

Welcome to your CDP Climate Change Questionnaire 2021

C0. Introduction

C0.1

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

Juniper designs, develops and sells products and services for high-performance networks to enable customers to build scalable, reliable, secure and cost-effective networks for their businesses, while achieving agility and improved operating efficiency through automation. We sell our high-performance network products and service offerings across routing, switching, Wi-Fi, network security, and software-defined networking technologies. In addition to our products, we offer our customers services, including maintenance and support, professional services, Software-as-a Service, and education and training programs. We sell our products in more than 150 countries in three geographic regions: Americas; Europe, Middle East, and Africa, which we refer to as EMEA; and Asia Pacific, which we refer to as APAC. Our products and services address high-performance network requirements for our customers within our verticals: Cloud, Service Provider, and Enterprise, who view the network as critical to their success. We believe our silicon, systems, and software represent innovations that transform the economics and experience of networking, helping our customers achieve superior performance, greater choice, and flexibility, while reducing overall total cost of ownership.

C0.2

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

	Start date	End date	Indicate if you are providing emissions data for past reporting years
Reporting year	January 1, 2020	December 31, 2020	No

C0.3

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

China
India
Japan
Netherlands

United States of America

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	<p>Juniper's Nominating and Corporate Governance (N&CG) Committee of the Board of Directors reviews information on climate change through updates on sustainability, corporate social responsibility (CSR), governance, risk, and compliance issues provided by executive-level committees and champions in the company. The committee is responsible for climate change issues because of its level of oversight, its responsibilities to review and effectively respond to stockholder proposal and concerns, and its level of authority over regulatory and disclosure issues. The charter of the N&CG Committee is in part to exercise general oversight for the corporate governance of the Board of Directors and the company's programs, policies and practices relating to CSR issues, including climate change, and impact to support the sustainable growth of the company's business. The N&CG Committee is comprised of two members of the Board of Directors and meets no less than three times per year. The N&CG Committee receives regular updates on climate issues, programs, and ESG topics.</p> <p>One example of a climate-related decision that the N&CG Committee made in 2020</p>

	was the review and approval of the company's material CSR topics list, within which GHG and energy consumption are included.
Board-level committee	<p>Juniper's Audit Committee of the Board of Directors reviews information on climate change through updates on sustainability, CSR, governance, risk, and compliance issues provided by executive-level committees and champions within the company. The committee is responsible for climate change issues at Juniper because of its level of oversight, its responsibilities to address and manage risks including those related to climate change, and its level of authority over regulatory and disclosure issues. The Committee is responsible for the overall oversight of our Integrity and Compliance program. They receive updates on CSR initiatives and work with management on CSR-related issues that can create Enterprise level risks for the company or that otherwise could have a significant impact on Juniper's business activities and performance. The Committee is comprised of three members of the Board of Directors and meets no less than four times per year.</p> <p>One example of a climate-related decision that the Audit Committee has made is approving the content of our annual climate disclosures in the 2020 10-K (https://d18rn0p25nwr6d.cloudfront.net/CIK-0001043604/45d9bf71-b419-4121-a76e-72dc28839aa6.pdf) and Annual Report & Proxy Statement (https://d18rn0p25nwr6d.cloudfront.net/CIK-0001043604/ca81b860-82bd-4c23-8704-a34630d7b3f5.pdf).</p>

C1.1b

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

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – some meetings	<p>Reviewing and guiding strategy</p> <p>Reviewing and guiding major plans of action</p> <p>Reviewing and guiding risk management policies</p> <p>Monitoring implementation and performance of objectives</p> <p>Overseeing major capital expenditures,</p>	<p>Juniper's Nominating and Corporate Governance (N&CG) Committee and Audit Committee of the Board of Directors review information on climate change through updates on sustainability, CSR, governance, risk, and compliance issues provided by executive-level committees and champions in the company. These two committees are responsible for climate change issues at Juniper. The charter of the N&CG Committee is in part to exercise general oversight for the corporate governance of the Board of Directors and the company's programs, policies and practices relating to CSR issues and impact to support the sustainable growth of the company's business. The N&CG Committee is comprised of two members of the Board of Directors and meets no less</p>

	<p>acquisitions and divestitures</p> <p>Monitoring and overseeing progress against goals and targets for addressing climate-related issues</p>	<p>than three times per year. The N&CG Committee receives regular updates on climate-related issues and programs, as well as on broader environmental, social and governance (ESG) topics and strategy. The Audit Committee has oversight for the company's risk management policies and compliance of the company's legal and regulatory requirements. They receive updates on CSR initiatives and work with management on CSR-related issues that can create Enterprise level risks for the company or that otherwise could have a significant impact on Juniper's business activities and performance. They are also consulted in preparation of regulatory disclosures, such as CSR and climate-related initiatives highlighted in our financial and annual reports. The Audit Committee is comprised of three members of the Board of Directors and meets no less than four times per year. These levels of engagement contribute to the Board's oversight of climate-related issues and allow Juniper to flag material climate-related concerns to the Board as they arise.</p>
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C1.2

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

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Other C-Suite Officer, please specify CMO, member of CSR Executive Committee	Both assessing and managing climate-related risks and opportunities	Annually
Chief Financial Officer (CFO)	Other, please specify Reviewing and authorizing PPA/energy agreements and infrastructure projects (e.g., expansion of onsite power generation) requiring executive level sign-off due to the dollar value or the potential impact to future financial planning.	As important matters arise

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).

Juniper's CSR Executive Committee is responsible for establishing global direction for the organization's CSR strategy, managing those issues across Juniper, ensuring alignment with the overall company strategy, and providing guidance to drive continual improvement. The CSR Executive Committee, which consists of senior level executives who report directly to the CEO, are members of the CEO Staff, and are responsible for communicating material information regarding the CSR strategy to the CEO, is comprised of SVP General Counsel, SVP Human Resources, SVP and Chief Marketing Officer (CMO), VP Manufacturing Operations, SVP Engineering, VP Real Estate and Workplace Services, and VP Environmental, Health, Safety and Security. The CSR Executive Committee is a cross-functional team with senior leaders representing the different business units within the organization and key stakeholder groups, and is ultimately responsible for the execution of the material topics in Juniper's CSR strategy. The committee convenes quarterly to discuss progress, obstacles and goals for each of the three CSR pillars: Corporate Governance, Environmental Sustainability, and People and Communities. Climate-change issues are monitored as part of the following CSR pillars: "Corporate Governance" (focused on responsible corporate governance and management of ESG issues, including risk management efforts focused on our supply base) and "Environmental Sustainability" (climate-change performance and product sustainability, including energy efficiency, eco-design principles, total cost of ownership associated with Juniper products and services, and supplier performance on environmental sustainability). In addition, the CSR Executive Committee conducts the annual ISO 14001 management review to ensure members are aware of the organization's environmental responsibilities (driven by legal and customer requirements and stakeholders' interests), the significant environmental impacts associated with our products, activities, and processes, and efforts to reduce those impacts (such as climate change). While not a member of the CSR Executive Committee, the CFO maintains oversight on climate-related issues by reviewing and authorizing PPA and energy agreements and infrastructure projects that require executive level sign-off due to the dollar value of the agreement or the potential impact to future financial planning. For example, in 2019, the CFO made the decision to expand onsite power generation capabilities at the company's Sunnyvale campus. Based on our governance structure, both the Real Estate and Workplace Services and Supply Chain Operations groups report to the CFO - representatives for each of those groups sit on the CSR Executive Committee.

C1.3

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

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

C1.3a

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

Entitled to incentive	Type of incentive	Activity incentivized	Comment
Chief Financial Officer (CFO)	Monetary reward	Energy reduction project	Juniper incentivizes the procurement and facilities departments to develop and execute initiatives to improve the company's profit margin and mitigate financial risk. Energy reduction (and the associated Opex reduction) is one of the major initiatives for profit margin improvement. This effort is driven by the CFO organization.
Energy manager	Monetary reward	Behavior change related indicator	Salary and bonus decisions are made as a result of delivery on performance objectives including: developing and establishing an energy management strategy, policy and program; identifying and coordinating global efforts and projects to achieve target reductions on Juniper's global carbon footprint and energy use; facilitating a forum for facilities managers to share best practices; and communicating with the employee population on energy use expectations and driving behavioral change.
Environment/Sustainability manager	Monetary reward	Emissions reduction project	Salary and bonus decisions are made as a result of delivery on performance objectives including: maintaining ISO 14001 certification; maintaining the City of Sunnyvale's Green Business certification; calculating Juniper's greenhouse gas emissions; increasing supplier participation and evaluating supplier performance in the CDP Supply Chain climate change and water security initiatives and compliance with the Responsible Business Alliance Code of Conduct, which includes expectations and standards on energy consumption and greenhouse gas emissions; managing and improving Juniper's employee alternative transportation programs; and

			communicating to internal and external stakeholders on Juniper's CSR program.
Facilities manager	Monetary reward	Energy reduction project	Salary and bonus decisions are made as a result of delivery on performance objectives including achieving target reductions on Juniper's energy use through identification and implementation of energy efficiency opportunities; and maintaining compliance to city, state and federal energy requirements (i.e., completing and filing site energy audit reports and energy programs).
All employees	Monetary reward	Behavior change related indicator	To reduce scope 3 emissions from employee commuting, Juniper provides assistance, resources and monetary incentives for employees who elect to participate in the Juniper Networks Employee Transportation Program, including direct subsidies for using public transit and monetary award for active commuting into work. These incentives vary by geography. The program encourages employees to utilize methods of transit to work that eliminate single passenger auto trips and utilize mass transit, bicycling, and car sharing (carpooling and vanpooling). Juniper also provides non-monetary incentives, including preferred parking spaces for carpools, vanpools, and electric vehicles, secured bicycle storage lockers, emergency bicycle repair support, and onsite electric vehicle charging stations. Additionally, at certain facilities, Juniper provides onsite services to employees (e.g., onsite fueling, oil change, dental and health care, dry cleaning) to eliminate the need for additional vehicle trips offsite during the workday.
All employees	Monetary reward	Energy reduction project	In August 2020, Juniper launched a crowd-sourcing initiative to collect spending optimization ideas from employees globally. All employees were encouraged to submit their ideas. The shortlist of ideas to be presented to the executives for review and selection was based on the number of likes the idea received. Ideas that were selected

			by the executives were implemented and the employee suggesting the idea received a monetary award. A number of energy related ideas were submitted, including reducing lab energy consumption, power management of active and checked out equipment, and provision of refurbished equipment.
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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	3	
Medium-term	4	5	
Long-term	6	100	

C2.1b

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

Juniper employs a multitude of factors to help determine an issue's magnitude of financial impact or risk. Factors include but are not limited to exposure to a loss of downstream sales, supply chain impacts including natural disasters, and impacts to the company stock price due to changes in the market. From a qualitative perspective, regulation of our industry or those of our customers could harm our operating results and future prospects and, thus, could be considered substantially financially impactful. Environmental laws and regulations relevant to electronic equipment manufacturing or operations, including laws and regulations governing the hazardous material content of our products and the collection of and recycling of electrical and electronic equipment, may adversely impact our business and financial condition. In particular, we face increasing complexity in our product design and procurement operations as we adjust to new and future requirements relating to the chemical and material composition of our products, their safe use, the energy consumption associated with those products, climate change laws, and regulations and product take-back legislation, which could require us to cease selling non-compliant products and to reengineer our products

to use compliant components which could result in additional costs to us, disrupt our operations, and result in an adverse impact on our operating results. If we were to violate or become liable under environmental laws or if our products become non-compliant with environmental laws, our customers may refuse to purchase our products and we could incur substantial costs or face other sanctions, which may include restrictions on our products entering certain jurisdictions. Considering climate change more specifically, Juniper utilizes the company's enterprise risk management (ERM) framework and takes into consideration qualitative factors and the quantitative substantive financial impact threshold based on a percentage of the prior year's operating profit to determine an issue's materiality. For example, an analysis of a flood in South Korea showed a potential to impact partners at 13 sites, producing 111 parts that are used in over 2,000 products. If the supply chain disruption and financial impact were realized it could have potentially been considered a material issue. Our systems of robust information gathering and contingency planning allowed our company to identify and respond to this potential moderate-impact crisis in order to avoid a financial loss of approximately \$150M. Juniper's supply chain mitigation strategy in this example prevented the projected financial loss of approximately \$150M and, thus, did not meet the substantive financial impact threshold.

C2.2

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

Value chain stage(s) covered

Direct operations
Upstream
Downstream

Risk management process

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

Risk assessment is incorporated into the company-wide enterprise risk management (ERM) process, which is reviewed at least once every six months. As risks meet thresholds of materiality, they are escalated to the Board of Directors for increased assessment and mitigation. Juniper prioritizes risks that are found to be material. In regards to CSR-related issues, Juniper uses the following qualitative factors:

* The risk of the CSR issue to business operations: Using our corporate strategy,

Juniper looks at whether the issue represents a significant risk to our company or industry. Is it current or emerging? Is it already part of the CSR strategy or does it need to be added?

