

Special Feature 01

Climate Change Response

Aichi Steel's approach to climate change

The Aichi Steel Group regards climate change as a serious management issue that could impact efforts to achieve sustainable growth.

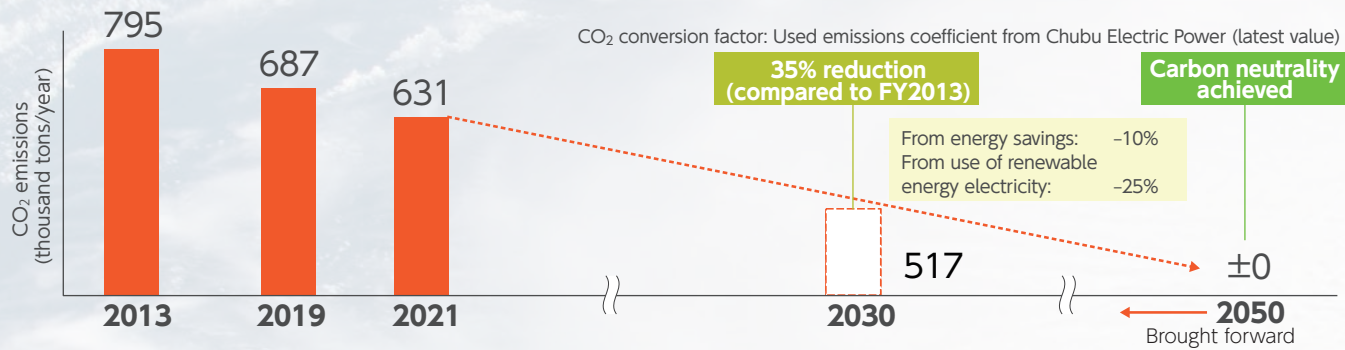
As a resource-recycling company that uses steel scrap as a raw material in manufacturing, Aichi Steel has expanded the potential of manufacturing through materials and parts. Going forward, by utilizing strengths nurtured in manufacturing and to help realize a low-carbon society, we will continue to develop and provide products and services that contribute to reduced CO₂ emissions across the entire supply chain.

This special feature will explain the status of initiatives that we are implementing in line with the framework of the Task Force on Climate-related Financial Disclosures (TCFD) that we declared our support for in 2021.

CO₂ emission reduction target*1

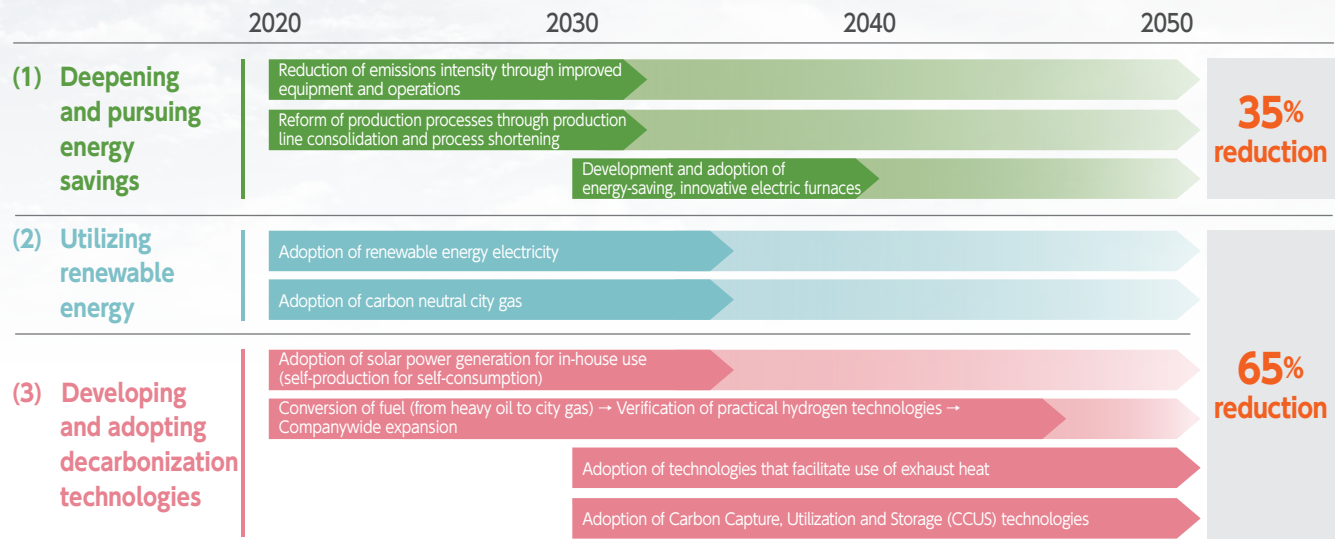
We have established the targets of reducing CO₂ emissions from Aichi Steel business activities by 35% by 2030 (compared to fiscal 2013), and working toward achieving carbon neutrality by 2050. We are now working toward achieving those targets, and bringing them forward.

