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About this Report

This document, Juniper Networks’ fourth full Corporate Citizenship and Sustainability (CCS) Report, is a summary of the company's environmental, social and economic impacts and performance. The scope of this Report includes the company’s business operations and facilities (owned or maintained) during the reporting period, January 1, 2015 through December 31, 2016. Included are links to useful information and publicly available resources related to our financial, corporate governance, social and environmental policies and performance.

This Report was prepared using guidance from the Global Reporting Initiative (GRI) G4 Sustainability Reporting Guidelines ‘Core’ option. The GRI is the leading framework for corporate responsibility reporting based on input from a wide range of experts spanning business, academia, civil society, labor and environmental groups, among others. External assurance has not been sought for the contents of this report.

Juniper Networks reports on a two-year cycle, the next report will cover 2017 and 2018 performance. On material issues where there are significant changes or required by regulatory requirements, Juniper provides annual updates through alternative public disclosure mechanisms.

Report Availability and Contact

This Report is available in its entirety on our website: https://www.juniper.net/sustainability. We welcome your questions, comments and feedback, which can be sent to corp-citizenship-sustainability@juniper.net.

Statements in this document concerning Juniper Networks’ business outlook, economic outlook, future financial and operating results, and overall future prospects are forward looking statements that involve a number of uncertainties and risks. Actual results or events could differ materially from those anticipated in those forward looking statements as a result of certain factors, including general economic conditions globally or regionally; business and economic conditions in the networking industry; changes in overall technology spending, the network capacity requirements of communication service providers; contractual terms that may result in the deferral of revenue; increases in and the effect of competition; the timing of orders and their fulfillment; manufacturing and supply chain constraints; ability to establish and maintain relationships with distributors, resellers, and other partners; variations in the expected mix of products sold; changes in customer mix; changes in geography mix; customer and industry analyst perceptions of Juniper Networks and its technology, products, and future prospects; delays in scheduled product availability; market acceptance of Juniper Networks products and services; rapid technological and market change; adoption of regulations or standards affecting Juniper Networks products, services, or the networking industry; the ability to successfully acquire, integrate, and manage businesses and technologies; product defects, returns, or vulnerabilities; the ability to recruit and retain key personnel; significant effects of tax legislation and judicial or administrative interpretation of tax regulations; currency fluctuations; litigation; and other factors listed in Juniper Networks’ most recent report on Form 10-K and Form 10-Q filed with the Securities and Exchange Commission. All statements made in this document are made only as of the date set forth at the beginning of this document. Juniper Networks undertakes no obligation to update the information in this document in the event facts or circumstances subsequently change after the date of this document.
Letter from the CEO

Juniper Networks was founded on an idea that dared to do things differently. We don’t just challenge the status quo; we challenge ourselves to solve some of the most important innovative problems in ways that have never been done before. This is our DNA. And for the last 20 years, we have worked tirelessly alongside our customers to build so much more than networks – we reinvent, reimagine and improve the world around us.

Our customers are not slowing down, and we want to meet and exceed the speed of service and connection they demand and the level of security that keeps them online – safely and securely. The investments we’ve made over the last few years have resulted in the strongest and most differentiated product portfolio in the history of the company. And, just as we have remained focused on innovation, we are steadfast in our commitment to becoming one of the most environmentally and socially responsible tech companies in the industry – whether it’s how we support our workforce, how we source our power, how we manage our supply chain, or how we commute to and from our workplace.

Diversity is vital in Silicon Valley and beyond. Our diversity and inclusion program represents our commitment to creating a highly diverse and inclusive workplace, a place where all Juniper Networks colleagues are empowered to do their best work.

Through our work with our nonprofit partners, we’re helping to broaden access and participation to computer science to all students with a focus on girls and underrepresented students. We’ve partnered with TechWomen to support the next generation of African and Middle Eastern women leaders in science, technology, engineering and math. Additionally, we announced the global expansion of our OpenLab program, which provides educational programs and technology trainings across the globe.

Operating sustainably is an expectation at Juniper. We have implemented a variety of initiatives to reduce our own energy usage and carbon footprint. We are also helping our customers do the same by innovating networking solutions that enable the world to become more connected. We were quick to recognize that the products we make must also be energy efficient in order to curtail the rise of greenhouse gas emissions. This has been a sharp focus for Juniper and it will continue to be for the years ahead.

Juniper’s early products anticipated the emerging power of the Internet, even when people didn’t know they needed it. That’s why we’re still in business today. Now, we’re planning for a future that meets the needs of our customers, our employees, society and the planet. I believe with great confidence that we will continue to thrive as we work towards our goal of being the world’s most trusted and most sustainable technology provider for next-generation networking solutions.

Rami Rahim
CEO, Juniper Networks
At Juniper Networks, we’re committed to building more than a network. We believe in constantly challenging convention as a way of realizing the full potential within ourselves and our customers.

In designing, developing, and selling products and services that support high-performance network technology, we empower our global customers to be more agile, secure, cost-effective, and efficient. We sell our products, which include network hardware and service offerings across routing, switching, and security, in more than 100 countries spanning the Americas, Europe, the Middle East, and Africa.

Our products and services support myriad customers who view best-in-class network technology as critical to their success, including global service providers, cloud environments, enterprise companies, governments, and research and public sector organizations. In addition to our hardware products, we offer related services such as technical support, education and training programs, and various other professional services.

Together, our mix of products and service offerings helps customers convert their legacy networks into more valuable assets that provide increased performance, reliability, and security for end users.

We were incorporated in California in 1996 and reincorporated in Delaware in 1998.

Juniper in a Glance
Founded: February 1996
NYSE: JNPR
CEO: Rami Rahim
Headquarters: Sunnyvale, California
Employees: 9,500+
Offices: 92 offices in 43 countries
Net Revenue: USD $4.99 billion (2016)
Research and Development Investment: USD $1,013.7 million (2016)

Juniper Networks powers

- the **top global service providers** and **47 of the Fortune Global 50**.
- the **world’s top 5 social media properties**,
- **44 of the top 50 global financial banks and insurance companies**

Over **1,400 locations for national governments around the world**.

We have

- more than **9,300 employees in 88 locations in 43 countries**.
- **16 global, “around-the-clock” technical support centers**.
Our Vision
We believe the network is the single greatest vehicle for knowledge, collaboration, and human advancement that the world has ever known, one that empowers companies and individuals to unlock their full business potential. Now more than ever, the world relies on high-performance networks, and constant network innovation, in order to realize that potential.

The network plays a central role in addressing challenges we face as a global community. Consider the healthcare industry, where the network is the foundation for new models of mobile affordable care for underserved communities. Or the energy sector, where the network is helping to accelerate the distribution of clean, renewable sources of energy. In education, the network continues to expand access to quality teaching resources, so people from every socioeconomic background have access to the same data and participate in the global economy in a meaningful way.

The network isn’t merely a network, it is a platform—one that transforms how we interact with our government institutions, conduct daily business, and connect with our family and friends. This is why Juniper makes the commitment to building more than just a network. Because with every innovation we envision, every new technology we implement, we expand the scope of what’s possible.

How We Serve Our Customers
As we continue to serve customers that depend on network technology to deliver mission-critical transactions, applications, and services, we further realize our company vision, that of helping companies unlock their full business potential.

With an eagerness to dig in and solve our customers’ biggest network challenges—problems others often can’t or won’t tackle—we strive for solutions that provide a true competitive advantage over their competition. Whether that means bringing new, revenue-generating services to market in minutes; reducing network costs; enabling smarter, more efficient business processes; providing security and protection for the most valuable assets; or delivering a deeper and more robust end-user experience is determined based on a customer’s unique needs.

Our current client roster includes many of the world’s largest and most influential service providers, including wired and wireless carriers; cable and satellite operators; content and Internet service providers; and cloud and data center providers. Juniper Networks also supports all 10 of the world’s top telecom companies; a number of major banks and global financial services organizations; government agencies; healthcare and educational institutions; and energy and utility companies.

Why do so many successful businesses rely on Juniper? Quite simply, because we provide the kind of performance, thought leadership, and industry-leading service that enables the world’s best networks.

The Juniper Way
Our challenge is to create, and constantly refine, next-generation networks that expand upon our customers’ business potential—to create more than a network. Success in this endeavor hinges on the creativity and commitment of our people. To inspire their work, we are guided by the Juniper Way.

More than a set of shared values, the Juniper Way reflects a commitment to every Juniper employee that the company is committed to inspiring their best work—their life’s work.

Recent Awards and Recognition
• 2017 Massachusetts Excellence in Commuter Options (ECO) Awards, 2017
• MEF Excellence Award: Third Network Technology Solutions Multi-Vendor Innovation of the Year, 2016
• CRN Channel Chiefs, 2016
• CRN Partner Program Guide, 2016
• CRN Women of the Channel, 2016
• CRN Virtualization 50, 2016
• CRN Security 100, 2016
• Interop Tokyo 2016 Grand Prix Award winner in the Cloud Platform category, 2015
• 2016 Newsweek Green Rankings, 2016
• 2016 Resilient Supply Chain Technology Driver of the Year, 2016
• Marketing Cloud Surfboard, Best Overall Social Program, 2015
• Leader on the CDP S&P 500 Climate Disclosure Leadership Index, 2015
• CRN 2015 Winner “Easiest to do Business With”, 2015
• 2015 Salesforce Marketing Surfboard Award Winner for Best Overall Social Program, 2015
• 2015 MEC Industry Award for the Biggest Contribution to R&D, 2015
• 2015 Newsweek Green Rankings, 2015
• Great Race for Clean Air Winner, 2015
• Interop Tokyo 2015 Best of Show Grand Prix Award winner in the Data Center, Networking and NFV categories, 2015
• 2015 PRWeek Award Winner, 2015
• Ad Age BtoB Best Award Winner for 2015, 2015
Corporate Citizenship and Sustainability

Our Corporate Citizenship and Sustainability (CCS) strategy is organized around four main pillars, each including multiple focus areas. These define our priorities and help direct our efforts to where they can have the biggest impact. The four pillars—Product Sustainability, Supply Chain, Operational Excellence, and People and Communities—include those issues that are most material to our business and stakeholders.

Juniper CCS Pillars

<table>
<thead>
<tr>
<th>1: Product Sustainability</th>
<th>2: Supply Chain</th>
<th>3: Operational Excellence</th>
<th>4: People and Communities</th>
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<tbody>
<tr>
<td>Sustainable Design</td>
<td>Responsible Sourcing</td>
<td>Emission Reduction</td>
<td>Authenticity and Inclusion</td>
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<td>Material innovation and minimization of resource impacts</td>
<td>Supplier standards</td>
<td>Energy Management</td>
<td>Community Engagement</td>
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<td>Product Safety</td>
<td>Human rights</td>
<td>Water Stewardship</td>
<td>• Juniper Foundation</td>
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<td>Data Security</td>
<td>Carbon and water footprint</td>
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<td>• STEM education</td>
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<td>Product Integrity</td>
<td>Conflict minerals</td>
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<td>• Employee engagement: volunteering</td>
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<td>Security and Resilience</td>
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Materiality Analysis

To inform our CCS strategy, we conducted a materiality assessment to identify the CCS issues that are most important to our internal and external stakeholders, and most relevant to our business. Material topics are defined as issues that have a direct or indirect impact on Juniper’s ability to create, preserve, or erode economic, environmental, and social value for the company, stakeholders, and society at large.

Our process included desk research to understand the broader sustainability landscape, followed by a series of in-depth interviews with a select group of internal and external stakeholders. The interviews provided insights on what issues Juniper should consider material. Once the issues were identified, they were aligned with the GRI G4’s material aspects. A quantitative survey was then developed and used to poll a larger group of internal and external stakeholders on the priority of the identified issues. The outcome of this process is outlined in a table, which is available in Appendix I—Material Topics and Aspects.

Stakeholder Engagement

Our stakeholder engagement activities provide valuable insights and feedback, which help us assess both potential risks and opportunities. Our approach is an ongoing and inclusive dialogue in which we communicate progress and provide a platform for stakeholder questions and concerns. Informed by the insights gleaned from these dialogues, we are able to constantly improve how we manage, refine, and respond to key material issues. The table outlines how we engage with our key stakeholders and the types of topics and concerns that are raised through our engagements.
Juniper Customer Satisfaction

Juniper conducts two global surveys each year to collect feedback on customer perceptions of our company and offerings. Coupled with insights from other stakeholders, the results are invaluable in helping us identify opportunities to improve how we meet our customers’ ever-evolving needs.

