Welcome to your CDP Climate Change Questionnaire 2020

C0. Introduction

C0.1

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

VMware, Inc. (“VMware”) originally pioneered the development and application of virtualization technologies with x86 server-based computing, separating application software from the underlying hardware. We now help customers manage their IT resources across private clouds and complex multi-cloud, multi-device environments by offering solutions across three categories: Software-Defined Datacenter (“SDDC”), Hybrid Cloud Computing and End-User Computing (“EUC”). This portfolio supports and addresses the key IT priorities of our customers: accelerating their cloud journey, empowering digital workspaces and transforming networking and security. These VMware solutions enable the digital transformation our customers need as they ready their applications, infrastructure and devices for their future business needs.

We incorporated in Delaware in 1998, were acquired by EMC Corporation (“EMC”) in 2004 and conducted our initial public offering of our Class A common stock in August 2007. Effective September 7, 2016, Dell Technologies Inc. (“Dell”) acquired EMC. As a result, EMC became a wholly-owned subsidiary of Dell, and VMware became an indirectly-held, majority-owned subsidiary of Dell. We are considered a “controlled company” under the rules of the New York Stock Exchange. As of January 31, 2020, Dell controlled approximately 80.9% of our outstanding common stock, including 31 million shares of our Class A common stock and all of our Class B common stock.

We refer to our fiscal years ended January 31, 2020, February 1, 2019, and February 2, 2018 as “fiscal 2020,” “fiscal 2019,” and “fiscal 2018” respectively.

Total revenue in fiscal 2020 increased 12% to $10.8 billion. Total revenue is comprised of license revenue of $3.2 billion, subscription and SaaS revenue of $1.9 billion and services revenue of $5.8 billion. While sales of our VMware vSphere (“vSphere”) product have remained strong, the majority of our license sales originate from solutions across our broad portfolio beyond our compute products. Our corporate headquarters are located at 3401 Hillview Avenue, Palo Alto, California, and we have 169 offices worldwide.

For more details, please reference VMware's annual report on Form 10-K for the year ended January 31, 2020:
https://ir.vmware.com/websites/vmware/English/5010/us-sec-filing.html?shortDesc=Annual%20Report&format=html&secFilingId=642e3b96-2fc7-4b0d-9dd2-279a48ac9ff9

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
Reporting year	February 2, 2019	February 1, 2020	No

C0.3

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

Argentina
Armenia
Australia
Austria
Brazil
Bulgaria
Canada
Chile
China
Colombia
Costa Rica
Czechia
Denmark
Egypt
France
Germany
India
Indonesia
Ireland
Israel
Italy
Japan
Malaysia
Mexico
Netherlands
New Zealand
Norway
Pakistan
Peru
Poland
Portugal
Republic of Korea
Russian Federation
Saudi Arabia

Singapore
South Africa
Spain
Sweden
Switzerland
Taiwan, Greater China
Thailand
Turkey
United Arab Emirates
United Kingdom of Great Britain and Northern Ireland
United States of America
Viet Nam

C0.4

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

USD

C0.5

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

Operational control

C1. Governance

C1.1

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

No

C1.1c

(C1.1c) Why is there no board-level oversight of climate-related issues and what are your plans to change this in the future?

	Primary reason	Board-level oversight of climate-related issues will be introduced within the next two years	Please explain

Row 1	Currently, our highest level of oversight for climate-related issues is our Vice President of Sustainability Strategy who reports to our Chief Technology Officer.	Yes, we plan to do so within the next two years	In early FY20, sustainability was included on the BOD agenda. Our CFO is a member of Accounting for Sustainability (A4S) and VMware's A4S commitments were discussed. We are in the process of developing ESG governance at the operational and Board levels.

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
Environment/ Sustainability manager [1]	Both assessing and managing climate-related risks and opportunities [2]	Not reported to the board
Sustainability committee [3]	Assessing climate-related risks and opportunities [4]	Not reported to the board
Sustainability committee [5]	Assessing climate-related risks and opportunities [6]	Not reported to the board

[1] Vice President of Sustainability Strategy

[2] See C1.2a for details on the role of the Vice President of Sustainability Strategy.

[3] VMware's Executive Sustainability Council

[4] See C1.2a for details on the role of the Executive Sustainability Council.

[5] VMware's Sustainability Technical Council

[6] See C1.2a for details on the role of the Sustainability Technical Council.

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).

Vice President of Sustainability Strategy:

i) Description of climate-related responsibilities: Our VP of Sustainability Strategy oversees the development and implementation of VMware's sustainability strategy across our three sustainability pillars: product, planet and people. In this full-time role, the VP's daily activities

are dedicated to engaging organizational stakeholders and directing the sustainability team to drive our corporate sustainability initiatives and targets, including but not limited to: 100% renewable energy, carbon neutrality, technology innovation, waste diversion and supply chain.
ii) Rationale for why responsibilities are assigned to this position: This VP reports directly to, and meets regularly with, our Executive VP and Chief Technology Officer who reports directly to the CEO and is on the Executive staff. Placing the VP in the Office of the CTO was a strategic move made in 2016 to align the corporate sustainability objectives with the business strategy of the company. At VMware, our largest climate impact - by orders of magnitude - is through our products, which is why our most senior role related to climate issues reports directly to our CTO.

Executive Sustainability Council:
i) Description of climate-related responsibilities: The Executive Sustainability Council (ESC) is part of our tiered governance structure for assessing and monitoring climate-related issues. The Council includes key internal stakeholders across an array of departments whose role it is to review and guide our sustainability strategy, reporting, and corporate sustainability goals. The ESC includes the following stakeholders and roles:
· Chief People Officer (CPO) - considers the impact of sustainability on employee experience, culture, and talent acquisition, retention and development.
· Chief Technology Officer (CTO) - considers the impact of sustainability on long-term technical agenda.
· Chief Communications Officer (CCO) - guides the communication of our sustainability strategy internally and externally.
· VP, Global Government Relations and Public Policy - communicates relevant policy information and shares VMware's perspective on sustainability issues to relevant public policy forums.
· VP, Deputy Counsel - provides guidance to understanding and navigate any legal issues that arise.
· VP, Internal Audit - advises on assurance and risk as it relates to our sustainability strategy.
· VP, Real Estate and Workplace - operationalizes processes within the real estate organization concerning our corporate sustainability strategy.
ii) Rationale for why responsibilities are assigned to this position: The ESC was formed in 2016 to consider stakeholder feedback, review and approve our sustainability strategy, messaging, and corporate sustainability goals to continually improve and manage sustainability in a cross functional way.

Sustainability Technical Council:
i) Description of climate-related responsibilities: The Sustainability Technical Council comprises the remaining part of our tiered governance structure for assessing and monitoring climate-related issues and opportunities. The goal of the Council is to integrate sustainability into our engineering processes through training, policy, and goal setting, and provide examples of where sustainability has improved operations, productivity and costs. The Council also collaborates on assessing product environmental impacts, including energy consumption and carbon emissions, and overseeing R&D operations and mechanisms to reduce these. The Council helps to identify innovations in our products and services that can reduce the energy and carbon impacts of our customers' IT infrastructure, and where our products and services

can play a role to enable and accelerate solutions that drive business agility, intrinsic security, and decarbonization. Finally, the Council monitors trends among our customer base related to climate change in terms of supply chain requirements for decarbonization that might predict risks or opportunities for VMware.
ii) Rationale for why responsibilities are assigned to this position: At VMware, our largest climate impact - by orders of magnitude - is through our products, which is why we find it essential to monitor climate-related issues through a technical and product-driven lens. The Technical Council includes representation within the Office of the CTO and Products and Cloud Services Business Unit including VP of R&D Operations, VP & CTO of Global Field Operations, VP & CTO EMEA, Senior Director of Programs and Operations in the Office of the CTO, SVP Chief Research Officer, VP R&D, two R&D Fellows, and Principal Engineer. This Technical Council meets quarterly with the VP of Sustainability Strategy and Director of Sustainability Innovation to provide insights, share ideas, and drive cross-company sustainability initiatives.

C1.3

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

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

C1.3a

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

Entitled to incentive	Type of incentive	Activity inventivized	Comment
Chief Executive Officer (CEO)	Non-monetary reward	Behavior change related indicator	In FY20, our CEO added sustainability as a long-term corporate priority. An internal CEO dashboard was created to track progress against our 2020 climate goals, and will continue to track progress against our new 2030 climate goals. The progress against goals is regularly reported internally and externally through our company meetings.

C2. Risks and opportunities

C2.1

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

Yes

C2.1a

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

	From (years)	To (years)	Comment
Short-term	0	1	
Medium-term	1	3	
Long-term	3	6	

C2.1b

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

i) When assessing climate-related risks, VMware assesses impacts to our business through a limited set of financial and business impact criteria. VMware defines "substantive financial or strategic impact" as an impact that has the potential to affect percentage of revenue or percentage of net income. We set a low/medium/high trigger for potential impact that we evaluate and update each year. For consistency, we apply the same criteria for strategic business impact, such as brand or reputation exposure. For an example in the context of CDP, we define a substantive financial or strategic impact as an impact that would affect our delivery of SaaS offerings. For instance, if one of our cloud services partners is unable to operate a high customer workload public cloud availability zone it would affect our ability to render services to the customers.

ii) VMware ties substantive financial or strategic impact to financial and reputational indicators. We correlate potential impact to percentage of business revenue, or percentage of net income. While we also have criteria for subjective impact, such as brand or reputation exposure, we make efforts to extend the impact to financial exposure for better comparability between evaluated risks. Each year we review the list of risks for continued relevance, updating and editing as needed. For climate-related risks, we focus primarily on risks associated with product non-performance, since our products generally have the potential to deliver positive climate impact, such as reducing energy needs and facilitating a better remote work experience.

C2.2

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

Value chain stage(s) covered

Direct operations

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

i) VMware has an established a robust governance structure that supports our process for assessing and managing climate-related transition and physical risks and opportunities that could have a substantive financial or strategic impact.

Quarterly, the Audit Committee (comprised of Board members and supported by senior executives) reports to the Board and reviews our top risks and opportunities. The Audit Committee aligns with Executive Staff, Internal Audit and key corporate risk owners on the evaluation and management of top corporate risks. Our VP of Sustainability Strategy develops and communicates our sustainability strategy and collaborates with our VP of Internal Audit to integrate climate risk and opportunities into the risk assessment process. Internal Audit reviews the company's major initiatives annually and supports the Business Units in determining where to focus their efforts. Our Internal Audit Team is responsible for assurance and risk advisory services (such as maturity assessments, risk profiling and raising awareness) and performs annual compliance risk assessments for both identified and emerging risks across the value chain and across short, medium, and long-term time horizons. Internal Audit uses a multi-dimensional model to evaluate and prioritize risks and climate-related issues. Internal Audit brainstorms key risks and meets with business leaders across functions (including Enterprise Resiliency) to generate feedback. Risks are prioritized, based on agreed potential substantive financial or strategic impact, and evaluated further. Our impacts include strategic, customer, legal, and regulatory; and our vulnerabilities include rate of change, scale, experience, and concern.

VMware executive leadership sponsored the launch of an Enterprise Resiliency (ER) program in 2015 in response to our rapid global growth and the increasingly volatile world in which we live. The ER program brings together the business continuity, technology recovery, emergency response, and crisis management programs under a common governance framework. The ER function focuses on risk mitigation strategies for key business interruption type risks identified by Internal Audit team including natural disasters. The ER team's primary objectives are to develop Crisis Management Plans for these top risks, drive organizational awareness, and provide stronger governance across related programs like Business Continuity, Disaster Recovery, Crisis Management and Safety and Security so they all operate in unison toward improving the company's overall resiliency. Operational risk assessment process is an ongoing activity as pertinent risks arise and are flagged by Risk Management, Physical Security, ER and Crisis Management teams. Asset level operational risks associated with climate change are assessed and mitigated by the Real Estate & Workplace (REW) team in conjunction

with the Risk Management & ER teams, through the implementation of disaster recovery, crisis management, & business continuity planning.

ii) A case study of how we apply our operational risk assessment process to climate-related physical risk is illustrated by our Crisis Management, Physical Security and Enterprise Resiliency teams, which track climate-related extreme weather events, such as fires, floods and storms, that can impact business operations and productivity in the short term. Enterprise Resiliency, and Internal Audit teams regularly exchange information on existing and emerging operational risks. In 2019, 89 natural physical risk incidents were recorded globally ranging from cyclone, typhoon, and extreme rainfall to bush fires. We have developed Team Resiliency Plans for all people managers across our functions to support teams and manage such events. Enterprise resiliency teams also conduct Emergency Notification (EN) tests as a mass communication tool for all major sites annually. The EN system is used during events and incidents to enable team safety and wellbeing. Wildfires and public safety power shutoffs in October 2019 affected Palo Alto, California campus, Santa Clara datacenter, as well as large segments of our colleagues living within zones that were under wildfire threats. HR, Physical Security Operations, REW, Datacenter Operations and the public sector came together to make rapid security, safety and business operations decisions about VMware locations and colleagues safety such as conducting welfare checks on employees within the fire zone, activating our datacenter operations team and a contingency plan to transfer work from impacted to non-impacted areas.

iii) A case study of how we apply our operational risk assessment process to climate-related transitional risk is demonstrated by the shift to sourcing our electricity through renewable energy to avoid potential market risks related to increases in the price of fossil fuel-based electricity. We committed to reach 100% renewable energy for our global operations and carbon neutrality by 2020 in our sustainability roadmap informed by the findings of our first materiality assessment, which was completed in 2015. This goal was driven over the years in partnership with REW, ER and sustainability team (lead by VP of Sustainability Strategy) in conjunction with finance through annual operating plan cycles. We achieved RE100 in 2019 - powering our global operations by renewable energy. RE100 is a corporate initiative that is supported by REW, Finance, Sourcing, and ER business units within VMware. Our RE100 commitment will go beyond 2020 and is a key part of the science-based target for Scope 2 emissions in the short and medium term. We realize the importance of a progressive renewable energy procurement strategy and moving beyond purchasing renewable energy credits. We are evaluating finance investment models internally to engage in long term renewable energy contracts for existing sites and upcoming R&D sites in the medium term. Another area of work in transitional risk is related to renewable energy transition of our upstream colocation service providers. VMware is a member of REBA (https://rebuyers.org/about/leadership/) whose goal is to accelerate the transformation of the energy industry to renewable energy by making it easy and accessible for corporations to procure renewable energy for our own and our supply chains' operations. VMware's platinum membership enables us to participate in REBA's supply chain initiative that can magnify our ability to evolve and make progress on our own

supply chain strategy to include a broader coalition of companies. We believe the supply chain work is vital as we depend on our colocation and cloud partners for hosted services that must also transition to renewable energy.