* The priority of the issue to our stakeholders: Does this issue resonate with our key stakeholders? Is it a subject of NGO campaigns? How does it track in the media? Is it reflected in pending legislation, regulations, or international agreements? Is it aligned with topics identified as material in ESG/CSR materiality assessments?

* Peers and competitors: Do Juniper's peers and competitors disclose against this issue? How do they respond? Juniper's influence over the issue: To what extent does Juniper have control or influence over the issue through our direct actions, industry associations, or networks?

* Relevant and applicable voluntary global reporting and CSR standards and guidelines: Is the issue addressed by the standard disclosures of the Global Reporting Initiative guidelines, Responsible Business Alliance Code of Conduct, by the Sustainable Accounting Standards Board, or by other relevant and applicable global voluntary standards?

Juniper's approach to materiality is aligned with the domain solutions and customer verticals of our business strategy. The strategy provides a structure and hierarchy for prioritizing the value, or risk, of an issue on Juniper's business operations. It is based on the following approach: Is this issue critical to our customer segments? Is this issue relevant to our product domains?

Innovation inherently carries risks associated with developing and bringing products to market. However, Juniper utilizes the company's ERM framework and its quantitative threshold to determine our tolerance and exposure to risk and potential for financial impact. This framework and the outcomes of it are aligned with the assessment of an issue's materiality, as described above. There are multiple factors that help determine an issue's magnitude of financial impact or risk. Factors include but are not limited to exposure to a loss of downstream sales, supply chain impacts including natural disasters, and impacts to the company stock price due to changes in the market. An example of substantial financial impact may be due to exposure in our downstream sales. If we fail to anticipate market requirements or opportunities or fail to develop and introduce new products, product enhancements or business strategies to meet those requirements or opportunities, then this could cause us to lose customers. Such failure could substantially decrease or delay market acceptance and sales of our present and future products/services, which would significantly harm our business, financial condition, and results of operations.

One example of a transition risk that this framework applies to is as follows: Juniper's headquarters is located in Sunnyvale, California and is subject to regulations imposed by the State of California, the County of Santa Clara, and the City of Sunnyvale. In response to growing traffic congestion in Sunnyvale and associated environmental and social impacts of it, Juniper's headquarters is required to implement a Transportation Demand Management (TDM) program with the goal of decreasing single-passenger car trips. If Juniper was found to be out of compliance with the City's TDM program, the City

would be within rights to fine the company a max penalty of \$500,000 per year. This figure is calculated based on the size of our campus, which is between 500,000 SF and 1,000,000 SF. To mitigate this risk, Juniper has in place programs and policies, including the Environmental, Health, Safety, and Security Policy which outlines the company's commitment to environmental responsibility, as well as Juniper's Active Commute Rewards program. Because of these policies and programs, the TDM requirement on our Sunnyvale headquarters has had little impact on operations, as the campus already offers alternative commute resources and programs to employees and has implemented a monitoring program to track progress. Juniper utilizes the company's ERM framework and its quantitative threshold based on the prior year's operating profit to determine our tolerance and exposure to risk and potential for financial impact. The risk figure, \$500,000 per year, did not meet the threshold for substantive financial impact.

One example of a physical risk that this framework applies to is as follows: Juniper utilizes a global supply chain, which includes our contract manufacturers, original design manufacturers, component suppliers, warehousing and logistics. A severe weather event could result in a reduction or disruption to production capacity of our suppliers. Any disruptions to Juniper's supply chain could decrease sales, earnings and liquidity or otherwise adversely affect our business and result in increased costs. For example, some of our supply chain partners are located in regions that may be exposed to flooding, and thus affect our supply chain continuity. Therefore, we continually conduct risk assessments and contingency planning to strengthen our supply chain and reduce dependencies. One such event was a flood in South Korea which had the potential to impact partners at 13 sites, producing 111 parts that are used in over 2,000 products. Juniper worked to mitigate losses from extreme weather events by reducing single sources for components and materials and balance the supply chain geographically. The company also invests in robust supply chain risk management analytics to assess and respond to risks in the supply chain. This ensures business continuity in the face of extreme weather events. In the example above, because of the actions we took, our multi-point sourcing practices, our engagement with suppliers, and our systems of robust information gathering and contingency planning, our company was able to identify this potential moderate-impact crisis in order to avoid a financial loss of approximately \$150M. Juniper utilizes the company's ERM framework and its quantitative threshold based on a percentage of the prior year's operating profit to determine our tolerance and exposure to risk and potential for financial impact. The residual financial impact did not meet the threshold for what is considered substantive.

C2.2a

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

Relevance & inclusion	Please explain
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Current regulation	Relevant, always included	Juniper considers current regulation in the assessment of climate-related risks as a material, relevant topic in line with our risk assessment process. Regulatory risks are assessed by the Integrity and Compliance group, and results are reported to the Audit Committee of the Board of Directors. An example of a current regulatory risk: In response to growing traffic congestion in the City of Sunnyvale and the associated environmental and social impacts of it, the city's Division of Transportation and Traffic implemented the City of Sunnyvale's Transportation Demand Management (TDM) Program. As a business operating in the City of Sunnyvale, Juniper's headquarters is required to implement a transportation demand program with the goal of decreasing single-passenger car trips. Requirements include achieving prescribed reduction targets and submitting annual performance reports to the City. Failure to comply can result in a maximum annual financial non-compliance penalty of \$500,000.
Emerging regulation	Relevant, always included	Juniper considers emerging regulation in the assessment of climate-related risks as a material, relevant topic in line with our risk assessment process. Regulatory risks are assessed by the Integrity and Compliance group, and results are reported to the Audit Committee of the Board of Directors. In anticipation of emerging regulations, Juniper also strives for compliance with voluntary standards and participates in the development of new product energy efficiency standards, industry guidelines, etc. through industry groups and trade associations. An example of an emerging regulation: Juniper is monitoring the development of circular economy legislations in the European Union and the United States that are designed and if adopted to pave the way towards climate-neutral activities and business. One such requirement is France's anti-waste law for a circular economy. Juniper is beginning to see new RFP and contract requirements aligned to the pending law from customers who have operations in France. Customers are requesting product life-cycle assessment reports and associated carbon footprint data. Juniper received customer communications stating increased focus on these evaluation criteria. Failure to provide sufficient information may impact our ability to win and sustain customer contracts.
Technology	Relevant, always included	Technology advances driven by climate-related needs of Juniper's customers are considered by the Juniper Development and Innovation leadership team during the New Product Introduction process. If Juniper fails to produce advances in technology to meet demand of its customers, it will risk losing market share. For example, to sell to certain telecommunication customers Juniper products are required to comply with energy efficiency standards such as the AT&T ATT-TP-76200, Issue 20, June 2016 and Verizon VZ.TPR.9205, Issue 6, March 2016.

Legal	Relevant, always included	Exposure to climate-related lawsuits from customers, suppliers, or others are considered by Juniper's Legal team. If Juniper customers or suppliers become exposed to carbon taxes or fines related to their use of, or production of, Juniper products, they may seek compensation from Juniper Networks. If Juniper's disclosures are believed to not be accurate and representative of the current conditions Juniper may become exposed to litigation.
Market	Relevant, always included	Market needs driven by Juniper's customers' increased appreciation for the importance of climate-adaptive or climate-protective technology are considered by the Juniper Development and Innovation leadership team. If Juniper fails to produce advances in technology to meet demand of its customers, it will risk losing market share. As part of requests for proposals, supplier onboarding, and supplier performance reviews, customers are including product and operational energy efficiency and carbon reduction performance requirements. For example, one European telecommunication customer requires Juniper to establish and commit to carbon reduction targets and to report GHG emissions performance every six months, and to share future product energy efficiency roadmaps as part of the contractual agreement. By having an already established climate change program and strategy in place Juniper was in a position to comply with the customer's requirements and mitigate the risk of losing this opportunity due to an insufficient response.
Reputation	Relevant, always included	Risks to reputation and brand are managed in part by the Corporate Communications team. Those that are considered material (based on potential financial impact) are reported to senior executives and the Board of Directors. For example, the ICT sector carries a reputation for energy consumption. The ICT sector accounts for approximately 2% of global GHG emissions. Additionally, according to the Climate Savers Computing Initiative, the increasingly connected world could face GHG emissions growth by as much as 6% per year if there isn't a strong focus by the industry on energy-efficient solutions. If Juniper were unable to continue improving the energy efficiency of their products, which increasingly use less electricity per Gigabit of throughput, there is a risk that Juniper could fail to stand out as a leader in efficiency and innovation to curtail industry GHG emissions, which could negatively impact revenue and brand value.
Acute physical	Relevant, always included	Acute physical risks associated with internal operations are managed and reported by the Real Estate & Workplace Services team and those associated with the supply chain are managed and reported by the Operations team. Examples include floods, drought, hurricanes, or cyclones, which are risks to Juniper because they impact our supply chain by preventing access to raw materials and components needed to manufacture products. Due to the nature of the uncertainty and unpredictability of risks related to climate change, individual risks are

		largely considered to be low impact. However, physical risks are directly related to business continuity as a whole and those that are considered material (based on potential financial impact) are reported to senior executives and the Board of Directors.
Chronic physical	Relevant, always included	Chronic physical risks associated with internal operations are managed and reported by the Real Estate & Workplace Services team and those associated with the supply chain are managed and reported by the Operations team. For example, Juniper's Sunnyvale headquarters is located in an area designated as a 500-year floodplain. Juniper has assessed risks related to sea level rise which are in line with the 500-year flood risk. The potential impact to Juniper would be one to four feet of water intrusion and damage to the first floors of the buildings. In the facility's operations, the risk of sea level rise is assessed and reported on through this process and have helped Juniper to make strategic business decisions to relocate critical R&D lab environments located in California to a facility in the state of Washington in order to protect operations from sea level rise. In 2018, Juniper completed this migration and was able to close two buildings at the Sunnyvale, CA campus. Within our supply chain operations, risks from the chronic physical impacts of climate change such as hurricanes and cyclones have prompted the decision to use advanced supply chain mapping which allows us to integrate a proactive approach to mitigating threats to the delivery of products from climate events, including minimizing single-origin sourcing and using predictive weather mapping.

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

Current regulation

Other, please specify

Policy: transportation demand management

Primary potential financial impact

Increased indirect (operating) costs

Company-specific description

Juniper is subject to environmental regulations in each of the localities in which it operates. For example, Juniper's Amsterdam and UK facilities are subject to the Energy Saving Opportunities Scheme (ESOS) audit requirement. Juniper's headquarters is located in Sunnyvale, California and is subject to regulations imposed by the State of California, the County of Santa Clara, and the City of Sunnyvale. In response to growing traffic congestion in the City of Sunnyvale and the associated environmental and social impacts of it, the city's Division of Transportation and Traffic implemented the City of Sunnyvale's Transportation Demand Management (TDM) Program. As a business operating in the City of Sunnyvale, Juniper's headquarters is required to implement a transportation demand program with the goal of decreasing single-passenger car trips. Requirements include achieving prescribed reduction targets and submitting annual performance reports to the City. Failure to comply can result in a maximum annual financial non-compliance penalty of \$500,000. Another local regulation that applies to Juniper's headquarters is the City of Sunnyvale's Green Building Program, which requires LEED standards to be met in operations and new construction projects.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

500,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The financial implications from noncompliance with environmental regulations have been consistent and predictable and are expected to stay about the same going forward. Juniper has not been found to be non-compliant with the City of Sunnyvale's Transportation Demand Management Program and, therefore, has not been issued any financial penalties for noncompliance. However, if Juniper was found to be out of

compliance with the City of Sunnyvale's Transportation Demand Management Program, the City would be within rights to fine the company a maximum penalty of \$500,000 per year. This penalty is determined by the City of Sunnyvale and calculated based on the size of Juniper's campus, which is between 500,000 SF and 1,000,000 SF. Juniper utilizes the company's ERM framework and its quantitative threshold based on a percentage of the prior year's operating profit to determine our tolerance and exposure to risk and potential for financial impact. This figure did not meet the threshold for substantive financial impact.

Cost of response to risk

1,000,000

Description of response and explanation of cost calculation

Risks from this regulation are managed by the Environmental, Health, Safety and Security (EHSS) department by monitoring regulatory changes and by maintaining existing programs and policies for compliance. The city of Sunnyvale's transportation demand program requires that businesses analyze their traffic and congestion impacts from employee transportation. To mitigate these risks, Juniper has in place programs and policies, including the EHSS Policy which outlines the company's commitment to environmental responsibility, as well as Juniper's Active Commute Rewards (ACR) program. Juniper's ACR program is one measure the company takes to mitigate the risk of being out of compliance with the state, county, and city policies. Because of these policies and programs, the transportation demand program requirement on Juniper's Sunnyvale headquarters has had little impact on operations, as the campus already offers alternative commute resources and programs to employees and has implemented a monitoring program to track progress. The cost of managing general environmental risks is equal to the cost of staff time and consulting services devoted to regulatory review, the cost of implementing green business programs (including tools and training), and costs of attaining certifications and verifications as needed. The activities associated with the management of this risk is covered entirely within the corporate EHSS budget.