The Juniper Customer Satisfaction Index (JCSI) combines ratings of overall satisfaction, the willingness of customers to recommend Juniper Networks, and their likelihood to repurchase. We are pleased to report that customer satisfaction has remained steady, with a slight increase from 2014 to 2016—a shift that will inform our efforts to drive continual improvement going forward.

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<th>Juniper Customer Satisfaction Index</th>
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<td>Likelihood to Repurchase</td>
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<tr>
<td>Overall Satisfaction</td>
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Industry Groups and Associations

Juniper Networks plays a leadership role in a variety of government and industry organizations helping to ensure the safety and security of the network that supports vital sectors and resources. Through these memberships, Juniper plays a key role in the development of federal cybersecurity policies, further affirming our role as a thought leader in the space.

A full list of the entities we belong to and/or collaborate with is available in Appendix III—Memberships and Associations.

Public Policy and Advocacy

Anything that threatens the integrity and advancement of the network is of vital importance to our business and, therefore, a focus of our public policy and advocacy work. We work closely with governments in the areas crucial to the support and advancement of the network, including:

- Cybersecurity, Internet governance, and privacy
- Protecting the freedom of the Internet and the ability of the private sector to innovate
- The rapidly changing Internet landscape (mobility, cloud computing)
- Social and environmental sustainability
- Educating the next generation of IT leaders
- Global economy and trade
- Immigration
- Tax and accounting policy

Thought Leadership—Cybersecurity

Like the air, land, and sea, cyber space is a domain. Just as airplanes, vehicles, and ships benefit from global norms and rules that facilitate commerce across national boundaries during peacetime, so too does digital information. Examples of such norms include ensuring unencumbered cross-border data flows and avoiding regulatory and other barriers to private sector innovation and product delivery.

Juniper has led the way in advocating for a true public-private partnership to enhance cybersecurity. We rely on the integrity and advancement of the global network, so policies that affect that network are of vital importance to us and our customers. Through the Government Affairs Group, we coordinate with appropriate public and private organizations on issues and policies.

In October of 2016, Juniper joined the U.S. Department of Homeland Security, StaySafeOnline.org, and various other partner organizations to highlight the importance of cybersecurity through the first National Cyber Security Awareness Month. The collaborative effort was devoted to increasing awareness of the range of cyber threats and educating as to how proper cyber hygiene methods can effectively defend against potential intrusions.

Due to its constantly evolving nature, cybersecurity will remain a perennial issue. As devices are increasingly connected to the Internet, they become more susceptible to attacks from hacking software, cyber criminals, and other nefarious agents. All interested parties—device manufacturers, service providers, network equipment manufacturers, app developers, consumers, and government agencies—must collaborate to make the Internet of Things (IoT) secure while delivering the seamless mobile functionality that 21st-century users demand.
Juniper considers research paramount in understanding the ever-evolving nature of cybersecurity threats. As industry thought leaders, we welcome the opportunity to advocate for and ultimately support studies that help us better understand the dynamic nature of the world’s most sophisticated cyber threats.

In 2014, Juniper sponsored a research report by the RAND Corp., “Markets for Cybercrime Tools and Stolen Data: Hackers’ Bazaar,” which examined economic drivers for cyber attackers and the underground support network that’s been created to scale their efforts.

In 2015, in phase two of that research, titled “The Defender’s Dilemma: Charting a Course Toward Cybersecurity,” RAND developed a heuristic model that helps companies map the economic drivers and challenges of defense, moving beyond an IT or operations perspective and into a holistic point of view on the risks to business. With the findings from RAND’s model, chief information security officers can understand how different drivers—such as software vulnerabilities, technology tool half-lives, and the IoT—will impact their company’s security strategy and investments. The model also provides actionable insights that companies should consider as they evaluate security spending and posture.

By mapping the major factors and decisions that influence cyber risk costs to businesses, RAND’s model enables a more holistic economic view of how those expenses will change. The model suggests that the price of managing cybersecurity risk is set to increase 38 percent over the next 10 years, across all businesses. Foremost among the study’s findings is the idea of bifurcating security technology spend into two categories: those that have short-term tactical impact, and those that have long-term, strategic impact.

Governance Structure

Juniper’s CCS initiatives and priorities are overseen, at the highest level, by our chief executive officer (CEO). A Corporate Social Responsibility (CSR) Executive Committee reports to the CEO; it includes senior executives representing human resources, marketing and sales, engineering, manufacturing operations, real estate and workplace services, and legal. In addition to overseeing Juniper’s environmental management system (certified ISO 14001), the committee directs the vision and strategy of our CCS efforts, manages those issues across Juniper, ensures alignment with corporate priorities, and addresses any issues related to social responsibility and sustainability throughout the company.

The Audit Committee of our Board of Directors is responsible for the overall oversight of our integrity and Compliance program. They receive updates on CSR initiatives from executive champions 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 the preparation of regulatory disclosures, such as the conflict minerals report, human trafficking statement, and CSR initiatives highlighted in our financial and annual reports. The Audit Committee also periodically reports out to the full Board on CSR-related issues.

Corporate Ethics

Juniper is committed to conducting business in an open and honest manner—with public commitments to transparency and integrity—as evidenced by our numerous guiding policies, disclosures, and the core behaviors of The Juniper Way. Everyday, Juniper employees, officers, and directors interact with a wide variety of stakeholder groups, including customers, partners, competitors, suppliers, colleagues, shareholders, and government and regulatory agencies. Interactions such as these are governed by Juniper’s Worldwide Code of Business Conduct, a document that covers our expectation that we will all behave in a responsible, authentic, and trustworthy way, as well as compliance with applicable laws and regulations.

Beyond policies for our own employees, Juniper also maintains a Business Partner Code of Conduct for business partners.

Compliance

Compliance with all local laws and regulations—environmental, social, or otherwise—is an integral part of Juniper’s commitment to build more than just a network. During the reporting period, there were no significant fines or sanctions for noncompliance with laws and regulations relating to environmental impacts or the provision and use of our products.

To ensure continued compliance, Juniper enlists key experts on our Juniper Networks Compliance team, a group that assesses compliance policies and procedures, mitigates related issues, and makes specific recommendations to improve the company’s broader enterprise risk management ecosystem.

Juniper relied on various independent sources when developing our compliance policies, including Amnesty International, the United Nations, the Responsible Business Alliance, and the International Labor Organization. Our goal was to incorporate, and constantly refine, a set of best practices. For us, that means continuing to focus on training, monitoring, auditing, and expanding our principles of compliance throughout our organization and the supply chain. During the reporting period, we made several key revisions to our Worldwide Code of Business Conduct and Business Partner Code of Conduct. Other important information about our Corporate Governance Policies and Principles can be found on our website.
Privacy and Data Security

We respect the privacy of individuals who provide us with personal information, including our customers, vendors, partners, and visitors to our website. Our commitment to privacy is governed by our Privacy Policy, which outlines, among other topics, how personal information may be collected and used; our process for notifying individuals about the information we may collect; and the option individuals may exercise to opt out.

We are also committed to the integrity, security, and assurance of our products, and have demonstrated the ability to fix security vulnerabilities when they are found and to notify our customers according to our Security Incident Response Team procedures.

For instance, in late 2015, we announced the discovery of unauthorized code in the ScreenOS® software used in our Netscreen® products. This malicious code could have allowed a knowledgeable attacker to circumvent the security of those products. Once we identified these vulnerabilities, we launched an investigation into the matter and worked to develop and issue patched releases for the latest versions of ScreenOS. We then notified customers with a Juniper Security Advisory and published a Security Incident Response Team blog with further details.
Product Sustainability

At Juniper, we design, develop, and sell routing, switching, and security products and services for high-performance networks. These products and services enable our customers to build reliable, secure, cost-effective, and highly scalable networks for their businesses while achieving agility, efficiency, and added value through automation.

Whether our customer is a global service provider, enterprise company, or public sector organization, the network is critical to their success. We innovate systems and software solutions that transform networking as we know it, helping our customers achieve superior performance and reducing the overall cost of ownership.

Together, our mix of products and service offerings helps customers convert their legacy networks into more valuable assets that provide increased performance, reliability, and security for end users. Our commitment is to reduce complexity for our customers by engineering simplicity, and as part of that commitment, our products and service offerings must be designed to be both resilient and sustainable.

Eco-Design Program

Our product designers and suppliers identify, prioritize, and recommend environmental improvements through a company-wide eco-design program, which is based on our New Product Introduction (NPI) process. The eco-design guidelines are derived from evolving customer expectations and regulatory requirements and influenced by the expertise of our employees and suppliers. The priorities of the Juniper Networks eco-design initiative include:

- **Materials Innovation**: The reduction of the amount of materials used in our products and development of materials that have less environmental impact and/or more value at their end of life
- **Design for Recyclability**: The design of products that are easier to upgrade, reuse, and/or recycle
- **Energy Efficiency**: Reduction in energy needed to manufacture and/or use our products

Furthermore, life cycle assessment (LCA) is used to quantify the environmental impacts of a product across the entire life cycle, from design to End-of-Life (EOL) disposal.

Sustainable Design: Minimizing Resource Impacts

We recognize that Juniper’s greatest impact on the environment comes through our products. It’s why we consider opportunities to decrease that impact and improve efficiencies at every stage of the product’s life cycle, from the materials we use and a product’s energy footprint, to packaging and EOL solutions.

We believe sustainably designed products are not only better from an environmental perspective, they’re also more reliable, as evidenced by their lower failure rates.

Material Choice and End of Life

As part of our eco-design approach, we carefully consider the materials that go into our products and how they re-enter the ecosystem at the end of their useful life. Like technology devices, networking equipment must be designed and developed in compliance with regulations governing the use of hazardous materials and EOL solutions. Juniper is committed to maintaining compliance with all federal, state, local, and foreign regulations that have been adopted with respect to the environment. These include the Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS); the Regulation concerning the Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH); and the Waste Electrical and Electronic Equipment (WEEE) directive. Juniper products are designed to be easily dismantled for recyclability, and those parts that are not recyclable are clearly labeled.

To enable customers to extend the useful life of Juniper products in an environment of rapid change and growth, Juniper products are designed and built for flexibility. Many of Juniper routing, switching, and security solutions are built to be interoperable with other vendor systems, to be scalable to meet the growing demand of terabytes per second of system throughput, and to be flexible in being deployed in a number of different network designs and fabrics.

More detailed information on Juniper’s approach to hazardous materials, EOL considerations, and eco-design can be found [here](#).
Case Study
Juniper Gets the Lead Out to Comply With RoHS 2
One of Juniper’s major initiatives for 2015 included compliance with RoHS, the Restriction of Hazardous Substances, a European Union directive meant to improve the environmental friendliness of hardware components. All companies selling products to EU countries were required to become RoHS 2 compliant by July 21, 2016.

Juniper became compliant with RoHS I in 2006 and with RoHS 2 in 2015, which, among other directives, requires products to be lead-free. Like most technology companies, Juniper still has lead in some components, such as the solder, and in other limited usages.

We established a three-pronged approach to designing, manufacturing, and testing impacted products:

Compliant: Most Juniper products have been converted to full RoHS 2 compliance and are available globally.

Restricted availability: A very small percentage of Juniper products can’t currently meet RoHS 2 requirements, so they are only available on a restricted basis, and only to customers outside the countries impacted by RoHS 2. We will continue to work on needed replacements.

End-of-Life and transition: We have announced EOL for a number of older products and have been working closely with customers to move them to Juniper’s newer architectures and technologies.

RoHS 2 compliance has been a massive effort, touching most teams across Juniper. Success means not only an ecological benefit, but enables continued business with and support of our customers.

Continuing on this effort, Juniper is part of an industry review committee to evaluate and prioritize the elimination of other hazardous substances and inform future environmental product compliance requirements.

Product Packaging
Part of our commitment to building more than a network includes packaging our products in ways that are environmentally responsible and, increasingly, sustainable. Our first priority in packaging is to protect our products, as damaging them would unnecessarily waste valuable resources. Each year, we evaluate opportunities to redesign packaging in ways that will optimize costs while increasing the use of reclaimed or recycled materials, including biodegradable packaging.

In recent years, our internal Logistics group has had success rethinking the size, weight, and layout of our boxes, crates, and buffering materials. Our goal is to reduce the size and weight of packaging, while retaining the same performance, and to choose the most sustainable materials whenever possible. The packaging design principles revolve around five priorities: (1) use of materials that can be recycled or reused; (2) minimizing total size and weight; (3) considering alternative materials that have a reduced environmental footprint; (4) minimizing total cost of product packaging and logistics; and (5) quality.