C2.2a

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

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	As VMware operates in several regions and has expanded our global presence, we must stay aware of climate-related local, state or national governmental regulations in various markets. Current regulation risks, which may be influenced by climate issues, are considered relevant and included in our enterprise risk management identification and assessment processes conducted by our Internal Audit team. As one example, the offices that VMware operates in the European Union are subject to stricter environmental regulations, such as SECR and ESOS. ESOS is a mandatory energy assessment scheme for organisations in the UK to meet the EU Energy Efficiency Directive. Companies that qualify for ESOS must complete assessments (energy audits of building energy use to identify cost effective energy saving measures) every 4 years and submit the report. VMware participated in the second compliance period (ESOS phase 2) in December 2019. Such regulations could impact our operations by potentially requiring capital investments or other operational modifications.
Emerging regulation	Relevant, always included	Emerging regulation risks, which may be influenced by climate issues, are relevant and included in our enterprise risk management identification and assessment processes conducted by our Internal Audit team. Our policy engagement activities are coordinated through our VP of Global Government Relations and Public Policy. This individual sits on the Executive Committee of The Information Technology Industry Council (ITI), allowing VMware to assess emerging regulation risks and to weigh in on ITI's policy positions. An example of an emerging regulation we consider is a carbon tax. The likelihood of a carbon tax in the US is reviewed annually and the impact on our operations is assessed so that VMware is prepared for any potential financial or operational impacts.
Technology	Relevant, always included	Technological risks, which may be influenced by climate issues, are relevant and included in our enterprise risk management identification and assessment processes conducted by our Internal Audit team. We consider the risks presented by technology and the rapid developments within the field from a business strategy perspective, as well as a

		competitive one. For example, one of VMware's competitive advantages is the energy efficiency benefits we offer customers through our virtualization technology. Our SDDC suite of products enable customers to reduce their energy expenditures and minimize their carbon footprints. If a competitor develops technology to surpass our current energy efficiency benefits, we risk falling behind in this fast-moving field.
Legal	Relevant, always included	Legal risks, which may be influenced by climate issues, are relevant and included in our enterprise risk management identification and assessment processes conducted by our Internal Audit team. We believe that legal risk is very low as we are a software company and do not sell hardware products that may have liability risks. We believe that our exposure to litigation related to our climate-related performance and/or disclosure is very low; and legal risk due to breach of fiduciary duty to manage climate related risks is not relevant. The legal risk due to noncompliance with climate regulation is also very low. Legal risk from failing on mandatory climate related reporting is present but of very low impact. In the UK, large companies will have new reporting obligations under Streamlined Energy and Carbon Reporting (SECR). VMware UK qualifies as a large company and we have identified energy/carbon data collected for CDP reporting to support SECR and planned for supporting data gaps by assigning budget and resources. Additionally, we are making efforts internally to expand our qualitative and quantitate environmental performance reporting in our 10K (SEC filing) going forward.
Market	Relevant, always included	Market risks, which may be influenced by climate issues, are relevant and included in our enterprise risk management identification and assessment processes conducted by our Internal Audit team. We face intense competition across all markets for our products and services. We believe that the key factors in our ability to successfully compete include the quality, price, and adaptability of our product and service offerings, along with energy efficiency benefits. While we are a technology leader in virtualization and cloud infrastructure solutions and have a favorable image with our customers, many of our current or potential competitors have longer operating histories, greater name recognition, larger customer bases and significantly greater financial, technical, sales, marketing and other resources. An example of a climate-related market risk we consider is that if these resources were to be put towards developing a product that could compete with our virtualization software in terms of energy

		efficiency, then we would risk losing a part of our market share that values our products' environmental benefits.
Reputation	Relevant, always included	Reputational risks, which may be influenced by climate issues, are relevant and included in our enterprise risk management identification and assessment processes conducted by our Internal Audit team. For VMware, given that we have led the virtualization of IT with our virtualization products, for example vSphere, vCloudNFV, and Horizon, and that our products are known for energy efficiency, it would negatively impact our business if our reputation was damaged due to a lack of performance around the environment and climate change. There is now greater public and shareholder scrutiny on how companies are assessing climate change risks and opportunities. Third party ESG rating and ranking agencies (such as https://www.msci.com/esg-ratings and https://fortune.com/future-50/2019/vmware/) scan businesses environment performance and practices to rate companies. Fortune.com listed VMware in their "Future 50" ranking, which zeros in on the 50 global firms that are best poised to deliver—and continue delivering—above average gains. VMware must demonstrate commitment to climate change related action and progress on public goals to continue to score high on ESG ratings.
Acute physical	Relevant, always included	Acute physical risks, which may be influenced by climate issues, are relevant and included in our enterprise risk management identification and assessment processes conducted by our Internal Audit team. We evaluate the impacts of potential event-driven weather incidents that are severe or frequent such as drought, wildfires, acute air pollution, floods, water crisis, or increase in temperature. Given that two of our largest populations of employees live in drought-prone areas - California in the US and Bangalore and Chennai in India – we monitor this risk closely. In 2019, VMware's Security Operations Center reported wildfire events not only in California but also Texas and Australia. For example, public safety power shutoff in October 2019 affected Palo Alto, California campus, Santa Clara datacenter, as well as large segments of our colleagues living within zones that were under wildfire threats and PG&A power shutdowns. Such impacts to our major locations, where R&D product development, operations and support are conducted, could disrupt our operations.
Chronic physical	Relevant, always included	Chronic physical risks, which may be influenced by climate issues, are relevant and included in our enterprise risk management identification and assessment processes conducted by our Internal Audit team. We evaluate the impacts of chronic physical risks and longer-term shifts in climate patterns, such as sustained higher temperatures, that may cause sea level rise or frequent cyclones; chronic heat waves causing droughts; changes in precipitation patterns; and changing weather

		patterns. For example, climate-driven changes in precipitation extremes have the potential to disrupt VMware's internal operations. Given that one of the largest populations of employees live in areas increasingly prone to drought, Bangalore in India, we monitor this risk closely. In the last 3 years there have been economic lockdowns due to water shortage in Bangalore region. On the other hand, the coastal city of Mumbai where our sales office is located, has been affected by heavy rainfall for the past 2 years (June 2018 and Sep 2019).

C2.3

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

Yes

C2.3a

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

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical

Increased likelihood and severity of wildfires

Primary potential financial impact

Decreased revenues due to reduced production capacity

Company-specific description

Changes in severity of extreme weather events have the potential to disrupt VMware's internal operations which could result in delays in fulfilling customer orders and deferred revenue. While our owned and leased facilities are not in highly vulnerable locations, recent disasters have demonstrated that impacts can be anywhere and can be far-reaching in their geographic impact. In particular, these events can affect delivery of services to customers, the ability of our employees to access our facilities, and/or disruption in services to VMware operations.

We have developed Team Resiliency Plans for all people managers across functions to support teams and manage extreme weather and climate-related events. For example,

in the last three years California has experienced extreme temperatures and low precipitation, resulting in devastating wildfires that have impacted air quality and electric grid services at our Palo Alto campus where more than 4,000 of our employees work.

Time horizon

Medium-term

Likelihood

More likely than not

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

0

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Acute weather events can lead to operational shutdown due to compromised staff safety, limited site accessibility, or facility damage which can lead to decreased revenues due to reduced production capacity. Given the analysis of our internal risk assessment, we believe the risk of destruction of key facilities is extremely low.

While we've shared a range of potential financial impact in the past, we believe it's difficult to make a precise estimate for this rapidly evolving risk. We are in the process of refining our understanding of the potential financial impact. We are engaging our internal stakeholders and consultant teams (TCFD) in designing the frameworks and the process for quantifying the potential financial impact of this risk. We plan on refining the understanding of physical risks exposure and asset impacts on our key impacted sites to ascertain the potential financial impact, so we have put $0 for potential financial impact.

Cost of response to risk

0

Description of response and explanation of cost calculation

With a mantra to "Make Physical Security & Resiliency a Part of VMware DNA" several VMware teams manage extreme weather risks including Business Continuity Planning, Disaster Recovery, Emergency Response (ER), HR, Information Security Operations, Crisis Management, Communications, Real Estate and Workplace (REW), Physical Security, and Security Operations . The ER team focuses on risk mitigation strategies

for key business interruption risks including extreme weather events, with the main objectives of developing Crisis Management Plans, driving organizational awareness, and strengthening global teams governance to advance resiliency. Also our Emergency Notification system, a mass communication tool to enable team safety and wellbeing, is tested for all major sites annually by our enterprise resiliency team.

In 2019 mass public safety power outages caused by wildfires in California created a heightened need to equip managers with tools and resources to support their teams quickly and effectively. Due to the physical risks associated with the wildfires and power disruptions affecting 4,000+ staff at the Palo Alto campus, Santa Clara datacenter, and large segments of our colleagues living in wildfire threat zones, we planned resiliency actions carefully. With a goal to have a community of managers with the confidence and autonomy to support their teams during an event, we focused on completing Team Resiliency Plans. This was a yearlong effort by the enterprise resiliency team in conjunction with all company business functions HR, Physical Security Operations, REW, Datacenter Operations and the public sector came together to make rapid security, safety and business operations decisions about our locations and staff safety, such as conducting welfare checks and activating our datacenter operations team in case we needed to transfer work to non-impacted areas. As a result, we are more resilient to extreme weather events, not only in our drought-prone Palo Alto campus but also globally.

Risk management and global emergency response responsibilities are built into various roles including, REW, Crisis Management, physical security, Enterprise resiliency, security operations, marketing, and communications. The estimated cost of management includes staff time to implement programs. We do not disclose the exact figures, so we have put $0 for cost of management.

Comment

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Reputation

Stigmatization of sector

Primary potential financial impact

Decreased revenues due to reduced demand for products and services

Company-specific description

VMware has a long-standing positive reputation as a company. If we are not proactive about climate change, nor seen as a company that is a force for good in the world, our reputation is at risk. Energy use within the IT industry is drawing increased attention for its impact on the environment and climate change. Customers, businesses, and institutional investors are increasingly making investment decisions based on how environmentally responsible companies are. For VMware, given that we have led the virtualization of IT with our virtualization products (vSphere, vCloudNFV, Horizon, VMC on AWS) and that our products are known for energy efficiency, it would negatively impact our business if our reputation was damaged due to a lack of performance around the environment, climate change, and corporate responsibility.

Time horizon

Medium-term

Likelihood

Unlikely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

0

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Our revenue could decrease if our customers no longer see us as relevant or taking meaningful action to manage our environmental and social impacts although our reputation of being the virtualization market leader is strong and our commitment to environment, climate change and corporate responsibility is steady. At this point, we believe it's difficult to make a precise estimate for this risk. We plan on refining the understanding of reputation risk with our internal stakeholders and consultant teams (TCFD) and quantifying the potential financial impact, so we have put $0 for potential financial impact.

Cost of response to risk

0

Description of response and explanation of cost calculation

Our environmental responsibility is supported by a robust program of activity and we work to clearly convey our commitment to all of our stakeholders. We proactively address how our business activities impact climate change and communicate our

actions and achievements through transparent reporting and strategic messaging.

There is now greater public and shareholder scrutiny on how companies assess climate change risk. Third party ESG rating and ranking agencies (such as https://www.msci.com/esg-ratings and https://fortune.com/future-50/2019/vmware/) scan business environment performance and practices. Fortune.com featured VMware in their "Future 50" ranking, which highlights 50 global firms that are best poised to continue delivering above average gains. We must demonstrate climate change action and progress on public goals to continue to score high on ESG ratings. Our revenue and stock price could be negatively impacted if third party rating agencies give us a low score on environmental performance of climate related business operation risk and product opportunities.

To further demonstrate our commitment to corporate responsibility, we joined the UN Global Compact (the world's largest corporate sustainability initiative https://www.unglobalcompact.org/what-is-gc/participants/137744-VMware-Inc-) in November 2019. We are committed to ongoing public sustainability reporting through CDP and our annual Global Impact Report. We recently enhanced our corporate sustainability website, which includes numerous videos, reports, and interactive resources, adding a carbon calculator to enable our customers to easily assess their environmental impact. We communicate the carbon avoidance benefits of our products and how we are performing on our sustainability metrics at customer events, like our global VMworld conference. By making environmentally responsible business decisions and communicating those to our customers, we can cement our reputation as an authentic force for good.

We have 5 FTEs (including a Vice President, Director, 2 Senior Sustainability Managers, and a Program Manager) in sustainability functions and a cross-functional team to support the sustainability group. The cost of managing this risk is based on the management costs for this group. We do not disclose the exact figures, so we have put $0 for cost of management.

Comment

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Chronic physical

Changes in precipitation patterns and extreme variability in weather patterns

Primary potential financial impact

Decreased revenues due to reduced production capacity

Company-specific description

Climate-driven shifts in precipitation extremes have the potential to disrupt VMware's own internal operations which could result in delays in fulfilling customer orders, customer service delays, and ultimately, deferred revenue. Many of our sites in the APJ (Asia-Pacific and Japan) region are increasingly impacted by heavy precipitation. In the last two years APJ has experienced many extreme events such as heavy rainfall in Mumbai, India in September; heavy rainfall in Pune, India during August/September; and flooding in Jakarta, Indonesia. VMware sales offices are located in Mumbai and Jakarta and our R&D development center, with more than 700 employees, is based in Pune.

Time horizon

Medium-term

Likelihood

More likely than not

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

0

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Chronic weather variability can lead to operational shutdown due to compromised staff safety, limited site accessibility, or facility damage. Given the analysis of our internal risk assessment, we believe the risk of key facilities being significantly compromised is extremely low.