Comment

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Market

Increased cost of raw materials

Primary potential financial impact

Increased indirect (operating) costs

Company-specific description

If new taxes, tariffs or regulations caused an increase in the cost of electricity, Juniper's operating costs could increase. New fuel and energy taxes and regulations could result in a significant increase in both fuel and electricity costs for Juniper. In 2020, Juniper consumed approximately 259,000 MWh of electricity. Annual electricity cost for the eight major global sites in the US, India, Netherlands, China, and Japan makes up over 96% of Juniper's annual utility budget. Electricity costs may be increased due to emissions caps, carbon taxes, or other fees related to regulation and logistical costs of implementation, including the recently implemented tariff by the local utility provider in Bangalore. In 2020, Bangalore consumed approximately 88,352 MWh, with about 3% of that supported by the electricity board and subjected to the new tariff. It is unlikely that electricity costs would increase uniformly; however, if an increase in cost per MWh of 10% is assumed overall, Juniper's operating expense could increase by between \$3M and \$3.5M per year. This hypothetical increase represents less than 0.15% of total operating expenses and was selected due to its conservative nature (i.e. energy costs do not increase this significantly in our markets).

Time horizon

Short-term

Likelihood

More likely than not

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

3,000,000

Potential financial impact figure – maximum (currency)

3,500,000

Explanation of financial impact figure

In 2019, Juniper consumed approximately 245,000 MWh of electricity. If new taxes or regulations caused an increase in the cost of electricity, Juniper's operating costs could increase. It is unlikely that electricity costs would increase uniformly; however, if an increase in cost per MWh of 10% is assumed overall, Juniper's operating expense could increase between \$3M and \$3.5M per year. This hypothetical increase represents less than 0.15% of total operating expenses and was selected due to its conservative nature (i.e. energy costs do not increase this significantly in our markets). Juniper utilizes the company's ERM framework and its quantitative threshold based on the prior year's operating profit to determine our tolerance and exposure to risk and potential for financial impact. This figure did not meet the threshold for substantive financial impact.

Cost of response to risk

1,200,000

Description of response and explanation of cost calculation

In order to reduce the risk of increased costs due to new fuel and energy taxes we've initiated the following to generate clean energy and shift electricity procurement to cleaner and more cost-efficient sources. In the following case study, Juniper details a renewable energy initiative undertaken at its Sunnyvale campus: Worldwide, Juniper's campuses may use a mix of grid power including renewable and non-renewable sources, as well as co-generation or other self-generated power, depending on that location's power needs and the availability of renewable power in that locality. At the Sunnyvale headquarters, Juniper sought ways to decrease its reliance on grid power and to instead consume more renewable energy. In 2012, Juniper installed a photovoltaic and fuel cell system onsite to produce renewable electricity on campus and reduce its reliance on the local power grid. As a result, Juniper has been able to consistently produce renewable power at the Sunnyvale campus, generating about 7,517 MWh of energy in 2020, decreasing its reliance on grid power. Juniper's most recent investment of \$1.2M helps to increase the fuel cell system's output by 15%. Additionally, Juniper renegotiated the power procurement agreement for our campus in Westford, MA, which is within a deregulated energy market. Due to favorable energy market conditions, Juniper locked in a new contract which commenced in 2016. The cost of management is calculated by finding the value that Juniper has invested to increase the fuel system's output. That figure equals which is 100% of the investment, which is \$1.2M.

Comment

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Upstream

Risk type & Primary climate-related risk driver

Acute physical

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

Primary potential financial impact

Decreased revenues due to reduced production capacity

Company-specific description

As weather-related events are inherently unpredictable, Juniper has assessed and incorporated these risks (heat waves, floods, droughts, storms, hurricanes and typhoons) into the company's emergency preparedness and business continuity

programs for our global operations, and those of our critical supply chain partners. Juniper's manufacturing is primarily conducted through contract manufacturers and original design manufacturers in the China, Malaysia, Mexico and Taiwan. A severe weather event could result in a reduction or disruption to production capacity of our suppliers. Any disruptions to Juniper's supply chain could decrease sales, earnings and liquidity or otherwise adversely affect our business and result in increased costs. For example, a recent analysis of a flood in South Korea allowed us to assess our potential exposure in the region to be partners at 13 sites, producing 111 parts that are used in over 2,000 products. Our systems of robust information gathering and contingency planning allowed our company to identify and respond to this potential moderate-impact crisis in order to avoid a financial loss of approximately \$150M. Such a disruption could occur as a result of any number of climate events, including, but not limited to, severe weather conditions, and natural disasters.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

150,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The impact from any unpredictable weather events is currently viewed in terms of business interruption, resumption and/or relocation costs. In the event of a disruption in production capacity, with our management procedures in place it would expect there to be very small, infrequent impacts to revenue. For example, some of Juniper's supply chain partners are located in regions that may be exposed to flooding, and thus affect our supply chain continuity. Therefore, we continually conduct risk assessments and contingency planning to strengthen our supply chain and reduce dependencies. An analysis of a flood in South Korea allowed us to assess our potential exposure in the region to be partners at 13 sites, producing 111 parts that are used in over 2,000 products. Juniper worked to mitigate losses from extreme weather events by reducing single sources for components and materials and balance the supply chain geographically. The company also invests in robust supply chain risk management analytics to assess and respond to risks in the supply chain. This ensures business

continuity in the face of extreme weather events. Because of the actions we took, our multi-point sourcing practices, our engagement with suppliers, and our systems of robust information gathering and contingency planning, our company was able to identify this potential moderate-impact crisis in order to avoid a financial loss of approximately \$150M. Juniper utilizes the company's ERM framework and its quantitative threshold based on the prior year's operating profit to determine our tolerance and exposure to risk and potential for financial impact. This figure did not meet the threshold for substantive financial impact.

Cost of response to risk

44,000,000

Description of response and explanation of cost calculation

Management activities for weather events include use of a supply chain risk management (SCRM) system which collects data from key suppliers that maps components to production factories. This mapping allows Juniper to instantly see and predict critical events and the severity of impact to the supply chain. With these notifications Juniper can immediately contact suppliers to understand potential impacts to delivery and, if needed, create mitigation plans. The proactive risk mitigation planning dynamically assesses resiliency; financial, location and recovery risks; and revenue impacts. The real time data helps the operations team make strategic decisions which maximize uptime throughout the entire supply chain and minimize trade-offs. Juniper is able to simulate disaster events and run recovery drills. This robust information gathering and contingency planning allows the company to identify and respond to potential crises in order to avoid losses from the physical impacts of climate change. The cost of management includes implementation and management of the SCRM, maintaining insurance policies and the resources/team to execute the program. The supply chain management system cost totals less than 2% of our operating expenses (which were about \$2.2B in 2020), or about \$44M.

Comment

Identifier

Risk 4

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Reputation

Shifts in consumer preferences

Primary potential financial impact

Decreased revenues due to reduced demand for products and services

Company-specific description

Juniper's reputation in the industry is being a technology disruptor that leads in innovation and energy efficiency. As a case study, Juniper was recognized for innovation in a multi-vendor environment by MEF, the premier global network enabling the digital economy and the hyper-connected world. Juniper was also shortlisted for a national award for energy conservation from the India's Confederation of Indian Industry (CII) for our work on LEED platinum building certifications, solar and green energy, and water conservation methodology. In 2020, Juniper was recognized by FTSE4Good for high performance in Environmental, Social, and Governance (ESG) topics. Our demonstration of continued environmental improvements in our operations and products also support our ISO 14001 environmental management system certifications, which are required to conduct business with certain customers. The ICT industry itself however carries a reputation for energy consumption. The ICT sector accounts for approximately 2% of global GHG emissions. Additionally, according to the Climate Savers Computing Initiative, the increasingly connected world could face GHG emissions growth by as much as 6% per year if there isn't a strong focus by the industry on energy-efficient solutions. As an example, if Juniper were to fail at producing products that meet energy efficient standards and lower customers' total cost of ownership, the company could fail to stand out as a leader in efficiency and innovation to curtail industry GHG emissions, and there could be negative impacts to revenue and brand value. Juniper manages this risk by improving its product energy efficiency and lowering the products' total cost of ownership for customers. We expect this to help preserve our brand reputation among customers.

Time horizon

Short-term

Likelihood

Unlikely

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

89,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Hypothetically, if Juniper's reputation were to fall and consumers were to believe that our products were not sufficiently energy-efficient and sales decreased by 2%, Juniper's revenue could decrease by approximately \$89M. This hypothetical decrease was chosen as it is conservative and would be unexpected. Juniper utilizes the company's

ERM framework and its quantitative threshold based on the prior year's operating profit to determine our tolerance and exposure to risk and potential for financial impact. This figure did not meet the threshold for substantive financial impact.

Cost of response to risk

958,000,000

Description of response and explanation of cost calculation

Juniper manages this reputational risk by investing significant resources into R&D and our eco-design process to ensure that our products are innovative and as energy efficient as possible. When designing hardware products, Juniper engineers consider the following energy efficiency test standards: the AT&T ATT-TP-76200, Issue 20, June 2016, ECR Draft 3.0.1, December 2010, ETSI ES 203 136 v1.1.1, May 2013, and Verizon VZ.TPR.9205, Issue 6, March 2016. By considering these requirements in the design phase it mitigates the risk of new products not passing these energy efficiency standards and, thus, not sellable to certain customers. Additionally, Juniper has achieved a number of green product certifications. The costs of managing Juniper's reputational risks from climate change are almost entirely contained in the product design level. Product energy efficiency is incorporated in the first phases of the new product introduction phase and is thus included in the company's ongoing research and development (R&D) costs. The cost of managing this risk is contained within Juniper's R&D spend. As energy efficiency design is not categorized at its own spend level, we assume that the cost is 100% of Juniper's R&D spend, which totaled approximately \$958M in 2020.

Comment

Identifier

Risk 5

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Chronic physical
Rising sea levels

Primary potential financial impact

Increased indirect (operating) costs

Company-specific description

Juniper's headquarters consists of owned and leased buildings in Sunnyvale, CA. The headquarters is located in an area designated as a 100-year floodplain. Juniper has assessed risks related to sea level rise which are in line with the 100-year flood risk. The potential impact to Juniper would be one to four feet of water intrusion and damage to

the first floors of the buildings. This would result in increased operational costs and disruption of business operations that could further impact Juniper's operational costs.

Time horizon

Long-term

Likelihood

Unlikely

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

100,000,000

Potential financial impact figure – maximum (currency)

200,000,000

Explanation of financial impact figure

In the event that Juniper experienced flooding from sea level rise at our headquarters, the financial impact could be increased due to operations expenses related to relocation and R&D lab equipment losses. Assuming the first floors of the buildings were compromised as well as 15% of lab equipment that would represent approximately 25% of the insured value of the campus. That financial impact would be between \$100 and \$200 million. Juniper utilizes the company's ERM framework and its quantitative threshold based on the prior year's operating profit to determine our tolerance and exposure to risk and potential for financial impact. This figure did not meet the threshold for substantive financial impact.

Cost of response to risk

44,000,000

Description of response and explanation of cost calculation

Juniper manages risks related to sea level rise through multiple activities including carrying adequate insurance policies and implementing Juniper solutions to run our business. Our cloud solution has allowed us to replace more than 200 applications with one standardized platform, collapsing various data centers, and migrating many applications to the cloud. By using the cloud and having R&D labs in other parts of the global business, Juniper is able to switch our R&D and customer support operations from one site to another with minimal downtime, reducing the potential impacts of physical risks at vulnerable sites. Juniper has also migrated portions of our labs to Quincy, WA, which is 1,302 ft above sea level, versus Sunnyvale's elevation of 125 ft. The Pacific Institute projects the Sunnyvale campus being within a 100-year coastal

floodplain with the addition of 55 inches of sea level rise. Climate Central's current sea level rise projections indicate medium/high risk of flooding in Sunnyvale and no increased risk in Quincy. In 2018, Juniper completed the final phases of the migration, enabling the company to close two buildings at the Sunnyvale campus. The cost of managing risks related to sea level rise includes expenses related to information technology costs and R&D broadly, as well as the cost of our insurance policies. Costs to manage this risk are less than 2% of operating expenses, which were about \$2.2B in 2020. Therefore, the cost of management is less than \$44M.