*1 Scope 1 and 2 emissions from Aichi Steel alone



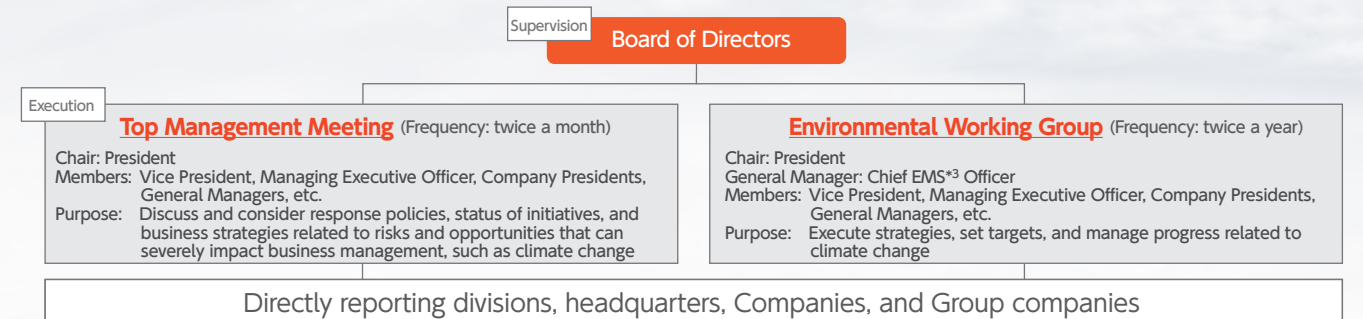
Roadmap to carbon neutrality by 2050

To achieve carbon neutrality in our business activities, we are conducting activities focused on (1) deepening and pursuing energy savings, (2) utilizing renewable energy, and (3) developing and adopting decarbonization technologies. To deepen and pursue energy savings, we are working to further streamline and rationalize our production processes so that we can reduce CO₂ emissions by 35% by 2050 compared to fiscal 2013 (approximately 1% each year). As for the remaining 65%, in addition to utilizing renewable energies (renewable energy electricity and offset systems, etc.), we aim to achieve carbon neutrality by adopting in-house solar power generation, converting energy usage to hydrogen and ammonia, and adopting new decarbonization technologies such as technologies that facilitate use of exhaust heat.