It’s difficult to make a precise estimate for disruption in a targeted geography. We are in the process of refining our understanding of the potential financial impact. We are engaging our internal stakeholders and consultant teams (TCFD) in designing the frameworks and the process for quantifying the potential financial impact of this risk. We plan on refining the understanding of physical risks exposure and asset impacts on our key impacted sites to ascertain the potential financial impact, so we have put $0 for potential financial impact.

Cost of response to risk

0

Description of response and explanation of cost calculation

Several VMware teams work to manage extreme weather risks including Business Continuity Planning (BCP), Disaster Recovery (DR), Emergency Response (ER), HR, Information Security Operations, Crisis Management (CM), Communications, Real Estate and Workplace (REW), Physical Security, and our Security Operations Center (SOC). The Emergency Response team focuses on risk mitigation strategies for key business interruption risks including chronic weather variability. The team's primary objectives are to develop Crisis Management Plans for our top risks, drive organizational awareness, and provide stronger governance across global teams so they operate in unison toward improving the company's overall resiliency.

Our crisis management teams work to develop site-specific risk management plans for major sites across the globe. As of 2019, the number of VMware sites with a crisis management plan increased to 36, with multi-stakeholder teams, an executive decision maker, and program managers (primary and backup). Many of our sites with recently implemented crisis management plans are in APJ region enabling rapid scale to drive resiliency globally. The crisis management response has supported our VMware sales staff in Mumbai and Jakarta, our R&D development center, and our 600+ employees in Pune by providing incident awareness, employee safety, and business continuity. Team resiliency plans put in place by people managers offered confidence, autonomy, and enabled business continuity.

Risk management and global emergency response responsibilities are built into various roles including, REW, Crisis Management, Physical security, Enterprise resiliency, security operations, marketing, and communications. The costs of management includes staff time to implement programs. We do not disclose the exact figures, so we have put $0 for cost of management.

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?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

Should emissions reporting become mandated, we have the capability to provide both insight into and management of energy usage and emissions through our management and automation services, and through our cloud services. Our IT software and our cloud services manage virtualized infrastructure resources and private and public cloud infrastructures.

Our products and services can help to provide improved understanding and management of energy usage and emissions through management, automation, and cloud services to enable customers to more effectively lower emissions. Examples of VMware products in the operations, management and automation product portfolio include our vRealize product line: 1) vRealize Operations, which provides performance, capacity and configuration management for virtual or physical infrastructure; 2) vRealize Automation, which enables customers to rapidly deploy and provision cloud services; and 3) vRealize Network Insight, which maps the flow of application traffic between clouds and datacenters. This suite of products also provides cost transparency of their cloud and virtualized workloads. Examples of our cloud services are CloudHealth, Wavefront, Network Insight, and VMware NSX Advanced Load Balancer. CloudHealth enables customers to analyze and manage cloud costs, usage, security and performance centrally for native public clouds. Wavefront monitors the performance and resource utilization of applications. Network Insight maps the flow of application traffic between clouds and datacenters. VMware NSX Advanced Load Balancer by Avi Networks provides consistent, multi-cloud load balancing, web application firewall and application insights across datacenters and public clouds.

Furthermore, with climate-driven extreme weather on the rise, in the event of a natural disaster, VMware provides fast and reliable IT disaster recovery products and services within our VMware Site Recovery Manager suite of products. Our products enable our customers to perform frequent, non-disruptive testing to ensure IT disaster recovery predictability and compliance and achieve fast and reliable recovery using fully automated workflows and complementary Software-Defined Datacenter (SDDC) solutions.

For more details, please reference Products and Technology Solutions section of VMware's annual report on Form 10-K for the fiscal year ended February 1, 2020.

Time horizon

Medium-term

Likelihood

More likely than not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

0

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The increased demand for our services would positively impact our revenue. It's difficult to make a precise financial estimate for this opportunity. We are in the process of refining our understanding of the opportunities. We are engaging our internal stakeholders and consultant teams (TCFD) in designing the frameworks and the process for quantifying the potential financial impact. As a result, we have put $0 for potential financial impact.

Cost to realize opportunity

0

Strategy to realize opportunity and explanation of cost calculation

This group of products is part of the larger Software-Defined Datacenter (SDDC) group form the foundation of our customers' private cloud environments and enable customers to extend their private cloud to the public cloud to help them run, manage, secure and connect all applications across all clouds and devices. These products are available on the market and we have annual releases that provide more robust features to support client requirements.

An illustration of extending our products to enable enhanced management of energy/GHG emissions would be to incorporate additional sustainability metrics dashboards to our vRealize Operations products. Customer facing materials have developed from a corporate IT server technology refresh in 2018 (5-year cycle) of our largest datacenter. Multiple VMware products such as vRealize Insight, vSphere vMotion and Site Recovery Manager/vSphere Replication facilitated the year-long

migration with only 4 hours of downtime. VMware uncovered the business opportunity to consolidate unused VMs that were idle and is saving $3M USD, 1.7 million kWh and 410 metric tons carbon emissions per year from this implementation.

Various blogs, such as “Go Zombie Hunting” e-book (https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/products/vrealize/vmw-cut-risks-to-your-business-by-zombie-hunting-eBook.pdf) and “Sustainability dashboards in vRealize Operations–Find out how much did you contribute to a Greener Planet” (https://blogs.vmware.com/management/2019/06/sustainability-dashboards-in-vrealize-operations-find-how-much-did-you-contribute-to-a-greener-planet.html), describe how to leverage solutions like vRealize Operations to identify and remediate optimization opportunities. Unused datacenter resources are lurking throughout most of our customers’ IT environments, with significant cost, security and sustainability impacts. vRealize Operations uses powerful custom dashboard features enabling customers to quantify savings by collecting metrics used to calculate power savings and CO2 emissions.

We advance product development through engineering-driven innovation and customer- and market-driven feedback while investing in our experienced group of developers and joint research with academia. At this point, it’s difficult to make a precise financial estimate for cost to realize the opportunity. As a result, we have put $0 for potential financial impact.

Comment

Identifier

Opp2

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

VMware Cloud on AWS (Amazon Web Services) is an on-demand service that enables customers to run applications across vSphere-based cloud environments and provides access to a broad range of AWS services. VMware Cloud on AWS allows customers to easily migrate their on-premises workloads to the public cloud. This gives customers the ability to shut down datacenters while using centralized cloud infrastructure for

performance and optimization. The energy avoidance of turning off a datacenter is enormous. Also, the infrastructure in VMware Cloud on AWS is leading edge. This means that usually, customers will see a greater virtual machine density than what they were able to obtain in their private datacenters. This means less servers are used in VMware Cloud on AWS as compared to their older on-premises datacenters, which are less energy efficient.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

0

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The increased demand would positively impact our revenue. It's difficult to make a precise financial estimate for this opportunity. We are in the process of refining our understanding of the opportunities. We are engaging our internal stakeholders and consultant teams (TCFD) in designing the frameworks and the process for quantifying the potential financial impact. As a result, we have put $0 for potential financial impact.

Cost to realize opportunity

0

Strategy to realize opportunity and explanation of cost calculation

We have invested in research and development of this offering. This hybrid offering, a strategic alliance with AWS integrates vSphere, vSAN and NSX along with VMware vCenter management and is optimized to run on dedicated, elastic, bare-metal AWS infrastructure. VMware Cloud on AWS is available to our VCPP and System Integrators and System Outsourcers partners through our VMware Cloud Provider—Managed Services Provider offering, which enables our partners to make VMware Cloud on AWS available to their end customers without having to create a similar service in their own datacenters.

There is potential for us to capture new business that might result from companies

seeking to reduce emissions and energy costs. To illustrate, we have received several customer requests to quantify the energy and carbon savings from migration of on-prem datacenter to VMware Cloud on AWS as part of deal closure process. We recently closed a deal with a financial wealth management customer for VMC on AWS, Site Recovery Manager (SRM), Network Insight, Log Insight, and Cloud Health. As part of the strategy to realize the sales opportunity, the sustainability team supported the sales team in calculating the carbon reduction impact of moving on-prem datacenter to VMware Cloud on AWS. This is a clear indication of the opportunity we have with this low carbon offering and the importance customers now place on sustainability and other business outcomes.

We advance our product development efforts through a combination of engineering-driven innovation and customer- and market-driven feedback and continually invest in our experienced group of developers and joint research with academia. At this point, it's difficult to make a precise financial estimate for cost to realize the opportunity. As a result, we have put $0 for potential financial impact.

Comment

Identifier

Opp3

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

As demonstrated by our compute virtualization platform, vSphere, VMware has supported our customers in avoiding over 758 million MT CO2e since 2003. An additional 455 million MT CO2e emissions were avoided due to non–IT datacenter energy avoidance such as cooling, non-IT equipment energy (White Paper referenced below). In the same vein, we provide offerings for our customers to reduce their storage hardware and network and security hardware footprints by using vSAN and NSX products. These products virtualize storage, network and security functions allowing those traditional operations to occur in a software layer, thereby reducing the need for excess hardware, while providing a more robust set of capabilities, and business agility. This also allows our customers to consume cloud services in a more efficient manner, which provides additional financial and environmental benefits.

VMware's vSAN platform allows customers to migrate their virtual machines and data from large, monolithic, storage arrays to drives populated in a server they are already using for running those machines on vSphere. This gives customers the advantage of then powering off the large storage arrays resulting in the potential for power and cooling cost savings in their private cloud.

VMware's NSX platform allows customers to run network and security services for their clouds in software. This reduces the need of physical switch and security hardware in their datacenters and facilitates moving workloads to other clouds. The energy benefit of this is two-fold: unneeded hardware is turned off and no longer requires energy for power and cooling; furthermore, workloads can be moved to other clouds that provide better energy efficiency (or, in the future, lower carbon intensity). NSX improves server utilization, thus improving power efficiency.

Please see the IDC White Paper, sponsored by VMware, "Enabling More Agile & Sustainable Business through Carbon-Efficient Digital Transformations" August 2020. The report can be found at: http://www.vmware.com/go/VMwareIDCWhitePaper2020

Time horizon

Short-term

Likelihood

Virtually certain

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

0

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The increased demand would positively impact our revenue. It's difficult to make a precise financial estimate for this opportunity. We are in the process of refining our understanding of the opportunities. We are engaging our internal stakeholders and consultant teams (TCFD) in designing the frameworks and the process for quantifying the potential financial impact. As a result, we have put $0 for potential financial impact.

Cost to realize opportunity

0

Strategy to realize opportunity and explanation of cost calculation

These products are part of the larger Software-Defined Datacenter (SDDC) group. Our SDDC technologies form the foundation of our customers' private cloud environments and provide the capabilities for our customers to extend their private cloud to the public cloud and to help them run, manage, secure and connect all their applications across all clouds and devices. These products are currently in use and we have annual releases that provide more robust features to support our clients with their requirements.

We've illustrated and quantified the environmental benefits of compute, storage and network virtualization technologies (vSpehere, vSAN and NSX) in our 2020 IDC White Paper, "Enabling More Agile & Sustainable Business through Carbon-Efficient Digital Transformations" (http://www.vmware.com/go/VMwareIDCWhitePaper2020) which explains "infrastructure virtualization technologies not only provide the architectural basis for enhanced operational and business agility in the cloud era but also increase the utilization and reduce the overall footprint of physical infrastructure in the datacenter. The result is reduced facilities-related costs such as power consumption and cooling. In turn, the overall reduced power consumption delivered by infrastructure virtualization results in lower carbon emissions (measured in terms of carbon dioxide, or CO2, emissions). IDC research finds that VMware, through its portfolio of infrastructure virtualization technologies, achieves a significant impact globally in reducing carbon emissions, which is quantified in this document in terms of net-avoided carbon emissions on a year-over-year basis."

We advance our product development efforts through a combination of engineering-driven innovation and customer- and market-driven feedback and continually invest in our experienced group of developers and joint research with academia. At this point, it's difficult to make a precise financial estimate for cost to realize the opportunity. As a result, we have put $0 for potential financial impact.

Comment

C3. Business Strategy

C3.1

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

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

C3.1a

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

Yes, qualitative and quantitative

C3.1b

(C3.1b) Provide details of your organization's use of climate-related scenario analysis.

Climate-related scenarios and models applied	Details
2DS	i)Scenario identification, inputs, assumptions: VMware completes a quantitative and qualitative climate-related scenario analysis to understand and evaluate the implications of our science-based target (SBT). The SBT methods considered includes CDP criteria, which utilizes the 2DS scenario, and SBTi criteria that utilizes various scenarios and a scope 3 screening. These are selected based on applicability and use for evaluating our SBT. We have chosen to report on the 2DS scenario to CDP as we track emissions progress each year in alignment with SBTi criteria. The analysis includes taking into account decoupling business and emissions growth trajectories, labs, and employees, and applied forecasted trends using a vetted set of KPI's to project GHG emissions and determine a business-as-usual (BAU) scenario. Assumptions around future growth rates, sales, employee headcount and real estate square footage are used. ii) Time horizon: Our analysis includes both medium- and long-term time horizons as prescribed by SBTi and CDP (5-15 years, 15+ years, respectively), as we use this analysis to meet or exceed the SBTi criteria. For the SBTi analysis and SBT tracking, we perform a Scope 3 inventory each year. iii) Areas of organization considered: The SBT assessment applies to the entire company, including the operating boundary for scope 1 & 2 emissions, and scope 3 emissions. Scope 1: vehicles, refrigerants, natural gas use, and diesel use from generators Scope 2: facilities, datacenters, and labs Scope 3: purchased goods & services, capital goods, FERA, upstream transportation and distribution, waste, business travel, employee commuting, and upstream leased assets The assessment relies on assumptions and inputs from specific business and stakeholder groups: facilities, datacenter labs, real estate, finance, and our supplier network. iv) Results: Results of the analysis indicate that VMware would need to achieve reductions ranging from 25% to 55% for the medium- and long-term timeframes, respectively. Consequentially, our SBT is to reduce scope 1 and 2 emissions by 50% by FY2031 from a FY2019 base-year. Results of this analysis are used to directly inform objectives and corporate strategy by providing reference points to determine feasibility and actions to reduce emissions. Our FY2019 base year analysis results showed 94% of our total emissions were scope 3, and 54% of scope 3 emissions were attributable to purchased good & services. As a result,

	we developed and submitted a now approved SBTi scope 3 target to reduce scope 3 GHG emissions from employee commuting and fuel-and-energy-related activities 50% by FY2031 from a FY2019 base year. VMware further commits that 75% of its suppliers by spend covering purchased goods & services, capital goods, upstream leased assets and upstream transportation and distribution will have SBTs by FY2025. v) Case study of how results informed business objectives and strategy: We analyze our emissions yearly in relation to our growth trajectory while considering the levels of reduction needed to align with SBTi criteria and to meet our SBT. We use the analysis to understand progress towards reduction goals, and to understand future energy procurement needs. The analysis demonstrated that energy efficiency measures alone would not be sufficient to achieve such an ambitious goal, whereas our planned and in progress commitment to achieve RE100 has now become a central initiative that will enable us to achieve our target. Additionally, the analysis influences our strategy by raising the importance of a progressive renewable energy procurement strategy and will influence our future decisions to move beyond solely purchasing renewable energy credits to achieve RE100. We continue to use the analysis to understand the types of projects, both renewable energy focused and for energy efficiency, that we expect to implement to achieve our target.

