.1

(C3.1) Are climate-related issues integrated into your business strategy?
Yes

C3.1a

(C3.1a) Does your organization use climate-related scenario analysis to inform your business strategy?
No, but we anticipate doing so in the next two years

C3.1c

(C3.1c) Explain how climate-related issues are integrated into your business objectives and strategy.

(i) Apple's business strategy and objectives have been influenced by climate change factors in four broad areas: 1. Product efficiency: reducing our products' energy consumption through more efficient energy supply, hardware, and software. 2. Facility energy use: designing new buildings and updating existing ones to reduce energy use and source renewable. 3. Facility water use: considering watershed risk in new site selection and installing technologies to lessen water use. And 4. Production emissions: increasing energy efficiency renewable energy within Apple's manufacturing supply chain. As an example of our commitment to address climate change and how our business strategy has been influenced by climate change, Apple has issued and fully allocated \$2.5 billion in its green bond funds for environmental projects like investments in renewable energy.

(ii) Our business strategy is strongly linked to our goal to power our own facilities with 100 percent renewable energy – a goal we reached in January 2018. We have extended this goal to our supply chain, where we have a medium term goal of generating or procuring at least 4 gigawatts of new clean energy in our supply chain by 2020, and a long-term goal of reaching 100 percent. As of April 2019, 44 Apple suppliers have committed to power all of their Apple production with 100 percent renewable energy. With these pledges, we are on track to far exceed our 4-gigawatt goal.

(iii) The most pervasive influences that climate change has on Apple's business in the short term are energy availability, pricing, and regulation, as well as our customers' changing perceptions of the consequences of energy use. Regarding energy availability and pricing, the availability of renewable energy both for our own facilities as well as for supplier facilities can significantly impact our ability to achieve the renewable energy strategy the Company has adopted. Where renewable energy markets are growing, we take action to promote these markets, such as our involvement in China's Green Electricity Consumption Cooperative, a group working with the Chinese government to promote the creation of a renewable energy credit market in China. We also recognize the importance of energy-related regulation on our products and business. For example, the California Energy Commission is working on energy efficiency standards for computers and monitors, an effort in which we have actively engaged. Regarding customer perceptions, our customers are increasingly aware of the energy required to make and power their devices, their online services and the broader ecosystem supporting the user experience. Our short-term business strategy has focused on climate-related energy risk, resulting in the aggressive progress toward our 100 percent renewable energy goal. In 2018, we reached our goal of producing or procuring renewable energy for 100 percent of the electricity used at our global facilities, which has reduced our Scope 1 and 2 market-based emissions by 64 percent since fiscal year 2011.

(iv) Substantial business decisions relating to our climate change work in fiscal year 2018 include: (1) prioritizing recycled and renewable materials for our products, which often results in lower emissions. For example, last year, we announced the new 13-inch MacBook Air with Retina Display and Mac mini were made with 100 percent recycled aluminum, which helped to reduce the carbon footprint of each product by almost half from the previous model. (2) expand our supply chain engagement and investments, making significant progress toward our goal of generating or procuring 4 gigawatts of new clean energy in our supply chain by 2020. As part of our supply chain engagement, 44 suppliers with operations in 16 countries have pledged to power their Apple production entirely with renewable energy by 2020 (as of April 2019). With these pledges, we are on track to far exceed our 4-gigawatt goal. In large part due to these programs, in fiscal year 2018 we reduced our comprehensive carbon footprint (Scopes 1, 2, and 3) by 35 percent compared to 2015.

(v) As noted above, the most pervasive influences that climate change has on Apple's business in the short term are energy availability, pricing, regulation, and customer use. In particular, our customers are increasingly aware of the energy required to power their devices, their online services and the broader ecosystem supporting the user experience. Our short-term business strategy has been driven by the need to identify and act on energy-related climate change risks and opportunities at our own facilities. This includes achieving our 100 percent renewable energy goal: as of January 2018, we are producing or procuring renewable energy for 100 percent of the electricity used at our global facilities.

(vi) Our long-term strategy focus is on our carbon emissions from the product lifecycle, including manufacturing, as informed by the product LCA data we collect. The data from the fiscal year 2018 LCA identified that 74 percent of our comprehensive carbon footprint was from manufacturing. Having reduced our own facilities emissions to 2 percent of our comprehensive carbon footprint due in large part to our investments in renewable energy, we're now prioritizing emissions reductions within our supply chain. We're working with suppliers to generate or procure more than 4 gigawatts of new clean energy worldwide by 2020. We've already taken significant steps toward this goal. By the end of fiscal year 2018, between our own clean energy projects to target emissions from upstream suppliers and those our suppliers have themselves implemented, we have reduced Scope 3 manufacturing carbon emissions by 3.5 million metric tons—roughly equivalent to the electricity needed to power over 600,000 homes in the U.S. for a year.

(vii) Apple's strategic competitive positioning is enhanced by our short- and long-term efforts to address climate change in a number of ways, including advantages gained from our investments in Apple-created renewable energy generation projects that result in anticipated stable and predictable energy prices over the long-term in some locations. While our actions are motivated by our desire to leave the world better than we found it, we believe they also attract and retain customers whose values align with ours.

