

CONSIDERATION FOR THE ENVIRONMENT

The OKI Group considers its mission to be responding to increasingly severe climate change and resolving social issues in order to pass on a better global environment to the next generation. Therefore, we consider environment-related business risks and opportunities from the medium- to long-term perspective to promote environmental management. The OKI Group is taking efforts to mitigate environmental impact, such as reducing CO₂ emissions during the production process, as well as provide products and services that contribute to the resolution of environmental issues.

Information Disclosed According to the Task Force on Climate-related Financial Disclosures (TCFD*1)

OKI announced its support for the TCFD in May 2019 from a perspective of a positive economic and environmental cycle. Along with systemically managing climate-related risks, opportunities, and countermeasures for them, OKI aims to enhance information disclosure about these efforts.

Governance	<p>Roles of managers and director monitoring system for climate-related risks</p> <ul style="list-style-type: none"> The President is the chief officer for promoting environmental management, including climate-related risk management. Important matters related to environment are decided at the Management Committee, etc. The Sustainability Promotion Working Group considers issues related to sustainability, including climate change, and reports to the Management Committee. Matters that may significantly impact business are reported to the Board of Directors. 	<pre> graph TD President[President] -- "Organize and report environmental risk/opportunity/response" --> Board[Board of Directors] Board -- "Instructions" --> President HQ[Headquarters Sustainability Promotion Working Group Environmental Control Division] -- "Report" --> Board Board -- "Support for consideration and information provision" --> HQ HQ -- "Submit consideration results on environmental risk/opportunity/response" --> HQ HQ -- "Support for consideration and information provision" --> Business[Each business group/affiliate] Business -- "Information flow" --> HQ </pre>
Strategy	<p>Scenario analysis</p> <ul style="list-style-type: none"> OKI identifies physical and transition risks based on reports related to climate change issued by international institutions and performs scenario analysis that considers the intensification of climate change if temperatures rise 4°C and social changes needed to limit this increase to 2°C or 1.5°C. Perspectives of climate change, resource circulation, and prevention of pollution are included in scenario analysis. OKI identifies risks and opportunities based on these scenarios and has established the countermeasures on the following page. 	
Risk Management	<p>Risk selection/evaluation process</p> <ul style="list-style-type: none"> At least once a year, OKI identifies climate change or other recent phenomena to evaluate the impact, frequency, and period of the risks and opportunities that emerge from them in order to determine their importance. <p>Risk management process</p> <ul style="list-style-type: none"> OKI considers countermeasures for the above risks and opportunities, developed a Group-wide plan for environmental management, and is implementing this into environmental action plans at each organization and site. The execution status of these plans is checked through internal auditing and revised as needed. <p>Method of integrating comprehensive risk management</p> <ul style="list-style-type: none"> Comprehensive risk is managed centrally by the environmental management system of the entire OKI Group under the responsibility of the President. Each business group and the corporate group work together to plan, execute, monitor, and revise this system. OKI has deployed countermeasures in the Group to prevent "common risks" as established by the Risk Management Committee, which manages risks across the entire Group. 	
Indicators/Targets	<p>Indicators used</p> <ul style="list-style-type: none"> CO₂ emission volume Environmental contribution net sales <p>SCOPE1, 2, 3</p> <ul style="list-style-type: none"> Entered on ESG data section (see p.53-54) of this report and on the table published on website. <p>Targets/results</p> <p><CO₂ emission volume></p> <ul style="list-style-type: none"> Lifecycle CO₂*2: Targets of 40% reduction by 2030, 80% reduction by 2050 (compared to 2013). In FY 2020, we achieved a 54% reduction. CO₂ emissions from energy source on site: Targets of 50% reduction by FY2030 (compared to 2013), zero actual emissions by FY2050. In FY2020, we achieved a 34% reduction. <p><Environmental contribution sales></p> <ul style="list-style-type: none"> Target of 50% of net sales of the entire Group by FY2030. In FY2020, this figure was 32%. (We are enhancing categories and definitions. Please see P39.) 	

*1 TCFD (Task Force on Climate-related Financial Disclosures): Proposal that suggest the need for companies to disclose information to investors on their response toward climate change
 2 Lifecycle CO₂: CO₂ emissions by the entire Group for each process in the product lifecycle (procurement → workplace location → distribution → product use by the customer → disposal of end-of-life product)
 *Product use by customer = expected years of customer use x annual consumed power x number of units sold x emission units

Strategy Based on Scenario Analysis

As societal changes to limit the increase in temperatures below 2°C progress, there will be changes in laws for decarbonization, technological progress, and market needs. We expect that there will be rising demand for OKI's decarbonization solutions. If temperatures rise 3 to 4°C, there will be

increased physical risks from intense disasters due to the impact of climate change. It is possible that severe impact will hit the supply chain, including OKI's own sites. Needs are also expected to rise for disaster information systems that serve to prevent severe damage.