Comment

C2.4

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

Yes

C2.4a

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

Identifier

Opp1

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

Juniper has been an active supporter of voluntary energy efficiency programs as a means of driving the development of more energy-efficient networking products and clear labeling of those products. Juniper includes customer feedback in its communications back to the product engineering team, which incentivizes the design of more energy efficient projects. The consideration for energy efficiency is integrated into Juniper's new product introduction (NPI) process and a primary objective of the eco-design program. The energy efficiency of products is communicated to customers in product technical data sheets. Juniper also participated in the development of the

Energy Consumption Rating methodology that came out of Lawrence Berkeley National Laboratory. In the event of new regulations or industry trends, such as establishing and announcing more ambitious climate-related targets, there could be an increase in demand for Juniper's products which could increase revenue. In 2019, in response to growing customer inquiries, Juniper established a methodology to calculate manufacturing emissions data for each Stock Keeping Unit (SKU) and has provided the data to customers as part of the request for proposal (RFP) and/or request for information (RFI) process. We utilize the following data sets to calculate the emissions: projected total material spend with each CM/ODM facility, projected number of SKUs built in a year, total material cost per SKU, and scope 1, 2 and 3 emissions allocated to Juniper by our CMs and ODMs via the CDP Supply Chain program. In 2020, in response to customers requesting information on how Juniper can support a circular economy and their carbon neutral/net zero commitments, Juniper has strengthened our presentation and communication on the environmental benefits of some of our service offerings, including the Juniper Certified Pre-Owned Program.

Time horizon

Short-term

Likelihood

Virtually certain

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

89,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

For those customers who are requesting their suppliers to support their carbon neutral/net zero ambitions and circular economy commitments through provision of products with extended life, reduction of waste to landfill, and buy-back requirements, Juniper can leverage our existing JCPO program. If Juniper can successfully communicate the benefits of the JCPO program and align them with customers' expectations it could result in increased demand for our product and service offerings. In the event of a 2% increase in revenue due to increased demand from new standards and requirements the financial impact would be \$89M. This hypothetical increase was chosen as it is conservative.

Cost to realize opportunity

958,000,000

Strategy to realize opportunity and explanation of cost calculation

Juniper's customers value products and services that can lower their energy costs and associated emissions. Juniper's product energy efficiency innovation, coupled with our service offerings, is an opportunity for the company to maintain market share and earn new business. In order to leverage these opportunities and consistently provide customers with competitive, leading products, Juniper engages in various voluntary initiatives and programs to integrate energy efficiency into all phases of product design, and to make customers more aware of these efforts. Over the past few years, Juniper has integrated energy efficiency criteria at the earlier stage of the new product introduction (NPI) process to ensure improvement in energy efficiency from one product generation to the next. The required energy efficiency design criteria and the power consumption disclosure on product technical sheets help Juniper stay in front of energy efficiency standards and product labelling requirements. Communicating power consumption and energy efficiency data on product technical sheets allow customers to make informed decisions. Additionally, for key programs and services that support Juniper's circular economy model, such as the JCPO, Juniper is quantifying and disclosing their environmental impacts (e.g., e-waste and carbon emissions). As a result, we anticipate that these initiatives will help us maintain market share and continue to provide our customers with competitive, high-performance product and service solutions. The costs of managing opportunities from product labelling, disclosures and product energy efficiency are associated with measuring information required, and are associated with the creation of product labels, technical sheets, customer presentations and other disclosures. These costs are considered in-kind with Juniper's regular cost of R&D. Cost of management is contained within Juniper's R&D spend. As this aspect of product design is not categorized as an individual spend level, we assume it is contained within 100% of the company's R&D spend, which totaled approximately \$958M in 2020.

Comment

Identifier

Opp2

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Resilience

Primary climate-related opportunity driver

Other, please specify
Competitive advantage

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

Increasingly customers are recognizing the physical risks inherent in Juniper's supply chain locations globally (e.g., China, Malaysia, Taiwan and Mexico), such as natural disasters or extreme weather events caused by climate change, and as such the company is requesting details of our supply chain and supply chain management methods. From 2019-2020, Juniper saw a 15% increase in the number of customer climate change requests through the CDP Supply Chain program. We also have many more customers who request us to provide climate change information outside of the CDP program. As part of the evaluation process, customers are increasingly looking beyond the goods and services and considering the vendor's business practices and the reliability of production timelines. As such, Juniper is in a position to outperform competitors based on our robust business continuity measures.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

89,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Considering our efforts to reduce single sources and balance our supply chain geographically, Juniper expects to continue to avoid losses from extreme weather events. As such, if Juniper is able to leverage our robust continuity planning as a competitive advantage there could be an impact to revenue. A 2% increase to revenue from this opportunity would be \$89M. This hypothetical increase was chosen as it is conservative and would be unexpected.

Cost to realize opportunity

44,000,000

Strategy to realize opportunity and explanation of cost calculation

We use contract and original design manufacturers located in areas susceptible to tropical cyclones, flooding and drought. Our business continuity planning (BCP) has

positioned the company to respond to such events without losing production capacity. Management activities for weather events include the use of a Supply Chain Risk Management (SCRM) system which collects data from key suppliers that maps components to production factories. In 2019, we adopted a new SCRM system that can look into risks by part, component, supplier, and geography on a more granular level than before. This improved system allows us to see and predict critical events and their impact to the supply chain and contact suppliers to understand potential impacts to delivery and create mitigation plans. The proactive risk mitigation planning assesses resiliency; financial, location & recovery risks; and revenue impacts. Real-time data helps the operations team make strategic decisions, maximize uptime and minimize trade-offs. Our BCP includes an annual assessment of supplier plans, reviews the outputs from manufacturing partners' annual testing and provides input for improvement. This process has been implemented with 100% of our manufacturing partners and select critical component suppliers, allowing the company to identify and respond to potential crises proactively. The BCP has allowed the company to prevent experiencing losses from the physical impacts of climate change (i.e. flooding, extreme weather). The cost of management includes implementation and management of the SCRM, maintaining insurance policies, and the resources/team to execute the program. The supply chain management system cost totals less than 2% of our operating expenses (which were about \$2.2B in 2020), or about \$44M.

Comment

Identifier

Opp3

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

Shift in consumer preferences

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

Juniper's customers, employees and investors currently assess companies on the basis of proactive environment and social responsibility stances and will continue to increase their focus on this as more regulations come into play and emissions management becomes a greater financial imperative. Juniper has seen a clear trend of more consumers and customers demanding more information in regard to product energy efficiency and product lifecycle as well as overall corporate GHG footprint, which came through as project proposals, contract language, codes of conduct, and questionnaires,

such as CDP Supply Chain and CDP Investor requests. From 2019-2020, Juniper saw a 15% increase in the number of customer climate change requests through the CDP Supply Chain program. We also have many more customers who request us to provide climate change information outside of the CDP program. For example, if Juniper were to not comply with certain energy efficiency standards, it would automatically exclude us from bidding on AT&T or Verizon opportunities. Additionally, in 2020 and 2021, multiple valued customers of Juniper included a science-based target or net zero target requirement in requests for proposals, ensuring that suppliers are supporting sustainability goals. Specifically, one customer RFP required Juniper to disclose the boundaries and scope of our carbon reduction program, details of targets within it including timeline and baseline, validation, and reporting frequency. And, if we were not able to share an acceptable reduction target the customer requested a commitment date for when we would be able to disclose a more ambitious target. Since companies perceived as part of the solution will be rewarded with increases to revenue from those customers, Juniper has made energy efficiency and eco-design principles and a commitment to climate action a part of our CSR strategy to ensure that Juniper stands out as a leader.

Time horizon

Short-term

Likelihood

Very likely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

89,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

There are many market drivers which direct consumer behavior and, therefore, makes it difficult to assess the impact of consumers' perception of energy efficiency on revenue. Though we are witnessing more focus and weight on climate performance in the supplier selection and evaluation process, in general, traditional decision criteria, such as quality, delivery, etc., are still weighted greater in the scoring process. However, if revenue increased 2% from changing consumer behavior, then the financial impact would be \$89M. This hypothetical increase was chosen as it is conservative and would be unexpected.

Cost to realize opportunity

958,000,000

Strategy to realize opportunity and explanation of cost calculation

Juniper manages opportunities from changing consumer behavior by investing significant resources into R&D and our eco-design process to ensure that our products are innovative and as energy efficient as possible. Additionally, Juniper has achieved a number of green product certifications, which enhance the reputation of Juniper with our customers. For example, Juniper also uses power supply units that are 80Plus certified, which means that the PSUs waste 20% or less electric energy as heat loss at the specified load levels, reducing electricity use and costs compared to less efficient PSUs. Juniper also completes efficiency testing using the Telecommunications Energy Efficiency Ratio (TEER) methodology for measuring and reporting energy consumption. Following TEER standards has allowed Juniper to compete and win in the market when customers demand TEER based specifications. For standards such as these, not complying or meeting the standard automatically excludes us from bidding on specific opportunities with service providers. The costs of managing opportunities from changing consumer behavior are mostly in the product design level. Product energy efficiency is incorporated in the first phases of product design and is thus included in R&D costs. These costs are considered in-kind with Juniper's regular cost of R&D. As this aspect of product design is not categorized as an individual spend level, we assume it is contained within 100% of the company's R&D spend, which totaled approximately \$958M in 2020.

Comment

Identifier

Opp4

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Other, please specify

Lower product cost for customers

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

Juniper derives a competitive advantage by demonstrating that the Total Cost of Ownership (TCO) of Juniper solutions is lower than that of competitors. This provides an incentive to make our products as energy efficient as possible and gives Juniper an

advantage over our competitors. By reducing waste heat and subsequently the need for cooling, reducing space needed for products, which reduces overall operational cost, and enabling reduced carbon emissions which saves customers the cost of carbon tax, Juniper saves our customers operational costs.

Time horizon

Short-term

Likelihood

Very likely

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

222,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Juniper could expect to see an increase in the purchase of products that enable customers to lower their energy use and carbon output. Juniper's total product and service revenue for 2020 was approximately \$4.4B. If an increase in consumer demand caused a 5% increase in revenue above usual growth, Juniper would realize an estimated opportunity of \$222M. This hypothetical increase was chosen as it is conservative.

Cost to realize opportunity

958,000,000

Strategy to realize opportunity and explanation of cost calculation

Our customers care about energy consumption and low carbon emissions, which is expressed in their interest in our products' TCO. Energy efficiency and low carbon emissions are strategic components in our products' TCO calculation as they reduce the lifetime cost of our products by reducing operating expenses. We proactively use the total cost of ownership and low energy consumption data as selling points, and we win deals by demonstrating that our TCO is lower than our competitors. This provides us incentive to make our products as energy efficient as possible and gives us an advantage over our competitors. Our customer feedback on TCO savings is relayed back to our product engineers, who continuously look to improve the energy efficiency and carbon emissions of our products throughout their lifecycle. Product energy

efficiency is incorporated in the first phases of product design and is thus included in R&D costs. These costs are considered in-kind with Juniper's regular cost of R&D. As this aspect of product design is not categorized as an individual spend level, we assume it is contained within 100% of the company's R&D spend, which totaled approximately \$958M in 2020.

Comment

Identifier

Opp5

Where in the value chain does the opportunity occur?

Upstream

Opportunity type

Resource efficiency

Primary climate-related opportunity driver

Move to more efficient buildings

Primary potential financial impact

Reduced indirect (operating) costs

Company-specific description

Based on collected energy, emissions and utility costs data, Juniper proceeded with an electric load shift from our headquarters (HQ) in California to a data center in Washington State (Geo-DC). Phase I of the project was executed in 2016 and helped mitigate the risk of energy rate increases, support a productive R&D environment, and improve the emissions profile of our operational energy sources. In 2018 we completed this migration and was able to close two buildings at the Sunnyvale campus. Moving operations to Geo-DC protects critical R&D environments from the risk of sea level rise that is a threat at HQ. Additionally, the Geo-DC sourced greater than 70% of its electricity from hydropower in 2020 and was awarded the US EPA's 2017 Energy Star certification with the highest possible score. Due to the proven impact of the consolidation, Juniper completed Phase II - further downgrading our real estate footprint in Sunnyvale, Westford, and Amsterdam and consolidating energy intensive lab environments into the newer, more energy efficient building at the Geo-DC. As a result we were able to reduce our operational costs and energy consumption.

Time horizon

Short-term

Likelihood

Virtually certain

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

1,080,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

In FY2021, Juniper is vacating and transferring the lab environment out of one of Juniper's older leased facilities in Sunnyvale (approximately 50,000 sqft) and into Sunnyvale's owned LEED Platinum and Gold buildings that are more energy efficient due to modern building operating systems, technologies and design. The financial impact of this opportunity is equal to the annual cost savings from the building closure (equivalent to lease). The gross square feet of the site is approximately 50,000 sqft. The estimated rent for a R&D/office facility in Sunnyvale built during a similar period is approximately \$1.80 per sqft per month.

