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. Information technology ("IT") driven innovation continues to disrupt markets and industries. Technologies emerge faster than organizations can absorb, creating increasingly complex environments. IT is working at an accelerated pace to harness new technologies, platforms and cloud models, ultimately guiding businesses through a digital transformation. To take on these challenges, we are working with customers in the areas of hybrid and multi-cloud, virtual cloud networking, digital workspaces, modern applications and intrinsic security. Our software provides a flexible digital foundation to enable customers in their digital transformation.

Our portfolio supports and addresses the key IT priorities of our customers, including accelerating their cloud journey, modernizing their applications, empowering digital workspaces, transforming networking and embracing intrinsic security. We enable customers to digitally transform their operations as they ready their applications, infrastructure and employees for constantly evolving 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. In September 2016, Dell Technologies Inc. ("Dell") acquired EMC. As a result, EMC became a wholly owned subsidiary of Dell, and we became an indirectly held, majority-owned subsidiary of Dell. In December 2019, we acquired Pivotal Software, Inc., a subsidiary of Dell. We are considered a "controlled company" under the rules of the New York Stock Exchange ("NYSE"). As of January 29, 2021, Dell controlled approximately 80.6% 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 28, 2022, January 29, 2021 and January 31, 2020 as "fiscal 2022," "fiscal 2021" and "fiscal 2020," respectively.

Total revenue in fiscal 2021 increased 9% to $11.8 billion. Total revenue is comprised of license revenue of $3.0 billion, subscription and SaaS revenue of $2.6 billion and services revenue of $6.1 billion. As customers shift from our on-premises offerings to our cloud-based offerings, license revenue may be lower and subject to greater fluctuation in the future, driven by a higher percentage of cloud-based offerings being sold.

Our corporate headquarters are located at 3401 Hillview Avenue, Palo Alto, California, and we have 127 offices worldwide.

For more details, please reference VMware's annual report on Form 10-K for the year ended January 29, 2021

https://ir.vmware.com/websites/vmware/English/5010/us-sec-filing.html?shortDesc=Annual%20Report&format=html&secFilingId=0417e7d2-404a-4ffd-9b09-462ad5ef95e4

C0.2

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

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Reporting year	February 1 2020	January 31 2021	No	<Not Applicable>

C0.3

(C0.3) Select the countries/areas for which you will be supplying data.
Argentina
Armenia
Australia
Austria
Belgium
Brazil
Bulgaria
Canada
Chile
China
Colombia
Costa Rica
Czechia
Denmark
Egypt
France
Germany
Hungary
India
Indonesia
Ireland
Israel
Italy
Japan
Malaysia
Mexico
Netherlands
New Zealand
Norway
Pakistan
Peru
Philippines
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?
Yes

C1.1a

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

Position of individual(s)	Please explain
Board-level committee	Explanation of how responsibility is related to climate issues: In 2020, board level oversight of ESG (Environmental, Social & Governance), including climate related issues, was established. Commencing with our current fiscal year, our governance structure will include the full Board annual oversight of ESG topics as well as focused oversight responsibilities with the Compensation & Corporate Governance (CCG) Committee and Audit Committee. The CCG and Audit committees report periodically to the Board (Board of Directors). The CCG Committee along with ESG Executive Sponsors (Chief Technology Officer, Chief People Officer, Chief Financial Officer, and General Counsel) will present ESG Strategy & Risk Management to the full Board annually. The Board will review ESG annual operating plan (AOP) and budgets as part of its annual operating plan review and approval. Our CCG and Audit committees are comprised solely of independent directors within the meaning of the applicable Securities and Exchange Commission (SEC) rules and regulations and the NYSE Rules. An example of a climate-related decision made by the Board: In 2020, the full Board reviewed the ESG Strategy, also called the 2030 Agenda, presented by ESG Executive Sponsors and included it as part of its approval of VMware's annual operation plan. The 2030 Agenda was launched to demonstrate our commitment to corporate responsibility (and more broadly ESG) for the next decade. We are setting out a 10-year commitment to reach 30 goals by 2030 for creating a more equitable, sustainable and resilient world. This ESG strategy is focused on driving three outcomes: Trust, Equity and Sustainability (https://www.vmware.com/2030agenda.html). Sustainability is core to our values and future success. As a global corporate citizen, we have an opportunity to innovate for a more resilient world by decarbonizing digital infrastructure across our customer ecosystem, supply chain and operations. Through our collective efforts to drive net-zero emissions, radical efficiency and sustainable innovation, VMware will help accelerate a future where our public clouds are zero-carbon and powered by renewable energy.

C1.1b

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

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Scope of board-level oversight	Please explain
Scheduled – some meetings	Reviewing and guiding strategy	<Not Applicable>	Strong corporate governance is essential to achieving long-term sustained business value. To guide integration of ESG into VMware's operations and performance management, VMware is implementing an ESG governance structure comprised of internal leadership and members of our executive staff to guide integration of ESG into VMware's operations and performance management. Our governance structure includes the full Board annual oversight of ESG topics as well as focused oversight responsibilities with the CCG and Audit committees. We have established a new ESG Office to ensure cross-company alignment, a strategic focus, as well as to measure and track the progress against our 30x30 goals. We will report our progress annually using widely recognized guidelines for ESG reporting and transparency.

C1.2

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

Name of the position(s) and/or committee(s)	Reporting line	Responsibility	Coverage of responsibility	Frequency of reporting to the board on climate-related issues
Other C-Suite Officer, please specify (ESG Executive Sponsors – Chief Technology Officer, Chief People Officer, Chief Financial Officer, and General Counsel)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	Annually
Sustainability committee *VMware's ESG Leadership Council*	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	Annually
Environment/ Sustainability manager *Vice President of ESG Office*	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	Not reported to the board
Sustainability committee *VMware's Sustainability Technical Council*	<Not Applicable>	Assessing climate-related risks and opportunities	<Not Applicable>	Not reported to the board

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).

ESG Executive Sponsors

i) Responsibility description: Established in 2020 to integrate ESG goals into our business, Executive Sponsors aim to integrate ESG goals: accelerating a low carbon future by decarbonizing digital infrastructure across our customer ecosystem, supply chain & operations. They provide leadership & executive management authority on ESG issues by connecting strategic planning to operations and ESG to business strategies and risk responses; assessing new/emerging ESG-related risks/opportunities; and ensuring a program is in place to identify, assess, manage and monitor ESG risks. Sponsors -specifically CPO, CFO & GC- report to the CCG Committee of the Board with CEO support. The CCG Committee will bring ESG topics to the full BOD annually. VP of Internal Audit is responsible for independent review and assessment of ESG processes and results, with reporting to Board-level Audit Committee as work occurs.

ii) Role descriptions:

-CFO considers sustainability impacts on material financial risk & long-term financial performance

-CPO for sustainability impacts on employee experience, culture, talent acquisition, retention & development

-CTO for sustainability impacts on long-term technical agenda

-GC provides guidance to understand/navigate issues that may arise, external reporting on ESG performance

ESG Leadership Council

i) Responsibility description: Established in 2020 to integrate ESG goals into our business, the Council aims to develop ESG fluency and operationalize ESG strategy within business units (including climate change efforts to drive net-zero emissions, radical efficiency, carbon-free clouds, and sustainable innovation). Appointed by Executives, they hold strategic and operational responsibility to materially advance ESG priorities and define metrics/measures. Meetings are scheduled around ESG Executive Sponsor discussions, long-range planning, quarterly oversight and annual operating plan processes. The Council aims to meet quarterly to provide oversight on progress against annual priorities & ESG CEO Scorecard and annually for cross-functional strategy setting and planning to support Management and Board commitments.

ii) Role description:

·SVP/VP, Product for sustainability impacts on products

·SVP/VP, Go-to Market considers sustainability impacts on customers/partners

·SVP/VP, Operations for operations, human capital, supply chain, communications, public policy, & external reporting on ESG performance

Vice President of ESG Office

i) Description of responsibilities: The VP of ESG oversees the development and operationalization of our sustainability strategy to support long-term value creation by building an equitable, sustainable & resilient digital future for our stakeholders. VP of ESG reports directly to/meets regularly with our CTO. Placing the VP in the Office of the CTO was a strategic move made in 2016 to align sustainability and ESG objectives with our business strategy.

ii) Role descriptions:

VP of ESG and the ESG Office are trusted advisors to business functions for driving environmental sustainability, social impact, & ESG governance- including long-term strategy goals such as net zero for global operations and supply chain, intrinsic sustainability goals through zero carbon clouds and workload carbon efficiency.

Sustainability Technical Council

i) Responsibility description: The Council integrate sustainability into engineering processes through training, policy, and goal setting, and provide examples of where sustainability has improved operations, productivity and costs. They collaborate on assessing product environmental impacts, including energy consumption and carbon emissions, and oversee related R&D operations and mechanisms. They innovate products/services to reduce the energy and carbon impacts of customer IT infrastructure where we play a role to enable/accelerate solutions that drive business agility, intrinsic security, and decarbonization. The Council monitors customer trends related to climate change in supply chain requirements for decarbonization that may predict risks/opportunities. As our largest climate impact is through our products, we monitor climate-related issues through a technical/product-driven lens. They meet quarterly with the VP of ESG and Dir. of Sustainability Innovation to provide insights, share ideas, and drive cross-company sustainability initiatives.

ii) Role descriptions:

-VP of R&D Operations considers sustainability impacts on products

-VP & CTO of Global Field Operations for sustainability impacts on customers/partners

-VP & CTO EMEA considers sustainability impacts on regional customers/partners

-Sr. Dir. Programs/Operations/CTO Office considers sustainability impacts on products/services

-SVP Chief Research Officer considers sustainability impacts on long-term technical agenda

-VP R&D for the sustainability impacts on products

-2 R&D Fellows & Principal Engineer considers sustainability impacts on long-term technical agenda

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	We continued to have sustainability as a long-term corporate priority in FY21. For FY21 there was a non-monetary executive MBO to track performance. We released our 2030 ESG (climate included) goals in Q4 FY21. We have committed to ESG CEO scorecard for the Executive Officer Bonus calculation in Q4 FY21 to be used for FY22. The executive officers include all ESG Executive Sponsors - Chief Financial Officer (CFO), Chief People Officer (CPO), Chief Technology Officer (CTO), and General Counsel (GC). 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 software-as-a-service (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 score risks based on both likelihood and impact ranging from low to high. We correlate potential impact to effects on business revenue, or 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. Risks are prioritized, based on agreed potential substantive financial or strategic impact, and evaluated further. Our impacts include strategic, operational, customer, legal, and regulatory; and our vulnerabilities include rate of change, scale, experience, and concern.