(viii) We believe that businesses have a responsibility to take aggressive action on climate change. Since the 2015 Paris Agreement on climate change, we have remained committed to reducing our own emissions and to supporting strong climate policies. We continue to speak out about the importance of strong climate action—for businesses as well as government. We issued \$1 billion in green bonds in June 2017, demonstrating the importance of businesses taking leadership in reducing global emissions.

(ix) Refer to C2.3, for a discussion of anticipated climate risks and how we are managing those risks.

C3.1g

(C3.1g) Why does your organization not use climate-related scenario analysis to inform your business strategy?

We have 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 transitional 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 the work to switch to 100 percent renewable energy in our facilities and generate or procure at least 4 gigawatts of renewable energy in our supply chain (reference answers to C2.4, 2.5, and 2.6). Examples of actions we've taken due to these analyses include our public support for the Clean Power Plan in the United States, our 4 gigawatts renewable energy goal for our supply chain, expansion in planning to consider the effects of 200- to 500-year flood events / floodplains (using best available data), and our corporate landscape efficiency program reducing water use by 500,000 gallons at our headquarters in the Santa Clara Valley, California. Because these risk assessments include extensive timescales, and the resulting strategies so ambitiously reduce our carbon footprint—already decreasing our Scope 1 and 2 emissions by more than 90 percent—we have not yet needed a scenario analysis tool to encourage further action on climate change internally.

However, we are now in the process of conducting climate scenario analysis for potential external disclosure, because external stakeholders such as TCFD and CDP are requesting this specific analysis. The Environment, Policy, and Social Initiatives team has already initiated this work and is incorporating the recommendations from TCFD, such as the use of a 2-degree scenario and consideration of both transitional and physical risks across our business, from our supply chain to facilities and retail stores.

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

Scope

Scope 1 +2 (market-based)

% emissions in Scope

100

Targeted % reduction from base year

61

Base year

2012

Start year

2012

Base year emissions covered by target (metric tons CO2e)

160400

Target year

2020

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

% of target achieved

100

Target status

Underway

Please explain

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 viewed a 7 percent reduction to not be aggressive enough, so we considered the long-term target as a medium-term target. We have reduced our Scope 1 and Scope 2 emissions by 61 percent since 2012 (64 percent since 2011), 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 we identify a new, even more ambitious target.

Target reference number

Abs 2

Scope

Scope 1 +2 (market-based)

% emissions in Scope

100

Targeted % reduction from base year

61

Base year

2012

Start year

2012

Base year emissions covered by target (metric tons CO2e)

160400

Target year

2036

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

% of target achieved

100

Target status

Underway

Please explain

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 61 percent since 2012, (64 percent since 2011), 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. We are still in the process of identifying a new, even more ambitious target.

Target reference number

Abs 3

Scope

Scope 2 (market-based)

% emissions in Scope

100

Targeted % reduction from base year

100

Base year

2011

Start year

2011

Base year emissions covered by target (metric tons CO2e)

160400

Target year

2018

Is this a science-based target?

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

% of target achieved

95

Target status

Underway

Please explain

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.

C4.2

(C4.2) Provide details of other key climate-related targets not already reported in question C4.1/a/b.

Target

Renewable electricity production

KPI – Metric numerator

Gigawatts

KPI – Metric denominator (intensity targets only)

N/A

Base year

2015

Start year

2015

Target year

2020

KPI in baseline year

0

KPI in target year

4

% achieved in reporting year

30

Target Status

Underway

Please explain

We've committed to working with suppliers to source from or install more than 4 gigawatts of new renewable energy projects worldwide, by 2020. Once online, these 4 gigawatts of renewable energy will avoid over 6.5 million metric tons of CO2e every year for over 20 years. By the end of fiscal year 2018, we had partnered with suppliers across the globe to secure over 3.7 gigawatts of clean energy commitments, including 29 suppliers that had committed to powering their Apple production with 100 percent renewable energy. In addition, Apple has partnered to create hundreds of megawatts of wind and solar projects across six provinces of China to address upstream emissions and serve as a model for suppliers.

Part of emissions target

This target addresses Scope 3 emissions and therefore does not address the emissions targets above

Is this target part of an overarching initiative?

RE100

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	12	
To be implemented*	4	293500
Implementation commenced*	4	4370780
Implemented*	5	5429980
Not to be implemented	0	0

C4.3b

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

Initiative type

Energy efficiency: Building services

Description of initiative

Other, please specify (HVAC, occupancy controlled efficient lighting, and more thoughtful design and selection of building envelope components)

Estimated annual CO2e savings (metric tonnes CO2e)

14980

Scope

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

4016000

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

14126000

Payback period

4 - 10 years

Estimated lifetime of the initiative

6-10 years

Comment

Initiatives address primarily Scope 2 emissions, but some Scope 1 emissions to a lesser extent as well. In fiscal year 2018, we continued to expand our energy efficiency programs to data centers, retail stores, offices, and R&D facilities located around the world. This past year, we have opened new buildings on Apple campuses in Cork, Ireland; Hyderabad, India; and Shenzhen, China. Each of these buildings exemplifies Apple's commitment to energy efficiency with measures such as efficient HVAC systems with optimized air distribution, heat recovery, and radiant cooling; rooftop solar thermal; and occupancy controlled efficient lighting throughout. We also implemented a program within the past year to significantly reduce the energy consumption of new retail stores worldwide. We're creating energy models during the design process to benchmark energy use and using those models to evaluate specific efficiency measures. The result is energy savings of approximately 10 to 30 percent, in part due to more thoughtful design and selection of building envelope components, lighting, and HVAC systems, as well as controlling all of these systems as efficiently as possible. In fiscal year 2018, we reduced our energy use by an additional 42 million kilowatt-hours and 150,000 therms—a significant increase in energy savings compared to the prior year—due to the expansion of our program, equivalent to 14,980 metric tons of CO₂e.

