

TCFD-based Information Disclosure concerning Climate Change

TOK is striving for decarbonization to resolve climate change within the scope of its material issue of global environmental protection. In 2020, we analyzed the risks and opportunities on our business involved in climate change with the aim of disclosing information based on the Task Force on Climate-related Financial Disclosures (TCFD) recommendations. In 2021, we will analyze scenarios in accordance with the TCFD recommendations and promote information disclosure on the impact of climate change on our business.

Governance

TOK is coping with climate change issues by promoting environmental management and decarbonization measures within the scope of its material issue of global environmental protection. Our management executives discuss agenda items regarding EHS and the development and manufacturing of eco-friendly products, monitor the activities listed above, and formulate strategies in reference to current social issues and changes in the business environment.

Strategies (scenario analysis)

TOK has promoted scenario analyses on average temperature increases by the end of the 21st century by referring to the two-degree scenario presented by the International Energy Agency (IEA) and the four-degree scenario presented by the Intergovernmental Panel on Climate Change (IPCC). TOK sorted out the risks and opportunities for the entire group businesses both in the material business segment and in the device business segment (see next page). Both in the two-degree scenario and in the four-degree scenario, we re-recognized through the process above that it would be reasonably possible to enhance corporate value on a medium- to long-term basis by contributing to decarbonization while grasping abundant business opportunities in power semiconductors and by adequately responding to the expected physical risks and strengthening resilience.

Risk management

Under the risk management structure centering around the Risk Management Committee, which comprises the president and the general managers (see pages 91–92), we ensure the PDCA cycle of each activity and maintain continuous risk management, with the president and chief executive officer as the chief risk management officer.

Indicators and targets

TOK formulated the long-term environmental targets in 2020 to reduce energy-related CO₂ emissions (per base unit) by 15 points from the 2019 level by 2030. Calculation is in progress for the CO₂ emissions in 2030 (sum of Scopes 1 and 2) on condition of attaining both this target and the consolidated net sales target of 200.0 billion yen (see pages 35–36) in 2030.

Calculations are in progress for the financial impact (cost increase) resulting from the increase in CO₂ emissions in the event a carbon tax is introduced in Japan, the United States, China, South Korea, and Taiwan, where TOK has its manufacturing bases, by 2030*1. We will examine flexible strategies in pursuit of a reduction of this possible cost increase, including the attainment of the long-term environmental targets ahead of schedule.

*1 Estimation assuming USD 1 = JPY 100, and carbon tax unit price at USD 30 to 100 per ton, referring to the CDP Carbon Pricing Corridors: The Market View 2018.

Response to climate-related risks and opportunities (scenario analysis)

Risk type	Category	Risks on TOK business	Expected apparent time range*2	Key initiatives (countermeasures against risks)
Transition risks Mainly assuming the two-degree scenario	Policy and regulatory risks	● Increase in costs due to carbon pricing (introduction of carbon tax and expansion of emission rights trading)	Medium term to long term	● Curb cost increases by accelerating the reduction of CO ₂ emissions per base unit through shifts to more energy-efficient manufacturing equipment and increased use of renewable energy See pages 98–99
		● Increase in costs for responding to more stringent policies and regulations to reduce CO ₂ emissions in Japan and other countries where TOK has manufacturing sites	Short term to long term	● Take the necessary action without delay through careful information collection and negotiations with governmental agencies in each country, thereby coping with climate change as a member of related communities See pages 51, 98–99 and 104–108
Physical risks Mainly assuming four-degree scenario	Acute risks	● Damage to facilities due to increase in natural disasters	Short term to long term	● Take continuous precautions for short-term flooding risks that have become apparent in the inundation of the Sagami Operation Center as our R&D hub by a typhoon in 2019 See pages 91–92, 100–101 ● Emphasize BCP and resilience against natural disasters in the equipment renovation project under the next medium-term plan toward TOK Vision 2030 See pages 37 and 52
	Chronic risks	● Increase in costs for process temperature control and product temperature control due to global warming	Short term to long term	● Develop more efficient and cost-effective means and methods for the control of process temperatures and product temperatures See pages 98–99
● Increase in water stress due to global warming and difficulty in acquiring water resources		Medium term to long term	● Implement continuous measures to minimize water consumption in production activities and to maintain and improve effluent quality See pages 100–101	

Opportunities	Expected apparent time range*2	Key initiatives (how to grasp opportunities)
Expansion of the power semiconductor market Assuming both two-degree scenario and four-degree scenario	Short term to long term	● Stably supply and increase sales of g-Line and i-Line photoresists for power semiconductors See pages 42–43 ● Stably supply and increase sales of plasma ashing systems for power semiconductors See pages 42–43 and 69–70 ● Develop and increase sales of wafer handling systems for innovative power semiconductors See pages 42–43 and 69–70
Increase in needs for the development of next-generation power semiconductors with lower power consumption Assuming both two-degree scenario and four-degree scenario	Medium term to long term	● Gear up development and sales of materials for next-generation power semiconductors, including Ga ₂ O ₃ (gallium oxide) / SiC (silicon carbide) / GaN (gallium nitride) power semiconductors See pages 42–43
Increase in demand for energy recycling systems Assuming both two-degree scenario and four-degree scenario	Medium term to long term	● Accelerate measures for development and sales of chemical looping energy recycling system See pages 53

*2 "Short term" is defined as until 2021, "medium term" as until 2030, and "long term" as until 2050.