Cost to realize opportunity

17,700,000

Strategy to realize opportunity and explanation of cost calculation

Based on the experience of consolidating labs from older facilities into the new Geo-DC facility that was built with energy efficiency in mind, the data revealed cost savings and energy reductions. To further control Opex and be proactive in anticipating the end of the lease, Juniper received executive approval to initiate construction on Juniper's main HQ campus to accommodate the needed lab space in preparation for the move. The cost to realize this opportunity includes the following expenses: building construction in Juniper's main HQ campus, move support, and building closure. We assume the cost to realize the opportunity is equal to the construction-in-process expense in 2020, \$17.7 million.

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	Juniper is in the process of evaluating initiatives and milestones to help the organization transition to a low-carbon business. This is an input to the transition plan. We have not determined to include the transition plan as a scheduled AGM resolution item at this time, but we also have not concluded to exclude it as an 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	Juniper conducted climate-related scenario analysis as part of our efforts in establishing emissions reduction targets aligned with the Science Based Targets initiative (SBTi) methodology. Juniper utilized the SBTi absolute contraction approach methodology and selected to apply the two degrees scenario. The absolute contraction approach and two degrees scenario were selected because (1) the method is aligned with SBTi's guidance on evaluating a science-based target and (2) the method allowed Juniper to establish and commit to an ambitious target that will drive internal action based on the available data while taking into consideration limited visibility into future business conditions. The analysis took into account factors and assumptions such as projected future growth rates, employee headcount, real estate square footage and geographical locations, and investments in onsite generation infrastructure and contractual agreements. Input information was provided from individuals in finance, facilities, legal, engineering, EHS, and sales. Our scenario analysis included medium- and

	<p>long-term time horizons, 5 and 15 years respectively. The 15 year timeframe aligns with the SBTi guidance and reflects Juniper's long term commitment to climate change action, energy efficiency, and environmental sustainability, and our broader CSR strategy and commitments. The 5 year timeframe of the medium-term target allows for Juniper to monitor and check progress along the longer 15 year commitment, and enables shorter term successes to keep employees engaged and committed. The scenario analysis applied to our company as a whole, including our operating boundary for scope 1 and 2 emissions (facilities with lab environments). Results of the analysis were used to establish two new emissions reduction targets: (1) reduce absolute scope 1 and 2 emissions by 17.5% by 2025 from 2018 baseline and (2) reduce absolute scope 1 and 2 emissions by 42.5% by 2035 from 2018 baseline. The analysis indicated Juniper's current and planned energy efficiency initiatives will not be sufficient to achieve the ambitious targets. In order to achieve the targets, the results of the analysis demonstrates that Juniper needs to evaluate short, medium and long-term business strategies and resource requirements to further energy efficiency and renewable and lower carbon sourcing practices. To start, the analysis has influenced our broader CSR strategy, where internally we recognize climate action as one of a handful of featured CSR programs, along with critical programs like diversity and inclusion. The additional focus has enabled internal dialogue and inclusion of climate change considerations into business decisions, such as in the expansion of supplier engagement on climate change to indirect suppliers, the expansion of onsite power generation and a PPA in Sunnyvale, and a new PPA in Bangalore, India. The emissions modeling data of the onsite power generation expansion project and PPA in Sunnyvale was considered as part of the business case. Once the onsite power generation expansion project is complete and the PPA in place, Juniper expects 95% of Sunnyvale's energy demand to be met through the PPA, reducing our reliance on the local utility service provider and mitigating impacts of fluctuations in utility pricing.</p>
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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	The risk of revenue loss and opportunity to better position Juniper to respond to continued shifts in consumer preferences and offer products that support our customers' carbon neutral/net zero and circular economy ambitions have influenced our presentation of the green attributes of

		<p>Juniper products and services. These strategies cover Juniper's long-term activities, which, as described in question 2.1a, would last between 6-100 years because many of our customers' target dates are in 2030 and beyond. Juniper customers are committing to carbon neutral and net zero targets and have started to engage their suppliers, like Juniper, on collaborative opportunities to reduce emissions and to understand and influence their suppliers' climate ambitions. Areas of interest for some of our EMEA customers are extending the life of hardware products, reducing waste to landfill, and having buy-back requirements. In order to engage successfully with our customers, Juniper needed to identify if current service offerings fulfilled these requirements and, if so, provide estimated quantitative data to demonstrate the potential environmental impact of the offering. Juniper leveraged the Juniper Certified Pre-Owned (JCPO) program, which allows Juniper to buy-back products and customers to purchase remanufactured, Juniper warrantied current and end-of-life products. The JCPO team created responses that emphasized the environmental benefits of the JCPO program, which historically were secondary to other program drivers such as avoiding security risks from buying similar products on the gray market. For example, a typical JCPO router or switch saves over 1,000 pounds of CO2 emissions and 20 pounds of landfill e-waste. We calculate this based on the assumption that one JCPO unit sold is one unit not manufactured, thus saving 100% of the manufacturing footprint, offset by approximately 10% of certification footprint. In 2020, the JCPO program saved an estimated 777,000 pounds of CO2, and about 2.3 million pounds of CO2 since its inception in 2017. The presentation of the JCPO program and potential avoided CO2 emissions to one of our EMEA customers in response to their circular economy requirements facilitated a successful contract negotiation and project win.</p>
Supply chain and/or value chain	Yes	<p>The mitigation of physical climate risks such as extreme weather events (i.e. hurricanes) have had a significant impact on Juniper's business throughout the supply chain, as described in our risk management framework. For example, some of Juniper's supply chain partners are located in regions that may be exposed to flooding, and thus affect our supply chain continuity. Therefore, we continually conduct risk assessments and contingency planning to strengthen our supply chain and reduce dependencies. A</p>

		<p>analysis of a flood in South Korea allowed us to assess our potential exposure in the region to be partners at 13 sites, producing 111 parts that are used in over 2,000 products. Juniper worked to mitigate losses from extreme weather events by reducing single sources for components and materials and balance the supply chain geographically. The company also invests in robust supply chain risk management analytics to assess and respond to risks in the supply chain. This ensures business continuity in the face of extreme weather events. Because of the actions we took, our multi-point sourcing practices, our engagement with suppliers, and our systems of robust information gathering and contingency planning, our company was able to identify this potential moderate-impact crisis in order to avoid a financial loss of approximately \$150M. Juniper also has a competitive advantage as its robust business continuity measures put the company in a position to outperform competitors. Increasingly customers are recognizing the physical risks inherent in Juniper's supply chain locations globally, and as such are requesting details of the company's supply chain and supply chain management methods. From 2020-2021, Juniper saw an 15% increase in the number of customer climate change requests through the CDP Supply Chain program. We also have many more customers who request us to provide climate change information outside of the CDP program. As part of the evaluation process, customers are increasingly looking beyond the goods and services and considering the vendor's business practices and the reliability of production timelines. This strategy covers Juniper's long-term activities, which, as described in question 2.1a, would last between 6 - 100 years.</p>
Investment in R&D	Yes	<p>Risks of reputation loss and opportunities in competitive advantage have had a moderate impact on Juniper's business, specifically through its investment in R&D. Juniper products enable customers to use less electricity per Gigabit of throughput, and ultimately reduce emissions and operational expenses per throughput, and Juniper's profits are dependent on solving this issue for customers. For example, the company addresses reputational risks of climate-related issues by investing significant resources into R&D and the eco-design process to ensure that products are innovative and as energy efficient as possible. Product energy efficiency is incorporated in the first phases of product design and is thus included in research and</p>

		<p>development costs. Product energy efficiency initiatives Juniper undertakes to drive its energy innovation goals include the Eco-Design program, which builds environmental priorities (materials innovation, recyclability, and energy efficiency) into designs for new products from their inception, and using life-cycle assessment (LCA) to track the environmental impacts of a product through its entire lifecycle from production to end-of-life disposal. Juniper's total R&D spend for 2020 was \$958.4 million, 21.5% of total net revenue. This investment helps to mitigate the reputational risk Juniper might face if its products were less energy efficient and allows Juniper the opportunity to remain competitive in the market. In this instance, moderate impact is defined as not meeting the threshold that Juniper considers "substantive financial impact" as described in our enterprise risk management framework. This strategy covers Juniper's long-term activities, which, as described in question 2.1a, would last between 6 - 100 years.</p>
Operations	Yes	<p>Juniper's business operations have been moderately impacted by both the physical threats of climate change such as sea level rise, and the operational benefits of it such as energy reduction and cost savings. In regards to physical threats, the company headquarters consists of owned and leased buildings in Sunnyvale, CA, a location that has been designated as a 100-year floodplain. The physical hazard of sea level rise and flooding threatened the safety of Juniper's labs at the Sunnyvale campus. In response, Juniper relocated the company's labs to Geo-DC, a data center located in Washington state, which has a lower flood risk than Sunnyvale. The action of moving operations to Geo-DC protects critical R&D environments from the sea level rise that is a climate-related threat at Sunnyvale HQ. Juniper completed the migration to the Geo-DC center in 2018 and was able to close two buildings at the Sunnyvale campus, mitigating the impact that a flood would have on our operations and assets. Additionally, Juniper considers the levels of energy usage and energy efficiency for all operating locations. As such, climate concerns have prompted Juniper operations to utilize more renewable energy and Juniper has subsequently seen energy and cost savings. In 2020, Geo-DC sourced greater than 70% of its electricity from hydro power. With the demonstrated results, Juniper has been approved to further consolidate global lab environments into the Geo-DC, which we anticipate will (1)</p>

		<p>reduce our global real estate footprint and (2) influence our global energy profile by increasing the percentage of renewable energy in our power mix. In this instance, moderate impact is defined as not meeting the threshold that Juniper considers “substantive financial impact” as described in our enterprise risk management framework. This strategy addresses the short-term execution of a long-term strategy to mitigate a long-term risk. As described in question 2.1a, “short-term” indicates up to two years, and “long-term” indicates between 6 - 100 years.</p>
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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	Indirect costs	<p>When planning for operating (indirect) costs, Juniper considers the energy costs and levels of efficiency for all operating locations. Climate concerns have led Juniper to use more renewable energy in our operations, which subsequently helped us realize various energy and cost savings. Physical climate change risks such as sea level rise have factored into Juniper’s financial planning. As a case study, the Sunnyvale, CA headquarters campus is located on a 100-year floodplain, at risk of flood. The potential impact to Juniper from sea level rise would be 1-4 feet of water intrusion, resulting in significant damage to the first floors of buildings including our Research & Development (R&D) labs. Juniper saw the need to mitigate the potential damages, which could result in increased operational costs as well as disruption of business operations that could further impact Juniper’s operational costs and revenue. Because of these risks, Juniper took action to relocate a portion of the company’s labs to Geo-DC, a data center located in Washington state, which does not share the same flood risk as Sunnyvale. Moving our operations to Geo-DC protects critical R&D environments from the sea level rise that is a climate-related threat at our Sunnyvale HQ. Additionally, in 2020, Geo-DC sourced greater than 70% of its electricity from hydropower. This action results in mitigating risk of operational interruption and damage to assets, as well as lowering the company’s energy costs. With the demonstrated results, Juniper has been approved to further consolidate global lab environments into the Geo-DC, which we anticipate will (1) reduce our global real estate footprint and (2) influence our global energy profile by increasing the percentage of renewable</p>

		<p>energy in our power mix. The time horizon covered by the financial planning is 0-3 years.</p> <p>As described in our Enterprise Risk Management Framework in question C2.2, there are a multitude of factors that help determine an issue's magnitude of financial impact or risk. Factors include but are not limited to exposure to a loss of operational interruptions, downstream sales, supply chain impacts including natural disasters, and impacts to the company stock price due to changes in the market or consumer demand. The magnitude of risk exposure influences the impact that the element will have on Juniper's financial planning. Considering the potential magnitude of risk exposure, this element has a moderate impact on Juniper's financial planning process.</p>
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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

Other, please specify

The absolute target covers Juniper's GHG inventory reporting boundary, which includes facilities with lab environments and represents 85% of the company's energy consumption.

Scope(s) (or Scope 3 category)

Scope 1+2 (market-based)

Base year

2018

Covered emissions in base year (metric tons CO₂e)

56,514

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

100

Target year

2025

Targeted reduction from base year (%)

17.5

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

46,624.05

Covered emissions in reporting year (metric tons CO₂e)

52,726

% of target achieved [auto-calculated]

38.3015080966

Target status in reporting year

Underway

Is this a science-based target?

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

Target ambition

2°C aligned

Please explain (including target coverage)

This target was established in the beginning half of 2020 using SBTi's absolute
contraction approach. Juniper has established medium and long time frame targets, 5
year and 15 year respectively. The absolute target covers 100% of Juniper's GHG
inventory reporting boundary, which includes facilities with lab environments and
represents 85% of the company's energy consumption.

Target reference number

Abs 2

Year target was set

2020

Target coverage

Other, please specify

The absolute target covers Juniper's GHG inventory reporting boundary, which includes facilities with lab environments and represents 85% of the company's energy consumption.