Initiative type

Low-carbon energy purchase

Description of initiative

Other, please specify (Solar PV, wind, and REC purchases)

Estimated annual CO₂e savings (metric tonnes CO₂e)

199000

Scope

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: **North Carolina (64 MW solar PV project) - Apple partnered with Cypress Creek Renewables who developed the Shoe Creek solar PV project that supports Apple's Maiden data center and other regional facilities. **Tamaulipas, Mexico (1 MW wind project) - To match with all of our energy use in Mexico, Apple contracted for one megawatt of wind generation capacity from a large wind project. **REC purchase - 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. We also implemented additional projects in North Carolina, Arizona, Oregon, Nevada, California, Japan, Brazil, India, and Australia. 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.

Initiative type

Energy efficiency: Building services

Description of initiative

Other, please specify (We help suppliers uncover opportunities for energy efficiency—like replacing outdated or inefficient heating, cooling, and lighting systems; repairing compressed air leaks; and recovering waste heat.)

Estimated annual CO₂e savings (metric tonnes CO₂e)

466000

Scope

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. Since the inception of this program in 2015, we have engaged 59 suppliers at 85 facilities. In 2018, our program implemented energy efficiency measures that prevented 466,000 metric tons of CO₂e from entering the atmosphere. 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 type

Process emissions reductions

Description of initiative

Process materials selection

Estimated annual CO₂e savings (metric tonnes CO₂e)

1250000

Scope

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, every gram of aluminum used in iPhone XR generates 68 percent fewer emissions compared to conventionally sourced aluminum. And we reengineered our manufacturing process to reincorporate the scrap aluminum, further reducing its carbon impact. 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 type

Low-carbon energy purchase

Description of initiative

Other, please specify (Multiple renewable energy solutions including solar PV, wind, low impact hydro, biogas, and biomass.)

Estimated annual CO₂e savings (metric tonnes CO₂e)

3500000

Scope

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

21-30 years

Comment

We launched the Supplier Clean Energy Program in October 2015 to advance the use of clean energy in our supply chain. Through this program, Apple supports supplier transitions to clean energy. As of April 2019, 44 manufacturing partners in 16 different countries have committed to 100 percent renewable energy for Apple production. Additional suppliers have committed to generate or procure clean energy for portions of Apple production, and Apple itself has invested directly in renewable energy projects to cover upstream emissions. In 2018, Apple and our suppliers invested in, or procured, 1.9 gigawatts of operational clean energy that collectively generated 4.1 billion kilowatt-hours. This clean energy generation avoided about 3.5 million metric tons of CO₂e—roughly equivalent to the electricity needed to power over 600,000 homes in the U.S. for a year. Suppliers are responsible for the financial investments in clean energy projects and benefit from any monetary savings. In addition, Apple has directly invested in over 400 megawatts of renewable energy in China and Japan, to cover upstream supplier emissions. Because supplier investments and potential savings are unknown, we are unable to estimate the total investments and savings associated with the clean energy program. All emissions reductions from the Supplier Clean Energy Program are assured by a third party.

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 its 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 (EPA's Energy Star)

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

100

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. From these improvements in energy efficiency, since 2008, we've reduced the average energy consumed by Apple products by 70 percent. 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, Apple's recently launched HomePod uses power-efficient components and software that can intelligently power them down during periods of inactivity. HomePod outperforms ENERGY STAR Program Requirements for Audio/Video Version 3.0 by consuming 50 percent less energy than what's required for low power mode. The 11-inch iPad Pro models introduced in fall 2018 are more than 69 percent more efficient than the ENERGY STAR standard. iMac Pro consumes 40 percent less power during sleep and off mode—the result of an innovation in power supply design. The 2018 MacBook Air with Retina display consumes three times less power in sleep than the previous-generation MacBook Air. 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 Scope 1 and Scope 2 emissions.

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

US EPA Climate Leaders: Direct Emissions from Stationary Combustion

US EPA Climate Leaders: 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)

54590

Start date

September 29 2017

End date

September 29 2018

Comment

Apple's global facilities, including our data centers, corporate offices, and our more than 500 retail stores were responsible for 54,590 metric tons CO2e in fiscal year 2018.

C6.2

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

Row 1

Scope 2, location-based

We are not 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

<Not Applicable>

Scope 2, market-based (if applicable)

8730

Start date

September 29 2017

End date

September 29 2018

Comment

We've updated our fiscal year 2016 colocation facilities footprint to reflect more accurately Apple's operational boundaries. Per the WRI Greenhouse Gas Protocol, we've removed from our Scope 2 calculations those emissions associated with colocation facility cooling and building operations.