The transition from foam packaging material to Reflex thermoformed high-density polyethylene (HDPE) plastic cushions on our 1 U and 2 U systems is an example of Juniper successfully executing on all five packaging design principles. Compared to the traditional foam packaging, the Reflex design is manufactured from 100% recycled HDPE plastic and is 100% recyclable and reusable, resulting in approximately 400 tons of plastic recycled since 2009. Additionally, the Reflex thermoformed cushions are formed around the specific dimensions of the product, allowing us to reduce the size of our packaging. This means we get comparable cushioning with a smaller packaging footprint. In addition to reducing waste and input resources, it has reduced the environmental impact associated with logistics and distribution by allowing more shipments per truckload and units stored per warehouse. This transition has enabled Juniper to reduce material cost while providing equal product protection.

Another example is the redesign of the wood crates used to ship Juniper Networks’ MX480, MX960, and MX960ECM 3D Universal Edge Routers. Our goal was to keep the same strength, material, and basic design while reducing manufacturing and logistics costs. The 1-inch plywood was slimmed to 6 mm plywood, lowering the weight from 178 pounds to 95 pounds, a significant reduction for every system shipped. After testing and assuring their quality, we implemented the new crates in 2014. We estimate the total annual savings from redesigned packaging to be approximately $1.9 million.

Sustainable Design: Energy Efficiency
The Information Communication Technology (ICT) sector accounts for approximately two percent of all greenhouse gas (GHG) emissions, mostly due to energy-intensive data centers. As the digital economy and ICT-enabled solutions advance, it’s expected that an additional 2.5 billion people will become connected by 2030. With a more connected world comes the opportunity to increase efficiencies, including the way business is conducted, the way healthcare is managed, and the way agricultural crop yields are improved upon. It is through seizing these opportunities, as well as more energy-efficient hardware, that the Global e-Sustainability Initiative (GeSI) underscores the potential for the ICT sector to drive a 20 percent reduction in global GHG emissions by 2030, which would hold emissions at 2015 levels.
As the platform for ICT-enabled solutions, the network that Juniper builds is the means for enabling growth and innovation, while also serving as the source of crucial energy efficiencies. It’s why environmental sustainability, and especially energy efficiency, is central to Juniper’s design and development approach.

Making energy efficiency a driving force in the design and manufacture of Juniper’s products leaves us in an excellent position to comply with or surpass potential regulatory standards for many of our products. To manage risks from efficiency regulations, we have been engaged in voluntary initiatives and programs. As a member of the Energy Consumption Rating Initiative, Juniper has played an active role in developing specifications for rating energy consumption in network and telecom devices. Juniper is also an active member of the Alliance for Telecommunications Industry Solutions STEP Committee, which created a Methodology for Measurement and Reporting of Wireless Base Station Standards.

**Energy-Efficient Products**

The evolution of networking equipment has been rapid. While today’s equipment has far greater capacity and speed than it did a decade ago, the trade-off has been energy efficiency. We saw this early on at Juniper and made it a priority to position ourselves as a leader in power and energy efficiency, while still maintaining the functionality and speed to support the growth of the network. Our goal is to make every new product more efficient than the last, and help our customers shrink their energy and carbon footprints.

Every Juniper product is measured in throughputs per watt, and we’ve managed to reduce the watts per bandwidth with each product iteration. Additionally, Juniper products are independently third-party tested for energy efficiency compliance to the following standards:

- AT&T ATT-TP-76200, Issue 20, June 2016
- ECR Draft 3.0.1, December 2010
- EPA Energy Star
- ETSI ES 203 136 v1.1.1, May 2013
- Verizon VZ.TPR.9205, Issue 6, March 2016

Energy consumption specifications are made available on product technical sheets, another tool which both helps customers focus on their energy goals and helps Juniper stay in front of energy efficiency and product labeling standards.

Juniper participates in 80 PLUS, an innovative, electric utility-funded incentive program to integrate more energy-efficient power supplies into desktop computers and servers. The 80 PLUS performance specification requires power supplies in computers and servers to be 80 percent or greater energy-efficient. This makes an 80 PLUS-certified power supply more than 33 percent more efficient than current power supplies. As of 2016, Juniper has twelve products that are **80 PLUS-certified**.

We will continue to focus on energy efficiency, recognizing this as a significant opportunity to assist our customers reduce the total energy consumption and greenhouse gas emissions from their own operations due to the use of networking products.

**SDN**

Juniper’s SDN strategy enables companies to accelerate the design and delivery of new services, lower the cost of network operations, and provide a clear path to implementation.

In 2015, we extended the capabilities of Juniper Networks NorthStar Controller. These enhancements provide visibility and control into additional layers of the network and fully support and handle dynamic traffic, such as that driven by mobile and cloud applications. This traffic-engineering controller is capable of automatically controlling and programming multiple network layers, enabling service providers to increase utilization by dynamically adjusting to changing network conditions in real time and at the click of a button.

For many years, the network core was considered too manual, too rigid, and too complex to adjust. This limited the ability to change the core to adjust to new services for fear of crippling the entire network. Today, we are bringing unprecedented levels of scale, automation, and programmability to transform the network core into an agile platform that unleashes new levels of efficiency for flexible service creation.

**MX Series 3D Universal Edge Routers**

To meet the requirements of data centers within a network, there may be a desire to use an energy-efficient lineup of routers, with models supporting various scales using the same architecture. The MX Series has built-in agility and can be easily upgraded at any point to provide strong scalability options when demand for even higher capacity arises in the future. This is especially crucial as network technology continues to advance daily.

MX Series 3D Universal Edge Routers are also a great example of how Juniper designs for power efficiency at the system, card, and component level, using a wide range of power-optimizing features:

- An Ambient Temperature knob lets customers align system cooling requirements to the actual conditions in their facility.
- Modular Interface Card (MIC) Aware Power Management gives customers provision line card-level power based on the actual installed MICs.
- Feature Aware Power Management gives customers provision power based on actual Modular Port Concentrator (MPC) configuration.

These features help customers align MX Series power configurations to their actual use case and can dramatically improve power efficiency and reduce power-related costs.
PTX Series Packet Transport Routers

PTX Series routers provide the platform for the Converged Supercore® architecture, a model for optimizing IP/MPLS core, peering, metro, and converged IP and optical networks. These routers are built for superior performance, optical transport integration, and elegant deployment. They support high-density 100GbE environments and offer industry-leading energy efficiency of less than half a watt per gigabit per second (Gbps).

With the launch of the PTX Series, we pioneered, among other ground-breaking achievements, record energy efficiency of 1.5 W per gigabit of throughput. Since then, we have continued to enhance the PTX Series, delivering market-leading energy efficiency of 1.2 W per gigabit of throughput in 2014, and further improving energy efficiency of 0.5 W per gigabit with the 3 Tbps FPC3 line card in 2015.

The environment will remain a focus area across multiple aspects of our business.
Juniper Networks sourcing and supply chain are outsourced to a worldwide network, the key elements of which are comprised of contract manufacturers (CMs), original design manufacturers (ODMs), component suppliers, warehousing and logistic firms, and recruiting firms. Our CMs and ODMs in all locations are responsible for all phases of manufacturing, from prototypes to full production, and they assist with activities such as material procurement as well.

Supply chain management and assurance are integral to our commitment to product integrity, customer service, and corporate responsibility—all of which uphold Juniper’s greater commitment to build more than a network. Our outsourced model provides a tremendous opportunity and responsibility to encourage the adoption of responsible business practices throughout the business.

Two overarching priorities drive our supply chain management approach: responsible and sustainable practices, and supply chain security and resiliency. These are growing in importance as more of our customers are requiring responsible sourcing practices and transparency throughout the entire value chain, and initiating audits to monitor compliance, including requests from members of the Joint Audit Cooperation (JAC). The JAC is an association of thirteen telecom operators with the common goal of raising social, environmental, and ethical standards across the Information Communication Technology (ICT) supply chain.

Responsible Sourcing

Juniper’s supply chain is an extension of Juniper’s operations, and as such, we select manufacturing partners and suppliers who share our values and goals. They are valued partners who are instrumental in helping us bring the most innovative solutions to market, accelerating the adoption and subsequent benefits of those solutions. We recognize that we have both a tremendous opportunity and responsibility to encourage the adoption of more responsible and sustainable business practices among our direct and indirect suppliers.

More than 90% of all suppliers are managed through a direct agreement and have been selected using sourcing strategies drafted in coordination with our engineering teams. In reviewing suppliers, we assess the potential risk—large or small—that each one could pose to our supply chain or product shipment protocols.

Our Supplier Management Program is based on several key elements, including:

- **Supplier Performance Evaluation:** Juniper has developed the Supplier Excellence Framework and Business Continuity Maturity Matrix to evaluate suppliers. Supplier performance is monitored through verification and audit mechanisms, and results of the monitoring are communicated during business reviews.

- **Verification and Audit:** Juniper conducts risk assessments and announced onsite audits of its CMs, ODMs, and critical partners to assess and evaluate their performance to Juniper standards.

- **Certification:** Each Juniper Networks supplier must certify compliance with Juniper’s Business Partner Code of Conduct, which addresses important corporate social responsibility standards and compliance requirements and is informed by the Responsible Business Alliance Code of Conduct and the Ten Principles of the United Nations Global Compact. 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 behavior.

Vetting and Monitoring Suppliers

Juniper seeks suppliers who are committed to fair labor practices, ethical human rights standards, and making a positive impact on society. As part of our vetting process for all new suppliers, Juniper uses an onboarding process that includes financials, compliance and risk assessments, and background checks.

During the course of our engagement, we monitor Tier 1 suppliers who represent at least 80% of our direct material expenditure and 100% of our CMs and ODMs to verify their level of compliance with the Responsible Business Alliance (RBA) and the Juniper Business Partner codes of conduct. Additionally, Customs-Trade Partnership Against Terrorism (C-TPAT) security audits are conducted at critical supplier sites. Monitoring activities include one or more of the following techniques: supplier self-assessments, risk assessments, declarations and certifications, and announced onsite audits. To evaluate the risk in our supply chain and that associated with individual suppliers, Juniper takes into consideration factors such as past audit performance, type of operation, level of partnership with Juniper, and risk level based on the geographic location of an operation or facility.

Announced onsite audits at our CM, ODM, and critical component supplier facilities are crucial to the success of Juniper’s supplier program. Annually, we conduct corporate social responsibility (CSR), security, and loss prevention audits at 100% of our CM
Supplies Chain and ODM facilities, and, based on risk assessment results and incident and performance trends, at select Tier 1 component and logistics supplier sites. Since 2015, we have formalized this process to better align with industry standards, including the RBA assessment and Validated Assessment Process (VAP). All audit findings are tracked to closure in accordance with our corrective action process, with priority focus placed on the following issues if identified, up to and including supplier termination:

- Management commitment to a business continuity program (BCP)
- BCP readiness in production, key personnel, and test equipment
- Selection and readiness of alternative locations
- BCP structure, documentation, and training

For each of these areas, suppliers are measured and tracked for their progress in driving from basics to world-class. Key elements that Juniper tests for include: the degree to which management is involved and committed to demonstrating world-class performance in BCP; how proactive is the supplier’s planning versus just reacting when a crisis occurs; and are key players who would be called upon in a crisis identified and do they know their roles during an event.

Juniper is starting to look beyond just Tier 1 suppliers to include Tier 2 and 3 suppliers in the audit process as well. The goal is to have more assurance and oversight of our supply chain, to continually monitor and drive performance improvements on CSR and security, and to uphold contractual and RBA membership requirements.

Juniper’s Business Partner Code of Conduct and Human Rights

The Juniper Business Partner Code of Conduct is woven into our contracts. It outlines our expectations for ethical business practices and compliance with laws; lays out our objections to human trafficking, involuntary servitude and child labor; and articulates our alignment with the RBA Code of Conduct on fair labor practices and human rights. Juniper has a zero-tolerance policy regarding child labor and forced labor. Further information on Juniper’s anti-human trafficking and modern slavery program is available in our annual disclosure statement.

We adopted the RBA Code of Conduct in 2007, and in 2015, we became an RBA member. The RBA provides guidelines and resources to drive performance and compliance with critical CSR policies 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. Juniper fully supports the vision, mission, and principles of the RBA and is committed to the industry’s collaborative approach in applying leading standards and practices throughout the supply chain.
Conflict Minerals
Conflict minerals, often referred to as 3TG, include columbite-tantalite (coltan), cassiterite, wolframite, and their derivatives tantalum, tin, and tungsten, and gold. They are also defined as minerals that are specifically determined to be financing conflict in the Democratic Republic of the Congo or an adjoining country. For more than five years, Juniper has been supporting the development of industry tools and programs that provide a common means to report and collect due diligence information on the source and chain of custody of 3TG through our membership in the Responsible Minerals Initiative (RMI) and the RMI’s predecessor.