Scope(s) (or Scope 3 category)

Scope 1+2 (market-based)

Base year

2018

Covered emissions in base year (metric tons CO₂e)

56,514

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

100

Target year

2035

Targeted reduction from base year (%)

42.5

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

32,495.55

Covered emissions in reporting year (metric tons CO₂e)

52,726

% of target achieved [auto-calculated]

15.7712092162

Target status in reporting year

Underway

Is this a science-based target?

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

Target ambition

2°C aligned

Please explain (including target coverage)

This target was established in the beginning half of 2020 using SBTi's absolute contraction approach. Juniper has established medium and long time frame targets, 5 year and 15 year respectively. The absolute target covers 100% of Juniper's GHG inventory reporting boundary, which includes facilities with lab environments and represents 85% of the company's energy consumption.

C4.2

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

No other climate-related targets

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 CO ₂ e savings in metric tonnes CO ₂ e (only for rows marked *)
Under investigation	4	
To be implemented*	0	0
Implementation commenced*	1	5,100
Implemented*	1	65,673
Not to be implemented	0	

C4.3b

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

Initiative category & Initiative type

Low-carbon energy consumption
Solar PV

Estimated annual CO₂e savings (metric tonnes CO₂e)

65,673

Scope(s)

Scope 1
Scope 2 (location-based)
Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

4,000,000

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

10,000,000

Payback period

4-10 years

Estimated lifetime of the initiative

6-10 years

Comment

In FY 2016, Juniper signed a ten-year power purchase agreement (PPA) contract in Bangalore, India. Under this contract, Juniper is committed to specific volumetric electricity procurement from two off site solar power generation sources for the Bangalore campus. In 2020, the commitment supported approximately 95% of the total campus electricity requirement, an increase from 78% in 2019 and 75% in 2018.

C4.3c

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

Method	Comment
Compliance with regulatory requirements/standards	When constructing new buildings in the City of Sunnyvale, the City requires, at a minimum, conformance to the LEED standards. Resources were dedicated to incorporating energy efficiency technologies and designs when planning and constructing Juniper's headquarters campus. Additionally, the City mandates commuter benefit programs to reduce single occupant vehicles during commute, including provision of subsidies; free or low-cost shuttles, bus, or vanpool service; and/or ability for employees to exclude their transit or vanpool costs from taxable income. Additionally, the Juniper Amsterdam and UK facilities are governed by the EU Energy Efficiency Directive, which came into effect to meet the EU's 20-20-20 target of a 20% improvement in energy efficiency by 2020. As required, certain Juniper facilities are required to complete energy efficiency audits and submit an energy efficiency plan and regular performance updates.
Employee engagement	Employees at all levels are educated on sustainability efforts and are encouraged to participate and make suggestions on reducing energy consumption and improving the alternative transportation program. Communications are shared via quarterly newsletters, onsite events, intranet, and postings. Juniper programs that employees are encouraged to participate in include: Employee Transportation

	Demand Program, lab energy reduction initiative, and the certified ISO 14001 environmental management system.
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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

The ICT sector accounts for approximately 2% of global GHG emissions. According to the Climate Savers Computing Initiative, our increasingly connected world could face GHG emissions growth by as much as 6%/year if there isn't a strong focus by the industry on energy-efficient solutions. As the platform for ICT-enabled solutions (selling high-performance network products and services), the network that Juniper builds is the means for enabling growth and innovation, while also serving as the source of crucial energy efficiencies for our customers. Juniper products enable broadband, low-carbon ICT infrastructure, smart grid and technology substitution. For example, the City of Philadelphia's Office of Innovation and Technology (OIT) built CityNet, its advanced multiprotocol label switching network based on Juniper routing platforms. CityNet provides a foundation to launch smart city services, such as rolling out 100,000 smart LED streetlights to support safer neighborhoods while shrinking energy expenses.

Juniper's simplified data center network architecture eliminates switch layers to reduce complexity and improve performance, scale, and data center efficiencies. Ultimately, having a flat network lowers capital and operational expenses. We are confident in the results because we apply a Juniper-on-Juniper approach internally. We experience the similar benefits and results from Juniper solutions that our customers implementing an equivalent Juniper solution may encounter, such as energy and GHG emission reductions. By implementing Juniper's energy-efficient network products, customers will use less electricity per Gigabit of throughput, and ultimately reduce emissions and operational expenses per throughput. For example, Juniper completed a data center consolidation project which included reduction of global rack count by greater than 80%, virtualization, and implementation of EX9200, QFX5100, and EX4300 switches. As a result, power usage at that single data center site dropped by approximately 180 kW as measured by the service provider after the consolidation, resulting in an estimated reduction of 300 metric tons CO₂e. We presume customers to realize similar energy

efficiency and GHG emissions reduction if they implement a similar solution under comparable conditions.

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

Avoided emissions

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

Evaluating the carbon-reducing impacts of ICT

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

64

Comment

The IPCC Fifth Assessment (AR5-100 years) global warming potentials (GWP) for CO₂ (GWP=1), CH₄ (GWP=28), and N₂O (GWP=265) were applied. The following supplier specific output emission factor was used: 0.205 metric tons CO₂/MWh.

C5. Emissions methodology

C5.1

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

Scope 1

Base year start

January 1, 2018

Base year end

December 31, 2018

Base year emissions (metric tons CO₂e)

3,859

Comment

Scope 2 (location-based)

Base year start

January 1, 2018

Base year end

December 31, 2018

Base year emissions (metric tons CO₂e)

56,003

Comment

Scope 2 (market-based)

Base year start

January 1, 2018

Base year end

December 31, 2018

Base year emissions (metric tons CO₂e)

52,655

Comment

C5.2

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

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

C6. Emissions data

C6.1

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

Reporting year

Gross global Scope 1 emissions (metric tons CO₂e)

8,867

Comment

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

46,324

Scope 2, market-based (if applicable)

43,859

Comment

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

1,027,372

Emissions calculation methodology

We collected energy and emissions data from our direct material suppliers, including contract manufacturing partners, original design manufacturing partners, and component suppliers, through the CDP Supply Chain disclosure process. The responding suppliers allocated Scope 1, Scope 2 and Scope 3 emissions to Juniper.

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

25

Please explain

Uncertainty description: The scope 1, scope 2 and scope 3 emissions data have poor temporal representativeness because the information is for calendar year 2019 activities. Additionally, Juniper did not request all suppliers to disclose via the CDP Supply Chain module (only those suppliers representing 99% of direct material expenditure and 100% of manufacturing partners). 72% of the suppliers who received the request responded and 40% of those suppliers who responded allocated emissions to Juniper. The importance of emissions from this category is considered high. Activities from Juniper's supply chain, including contract manufacturing and original design manufacturing processes, are potentially large emissions contributors.

Capital goods

Evaluation status

Not relevant, explanation provided

Please explain

Juniper is focused on providing energy efficient technologies and solutions for our customers and therefore most of our footprint comes from their use of our goods rather than equipment and machinery. As a result, capital goods are not a significant contributor to our total scope 3 emissions.

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

Evaluation status

Not relevant, explanation provided

Please explain

Fuel and energy-related activities from our operations and activities within our reporting boundary are included in our Scope 1 and 2 emissions.

Upstream transportation and distribution

Evaluation status

Not relevant, explanation provided

Please explain

Juniper utilizes similar logistics partners for upstream and downstream transportation and distribution. Juniper receives upstream and downstream transportation and distribution emissions data from our logistics partners and it covers all business in all areas of operations, but the emissions are not categorized as upstream or downstream. We use the emissions specifically allocated to Juniper by our suppliers. Upstream and downstream transportation and distribution emissions from air, ship, and truck are calculated based on mode of transportation/distribution, shipment weight and origin and destination. A single value is provided by our logistics partners and is recorded under the "downstream transportation and distribution" metric.

Waste generated in operations

Evaluation status

Not relevant, explanation provided

Please explain

This category has been assessed and is not a significant contributor to our total scope 3 emissions.

Business travel

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

2,438

Emissions calculation methodology

2020 business travel miles cover all business in all areas of operations. Business travel miles (air, train, and auto) are calculated based on 2020 employee travel itineraries and expense reports. GHG emissions for air and rail business travel are based on guidelines produced by DEFRA's GHG Conversion Factors. Emissions from air travel do not include radiative forcing (RF). Air travel is categorized and evaluated based on total distance of flight segment (based on origin and destination airports) and class of flight. Flight segments are defined as long haul flight (greater than or equal to 3,700 km); medium haul flight (greater than 785 km but less than 3,700 km); and short haul flight (less than 785 km). In calculating the emissions attributed to business travel by auto, assumptions are made that all auto miles are conducted in medium size cars and all employees are making travel arrangements through the internal travel concierge and are submitting accurate mileage reports for expense reimbursement. Total emission for air travel is 1,923 metric tonnes of CO₂e, for rail is 0 metric tonnes CO₂e, and for auto is approximately 515 metric tonnes CO₂e.

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

100

Please explain

The emissions associated with business travel in 2020 are significantly less than 2019 due to the COVID-19 pandemic. Since March 2020, the majority of our global workforce has been working remotely resulting from shelter-in-place requirements and travel restrictions, and business travel has been restricted.

Employee commuting

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

3,487

Emissions calculation methodology

2020 employee commute miles cover all business in all areas of operations. In previous years Juniper conducts an annual global employee transportation survey that asks about the nature of their commute, type of commute and miles traveled per round trip. The survey results, with guidance from the Environmental Protection Agency (EPA) Climate Leaders, are used to determine emissions from employee commute. Globally, approximately 15% of the employee population responded to the employee transportation survey. The reported commute miles and associated emissions are extrapolated to represent the entire Juniper population using the sample population's answers and calculated with the assumption that the sample population is representative of the entire Juniper community. However, for 2020, Juniper elected not to conduct an annual commute survey due to the COVID-19 pandemic. Since March 2020, the majority of our global workforce has been working remotely resulting from shelter-in-place requirements and travel restrictions. Therefore, Juniper applied an estimation methodology based on the commute emissions from 2019 assuming a similar commute profile, taking into consideration the number of full time employees and employees only commuting for 25% of the calendar year.

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

100

Please explain

The emissions associated with employee commute in 2020 are significantly less than 2019 due to the COVID-19 pandemic. Since March 2020, the majority of our global workforce has been working remotely resulting from shelter-in-place requirements and travel restrictions.

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

Juniper does not have any upstream leased assets.

Downstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

71,803

Emissions calculation methodology

We requested energy and emissions data from our direct material suppliers, including 100% of our logistics partners, through the CDP Supply Chain disclosure process. Upstream and downstream transportation and distribution emissions data is provided by Juniper's logistics partners and covers all business in all areas of operations. We use

the emissions specifically allocated to Juniper by our suppliers. Upstream and downstream transportation and distribution emissions from air, ship, and truck are calculated based on mode of transportation/distribution, shipment weight and origin and destination.

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

33

Please explain

Processing of sold products

Evaluation status

Not relevant, explanation provided

Please explain

Juniper is focused on providing energy efficient technologies and solutions for our customers and therefore most of our footprint comes from their use of our goods rather than the processing of sold products. As a result, this category is not a significant contributor to our total scope 3 emissions.

Use of sold products

Evaluation status

Relevant, calculated

Metric tonnes CO2e

60,000

Emissions calculation methodology

The estimated data reported represents the emissions associated with the use of EX and SRX modules. The emissions are calculated using the following inputs: (1) number of units manufactured in the past 52 week time period, (2) the weighted power value found on the product TEEER/TEER Report, (3) average eGRID subregion annual emission factor, and (4) assumption of a 5-year life (however, the lifetime of the product can be more or less). The reported emissions exclude the required power for cooling.

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

0

Please explain

End of life treatment of sold products

Evaluation status

Not relevant, explanation provided

Please explain

Juniper is focused on providing energy efficient technologies and solutions for our customers and therefore most of our footprint comes from their use of our goods rather than the end of life treatment of sold products. As a result, this category is not a significant contributor to our total scope 3 emissions.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

Juniper does not have any downstream leased assets.

Franchises

Evaluation status

Not relevant, explanation provided

Please explain

Juniper does not have any franchises.

Investments

Evaluation status

Not relevant, explanation provided

Please explain

Emissions associated with investments under our operational control and within our reporting boundary are reported in Scope 1 and 2 inventories.

Other (upstream)

Evaluation status

Please explain

Other (downstream)

Evaluation status

Please explain

C6.7

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

No

C6.10

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

Intensity figure

0.000012

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

55,191

Metric denominator

unit total revenue

Metric denominator: Unit total

4,445,100,000

Scope 2 figure used

Location-based

% change from previous year

0

Direction of change

No change

Reason for change

In calendar year 2019 the metric tons CO₂e per total revenue is 0.000012, the same as reported for 2020.