C3.1d

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

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	Description/time horizon: Customers are increasingly evaluating IT energy and carbon impacts; our products help lower carbon footprints and measure carbon reduction initiative impacts. We continually update our product features to remain competitive and secure new business. Climate related strategy will continue to influence our products and services strategy now and in the future (short-term of 0-1 year, medium-term of 1-3 years, and long-term of 3-6 years). Our cloud infrastructure and business mobility solutions accelerate customers' digital transformations by enabling them to master a software-defined approach to business and IT. Desktop, server and datacenter virtualization solutions also help customers reduce their energy costs

		and consumption. VMware led the development of virtualization technologies and continues transforming the way businesses build, deliver and consume IT resources by allowing organizations to manage resources across private clouds and complex multi-cloud, multi-device environments. Through virtualization solutions, the total energy required to support a given service is reduced, often dramatically, resulting in lower carbon emissions. Most substantial strategic decisions: The primary aspect of climate change that drives our strategy is the opportunity to enable energy efficiency through software. Cloud computing is a way to transition to a lower carbon business model while increasing business operations efficiency. We support our customers in avoiding emissions with our compute virtualization platform, vSphere, and in reducing their hardware footprints with our vSAN and NSX products. We quantify our products' environmental benefits annually with a study, "Enabling More Agile & Sustainable Business through Carbon-Efficient Digital Transformations" (http://www.vmware.com/go/VMwareIDCWhitePaper2020). Our impact is significant: over 758 MMT of CO2e have been avoided by our customers with our virtualization products since 2003 (see Opportunities 1, 2 and 3 in 2.4a). Our SDDC technologies form the foundation of our customers' private cloud environments, enabling them to extend their private cloud to the public cloud to run, manage, secure and connect all applications across all clouds and devices. We continually invest in and have annual releases that provide more robust features to support our client requirements.
Supply chain and/or value chain	Yes	Description & time horizon: Given the inherent risks faced by all businesses in today's climate along with the scale of our global supply chain, VMware aims to create an awareness of climate-related risks among our suppliers that will better enable them to identify and prepare for future events through CDP disclosures. A number of climate-related risks, including extreme weather events (such as those referenced in Risks 2 and 3 in 2.3a), could impair the production capabilities of our suppliers or disrupt transportation networks, potentially limiting our ability to fulfil obligations to our customers. Engaging with our suppliers also presents an opportunity to reduce emissions beyond our direct operations. Climate related strategy will continue to influence our supply chain business strategy now and into the future (short-term of 0-1 year, medium-term of 1-3 years, and long-term of 3-6 years). Most substantial strategic decisions to date: VMware's supply chain strategy is influenced by climate-related risks

		and opportunities now and in the future (short, medium, and long term). VMware joined CDP's Supply Chain initiative in 2018 to engage suppliers. Through this platform, we learned that our suppliers are highly capable and understand the need for emissions reductions. In FY20, we engaged suppliers representing over 75% of our spend and received responses from double the number of suppliers over the previous year, gleaning valuable insight into the climate-related activities being pursued by a number them. For example, 63% of suppliers reported active climate targets and 61% of our suppliers are engaging their own suppliers. We know that we cannot achieve our climate goals alone. For this reason, we have committed to working with 75% of our suppliers by spend to support them in setting their own science-based targets by FY2025.
Investment in R&D	Yes	Description & time horizon: We have made, and expect to continue to make, significant investments in research and development (R&D) as we respond to climate-related risks (as referenced in Risk 2 in 2.3a) and opportunities (as referenced in Opportunities 1, 2 and 3 in 2.4a) that improve our cloud product offerings as customers are increasingly evaluating the energy use and carbon impacts of IT, as well as the companies that provide these products and services. We continually invest in continually updating our product features to remain competitive and secure new business. Climate related strategy will continue to influence our R&D business strategy now and in the future (short-term of 0-1 year, medium-term of 1-3 years, and long-term of 3-6 years). Most substantial strategic decisions to date: In order to make significant progress in our R&D strategy, we continually invest in climate-related opportunities that improve our cloud product offerings now and in the future (short, medium, and long term). We have assembled an experienced group of developers with systems management, public and private cloud, desktop, digital mobility, security, applications, software-as-a-service, networking, storage and open source software expertise. We also have strong ties to leading academic institutions around the world, and we invest in joint research with academia. We prioritize our product development efforts through a combination of engineering-driven innovation and customer- and market-driven feedback. Our R&D culture places a high value on innovation, quality and open collaboration with our partners. Our R&D expenses grew from $1.91 billion in fiscal year 2018 to $2.17 billion in fiscal year 2020. We continue to invest in our key growth areas, including NSX and VMware vSAN, while also investing in areas that we expect to be significant growth drivers in future periods, such as Digital

		Workspace – End-User Computing, modern application platform, security solutions, VMware Cloud on AWS and VMware Cloud Services.
Operations	Yes	Description/ time horizon: Our operations are subject to a number of climate-related risks, such as potential disruptions to our drought/wildfire prone Palo Alto campus (see Risk 1 in 2.4a), all of which present opportunities for VMware to evolve and innovate. While our operations are not in highly vulnerable locations, recent events demonstrated that impacts can be anywhere and far-reaching in their geographic impact; therefore, we include operational resiliency into our strategy. We are also motivated to increase efficiency in our operations (see Opportunity 1 in 2.4a). Climate related strategy will continue to influence our operational strategy in the short-term of 0-1 year, medium-term of 1-3 years, and long-term of 3-6 years. Most substantial strategic decisions: In the last 3 years California has experienced extreme temperatures and low precipitation, resulting in devastating wildfires that impacted air quality and electric services at our Palo Alto campus, where more than 4,000 employees work. Our plan to install a microgrid on our 105-acre campus in Palo Alto illustrates what is possible when innovating how we operate. The impact of installing a full-scale Community Microgrid would extend far beyond our campus, providing local renewable power, energy storage, and emergency back-up power to be realized by an entire community during a climate-related event. We have signed a memorandum of understanding with the City of Palo Alto and contracted with Consolidated Edison to build a proof of concept. Two buildings will have stand-alone battery storage installations charged by solar panels and 100% renewable grid power and use cutting-edge blinkless software to predict grid failures, providing uninterrupted power for hours. Furthermore, the buildings will be able to deliver emergency power for Palo Alto Fire Department Emergency Response Vehicles creating value for the community as a whole. For the next phase of the microgrid, we are analyzing various potential development opportunities based on changing resiliency and energy needs across the company. Learnings from the Proof of Concept will be incorporated into the “Phase 2” business case planning in order to determine a path forward for the next microgrid deployment opportunity. We are also collaborating with Stanford and Vanderbilt University/NCSU around innovative smart grid technology development.

C3.1e

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

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues Direct costs Indirect costs Capital expenditures Capital allocation Acquisitions and divestments Assets	i.) Case studies: Climate-related impacts have influenced our financial planning for several elements. VMware has the opportunity to improve the resource efficiency and resiliency of our buildings and datacenters and does so by integrating climate change risks into the asset financial planning process. We incorporate energy efficiency, resiliency, sustainability and green power into retrofitting existing office buildings and in new projects, and we believe this increases the intrinsic value of the assets and our reputation in the market to attract new generation talent. For example, we have achieved LEED-certification for 19 of our sites globally, including LEED Platinum certification for two new buildings on our Palo Alto HQ Campus and our LEED Platinum datacenter located in Wenatchee, Washington with a PUE of 1.2. Additionally, most new offices in India have been LEED Gold or higher certified since 2016. We are working toward LEED GOLD certification for two large new facilities in Asia Pacific and BREEAM excellent certification for R&D facility in Europe. Additionally, we are using VMware's Sustainable Design Guidelines to support our teams in achieving LEED certification for both existing retrofits/remodels and new construction. New construction and retrofit projects with LEED certification have implications for our capital planning, in turn they enable future cost and carbon savings. LEED certification of new facilities is one of the strategies for our S2 science-based target. First costs increase for LEED certification range from 1% to 10% and yield energy and carbon savings over the lifetime of the facility. ii.) Time horizon: Climate related risks and opportunities influence our financial planning now and in the future (short, medium, and long term). Our financial planning related to revenues, indirect and direct (operating) costs, capital allocation/expenditure, acquisitions and divestments, and assets, as impacted by climate-related risks and opportunities extends to the long term. For several elements, planning occurs routinely (annual plan and quarterly forecast).

C3.1f

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

C4. Targets and performance

C4.1

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

Both absolute and intensity targets

C4.1a

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

Target reference number

Abs 1

Year target was set

2020

Target coverage

Company-wide

Scope(s) (or Scope 3 category)

Scope 1+2 (market-based)

Base year

2019

Covered emissions in base year (metric tons CO2e)

23,874

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

100

Target year

2031

Targeted reduction from base year (%)

50

Covered emissions in target year (metric tons CO2e) [auto-calculated]
11,937

Covered emissions in reporting year (metric tons CO2e)
15,456

% of target achieved [auto-calculated]
70.5202312139

Target status in reporting year
New

Is this a science-based target?
Yes, this target has been approved as science-based by the Science-Based Targets initiative

Please explain (including target coverage)
The percentage achieved is a result of the reduction in our Scope 1 and 2 emissions since FY2019. All years listed are our fiscal years (e.g. FY2020 was Feb 2019 – Jan 2020.) Our SBT approved goal is to reduce our scope 1 and 2 emissions by 50% by FY2031 from a FY2019 base-year.

Target reference number
Abs 2

Year target was set
2020

Target coverage
Company-wide

Scope(s) (or Scope 3 category)
Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2)

Base year
2019

Covered emissions in base year (metric tons CO2e)
12,803

Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)
100

Target year
2031

Targeted reduction from base year (%)
50

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

6,401.5

Covered emissions in reporting year (metric tons CO2e)

10,609

% of target achieved [auto-calculated]

34.2732172147

Target status in reporting year

New

Is this a science-based target?

Yes, this target has been approved as science-based by the Science-Based Targets initiative

Please explain (including target coverage)

All years listed are our fiscal years (e.g. FY2020 was Feb 2019 – Jan 2020.) Our SBT approved scope 3 goal is to reduce absolute scope 3 GHG emissions from employee commuting and fuel-and-energy-related activities 50% by FY2031 from a FY2019 base year.

Target reference number

Abs 3

Year target was set

2020

Target coverage

Company-wide

Scope(s) (or Scope 3 category)

Scope 3: Employee commuting

Base year

2019

Covered emissions in base year (metric tons CO2e)

49,245

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

100

Target year

2031

Targeted reduction from base year (%)

50

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

24,622.5

Covered emissions in reporting year (metric tons CO2e)

39,685

% of target achieved [auto-calculated]

38.8262767794

Target status in reporting year

New

Is this a science-based target?

Yes, this target has been approved as science-based by the Science-Based Targets initiative

Please explain (including target coverage)

All years listed are our fiscal years (e.g. FY2020 was Feb 2019 – Jan 2020.) Our SBT approved scope 3 goal is to reduce absolute scope 3 GHG emissions from employee commuting and fuel-and-energy-related activities 50% by FY2031 from a FY2019 base year.

C4.1b

(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).

Target reference number

Int 1

Year target was set

2016

Target coverage

Company-wide

Scope(s) (or Scope 3 category)

Scope 2 (market-based)

Intensity metric

Metric tons CO2e per unit revenue

Base year

2015

Intensity figure in base year (metric tons CO2e per unit of activity)

4.58

% of total base year emissions in selected Scope(s) (or Scope 3 category) covered by this intensity figure

100

Target year

2020

Targeted reduction from base year (%)

10

Intensity figure in target year (metric tons CO2e per unit of activity) [auto-calculated]

4.122

% change anticipated in absolute Scope 1+2 emissions

0

% change anticipated in absolute Scope 3 emissions

0

Intensity figure in reporting year (metric tons CO2e per unit of activity)

0.92

% of target achieved [auto-calculated]

799.1266375546

Target status in reporting year

Achieved

Is this a science-based target?

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

Please explain (including target coverage)

We set our first formal target in 2015, which is to reduce our carbon emissions intensity 10% for our Scope 2 market-based emissions by 2020. Our normalized base year emissions covered by target were calculated by dividing our market-based MT CO2e by our FY15 revenue in millions (30,106 MT CO2e/$6,571). It is important to note that many efficiencies are factored into our 2015 base year. Since our founding in 1998, the company has made many proactive sustainability decisions beyond the transformational products that have enabled energy efficiencies across the IT Sector for over a decade. Each year we have continued this investment, whether it's procuring a datacenter in Wenatchee, Washington that is 100% clean powered by the local utility to achieving LEED certification for various sites around the world. This target is expiring as we have a new approved SBT target. We will continue to aggressively pursue energy efficiency and renewable energy supply in our facilities, operations and datacenter.