Scenario Analysis				Strategy/Initiatives
Category	Expected Phenomena	Risk/ Opportunity	Impact on Future Finances	
2°C climate change scenario (transitional risks) Referencing IEA sustainable development scenario (SDS) and IPCC's RCP2.6	Need for decarbonization increases further and spreads	Risk	<ul style="list-style-type: none"> Loss of sales opportunities due to not meeting energy-saving standards on hardware products and customer demands Response to customer demands for renewable energy usage in the manufacturing process Higher costs stemming from strengthening decarbonization at business sites 	<ul style="list-style-type: none"> Product: Energy-saving for hardware <ul style="list-style-type: none"> Set development targets that anticipate stronger regulations Strengthen R&D Site: Promote through effective combination of CO₂ emission reduction initiatives <ul style="list-style-type: none"> Improve production equipment efficiency; improve efficiency and reform production processes Introduction of ZEB (Zero Energy Building) at factories Implementation of renewable energies
		Opportunity	<ul style="list-style-type: none"> Expansion of demand for decarbonization/energy-saving solutions Expansion of needs of technologies that support the spread of renewable energy Expansion of demand for hardware products that operate on renewable energy 	<ul style="list-style-type: none"> Product: Expansion and creation of environmentally friendly products <ul style="list-style-type: none"> Visualize and seek out environmental contribution net sales Creation of decarbonization/energy-saving solutions that utilize IoT and AI <ul style="list-style-type: none"> E.g. Transportation, construction/infrastructure, finance/logistics, maritime, business communications, building energy management Support to improve efficiency of customer operations through operations outsourcing <ul style="list-style-type: none"> E.g. ATM full outsourcing services Expansion of hardware products that operate on renewable energy <ul style="list-style-type: none"> E.g. Zero Energy Gateway Strengthening of R&D (AI weight reduction, etc.)
4°C climate change scenario (physical risks) Referencing RCP8.5	Abnormal weather becomes more frequent and intensifies (increased typhoons/flooding, extreme heat and cold, increased lightning)	Risk	<ul style="list-style-type: none"> Sites/suppliers: Loss of business assets due to disasters at factories and suppliers/suspension of operations/severance of supply chain Site: Equipment breaks due to higher temperatures 	<ul style="list-style-type: none"> Site: Strengthen climate change BCP/BCM <ul style="list-style-type: none"> Install water stop boards; lift height of equipment Devices to stop manufacturing equipment during lightning storms Redundant air conditioning units for inspection devices Suppliers: Strengthen procurement BCP Strengthen surveys of climate change risks for suppliers
		Opportunity	<ul style="list-style-type: none"> Product: Expansion of demand for advanced disaster prevention/mitigation solutions (disaster prevention field, maritime field) 	<ul style="list-style-type: none"> Product: Strengthen business deployment through disaster information systems, etc.
Prevention of pollution through chemicals	Expansion and complication of laws and regulations for substances	Risk	<ul style="list-style-type: none"> Product: Standards violations for chemicals contained in products Site: Emissions standards violations due to deterioration of facility 	<ul style="list-style-type: none"> Product: Strengthen sharing of operations across the entire Group Site: Review inspection/exchange standards
		Opportunity	<ul style="list-style-type: none"> Product: Expansion of demand for efficiency improvement in chemical substance management (manufacturing field) 	<ul style="list-style-type: none"> Product: Deployment of survey systems and analysis services for chemicals in products
Resource circulation	Strengthening of laws and regulations for oceanic plastics and microplastics	Risk	<ul style="list-style-type: none"> Site: Inflation of waste product disposal costs; refusal to accept from waste disposal companies Product: Risks of resource deprivation; risks of materials supply shortage 	<ul style="list-style-type: none"> Site: Waste reduction <ul style="list-style-type: none"> Reuse of plastic packaging Reduction of percentage of disposed items through improved efficiency in extracting metal materials Product: Recovery and reuse of parts from used products utilizing the wide area certification system for industrial waste
		Opportunity	<ul style="list-style-type: none"> Product: Expansion of demand for resource-saving products and recycling services 	<ul style="list-style-type: none"> Product: Reduce burden on customers by recovering used products utilizing the wide area certification system for industrial waste