We are committed to our continual engagement with our CMs, ODMs, and first-tier suppliers in order to advance their knowledge and capacity, so they can provide complete and accurate information on the source and chain of custody of 3TG used in the products provided to Juniper. Given our downstream position in the supply chain, such that we do not have any direct relationships with the smelters or refiners in our supply chain, we rely heavily on our first-tier suppliers to provide information about the sources of 3TG used in our routing, switching, and security hardware products.

We expect our suppliers to exercise due diligence, source responsibly from certified conflict-free smelters, and support Juniper’s compliance obligations, including trade compliance laws and trade restrictions from sanctioned entities and persons. More information on our disclosure of conflict minerals is available here.

CDP Carbon and Water Disclosures
As an extension of our own measurement and reporting on greenhouse gas (GHG) emissions and water usage, Juniper requests 100% of our CMs, ODMs, and those suppliers representing at least 80% of our consolidated total direct expenditure, to measure, disclose, manage, and reduce their carbon emissions and water consumption.

Specifically, we encourage these suppliers to disclose annually their performance and progress through CDP, which is a global standardized mechanism by which companies report their GHG emissions and water consumption to institutional investors and customers. For more than a decade, we have voluntarily disclosed our own climate and water impacts annually through CDP. Additionally, we were a founding member of the CDP’s Supply Chain program and have built a strong supplier engagement platform in order to drive disclosure and action on climate-related risks.

Supply Chain Resilence and Security
Because Juniper relies on contract and original design manufacturers from around the world, ensuring the integrity of their work as suppliers is of highest importance. The company implements a supply chain integrity program to ensure physical security, intellectual integrity, and customer confidentiality. We do so by conducting regular tests, disecting potential areas of vulnerability in the manufacturing process, and making improvements.

Juniper ensures that all components built into our systems are traceable and have process accountability, both of which improve component integrity. Those systems also create the means to do failure analysis on products or processes when quality problems arise. In fact, the same processes and tools meet a myriad of corporate objectives—from sustainability and social responsibility to supply chain continuity and security.

Because Juniper supplies more than 20,000 customers—including 47 of the Fortune Global 50, 44 of the top 50 global financial banks and insurance companies, and the world’s top five social media properties, as well as major telecom, cable, and cloud providers—we hold the authenticity and security of our products to the highest quality standards. We work with the United States and other governments around the world to meet and exceed security standards and ward off attempts by adversaries to influence the integrity of our products.

To thwart terrorists, the U.S. government and the European Union have established standards via C-TPAT, a voluntary supply chain security program led by U.S. Customs and Border Protection that is focused on improving the security of private companies’ supply chains with respect to terrorism. In our commitment to build more than a network, Juniper has incorporated these standards and security requirements into our supply chain management. Juniper’s supply chain security program complies with the C-TPAT and Authorised Economic Operator (AEO) Program in the European Union. Implementing these security standards in the import supply chains not only enhances the security of cargo entering the U.S. and the European Union, but also shortens customs clearance times and results in fewer customs inspections, reducing the time to customer.

Supply Chain Risk Management
To evaluate potential risks within our supply chain, Juniper proactively maps and monitors our global network of suppliers. Doing so empowers us to better respond to supply chain occurrences and proactively prepare for any what-if situations that may arise.

To improve our global supply chain resiliency and maintain business continuity, Juniper implemented a supply chain risk management system. The system monitors 365 different types of events that are destabilizing, such as natural disasters, labor strikes, factory fires, political upheaval, or power outages; and tracks the products, parts, and revenue that would potentially be impacted. This information, coupled with data collected from key suppliers that maps components to production factories, 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. Additionally, 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.

We are currently developing a customized risk score at the component and product level, modeling the risk to our finances and business continuity, which we plan to introduce in the near future. The information gleaned from it will help us when developing new products as the risk to the supply chain is more important at earlier stages. The matrix profile gives us clear definitions on how to get to each next step.

**Supply Chain Security**

Our strategy regarding supply chain security is three-pronged: we focus on brand integrity rather than brand protection; we are customer focused; and we take a life-cycle approach.

Brand integrity is proactive, whereas conventional brand protection strategies tend to be reactive. In conventional brand protection, for example, the focus would be on identifying and investigating counterfeit products and tracking down the criminals. This approach does not address the root causes or conditions that allowed counterfeit products to enter the marketplace in the first place. Brand integrity requires life-cycle threat modeling that identifies and proactively addresses weak points, from product development through production to shipping and warehousing.

Given that our primary manufacturing partners are global companies with factories all over the world, including the U.S., Mexico, Malaysia, and China, we conduct a detailed analysis on the ability of a foreign government or foreign entity to impact the activities at a facility, no matter where it is located.

On behalf of our customers, we carefully manage and audit:

- Whether those products are authorized by the manufacturer
- Our requirement that suppliers contract only from authorized channels
- The documented origin of the product and who has touched the product in the distribution process
- Whether the legitimacy of the product has been confirmed with the manufacturer

When the design and production processes are largely invisible and the resulting output is boxed products, it is difficult to have a high level of certainty that nothing has been compromised or corrupted. To mitigate this process challenge, Juniper breaks the product life cycle into smaller and more transparent pieces, each of which is tested for potential weaknesses. All component parts are evaluated according to the importance of their security to a Juniper product. Level A goods that impact the security of programs or products undergo greater scrutiny and control over their supply chain and shipping security.

Juniper’s supply chain program is evolving quickly as we work with industry partners, customers, and governments to identify new and emerging risks, and collaborate on best practices to mitigate those risks.
Our Employees

Every day at Juniper, we are helping our customers build high performing networks through our products and solutions. We embed sustainability into our approach to design, helping to reduce product life cycle impacts, including the energy footprint of Juniper products.

We apply this same sustainability mindset to our own operations in order to identify opportunities that help us reduce our energy usage, greenhouse gas (GHG) emissions, waste to landfill, and water usage. Our aim is to make our facilities less resource-intensive, more cost-efficient, and ultimately more sustainable for the long term.

To ensure that we are advancing our sustainability performance, we use data management systems that allow us to accurately and efficiently collect data in key impact areas. And we participate in the CDP annual reporting process, making our energy usage, GHG emissions, and water usage data publicly available.

Energy

We recognize that our biggest opportunity to reduce our operational energy footprint is to focus not only on Juniper’s facilities, but specifically on the labs, which account for approximately 80%-90% of the company’s global energy usage. Of that, Juniper’s Sunnyvale, California, and Bangalore, India, facilities are the two largest consumers.

Several years ago, we transformed Juniper’s headquarters in Sunnyvale, and moved a large portion of the administrative and lab operations into Juniper-owned LEED-certified Platinum and Gold buildings. In 2014 and 2015, we closed two leased properties at this same location and relocated those labs (300,000 square feet of space) to a more energy-efficient data center in Washington State (Geo-DC).

Following on the success of the Sunnyvale campus effort, in Bangalore, Juniper opened a new nine-story office building for the India Excellence Centre (IEC) in 2016. Among the building features and strategy to support an R&D environment, large labs were consolidated onto a single floor with a much more efficient mechanical and electrical infrastructure to reduce energy usage and impact on land.

Overall, we have been working to implement a granular energy monitoring platform and a remote-control system for our labs and facilities. Our intent is to establish detailed benchmarks for energy use, set site and lab specific targets for curbing consumption, and identify opportunities for increasing efficiency. Additionally, the quantitative data facilitates communication with the end-user groups of Juniper’s largest lab communities. As part of Juniper’s energy demand strategy, the intent is to build an energy awareness culture and drive behavioral change towards the resources used within the lab environments.

An array of energy efficiency measures has been launched at various Juniper campuses, from outside air economization and LED lighting, to motion sensor controlled lighting and peak demand management. And in 2015, Juniper adopted the U.S. Environmental Protection Agency’s ENERGY STAR Guidelines for Energy Management as a blueprint to design a strategic energy management program. We have one employee dedicated solely to tracking and decreasing our energy use even as we continue to grow.

We also initiated an automated power management tool and installed metering.

- **Automated Power Management Tool:** Juniper has implemented an automated power management solution through a Lab Resource Manager (LRM). The tool is used in select engineering and customer service labs in Beijing, Bangalore, Westford, and Sunnyvale to identify inactive equipment in the labs and shut them down to prevent continuous energy use. Given how energy-intensive our labs are, implementing an automated power management solution has been an important and strategic step.

In 2015, this power management feature saved Juniper about $1.6 million in utility spend and reduced Juniper’s global electricity consumption 12%.
• **Metering:** We have made consistent progress in installing metering systems to help us understand the energy use of various spaces in buildings. Most of the lab spaces in the Netherlands and the new campus in India have sub-metering infrastructure. It is now standard for all new labs.

### Buildings Designed for Energy Efficiency

When we set out to design and build Juniper’s new 635,000 sq. ft. corporate campus in Sunnyvale, California, it was an opportunity to create an environment that embodied The Juniper Way. The corporate campus houses an Executive Briefing Center, Proof of Concept labs, R&D engineering labs, R&D workplace, a cafeteria, and general office space. The resulting two buildings on the campus, one LEED-certified Platinum and the other LEED-certified Gold, are a striking combination of environmentally preferred materials and energy-efficient systems.

To fully appreciate the design of these buildings, they must be seen for the deep integration of Juniper’s own enterprise networking technology. Not only does this networking technology monitor and keep all the buildings’ systems running as efficiently as possible, but it also provides a platform for other critical energy optimization, conservation, and life safety systems.

**Juniper’s Sunnyvale LEED-certified Gold building**

The consolidation that took place recently at Juniper’s Bangalore IEC campus provided another opportunity to implement new energy efficiency and sustainability features. These features were tested and proven at Juniper’s Sunnyvale campus, including technologies that reduce the Bangalore campus’ reliance on an unstable energy infrastructure.

In global operations, Juniper has invested in equipment and policies to reduce energy demand, including lighting and cooling. In the labs, air conditioning has been modified to prevent local adjustments of temperature set-points, now all managed centrally: the increased set-point temperature of cold aisles has reduced the cooling load; hot aisle containment has been implemented; blanking plates deployed; and air-side economizers in Sunnyvale, Westford, and Amsterdam reduce cooling demand with supplemental external cold air.

### Juniper’s Overall Energy Footprint

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Electricity Consumed (MWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>209,474</td>
</tr>
<tr>
<td>2014</td>
<td>235,574</td>
</tr>
<tr>
<td>2015</td>
<td>239,465</td>
</tr>
<tr>
<td>2016</td>
<td>253,929</td>
</tr>
</tbody>
</table>

The reported total electricity consumption represents energy use from facilities with R&D labs, server labs, and customer support labs. Based on a global review of energy consumption across Juniper facilities and the use of assumptions and extrapolations to estimate total energy use for locations with unknown information (primarily due to lack of granular data associated with Juniper-leased spaces), it was identified that locations with labs have significantly higher energy use. The aggregate energy consumption of locations with labs represents 80%-90% of total global energy use. Therefore, Juniper leased and owned spaces without labs are not included in these numbers.

### Alternative Power Sources

Juniper has implemented several strategic initiatives to reduce the company’s overall environmental impact due to energy consumption, including the use of renewable and low carbon energy sources.

**Hydropower**

In May 2015, Juniper’s board of directors approved a proposal to build a 1500-rack data center-style lab in a secure, low-cost location to consolidate labs from Sunnyvale and other U.S. locales. The Geo-DC facility, opened in the second quarter of 2016, houses IT and engineering infrastructure, Global Lab Operations operated-labs, the Customer Support Services Ultra Lab, and other go-to-market rack labs.

Quincy, Washington, the location of the new facility, was chosen for several reasons. Power outages are rare, with a 99.99% annual average reliability. The area is relatively free of natural disasters such as floods, earthquakes, tornados, landslides, and hurricanes. Most importantly, electricity is approximately half the national average cost, and 78% is generated by hydropower. The Geo-DC was awarded the U.S. Environmental Protection Agency’s 2017 Energy Star certification with a score of 100 points, the highest possible score.

Phase I of the Geo-DC project was executed successfully in 2016 and met the original objectives to mitigate the risk of energy rate increases, support a productive R&D environment, and improve the GHG emissions profile of Juniper’s operational energy sources. Based on collected energy, GHG emissions, and utility costs data, a substantial strategic decision was made in 2016 to proceed with Phases II and III of additional electric load shift from Juniper’s Sunnyvale headquarters to the Geo-DC.
Solar and Fuel Cells

When it comes to alternative energy, Juniper’s Sunnyvale campus leads the way with a variety of renewable and low carbon energy options. To reduce demand on the grid, we have invested in onsite photovoltaic and fuel cell systems that allowed the Sunnyvale campus to generate 613 MWh of energy in 2016 and 588 MWh of energy in 2015, which represented about 8% and 7% of Sunnyvale’s total electricity consumption respectively. In addition, a small 30 kW co-generation system heats water for showers and the cafeteria.