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) Our robust governance supports our process for assessing and managing climate-related transition and physical risks/opportunities that could have a substantive financial or strategic impact. Our VP of ESG Office develops & communicates our sustainability strategy and collaborates with VP of Internal Audit to integrate climate risk/opportunities from direct operations into the risk assessment process. The Audit Committee has primary oversight for enterprise risk, periodically reviewing practices & policies for risk assessment/management with senior management team and overseeing internal audit. Internal audit reviews the effectiveness of our risk management and control framework; ensures risk management activities are integrated, consistent and managed at a level consistent with the risk; recommends, tracks and reports on risk management framework progress; and assists executives to assure significant risks are identified/managed with risk benefit trade-offs to protect assets and stockholder value. Internal audit is responsible for assurance/risk advisory services (maturity assessments/risk profiling/raising awareness) and performs annual compliance risk assessments for identified/emerging risks, company-wide, across the value chain, and across short/medium/long-term time horizons. They use an integrated multi-dimensional model to evaluate/prioritize risks & climate-related issues. They brainstorm key risks and meet with business leaders across functions including Enterprise Resiliency (ER) to generate feedback. Risks are prioritized by 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. Internal audit meets with ER annually. ER improves our response/preparedness/resiliency to natural or man-made disasters and unites business continuity, technology recovery, emergency response, and crisis management programs under a collaborative governance framework to effectively manage risks to our people and business. ER focuses on risk mitigation strategies for key business interruption risks identified by Internal audit including natural disasters. ER's objectives are to develop Crisis Management Plans for top risks, drive organizational awareness, and provide stronger governance across related programs like Business Continuity, Disaster Recovery, Crisis Management and Safety and Security. The highest level of management responsible for the ER program is the CISO, who meets with the Board as needed (usually 2-3 times a year). The operational risk assessment process is ongoing; pertinent risks arise and are flagged by Risk Management, Physical Security, Emergency Response, and Crisis Management. Operational risks associated with climate change are mitigated by the Workplace, Crisis Management, Physical Security and ER teams, through the implementation of disaster recovery, crisis management, & business continuity planning. ii)A case study of how we apply our risk assessment process to climate-related physical risk is demonstrated by our Crisis Management, Physical Security and ER teams, which assess and identify climate-related extreme weather events, such as fires, floods and storms, that can impact business operations/productivity in the short term. ER and Internal Audit regularly exchange information on existing/emerging operational risks via a Risk Register. In 2020, 285 physical risk incidents were identified globally ranging from cyclone, typhoon, and extreme rainfall, to bush fires. Our Team Resiliency Plans for all people managers across functions support teams and manage such events. In response to the COVID-19 pandemic, we shifted seamlessly to a remote workforce, yet realized that climate related extreme weather risks can impact our globally distributed workforce's home power/internet infrastructure. While the COVID response showed our strong & robust remote work potential, we are developing a Resiliency Assessment tool to enhance Manager preparedness. For example, during the February 2021 Texas storm (caused by 3 severe winter storms resulting in a major power crisis) we realized we must also analyze employees' home locations. As a response, we are working with several teams (HR, legal, privacy) to add a feature in our Emergency Notification (EN) system to filter by home location. The EN system is used during events/incidents to enable team safety and wellbeing. ER teams also conduct EN tests as a mass communication tool for all major sites annually. California wildfires and public safety power shutoffs did not have a major impact in 2020 for our Palo Alto campus, Santa Clara data center, or colleagues living in wildfire threat zones. During a public safety shutdown in 2019, we analyzed employees in high wildfire threat zones and ensured contingency plans to transfer work from impacted to non-impacted locations using digital collaboration and productivity tools. Our data center preparedness for Santa Clara data center includes a policy to replicate in Wenatchee, Washington. iii) A case study of how we apply our operational risk assessment process to climate-related transitional risk is demonstrated by our response to sourcing electricity through renewable energy (RE) to avoid potential market risks of price increases of fossil fuel-based electricity. We committed to reach 100% RE for global operations and carbon neutrality by 2020 in our sustainability roadmap as a response to our materiality assessment. We maintained RE100 (a global initiative uniting the world's most influential businesses committed to 100% RE) in 2020 powering our global operations by RE. Our RE100 (https://www.there100.org/) commitment will go beyond 2020 and is a key part of the SBT for Scope 2 emissions in the short/medium term. We realize the importance of a progressive RE procurement strategy and moving beyond purchasing RE credits. We conducted a RE impact study in late 2020 to identify investment models internally for long term RE contracts such as a virtual power purchase agreement (VPPA) for large loads globally. Another transitional risk response is related to RE transition of upstream colocation service providers. We are a member of REBA whose goal is to accelerate the transformation of the energy industry to RE by making it easy/accessible for corporations to procure RE for our & our supply chains' operations. With a platinum membership, we participate in REBA's supply chain initiative to magnify our progress on our own supply chain strategy to include a broader coalition of companies. We identify supply chain work as vital as we depend on colocation/cloud partners for hosted services that must also transition to RE. For example, the sustainability, sourcing, and data center operations team partnered on a colocation deal to ask a supplier to join REBA and sign The Corporate Colocation & Buyers' Principles.

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 Streamlined Energy and Carbon Reporting (SECR) and Energy Savings Opportunity Scheme (ESOS) (https://www.gov.uk/guidance/energy-savings-opportunity-scheme-esos). In the UK, large companies have reporting obligations under SECR starting in 2020. As a large company, VMware UK Ltd is legally required to report under a number of UK/ international frameworks, including the new SECR scheme. From financial years beginning on or after 1st April 2019, qualifying large UK companies will need to include the following information within (or alongside) their Directors' Report annually – GHG emissions, Total kWh energy use, energy efficiency actions taken during the reporting period. VMware is preparing to file the first SECR report along with the Directors' Report in October 2021 to cover reporting year 2020. Such regulations in different markets 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 is on the board of directors and as well as serves as the Vice-Chair of the Finance 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 technologies and cloud services. Our Software-Defined Data Center (SDDC) suite of products enable customers to reduce their energy expenditures and minimize their carbon footprints. If a competitor develops technology or sustainability solutions 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 with limited climate-related liability risks. We believe that our exposure to litigation related to our climate-related performance and 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 SECR. VMware UK qualifies as a large company and we are preparing energy/carbon data collected for CDP reporting to support SECR and planned for supporting data gaps by assigning budget and resources. In 2020 we achieved significant progress on our environmental, social & governance performance reporting in our Annual Report on Form 10-K (to the SEC). We expanded our qualitative sections on ESG, Diversity Equity and Inclusion (DEI), in our Annual Report on Form 10-K -SEC filing (https://ir.vmware.com/websites/vmware/English/5100/us-sec-filing.html). We also incorporated sections on ESG, DEI, 2030 Agenda (our ESG strategy), and corporate governance reporting in our Proxy statement (https://ir.vmware.com/websites/vmware/English/5100/us-sec-filing.html) for the first time.
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 (decarbonization) benefits. While we are a technology leader in virtualization and cloud infrastructure solutions and have a favourable 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, vCloud NFV, 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 Morgan Stanley Capital International (MSCI) ESG rating (https://www.msci.com/our-solutions/esg-investing/esg-ratings/esg-ratings-corporate-search-tool/issuer/vmware-inc/IID000000002129033) scan businesses environment performance and practices to rate companies. We were also recently named to the Dow Jones Sustainability Index (DJSI). The DJSI is one of the most respected independent sustainability performance evaluation systems and we ranked in the 94th percentile in the software category for our leadership in corporate sustainability. VMware must demonstrate commitment to climate change related action and progress on public goals to continue to score high on ESG ranking and 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. Wildfires and public safety power shutoffs did not have a major impact in 2020 for our California operations, including the Palo Alto campus and Santa Clara data center, as well as large segments of our colleagues living within zones that were under wildfire threats. We also monitored the impact of moderate brush fires in Sydney, Australia during November and December 2020. Such events can impact our major locations, where R&D product development, operations and support are conducted. Due to a COVID-19 distributed workforce model, we are also monitoring climate related weather risks in our major locations for impacts to employees' home power and network infrastructure.
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. The city of Mumbai and New Delhi where our sales offices are located, have been affected by heavy rainfall and flooding for years (including significant events in July 2020 and August 2020). In addition, we had flooding events in Sydney, Australia, and Thailand in 2020.

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

Climate risk type mapped to traditional financial services industry risk classification
<Not Applicable>

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 cause disruptions in services to VMware operations. We have developed Team Resiliency Plans for people managers across functions to support teams and manage extreme weather and climate-related events. For example, in the last few 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 4,500 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?
No, we do not have this figure

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

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. In 2020, we conducted a TCFD gap assessment study. This study highlighted key findings from peer benchmarking, and gaps in our risk management process. We also held an educational session on Task Force on Climate-related Financial Disclosures (TCFD) assessment for our internal stakeholders. In 2021, we'll be advancing this work to expand the view of risks and opportunities currently captured that have a material financial or strategic impact. We'll conduct a detailed formal business-wide climate related risk (physical, and transitional risks) analysis exercise in alignment with TCFD framework. 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 "No, we do not have this figure" for potential financial impact.