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●Expansion of Environmentally Contributing Products

OKI began tallying net sales in fiscal year 2019 and is continuing to take efforts to formulate definitions and categories in order to expand environmentally friendly products, including those that address climate change. The net sales of environmentally contributing products in fiscal year 2020 was ¥127.3 billion according to the tallying of categories in the chart below. This represents 32% of the net sales of the

entire Group. In addition to products focused on IT solutions that support operational efficiency improvements, OKI is also contributing to decarbonization by utilizing our strength in “Mono-koto-zukuri,” which combines Mono-zukuri and Koto-zukuri to provide support that improves efficiency of customer operations through outsourcing operations of hardware products.

Environmental Themes	Examples of Environmentally-focused Initiatives	Examples of Products/Solutions
Mitigation of climate change (decarbonization)  	CO₂ reduction of products <ul style="list-style-type: none"> Reduce power consumption of products, reduce power/energy consumption across entire system (less than past products) Comply with the International ENERGY STAR Program 	Business telephones, PBX, Zero Energy Gateway, 920MHz band wireless multi-hop, ATMs, cash handling equipment, printers
	Solutions that contribute to CO₂ reduction <ul style="list-style-type: none"> Mitigation of traffic congestion Reduction of traffic and required space of people and objects Reduction of network data communications volume Support the implementation of energy-saving systems Work outsourcing services 	SaaS ITS services, ETC toll systems, VICS systems, store digital transformation solutions, IoT solutions linked production equipment, multi-carrier audio IoT gateway, 920MHz band wireless multi-hop, ATM full outsourcing services
Adaptation to climate change  	<ul style="list-style-type: none"> Mitigate damage during disasters Establish infrastructure to prevent flooding of rivers from heavy rains, flooding of sewage systems (internal water flooding), and inundation damage Strengthening warning and evacuation system (infrastructure equipment monitoring) 	Disaster information systems, river monitoring systems, fire prevention systems, disaster prevention administrative radio systems for municipalities, VoIP notification broadcast systems, crisis management water gauges, Zero Energy Gateway
	<ul style="list-style-type: none"> Monitor and measure the status of social infrastructure equipment to repair before malfunctions occur 	Transportable boat multi-beam depth finder, optical fiber sensor system
Resource circulation 	<ul style="list-style-type: none"> Reducing size, weight, and number of parts (less than previous products) Circular economy related (Products as a Service, reuse of modules and parts, common use of products) 	Business telephones, PBX, Zero Energy Gateway, multi-carrier audio IoT gateway, ATMs, cash handling equipment, printers
	<ul style="list-style-type: none"> Circular economy related (systems that support resource-saving during customer use, resource circulation, and lengthening of equipment life span) Determine the life span of consumable products so that products can be used longer without being discarded (circular economy) 	IoT solutions linked production equipment, maintenance inspection IoT, AI wave analysis software for equipment maintenance
	Simplification of recycling <ul style="list-style-type: none"> Design considering separation, disassembly, and disposal 	Business telephones, ATMs, cash handling equipment, printers
	Conducting recovery/recycling <ul style="list-style-type: none"> Recovery system for used products and consumables 	Business telephones, ATMs, cash handling equipment, printers
Prevention of pollution  	<ul style="list-style-type: none"> Design that lengthens the life span of products Can upgrade version by downloads Commonality in housing units and parts 	Business telephones, PBX, AI edge computer, ATMs, cash handling equipment, printers, tunnel emergency systems, video monitoring systems
	<ul style="list-style-type: none"> Comply with regulations for chemicals in products Manage chemicals based on management standards Environmental pollution prevention/mitigation system 	Business telephones, ATMs, cash handling equipment, printers Databases for the management of chemicals in products and component information

Please see “OKI Eco Products” and “OKI Eco Solutions” on our website for details about environmentally friendly products.

<https://www.oki.com/en/eco/product/ecoprod.html>

<https://www.oki.com/en/eco/product/ecosolu.html>

●R&D for an Environment that “Looks toward the Future”

The OKI Group is conducting R&D that is strongly aware of contributions to the environment, starting with the initiatives on the chart below. Of the themes addressed in the R&D department, there are ten technological themes that directly contribute to the environment, such as power-saving and

resource-saving in ICT equipment like servers, as well as 35 technological themes that indirectly contribute to reducing environmental impact through the use of digital technology. OKI is also conducting activities to search for new business opportunities that address environmental issues.