In Bangalore, Juniper executed a power purchase agreement with two suppliers of solar power, Atria Brindhavan Power Pvt. Ltd and Clean Max Enviro Energy Solutions Pvt. Ltd. Under this program, 45% of Bangalore’s total energy consumption will be procured from solar sources. Using renewable energy instead of conventional power will greatly reduce greenhouse gas emissions. Both agreements will last 10 years.

Greenhouse Gas Emissions

Juniper has worked with CDP for more than a decade and been reporting to CDP since 2004. CDP advises businesses on how to improve sustainability practices through the collection of self-reported data on climate change, water, and forest risk, and it has helped Juniper identify opportunities to better measure and manage the company’s GHG footprint and improve energy efficiency. For comprehensive reports on Juniper’s climate change and GHG management program, please refer to the CDP disclosures.

We have two opportunities to cut carbon emissions: through our own facilities and operations, and through the design of the products we sell that can help our clients reduce their emissions.

CDP A List

Juniper is proud to have been recognized in 2014 and 2015 on CDP’s A List. The annual CDP Climate Performance Leadership Index identifies companies around the world that are doing the most to combat climate change. The index is produced at the request of 767 investors who represent more than one-third of the world’s invested capital and are interested in the economic return on reducing emissions.

Scope 1 and Scope 2 GHG Emissions

In 2013, Juniper collected GHG emissions data from all sites with a headcount over 100, which represented close to 94% of our estimated impact. Beginning in 2014, Juniper updated the boundary for Scope 1 and 2 GHG emissions to account for Juniper spaces with lab operations. This decision was made after a global review of energy consumption across Juniper facilities showed that aggregate energy consumption of locations with labs had the largest energy footprint and accounts for 80%-90% of the total energy consumption.

We also recognized that the vast majority of Juniper’s emissions are from purchased electricity to power our operations: Scope 2 emissions. The investments we have made—and continue to make—in energy efficiency measures are mostly aimed at reducing our Scope 2 emissions. For instance, the Automated Power Management Tool we implemented in our labs is estimated to save 7500 metric tonnes of CO2e annually. The data center consolidation project, which included reducing global rack count and, therefore, decreasing power usage, is estimated to reduce 2500 metric tonnes of CO2e. These initiatives helped decrease emissions in 2014, 2015, and 2016.

At the end of 2016, we established a 5% absolute reduction target for Scope 1 and Scope 2 (market-based) GHG emissions by 2020, based on our 2011 baseline (92,864 metric tonnes of CO2e). We are looking to establish a science-based Scope 1 and 2 emissions target within the next two years. Additionally, for the first time we established a Scope 3 emissions target focused on employee commute, a 20% reduction target by 2025, based on our 2015 baseline (22,247 metric tonnes of CO2e).

Juniper’s 2013–2016 GHG Emissions Profile

<table>
<thead>
<tr>
<th>Year</th>
<th>Scope 1</th>
<th>Scope 2 (Market-based)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>94,822</td>
<td>4,081</td>
</tr>
<tr>
<td>2014</td>
<td>77,236</td>
<td>3,482</td>
</tr>
<tr>
<td>2015</td>
<td>121,191</td>
<td>4,302</td>
</tr>
<tr>
<td>2016</td>
<td>99,800</td>
<td>4,669</td>
</tr>
</tbody>
</table>

Note: Calculations performed using the World Resources Institute GHG Protocol

Direct (Scope 1) emissions from operations that are owned or controlled by the organization.

Energy Indirect (Scope 2) emissions result from the generation of purchased or acquired electricity, heating, cooling, and steam consumed within the organization.

The reported GHG emissions inventory scope includes only facilities with R&D labs, server labs, and customer support labs.

<table>
<thead>
<tr>
<th>Scope 3</th>
<th>Metric Tonnes CO2e</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units of Measure</td>
<td>2013</td>
</tr>
<tr>
<td>Scope 3</td>
<td>97,205*</td>
</tr>
</tbody>
</table>

Note: Calculations performed using the World Resources Institute GHG Protocol. Other Indirect (Scope 3) emissions are all indirect emissions (not included in Scope 2) that occur outside of the organization, including both upstream and downstream emissions.

*Calculations did not include purchased goods and services.
Scope 3 GHG Emissions

The biggest impact to our overall carbon footprint comes from Scope 3 emissions—activities outside of our direct operations such as business travel, employee commuting, distribution of our products, and the emissions resulting from our suppliers’ operations.

As reported in the Supply Chain section, Juniper has established clear expectations for suppliers to measure and disclose their GHG emissions, preferably through CDP. In recent years, an increasing number of our suppliers have begun disclosing, making it possible for Juniper to include their emissions in our Scope 3 disclosures, specifically associated with purchased goods and services. We collect 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. For calendar year 2016, 102 responding suppliers allocated 310,250 metric tonnes of CO2e to Juniper, compared to 93 responding suppliers allocating 51,751 metric tonnes of CO2e for calendar year 2015. We are hopeful that through better measurement and disclosure, our suppliers will identify opportunities to reduce their emissions, share collaborative opportunities, and, ultimately, manage the overall emissions footprint across the entire value chain.

Employee Commuting

Janiper surveys employees each year on their commuting methods and, through the Juniper Networks Employee Transportation Program, encourages them to use alternative methods of transit to work. Our goal is to reduce the number of single passenger auto trips and to utilize mass transit, bicycling, and car sharing on a grander scale.

To achieve our goal and 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 awards for cycling into work. These incentives vary by geography.

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.

Through these efforts, we have been successful at getting many employees to adopt more environmentally preferred modes of transport. In 2016, we reduced Scope 3 emissions from employee commute by 3% compared to 2015.

Water

Juniper’s comprehensive Environmental, Health, Safety, and Security Policy outlines goals for resource use and conservation. Our operational goal is to use water as efficiently as possible and to use reclaimed water where possible. Additionally, Juniper has adopted the Responsible Business Alliance (RBA) Code of Conduct, which outlines standards for water use, discharge, and conservation.

Our LEED-certified buildings in Sunnyvale are equipped with low-flow fixtures. Our investments in water-efficient fixtures in restrooms save 30% of the water used in comparison to typical office buildings. Water used for our toilets, urinals, and landscaping is all from reclaimed water, which is former wastewater. It comes from a separate local renewable supply that does not deplete the area’s limited potable water supply.

We have partnered with Waterfluence, a local landscape efficiency consultant, to measure water usage for buildings in our Sunnyvale headquarters. Waterfluence reports give us information about our water consumption, helping our landscaping vendor keep the site as water-efficient as possible. Our landscaping was specifically designed for maximum water efficiency. Approximately 55% of the plants on campus are drought-tolerant species. Drip irrigation systems feed almost all areas except the turf, which is supplied by the more efficient rotor-style irrigation wherever possible.

Juniper’s water efficiency and conservation practices were critical to achieving LEED Platinum and Gold certifications for our Sunnyvale campus. These practices also contribute to our eligibility for the Bay Area Green Business certification. Independent third-party certifications, like LEED, ISO 14001, and Bay Area Green Business, affirm our commitment to conservation and corporate citizenship to interested stakeholders, including customers, employees, investors, and regulators.

We gather data annually from our major facilities (of more than 100 employees) in China, India, Singapore, Japan, the Netherlands, and the U.S., where the primary potable water uses are for canteen and breakroom operations and cooling systems. What is clear from the data is that despite our enduring commitment to reduce water through various conservation measures, our usage continues to increase, with a large increase in 2016. In 2016, the spike in the data is due to a higher transparency in information for the facilities within the reporting scope, specifically leased, shared spaces.

For comprehensive reports on Juniper’s water management program, please refer to the CDP disclosures.

<table>
<thead>
<tr>
<th>Water Use (in megaliters)</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Use</td>
<td>116</td>
<td>164</td>
<td>179</td>
<td>790</td>
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</table>
People and Communities

Our Employees

At Juniper, we believe in the power of the network to connect lives in previously impossible ways—it’s what we mean when we talk about building more than a network. The physical network and collective expertise of our employees form the basis of our innovation, and it’s important to our success that each employee be treated with integrity and respect. We strive to make Juniper a world-class place to work—one that offers opportunity for professional growth and aligns closely with our core values embodied in The Juniper Way.

We make a MEANINGFUL DIFFERENCE

We pursue BOLD ASPIRATIONS

We deliver EXCELLENCE

We are TRUST AUTHENTIC

Professional Development

Professional development at Juniper is, by design, untethered from traditional approaches to performance management and career progression. Following our decision to eliminate written performance reviews and ratings, we implemented an intuitive set of goals and measures for employee performance, a platform we call Talent Matters.

Through Talent Matters, we have helped change the relationship between managers and their direct reports, ensuring that they are interactive and supportive of both the company objectives and the needs of the individual. The Talent Matters Framework was created to help managers and employees better understand the overall role they play in the organization. Managers are encouraged to schedule a “Conversation Day” and use the Framework to talk to their employees about the contributions and connections they are making, identify opportunities for the company to better support them, and ultimately, increase the level of engagement employees have with the company.

Since it originally launched in 2010, participation in Talent Matters has grown, with many more employees developing competencies within all four dimensions of our talent framework (a designation we refer to internally as being a “J-Player”).

Dimensions of the Talent Matters Framework:

“Career” refers to the degree to which each colleague has professional interests aligned with our vision and is highly motivated by the purpose of our work.

“Capabilities” refer to the degree to which each colleague has, applies, and grows the capabilities required for success in his or her role and to scale for the future.

“Connections” refer to the degree to which each colleague creates and fosters collaborative, productive, and energy-generating relationships modeling our value system—the Juniper Way.

“Contributions” refer to the degree to which each colleague makes progress against goals relative to expectations, enabling Juniper to “Win in the Marketplace.”

Training and Development

Continuous learning positively impacts personal and professional growth. With this thought in mind, in 2015, we made a major shift to the HR learning programs offered at Juniper. Prior to 2015, we focused solely on global managers and supporting the climate drivers of Innovation, Execution, and Engagement. Starting in 2015, we shifted to offer courses to both individual contributors and managers. By partnering with a global training vendor that aligned with our business needs, this allowed us to offer a broader range of content to everyone across the globe to focus on professional and interpersonal skills for all employees.

In 2016, multiple learning teams came together to streamline and connect the various learning programs and options in an effort to make it simpler for employees to access and find their learning in one place. The result was a new corporate learning management system and a significant user experience upgrade, making it easier to find assigned courses and search for content. Juniper’s learning program is evolving to support a continuous learning journey that meets the needs of employees globally.

Each year, Juniper employees receive instructor-led and computer-based training on topics such as human rights, environmental performance, compliance with the Juniper Worldwide Code of Business Conduct, and other compliance and industry-specific subjects. On average, Juniper employees
received 0.6 hours of instructor-led training in 2014 and 2.1 hours in 2015. In addition, Juniper employees received an average of 15.1 computer-based training hours in 2013; 71.1 hours in 2014; and 34.2 hours in 2015.

Juniper also provides tuition assistance and leadership courses to promote continuing education among employees.

Employee Benefits and Workplace Environment

We regularly assess the competitiveness of our benefits, from medical coverage to retirement savings and beyond. This process helps us meet and often exceed the standards set by the best practitioners in our industry. For example, we provide the same benefits to both full-time and part-time employees, allowing them to achieve greater work-life balance. Part-time employees are defined as employees who work less than the standard work week for the countries where Juniper has established entities. In addition to offering a comprehensive and competitive benefits package designed to meet employee needs, we seek to understand what our employees value and are passionate about.

In 2013, we relaunched our “Climate Survey,” a tool that helps us assess employee satisfaction. In 2015, we conducted a survey and followed up with focus groups to assess employee preferences for different components of the total rewards package, including benefits. This enabled us to make enhancements to our total rewards package in 2016, such as the addition of 16-week paid parental leave post birth or adoption. We also formalized our policies for global job sharing and flexible work options to offer more choice about where, when, and how our employees work, which we believe will increase productivity and employee well-being.

Diversity and Inclusion

Diversity and inclusion encompasses our commitment to creating a highly diverse and inclusive workplace, where all Juniper colleagues are empowered to do their best work. We believe diverse perspectives are essential to solving complex challenges. And to remain competitive, Juniper requires the innovative thinking and creative problem solving of the world’s top talent—a cross section of individuals of all races, genders, sexual orientations, age groups, and religious affiliations.