Cost of response to risk
0

Description of response and explanation of cost calculation
Several teams manage extreme weather risks: Business Continuity Planning (BCP), Disaster Recovery, Emergency Response (ER), HR, Information Security Operations, Crisis Management (CM), Communications, Workplace, Physical Security, and Security Operations. The Enterprise Resiliency team focuses on mitigation strategies for key business interruption risks including extreme weather events with the objective of developing CM Plans, driving organizational awareness, and strengthening global governance to advance resiliency. COVID-19 made BCP cool again. The Resiliency BCP team led/supported 52 CM teams worldwide (established due to the pandemic using our CM as a Service framework). Our Regional CM Teams are a key component of the Global CM Teams structure, providing location/regional intelligence. As we swung to a remote workforce, we realized that climate related extreme weather risks are even more material for our globally distributed workforce as there is risk of damage to employee home power/internet infrastructure. So we are launching a Resiliency Assessment tool to enhance manager preparedness. Our Emergency Notification system, a mass communication tool for team safety and wellbeing, will also now track employee safety in home addresses. Mass public safety power outages caused by wildfires in California create a heightened need to equip managers with tools/resources to support teams quickly and effectively. Due to the physical risks associated with wildfires & power disruptions affecting 4,500+ staff at the Palo Alto campus, Santa Clara data center, and colleagues living in wildfire threat zones, we plan resiliency actions carefully. The Enterprise Resiliency team works with all company business functions and the public sector to make rapid security/safety/operations decisions. As a result, we are more resilient to extreme weather events, not only in our drought-prone Palo Alto campus but also globally--wildfires & power shutoffs did not have major impact in 2020 in CA sites. To ensure business continuity, we transfer tasks to unimpacted/remote teams using digital collaboration & productivity tools. Our data center preparedness for Santa Clara includes a policy to replicate in Wentachee in the event of a disaster. Risk management/global ER responsibilities are built into various roles. 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 response.

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

Climate risk type mapped to traditional financial services industry risk classification
<Not Applicable>

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, future employees/talent, 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, vCloud NFV, Horizon, VMware Cloud 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?
No, we do not have this figure

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

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 "No, we do not have this figure" 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 raters/rankers scan business performance & practices. We are acknowledged by the 2020 Carbon Clean 200, rank 57th in Forbes' Just Capital list, and ranked in the 94th percentile in the software category for our leadership in corporate sustainability in the 2020 Dow Jones Sustainability Indices (DJSI). We must demonstrate climate change action & progress on goals to continue to score high on ESG rankings and ratings. Our revenue and stock price could be negatively impacted if rating agencies give us a low score on climate related business operation risk/product opportunities. To demonstrate our commitment to corporate responsibility and ESG we launched our 2030 Agenda for the next decade to drive three outcomes: Trust, Equity and Sustainability. As we look to the next ten years, it's clear that the world faces more systemic and urgent challenges (including climate change, social justice, global pandemic, and cybersecurity) than ever. In response, we are taking a new approach to building a better future. This approach is different because it integrates our goals into our business and aligns with our core business strategy. 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 videos, reports, and interactive resources. We communicate the carbon avoidance benefits of our products and sustainability performance 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 7 FTEs (including a VP, 2 Directors, 1 Senior Sustainability Manager, and 3 Program Managers) 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 response.

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

Climate risk type mapped to traditional financial services industry risk classification
<Not Applicable>

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 and bush fires. In the last few 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?
No, we do not have this figure

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

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. In our TCFD follow on work - 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 "No, we do not have this figure" for potential financial impact.

Cost of response to risk
0

Description of response and explanation of cost calculation
Several teams manage extreme weather risks: Business Continuity Planning (BCP), Disaster Recovery, Emergency Response (ER), HR, Information Security Operations, Crisis Management (CM) Communications, Workplace, Health and Safety, Physical Security, and Security Operations Center (SOC). The Enterprise Resiliency team focuses on mitigation strategies for key business interruption risks including chronic weather variability with the objective with the objective of developing CM Plans, driving organizational awareness, and strengthening global governance to advance resiliency. Our CM teams work to develop site-specific risk management plans for major sites across the globe. The BCP team led/supported 52 CM teams worldwide (established due to the pandemic using our CM as a Service framework). Our Regional CM Teams are a key component of the Global CM Teams structure, providing location/regional intelligence. As of 2020, the number of VMware sites with crisis management teams increased to 52 (from 36 in 2019) 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 and facilitating a return to office. 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. In the wake of COVID-19, we launched a Home Office Security & Resiliency initiative to support our colleagues in keeping themselves and their home offices secure and resilient. This initiative will provide complementary benefits to managing extreme weather-related risks as well. Risk management and global emergency response responsibilities are built into various roles including Workplace, Information technology, Crisis Management, Physical security, Enterprise resiliency, security operations, marketing, and communications. The costs of management include staff time to implement programs. We do not disclose the exact figures, so we have put $0 for cost of response.

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 insight into and management of energy use/emissions through management/automation services and cloud services. Our IT software and cloud services manage virtualized infrastructure resources and private/public cloud infrastructures. Our products/services help improve understanding and management of energy usage and emissions through management, automation, and cloud services to enable customers to more effectively lower emissions. Examples of products in the operations/planning/management/automation portfolio include vRealize Cloud Management solutions to help customers manage hybrid/multi-cloud environments in virtual machines and containers such as: 1) CloudHealth which helps optimize cloud usage and costs; 2) vRealize Operations which provides performance/capacity/configuration management for virtual or physical infrastructure; 3) vRealize Automation which enables customers to rapidly deploy and provision cloud services; 4) VMware vRealize Cloud Universal which as a single offering combines VMware's SaaS and on-premises cloud management capabilities with the flexibility to move between the two as needed. Our products in software defined networking operations, planning and balancing across multiple clouds include 5) vRealize Network Insight which delivers intelligent operations/planning for software-defined networking and security across virtual, physical and multi-cloud environments and 6) VMware NSX Advanced Load Balancer (Avi Networks) which provides consistent, multi-cloud load balancing, web application firewall and application insights across data centers and public clouds for virtual machines, container, and bare-metal workloads. Furthermore, with climate-driven extreme weather on the rise, in the event of a natural disaster we provide fast and reliable IT disaster recovery products/services with our VMware Site Recovery Manager products. These enable 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 Data Center (SDDC) solutions. We acquired Datrium Inc, a provider of cloud-native disaster recovery solutions, to broaden our Site Recovery Disaster Recovery as a Service offerings. For more details: Products & Technology Solutions in VMware's annual report.

Time horizon

Medium-term

Likelihood
More likely than not

Magnitude of impact
Medium

Are you able to provide a potential financial impact figure?
No, we do not have this figure

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

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 "No, we do not have this figure " for potential financial impact.

Cost to realize opportunity
0

Strategy to realize opportunity and explanation of cost calculation
These provide infrastructure products/services to create a common operating environment based on VMware Cloud Foundation that extends from on-premises data centers to cloud to edge: VMware vSphere, VMware vSAN, VMware NSX and vRealize Cloud Management. VMware Cloud Foundation (VCF) is a hybrid cloud platform that combines vSphere, vSAN and NSX offerings with vRealize Cloud Management into an integrated stack to deliver developer-ready cloud infrastructure for private/public clouds. VMware Software-Defined Data Center (SDDC) solutions form the foundation of our customers' private clouds 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/devices. These products are available on the market and we have annual releases to 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. Additional customer facing materials have been developed to showcase the sustainability benefits of our cloud operations & management solutions. Blogs such as "Go Zombie Hunting" e-book and "Sustainability dashboards in vRealize Operations–Find out how much did you contribute to a Greener Planet", describe how to leverage solutions like vRealize Operations to identify/remediate optimization opportunities. Unused data center resources lurk in most 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. CloudHealth pulls multi cloud information into a centralized data analytics platform and provides analysis/recommendations/reporting on cost (wasted resources), usage, performance, and security. An IDC study on Next Generation Application Delivery shows how our software-based load balancing solution for management of application services leads to lower costs & sustainability business value. We advance product development through engineering innovation, customer/market feedback, and investing in developers/joint academia research. 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 cost to realize opportunity.

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 data centers while using centralized cloud infrastructure for performance and optimization. The energy avoidance of turning off a data center 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 data centers. This means less servers are used in VMware Cloud on AWS as compared to their older on-premises data centers, 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?
No, we do not have this figure

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

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 "No, we do not have this figure " 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 integrates VMware's flagship compute, storage and network virtualization products (vSphere, vSAN and NSX), along with VMware vCenter management as well as robust disaster protection, and optimizes them to run on dedicated, elastic, Amazon EC2 baremetal infrastructure that is fully integrated as part of the AWS Cloud. This service is delivered and supported by us and our partner community. This service is sold by VMware, AWS and their respective partner networks. It is available in 17 global AWS regions (including the AWS GovCloud US-West region). 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 data centers. 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 data center to VMware Cloud on AWS as part of deal closure process. We released a web based, intuitive, carbon calculator (VMware Cloud on AWS TCO calculator) to enable our customers to easily assess their environmental impact for deployment on VMC on AWS (https://vmware.valuestoryapp.com/vmwarecloud/). As part of the strategy to realize the sales opportunity, the teams can clearly showcase this low carbon offering and demonstrate the carbon reduction impact of moving on-prem data center to VMware Cloud on AWS. Many customers are in the market for such sustainability solutions to enable their digital infrastructures' decarbonization journey. 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 cost to realize opportunity.