In 2019, we're proud to report that our Scope 2 (market based) emissions decreased while our revenue increased by 64.5% from the base year. In 2019, we achieved an intensity metric of 0.92 MT CO2e per revenue in millions. This is a 79.9% decrease from

our base year, surpassing our 10% reduction goal. In 2015, this intensity metric was 4.58 MT CO2e. This intensity target is expiring this year and is being replaced by our SBT.

Note: the intensity figure above (4.58) is calculated with our revenue in millions. We have continued this format for consistency since this is how this metric has been reported in previous years.

C4.2

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

Target(s) to increase low-carbon energy consumption or production
Other climate-related target(s)

C4.2a

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

Target reference number
Low 1

Year target was set
2016

Target coverage
Company-wide

Target type: absolute or intensity
Absolute

Target type: energy carrier
Electricity

Target type: activity
Consumption

Target type: energy source
Renewable energy source(s) only

Metric (target numerator if reporting an intensity target)

Target denominator (intensity targets only)

Base year

2015

Figure or percentage in base year

71

Target year

2020

Figure or percentage in target year

100

Figure or percentage in reporting year

99.6

% of target achieved [auto-calculated]

98.6206896552

Target status in reporting year

Achieved

Is this target part of an emissions target?

This target is a part of our Abs1 .

Is this target part of an overarching initiative?

RE100

Please explain (including target coverage)

This is the same renewable energy goal reported in C4.2 last year. We increased our global consumption of renewable energy from 94% in 2018 to 99.6% in 2019. We declared a renewable energy target in 2015 and defined company-wide offices, and owned datacenters as the goal boundary. We had a detailed plan to support us in achieving our goal of 100% renewable energy by 2020. Please see VMware's Global Impact Report for more information on our corporate sustainability goals and RE100 announcement.

In 2018, we folded in colocation services related IT equipment Scope 2 emissions for the first time into overall Scope 2 calculations. This was done in accordance with the Future of Internet Power best practices paper (https://www.bsr.org/reports/BSR_Future_of_Internet_Power_GHG_Emissions_Report.pdf). Since the colocation IT equipment power consumption were not covered at the time of setting the target; we have not included them in the RE% target calculations. We plan to include colocation Scope 2 in RE goal boundary going forward. Additionally, we have adjusted our Scope 2 emissions to account for acquisitions and in the future, M&A impacts will also be included in our RE100 goal boundary.

C4.2b

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

Target reference number

Oth 1

Year target was set

2016

Target coverage

Company-wide

Target type: absolute or intensity

Absolute

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

Waste management

Other, please specify

% waste diversion from landfill

Target denominator (intensity targets only)

Base year

2015

Figure or percentage in base year

94

Target year

2020

Figure or percentage in target year

90

Figure or percentage in reporting year

93.3

% of target achieved [auto-calculated]

17.5

Target status in reporting year

Achieved

Is this target part of an emissions target?

No.

Is this target part of an overarching initiative?

Other, please specify

VMware's 2020 Vision & Goals

Please explain (including target coverage)

Our waste diversion rate increased slightly from 92.7% in 2018 to 93.3%. Our coverage dropped from 52% to 42% of our sites globally due to two large acquisitions in 2019. The 94.8% diversion rate was applicable to our Palo Alto location, which now makes up 26% of our global real estate portfolio. Our base year coverage was 33% of real estate portfolio. We anticipated this given our unusually high diversion rate in Palo Alto and are aiming to increase the diversion rate at our remaining sites by implementing best practices from Palo Alto. Please see VMware's Global Impact Report for more information on our corporate sustainability goals.

Target reference number

Oth 2

Year target was set

2020

Target coverage

Company-wide

Target type: absolute or intensity

Absolute

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

Engagement with suppliers

Percentage of suppliers with a science-based target

Target denominator (intensity targets only)

Base year

2019

Figure or percentage in base year

28

Target year

2025

Figure or percentage in target year

75

Figure or percentage in reporting year

23

% of target achieved [auto-calculated]

-10.6382978723

Target status in reporting year

Underway

Is this target part of an emissions target?

Yes, it is the supplier engagement portion of our Scope 3 SBT.

Is this target part of an overarching initiative?

Science Based Targets initiative

Please explain (including target coverage)

VMware commits that 75% of its suppliers by spend covering purchased goods and services, capital goods, upstream leased assets and upstream transportation and distribution will have science-based targets by FY2025. All years listed are our fiscal years (e.g. FY2020 was Feb 2019 – Jan 2020.) We have seen a decrease in goal progress due to improving underlying data and also due to accounting for M&A activity in our scope 3 emissions.

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	1	0
To be implemented*	1	34.19
Implementation commenced*	2	30.92
Implemented*	7	231.22
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 category & Initiative type

Energy efficiency in buildings

Lighting

Estimated annual CO2e savings (metric tonnes CO2e)

52.78

Scope(s)

Scope 2 (location-based)
Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

13,123

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

46,522

Payback period

4-10 years

Estimated lifetime of the initiative

6-10 years

Comment

Lighting retrofit

Initiative category & Initiative type

Energy efficiency in buildings
Other, please specify
High-efficiency Equipment

Estimated annual CO2e savings (metric tonnes CO2e)

92.04

Scope(s)

Scope 2 (location-based)
Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

63,654

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

294,756

Payback period

4-10 years

Estimated lifetime of the initiative

6-10 years

Comment

Replacement of conventional UPS with Lithium Ion Batteries.
Replacement of conventional blowers and motors with EC fans in AHUs

Initiative category & Initiative type

Energy efficiency in buildings
Other, please specify
Smart Grid/Smart Building Technologies

Estimated annual CO2e savings (metric tonnes CO2e)

86.4

Scope(s)

Scope 2 (location-based)
Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

55,000

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

341,340

Payback period

4-10 years

Estimated lifetime of the initiative

6-10 years

Comment

C4.3c

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

Method	Comment
Dedicated budget for energy efficiency	VMware has a dedicated budget for operational energy efficiency across our global facilities portfolio. In addition, we also have a separate annual capital budget to fund projects globally to expedite projects with

	deep energy savings. We trial a new technology first and then implement across the facility or sites.
Compliance with regulatory requirements/standards	Certain projects may be necessary to meet or exceed regulatory or customer compliance requirements. In such cases, compliance would be the driver and objective.
Partnering with governments on technology development	VMware supports a pilot project with a software startup, Measurabl, and the City of Palo Alto, which will enable and streamline municipal-level sustainability reporting to CDP as well as small businesses sustainability disclosure. VMware has worked closely with the City of Palo Alto to develop our community microgrid proof-of-concept. The VMware microgrid will serve as a testbed for the company and the City of Palo Alto to explore the potential of microgrids to advance resiliency at the corporate and community level.
Internal incentives/recognition programs	VMware sponsored SunShares for the fourth consecutive year, enabling our employees to reduce their carbon emissions at home. SunShares (https://www.bayareasunshares.org/) is a solar bulk purchase program that is available for all of our California employees. Over the last 4 years, SunShares has installed 4.56 Megawatts of solar. For our U.S. employees outside of California, we have several partnerships with solar providers that provide corporate discounts. VMware encourages innovation in everything we do. In 2017 a small team of enthusiasts joined forces and organized a team that created an office-wide Sustainability Campaign. The goal of the campaign was to educate and empower colleagues to drive more sustainable practices in the offices and participate in the prestigious Bandera Azul Award. In 2017 the Costa Rica team earned the Bandera Azul Award for Sustainability for the first time. In 2019, VMware earned our third Bandera Azul Ecologica, or the Blue Flag Award for the sustainability efforts in Costa Rica.
Employee engagement	We have a unique professional development opportunity for our employees called a “Take 3.” This enables an employee to work in a different group for three months as a respite from their normal work and as a way to broaden their understanding of how the organization works. Our sustainability team actively recruits employees for Take 3 opportunities and we’ve had great success in leveraging these (new) relationships to support us in more effectively communicating with various business units and increasing engagement in our sustainability strategy overall. We have developed new employee training content on sustainability for all employees. We also engage our employees on a regular basis through various communication channels, including our enterprise collaboration platform, Social (formerly Socialcast). It is here where employees can have active dialogues about the issues they care about, including sustainability. We engage our employees on Earth Day

	(April) through a campaign on Social as well as on site physical events on varied sustainability topics. We've seen an increase in participation during Earth Day campaign from all the global sites since last year.

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

Since its inception, VMware has avoided over 758 million MT CO2e through virtualization, as measured through its work with the International Data Corporation (IDC). Over time, VMware has expanded its focus from computing to storage and networking through its vSAN and NSX technologies, increasing the ability to reduce CO2 emissions. VMware was the first company to articulate a vision for the Software-Defined Datacenter (SDDC), enabling management of the datacenter to be entirely automated by software, from one, unified platform. Traditional datacenters are loose collections of technology silos where each application type has its own vertical stack consisting of a CPU and operating system, storage pool, networking and security, and management systems. Over time, costs to maintain the datacenter infrastructure have been increasing because the datacenter environment has become divergent, leading to higher complexity. The increased complexity of the datacenter demands constantly increasing resources to manage and maintain the IT infrastructure not to mention the power usage and overall size of the carbon footprint of these traditional datacenters.

The SDDC is designed to transform the datacenter into an on-demand service that addresses application requirements by abstracting, pooling and automating the services that are required from the underlying hardware. SDDC promises to dramatically simplify datacenter operations and lower costs. Additionally, through the consolidation benefits of SDDC we optimize/maximize the usage of computer, network and storage equipment, thereby reducing waste in spare and under-utilized equipment – directly avoiding GHG emissions.

VMware technologies also provide users with access to a Digital Workspace. These are the solutions that provide the ability for individuals to work from any location, using any device with secure access to any applications. The digital workspace is a holistic

change in the way end-user services are delivered by IT, so they can deliver the apps and data employees need to work across any device. By taking advantage of today's cloud-based management technologies, digital workspace solutions deliver self-service, out-of-the-box experiences that scale across platforms, locations, and device ownership models. This includes solutions like WorkspaceONE, Horizon Cloud and our Horizon 7 Suite.

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

Low-carbon product and avoided emissions

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

Evaluating the carbon-reducing impacts of ICT

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

70

Comment

In 2019, VMware commissioned its fifth study with IDC to quantify the impact of our products. The IDC white paper shows that VMware's virtualization products have avoided over 758 million MT CO2e for our customers over the last 16 years. An additional 455 million MT CO2e emissions were avoided due to non–IT datacenter energy avoidance (cooling, non-IT equipment energy). This study demonstrates VMware's positive carbon impact and has enabled us to engage more deeply with our customers around their environmental goals. This research provides a baseline for further efforts to quantify the impact of our other software products.

The 2020 IDC White Paper referenced above is entitled, "Enabling More Agile & Sustainable Business through Carbon-Efficient Digital Transformations." which can be found at: http://www.vmware.com/go/VMwareIDCWhitePaper2020

Level of aggregation

Group of products

Description of product/Group of products

Our End-User Computing (EUC) portfolio enables IT organizations to efficiently deliver more secure access to applications, data and devices for their end users. Our solutions provide end users a digital workspace, within which they can deliver any application to any device in an increasingly mobile-cloud era, while supporting corporate IT with appropriate management and security to networks, preventing data loss, and enabling a high-quality of service on premises or in the cloud. Our solutions are designed to optimize simplicity and choice to end users, while providing security and control to corporate IT. EUC's product portfolio consists of our AirWatch unified endpoint management solutions, our Horizon application and desktop virtualization solutions, and a set of common services such as VMware Identity Manager. These solutions provide customers with a complete Digital Workspace which leverages our datacenter SDDC

solutions so that customers can extend the value of virtualization from their datacenter to their employees and customers.

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

Low-carbon product and avoided emissions

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

Evaluating the carbon-reducing impacts of ICT

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

30

Comment

Our Horizon desktop solutions power end user desktops directly from the datacenter, and for every server virtualized in the datacenter, we estimate 4 tons of CO2 per year are avoided. When combining our solutions with more efficient hardware choices for end users, we see expanded environmental benefits. These include energy efficiency, a longer life-span, improved reliability, less packaging, and fewer raw materials to make hardware and lower amount of end of life asset disposal.

Please see the 2020 IDC White Paper, sponsored by VMware, “Enabling More Agile & Sustainable Business through Carbon-Efficient Digital Transformations." which can be found at: http://www.vmware.com/go/VMwareIDCWhitePaper2020

C5. Emissions methodology

C5.1

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

Scope 1

Base year start

January 1, 2015

Base year end

December 31, 2015

Base year emissions (metric tons CO2e)

4,878

Comment

Scope 2 (location-based)

Base year start

January 1, 2015

Base year end

December 31, 2015

Base year emissions (metric tons CO2e)

71,230

Comment

Scope 2 (market-based)

Base year start

January 1, 2015

Base year end

December 31, 2015

Base year emissions (metric tons CO2e)

30,106

Comment

C5.2

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

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

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)

5,501

Comment

Our gross global Scope 1 emissions are 5,501 MT CO2e. While the City of Palo Alto has provided carbon neutral natural gas since July 1, 2017, we have not considered this offset into our calculation. We buy green gas tariffs for Staines, UK as well but do not claim any offset. Our scope 1 emissions increased on account of M&A adjustment and refrigerant emissions.

C6.2

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

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We are reporting a Scope 2, market-based figure

Comment

C6.3

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

Reporting year

Scope 2, location-based

71,896

Scope 2, market-based (if applicable)

9,955

Comment

The location-based figures have gone up because of adjustments due to M&A in 2019 datacenter.

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?

No

C6.5

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

Purchased goods and services

Evaluation status

Relevant, calculated

Metric tonnes CO2e

255,754.07

Emissions calculation methodology

VMware uses Environmentally Extended Economic Input Output (EEIO) lifecycle analysis (LCA) emissions factors to quantify the emissions associated with its annual supplier and procurement purchasing activity. Annualized spend data is mapped to corresponding scope 3 categories, supplier categories, and industry sectors and is then multiplied by cradle-to-gate LCA emission factors for the sector to provide an estimated carbon emissions associated with the extraction, production and transport of purchased goods and services acquired or purchased by VMware in the reported year. Supplier spend activity that was already included in Scope 1 or 2 (such as electricity purchases from leased buildings) and other Scope 3 categories (such as upstream leased assets) that could be further defined to a GHG Protocol scope 3 category were removed from the Purchased Goods and Services category to prevent double counting. This may represent an under- or over- reporting of emissions in certain supplier categories and specific suppliers based on available spend data due to the nature of cost and accrual accounting. We anticipate improving the methodology and availability data in the future which will impact our year-on-year reporting and trends over time.