Specifically, Juniper has made it an important part of our recruiting and citizenship strategy to increase representation of women and communities of color within our science-, technology-, engineering- and math-intensive (STEM) industry, where such representation has historically lagged behind other disciplines. During the reporting period, Juniper has made commitments through groups like the Clinton Global Initiative, the Anita Borg Institute, and Catalyst to increase the number of women and girls in STEM, with an emphasis on supporting African American, Hispanic, and Pacific Islander communities.

Spotlight on Anita Borg Institute Conferences

Each year, the Anita Borg Institute—a social enterprise founded on the belief that women are vital to building technology that the world needs—holds a Grace Hopper Celebration (GHC) of Women in Computing. The GHC is the world’s largest gathering of women technologists, and Juniper encourages employees to take part in this convening of leadership among women in STEM. Juniper employees learn from conference speakers and are able to take advantage of numerous networking and mentoring opportunities. Our executives have been featured speakers at the Grace Hopper conference. Year over year, more Juniper employees are attending the GHC—with 12 participants in 2013; 25 in 2014; 70 in 2015 and 2016; and 76 in 2017. In addition, we are a Platinum Partner of the Anita Borg Institute and the Grace Hopper conference.

Our internal messaging focuses on increasing cultural awareness and reiterating the importance of diversity and inclusion as core values. We reinforce this messaging and our commitment to a diverse and inclusive workforce through our trainings for our employees and inclusion workshops led by Catalyst Inc. and Watermark. For example, we implemented “How to be an Ally” workshops via Catalyst for the LGBTQ community and Unconscious Bias workshops via Watermark and Catalyst.

Global Health, Safety, and Security

Juniper’s Environmental, Health, Safety, and Security Policy articulates our commitment to maintain healthy, safe, and secure working conditions—a workplace in which our employees are treated with respect and dignity—and to ensure that our products and operations are environmentally responsible.

Our global environmental, health, safety, and security management system is the framework we use to identify opportunities to reduce or eliminate potential hazards, risks, and negative impacts to our employees, communities, and the environment. It is developed and implemented in conformance with the OHSAS 18001 and ISO 14001 standards. Juniper’s Sunnyvale facility maintains a certified ISO 14001 system, and the Amsterdam facility is ISO 14001 and OHSAS 18001 certified. Additionally, we comply with all local rules and regulations, such as the U.S. Department of Labor’s Occupational Safety and Health Administration (OSHA) requirements.

The Corporate Environmental, Health, Safety, and Security Department (EHSS) is responsible for the delivery, management, and monitoring of the performance of Juniper’s EHSS management system. Juniper has formal safety committees in all locations with a headcount of 50 or more and in locations required by law, representing nearly 80% of our office-based workforce. In addition, the EHSS Department is authorized to conduct corporate environmental, health, safety, and security investigations on behalf of Juniper’s management and report investigative findings and recommendations to the appropriate management personnel.
An important metric we use to track performance on workplace safety is our Total Recordable Injury Case Rate, which has been decreasing. There has not been an incident of fatality or significant fine for noncompliance with laws and regulations relating to health and safety. All injuries and incidents, including near-misses, are investigated and corrected to prevent recurrence.

**Total Global Recordable Injury Case Rate**

<table>
<thead>
<tr>
<th>Year</th>
<th>Rate</th>
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<tbody>
<tr>
<td>2013</td>
<td>0.34</td>
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<tr>
<td>2014</td>
<td>0.24</td>
</tr>
<tr>
<td>2015</td>
<td>0.23</td>
</tr>
<tr>
<td>2016</td>
<td>0.19</td>
</tr>
</tbody>
</table>

Global Recordable Injury Case Rate (number of employees per 100 full-time employees that have been involved in a recordable injury or illness)

**Community Engagement**

Juniper’s community engagement efforts are focused on improving the quality of life for the next generation. We believe we can best make an impact by closely aligning with our mission to connect everything and empower everyone. Juniper is a company built on innovation, and we believe in supporting innovative philanthropic programs that create a network of opportunities for future generations.

Specifically, we support communities where we have the greatest presence of employees, customers, and partners. Our giving is centered on the Juniper Networks Foundation Fund, employee volunteer programs, matching gifts, and disaster relief.

**Juniper Networks Foundation Fund**

The Juniper Networks Foundation Fund (JNFF) is the centerpiece of our company’s community engagement and financial support. Over the past 16 years, the employee-directed JNFF has awarded more than $16 million (USD) in grants to support more than 560 nonprofit organizations that are making a meaningful difference around the world, with more than $13 million (USD) to nonprofit STEM partner organizations. During this time, we have maintained a strong focus on K-12 STEM education programs, targeted especially at girls, the underprivileged, and underrepresented students.

Each recipient of a JNFF grant supports Juniper’s goal of helping to shape the next generation of innovative and capable STEM talent. In 2016, the Juniper Foundation approved grants for the following organizations:

- In Bangalore, Juniper’s smart village initiative, Project AshaKirana, was formally launched in Orohalli earlier this year after more than a year in development. Project AshaKirana strives to transform the lives of the people in Orohalli with interventions in education and healthcare. Our colleagues at the India Excellence Centre recently got involved with the village by volunteering at their summer camps.
- In Europe we are working closely with Apps for Good. Apps for Good aims to grow a new global generation of problem solvers and tech entrepreneurs in both girls and boys by transforming and challenging the way technology is taught in schools. The Juniper Foundation recently funded a grant to support course development to improve software technical proficiency. With this work, we are expanding our European charitable footprint as more than 850 schools have signed up to deliver the Apps for Good program across the UK alongside growth in Spain, Poland, Portugal, and the United States.
- In the U.S., we are working closely with four nonprofit organizations that truly exemplify the benefits of STEM education. The following organizations have received a $20,000 grant from the Juniper Foundation.
  - Located in East San Jose, California, Cristo Rey provides very low-income, urban, minority students with a rigorous college-prep education, preparing them to graduate from both high school and college. Funding supports the Blended Learning Program (BLP)—an educational model that delivers math content and instruction via digital and online media, giving students who are typically two years behind their peers control over time, place, or pace, while orienting students in the use of technology.
  - Girls Who Code has been working to close the gender gap in technology since 2012. With its summer immersion program and coding clubs, this organization leads the movement to inspire, educate, and equip young women with the computing skills to pursue 21st-century opportunities. Funding supports the coding club, which brings computer science education to 6th through 12th grade girls via after school programs.
  - Level Playing Field Institute (LPFI) is committed to eliminating the barriers faced by underrepresented students in STEM. Funding supports the Summer Math and Science Honors Academy (SMASH) program, which provides rigorous, intensive, and long-term STEM education for high school underrepresented youth in California.
  - New Jersey Institute of Technology (NJIT) encompasses education, research, economic development, and community service. Funding supports the Future Ready Schools—New Jersey Program, which promotes digital learning readiness in schools throughout New Jersey.
  - Juniper has also provided over $650,000 (USD) of employee matching funds, awarded $50,000 (USD) of scholarships for students majoring in STEM, and donated one million pounds of food to Second Harvest.
Volunteer Programs
As part of the commitment to building more than just a network, we encourage employees who are passionate about community service to make a positive difference within those communities where they live and work. Juniper supports and provides its employees with volunteer opportunities for up to 40 hours a year per employee. In 2013, Juniper launched a new internal volunteer platform called Community Connect, in which employees can search, locate, and sign up for volunteer opportunities in their region. Some examples of local volunteerism initiatives during the reporting period include:

- Sunnyvale Juniper volunteered time to the Resource Area for Teaching (RAFT) and Sunnyvale Community Services. With more than 100 volunteers, team Juniper built 900 STEM education kits which will support 3600+ students locally. Juniper’s engineering team came together to pack 600+ bags of groceries for low-income families and senior citizens. These recipients are often one bill away from hunger and homelessness.
- The “Do Good Bus.” Lowell, MA. The Juniper team worked with “The Wish Project” in Lowell to provide people in need with basic furniture, clothing, home and baby goods through reusing and recycling.
- Hackathon to Support Student Innovation. Bridgewater, NJ. As part of Juniper’s OpenLab Innovation hub, employees volunteered to mentor, train, and provide feedback on the solutions developed by dozens of students from a handful of regional schools. At the end of the event, employees awarded a $1,000 fellowship award on behalf of Juniper Networks.

Global Citizenship
As a global company whose operations extend into both developed and developing economies throughout the world, Juniper recognizes its responsibility to rally support for regions and communities affected by natural disasters. Between 2013 and 2016, Juniper provided nearly $150,000 in funding to support disaster relief efforts in nine countries: India, Philippines, Serbia, Croatia, Bosnia, Nepal, Argentina, Colombia, and Japan. Specifically, the JNFF supported the following disaster relief efforts:

- India. Uttarakhand, Bangalore. To support the victims from the devastating Uttarakhand floods in India, approximately 700 Juniper employees in Bangalore participated in a Juniper-organized 5k. In the end, the participants raised roughly $110,000 for the cause.
- Balkans. Southeast Europe. The JNFF made a $5,000 donation to the Novak Djokovic Foundation, an organization that led an effort for the reconstruction of schools in Serbia, and aided post-flood recovery activities throughout the region.

Volunteering in India: Smart Village Initiative
Just 30 kilometers from Bangalore, India, is a village called Orohalli. Here the residents lack access to clean water and indoor plumbing, a well-equipped hospital, and an educational infrastructure to school their children. The poverty in this village is overwhelmingly evident, yet not far away, global technology companies are developing life-changing products.

Approximately 70 percent of India’s population lives in villages much like Orohalli. Despite the challenges of these remote places, we believe there are opportunities to build smart villages where technology and network connectivity can promote development and a higher quality of life. And we have started to do just this in Orohalli.

Specifically, the Juniper Networks corporate social responsibility team in Juniper’s India Excellence Center has forged an enduring connection with the Orohalli people. Working with NGOs, they have visited Orohalli and established a partnership to create a plan that rests on four priorities:

- Student Innovation Event at San Jose State University, San Jose, CA. Hosted by the San Jose State University College of Engineering, this program provided students with the opportunity to partner directly with Juniper engineers to apply their skills and knowledge to solve real-world engineering problems. In addition to being mentored by Juniper volunteers, select winners were eligible for summer internships at Juniper Networks and other prizes.

education, healthcare, creating occupational opportunities, and ultimately using network connectivity to tie these things together.

“We’re taking baby steps,” says Pallavi Mahajan, a senior software engineering director and Juniper veteran. “Clean water to drink, education for kids so they don’t have to drop out, and hygiene for newborns and pregnant moms.” Another target is providing sources of renewable electricity, using methods such as rainwater harvesting and solar energy. Garbage disposal, too, is a critical need.