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 data center 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 data centers 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 Our field teams regularly engage with the CIOs of companies across sectors by presenting an Executive Insights report and listening to their priority business outcomes. In our 2020 survey of approximately 500 CIOs and senior executives, the top three priorities were security, resilience, and sustainability of IT infrastructure.

Time horizon
Short-term

Likelihood
Virtually certain

Magnitude of impact
High

Are you able to provide a potential financial impact figure?
No, we do not have this figure

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

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 "No, we do not have this figure " 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 Data Center (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 (vSphere, 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 data center. 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 CO_2, 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 the cost to realize the full opportunity. As a result, we have put $0 for cost to realize opportunity.

Comment

C3. Business Strategy

C3.1

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

Yes

C3.1b

(C3.1b) Does your organization intend to publish a low-carbon transition plan in the next two years?

	Intention to publish a low-carbon transition plan	Intention to include the transition plan as a scheduled resolution item at Annual General Meetings (AGMs)	Comment
Row 1	Yes, in the next two years	No, we do not intend to include it as a scheduled AGM resolution item	

C3.2

(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?

Yes, qualitative and quantitative

C3.2a

(C3.2a) 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: We complete a quantitative & qualitative climate-related scenario analysis to understand and evaluate the implications of our SBT. The SBT methods considered include 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 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: Analysis includes medium and long-term time horizons as prescribed by SBTi & 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 yearly Scope 3 inventory. iii) Areas considered: 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, data centers, purchased cooling in leased locations, and labs Scope 3: purchased goods & services, capital goods, Fuel-and-energy-related activities (FERA), upstream transportation and distribution, waste, business travel, employee commuting, and upstream leased assets The assessment relies on assumptions and inputs from specific business/stakeholder groups: facilities, data center labs, real estate, finance, and supplier network. iv) Results: We would need to achieve reductions ranging from 25% to 55% for 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 are used to directly inform objectives and corporate strategy by providing reference points to determine feasibility and actions to reduce emissions. FY2019 base year analysis results showed 94% of our total emissions were scope 3, and 54% of scope 3 emissions were attributable to purchased goods & services. As a result, we developed an approved SBTi scope 3 target to reduce scope 3 GHG emissions from employee commuting and FERA 50% by FY2031 from a FY2019 base year. We further committed that 75% of 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: We analyze our emissions yearly for our growth trajectory and consider reduction levels needed to align with SBTi criteria and to meet our SBT. We use the analysis to understand reduction goals progress and future energy procurement needs. The analysis demonstrated that energy efficiency measures alone would not be sufficient to achieve the ambitious goal, whereas our planned and in progress commitment to achieve RE100 has now become a central initiative to 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. The results of the analysis also brought about action to expand SBTs to a net zero goal by 2030. We announced our net zero goal in fall of calendar year 2020 and are updating our climate roadmap to detail the link between meeting our SBTs and addressing residual emissions on our path to net zero. 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.

C3.3

(C3.3) 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 increasingly evaluate IT energy & carbon impacts to support their sustainability/decarbonization goals; our products help lower carbon footprints and measure carbon reduction initiative impacts. We continually update product features to remain competitive and secure new business. Climate related strategy will continue to influence our products/services strategy now and in the future (short-term:0-1 yr, medium-term:1-3 yrs, & long-term:3-6 yr). In our 2030 Agenda we commit to accelerate productivity & carbon efficiency of customer digital operations. We help accelerate a low carbon future through efforts to drive net-zero emissions, radical efficiency, carbon-free clouds, and sustainable innovation. Our multi-cloud, virtual cloud networking, digital workspace, application modernization and intrinsic security solutions form a flexible, consistent digital foundation on which to build/run/manage/connect/protect applications, anywhere. Our cloud infrastructure & business mobility solutions accelerate digital transformation with a software-defined approach to IT. Desktop/server/data center virtualization solutions help customers reduce energy costs/consumption. We led the development of virtualization technologies & continue transforming IT resources by allowing them to manage resources across private clouds and complex multi-cloud/multi-device environments. Most substantial strategic decisions: The primary aspect of climate change that drives our strategy is enabling energy efficiency via software. Cloud computing enables shift to a lower carbon business model while increasing operations efficiency. We support customers in avoiding emissions with our compute virtualization platform, vSphere, and in reducing their hardware footprints with vSAN & NSX products. Our annual study "Enabling More Agile & Sustainable Business through Carbon-Efficient Digital Transformations" quantifies significant environmental benefits: over 758 MMT CO2e avoided by our customers via virtualization products since 2003 (see Opportunities 1, 2 & 3 in 2.4a). Our SDDC technologies form private cloud foundations, enabling the extension of private to public cloud to run/manage/secure/connect applications across clouds/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: Climate change may have a long-term negative impact on our business. Risks related to rapid climate change may have an increasingly adverse impact on our business and those of our customers, partners and vendors in the longer term. 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 FY21, 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, 59% of suppliers reported active climate targets and 62% of our suppliers are engaging with 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 significant investments in R&D in response to climate-related risks (as referenced in Risk 2 in 2.3a) and opportunities (as referenced in Opportunities 1, 2 & 3 in 2.4a) that improve our cloud product offerings as customers are increasingly evaluating IT energy use/carbon impacts, as well as the companies that provide these products and services. We invest in continually updating 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: To make significant progress in our R&D strategy, we continually invest in opportunities with climate-related benefits that improve our cloud product offerings now and in the future (short, medium, and long term). We assemble experienced 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 globally, and we invest in joint research with academia. We prioritize product development efforts through a combination of engineering-driven innovation and customer/market-driven feedback. Our R&D culture values innovation, quality and open collaboration with partners. R&D expenses grew from $2.52 billion in fiscal year 2020 to $2.82 billion in fiscal year 2021. We continue to invest in and focus on expanding our subscription and SaaS offerings. We continue to invest in key growth areas and areas we expect to be significant growth drivers in future periods. In 2020 VMware partnered with US National Science Foundation for a new research program: "The Next Generation of Sustainable Digital Infrastructure." The program incorporates sustainability concerns across the full development and operations lifecycle and determines measurement methods to capture various applications. VMware and NSF are leading this $6M multiyear digital infrastructure sustainability research to foster novel, transformative research in fundamental and systematic approaches to lead to practical methodologies/tools.
Operations	Yes	Description/ time horizon: Climate change may have a long-term negative impact on our business. While we mitigate the business risks associated with climate change for our operations, there are inherent climate-related risks wherever business is conducted. Any primary locations may be vulnerable to the effects of climate change and the impacts of extreme weather events, which have caused regional short-term systemic failures in the U.S. and elsewhere. For example, our CA headquarters are projected to be vulnerable to future water scarcity from climate change. 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 presenting opportunities to evolve, innovate, and 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 (0-1 year), medium (1-3 years, and long-term (3-6 years). Most substantial strategic decisions: In the last 4 years California has experienced extreme temperatures & low precipitation, resulting in wildfires that impact air quality and electric service at our Palo Alto campus, where 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 extends far beyond our campus, providing local renewable power, energy storage, and emergency back-up power for an entire community in a climate-related event. In 2018 we began to co-innovate on a microgrid prototype to integrate batteries, rooftop solar panels & 100% renewable grid power. Each microgrid provides connectivity & resilient power for Palo Alto Mobile Emergency Operations Center (MEOC) vehicles used for emergency communication during extended power outages and fuel shortages, such as wildfires or earthquakes. Microgrid project construction is now complete. In emergencies MEOC can plug into our solar-powered microgrid to provide communication services to the San Francisco Bay Area. For the next phase, we are analyzing opportunities of changing resiliency & energy needs across the Company. Learnings will be incorporated into phase 2 business case planning.

C3.4

(C3.4) 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 data centers (assets) 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/BREEAM -certification for 21 of our sites globally, including LEED Platinum certification for two new buildings on our Palo Alto HQ Campus and BREEAM Excellent certification for our R&D facility in Sofia. Our data center located in Wenatchee, Washington is also LEED Platinum certified with a PUE of 1.29. Additionally, most new offices in India have been LEED Gold or higher certified since 2016 and we are working toward LEED GOLD certification for two large new facilities in India. 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).

C3.4a

(C3.4a) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).

C4. Targets and performance

C4.1

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

C4.1a

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

Target reference number
Abs 1

Year target was set
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)
23874

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]
11937

Covered emissions in reporting year (metric tons CO2e)
10105

% of target achieved [auto-calculated]
115.34723967496

Target status in reporting year
Underway

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

Target ambition
1.5°C aligned

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. FY2021 was Feb 2020 – Jan 2021.) 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)
12803

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]
6401.5

Covered emissions in reporting year (metric tons CO2e)
8499

% of target achieved [auto-calculated]
67.2342419745372

Target status in reporting year
Underway

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

Target ambition
1.5°C aligned

Please explain (including target coverage)
All years listed are our fiscal years (e.g., FY2021 was Feb 2020 – Jan 2021.) 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)
51464

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]
25732

Covered emissions in reporting year (metric tons CO2e)
23571

% of target achieved [auto-calculated]
108.39810352868

Target status in reporting year
Underway

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

Target ambition
1.5°C aligned

Please explain (including target coverage)
All years listed are our fiscal years (e.g., FY2021was Feb 2020 – Jan 2021.) 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.

C4.2

(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
Net-zero target(s)
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)
Please select

Target denominator (intensity targets only)
<Not Applicable>

Base year
2015

Figure or percentage in base year
71

Target year
2021

Figure or percentage in target year
100

Figure or percentage in reporting year
99.88

% of target achieved [auto-calculated]
99.5862068965517

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 C4.2a last year. This goal is a part of our Scope 2 SBT which is as follows: VMware commits to increase annual sourcing of renewable electricity from 94% in FY2019 to 100% by FY2021 and commits to continue annually sourcing 100% renewable electricity through to FY2031. We increased our global consumption of renewable energy from 94% in 2018 to 99.88% in 2020. We declared a renewable energy target in 2015 and defined company-wide offices, and owned datacenters as the goal boundary. 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.