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 systems & refrigerant leakage 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 Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services Evaluation status Relevant, calculated Metric tonnes CO2e 18500000 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 Explanation 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. Five-Step LCA Process: https://www.apple.com/environment/answers/	
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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>

Explanation

We have chosen not to report this metric, because data availability is limited—an exemption allowed for under the GHG Protocol guidance. 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. 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. In fact, since 2011, our use of renewable energy has reduced our Scope 1 and Scope 2 emissions by 64 percent and prevented more than 2.1 million metric tons of CO₂e from entering the atmosphere. 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>

Explanation

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

400000

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 2018 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

Explanation

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>

Explanation

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) A majority of the disposable tableware and containers in our Cupertino employee cafeterias are biodegradable or compostable, and our food and composting waste is made available to commercial farms. (ii) Further, our multiuse facility in Cork, Ireland achieved Zero Waste to Landfill validation through a number of efforts. In the factory, the same packaging in which we receive iMac components is reused to ship iMac to customers. And all cardboard, foam packaging, plastic trays, electrical cables, and pallets are recycled. Even the cooking oil from the campus cafeteria is recovered to produce biodiesel fuel. And in 2018, the final assembly facilities for iPhone, iPad, Mac, Apple Watch, AirPods and HomePod also became UL Zero Waste to Landfill certified. And we diverted 475,000 metric tonnes of waste in 2018. (iii) In fiscal year 2018, we generated 74,000 metric tons of waste and diverted about 74 percent from landfill through recycling and composting, up 3 percentage points from fiscal year 2017. We continue to look for ways to divert waste from landfill.

Business travel

Evaluation status

Relevant, calculated

Metric tonnes CO2e

337300

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. As a result of this change, our Scope 3 transportation emissions increased by 77 percent. Without the methodology change, these emissions would have increased by 14 percent, which reflects the growth in our business.

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

90

Explanation

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

183200

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

Explanation

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>

Explanation

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

900000

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 2018 shipment data. The detailed dataset provides resolution to final destinations at the country level. Two shipment scenarios are created base 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

Explanation

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>

Explanation

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

4700000

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

Explanation

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

50000

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

Explanation

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>

Explanation

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>

Explanation

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>

Explanation

We do not have investments relevant to this category as defined by the GHG Protocol: "This category is applicable to investors (i.e., companies that make an investment with the objective of making a profit) and companies that provide financial services. This category also applies to investors that are not profit driven (e.g. multilateral development banks), and the same calculation methods should be used. Investments are categorized as a downstream scope 3 category because providing capital or financing is a service provided by the reporting company".

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>

Explanation

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>

Explanation

C6.7

(C6.7) Are carbon dioxide emissions from biologically sequestered 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

2.38e-7

Metric numerator (Gross global combined Scope 1 and 2 emissions)

63320

Metric denominator

unit total revenue

Metric denominator: Unit total

265595000000

Scope 2 figure used

Market-based

% change from previous year

33

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 33 percent from fiscal years 2017 to 2018, though it's key to note that both years' intensity metrics were extremely small. Apple's revenue did increase significantly from \$229,234 million in 2017 to \$265,595 million in fiscal year 2018, and global Scope 1 and 2 emissions decreased from 81,650 in fiscal year 2017 to 63,320 in fiscal year 2018 due to emissions reduction activities including use of renewable energy and energy efficiency improvements in facilities and data centers. 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

0.48

Metric numerator (Gross global combined Scope 1 and 2 emissions)

63320

Metric denominator

full time equivalent (FTE) employee

Metric denominator: Unit total

132000

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 full time equivalent (FTE) employee decrease by 28% percent from fiscal years 2017 to 2018 primarily due to an increase in Apple's FTE headcount and a decrease in Scope 1 and 2 emissions reduction activities including use of renewable energy and energy efficiency improvements in facilities and data centers. 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 2017, we had an average annual FTE count of 123,000 and a combined Scope 1 and Scope 2 emissions of 81,650 metric tons CO₂e for an intensity figure of 0.66 metric tons CO₂e per FTE.

Intensity figure

0.029

Metric numerator (Gross global combined Scope 1 and 2 emissions)

63320

Metric denominator

megawatt hour transmitted (MWh)

Metric denominator: Unit total

2182000

Scope 2 figure used

Market-based

% change from previous year

34

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 34 percent between fiscal years 2017 and 2018 due to an increase in Apple's electricity consumption and a decrease in Scope 2 emissions from emission reduction activities including Apple-owned renewable energy projects as well as other low-carbon energy purchases. For FY 2017, we used approximately 1,832,000 MWh of electricity and had combined Scope 1 and Scope 2 emissions of 81,650 metric tons CO₂e for an intensity figure of 0.044 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 for an intensity figure of 0.029 metric tons CO₂e per MWh.