“Addressing these areas first is helping the village become self-reliant,” Mahajan explains. “Network technology is coming next.” Within five years, the Juniper team expects that Orohalli will be self-sustaining in terms of its economy, education, and healthcare—with promising futures for the children as connected citizens of Digital India.
## Appendix I—Material Topic and Material Aspects

<table>
<thead>
<tr>
<th>CCS Material Issues</th>
<th>Level of Priority</th>
<th>G4 Categories and Material Aspects</th>
<th>Specific Standard Disclosures</th>
<th>Relevance of Issue to Company and Stakeholders</th>
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</thead>
<tbody>
<tr>
<td><strong>Product Sustainability</strong></td>
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<tr>
<td>Waste Reduction—Products and Services</td>
<td>Moderate</td>
<td>Environmental (EN):</td>
<td>EN27: Extent of impact mitigation of environmental impacts of products and services</td>
<td>Every product has an environmental footprint. Some environmental impacts can be mitigated during the product design phase, when feasible alternatives can be evaluated and applied. Juniper employs an eco-design approach, which enables it to assess potential impacts and solve for them early on—from preferred material choices to planning for more sustainable end-of-life solutions.</td>
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<tr>
<td></td>
<td></td>
<td>– Products and Services (EN27)</td>
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<tr>
<td>Hazardous Substances in Products</td>
<td>High</td>
<td>Environmental (EN):</td>
<td>EN29: Monetary value of significant fines and total number of non-monetary sanctions for noncompliance with environmental laws and regulations</td>
<td>Certain chemicals found in products pose risks to human health and/or the environment. Juniper partners with suppliers to comply with various international environmental standards, such as the Restriction on Hazardous Substances (RoHS) Directive, and the Waste Electrical and Electronic Equipment Directive (WEEE), which is focused on reducing or restricting the presence of hazardous materials or ozone depleting substances in products. Juniper is taking a proactive approach by removing lead from the majority of its products, and it is working to find alternatives to substances which may be legally permitted in some countries but could be harmful to human health and the environment.</td>
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<td></td>
<td></td>
<td>– Compliance (EN29)</td>
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<td>Energy Consumption and Greenhouse Gas</td>
<td>Moderate</td>
<td>Environmental (EN):</td>
<td>EN7: Reductions in energy requirements of products and services EN17: Other indirect greenhouse gas emissions (Scope 3)</td>
<td>Juniper products consume energy and therefore have a GHG footprint. Greenhouse gases are known contributors to climate change which affect the environment and society at large. Through virtualization and data center consolidation, Juniper’s products are designed to consume less energy, thereby generating a smaller GHG footprint. As an early pioneer of energy efficiency standards for networking equipment, Juniper has collaborated with like-minded organizations to help define and standardize industry energy efficiency metrics.</td>
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<td>(GHG) Emissions Resulting from Product</td>
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<td>– Energy (EN7)</td>
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<tr>
<td>Usage</td>
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<td>– Emissions (EN17)</td>
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<td><strong>Supply Chain</strong></td>
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<tr>
<td>Business Continuity—Supply Chain</td>
<td>High</td>
<td>N/A</td>
<td>N/A</td>
<td>The Juniper supply chain is vast and complex. It includes hundreds of suppliers across the globe that can be impacted by unexpected events, such as natural disasters, civil disturbances, power outages, and labor strikes, among others. When a significant event occurs, there is the potential for business to be disrupted. Juniper continually assesses and manages for this risk to ensure that its supply chain remains resilient and can withstand potential disturbances while maintaining operations.</td>
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<tr>
<td>Energy and GHG Emissions</td>
<td>Moderate</td>
<td>Environmental (EN):</td>
<td>EN7: Reductions in energy requirements of products and services EN17: Other indirect greenhouse gas emissions (Scope 3)</td>
<td>The biggest impact to our overall carbon footprint comes from Scope 3 emissions—activities outside of our direct operations such as distribution of our products and the emissions resulting from our suppliers’ operations. Engagement with our suppliers is critical to drive improved measurement, monitoring and disclosure, identify collaborative opportunities, and ultimately, manage the overall emissions footprint across the entire value chain.</td>
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<td>– Energy (EN7)</td>
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<td>– Emissions (EN17)</td>
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<td>CCS Material Issues</td>
<td>Level of Priority</td>
<td>G4 Categories and Material Aspects</td>
<td>Specific Standard Disclosures</td>
<td>Relevance of Issue to Company and Stakeholders</td>
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<tr>
<td>Supply Chain</td>
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<td>Juniper products move throughout a global supply chain before reaching end customers. Managing potential security risks during production and transport is a priority to ensure that Juniper’s products are not tampered with or damaged in other ways. Juniper participates in a voluntary supply chain program to incorporate best practices and security requirements put forth by the U.S government and European Union to maintain the utmost security of its products.</td>
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<tr>
<td>Chain-of-Custody</td>
<td>High</td>
<td>N/A</td>
<td>N/A</td>
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<td>Security</td>
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<td>Responsible Sourcing</td>
<td>High</td>
<td>Human Rights (HR):</td>
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<td>Responsible sourcing encompasses a variety of issues important to stakeholders and to workers in the supply chain, such as human rights and fair labor practices, environmental stewardship, and ethical business practices, including evidence that resources and minerals were not extracted in a manner that funds violent conflict or violates labor rights. While Juniper does not have direct control over its suppliers, it does have influence. Juniper believes it is imperative to understand its supply chain risks and impacts, and to communicate its standards, policies, and codes of conduct to suppliers, while having mechanisms in place to ensure that suppliers are complying with these expectations. Juniper is a member of the Responsible Business Alliance (RBA), a leading industry coalition driving electronics supply chain sustainability. It has adopted the RBA Code of Conduct to advance performance related to the protection and well-being of workers throughout its supply chain and requires all of its top tier suppliers to abide by the RBA code.</td>
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<tr>
<td>and Human Rights</td>
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<td>– Investment (HR1)</td>
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<td>– Child Labor (HR5)</td>
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<td>– Forced Labor (HR6)</td>
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<td>– Supplier Human Rights Assessment</td>
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<td>(HR10)</td>
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<td>Labor Practices (LA):</td>
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<td>– Supplier Assessment for Labor Practices (LA14)</td>
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<td>Environmental (EN):</td>
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<td>– Supplier Environmental Assessment (EN32)</td>
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<td>Society (SO):</td>
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<td>– Supplier Assessment for Impacts on Society (SO9, SO10)</td>
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<td>HR1: Total number and percentage of significant investment agreements and contracts that include human rights clauses or that underwent human rights screening</td>
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<td>HR5: Operations and suppliers identified as having significant risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor</td>
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<td>HR6: Operations and suppliers identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of all forms of forced or compulsory labor</td>
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<td>HR10: Percentage of new suppliers that were screened using human rights criteria</td>
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<td>LA14: Percentage of new suppliers that were screened using labor practices criteria</td>
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<td></td>
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<td>EN32: Percentage of new suppliers that were screened using environmental criteria</td>
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<td>SO9: Percentage of new suppliers that were screened using criteria for impacts on society</td>
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<td></td>
<td></td>
<td>SO10: Significant actual and potential negative impacts on society in the supply chain and actions taken</td>
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<tr>
<td>CCS Material Issues</td>
<td>Level of Priority</td>
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<tr>
<td><strong>Operational Excellence</strong></td>
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</tr>
<tr>
<td>Water Conservation</td>
<td>Moderate</td>
<td>Environmental (EN):</td>
<td>EN8: Total water withdrawal by source</td>
<td>Water is an essential resource, but in certain regions around the world, water is becoming increasingly scarce or the quality is at risk. It is incumbent on companies with operations in water-scarce areas to reduce their water consumption and ensure that they are not polluting the water resources local communities depend on. Reducing water usage is a priority of Juniper’s sustainability initiatives. Juniper uses reclaimed water wherever possible and has adopted the RBA Code of Conduct, which outlines standards for water use, discharge, and conservation. It also holds direct suppliers and manufacturers to the water standards contained in Juniper’s Business Partner Code of Conduct.</td>
</tr>
<tr>
<td>Waste Reduction</td>
<td>Moderate</td>
<td>Environmental (EN):</td>
<td>EN23: Total weight of waste by type and disposal method</td>
<td>The environmental impacts resulting from company operations occur throughout the global enterprise. These impacts include the volume of solid waste generated, which affects local communities near landfill sites and society at large due to the greenhouse gases released from the disposal and treatment of waste in landfills—particularly methane, which is emitted during the breakdown of organic materials. Reducing solid waste is a priority of Juniper’s sustainability initiatives.</td>
</tr>
<tr>
<td>Energy and GHG Emissions</td>
<td>High</td>
<td>Environmental (EN):</td>
<td>EN3: Energy consumption within the organization EN6: Reduction of energy consumption EN15: Direct GHG emissions (Scope 1) EN16: Energy indirect GHG emissions (Scope 2) EN17: Other indirect GHG emissions (Scope 3) EN19: Reduction of GHG emissions</td>
<td>The environmental impacts resulting from company operations occur throughout the global enterprise, the biggest resulting from energy consumption and GHG emissions. Managing energy consumption and GHG emissions is a priority of Juniper’s sustainability initiatives. Juniper continues to invest in the infrastructure and systems required to execute on, monitor and drive environmental improvements.</td>
</tr>
<tr>
<td>People and Communities</td>
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<tr>
<td>Community Giving</td>
<td>Moderate</td>
<td>Economic (EC):</td>
<td>EC1: Direct economic value generated and distributed (includes value of community investments)</td>
<td>The skills gap in the U.S. is widening and the lack of educational opportunities, particularly in low income areas, is of concern to, among others, local communities; to governments that may face increased demand for social services; and to businesses that rely on a present and future workforce of skilled employees. Juniper has focused much of its corporate philanthropy and employee volunteerism to support STEM education. Employees play an active role in determining beneficiaries of the giving programs and engage in volunteer activities aligned with expanding access to STEM education among young women and students of color.</td>
</tr>
<tr>
<td>Authenticity and Inclusion</td>
<td>High</td>
<td>Labor Practices (LA):</td>
<td>LA12: Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity</td>
<td>Although headquartered in the U.S., Juniper’s business and operations are global. Having a workforce that reflects the diversity of customers and the local communities where it operates is essential to Juniper’s success. A diverse workforce also yields a more creative and innovative work environment, especially when employees feel empowered to share their unique perspectives and talents. Juniper strives to improve upon the diversity of its workforce through initiatives to increase the presence of underrepresented groups, including women, and to foster an inclusive culture.</td>
</tr>
<tr>
<td>CCS Material Issues</td>
<td>Level of Priority</td>
<td>G4 Categories and Material Aspects</td>
<td>Specific Standard Disclosures</td>
<td>Relevance of Issue to Company and Stakeholders</td>
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<tr>
<td>People and Communities</td>
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<tr>
<td>Employee Recruitment and Retention</td>
<td>Moderate</td>
<td>Labor Practices (LA):</td>
<td>LA1: Total number and rates of new employee hires and employee turnover by age group, gender, and region</td>
<td>The competition for highly skilled talent in the technology sector is stiff—there are more jobs than there are qualified candidates. Juniper’s ability to recruit and retain top talent is essential for it to continue to innovate, compete in the marketplace, and thrive. Creating a great workplace environment is a priority at Juniper, one that prospective employees will be drawn to and where talent will choose to remain.</td>
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<tr>
<td>Governance, Ethics and Compliance</td>
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<tr>
<td>Anti-Corruption</td>
<td>High</td>
<td>Society (SO):</td>
<td>SO4: Communication and training on anti-corruption policies and procedures</td>
<td>Companies are expected to demonstrate integrity and conduct business ethically. Juniper believes that ethical business practices and compliance with laws are critical to building and maintaining trust with customers, stakeholders, and local communities. Juniper drives awareness and understanding of its anti-corruption policies and procedures through training with governance bodies, employees, and business partners. This training builds external and internal awareness about the potential for corruption and how to prevent it.</td>
</tr>
<tr>
<td>Environmental Compliance Within Business Operations</td>
<td>High</td>
<td>Environment (EN):</td>
<td>EN29: Monetary value of significant fines and total number of non-monetary sanctions for noncompliance with environmental laws and regulations</td>
<td>As a global company, Juniper is subject to certain environmental laws and regulations designed to protect the environment and the health and safety of local communities. Juniper takes its environmental responsibilities seriously. It has established a Corporate Social Responsibility Committee to oversee its ISO 14001 environmental management system certification and to assess the environmental performance of Juniper products as well as Juniper’s environmental performance throughout business operations.</td>
</tr>
<tr>
<td>Human Rights Within Business Operations</td>
<td>High</td>
<td>Human Rights (HR):</td>
<td>HR9: Total number and percentage of operations that have been subject to human rights reviews or impact assessments</td>
<td>The rights of workers around the world need to be recognized and protected. Juniper understands its responsibility to protect the human rights of its employees by ensuring that its workplace practices are in compliance with international standards and laws, but also reflect best practices. Juniper strives to maintain a workplace that is safe, fair, equitable, and fulfilling—an environment that employees are drawn to and where they want to remain.</td>
</tr>
<tr>
<td>Data Security and Customer Privacy</td>
<td>High</td>
<td>Product Responsibility (PR):</td>
<td>PR8: Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data</td>
<td>In today’s global age of network connectivity, massive amounts of data are gathered, analyzed, stored, and transmitted. While connectivity provides immense opportunity, the network also demands sophisticated security to ensure that personal, corporate, and government information is protected from increasingly insistent intruders. To ensure the security of its internal systems, Juniper has instituted processes, tools, and policies that prevent, detect, document, and remove threats of unauthorized access, use, or destruction of data.</td>
</tr>
<tr>
<td>CCS Material Issues</td>
<td>Level of Priority</td>
<td>G4 Categories and Material Aspects</td>
<td>Specific Standard Disclosures</td>
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<tr>
<td>Customer Satisfaction</td>
<td>High</td>
<td>Product Responsibility (PR): – Product and Service Labeling (PR7)</td>
<td>PR7: Results of surveys measuring customer satisfaction</td>
<td>It is essential to the long-term success of Juniper's business to maintain strong customer satisfaction and loyalty. Our ability to do so not only benefits customers directly, but it also benefits employees, suppliers, and shareholders. Cultivating strong customer satisfaction scores and listening to customers are top priorities.</td>
</tr>
<tr>
<td>Global Economy and Trade</td>
<td>High</td>
<td>Economic (EC): – Economic Performance (EC1)</td>
<td>EC1: Direct economic value generated and distributed (includes revenues, operating costs, wages and benefits, payments to providers of capital, taxes paid)</td>
<td>Businesses are vital to local, national, and global economies. Among the many benefits, business creates jobs, hires suppliers, pays taxes, generates shareholder wealth, and contributes to the growth and development of local communities. Juniper’s ability to create and distribute economic value is dependent on its success—the better its business performance, the more economic value is distributed. Juniper is focused on operating profitably and sustaining its business vitality over the long term.</td>
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# Appendix II—GRI Index