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)
<Not Applicable>

Base year
2015

Figure or percentage in base year
94

Target year
2025

Figure or percentage in target year
90

Figure or percentage in reporting year
92

% of target achieved [auto-calculated]
50

Target status in reporting year
Underway

Is this target part of an emissions target?
No.

Is this target part of an overarching initiative?
Other, please specify (VMware's Environmental Management Practices)

Please explain (including target coverage)
Our 2025 waste goal is to achieve a 90 percent waste diversion globally. In the 2015 base year our diversion rate was 94%, covering 33% of our operations. In the reporting year our rate is 92%, covering 50% of our operations. Our waste diversion rate decreased slightly from 93.3% in 2019 to 92.1% and our covered operations improved to 50% (from base year 33%). We consider our progress to be 92%/90% or > 100% progress for included operations in the reporting year. The diversion rate at our Palo Alto location was 96% this year, which now makes up 26% of our global real estate portfolio. We 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 2030 Agenda and 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)
<Not Applicable>

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
24

% of target achieved [auto-calculated]
-8.51063829787234

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., FY2021 was Feb 2020 – Jan 2021.) This is the same target reported in C4.2b last year (Oth2). We have seen a slight increase in goal progress since last year, but a decrease from the base year due to changes in underlying data accounting and also due to a shift in scope 3 category totals due to the COVID-19 pandemic.

C4.2c

(C4.2c) Provide details of your net-zero target(s).

Target reference number
NZ1

Target coverage
Company-wide

Absolute/intensity emission target(s) linked to this net-zero target
Abs1
Abs2
Abs3

Target year for achieving net zero
2031

Is this a science-based target?
Yes, but we have not committed to seek validation of this target by the Science Based Targets initiative in the next 2 years

Please explain (including target coverage)
As part of our 2030 Agenda, VMware is committed to achieving net-zero carbon emissions for our operations and supply chain. Our science-based targets, our commitments to RE100 and carbon neutrality are foundational as we drive towards net-zero. We plan investments for our emission elimination projects as part of our annual operating cycle and are in the process of developing a long-term net zero plan which will also include our carbon removal strategy to neutralize residual 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	0	0
To be implemented*	5	379.64
Implementation commenced*	3	151.23
Implemented*	6	101.53
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)
85.81

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

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
23743

Investment required (unit currency – as specified in C0.4)
246766

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)
15.72

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

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
16265

Investment required (unit currency – as specified in C0.4)
327455

Payback period
16-20 years

Estimated lifetime of the initiative
16-20 years

Comment
Replacement of conventional UPS & Computer Room Air-Conditioning units with higher efficiency units.

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. The microgrid project achieved substantial completion in December 2020. In 2020, VMware commissioned an EU research policy paper titled, 'Digital Transformation and a Net Zero Emissions Europe' to raise awareness about the role of virtualization and renewable energy powered data centers in reducing the carbon footprint of the digital transformation. https://auroraer.com/insight/digital-transformation-and-a-net-zero-emissions-europe-march-2021/
Internal incentives/recognition programs	VMware sponsored SunShares for the fifth 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. We are providing Common Energy's (https://www.linkedin.com/company/common-energy/) Clean Energy Benefit to employees in Boston as a way for our people to participate in climate action and practice #SustainabilityAtHome. 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 2020, VMware earned our fourth 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 that are now delivered online during virtual orientations. We also engage our employees on a regular basis through various communication channels, including our enterprise collaboration platform, Social. It is here where employees can have active dialogues about the issues they care about, including sustainability. In 2020, we were able to launch a successful Earth Month Campaign despite the challenges presented by the pandemic, we adopted early planning and were able to switch and adapt the campaign into a month of Virtual engagement for our distributed workforce. We ended up having great employee engagement through our internal social media channels (Social, Slack) as well a record participation to our Earth Day events on April 22nd. We rebranded and re-launched our previously known as "Green Teams", with a new working structure, name, and logo. Our new "Sustainability Ambassadors" grew to 20 teams globally. Engagement through our internal social channels increased throughout the 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 Data Center (SDDC), enabling management of the data center to be entirely automated by software, from one, unified platform. Traditional data centers 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 data center infrastructure have been increasing because the data center environment has become divergent, leading to higher complexity. The increased complexity of the data center 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 data centers. The SDDC is designed to transform the data center 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 data center 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.

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

% of total portfolio value
<Not Applicable>

Asset classes/ product types
<Not Applicable>

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 data center 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 digital workspace 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. Digital workspace's product portfolio, Workspace ONE, brings together Workspace ONE Unified Endpoint Management ("UEM"), Workspace ONE Access ("Access") and VMware Horizon ("Horizon"), tied together with a common access control layer. These solutions provide customers with a complete Digital Workspace which leverages our data center SDDC solutions so that customers can extend the value of virtualization from their data center to their employees and customers. During COVID, we've seen a rapid rise in adoption of our digital workspace portfolio by customers to enable remote workforce. 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. Our complete digital workspace solution is called VMware Workspace ONE ("Workspace ONE"), the platform that more securely delivers and manages any application on any device by integrating access control, application management and multi-platform endpoint management.

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

% of total portfolio value
<Not Applicable>

Asset classes/ product types
<Not Applicable>

Comment
Our Horizon desktop solutions power end user desktops directly from the data center, and for every server virtualized in the data center, 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 lifespan, improved reliability, less packaging, and fewer raw materials to make hardware and lower amount of end-of-life asset disposal.

C5. Emissions methodology

C5.1

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

Scope 1

Base year start
February 1 2018

Base year end
January 31 2019

Base year emissions (metric tons CO2e)
3819

Comment
The FY2019 base-year emissions were adjusted to reflect the change in our refrigerant emissions accounting. All refrigerant emissions from owned/managed equipment are reported under Scope 1 and refrigerant emissions from all leased sites are reported under Scope 2 purchased cooling from FY21.

Scope 2 (location-based)

Base year start
February 1 2018

Base year end
January 31 2019

Base year emissions (metric tons CO2e)
73257

Comment
The FY2019 base-year emissions were adjusted to reflect the change in our refrigerant emissions accounting. All refrigerant emissions from owned/managed equipment are reported under Scope 1 and refrigerant emissions from all leased sites are reported under Scope 2 purchased cooling from FY21.

Scope 2 (market-based)

Base year start
February 1 2018

Base year end
January 31 2019

Base year emissions (metric tons CO2e)
20055

Comment
The FY2019 base-year emissions were adjusted to reflect the change in our refrigerant emissions accounting. All refrigerant emissions from owned/managed equipment are reported under Scope 1 and refrigerant emissions from all leased sites are reported under Scope 2 purchased cooling from FY21.

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)
2788

Start date
<Not Applicable>

End date
<Not Applicable>

Comment
Our gross global Scope 1 emissions are 2,788 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.

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
72198

Scope 2, market-based (if applicable)
7318

Start date
<Not Applicable>

End date
<Not Applicable>

Comment
Our Scope 2 emissions account for the purchased electricity and purchased cooling for our VMware sites and our COLO portfolio.

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
240663

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
72136

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
8499

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 totalling 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
13647

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
45

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 and our global e-waste 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
55

Please explain
Waste collection & disposal data for our Palo Alto, India, China & Bulgaria sites and global e-waste data provided by our waste management vendors.

Business travel

Evaluation status
Relevant, calculated

Metric tonnes CO2e
15878

Emissions calculation methodology
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. A 20% uplift aviation impact factor is considered this year to account for Radiative Forcing - a measure of the additional environmental impact of air travel, including things like emissions of nitrous oxides and water vapor when emitted at high altitude.

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain
Flight miles by trip is provided by the travel agent, American Express Global Business Travel

Employee commuting

Evaluation status
Relevant, calculated

Metric tonnes CO2e
23571

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 25 cities globally (61% of the workforce), remote employees (25% of the workforce), and commuting employees from sites beyond top 25 cities. Feb & March 2020 were considered business as usual with all non-remote employees commuting to work, while only the essential employees commuting to work during the COVID-19 lockdown were considered for the rest of the reporting period. We used geo coding API to calculate the yearly commuting distance of the employees in top 25 cities. We also collected data on parking usage, public transport programs to estimate % split of transport mode. For the sites beyond the top 25 cities, we used a region specific weighted average method. For all private modes of travel, we used the EPA emissions factors for passenger cars and we used 0.1 kg CO2 per passenger mile as an estimate for the average public transport emissions factor. This year, we also developed our custom methodology to estimate the home office emissions. In the spirit of sustainability thought leadership, we're reporting the home office emissions for the first time. We understand and acknowledge that this methodology is not perfect. This estimate was based on many region-specific assumptions. We also recognize that new hybrid work model will continue to be established in the coming years post pandemic and hence the methodology will also evolve. For this year, we adopted a simple, bottom-up approach to gather consumption for energy-end uses such as IT plug load, lighting, space heating & cooling for the representative size of a typical home office. Then, we apply region specific emission factors to arrive at the overall emissions. This is a location-based number based on employee location and does not account for any renewable energy or carbon offsets that our employees procured.