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	54450	IPCC Fifth Assessment Report (AR5 – 100 year)
CH4	60	IPCC Fifth Assessment Report (AR5 – 100 year)
N2O	90	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	45850
Other, please specify (All countries not including the US)	8730

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	45200
Data Centers	5090
Retail Stores	4300

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 in market-based approach (MWh)
United States of America		0	1830285	1830285
Other, please specify (Americas except for the US)		93	14235	13865
Other, please specify (Europe, Middle East, Inda, Africa)		3624	142867	136783
Other, please specify (asia Pacific)		5017	194160	185652

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 emissions (metric tons CO2e)	Scope 2, market-based emissions (metric tons CO2e)
Corporate Facilities		7980
Data centers		400
Retail Stores		350

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	105910	Decreased	130	During fiscal year ("FY") 2018 we generated and sourced renewable energy to achieve our renewable energy goal to supply all our facilities with 100 percent renewable energy. These actions considerably reduced our Scope 1 and Scope 2 emissions. We measured the amount of additional renewable energy added in FY 2018--beyond what was used in FY 2017--and multiplied that amount by the appropriate emissions factor to determine the amount of emissions reductions due to renewable energy. Our renewable energy use increased by 369 million kilowatt-hours between FY 2017 and FY 2018, saving an additional 100,000 metric tonnes of CO2e. Because Apple runs predominantly on renewable energy, using the small number of FY 2017 total emissions as a denominator makes for a very large percentage change: (Reduction in emissions due to additional renewable energy in FY 2018 / FY 2017 Scope 1&2 emissions) (105,910/ 81,650 *100% = 130%)
Other emissions reduction activities	14983	Decreased	18	During FY 2018 we implemented additional energy efficiency projects which saved a total of 14,983 metric tonnes of CO2e in that year, calculated based on the energy savings multiplied by the appropriated emissions factor. To calculate the emissions value as a percentage, we divided the additional emissions saved due to energy efficiency by the total FY 2017 emissions: (14983 /81,650 *100% = 18%)
Divestment		<Not Applicable >		
Acquisitions		<Not Applicable >		
Mergers		<Not Applicable >		
Change in output	102579	Increased	126	To understand the change in output between FY 2018 and FY 2017, we subtracted FY 2017 total energy use from the FY 2018 total to calculate the increase in energy use due to growth--an increase of more than 300 million kilowatt-hours of additional electricity use alone. We multiplied this additional energy use by the appropriate emission factor to calculate the associated emissions: 102,579 tonnes CO2e. To understand this increase in emissions as a percentage, we divided the calculated increase in emissions in FY 2018 due to increased energy use by the total FY 2017 emissions (102,579 / 81,650 *100%= 126%) Again, Apple runs predominantly on renewable energy with low total emissions, making the denominator in this equation low, and Apple's significant annual growth leads to large potential emissions, resulting in a very large percentage change.
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 undertakes this energy-related activity
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 MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	226661	252100	478761
Consumption of purchased or acquired electricity	<Not Applicable>	1264638	14962	1279600
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>	796875	<Not Applicable>	796875
Total energy consumption	<Not Applicable>	2288174	267062	2555236

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)
Biogas

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
226661

MWh fuel consumed for self-generation of electricity
226661

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>

Comment

Fuels (excluding feedstocks)

Propane Liquid

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

277

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

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Comment

Fuels (excluding feedstocks)

Other, please specify (Gasoline)

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

37738

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

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Comment

Fuels (excluding feedstocks)

Other, please specify (Diesel (Mobile combustion))

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

4536

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

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Comment

Fuels (excluding feedstocks)

Other, please specify (Diesel (other))

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

20271

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

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Comment

Fuels (excluding feedstocks)

Natural Gas

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

189277

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

189277

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>

Comment

C8.2d

(C8.2d) List the average emission factors of the fuels reported in C8.2c.

Biogas

Emission factor

0.0003

Unit

metric tons CO2e per MWh

Emission factor source

https://www.epa.gov/sites/production/files/2016-09/documents/emission-factors_nov_2015_v2.pdf

Comment

Natural Gas

Emission factor

0.1812

Unit

metric tons CO2e per MWh

Emission factor source

https://www.epa.gov/sites/production/files/2016-09/documents/emission-factors_nov_2015_v2.pdf

Comment

Propane Liquid

Emission factor

0.2311

Unit

metric tons CO2e per MWh

Emission factor source

https://www.epa.gov/sites/production/files/2016-09/documents/emission-factors_nov_2015_v2.pdf

Comment

Other

Emission factor

0.2591

Unit

metric tons CO2e per MWh

Emission factor source

https://www.epa.gov/sites/production/files/2016-09/documents/emission-factors_nov_2015_v2.pdf

Comment

This category covers diesel mobile combustion. For diesel generators we used a very similar emissions factor: 0.2721 metric tons CO2e per MWh.
https://www.epa.gov/sites/production/files/2016-09/documents/emission-factors_nov_2015_v2.pdf

C8.2e

(C8.2e) 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	796875	796875	796875	796875
Heat	0	0	0	0
Steam	0	0	0	0
Cooling	0	0	0	0

C8.2f

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

Basis for applying a low-carbon emission factor

Power Purchase Agreement (PPA) with energy attribute certificates

Low-carbon technology type

Wind

Region of consumption of low-carbon electricity, heat, steam or cooling

North America

MWh consumed associated with low-carbon electricity, heat, steam or cooling

471300

Emission factor (in units of metric tons CO2e per MWh)

0

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 Newark, California data center and our Cupertino-area corporate offices including our Apple Campus 2. Low-carbon technology type includes both solar PV and wind sources.

Basis for applying a low-carbon emission factor

Contract with suppliers or utilities (e.g. green tariff), not supported by energy attribute certificates

Low-carbon technology type

Wind

Region of consumption of low-carbon electricity, heat, steam or cooling

Other, please specify (Australia, Europe, and North America)

MWh consumed associated with low-carbon electricity, heat, steam or cooling

257300

Emission factor (in units of metric tons CO2e per MWh)

0

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.