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

0

Please explain

Capital goods

Evaluation status

Relevant, calculated

Metric tonnes CO2e

59,795.71

Emissions calculation methodology

VMware uses Environmentally Extended Economic Input Output (EEIO) lifecycle analysis (LCA) emissions factors to quantify the emissions associated with its annual supplier and procurement purchasing activity. Annualized spend data is mapped to corresponding scope 3 categories, supplier categories, and industry sectors and is then multiplied by cradle-to-gate LCA emission factors for the sector to provide an estimated carbon emissions associated with the extraction, production and transport of capital goods acquired or purchased by VMware in the reported year. We have elected to use this methodology over using a single generic emissions factor (EF) for ‘all’ capital goods as reported, to enable better visibility into specific capital good categories by spend and carbon impact. Supplier spend activity that was already included in Scope 1 or 2 (such as electricity consumption from owned IT hardware) and other Scope 3 categories (such as upstream leased assets) that could be further defined to a GHG Protocol scope 3

category were removed from the Capital Goods category to prevent double counting. This may represent an under- or over- reporting of emissions in certain supplier categories and specific suppliers based on available spend data due to the nature of cost and accrual accounting. We anticipate improving the methodology and availability data in the future which will impact our year-on-year reporting and trends over time.

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

0

Please explain

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

Evaluation status

Relevant, calculated

Metric tonnes CO2e

10,609.25

Emissions calculation methodology

FERA emissions reported are based on the market-based approach for scope 2 reporting. Emissions were calculated for fuel-and-energy-related activities (not included in Scope 1 or 2) by totaling activity data for each Scope 1 fuel type and electricity consumption by country. These totals were multiplied by their relevant specific emission factors from UK Defra / DECC 2019 Conversion Factors for Company Reporting, AIB Residual Mix, and EPA eGRID. VMware's purchased renewable energy certificates were applied at a 0 emissions factor at the country level.

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

100

Please explain

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO2e

3,567.61

Emissions calculation methodology

VMware uses Environmentally Extended Economic Input Output (EEIO) lifecycle analysis (LCA) emissions factors to quantify the emissions associated with its annual supplier & procurement purchasing activity. Annualized spend data is mapped to corresponding scope 3 categories, supplier categories, and industry sectors and is then

multiplied by cradle-to-gate LCA emission factors for the sector to provide an estimated carbon emissions associated with the extraction, production and transport of capital goods acquired or purchased by VMware in the reported year. This may represent an under- or over- reporting of emissions in certain supplier categories and specific suppliers based on available spend data due to the nature of cost and accrual accounting. We anticipate improving the methodology and availability data in the future which will impact our year-on-year reporting and trends over time.

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

0

Please explain

Waste generated in operations

Evaluation status

Relevant, calculated

Metric tonnes CO2e

614

Emissions calculation methodology

VMware uses the EPA's WARM methodology which assigns values to each material that gets, landfilled, recycled and composted, along with GHG Protocol's guidance on waste generated in operations to calculate the emissions associated with waste generated in our global operations.

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

18

Please explain

Business travel

Evaluation status

Relevant, calculated

Metric tonnes CO2e

71,711

Emissions calculation methodology

Flight miles by trip is provided by the travel agent, American Express Global Business Travel. Based on the flight mileage, each flight is categorized by haul to align with the DEFRA business travel emissions factors for air travel (2019). The DEFRA EFs are then multiplied by the total miles by haul to determine the total GHG emissions.

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

100

Please explain

Employee commuting

Evaluation status

Relevant, calculated

Metric tonnes CO2e

39,685

Emissions calculation methodology

We estimated employee commute emissions using internal HR data , modes of transportation split, commuting days a year and EPA emissions factors. We split the employees into three categories: commuting employees from top 10 sites globally, remote employees, and commuting employees from sites beyond top 10. We used geo coding API to calculate the yearly commuting distance of the employees in top 10 sites. We also collected data on parking usage, public transport programs to estimate % split of transport mode. Sites beyond top 10 - we used a distributed approach (US vs Rest of the world). 39% of the employees in the sites beyond top 10 are based in the USA, whereas 61% are based outside of the US. For US employees we used the top 3 US sites weighted average numbers and for the rest 61% used the top 7 global sites weighted average numbers (commute miles, commute days, modes of transport split). For all emissions calculations we used the EPA emissions factors for cars and we used 0.1 kg/unit CO2 per mile as an estimate for the average public transport emissions factor.

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

0

Please explain

Upstream leased assets

Evaluation status

Relevant, calculated

Metric tonnes CO2e

1,286.56

Emissions calculation methodology

VMware uses Environmentally Extended Economic Input Output (EEIO) lifecycle analysis (LCA) emissions factors to quantify the emissions associated with its annual

supplier and procurement purchasing activity. Annualized spend data is mapped to corresponding scope 3 categories, supplier categories, and industry sectors and is then multiplied by cradle-to-gate LCA emission factors for the sector to provide an estimated carbon emissions associated with the extraction, production and transport of upstream leased assets acquired or purchased by VMware in the reported year. Supplier spend activity that was already included in Scope 1 or 2 (such as electricity consumption from colocation datacenters) that could be further defined to a GHG Protocol scope 3 category were removed from the Upstream Leased Assets category to prevent double counting. This may represent an under- or over- reporting of emissions in certain supplier categories and specific suppliers based on available spend data due to the nature of cost and accrual accounting. We anticipate improving the methodology and availability data in the future which will impact our year-on-year reporting and trends over time.

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

0

Please explain

Downstream transportation and distribution

Evaluation status

Not relevant, explanation provided

Please explain

VMware is part of the IT Service industry and does not does not manufacture, physically ship or sell any physical goods, and given the nature of our business as a software and technology services company, we have determined this category to be not relevant for our Scope 3 reporting.

Processing of sold products

Evaluation status

Not relevant, explanation provided

Please explain

VMware does not manufacture, physically ship or sell any physical goods, and given the nature of our business as a software and technology services company, we have determined this category to be not relevant for our Scope 3 reporting. 100% of our products are delivered electronically via cloud platforms.

Use of sold products

Evaluation status

Not relevant, explanation provided

Please explain

As this category is optional for the IT Service industry under the GHGP, VMware does not currently include this in Scope 3 reporting. VMware is determining a process to evaluate emissions in this category to determine scope and relevance.

End of life treatment of sold products

Evaluation status

Not relevant, explanation provided

Please explain

VMware delivers software products and services which have no physical end of life and therefore have no end of life emissions impacts.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

VMware does not have significant operations or assets owned by VMware that are then leased, which are not already included in our Scope 1 and 2 emissions based on operational control.

Franchises

Evaluation status

Not relevant, explanation provided

Please explain

VMware does not have any product, process or system franchises and as such has determined this category as not relevant.

Investments

Evaluation status

Not relevant, explanation provided

Please explain

As per GHG protocol Scope 3 definition, Investments category is designed primarily for private financial institutions, and public financial institutions (e.g., multilateral development banks, export credit agencies). VMware is not in the financial services business and hence this category is not relevant.

Other (upstream)

Evaluation status

Please explain

Other (downstream)

Evaluation status

Please explain

C6.7

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

No

C6.10

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

Intensity figure

0.0000014

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

15,457

Metric denominator

unit total revenue

Metric denominator: Unit total

10,811,000,000

Scope 2 figure used

Market-based

% change from previous year

46

Direction of change

Decreased

Reason for change

The 46% decrease in our emissions intensity from last year is due to several emissions reduction activities, including energy-efficiency projects that were implemented across our global portfolio as described in C4.3b location based. For example - replacement of CFL to LED lighting in two newly occupied South Bangalore offices; Replacement of

conventional UPS with lithium ion batteries in South Bangalore office and integration of HVAC and lighting controls (hardware and programming) into our enterprise energy management system in two Palo Alto campus buildings. In 2019 we expanded our purchases of renewable energy to cover global locations, we switched to a direct green tariff provider for Cork site, and we consolidated developer hardware and collected rack level consumption data for colocation IT equipment to improve accuracy. We attained 99.6% of energy consumption through renewables. Additionally, we were able to experience 20% revenue growth compared to 2019.

Intensity figure

2.5

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

77,397

Metric denominator

full time equivalent (FTE) employee

Metric denominator: Unit total

31,000

Scope 2 figure used

Location-based

% change from previous year

10

Direction of change

Decreased

Reason for change

There is a 10% decrease in our emissions intensity from last year. This shows that the company has decoupled carbon emissions from revenue growth. The overall Scope 1 and Scope 2 location-based emissions remained relatively flat due to facilities energy efficiency initiatives such as LED lighting retrofits, UPS replacement projects in India and integration of HVAC and lighting controls (hardware and programming) into our enterprise energy management system in two Palo Alto campus buildings as described in C 4.3b. In addition, our datacenter and developer hardware management teams consolidated hardware that lowered datacenter and colocation footprint despite acquisitions of Carbon Black and Pivotal.

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	2,272.8	IPCC Fifth Assessment Report (AR5 – 100 year)
CH4	5.1	IPCC Fifth Assessment Report (AR5 – 100 year)
N2O	1.1	IPCC Fifth Assessment Report (AR5 – 100 year)
HFCs	3,222.5	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	3,822
Bulgaria	144
United Kingdom of Great Britain and Northern Ireland	95
India	889
Israel	27
China	85
Costa Rica	93
Ireland	53
Japan	31

C7.3

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

By activity

C7.3c

(C7.3c) Break down your total gross global Scope 1 emissions by business activity.

Activity	Scope 1 emissions (metric tons CO2e)
Natural Gas	1,978
Diesel	292
Fleet	9
Refrigerants	3,222

C7.5

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

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted for in Scope 2 market-based approach (MWh)
Singapore	520.61	261.73	1,312.68	652.74
United States of America	42,029.6	6,913.48	149,174	122,388
Egypt	0.19	0.19	0.43	0
Malaysia	63.48	0	97.26	97.26
Thailand	32.8	32.8	68.72	0
Portugal	4.99	4.99	13.84	0
Costa Rica	5.48	0	2,284	2,284
Russian Federation	5.43	5.43	15.46	0
Armenia	35.32	0	221.42	221.42
Saudi Arabia	96.8	32.69	136.26	90.25
Netherlands	522.06	0	1,189.97	2,190.07
Viet Nam	0.19	0.19	0.53	0.53
Sweden	1.65	0	129.58	129.58
Republic of Korea	93.85	38.49	183.08	108
Pakistan	13.7	13.7	32.87	0
Ireland	1,357	0	3,572	3,572
China	2,941.21	328.28	4,698	4,174

Poland	50.44	0	70.76	70.76
Brazil	16.26	0	139.09	139.09
Chile	9.83	9.83	22.24	0
Bulgaria	3,524.34	36.86	7,258	7,148
France	25.05	0	361	361
Colombia	0.23	0.23	1.73	0
Argentina	36.05	19.79	102.42	74.91
Japan	1,189	196.16	2,267	1,893
United Kingdom of Great Britain and Northern Ireland	872.76	140.33	3,643	3,032
United Arab Emirates	131.62	0	199.75	199.75
Switzerland	1.7	0	58.94	58.94
Spain	84.57	0	291.94	291.94
India	16,501.04	1,345.04	22,826	22,070
New Zealand	3.34	3.34	28.88	0
Canada	27.18	27.18	1,187.39	0
Czechia	5.9	0	11.9	11.9
Turkey	35.46	1.28	78.77	76
Norway	0.05	0	6.49	6.49
Taiwan, Greater China	88.9	63.78	173.42	49
Denmark	6.29	0	41.52	41.52
Mexico	43.06	0	89.96	89.96
Italy	66.6	0	203.66	203.66
Israel	374.1	0	671.39	671.39
Australia	1,012.55	471.63	1,357.12	725
Germany	18.28	0	43.65	43.65
Austria	5.24	0	32.45	32.45
Peru	1.54	1.54	6.92	0
Indonesia	1.34	1.34	1.73	0
South Africa	38.98	0	43.11	43.11

C7.6

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

By activity

C7.6c

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

Activity	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Electricity	71,896	9,955

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	9,149	Decreased	38	Due to a change in renewable energy consumption during the year, emissions have not grown as high as could be expected. Last year 9,179 tons of CO2e were reduced by the purchase of renewable energy, and our total Scope 1 and Scope 2 emissions in the previous year was 23,874 tCO 2e, therefore we arrived at -38% through (9,149/23,874) * 100= -38% (i.e. a 38% decrease in emissions).
Other emissions reduction activities	231.22	Decreased	1	The numerous and varied proactive emissions reductions activities VMware implemented at owned and leased facilities worldwide in 2019 resulted in energy savings and corresponding

				emissions avoidance of more than 231.2 MT CO2e. The emissions value was derived by dividing the change in emissions by our 2018 Scope 1 and 2 market based emissions (=231.22/23,874).
Divestment				There were no divestments in 2019.
Acquisitions				VMware acquired Carbon Black, Pivotal and Avi Networks, Inc in 2019; We adjusted our carbon emissions due to M&A
Mergers				There were no mergers that impacted our emissions.
Change in output				There were no changes in output that impacted our emissions.
Change in methodology				In 2019, we purchased energy instruments to progress toward 100% renewable energy.
Change in boundary				There were no changes in boundary that impacted our emissions.
Change in physical operating conditions				There were no changes in physical operating conditions that impacted our emissions.
Unidentified				
Other				

C7.9b

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

Market-based

C8. Energy

C8.1

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

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

C8.2

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

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

C8.2a

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

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	0	12,044	12,044
Consumption of purchased or acquired electricity		173,241	31,109	204,350
Total energy consumption		173,241	43,153	216,394

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	No

Consumption of fuel for the generation of heat	No
Consumption of fuel for the generation of steam	No
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	No

C8.2c

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

Fuels (excluding feedstocks)
Natural Gas

Heating value
HHV (higher heating value)

Total fuel MWh consumed by the organization
10,893

Emission factor
0.182

Unit
metric tons CO2 per MWh

Emissions factor source
2017 Climate Registry Default Emission Factors

Comment

Fuels (excluding feedstocks)
Diesel

Heating value
HHV (higher heating value)

Total fuel MWh consumed by the organization
1,151

Emission factor

10.36

Unit

kg CO2e per gallon

Emissions factor source

2017 Climate Registry Default Emission Factors

Comment

C8.2e

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

Sourcing method

Power purchase agreement (PPA) with on-site/off-site generator owned by a third party with no grid transfers (direct line)

Low-carbon technology type

Solar

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

North America

MWh consumed accounted for at a zero emission factor

439

Comment

VMware has on-site solar panels at our Palo Alto campus.