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Our employee commute emissions are estimated based on broad-based assumptions

Upstream leased assets

Evaluation status
Relevant, calculated

Metric tonnes CO2e
888

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 data centers) 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

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
VMware is part of the IT Service industry and 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

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
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

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
As 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

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
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

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
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

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
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

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
As per 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

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain

Other (downstream)

Evaluation status

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain

C6.7

(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?
No

C6.10

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

Intensity figure
9e-7

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)
10105

Metric denominator
unit total revenue

Metric denominator: Unit total
11767000000

Scope 2 figure used
Market-based

% change from previous year
40

Direction of change
Decreased

Reason for change
As in previous years, our teams have undertaken emission reduction activities through building energy efficiency projects such as lighting retrofits and high efficiency equipment (as outlined in C4.3b). For example, the lighting has been upgraded to LED in our Austin, Atlanta & Bellevue offices and UPS & CRAC units have been replaced with higher efficiency equipment in Bellevue & Atlanta. There has also been a reduction in our Scope 1 & 2 emissions due to reduced occupancy and limited operations during the COVID-19 lockdown (lesser diesel, natural gas, refrigerants, gasoline & electricity consumption across our sites), despite the increase in our COLO portfolio. In addition to this, we procured renewable energy for 99.88% of the purchased electricity consumed in our sites through a combination of grid mix, green tariffs and EACs to maintain our RE100 status. This overall decrease along with a 9% increase in our revenue (denominator); has resulted in a 40% decrease in our emissions intensity from last year.

Intensity figure
0.0000064

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)
74986

Metric denominator
unit total revenue

Metric denominator: Unit total
11767000000

Scope 2 figure used
Location-based

% change from previous year
11

Direction of change
Decreased

Reason for change
As in previous years, our teams have undertaken emission reduction activities through building energy efficiency projects such as lighting retrofits and high efficiency equipment (as outlined in C4.3b). For example, the lighting has been upgraded to LED in our Austin, Atlanta & Bellevue offices and UPS & CRAC units have been replaced with higher efficiency equipment in Bellevue & Atlanta. There was a marginal increase in our Scope 2 location-based emissions (<1%) despite the significant increase in our COLO portfolio due to reduction in our purchased electricity consumption for VMware sites (limited operations & reduced occupancy during the COVID-19 lockdown). The Scope 1 emissions also decreased due to reduced natural gas, diesel & gasoline consumption during the lockdown resulting in an overall slight decrease in the combined Scope 1 & 2 emissions along with a 9% increase in our revenue (denominator); resulting in a 11% decrease in our emissions intensity from last year.

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	1470.91	IPCC Fifth Assessment Report (AR5 – 100 year)
CH4	3.13	IPCC Fifth Assessment Report (AR5 – 100 year)
N2O	0.67	IPCC Fifth Assessment Report (AR5 – 100 year)
HFCs	1312.91	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	1753.92
India	641.4
China	307.58
Germany	33.66
United Kingdom of Great Britain and Northern Ireland	33.33
Japan	13.76
Spain	3.85
Bulgaria	0.11

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	1226.43
Diesel	241.89
Fleet	6.38
Refrigerants	1312.91

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)
Argentina	35.02	2.04	102.42	102.42
Armenia	147.25	147.2	752.4	0.23
Australia	535.74	22.95	720.21	720.21
Austria	1.95	0.34	10.82	10.82
Belgium	1.54	0.09	7.21	7.21
Brazil	15.26	2.77	125.04	125.04
Bulgaria	2186	0	4881.18	4881.18
Canada	25.23	12.59	609.19	609.19
Chile	9.48	0.45	22.49	22.49
China	2480.24	77.24	3900.2	3900.2
Colombia	4.06	2.59	22.49	9.14
Costa Rica	106.49	92.24	2159.44	1484
Czechia	5.72	0.13	11.28	11.28
Denmark	7.48	0.44	41.52	41.52
Egypt	0.65	0.02	1.3	1.3
France	23.21	7.11	292.11	292.11
Germany	37.81	3.93	84.41	84.41
Hungary	2.53	0.11	9.52	9.52
India	19829.1	164.1	26153.2	26153.2
Indonesia	1.36	0.03	1.73	1.73
Ireland	1225	0	3696.37	3696.37
Israel	248.58	10.47	481.14	481.14
Italy	63.54	2.16	199.3	199.3
Japan	1074.8	72.47	2015.25	1996
Malaysia	61.08	2.4	88.66	88.66
Mexico	3.92	0.17	8.22	8.22
Netherlands	431.69	3.81	1024.12	1024.12
New Zealand	3.59	1.16	22.35	22.35
Norway	0.3	0.17	15.57	15.57
Pakistan	5.7	0.26	13.84	13.84
Peru	1.52	0.14	6.92	6.92
Philippines	17.38	0.98	23.35	23.35
Poland	20.94	0.75	28.44	28.44
Portugal	4.26	0.15	13.84	13.84
Russian Federation	68.79	2.31	186.28	186.28
Saudi Arabia	46.51	0.93	88.02	88.02
Singapore	477.92	370.19	1176.03	448.14
South Africa	117.25	4.37	129.33	126
Republic of Korea	8.41	3.4	9.78	9.78
Spain	90.22	7.35	319.36	319.36
Sweden	3.02	1.38	122.75	122.75
Switzerland	2.17	0.63	58.94	58.94
Taiwan, Greater China	74.17	2.51	139.8	139.8
Thailand	31.72	1.65	62.04	62.04
Turkey	37.55	0.84	78.77	78.77
United Arab Emirates	112.07	13.75	211.72	189
United Kingdom of Great Britain and Northern Ireland	416.17	28.62	1689	1689
United States of America	42089.11	6248.04	143117.25	120156.8
Viet Nam	4.78	0.19	10.09	10.09

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)
Purchased Electricity	71092.02	6211.37
Purchased Cooling	1106.24	1106.24

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	3807	Decreased	25	3,807 MT CO2e of Scope 2 MB emissions were reduced from last year due to increase in our purchase of renewable energy. Our total Scope 1 & 2 emissions in the previous year was 15,457 MT. Therefore, we calculated the percentage change as (3,807/15,457) *100 = 25% (i.e., a 25% reduction in emissions)
Other emissions reduction activities	101.53	Decreased	1	The emissions reductions activities VMware implemented at owned and leased facilities worldwide in 2020 resulted in energy savings and corresponding emissions avoidance of around 101.53 MT CO2. The number of projects implemented were limited due to limited operations during the COVID-19 lockdown. The emissions value was derived by dividing the change in emissions by our 2019 Scope 1 and 2 market-based emissions as (101.53/15,457) *100 = 1% (i.e., a 1% reduction in emissions)
Divestment		<Not Applicable>		There were no divestments in 2020.
Acquisitions		<Not Applicable>		There were no significant acquisitions that impacted our emissions
Mergers		<Not Applicable>		There were no mergers that impacted our emissions.
Change in output	1433	Decreased	9	1,433 MT CO2e of Scope 1 & Scope 2 market-based emissions were reduced from last year due to lower electricity, diesel, natural gas and gasoline consumption because of the reduced occupancy and limited operations during the COVID-19 lockdown. Our total Scope 1 & 2 emissions in the previous year were 15,457 MT. Therefore, we calculated the percentage change as (1,433/15,457) *100 = 9% (i.e., a 9% reduction in emissions)
Change in methodology		<Not Applicable>		There was no change in methodology that impacted our emissions
Change in boundary		<Not Applicable>		There were no changes in boundary that impacted our emissions.
Change in physical operating conditions		<Not Applicable>		There were no changes in physical operating conditions that impacted our emissions.
Unidentified		<Not Applicable>		None
Other		<Not Applicable>		None

C7.9b

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

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?
More than 0% but less than or equal to 5%

C8.2

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

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

C8.2a

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

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	0	7723	7723
Consumption of purchased or acquired electricity	<Not Applicable>	169412	25175	194587
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	358	<Not Applicable>	358
Total energy consumption	<Not Applicable>	169770	32898	202668

C8.2b

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

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

C8.2c

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

Fuels (excluding feedstocks)
Natural Gas

Heating value
HHV (higher heating value)

Total fuel MWh consumed by the organization
6768

MWh fuel consumed for self-generation of electricity

MWh fuel consumed for self-generation of heat

MWh fuel consumed for self-generation of steam
<Not Applicable>

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
<Not Applicable>

Emission factor
0.18

Unit
metric tons CO2e per MWh

Emissions factor source
2018 Climate Registry Default Emission Factors

Comment
Natural gas is used in our Palo Alto, Staines & Denver sites for space heating

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Fuels (excluding feedstocks)
Diesel

Heating value
HHV (higher heating value)

Total fuel MWh consumed by the organization
955

MWh fuel consumed for self-generation of electricity

MWh fuel consumed for self-generation of heat

MWh fuel consumed for self-generation of steam
<Not Applicable>

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
<Not Applicable>

Emission factor
10.31

Unit
kg CO2e per gallon

Emissions factor source
2018 Climate Registry Default Emission Factors

Comment
Diesel is used in emergency generators at our Palo Alto, Wenatchee, Dallas, Austin, Sofia, Bangalore, Chennai & Pune sites

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C8.2d

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

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	358.12	358.12	358.12	358.12
Heat				
Steam				
Cooling				

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

Low-carbon technology type
Other, please specify (Solar, Wind, Hydropower)

Country/area of consumption of low-carbon electricity, heat, steam or cooling
United States of America

MWh consumed accounted for at a zero emission factor
26529

Comment
Our local utility providers in Palo Alto, California -- the City of Palo Alto Utilities provides 100% clean electric power to our facilities in that location.

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

Low-carbon technology type
Low-carbon energy mix

Country/area of consumption of low-carbon electricity, heat, steam or cooling
United States of America

MWh consumed accounted for at a zero emission factor
45835

Comment
Our local utility providers in Washington, Douglas County PUD, provide 81.16% clean electric power to our datacenter in Wenatchee

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Sourcing method
Unbundled energy attribute certificates, Renewable Energy Certificates (RECs)

Low-carbon technology type
Solar

Country/area of consumption of low-carbon electricity, heat, steam or cooling
United States of America

MWh consumed accounted for at a zero emission factor
40538

Comment
VMware purchased 40,538 MWh of 2019 US Green-e Energy certified Renewable Energy Certificates (RECs) out of which 39,929 MWh were applied for our non-Palo Alto & Wenatchee operations and 609MWh was applied to Canada.