Themes	Direct/Indirect	Outline
“Deep learning” weight reduction technology	Direct	Technology that contributes to power-saving through improved calculation efficiency of deep neural networks. Improve power efficiency in advanced AI processing with a massive number of edges
All silicon photonic integrated module technology	Direct	By installing signal processing circuits that process optical signals as is on silicon boards using a semiconductor manufacturing process, this contributes to power-saving on optical communications technology and sensing technology that uses photo-electronic integration technology optical fiber and lasers with high functionality, low energy consumption, and ultra compact size
Next-generation access technology for 5G/IoT	Direct	Technology that significantly reduces optical lines between base stations and housing stations, improves power-saving and reduces size of equipment at housing stations, and improves efficiency of space usage
Zero-energy IoT technology	Direct	Power-saving IoT technology that does not require communications/power lines through the combination of natural energy supply and close-distance wireless technology contributes to disaster prevention/mitigation, such as monitoring of structures in mountains and monitoring of embankment slopes and check dams, through highly-efficient energy charge/discharge technology and multi-hop communications between sensors
Delivery route optimization technology	Indirect	Technology that shrinks travel distance of deliveries and reduces CO ₂ emitted from delivery vehicles by optimizing delivery routes in logistics

●Acquired “ZEB” Certification, First in Japan, as a Large-Scale Production Facility

In order to mitigate the issue of climate change, which is growing acceleratingly worse, the reduction of CO₂ is a pressing issue. Each site of the OKI Group is taking efforts to reduce CO₂ by both improving the efficiency of business activities and CO₂ management.

As one such initiative, OKI broke ground on a new factory in Honjo City, Saitama Prefecture in May 2021. Since OKI established a manufacturing factory for telephones in Honjo in 1962, it has been used for manufacturing related to ICT business and EMS business in the same district for many years as one of the core factories. In December 2020, OKI established a local 5G experimentation and testing station in Honjo district to conduct testing for energy-saving and automation with AI in manufacturing sites, and had developed an environment for performing Manufacturing DX*1. OKI aims to build a flexible smart factory in this district that could continue to meet the demands of changing customer needs and evolving technology.

This new factory is part of the efforts to “strengthen Mono-zukuri infrastructure” as included in the Medium-Term Business Plan 2022. Approximately ¥6.0 billion is expected to be invested in this project. The new factory is part of initiatives to realize decarbonized society. In August 2021, the factory acquired “ZEB” certification*2, the first in Japan as a large-scale production facility. In addition to reducing environmental impact, OKI

is also considering the safety of workers and harmony with local regions, such as the use of local materials (Chichibu-sugi lumber). The construction of the factory is selected for the 2020 Sustainable Building Leading Project (Wooden Leading Type)*3 by the Ministry of Land, Infrastructure, Transport and Tourism as a building resilient to earthquakes that utilizes a vibration-resistant structure and cross-laminated timber. New wings are planned to begin full operation in May 2022.

*1 Manufacturing DX: OKI’s solutions concept that aims to realize smart factories. It is comprised of three transformations: “site transformation,” which visualizes manufacturing sites, “IT/operations transformation,” which links sites and management in an advanced and bi-directional manner, and “management transformation,” which supports various management decisions related to factors such as environmental changes, laws and regulations, and small quantity production of added value items.

*2 “ZEB” certification: Net zero energy buildings are buildings that aim to consume zero net primary energy through energy-saving technology, such as sensors and highly heat-insulated structures, as well as energy-producing technology through renewable energy, all while realizing a pleasant indoor environment. Buildings are classified by the following four categories based on their energy reduction percentages (energy consumed by production equipment and OA equipment are excluded from ZEB calculation).

“ZEB”: 100% or higher; Nearly ZEB: 75% or higher; ZEB Ready: 50% or higher; ZEB Oriented: 40% or 30% or higher

*3 Sustainable Building Leading Project (Wooden Leading Type): Japanese government selects and supports the building costs of leading building projects that contribute to raising awareness about cutting edge technologies. “Wooden Leading Type” is for examples of leading wooden buildings that use a significant amount of wood materials that are part of renewable and circulative resources. The aim is to contribute to the realization of low-carbon societies and spread of leading design and construction technology in structural, fire prevention, and production system factors.



Conceptual image of new factory

Please see “Environmental Conservation” on our website for details about initiatives and data.

<https://www.oki.com/en/eco/>