Sourcing method

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

Low-carbon technology type

Other, please specify

Solar PV, Wind, Hydropower

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

North America

MWh consumed accounted for at a zero emission factor

87,092

Comment

Our local utility providers in Palo Alto, California and Wenatchee, Washington, the City of Palo Alto Utilities and Douglas County PUD respectively, provide 100% clean electric power to our facilities in those locations.

Sourcing method

Green electricity products (e.g. green tariffs) from an energy supplier, supported by energy attribute certificates

Low-carbon technology type

Other, please specify

Wind, solar, biogas, small hydro

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

Europe

MWh consumed accounted for at a zero emission factor

2,567

Comment

In addition, our utility provider, Engie, gives 100% renewable power for Staines, London-United Kingdom. We also contracted with SSE Airtricity, Cork- Ireland, utility provider for 100% renewable power. This is the total consumption for these two locations.

Sourcing method

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

Low-carbon technology type

Wind

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

India

MWh consumed accounted for at a zero emission factor

14,611

Comment

VMware has a contractual agreement for supply of wind power to our South Bangalore, India sites.

Sourcing method

Unbundled energy attribute certificates, Renewable Energy Certificates (RECs)

Low-carbon technology type

Wind

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

Other, please specify

US (outside of Palo Alto, CA and Wenatchee, WA)

MWh consumed accounted for at a zero emission factor

23,500

Comment

VMware purchased 23,500 MWh of 2019 US Green-e Energy certified Renewable Energy Certificates (RECs)

Sourcing method

Unbundled energy attribute certificates, Guarantees of Origin

Low-carbon technology type

Other, please specify

Solar for UK and wind for Europe

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

Europe

MWh consumed accounted for at a zero emission factor

11,323

Comment

1,650 MWh REGO were purchased for United Kingdom and 9,673 MWh EKOenergy Guarantees of Origin EACs in Europe.

Sourcing method

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

Low-carbon technology type

Hydropower

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

India

MWh consumed accounted for at a zero emission factor

6,354

Comment

VMware purchased 7,459 MWh of iRECs for India, applied 6,354 MWh

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Sourcing method

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

Low-carbon technology type

Other, please specify

Saudi Arabia & UAE (solar), Israel (solar); Turkey (wind); South Africa (small scale hydro)

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

Middle East

MWh consumed accounted for at a zero emission factor

1,086

Comment

We bought total 1,086 MWh of iRECs for Israel, South Africa, Turkey, Saudi Arabia and UAE

Sourcing method

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

Low-carbon technology type

Other, please specify

China (wind); Australia (solar); South Korea (wind); Taiwan (small scale hydro); Singapore, Malaysia (small scale hydro)

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

Other, please specify

Asia Pacific- China, Australia, South Korea, Taiwan, Singapore & Malaysia

MWh consumed accounted for at a zero emission factor

5,806

Comment

We bought 5,806 MWh combined iRECs for China, Singapore, Malaysia, Taiwan and South Korea (Power Plus), Australia (Australia REC)

Sourcing method

Unbundled energy attribute certificates, other - please specify

PowerPlus J-Credit

Low-carbon technology type

Other, please specify

Other - Japan (solar and wind)

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

Other, please specify

Asia Pacific- Japan

MWh consumed accounted for at a zero emission factor

1,893

Comment

We bought 1,893 MWh combined Japan (PowerPlus J-Credit)

Sourcing method

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

Low-carbon technology type

Other, please specify

Mexico (wind), Costa Rica (solar), Brazil, Argentina, Chile & Colombia (solar)

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

Latin America (LATAM)

MWh consumed accounted for at a zero emission factor

2,482

Comment

We bought 2,482 MWh for Latin America region- Mexico, Costa Rica, Brazil, Argentina, Chile & Colombia

Sourcing method

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

Low-carbon technology type

Other, please specify

Solar PV, Wind, Hydropower

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

North America

MWh consumed accounted for at a zero emission factor

2,627

Comment

Local utility providers in Palo Alto, California and Wenatchee, Washington, the City of Palo Alto Utilities and Douglas County PUD respectively, provide 100% clean electric power to two colocation facilities and one M&A site (Palo Alto, California and Wenatchee, Washington).

Sourcing method

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

Low-carbon technology type

Other, please specify

Solar PV, Wind, Hydropower

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

North America

MWh consumed accounted for at a zero emission factor

7,019

Comment

One of the large colocation facilities in Santa Clara, California, US is 100% powered by a vPPA agreement.

C9. Additional metrics

C9.1

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

Description

Other, please specify

Carbon Impact of Products (avoided energy and carbon)

Metric value

217,480,000

Metric numerator

MWh

Metric denominator (intensity metric only)

% change from previous year

9

Direction of change

Increased

Please explain

In 2020, for the fifth consecutive year, we commissioned IDC to complete a white paper including detailed calculations and a study on the impacts of VMware's virtualization products since 2003. The outcome of this research concluded that our customers have avoided over 758 million MT CO2e as a result of our products. An additional 455 million MT CO2e emissions were avoided due to non–IT datacenter energy avoidance (cooling, non-IT equipment energy). In 2019, incremental energy and carbon avoided through use of VMware virtualization technologies equated to 217,480,000 MWh and 95 million MT CO2e. An additional 130,488,000 MWh of energy and 57 million MT CO2e were avoided due to non-IT datacenter savings. In 2018, the incremental energy and carbon avoided through the use of VMware virtualization technologies equated to 200,000,000 MWh and 91 million MT CO2e. An additional 120,000,000 MWh of additional energy and 51 million MT CO2e were avoided due to reduced cooling load.
We look forward to continuing this positive carbon impact through the deployment of other VMware solutions.

Please see our August 2020 IDC White Paper is entitled “Enabling More Agile & Sustainable Business through Carbon-Efficient Digital Transformations,” which can be found at: http://www.vmware.com/go/VMwareIDCWhitePaper2020

C10. Verification

C10.1

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

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

C10.1a

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

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement

Clayton Report Template.pdf

Page/ section reference
Page 1

Relevant standard
ISO14064-3

Proportion of reported emissions verified (%)
100

C10.1b

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

Scope 2 approach
Scope 2 location-based

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement

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Page/ section reference

Page 1

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

Scope 2 approach

Scope 2 market-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

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Page/ section reference

Page 1

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

C10.1c

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

Scope 3 category

Scope 3: Business travel

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

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Page/section reference

Page 1

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

C10.2

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

Yes

C10.2a

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

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C8. Energy	Other, please specify MWHs	ISO 14064-3	In addition to having our carbon emissions assured by Apex (formerly Bureau Veritas), they assured VMware's total scope 1 and 2 MWHs. 1
C9. Additional metrics	Other, please specify estimated carbon avoided by our virtualization products	Commissioned study by IDC	VMware sponsored a white paper in 2020 with IDC to quantify the estimated carbon avoided by our virtualization products. Please see the August 2020 IDC White Paper, sponsored by VMware, entitled "Enabling More Agile & Sustainable Business through Carbon-Efficient Digital Transformations," which can be found at:

			http://www.vmware.com/go/VMwareIDCWhitePaper2020 2

1Clayton Report Template.pdf

2vmware-idc-whitepaper-2020.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?

Yes

C11.2a

(C11.2a) Provide details of the project-based carbon credits originated or purchased by your organization in the reporting period.

Credit origination or credit purchase

Credit purchase

Project type

Energy distribution

Project identification

The Harapanahalli Wind Power Project located in the Davangere District of Karnataka, India, delivers approximately 81,000 MWh of zero emissions renewable electricity to India's national grid each year. This plays a key role in achieving the country's 2022 green power targets, while enhancing the local economy and livelihood of residents through the creation of jobs. The project is validated and verified to the Verified Carbon Standard (VCS), and is registered with the Clean Development Mechanism (CDM). VMware has purchased 10,619 metric tonnes CO2e from the Harapanahalli Wind Power Project to support CarbonNeutral® company certification. VMware also purchased the following carbon offsets for LEED projects in Palo Alto, California, USA: 330 metric tonnes CO2e for LEED Project 1000121404, and 130 metric tonnes CO2e for LEED Project 1000117037.

The project is in a rural area and the wind farm contributes to the local economy and livelihood of residents through the creation of jobs for both full time operational roles as well as temporary positions required for planning and construction. The project improves overall local air quality as it does not incur the environmental pollution or solid waste problems associates with fossil fuel power plants. Additionally, consumption of large quantities of water required for generation of electricity in the current mix of power plants is avoided. Wind power contributes increased energy security and economic well-being as dependence on imported fossil fuels and the associated price variations is reduced.

This project supports the following Sustainable Development Goals (SDGs): SDG 6 Clean Water and Sanitation SDG 7 Affordable and Clean Energy SDG 8 Decent Work and Economic Growth SDG 9 Industry Innovation and Infrastructure SDG 13 Climate Action.

Verified to which standard

VCS (Verified Carbon Standard)

Number of credits (metric tonnes CO2e)

10,619

Number of credits (metric tonnes CO2e): Risk adjusted volume

10,619

Credits cancelled

Yes

Purpose, e.g. compliance

Voluntary Offsetting

Credit origination or credit purchase

Credit purchase

Project type

Energy distribution

Project identification

The Andipatti Wind Power Project located in the state of Tamil Nadu, India, this project consists of two wind farms with a total capacity of 49.5 MW, delivering approximately 100,000 MWh of clean renewable electricity to the southern regional grid each year. The country’s rapid population growth has added increasing pressure on electricity generating capacity, 70% of which is currently supplied by fossil fuels. Renewable energy projects such as this are vital to support India overcome its energy shortage, while reducing carbon emissions. Tamil Nadu state has India's largest installed capacity of grid connected renewable power, and has about 40% of the country's installed wind power. VMware has purchased 50,884 metric tonnes CO2e from the Andipatti Wind Power Project to support CarbonNeutral® company certification.

Sustainable Development Goals: In addition to delivering approximately 90,000 tonnes of emissions reductions each year to help take urgent action to combat climate change (SDG 13), the project delivers a number of other sustainable benefits including:

 Affordable and Clean Energy: By generating approximately 100,000 MWh of renewable electricity annually, the project displaces electricity which would have otherwise been drawn primarily from fossil fuel power stations.
 Decent Work and Economic Growth: The project has contributed to the local economy through the creation of jobs. Approximately 15 employees are currently working in full time operational roles and another 5 work in field security. During the development of the project, there were over 50 people working in construction and planning.
 Clean Water and Sanitation: Unlike coal plants, wind farms don't require water during the power generation process.

Verified to which standard

VCS (Verified Carbon Standard)

Number of credits (metric tonnes CO2e)

50,884

Number of credits (metric tonnes CO2e): Risk adjusted volume

50,884

Credits cancelled

Yes

Purpose, e.g. compliance

Voluntary Offsetting

Credit origination or credit purchase

Credit purchase

Project type

Other, please specify

Household devices, water

Project identification

Water-borne disease has been identified as a national priority in Guatemala given the high incidence of diarrheal disease and chronic malnutrition. The Guatemala Water Filtration and Improved Cookstoves project distributes water filters and stoves that enable access to clean water and improve cooking conditions by increasing fuel efficiency and reducing harmful indoor air pollution. It is the first Gold Standard water treatment or cookstove project in the country. The project is currently is Alta Verapaz, Huehuetenango and San Marcos departments and has so far benefited over 230,000 people.

The water filter uses a gravity-fed ceramic filter made of clay, sawdust, colloidal silver and carbon to treat two litres of non-potable water per hour. It removes 99% of pathogens, making it safer for drinking and cooking by reducing water-borne disease and also reduces the need for fuelwood, consequently decreasing indoor air pollution. The distributed improved cookstove burn biomass fuel cleanly and efficiently which contributes to a reduction of indoor air pollution that families, particularly women, are exposed to.

The water filters and improved cookstoves are sold to households by Ecofiltro and a local NGO, Socorro Maya. Carbon finance enables them to be made more affordable to low-income households with an 18-month payment plan that allows households to access interest-free loans. There is no upfront cost and families can begin to save on fuelwood (and the associated costs) immediately. The average household that uses an improved cookstove will reduce its biomass use by an estimated 65% which equates to 1,700kg each year. Given that 49% of households that use biomass purchase the wood, we estimate that the average family makes fuel savings of US $35 per year. VMware has purchased 23,360 metric tonnes CO2e from the Guatemala Water Filtration and Improved Cookstoves project to support CarbonNeutral® company certification

This project supports the following Sustainable Development Goals (SDGs): SDG 1 No Poverty SDG 3 Good Health and Well-being SDG 5 Gender Equality SDG 6 Clean Water and Sanitation SDG 7 Affordable and Clean Energy SDG 8 Decent Work and Economic Growth SDG 10 Reduced Inequalities SDG 12 Responsible Consumption and Production SDG 13 Climate Action SDG 15 Life on Land.