Intensity figure

5.5

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

55,191

Metric denominator

full time equivalent (FTE) employee

Metric denominator: Unit total

9,983

Scope 2 figure used

Location-based

% change from previous year

3.5

Direction of change

Decreased

Reason for change

Juniper estimates that the decrease in emissions intensity per full time employee (FTE) is due to the energy efficiency activities undertaken, as listed in Question 4.3(b), and the procurement of approximately 93% of Bangalore's energy demand from solar, hydro and wind, compared to 89% in calendar year 2019. In calendar year 2019 the metric tons CO₂e per FTE is 5.7.

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 CO ₂ e)	GWP Reference
CO ₂	8,867	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 CO ₂ e)
India	2,533
United States of America	6,314
Netherlands	20

C7.3

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

By facility

C7.3b

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

Facility	Scope 1 emissions (metric tons CO ₂ e)	Latitude	Longitude
Bangalore, India	2,533	12.98457	77.6622
Sunnyvale, California, United States of America	3,475	37.40759	-122.029
Westford, Massachusetts, United States of America	2,839	42.57338	-71.4104
Amsterdam, Netherlands	20	52.27772	4.75429

C7.5

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

Country/Region	Scope 2, location-based (metric tons CO ₂ e)	Scope 2, market-based (metric tons CO ₂ e)	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)
China	5,162	5,162	4,576	0
India	1,977	1,977	2,440	82,357
Japan	461	461	1,040	0
Netherlands	2,688	2,688	6,180	0
United States of America	36,036	33,571	140,579	0

C7.6

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

By facility

C7.6b

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

Facility	Scope 2, location-based (metric tons CO ₂ e)	Scope 2, market-based (metric tons CO ₂ e)
Beijing, China	5,162	5,162
Bangalore, India	1,977	1,977
Tokyo, Japan	461	461
Herndon, Virginia, United States of America	1,196	1,196
Quincy, Washington, United States of America	16,687	15,256
Sunnyvale, California, United States of America	13,061	12,027
Westford, Massachusetts, United States of America	5,092	5,092
Amsterdam, Netherlands	2,688	2,688

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?

Increased

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 CO ₂ e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	11,150	Decreased	22	The total Scope 1 and 2 (market-based) emissions increase is due to the overall increase of energy consumption and inclusion of refrigerants in 2020. However, the increase was tempered by the improved percentage of energy from renewable sources to support the total demand compared to 2019. Compared to 2019, Juniper increased our absolute consumption of energy from renewable sources by approximately 7% and increased the percentage of Juniper's

				<p>demand satisfied with energy from renewable sources to 31% (compared to 30% in 2019) in 2020. Specifically, the decision to increase the percentage of solar power in the power mix to support the Bangalore, India site contributed to an additional 11,150 metric tonnes CO₂e avoided, which is approximately a 22% reduction in our total scope 1 and scope 2 (market-based) emissions. Our total scope 1 and scope 2 (market-based) emissions in calendar year 2019 was 50,824 metric tonnes of CO₂e. The calculation that we used was: $(11,150/50,824)*100 = 22\%$.</p>
Other emissions reduction activities	3,530	Decreased	7	<p>The total Scope 1 and 2 (market-based) emissions increase is due to the overall increase of energy consumption and inclusion of refrigerants in 2020. However, the increase was tempered by the process improvements undertaken and the efforts to change employee behavior, including the continued deployment of the automated power management tool in the research and development, customer service and sales labs. The automated power management tool turns off equipment when not in use. In calendar year 2020, we estimated approximately 3,530 metric tonnes of CO₂e were reduced by our emissions activities, and our total scope 1 and scope 2 (market-based) emissions in calendar year 2019 was 50,842 metric tonnes of CO₂e. The calculations that we used was: $(3,530/50,842)*100 = 7\%$.</p>
Divestment				
Acquisitions				
Mergers				
Change in output				
Change in methodology	3,751	Increased	7	<p>In the previous year, Juniper did not include refrigerants as an input to our scope 1 inventory because it represented</p>

				less than 1% and was considered non-material. Due to the maintenance activities in 2020 3,751 metric tonnes of CO2e are attributed to the use of refrigerants, which account for approximately 7% of our total scope 1 and 2 emissions. Therefore, for this reporting period Juniper considers the emissions material and has included it into our emissions inventory. In calendar year 2020 compared to 2019 an additional 3,751 metric tonnes of CO2e was added, which contribute approximately a 7% increase in our total scope 1 and scope 2 (market-based) emissions in calendar year 2020. Our total scope 1 and scope 2 (market-based) emissions in calendar year 2019 was 50,824 metric tonnes CO2e. The calculation that we used was: $(3,751/50,824) * 100 = 7\%$.
Change in boundary				
Change in physical operating conditions				
Unidentified				
Other				

C7.9b

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

Market-based

C8. Energy

C8.1

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

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

C8.2

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

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	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	21,238	21,238
Consumption of purchased or acquired electricity		82,357	154,815	237,172
Consumption of self-generated non-fuel renewable energy		431		431
Total energy consumption		82,788	176,053	258,841

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

C8.2c

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

Fuels (excluding feedstocks)

Diesel

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

2,534

MWh fuel consumed for self-generation of electricity

2,534

MWh fuel consumed for self-generation of heat

0

Emission factor

0.003

Unit

metric tons CO2e per liter

Emissions factor source

<http://www.epa.gov/cleanenergy/energy-resources/refs.html>

Comment

Fuels (excluding feedstocks)

Natural Gas

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

11,617

MWh fuel consumed for self-generation of electricity

7,087

MWh fuel consumed for self-generation of heat

18,704

Emission factor

0.05

Unit

metric tons CO2 per million Btu

Emissions factor source

<http://www.epa.gov/cleanenergy/energy-resources/refs.html>

Comment

C8.2d

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

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	7,518	7,518	431	431
Heat	0	0	0	0
Steam	0	0	0	0
Cooling	0	0	0	0

C8.2e

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

Sourcing method

Power purchase agreement (PPA) with a grid-connected generator without energy
attribute certificates

Low-carbon technology type

Solar

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

India

MWh consumed accounted for at a zero emission factor

81,077

Comment

This agreement directly supported Juniper's Bangalore, India facility.

Sourcing method

Power purchase agreement (PPA) with a grid-connected generator without energy
attribute certificates

Low-carbon technology type

Low-carbon energy mix

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

India

MWh consumed accounted for at a zero emission factor

1,280

Comment

This agreement directly supported Juniper's Bangalore, India facility. The low carbon-
energy mix included wind and hydropower.

C9. Additional metrics

C9.1

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

C10. Verification

C10.1

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

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

C10.1a

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

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

 Juniper Networks - Verification Statement 2020.pdf

Page/ section reference

Entire document

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

 Juniper Networks - Verification Statement 2020.pdf

Page/ section reference

Entire document

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

 Juniper Networks - Verification Statement 2020.pdf

Page/section reference

Entire document

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?

No, but we are actively considering verifying within the next two years

C11. Carbon pricing

C11.1

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

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

C11.2

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

No

C11.3

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

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

C12. Engagement

C12.1

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

Yes, our suppliers

Yes, our customers

Yes, other partners in the value chain

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

62

% total procurement spend (direct and indirect)

99

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

100

Rationale for the coverage of your engagement

Since 2009, we have invited our direct material suppliers, identified as those tier one component suppliers, contract manufacturers and original design manufacturers who represent approximately 99% of the previous year's total annual direct material expenditure, to measure and report on their GHG emissions. As a lead member of CDP's Supply Chain program, we have built a strong supplier engagement platform that drives disclosure and action on climate-related risks. Our engagement framework is focused on developing: • Integrity – both in what we do together for the customer and in our commitments to each other • Collaboration – to make the most of our opportunities and differentiation • A remarkable customer experience – by taking the time to understand what we need to deliver to meet the customer's needs and expectations • Bold aspirations – to enable us to be disruptive, with the right differentiation • Mutual benefit – based on finding common ground and driving towards common goals • Innovation and operational excellence – to create an exceptional solution lifecycle. This engagement model helps ensure we are looking and working with our partners holistically. It is complemented by our Supplier Excellence framework, which is designed to set clear expectations around the variety of metrics for monitoring and managing our suppliers, including compliance, sustainability (e.g., GHG and water disclosures, RBA Code of Conduct compliance, responsible minerals sourcing), and risk metrics. The group of suppliers selected to participate in the CDP Supply Chain program not only represents the majority of the spend, but also: (1) potentially has the largest impact to Juniper's scope 3 emissions (as associated with upstream and downstream transportation and distribution and purchased goods and services) and (2) poses a potential climate change risk to Juniper in terms of supply chain disruptions due to transition and physical risks. Additionally, we recognize due to our spend with this group of suppliers a large percentage of our environmental impacts and thus opportunities can result from these activities.

Impact of engagement, including measures of success

Success is measured by the creation of productive relationships that align with our vision, values and business objectives and continual improvement of supply chain performance. Measures of success include achieving an 80% response rate on the CDP Supply Chain questionnaires, increasing the overall average supplier CDP scores to B, and increasing the overall number of suppliers reporting on key data points in the CDP Supply Chain climate change and water questionnaires. Juniper is focused on five key areas in the CDP Supply Chain climate change questionnaire: (i) scope 1 and 2 emissions, (ii) identification of active emissions reduction targets, (iii) emissions reduction activities, (iv) allocation of emissions to Juniper Networks, and (v) proposal of

potential opportunities for joint emissions reduction projects. Supplier performance associated with these metrics are communicated to them during business reviews.

In 2020, 72% of the suppliers Juniper requested to participate in the CDP Supply Chain survey responded to the request, with 65% of them reporting active emission reduction targets, 59% identifying potential financial impact from risks and 69% identifying potential financial impact from opportunities. Our GHG reduction goals are integrated into annual business reviews and our supplier vetting process. As of 2019, they have also been integrated into our new direct material supplier scorecard across all commodities, which help to set expectations with suppliers to reduce their environmental footprint, allow for continued performance monitoring and benchmarking, and increase transparency in areas for improvement. As a result, for example, due to the increased attention on this topic, two of Juniper's manufacturing partners showed year-over-year improvement in their climate change program in terms of setting ambitious targets, demonstrating reductions in emissions, and identifying risks and opportunities. These improvements were reflected in their CDP climate change disclosures and, ultimately, their 2020 scores. The active engagement with our suppliers has urged our partners who have performed below expectation to initiate the discussion on climate change and engage with leaders and influencers in their own organizations.

Comment

The percentage of supplier by number and the percentage total procurement spend do not include indirect suppliers and spend.

Type of engagement

Compliance & onboarding

Details of engagement

Included climate change in supplier selection / management mechanism

Code of conduct featuring climate change KPIs

Climate change is integrated into supplier evaluation processes

% of suppliers by number

62

% total procurement spend (direct and indirect)

99

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

100

Rationale for the coverage of your engagement

Our supplier engagement framework is focused on developing: • Integrity – both in what we do together for the customer and in our commitments to each other • Collaboration – to make the most of our opportunities and differentiation • A remarkable customer experience – by taking the time to understand what we need to deliver to meet the customer's needs and expectations • Bold aspirations – to enable us to be disruptive,

with the right differentiation • Mutual benefit – based on finding common ground and driving towards common goals • Innovation and operational excellence – to create an exceptional solution lifecycle. This engagement model helps ensure we are looking and working with our partners holistically. It is complemented by our Supplier Excellence framework, which is designed to set clear expectations around the variety of metrics for monitoring and managing our suppliers, including compliance, sustainability (e.g., GHG and water disclosures, RBA Code of Conduct compliance, responsible minerals sourcing), and risk metrics. Our GHG reduction goals are integrated into our supplier selection, vetting and onboarding process, documented in Juniper's Business Partner Code of Conduct, and is a component of the performance monitoring program during the course of the engagement. We expect all our suppliers to comply and support Juniper in our supply chain goals.

Impact of engagement, including measures of success

The Juniper Business Partner Code of Conduct outlines our expectations of suppliers to ensure that working conditions in the electronic industry supply chain are safe, that workers are treated with respect and dignity, and that manufacturing processes are environmentally responsible. As Juniper refreshes supplier master service and purchase agreements, the Business Partner Code of Conduct is integrated into contracts and, thus, further emphasizes expectations of ethical and environmentally responsible behavior. Additionally, select suppliers are monitored and measured on their compliance to the Business Partner Code of Conduct annually, including requirements on reduction of energy consumption and GHG emissions and participation in monitoring activities, such as CDP Supply Chain and onsite audits. This formal scoring process allows Juniper to communicate the importance of managing environmental and other risks to suppliers and to measure supplier performance in a quantitative way. Poor performance in environmental and risk factors results in downside exposure to the supplier by awarding negative points on the final business review score, which is reviewed by Juniper's supply chain executive management team. By integrating Juniper's climate change expectations into the entire lifecycle of the supplier engagement it allows Juniper to work with suppliers to identify and address opportunities for improvement, prioritize our engagement and partnership, and benchmark and compare supplier performance across the various commodities. As a result, for example, due to the increased attention on this topic and the ability to prioritize supplier engagement on the CDP supply chain request (focusing on non-responders and low scorers), Juniper was able to successfully encourage at least two electronic component manufacturing partners who historically have not responded to respond to the CDP climate change questionnaire in 2020.