Basis for applying a low-carbon emission factor

Contract with suppliers or utilities (e.g. green tariff), supported by energy attribute certificates

Low-carbon technology type

Wind

Region of consumption of low-carbon electricity, heat, steam or cooling

Other, please specify (Multiple regions)

MWh consumed associated with low-carbon electricity, heat, steam or cooling

87300

Emission factor (in units of metric tons CO2e per MWh)

0

Comment

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

Basis for applying a low-carbon emission factor

Energy attribute certificates, Renewable Energy Certificates (RECs)

Low-carbon technology type

Solar PV

Region of consumption of low-carbon electricity, heat, steam or cooling

North America

MWh consumed associated with low-carbon electricity, heat, steam or cooling

329500

Emission factor (in units of metric tons CO2e per MWh)

0

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.

Basis for applying a low-carbon emission factor

Energy attribute certificates, Guarantees of Origin

Low-carbon technology type

Wind

Region of consumption of low-carbon electricity, heat, steam or cooling

Europe

MWh consumed associated with low-carbon electricity, heat, steam or cooling

45800

Emission factor (in units of metric tons CO2e per MWh)

0

Comment

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

Basis for applying a low-carbon emission factor

Energy attribute certificates, I-RECs

Low-carbon technology type

Wind

Region of consumption of low-carbon electricity, heat, steam or cooling

Other, please specify (Multiple regions--Asia, Europe, Latin America)

MWh consumed associated with low-carbon electricity, heat, steam or cooling

72200

Emission factor (in units of metric tons CO2e per MWh)

0

Comment

Used in Brazil, Turkey, Taiwan and other countries globally 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 brought on line in a number of these countries. Low-carbon technology type includes solar PV, wind sources, and micro-hydro.

Basis for applying a low-carbon emission factor

Other, please specify (Australia LGCs)

Low-carbon technology type

Solar PV

Region of consumption of low-carbon electricity, heat, steam or cooling

Asia Pacific

MWh consumed associated with low-carbon electricity, heat, steam or cooling

1250

Emission factor (in units of metric tons CO2e per MWh)

0

Comment

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

Basis for applying a low-carbon emission factor

Other, please specify (Biomass including biogas)

Low-carbon technology type

Biomass (including biogas)

Region of consumption of low-carbon electricity, heat, steam or cooling

North America

MWh consumed associated with low-carbon electricity, heat, steam or cooling

105100

Emission factor (in units of metric tons CO2e per MWh)

0

Comment

Fuel cell base load (24*7) generation used to cover continuous operation at some of our facilities.

Basis for applying a low-carbon emission factor

Other, please specify (Solar PV)

Low-carbon technology type

Solar PV

Region of consumption of low-carbon electricity, heat, steam or cooling

Other, please specify (North America, Asia, and Europe)

MWh consumed associated with low-carbon electricity, heat, steam or cooling

796900

Emission factor (in units of metric tons CO2e per MWh)

0

Comment

Renewable projects Apple helped create, putting new renewable generation into the same grid that supplies our Apple facilities. Low-carbon technology types includes solar PV, wind sources, and micro-hydro. These projects span regions including North America, Asia, and Europe.

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 and/or Scope 2 emissions and attach the relevant statements.

Scope

Scope 1

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

Y

Apple_FY2018_BV_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

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

Y

Apple_FY2018_BV_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 3 emissions and attach the relevant statements.

Scope

Scope 3- at least one applicable category

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Attach the statement

Apple_FY2018_BV_Assurance_Statement.pdf

Page/section reference

Scope 3 business travel and employee commute: Assurance statement from Bureau Veritas page 2 shows the data assured. Document page 3 shows the degree of assurance.

Relevant standard

ISAE3000

Scope

Scope 3- at least one applicable category

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Attach the statement

Apple_CCF_Review_Statement_FY18.pdf

Page/section reference

Scope 3 carbon footprint of products: Assurance statement from Fraunhofer page 3 shows the data assured and 4 shows conclusions

Relevant standard

ISAE3000

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	ISAE 3000	The verification document attached also includes verification of renewable energy consumption (pages 2 & 3) 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 8.2a. Apple_FY2018_BV_Assurance_Statement.pdf
C8. Energy	Other, please specify (Natural Gas consumption)	ISAE 3000	The verification document also includes verification of total Natural Gas consumption referenced in 8.2c (found on pages 2 & 3 of attached document). Apple_FY2018_BV_Assurance_Statement.pdf
C8. Energy	Other, please specify (Electricity consumption)	ISAE 3000	The verification document also includes verification of total electricity consumption for FY 2017 (pages 2 & 3), referenced in 8.2a Apple_FY2018_BV_Assurance_Statement.pdf
C4. Targets and performance	Progress against emissions reduction target	ISAE 3000	The attached assurance document shows verification of our progress towards our 4-gigawatt goal referenced in c4.2, 4.3b. Apple-CEP_FY2018_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

24

% total procurement spend (direct and indirect)