Verified to which standard

Gold Standard

Number of credits (metric tonnes CO2e)

23,360

Number of credits (metric tonnes CO2e): Risk adjusted volume

23,360

Credits cancelled

Yes

Purpose, e.g. compliance

Voluntary Offsetting

C11.3

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

No, but we 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

Information collection (understanding supplier behavior)

Details of engagement

Collect climate change and carbon information at least annually from suppliers

% of suppliers by number

3

% total procurement spend (direct and indirect)

79

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

52

Rationale for the coverage of your engagement

We engage with approximately 250 suppliers each year on the CDP Supply Chain platform to understand our supplier base climate maturity. This is the number of suppliers that make up roughly 75% of our procurement spend and about 52% of total scope 3 emissions.

Impact of engagement, including measures of success

In 2019, we engaged suppliers representing over 75% of our spend and doubled the number of suppliers who responded (increased to approximately 250). We measure the success of our supplier engagement through our CDP Supply Chain response rate, and other metrics.

We work with the CDP Supply Chain platform. Through this platform, we learned that our suppliers are highly capable and understand the need for emissions reductions. We received responses from double the number of suppliers over the previous year, and gleaned valuable insight into the climate-related activities being pursued by a number them. For example, 63% of suppliers reported active climate targets and 61% of our suppliers are engaging their own suppliers.

We know that we cannot achieve our climate goals alone. For this reason, we have committed to working with 75% of our suppliers by spend to support them in setting their own science-based targets by FY2025. This target has been approved by the Science Based Target Initiative.

Comment

C12.1b

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

Type of engagement

Education/information sharing

Details of engagement

Run an engagement campaign to educate customers about the climate change impacts of (using) your products, goods, and/or services

% of customers by number

100

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

0

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

VMware's products have supported our 500,000+ customers in reducing their carbon footprints for the last 16 years. We offer information on customer emissions reductions on the Sustainability page of our website, including interactive resources like a carbon calculator to enable our customers to easily assess their environmental impact. We share the product impact data in our annual Global Impact Report. This year, we sponsored our 5th consecutive report from IDC that quantifies the cumulative positive carbon impact of our products for our customers. VMware’s infrastructure virtualization solutions — which encompasses compute (server), storage, networking, and management capabilities — forms the underpinning of modern datacenter infrastructure. It enables firms to gain datacenter-wide and IT-wide efficiencies as well as establish metrics to track and ultimately avoid carbon emissions resulting from IT infrastructure growth. Please see our August 2020 IDC White Paper entitled “Enabling More Agile & Sustainable Business through Carbon-Efficient Digital Transformations,” which can be found at: http://www.vmware.com/go/VMwareIDCWhitePaper2020

Impact of engagement, including measures of success

We measure the success of our customer education efforts around the climate change impacts of datacenter products by measuring avoided greenhouse gas emissions during product use phase. Since 2003, VMware's products have avoided over 758 million MT

CO2e for our customers. An additional 455 million MT CO2e emissions were avoided due to non–IT datacenter energy avoidance (cooling, non-IT equipment energy). In 2019 alone, the emissions avoidance associated with customers using our products was 95 million MT CO2e. We also share product impact data at our annual user conference, VMworld, which is held in both the United States and Europe, while our vForum events are held in the Asia Pacific and Japan region.

Type of engagement

Education/information sharing

Details of engagement

Share information about your products and relevant certification schemes (i.e. Energy STAR)

% of customers by number

100

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

0

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

We have many opportunities to engage with our customers and actively seek their input and requirements. We specifically engage in annual or bi-annual Customer Advisory Councils across each region of our business and feedback is incorporated into our product roadmaps, where applicable. We have experienced a significant increase in engagement with our customers regarding our ESG performance over the last year. We currently have 39 customers on the EcoVadis platform and provide our scorecard directly to numerous other customers who are external to the platform. This effort is to support our customers in providing them with a holistic view of our sustainability efforts through transparency and third-party review, and to empower us with an efficient response process. We prioritize responding to our customer's annual questionnaires, as well as ad-hoc queries aiming to be as responsive as possible on these issues and concerns. We have a global team that includes members from our field support, sustainability and compliance groups that is responsible for responding to customer ESG questions.

Impact of engagement, including measures of success

As a measure of success, we have received positive confirmation from our customers upon review of our data and to date, they have all been satisfied with our responses. Additionally, we have a customer advocacy team that engages regularly through a Net Promoter Score (NPS) survey. Globally, more than 900 companies have committed to setting science-based targets for emissions reductions. We realize that the majority of those are our customers. We are working with the field sales teams to help these customers in their digital transformation journeys through deeper penetration of our

technologies. We deploy and test products in our own IT environments and then share the learnings, business & sustainability benefits with our customers.

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	Given VMware's headquarter office is located in Palo Alto, VMware has forged strong relationships with the City of Palo Alto, Stanford University, and its neighbours in the Stanford Research Park.	VMware has worked closely with the City of Palo Alto to develop our community microgrid proof-of-concept. The VMware microgrid will serve as a testbed for the company and the City of Palo Alto to explore the potential of microgrids to advance resiliency at the corporate and community level. By sharing data and lessons learned through this effort, VMware and the City of Palo Alto will also enable the microgrid to serve as a platform to help understand the impacts of community microgrids on Palo Alto's existing energy infrastructure.
Other, please specify Energy Infrastructure	Support	Focus of Legislation: Securing State Energy Infrastructure VMware supports and actively participates in policy academies with the National Governors Association (NGA) Center for Best Practices Resource Center on Cyber Security.	The NGA works with state governors across the country to assist states in developing responsible policies and state legislation to enhance the cybersecurity of state energy systems and infrastructure. The NGA recognizes that a cyber-attack on the systems that run water treatment facilities and electrical and nuclear power

			plants, can have significant negative environmental consequences.
Energy efficiency	Support	VMware has supported H.R. 306, Energy Efficient Government Technology Act, and worked with Palo Alto's Congresswoman, Rep. Anna Eshoo, and her staff to advocate for its passage in the House.	Our Palo Alto Congresswoman, Rep. Anna Eshoo (D-CA), introduced H.R. 306, Efficient Government Technology Act, which requires the Department of Energy to update its 2007 baseline for energy efficiency at datacenters, with an eye to making new datacenters operate with less expenditure of power -- and by extension fewer costs. The legislation also tasks agencies with collaborating with DOE, the Office of Management and Budget (OMB) and the Environmental Protection Agency to come up with ways of measuring and verifying energy saving methods to make datacenters operate with less energy. OMB would have to report on agency progress. Additionally, OMB would establish a program to certify tech workers in the evaluation and management of energy usage for the purpose of tracking datacenter efficiency. Stats: The federal government could realize $5 billion in energy savings over seven years with more efficient use of datacenters, according to a 2013 report from the Center for Climate and Energy Solutions. The Department of Energy estimates that implementation of best practices alone could reduce the government's datacenter energy bill by 20 to 40 percent. With investments in the latest technologies, experts estimate that most datacenters could slash

			their energy use by 80 to 90 percent. Bill Status: H.R. 306 passed in the House on January 3, 2017, and was introduced on June 28, 2017, as part of the Senate bill, titled “Energy and Natural Resources Act of 2017” (S. 1460). The legislative session ended before it was passed. While the bill did not pass, it is significant that ideas presented are introduced and those ideas will likely reappear in future legislation.
Other, please specify IT Modernization	Support	Through its trade association memberships, VMware supported the Modernizing Government Technology (MGT) Act, which was adopted into law in December 2017.	The MGT Act of 2016 reformed how the Federal Government funds and modernizes IT solutions and keeps pace with innovations, such as virtualization, and cloud computing that can positively impact the environment.
Other, please specify Emissions	Support	Japan's Ministry of the Environment's (MOE's) "Construction of a system to enable centralized management of greenhouse gas emissions" of "Digital Governance Project for Greenhouse Gas Emissions" (JPY360M/FY2020 budget) is a Japanese government system to comprehensively manage the amount of greenhouse gas emissions and reduction plans of each company. This project requires a flexible development methodology because it needs to work with a number of private systems. VMware is supporting the Japanese government to change of the current rigid government system development and to build this system for the better. The system is in development, starting	VMware is actively supporting legislators in their efforts to pass the Digital Society Promotion Act, legislation introduced by a Diet member that will enable a more efficient digital government. Specific support is planned to arrange a Diet question that will allow the introduction of "agile development" and "container technology" into the development of government systems. This question is scheduled for a parliamentary session in October 2020. The bill affects the way all Japanese government systems are developed, including the "Digital Governance Project for Greenhouse Gas Emissions".

		in 2019 and expected through 2022.	

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

The Information Technology Industry Council

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

Information Technology Industry Council (ITI) and its members seek to continuously improve the energy efficiency landscape in the US and globally to leverage energy-efficient technologies. ITI works on behalf of its member companies to advocate for policies that advance both intelligent efficiency and product efficiency.

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

VMware's Vice President of Global Government Relations sits on the Executive Committee of ITI and influences ITI's policy positions. ITI and its member companies understand that we have a major stake in the fight against climate change. VMware supports the three strategic commitments ITI has made in this regard. ITI also supports government policies that emphasize an innovation agenda for mitigating and adapting our changing climate. 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, their activities in Europe in coordination with Digital Europe, their work in China in coordination with USITO and their policy efforts elsewhere in Asia, Latin America, Africa, and the Middle East. It also participates actively in energy efficiency efforts within the G-20, the Asia Pacific Economic Cooperation (APEC) forum, the United Nations, and other international venues.

Trade association

Digital Europe

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

Digital Europe is committed to contributing to a sustainable and energy efficient Europe. The organization aims to ensure that products are designed, produced, used, and where possible reused or recycled in a sustainable and safe manner, and promote the benefits of digital solutions in achieving sustainable goals. They help stakeholders to:
• product design, including substance use
• resource efficiency and waste management
• reducing GHG emissions
• broader global supply chain responsibility, including responsible sourcing
Digital Europe addresses these specific areas of sustainability: chemicals, circular-economy, ecodesign, waste, and supply-chain transparency.

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

VMware's Vice President of Global Government Relations is a voting member of Digital Europe, and VMware's Head of EMEA Government Relations regularly partners with Digital Europe and its member organizations. Digital Europe, its board, and members are committed to contributing to a sustainable Europe that benefits society at large. VMware will raise awareness of our virtualization technology in support of Digital Europe's aim of leveraging innovative technology to encourage a sustainable future.

Trade association

US-India Business Council

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

The climate is changing, and humans are contributing to these changes. US-India Business Council believes that there is much common ground on which all sides of this discussion could come together to address climate change with policies that are practical, flexible, predictable, and durable. They believe in a policy approach that acknowledges the costs of action and inaction and the competitiveness of the U.S. economy.

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

VMware's Executive Vice President and General Manager, Telco and Edge Cloud, Shekar Ayyar is a board director of US-India Business Council's Global Board of Directors. Through his leadership and position as a Board Director, VMware brings forward to the Council its innovative, technological solutions to support the Council's climate change position.

Trade association

US-ASEAN Business Council

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

The US-ASEAN Business Council and our members are committed to supporting governments in ASEAN in their efforts to mitigate the risks of climate change. We support global action that drives reductions in greenhouse gas emissions while progressing economic development. USABC stands behind our members' efforts which include the use of innovative technology to improve energy efficiency, developing scalable technologies to lower greenhouse gas emissions, and creating and adopting clean and renewable sources of energy.

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

VMware's Vice President of Global Government Relations sit on the board of the US-ASEAN Business Council. To support VMware's in-region policy efforts, VMware's Director and Head of ASEAN Government Relations and Public Policy is based in Singapore and reports to the Vice President of Global Government Relations. VMware's technologies support USABC's mission to reduce greenhouse gas emissions, and where USABC can support ASEAN countries in this effort, VMware will also offer support and solutions.

C12.3e

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

VMware is an active member of the Stanford Research Park Advisory Council. We are integrally involved in the Park and the City of Palo Alto's transportation initiative and our Senior Director of Real Estate & Workplace serves on the Council. Stanford Research Park employers and tenants collaborate to solve transportation issues that affect them, as well as the residents of our neighboring communities. Transportation is a key issue for the City of Palo Alto when it comes to meeting its Climate Action Plan goals.

VMware is a member of Digital Europe and its Digital Sustainability Policy Group (DSPG) which aims to be the trusted and preferred partner for environmental policy makers, reaching out for constructive discussion with other stakeholders. It advocates the integration of environmental considerations at the stage of product design with the aim of reducing all relevant potential environmental impacts over its entire life cycle. DSPG aims to demonstrate leadership in this area helping to support other industries through advancement in electronics, software applications, and services.

The digital technology industry is committed to meeting the challenge of a material and energy-efficient Europe. Our industry helps citizens and commerce to move to a more sustainable society and efficient use and reuse of the materials in our products. The industry promotes the

use of recyclable and recycled materials and will design products and services to be renewable, recoverable, or recyclable without compromising their ability to meet our customer's demands. It therefore contributes to a sustainable and competitive economy.

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?

VMware has established a tiered governance structure that consists of a Sustainability Technical Council and an Executive Sustainability Advisory Group.

The Technical Council includes various representation within the Office of the CTO and Products and Cloud Services Business Unit. This Technical Council meets quarterly with the VP of Sustainability Strategy to provide insights, share ideas and drive cross-company sustainability initiatives. The goal of the Council is to drive sustainability into our engineering processes and to collaborate on assessing the environmental impacts of our products. The Executive Sustainability Advisory Group includes key internal stakeholders whose role it is to review and guide our sustainability strategy, reporting, and corporate sustainability goals.

The Executive Sustainability Advisory Group includes the following stakeholders:
• Chief People Officer
• Chief Technology Officer
• Chief Communications Officer
• VP, Global Government Relations and Public Policy
• VP, Deputy Counsel
• VP, Internal Audit
• VP, Real Estate and Workplace

With regard to policy, all of our policy engagement activities are coordinated through our VP of Global Government Relations and Public Policy who is on the Executive Sustainability Advisory Group. Given that our core business drives energy efficiency, these groups are not at odds when it comes to supporting appropriate climate or energy-related 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 voluntary communications

Status

Underway – previous year attached

Attach the document

vmw-global-impact-report-2018.pdf

Page/Section reference

Pages 13-14, 19, 20, 23, 32

Content elements

Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

C15. Signoff

C-FI

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

C15.1

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

	Job title	Corresponding job category
Row 1	CFO	Chief Financial Officer (CFO)