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<td><strong>Strategy and Analysis</strong></td>
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<tr>
<td>G4-1</td>
<td>CEO statement</td>
<td>CEO Letter</td>
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<td>G4-2</td>
<td>Name of reporting organization</td>
<td>Company Profile</td>
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<td>G4-3</td>
<td>Products</td>
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<td>G4-4</td>
<td>HQ location</td>
<td>Company Profile</td>
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<td>G4-5</td>
<td>Countries of operation</td>
<td>Company Profile</td>
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<td>G4-6</td>
<td>Nature of ownership and legal form</td>
<td>Company Profile</td>
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<td>G4-7</td>
<td>Markets served</td>
<td>Company Profiles</td>
</tr>
<tr>
<td>G4-8</td>
<td>Report the scale of the organization, including:</td>
<td>Company Profile</td>
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<tr>
<td></td>
<td>- Total number of employees</td>
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<td></td>
<td>- Total number of operations</td>
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<td>- Net sales (for private sector organizations) or net revenues (for public sector organizations)</td>
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<tr>
<td></td>
<td>- Total capitalization broken down in terms of debt and equity (for private sector organizations)</td>
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<td></td>
<td>- Quantity of products or services provided</td>
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<tr>
<td>G4-9</td>
<td>Report the total number of employees by employment contract and gender:</td>
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<tr>
<td></td>
<td>Report the total number of permanent employees by employment type and gender.</td>
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<td></td>
<td>Report the total workforce by employees and supervised workers and by gender.</td>
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</tr>
<tr>
<td></td>
<td>Report the total workforce by region and gender.</td>
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<td></td>
<td>Report whether a substantial portion of the organization's work is performed by workers who are legally recognized as self-employed, or by individuals other than employees or supervised workers, including employees and supervised employees of contractors.</td>
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<td></td>
<td>Report any significant variations in employment numbers.</td>
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<tr>
<td></td>
<td>Juniper has elected not to disclose the total number of employees by employment contract and gender. We do not believe the public disclosure of these metrics will enhance in any meaningful manner our commitment to an inclusive culture or our goal of workplace diversity.</td>
<td></td>
</tr>
<tr>
<td>G4-10</td>
<td>Report any significant changes during the reporting period regarding the organization's size, structure, ownership, or its supply chain.</td>
<td>About This Report</td>
</tr>
<tr>
<td>G4-11</td>
<td>Report whether and how the precautionary approach or principle is addressed by the organization.</td>
<td>Governance, Ethics and Compliance</td>
</tr>
<tr>
<td>G4-12</td>
<td>List externally developed economic, environmental, and social charters, principles, or other initiatives to which the organization subscribes or which it endorses.</td>
<td>Governance, Ethics and Compliance</td>
</tr>
<tr>
<td>G4-13</td>
<td>List memberships of associations (such as industry associations) and national or international advocacy organizations.</td>
<td>Appendix III – Memberships and Associations</td>
</tr>
<tr>
<td></td>
<td>This refers primarily to memberships maintained at the organizational level.</td>
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## Identified Material Aspects and Boundaries

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<tr>
<td>G4-17</td>
<td>List all entities included in the organization’s consolidated financial statements or equivalent documents. Report whether any entity included in the organization’s consolidated financial statements or equivalent documents is not covered by the report.</td>
<td>Company Profile</td>
</tr>
<tr>
<td>G4-18</td>
<td>Explain the process for defining the report content and the Aspect Boundaries. Explain how the organization has implemented the Reporting Principles for Defining Report Content.</td>
<td>About This Report</td>
</tr>
<tr>
<td>G4-19</td>
<td>List all of the material Aspects identified in the process for defining report content.</td>
<td>Governance, Ethics and Compliance</td>
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</table>

Appendix
<table>
<thead>
<tr>
<th>G4</th>
<th>General Standard Disclosures</th>
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</table>
| G4-20 | For each material Aspect, report the Aspect Boundary within the organization.                                                                                                                                         | About This Report  
Appendix I – Material Topics and Aspects |
| G4-21 | For each material Aspect, report the Aspect Boundary outside the organization.                                                                                                                                               | Appendix I – Material Topics and Aspects |
| G4-22 | Report the effect of any restatements of information provided in previous reports, and the reasons for such restatements.                                                                                                  | No restatement of information provided in previous reports is required.          |
| G4-23 | Report significant changes from previous reporting periods in the Scope and Aspect Boundaries.                                                                                                                              | There are no significant changes in the scope and aspect boundaries from the previous reporting periods. |

**Stakeholder Engagement**

| G4-24 | Provide a list of stakeholder groups engaged by the organization.                                                                                                                                   | Governance, Ethics and Compliance |
| G4-25 | Report the basis for identification and selection of stakeholders with whom to engage.                                                                                                                 | Governance, Ethics and Compliance |
| G4-26 | Report the organization’s approach to stakeholder engagement, including frequency of engagement by type and by stakeholder group, and an indication of whether any of the engagement was undertaken specifically as part of the report preparation process. | Governance, Ethics and Compliance |
| G4-27 | Report key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting. Report the stakeholder groups that raised each of the key topics and concerns. | Governance, Ethics and Compliance |

**Report Profile**

| G4-28 | Reporting period (such as fiscal or calendar year) for information provided.                                                                                                                               | About This Report |
| G4-29 | Date of most recent previous report (if any).                                                                                                                                                            | About This Report |
| G4-30 | Reporting cycle (such as annual, biennial).                                                                                                                                                              | About This Report |
| G4-31 | Provide the contact point for questions regarding the report or its contents.                                                                                                                             | About This Report |
| G4-32 | Report the “in accordance” option the organization has chosen. Report the GRI Content Index for the chosen option. Report the reference to the External Assurance Report, if the report has been externally assured. | This Report has been produced in accordance with the Global Reporting Initiative (GRI) G4 Guidelines at the Core level. The Report was not externally assured. |
| G4-33 | Report the organization’s policy and current practice with regard to seeking external assurance for the report. If not included in the assurance report accompanying the sustainability report, report the scope and basis of any external assurance provided. Report the relationship between the organization and the assurance providers. Report whether the highest governance body or senior executives are involved in seeking assurance for the organization’s sustainability report. | This Report was not externally assured and there are currently no plans to seek external assurance. The Report content was thoroughly reviewed by internal subject matter experts and senior management to ensure the accuracy of statements and data. |

**Governance**

| G4-34 | Report the governance structure of the organization, including committees of the highest governance body. Identify any committees responsible for decision-making on economic, environmental, and social impacts. | Governance, Ethics and Compliance |

**Ethics and Integrity**

| G4-56 | Describe the organization’s values, principles, standards, and norms of behavior such as codes of conduct and codes of ethics.                                                                           | Company Profile  
Governance, Ethics and Compliance |
### Appendix III - Memberships and Associations

#### Trade Associations and Public Advocacy Groups
- Alliance for Gray Market and Counterfeit Abatement  
  [www.agmaglobal.org/](http://www.agmaglobal.org/)
- Alliance for Network Security  
- Armed Forces & Communications Electronics Association  
  [www.afcea.org](http://www.afcea.org)
- ASIS International (American Society for Industrial Security)  
  [www.asisonline.org](http://www.asisonline.org)
- Corporate Executive Board  
  [www.executiveboard.com/](http://www.executiveboard.com/)
- European Competitive Telecommunications Association  
- GridWise Alliance  
- International Information Systems Security Certification Consortium, Inc.  
  [www.isc2.org](http://www.isc2.org)
- IT Alliance for the Public Sector  
  [http://itaps.itic.org/](http://itaps.itic.org/)
- International Security Management Association  
  [www.isma.com/](http://www.isma.com/)
- National Association of Environmental, Health and Safety Managers  
  [www.naem.org](http://www.naem.org)
- National Defense Industrial Association  
  [www.ndia.org/Pages/Default.aspx](http://www.ndia.org/Pages/Default.aspx)
- National Safety Council  
  [www.nsc.org/Pages/Home.aspx](http://www.nsc.org/Pages/Home.aspx)
- Responsible Business Alliance  
- Responsible Minerals Initiative  
- Telecommunications Industry Association  
  [www.tiaonline.org/](http://www.tiaonline.org/)
- U.S. Council for International Business  
- U.S. Chamber of Commerce  
  [www.uschamber.com/](http://www.uschamber.com/)
- U.S. Chamber of Commerce—Global Intellectual Property Center  
  [www.theglobalipcenter.com/](http://www.theglobalipcenter.com/)
- United States India Business Council (USIBC)  
  [www.usibc.com/](http://www.usibc.com/)

#### U.S. and International Standards Bodies
- 3rd Generation Partnership Project  
  [www.3gpp.org/](http://www.3gpp.org/)
- Alliance for Telecommunications Industry Solutions (ATIS)  
  [www.atis.org/](http://www.atis.org/)
- Broadband Forum  
  [www.broadband-forum.org/](http://www.broadband-forum.org/)
- CDP  
  [www.cdp.net/](http://www.cdp.net/)
- Distributed Management Task Force  
  [http://dmtf.org/](http://dmtf.org/)
- Energy Consumption Rating Initiative  
  [www.ecrinitiative.org/](http://www.ecrinitiative.org/)
- Ethernet Alliance  
  [www.ethernetalliance.org/](http://www.ethernetalliance.org/)
- European Telecommunications Standards Institute  
  [www.etsi.org/WebSite/homepage.aspx](http://www.etsi.org/WebSite/homepage.aspx)
- Institute of Electrical and Electronics Engineers  
  [www.ieee.org/index.html](http://www.ieee.org/index.html)
- International Telecommunication Union  
  [www.itu.int/ITU-T/](http://www.itu.int/ITU-T/)
- Internet Engineering Task Force  
  [www.ietf.org/](http://www.ietf.org/)
- Internet Society (ISOC)  
  [www.isoc.org/](http://www.isoc.org/)
- Joint Electronic Device Engineering Councils  
  [www.jedec.org/](http://www.jedec.org/)
- Metro Ethernet Forum  
- Next Generation Mobile Networks Alliance  
  [www.ngmn.org/](http://www.ngmn.org/)
- Optical Internetworking Forum  
  [www.oforum.com/](http://www.oforum.com/)
- Open Network Forum  
  [www.opennetworking.org/](http://www.opennetworking.org/)
- Payment Card Industry Security Standards Council  
  [www.pcisecuritystandards.org/](http://www.pcisecuritystandards.org/)
- PCI-SIG  
  [www.pcisig.com/home/](http://www.pcisig.com/home/)
- Society of Cable Telecommunications Engineers  
  [www.scte.org/default.aspx](http://www.scte.org/default.aspx)
- Storage Networking Industry Association  
  [www.snia.org/home](http://www.snia.org/home)
- Technical Committee T11  
Critical Infrastructure Protection, Incident Response, and/or Government-Industry Partnership Organizations

- Telecommunications Industry Association
  www.tiaonline.org/
- TM Forum
  www.tmforum.org/browse.aspx
- Trusted Computing Group
  www.trustedcomputinggroup.org/
- Unified Communications Interoperability Forum
  http://ucif.org/
- United States ITU Association
  http://usitua.org/
- Wi-Fi Alliance
  http://www.wi-fi.org/

- Cross Sector Cyber Security Working Group—Joint Industry (PCIS) and Government (DHS)
- Enduring Security Framework—Critical Infrastructure Protection Advisory Committee
- Industry Consortium for the Advance of Security on the Internet
  www.icasi.org/
- Information Technology Sector Coordinating Council
  www.it-scc.org
- Information Technology Sector Information Sharing and Analysis Center
  www.itisac.org/
- National Security Telecommunications Advisory Committee—U.S. Presidential Advisory Committee
  www.ncs.gov/nstac/nstac.html
- Network Security Information Exchange
  www.ncs.gov/nstac/reports/fact_sheet/NSTAC_08.pdf
- Partnership for Critical Infrastructure Security
  www.pcis.org
- The Open Group—Trusted Technology Forum
  http://opengroup.org/ottf/