% Scope 3 emissions as reported in C6.5

26

Rationale for the coverage of your engagement

Based on our corporate carbon footprint, we know that the manufacturing of our products—from mining to final assembly—represents the most significant source of our carbon emissions—74 percent in fiscal year 2018. 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 at least 24% of all of Apple's direct suppliers. We selected all direct suppliers as the denominator for our disclosure to reflect the extensive coverage of our carbon reduction engagement programs. To drive energy efficiency in our supply chain, in 2015, we started conducting surveys of all of our suppliers to collect annual energy consumption data. 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 to drive energy improvements. For the energy that is needed, we launched our Supplier Clean Energy Program to help suppliers transition to renewable energy through a combination of direct engagement and through online resources. The Supplier Clean Energy Program's SupplierCare portal is available to all our suppliers, and provides up-to-date market and regulatory analysis for most key manufacturing countries; it also is designed specifically to assist suppliers in identifying and executing the most viable renewable energy solutions available. Suppliers who commit to addressing 100 percent of their global manufacturing footprint for Apple become official Supplier Clean Energy Program participants, and are publicly championed as such. We also work with suppliers to innovate around the materials used in our products, which can reduce emissions even further up in our supply chain. For example, we've worked with suppliers across product lines to switch to aluminum smelted using hydroelectricity rather than fossil fuels. And we have identified 14 priority materials to transition to recycled and renewable sources, including tin, copper, and cobalt. By engaging with suppliers directly to switch to secondary materials, we reduce the carbon emissions associated with their 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. The Supplier Clean Energy Program is targeting a total of 4 GW of operational renewable energy by 2020, which equates to roughly 6.5 million metric tons of CO₂e—this target represents 26% of scope 3 emissions for fiscal year 2018 reported in C6.5 By the end of fiscal year 2018, we had partnered with suppliers across the globe to secure over 3.7 gigawatts of clean energy commitments, including 29 suppliers that had committed to powering their Apple production with 100 percent renewable energy. Once completed, these commitments will avoid over 5.2 million metric tons of CO₂e annually. We also engage a far broader pool of suppliers through our supplier energy efficiency program and our work to use only renewable and recyclable materials. Regarding energy efficiency, we measure success based on level of engagement in our program and reduction in energy use. By the end of 2018, 272 facility management staff across 54 supplier sites received energy trainings and developed energy reduction action plans with 666,101 tons of carbon reduction potentially identified for implementation. 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, we launched the 2018 13-inch MacBook Air with Retina display and 2018 Mac mini with 100 percent recycled aluminum enclosures, cutting the carbon footprint of each product nearly in half. This allows us to measure our progress across our priority materials, and towards our long-term goal to one day use only recycled and renewable materials.

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

% Scope 3 emissions as reported in C6.5

19

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 end of life 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. We also encourage our customers to return purchased products that have reached the end of their life. The recovery and reuse of materials contained in Apple products offsets greenhouse gas emissions resulting from extraction of raw materials. We continue to expand and evolve our program to collect products for reuse or responsible recycling. This program, Apple Trade In, lets customers return their device at any Apple Store or online at <https://www.apple.com/shop/trade-in/>. Apple Trade In is a simple way to exchange an old device for credit so that it can be reused by a new owner. If it isn't eligible for credit, we'll recycle it free of charge. Either way, Apple Trade In helps reduce the amount of materials that need to be mined from the Earth. We also have product recycling programs in 99 percent of the countries in which we sell our products. These engagements target Scope 3 emissions attributable to customers as reported in C6.5, including emissions from product use and end of life processing, which represent 19% and <1% of scope 3 emissions respectively. We selected this group of customers—all those who use our energy efficient products and/or have recycling programs available to them—in order to best address the emissions from product use and end of life.

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. Every single product not only meets but exceeds the U.S. Environmental Protection Agency's strict guidelines for efficiency, when applicable. From improvements in energy efficiency, since 2008, we've reduced the average energy consumed by Apple products by 70%. Engagement success for end of life is initiatives is measured by tracking the quantity of products returned to us through our programs as well as the materials recovered. We created our own disassembly robot, Daisy, to take apart and sort components, so we can recover more materials at a higher quality than traditional recyclers. In the U.S. and the Netherlands, Daisy is now processing end-of-life iPhone models returned to us through Apple Trade In and AppleCare. Daisy has the potential to recover the following materials for every 100,000 iPhone devices*: Aluminum (1500 kg), Copper (1,000 kg), Gold (1.1 kg), Silver (6.3 kg), Tin (29 kg), Rare Earth Elements (32 kg), Cobalt (790 kg), and Tungsten (83 kg). Overall, the program aims to encourage higher rates of recycling of Apple products as well as improved material recovery rates once those products are recycled. During a two week period around Earth Day 2018, we launched a promotion to incentivize customers to participate in Apple Trade In: for every device received through Apple Trade In, Apple made a donation to Conservation International. We then partnered with the nonprofit to use the funds to protect and restore a 27,000-acre mangrove forest in Colombia, which is expected to sequester 1 million metric tons of CO₂ over the project's lifetime. We also donated to the SEE Foundation in China with funds raised from the Earth Day campaign. With this contribution, SEE Foundation supported 20 grassroots NGOs in China focused on enhancing waste management and pollution control. We also communicate to our customers about product energy efficiency and recycling options in the Product Environmental Reports that we publish for each product we launch. *These quantities are based on an estimated product mix for what Daisy is likely to disassemble in the upcoming year, including additional iPhone models. Recovery quantities do not reflect potential losses that may occur during the recycling process.