Comment

The percentage of supplier by number and the percentage total procurement spend do not include indirect suppliers and spend.

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 education customers about your climate change performance and strategy

% of customers by number

5

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

20

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

Juniper engages with customers who actively request information from Juniper through a request for information or proposal process, contract reviews, questionnaires, and reoccurring performance/engagement meetings. The size of engagement indicated above is the percentage of customers by number who engaged Juniper on climate-change/GHG related requests in CY2020 - independent of the scope and type of request. For example, a customer who requests Juniper to participate in the CDP Supply Chain Program, a customer who requires Juniper to acknowledge a code of conduct with a climate change commitment, a customer who requests product lifecycle and carbon emission data, and a customer who requests product energy efficiency roadmaps and data are counted equally. The group of customers selected for engagement in general tends to be larger customers (based on sales), those who have more leading supplier requirements, and/or those who have set ambitious carbon reduction targets. We have to prioritize our engagements and resources in order to maximize the outcomes of these interactions.

Impact of engagement, including measures of success

Juniper engages with our customers on GHG emissions and climate change strategy. Juniper responds to CDP Supply Chain requests and other associated questionnaires issued by our customers, and has agreed to codes of conducts and contract language that include a commitment to managing and reducing GHG emissions from our operations. Additionally, Juniper has had 1:1 engagements with customers, the primary objectives being to understand each other's climate ambitions and current initiatives, and sharing how we can better collaborate and support customer goals. Success is measured by the award of ongoing and new business and performance on customer scorecards and questionnaires. One demonstration of this is the execution of agreements with customers that prioritize climate-related issues and energy efficiency in their contracts. Juniper's customers are increasingly using RFQs and RFPs to communicate questions and expectations about Juniper's climate, environment, and sustainability practices. In responding to these request for information, Juniper leverages a key opportunity to communicate its policies and practices related to climate change, as well as our commitment to transparency. Juniper utilizes these engagement

opportunities to demonstrate our leadership and commitment to the management of GHG emissions and climate change and, more broadly, enterprise risks. For example, Juniper has received an increasing number of requests for product lifecycle assessments of Juniper hardware products in 2020. We have been informed by one of our EMEA mobile network customers that the request for product lifecycle assessment information will be standard in all future RFPs. This data is used in the evaluation of proposals. This request for new data initiated cross-functional collaboration among engineering, supply chain operations and CSR to understand, develop and share quantitative and qualitative information with our customers to address their requirements. In this example, by providing this data we enabled our sales team to be responsive to our customer and complete the RFQ in its entirety, which helped the team to win the contract. By positively contributing to the RFQ and RFP evaluation process it helps Juniper to win business.

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

5

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

20

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

Juniper engages with customers who actively request information from Juniper through a request for information or proposal process, contract reviews, questionnaires, and reoccurring performance/engagement meetings. The size of engagement indicated above is the percentage of customers by number who engaged Juniper on climate-change/GHG related requests in CY2020 - independent of the scope and type of request. For example, a customer who requests Juniper to participate in the CDP Supply Chain Program, a customer who requires Juniper to acknowledge a code of conduct with an energy efficiency commitment, and a customer who requests product energy efficiency roadmaps and data are counted equally. The group of customers selected for engagement in general tends to be larger customers (based on sales), those who have more leading supplier requirements, and/or those who have set ambitious carbon reduction targets. We have to prioritize our engagements and resources in order to maximize the outcomes of these interactions.

Impact of engagement, including measures of success

Juniper engages with our customers on our energy-saving products through press releases, product technical documents, external website, disclosures (e.g. corporate

social responsibility report and annual report) labelling, and requests for information (through request for proposal, questionnaires, and performance/engagement meetings). Juniper products enable broadband, low-carbon ICT infrastructure, smart grid and technology substitution. Juniper's simplified data center network architecture eliminates switch layers to reduce complexity and improve performance, scale, and data center efficiencies. Ultimately, having a flat network lowers capital and operational expenses. We are confident in deploying Juniper products and services to our customers and the results. The resulting impact of this engagement is a successful demonstration of Juniper's leadership in product energy efficiency. Requests for product energy consumption data and commitment to product energy efficiency during the RFQ and contract review processes have highlighted the growing importance of this topic to our customers. One of the results of this transition in customer expectations is the review and update of Juniper's New Product Introduction process to consider energy efficiency earlier in the design and development process. By bringing energy efficiency into the design process earlier on it ensures it is actively considered and the end product is as energy efficient as possible. Juniper measures the success of this engagement through the awarding of new and ongoing business with customers. One demonstration of this is the execution of agreements with customers that prioritize climate-related issues and energy efficiency in their contracts.

C12.1d

(C12.1d) Give details of your climate-related engagement strategy with other partners in the value chain.

We have an engagement framework that guides the development of our long-term relationships with our partners, including customers, suppliers, shareholders, and analyst firms. It is focused on developing the following:

- Integrity – both in what we do together for the customer and in our commitments to each other
- Collaboration – to make the most of our opportunities and differentiation
- A remarkable customer experience – by taking the time to understand what we need to deliver to meet the customer's needs and expectations
- Bold aspirations – to enable us to be disruptive, with the right differentiation
- Mutual benefit – based on finding common ground and driving towards common goals;
- Innovation and operational excellence – to create an exceptional solution lifecycle.

This engagement model helps us ensure that we are looking and working with our partners holistically. This engagement frameworks enables us to create meaningful relationships with customers, suppliers, shareholders, and analyst firms.

In CY2020, Juniper requested calls with the top shareholders and shared information on Juniper's ESG programs including climate change. We also provided ESG data to analyst firms and third-parties, such as MSCI, Sustainalytics and ISS. Additionally, as a member of the Responsible Business Alliance Environmental Sustainability Workgroup (an industry organization focused on advancing sustainability and corporate social responsibility in the electronics supply chain), we are helping to develop strategies and tools to improve the

measurement of environmental impact, improve resource efficiency, and build industry capacity and performance.

One example that demonstrates this framework in action is our work in setting science-based targets, aligning with the Science Based Targets initiative (SBTi) methodology. Though we were already in the process of establishing science-based targets, the formal request to do so by one of our shareholders signaled its importance and influenced Juniper's commitment to release new targets in 2020. The absolute contraction approach and two degrees scenario were selected because (1) the method is aligned with SBTi's guidance on evaluating a science-based target and (2) the method allowed Juniper to establish and commit to an ambitious target that will drive internal action based on the available data while taking into consideration limited visibility into future business conditions. This helps us to set 'Bold Aspirations'. Input information was provided from individuals in finance, facilities, legal, engineering, EHS, and sales. Our scenario analysis included timeframes that align with the SBTi guidance and reflect Juniper's long term commitment to climate change action, energy efficiency, and environmental sustainability, and our broader CCS strategy and commitments. Results of the analysis were used to establish two new emissions reduction targets (1) reduce absolute scope 1 and 2 emissions by 17.5% by 2025 from 2018 baseline and (2) reduce absolute scope 1 and 2 emissions by 42.5% by 2035 from 2018 baseline. The analysis has influenced our broader CSR strategy, where internally we recognize climate action as one of a handful of featured CSR programs, along with critical programs like community engagement and diversity and inclusion. The additional focus has also enabled internal dialogue and inclusion of climate change considerations into business decisions, finding 'Mutual Benefit'.

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

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
Other, please specify Transportation	Support	Juniper is committed to reducing the impact of our products and the wider industry on the environment and society. Our active involvement in numerous non-profit and industry associations help drive our sustainability agenda forward. Juniper belongs to the Moffett	Juniper is an active member of the MPBG. Juniper has contributed to the development and implementation of the vision and strategy of the organization. A primary mission of the MPBG is to support sustainable development and alternative commute via advocacy with local and regional

		<p>Park Business Group (MPBG). The charter of this Silicon Valley group is to unite local business organizations, municipalities, institutions and utility interests to work on supporting the social, environmental, and economic health of the community through mutual cooperation and advocacy. Focus areas include sustainability and power reliability and advocacy for local and regional alternative commute services.</p>	<p>agencies to improve the transportation services and infrastructure. The goal is to provide the needed infrastructure and information to employees in order to encourage and empower them to use alternative commute options in the Silicon Valley and surrounding areas. Under the MPBG Initiative, specific projects are established to focus on shared opportunities and challenges involving multiple stakeholders. Broadly, these projects include sensing and prioritization efforts to understand employee attitudes regarding commute choices, awareness and engagement events to promote alternative commute, collection and distribution of resources, and deployment of shared solutions, programs and advanced infrastructure.</p>
Clean energy generation	Support	<p>Juniper is committed to reducing the impact of our products and the wider industry on the environment and society. Our active involvement in numerous non-profit and industry associations help drive our sustainability agenda forward. Juniper belongs to the Silicon Valley Leadership Group (SVLG), a public policy trade association. The mission of this organization is to represent Silicon Valley businesses on issues, programs and campaigns that affect the economic health and quality of life in Silicon Valley, including energy, environment, and transportation.</p>	<p>Juniper is an active member of the SVLG. Examples of past and current key energy, environment, and transportation initiatives that are targeted at influencing climate change are: Clean Energy Supply (promote financing and deployment of clean energy and emerging technologies to the benefit of SVLG members), Grid Modernization, Reliability, and Distributed Energy Resources (promote and facilitate integration of technologies that support a safer, smarter, more reliable gas and electric grid), Demand-side Solutions (promote energy efficiency, demand response, and reduce energy waste), State Climate Change Efforts (advance the policy environment that allows</p>

			clean and efficient energy to continue to scale and help secure an extension of cap-and-trade), Corporate Environmental Sustainability (advance environmental sustainability drivers and showcase solutions that protect the environment while growing markets and/or reducing costs), and Regional Transportation Initiative (partner with large Bay Area cities, transportation agencies, employers and non-profits to identify funding and policy solutions for our regional system).
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C12.3b

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

Yes

C12.3c

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

Trade association

Information Technology Industry Council

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

The Information Technology Industry Council (ITI) is a trade association for the ICT industry. ITI advocates for green tech policies in eco-friendly materials selection (what goes into the product), green product procurement (how to identify greener products), supply chain management (ensuring products are responsibly sourced), and responsible product reuse and recycling (responsible end-of-life management).

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

Juniper is a member of ITI and has an employee on the board. Beyond membership affiliations Juniper has not attempted to influence the position of ITI on issues related to climate change legislation.

Trade association

Silicon Valley Leadership Group

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

The Silicon Valley Leadership Group (SVLG) is a public policy trade association that considers climate change a key issue. SVLG served as part of the Executive and Steering Committees to prevent the rollback of California's Global Warming Solutions Act – Assembly Bill 32. They are active in ensuring AB32 rewards efficiency and protects innovation while also meeting greenhouse gas reduction goals. SVLG is working on the "Californians for Clean Energy and Jobs" campaign, a bipartisan coalition promoting California's clean energy future. SVLG is also "increasingly active in federal-level advocacy for smart energy and climate policies."

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

Juniper is a member of SVLG. Beyond membership affiliations Juniper has not attempted to influence the position of SVLG on issues related to climate change legislation.

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?

Juniper's Government Affairs group is responsible for identifying public policies that may have an effect on our company's ability to meet its business goals and objectives, coordinating with internal stakeholders (including the engineering, legal, supply chain operations, and environmental, health, safety & security teams) on legislative/regulatory issues and areas of interest that Juniper favors, and working to mitigate any adverse impact on Juniper from policies that raise concern. Juniper strives to promote corporate-wide awareness of key public policy issues through internal and public communications and provides a repository of information that represents a consistent body of messaging and related assets for use throughout our worldwide operations. For trade associations and other membership organizations the Juniper Government Affairs team carries out a process of alignment at the time of membership application. The team also does an alignment review at the time of any charter or bylaws updates by the organization in question.

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

 JNPR 10-K.pdf

Page/Section reference

Page 14 - Manufacturing and Operations

Page 15 - Environment

Page 21 - Item 1A. Risk Factors

Content elements

Governance

Strategy

Risks & opportunities

Other, please specify

CDP engagement

Comment

Juniper Networks Form 10-K for FY2020

Publication

In mainstream reports

Status

Complete

Attach the document

 JNPR Proxy Statement.pdf

Page/Section reference

Page 12 - Corporate Citizenship and Sustainability

Content elements

Governance

Strategy

Emission targets

Comment

Juniper Networks 2021 Annual Meeting of Stockholders
Notice of Annual Meeting and Proxy Statement

Publication

In voluntary sustainability report

Status

Underway – previous year attached

Attach the document

 Juniper Networks CCS Report.pdf

Page/Section reference

Page 20 - Environmental Sustainability

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

Juniper Networks Corporate Citizenship and Sustainability Report

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	VP, Environmental, Health, Safety and Security	Chief Sustainability Officer (CSO)