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/area of consumption of low-carbon electricity, heat, steam or cooling
United States of America

MWh consumed accounted for at a zero emission factor
358

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

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

Low-carbon technology type
Hydropower

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

MWh consumed accounted for at a zero emission factor
13743

Comment
VMware purchased 13,743 MWh of I-RECs for India out of which 15,055 MWh were applied to India and 14MWh to Pakistan

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

Low-carbon technology type
Wind

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

MWh consumed accounted for at a zero emission factor
10530

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

Sourcing method
Unbundled energy attribute certificates, Guarantees of Origin

Low-carbon technology type
Wind

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

MWh consumed accounted for at a zero emission factor
5392

Comment
5,392 MWh EKOenergy Guarantees of Origin EACs were purchased in Europe for Austria, Belgium, Bulgaria, Czech, Denmark, France, Germany, Hungary, Ireland, Italy, Netherlands, Norway, Poland, Portugal, Russia, Spain, Sweden, Switzerland

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

Low-carbon technology type
Wind

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

MWh consumed accounted for at a zero emission factor
4040

Comment
4,040 MWh of China I-RECs were purchased out of which 3,900MWh and 140 MWh were applied for China & Taiwan respectively

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

Low-carbon technology type
Wind

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

MWh consumed accounted for at a zero emission factor
3342

Comment
SSE Airtricity our utility provider in Ireland provides 100% renewable power for our Cork site

Sourcing method
Unbundled energy attribute certificates, other - please specify (PowerPlus)

Low-carbon technology type
Solar

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

MWh consumed accounted for at a zero emission factor
1996

Comment
We purchased 1,996 MWh EACs for Japan (PowerPlus J-Credit)

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

Low-carbon technology type
Other, please specify (Hydro/Solar)

Country/area of consumption of low-carbon electricity, heat, steam or cooling
Costa Rica

MWh consumed accounted for at a zero emission factor
1484

Comment
1,484 MWh of Guatemala I-RECs were purchased and applied to offset our operations in Costa Rica

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

Low-carbon technology type
Low-carbon energy mix

Country/area of consumption of low-carbon electricity, heat, steam or cooling
United Kingdom of Great Britain and Northern Ireland

MWh consumed accounted for at a zero emission factor
1223

Comment
Our utility provider, Engie, gives 100% renewable power for Staines, UK

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

Low-carbon technology type
Other, please specify (Wind/Solar)

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

MWh consumed accounted for at a zero emission factor
743

Comment
743 MWh of Australia RECs were purchased out of which 720MWh were applied for Australia & the rest for New Zealand

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

Low-carbon technology type
Hydropower

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

MWh consumed accounted for at a zero emission factor
634

Comment
634 MWh of Malaysia I-RECs were purchased out of which 89MWh were applied to Malaysia, 2MWh to Indonesia, 10MWh to Vietnam, 62MWh to Thailand, 23MWh to Philippines & 448MWh to Singapore

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

Low-carbon technology type
Solar

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

MWh consumed accounted for at a zero emission factor
482

Comment
VMware purchased 482 MWh of Israel I-RECs out of which 481 MWh were applied for Israel & the rest for Egypt

---

Sourcing method
Unbundled energy attribute certificates, Guarantees of Origin

Low-carbon technology type
Solar

Country/area of consumption of low-carbon electricity, heat, steam or cooling
United Kingdom of Great Britain and Northern Ireland

MWh consumed accounted for at a zero emission factor
462

Comment
462 MWh REGOs were purchased for United Kingdom

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

Low-carbon technology type
Wind

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

MWh consumed accounted for at a zero emission factor
266

Comment
266 MWh of Brazil I-RECs were purchased out of which 125MWh were applied to Brazil, 102MWh to Argentina, 23 to Chile, 7MWh to Peru & 9MWh to Colombia

---

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

Low-carbon technology type
Solar

Country/area of consumption of low-carbon electricity, heat, steam or cooling
United Arab Emirates

MWh consumed accounted for at a zero emission factor
189

Comment
VMware purchased 189 MWh of UAE I-RECs to partially offset our operations in the region

---

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

Low-carbon technology type
Hydropower

Country/area of consumption of low-carbon electricity, heat, steam or cooling
South Africa

MWh consumed accounted for at a zero emission factor
126

Comment
VMware purchased 126 MWh of South Africa I-RECs to partially offset our operations in the region

---

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

Low-carbon technology type
Solar

Country/area of consumption of low-carbon electricity, heat, steam or cooling
Saudi Arabia

MWh consumed accounted for at a zero emission factor
88

Comment
VMware purchased 88 MWh of Saudi Arabia I-RECs

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

Low-carbon technology type
Wind

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

MWh consumed accounted for at a zero emission factor
79

Comment
VMware purchased 79 MWh of Turkey I-RECs for our operations in the region

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

Low-carbon technology type
Other, please specify (Wind/Solar)

Country/area of consumption of low-carbon electricity, heat, steam or cooling
Republic of Korea

MWh consumed accounted for at a zero emission factor
10

Comment
10 MWh of South Korea I-RECs were purchased for our operations in the region

---

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

Low-carbon technology type
Other, please specify (Wind/Solar)

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

MWh consumed accounted for at a zero emission factor
8

Comment
8MWh of Mexico I-RECs were purchased for our operations in the region

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

Low-carbon technology type
Other, please specify (Wind/Solar)

Country/area of consumption of low-carbon electricity, heat, steam or cooling
United States of America

MWh consumed accounted for at a zero emission factor
7110

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

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 (Solar/Wind/Hydropower)

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

MWh consumed accounted for at a zero emission factor
1592

Comment
Our Sofia colocation facility is 100% RE powered by bundled GoOs through supplier

---

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 (Solar/Wind/Hydropower)

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

MWh consumed accounted for at a zero emission factor
677

Comment
Our Amsterdam colocation facility is 100% RE powered by bundled GoOs through supplier

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Sourcing method
Unbundled energy attribute certificates, Renewable Energy Certificates (RECs)

Low-carbon technology type
Wind

Country/area of consumption of low-carbon electricity, heat, steam or cooling
United States of America

MWh consumed accounted for at a zero emission factor
397

Comment
Our Palo Alto & Ashburn colocation facilities are also 100% RE powered by Wind RECs.

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 (Solar/Wind/Hydropower)

Country/area of consumption of low-carbon electricity, heat, steam or cooling
United Kingdom of Great Britain and Northern Ireland

MWh consumed accounted for at a zero emission factor
4

Comment
One of our colocation facilities is powered by bundled REGO-backed certified RE

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

Low-carbon technology type
Hydropower

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

MWh consumed accounted for at a zero emission factor
1326

Comment

1,326 MWh India I-RECs was used to offset the non-RE portion of one of our colocation facilities in India

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

Low-carbon technology type
Wind

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

MWh consumed accounted for at a zero emission factor
568

Comment
30% of the energy consumption of one of our colocation facilities in India is covered under a PPA

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
217480000

Metric numerator
MWh

Metric denominator (intensity metric only)

% change from previous year
0

Direction of change
No change

Please explain
In 2020, we believe incremental energy and carbon avoided through use of VMware virtualization technologies will be same order of magnitude as 2019 if not more given that COVID accelerated digital transformation of traditionally brick and mortar businesses. Our commissioned IDC white paper includes 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 data center 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 data center savings. 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
VMWare 2020 CDP GHG Verification_Apex_27May2021.pdf

Page/ section reference
Page 1-2

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
VMWare 2020 CDP GHG Verification_Apex_27May2021.pdf

Page/ section reference
Page 1-2

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
VMWare 2020 CDP GHG Verification_Apex_27May2021.pdf

Page/ section reference
Page 1-2

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
VMWare 2020 CDP GHG Verification_Apex_27May2021.pdf

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	Energy consumption	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.
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

VMWare 2020 CDP GHG
Verification_Apex_27May2021.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 20,000 metric tonnes CO2e from the Harapanahalli Wind Power Project to support CarbonNeutral® company certification. 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)
20000

Number of credits (metric tonnes CO2e): Risk adjusted volume
20000

Credits cancelled
Yes

Purpose, e.g. compliance
Voluntary Offsetting

Credit origination or credit purchase
Credit purchase

Project type
Methane avoidance

Project identification
In the Bangladesh capital of Dhaka, more than 21 million people rely on natural gas to power their homes, businesses and factories. The local gas distribution company has a network that is old and in disrepair, resulting in significant release of methane, a potent greenhouse gas which is more than 20 times more potent than carbon dioxide as a heat-trapping gas. To reduce and prevent natural gas leaks, the project financed the purchase and import of specialised equipment, called Leak Detectors and Hi-Flow Samplers, along with advanced sealant materials to ensure long lasting sealing of any leaks that were identified by the programme. To date, specially trained staff have checked more than 500,000 gas risers, identifying and repairing more than 37,000 leaks. Avoided losses of natural gas are enough to fuel a 119-MW power plant. VMware has allocated 10,602 metric tonnes CO2e from the purchase of carbon credits from the Bangladesh Gas Distribution Leak Reduction Project to support CarbonNeutral® company certification. In addition to delivering emission reductions to take climate action (SDG 13), the project delivers other benefits: - Good Health and Well-Being: The project reduces the risk of accidents and hazardous pollution from gas leaks. The repairs also address low-pressure problems that leave some customers unable to cook and heat their homes. - Affordable and Clean Energy: Bangladesh is struggling to meet a rising demand for energy. The country is running out of locally sourced natural gas and has recently had to begin importing liquefied natural gas (LNG). This project reduces the need for LNG imports that are up to 5 times the local price. - Decent Work and Economic Growth: Bangladesh is one of the 50 Least Developed Countries in the world, where poor infrastructure hampers development. International experts trained 70 people from the local communities to find and repair leaks, while a further 30 support staff were employed. - Industry, Innovation and Infrastructure: Specialised technology and techniques have been transferred to support the development of sustainable infrastructure. Gas leaks were found to be far more common in the poorest areas due to a lack of knowledge and social power among the people there. The networks in deprived areas had been neglected for many years and were the recipients of the greatest number of gas leak repairs.