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. Apple has a long-standing commitment to the energy efficiency of our products. In 10 years, we've reduced average product energy use by 70%. 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	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.
Clean energy generation	Support	Apple submitted formal comments to China's National Development and Reform Commission in April 2018 on China's draft RPS to communicate potential implications for corporate buyers.	Encouraged long-term DPP arrangements between generators and voluntary buyers beyond the scope of RPS targets; Encouraged utilization of a tracking system to ensure transparency and avoid double counting.
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	In January of 2018, Apple urged the Federal Energy Regulatory Commission (FERC) to reject calls from the Department of Energy to subsidize coal and nuclear assets, which in effect would artificially render clean energy to be more expensive.	Strengthen electricity markets
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

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. Apple is a Leadership Council Member and Lisa Jackson is on the leadership council. 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

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

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.

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. More recently, we joined several new organizations, including the Business Environmental Leadership Council of the Center for Climate and Energy Solutions (C2ES), and the Japan Climate Leaders Partnership. We also joined the Green Electricity Consumption Cooperative as a Board Member Company to support the use of voluntary renewable energy certificates in China. 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 conferences, meetings, and events throughout fiscal year 2018. At these events we demonstrated how business has the power to influence renewable energy markets.

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. 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

Y

Definitive Proxy Statement 2019.pdf

Page/Section reference

Page 5 (14 in the pdf)

Content elements

Strategy

Emission targets

Other metrics

Comment

Publication

In mainstream reports

Status

Complete

Attach the document

Y

Apple Form 10-k 2018.pdf

Page/Section reference

Page 15

Content elements

Risks & opportunities

Comment

Publication

In voluntary communications

Status

Complete

Attach the document

Y

Apple_GreenBond_Report_2018_021219_FINAL.pdf

Page/Section reference

Pages 4, 6, & 7

Content elements

Emissions figures

Other metrics

Comment

Publication

In voluntary sustainability report

Status

Complete

Attach the document

Y

Apple_Environmental_Responsibility_Report_2019.pdf

Page/Section reference

Pages 7-21

Content elements

Strategy
Risks & opportunities
Emissions figures
Other metrics

Comment

Publication

In voluntary communications

Status

Complete

Attach the document

Y
Apple_SR_2019_Progress_Report-2.pdf

Page/Section reference

Page 41

Content elements

Strategy
Risks & opportunities
Emissions figures
Other metrics

Comment

Publication

In voluntary communications

Status

Complete

Attach the document

Y
13-inch_MacBookAir_w_Retina_PER_oct2018-5.pdf

Page/Section reference

Page 1

Content elements

Strategy
Emissions figures
Other metrics

Comment

C14. 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.

C14.1

(C14.1) 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. These include our supplier clean energy program to address manufacturing emissions, carbon emissions reductions associated with aluminum manufacturing, and product energy efficiency improvements to address emissions from product use.

(1) Supplier clean energy program: Since the electricity used to process raw materials, make parts, and assemble our products is the largest contributor to our overall product carbon footprint, we're helping our suppliers transition to renewable energy. We launched the clean energy program in 2015, committing to work with our suppliers to generate and procure more than 4 gigawatts of new clean power worldwide by 2020, including 2 gigawatts in China alone. Once completed, the 4 gigawatts of clean power will represent 30 percent of our current manufacturing carbon footprint. As of April 2019, 44 manufacturing partners in 16 different countries have committed to 100 percent renewable energy for Apple production. Additional suppliers have committed to generate or procure clean energy for portions of Apple production, and Apple itself has invested directly in renewable energy projects to cover upstream emissions. In 2018, Apple and our suppliers invested in, or procured, 1.9 gigawatts of operational clean energy that collectively generated 4.1 billion kilowatt-hours. This clean energy generation avoided about 3.5 million metric tons of CO₂e—roughly equivalent to the electricity needed to power over 600,000 homes in the U.S. for a year.

(2) Lowering carbon emissions by focusing on aluminum: 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, every gram of aluminum used in iPhone XR generates 68 percent fewer emissions compared to conventionally sourced aluminum. And we reengineered our manufacturing process to reincorporate the scrap aluminum, further reducing its carbon impact.

(3) Product energy efficiency: We've prioritized the energy efficiency of our products, which reduces their carbon footprint during the use phase. Since 2008, we've reduced the average energy consumed by Apple products by 70 percent. 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, Apple's recently launched HomePod uses power-efficient components and software that can intelligently power them down during periods of inactivity. HomePod outperforms ENERGY STAR Program Requirements for Audio/Video Version 3.0 by consuming 50 percent less energy than what's required for low power mode. The 11-inch iPad Pro models introduced in fall 2018 are more than 69 percent more efficient than the ENERGY STAR standard. iMac Pro consumes 40 percent less power during sleep and off mode—the result of an innovation in power supply design. The 2018 MacBook Air with Retina display consumes three times less power in sleep than the previous-generation MacBook Air. We seek to increase energy efficiency across all of our products.

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 2019-2020 CDP Action Exchange initiative?
Please select

SC3.2

(SC3.2) Is your company a participating supplier in CDP's 2018-2019 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

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

Please confirm below
I have read and accept the applicable Terms