Verified to which standard
CDM (Clean Development Mechanism)

Number of credits (metric tonnes CO2e)
10602

Number of credits (metric tonnes CO2e): Risk adjusted volume
10602

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 in 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 10,000 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)
10000

Number of credits (metric tonnes CO2e): Risk adjusted volume
10000

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
Solar water heaters (SWH) provide households, small and medium sized enterprises (SMEs) and institutions with an in-house hot water supply fueled by renewable energy rather than carbon intensive grid electricity. According to a report published by the International Energy Agency in February 2021, coal, oil and solid biomass continue to meet 80% of the country's energy demand. The project focuses on urban areas throughout the country, and manufactures, distributes, installs and maintains SWH for a variety of residential, commercial and community buildings. Distribution is primarily through private entrepreneurs or larger entities that act as SWH dealers and franchise sub-dealers. We have purchased 4000 metric tonnes CO2e from the SWH India project to support CarbonNeutral® company certification. In addition to delivering approximately 120,000 tonnes of emissions reductions annually to help take urgent action on climate change (SDG 13), the project delivers additional sustainable development benefits including: - Affordable & clean energy: Previously users relied on electrical water heaters drawing electricity from a mostly fossil fuel-based power grid. Since 20-30% of electricity in India is used to heat water in urban households, commercial and institutional buildings, the cost saving is of notable potential. By replacing electric units with a 200 litre/day capacity SWH, the typical household can save about INR 9000 (approximately USD 130) per year. - Decent Work & Economic Growth: All solar products are manufactured domestically in Bangalore, offering employment opportunities for local residents in administration, manufacturing, distribution, installation and maintenance roles (with about 160 directly employed). The project supports Sustainable Development Goals (SDGs): SDG 3 Good Health & Well-being, SDG 4 Quality Education, SDG 5 Gender Equality, SDG 7 Affordable & Clean Energy, SDG 8 Decent Work & Economic Growth, SDG 9 Industry Innovation & Infrastructure, SDG 12 Responsible Consumption & Production, SDG 13 Climate Action.

Verified to which standard
Gold Standard

Number of credits (metric tonnes CO2e)
4000

Number of credits (metric tonnes CO2e): Risk adjusted volume
4000

Credits cancelled
Yes

Purpose, e.g. compliance
Voluntary Offsetting

Credit origination or credit purchase
Credit purchase

Project type
Other, please specify (Household devices, Cookstoves)

Project identification
India uses the greatest amount of fuelwood of any country in the world. This means that over 900 million people are exposed to indoor air pollution on a daily basis, and it is estimated that consequently 360,000 people die prematurely each year. This Gold Standard project is enabling households to significantly reduce health risks and fuel costs through the distribution of more efficient biomass cookstoves. VMware has purchased 20,000 metric tonnes CO2e from the India Improved Cookstoves Project to support CarbonNeutral® company certification. Sustainable Development Goals: In addition to delivering emissions reductions to help take urgent action to combat climate change (SDG 13), the project delivers a number of other sustainable development benefits. These include: • Good Health and Well-being: The efficient cookstoves facilitate an 80% reduction in smoke within the household, significantly reducing exposure to harmful indoor air pollution. • No Poverty: Simple design enhancements make the stoves 60% more fuel-efficient. Reduced fuel use equates to a monthly saving of approximately US $7 (INR 450), which is around 7% of the average household monthly income. • Life on Land: As 82% of households depend on wood for cooking, this project eases the burden of overuse on forests, and subsequently decreases deforestation. • Gender Equality: Leaving the home to collect fuel is physically exerting and exposes women to insect bites and possible attacks. The insulated design of the stove also delivers a 50% reduction in the time needed for cooking, which can be allocated to other tasks. • Decent Work and Economic Growth: the manufacturing, sales and distribution of the stoves has created 120 jobs. 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 7 Affordable and Clean Energy SDG 8 Decent Work and Economic Growth SDG 13 Climate Action SDG 15 Life on Land.

Verified to which standard
Gold Standard

Number of credits (metric tonnes CO2e)
20000

Number of credits (metric tonnes CO2e): Risk adjusted volume
20000

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)
75

% of supplier-related Scope 3 emissions as reported in C6.5
61

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 61% of total scope 3 emissions in FY21.

Impact of engagement, including measures of success
In 2020, 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, 59% of suppliers reported active climate targets and 62% 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

Portfolio coverage (total or outstanding)
<Not Applicable>

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 17 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. Our 2020 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 data center infrastructure. It enables firms to gain data center-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 data center 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 data center energy avoidance (cooling, non-IT equipment energy). 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

Portfolio coverage (total or outstanding)
<Not Applicable>

Please explain the rationale for selecting this group of customers and scope of engagement
The group of customers selected for engagement on Ecovadis and Customer Technical Advisory Councils are from across industries and regions. Scope of your 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 Technical Advisory Councils across each region of our business and feedback is incorporated into our product roadmaps, where applicable. We engage our customers regarding our ESG performance with EcoVadis. EcoVadis is an independent sustainability rating provider. We use EcoVadis 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. Proportion of the portfolio value chain covered by the engagement strategy: We have experienced a significant increase in engagement with our customers regarding our ESG performance over the last year through RFPs and annual questionnaires. We currently have 41 customers on the EcoVadis platform and provide our scorecard directly to numerous other customers who are external to the platform.

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 1494 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 to magnify the impact of our engagement strategy. We deploy and test products in our own IT environments (VMware on VMware), and then share the learnings, business & sustainability benefits with our customers, so that they can enthusiastically continue to use our products and data in their own ESG efforts.

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 data centers, with an eye to making new data centers 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 data centers 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 data center efficiency. Stats: The federal government could realize $5 billion in energy savings over seven years with more efficient use of data centers, 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 data center energy bill by 20 to 40 percent. With investments in the latest technologies, experts estimate that most data centers 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 in 2019 and expected through 2022.	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".

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-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 sits 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 ESG Executive Sponsors, ESG Leadership Council, and Sustainability Technical Council. The ESG Executive Sponsors are part of our new tiered governance structure for assessing, monitoring, and managing climate-related issues. ESG Executive Sponsors provide leadership & executive management authority on ESG issues.

ESG Executive Sponsors includes the following stakeholders and roles:

- CFO considers sustainability impacts on material financial risk and long-term financial performance

- Chief People Officer (CPO) for sustainability impacts on employee experience, culture, talent acquisition, retention, and development

- Chief Technology Officer (CTO) for sustainability impacts on long-term technical agenda

- General Counsel (GC) provides guidance to understand/navigate issues that may arise, external reporting on ESG performance

The next tier of governance includes the ESG Leadership Council comprising delegates appointed by the Executive leaders. These delegates hold strategic and operational responsibility focused on materially advancing the ESG Priorities and defining the metrics & measures established to progress on the priorities.

The ESG Leadership Council includes the following stakeholders and roles across the product, go-to market, and operations functions at VMware:

- SVP/VP, Product for sustainability impacts on products

- SVP/VP, Go-to Market considers sustainability impacts on customers/partners

- SVP/VP, Operations for operations, human capital, supply chain, communications, public policy, & external reporting on ESG performance

The Sustainability 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 Vice President of Environmental, Social, Governance (ESG) 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.

With regard to policy, all of our policy engagement activities are coordinated through our Vice President of Global Government Relations and Public Policy, who is on the ESG Leadership Council. Given that our core business drives energy efficiency, these groups are aligned to support 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 mainstream reports

Status
Complete

Attach the document
10-K_VMware_FY2021.pdf

Page/Section reference
Page 14 / Environmental, Social and Governance Page 5, 35 / Risk Factors

Content elements
Governance
Strategy
Risks & opportunities

Comment
https://ir.vmware.com/websites/vmware/English/5100/us-sec-filing.html Please note that the page/section references strictly match the sections listed in 10-K. Page 14/Environmental Social and Governance covers both Governance & Strategy content elements. Our 2030 Agenda represents our ESG Strategy focused on three business outcomes: Trust, Equity and Sustainability.

Publication
In mainstream reports

Status
Complete

Attach the document

VMware_Proxy Statement_FY2021.pdf

Page/Section reference

Page 2, 3, 14-16 / Environmental, Social and Governance Page 2 / 2030 Agenda Page 14, 35, 46 / Committees of the Board; Compensation Discussion & Analysis

Content elements

Governance
Strategy
Other, please specify (Committees of the Board; Compensation Discussion & Analysis)

Comment

https://ir.vmware.com/websites/vmware/English/5100/us-sec-filing.html

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Publication

In voluntary communications

Status

Complete

Attach the document

2030 Agenda.pdf

Page/Section reference

Page 2, 3 / Governance Page 2, 3, 7-9 / Strategy Page 2, 3, 7-9 /Risks & Opportunities Page 8-9/Emission targets

Content elements

Governance
Strategy
Risks & opportunities

Comment

https://www.vmware.com/2030agenda/2020report.html

Publication

In voluntary sustainability report

Status

Underway – previous year attached

Attach the document

vmware_global-impact-report-2020 (CY2019).pdf

Page/Section reference

Page 46, 47, 51, 52, 54-56 / Governance Page 2, 7, 8, 9, 11, 15, 22, 24, 25, 26, 27, 31, 38, 44, 47, 59-60 /Strategy Page 15, 16, 32, 44, 51 52, 59 /Risks & Opportunities Page 4, 14, 24, 25, 59 /Emissions figures Page 23, 24, 25, 26, 59 /Emission targets

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/microsites/vmware-global-impact-report.pdf

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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)

SC. Supply chain module