Governance

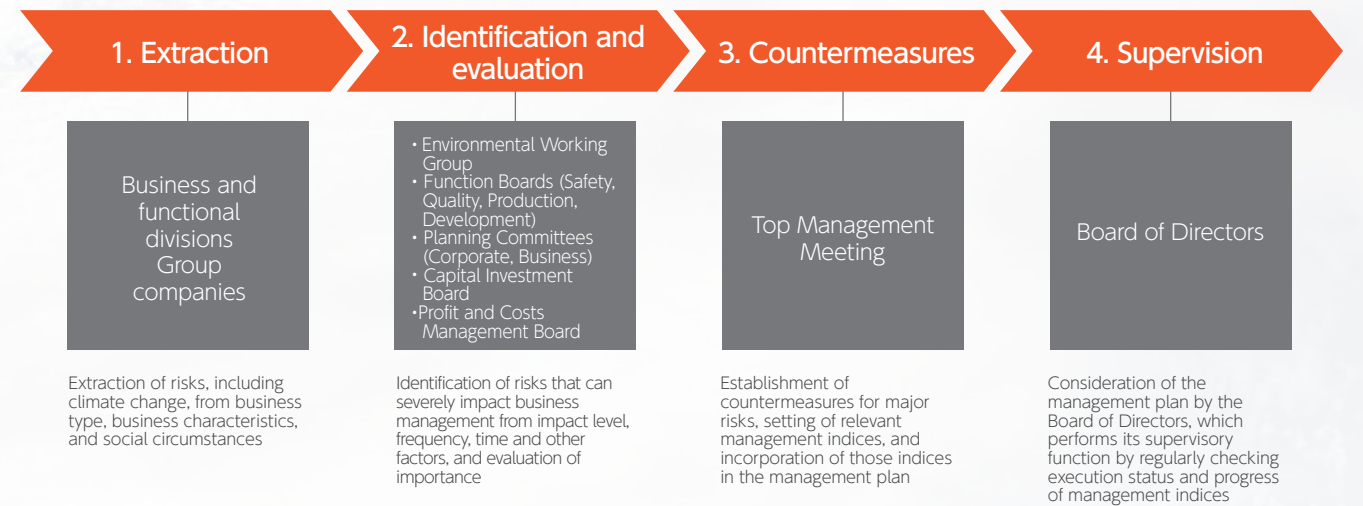
- As the organization responsible for considering important business-related matters, the **Top Management Meeting discusses and considers** response policies, status of initiatives, and business strategies related to risks and opportunities that can severely impact business management, such as climate change. The **Board of Directors performs its supervisory function** by receiving subsequent reports and considering matters that are particularly important.
- The **Environmental Working Group executes strategies, sets targets, and manages progress related to climate change**, and reports on its work to the Board of Directors. **Six subcommittees*2 have also been established**, with clear areas of responsibility, to conduct efficient and targeted activities.



*2 Refer to p. 21 *3 Environmental Management System

Risk management

We follow the process below to identify, evaluate, and supervise all risks, including climate change.



Strategies

While referencing the International Energy Agency (IEA), the Intergovernmental Panel on Climate Change (IPCC), and other bodies, we developed two scenarios (1.5°C scenario and 4°C scenario) of what society would look like in 2030 assuming a global average temperature rise of 1.5°C and 4°C by the end of this century (compared to pre-industrial levels). We then analyzed the risks and opportunities of each.

(1) 1.5°C scenario

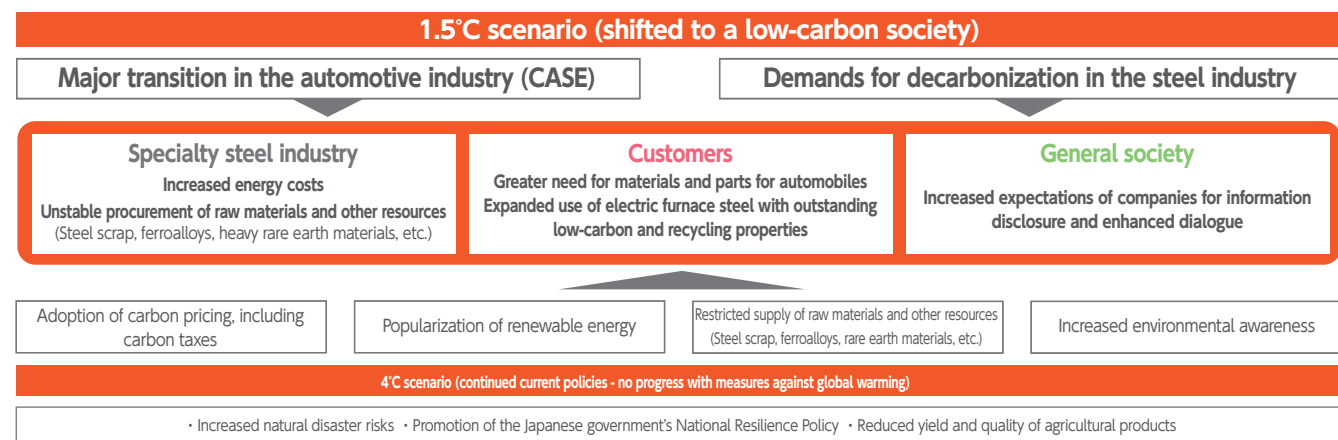
While risks include expansion of CASE applications in the automotive industry where our major customers are, and demands for decarbonization in the steel industry, we are confident that proactively addressing climate change will lead to the creation of new business opportunities.

(2) 4°C scenario

We reconfirmed the potential for natural disaster risks, which are increasing on a yearly basis, to impact our company and the rest of the supply chain. We will continue efforts to adapt to natural disasters, revise our business continuity plan (BCP), strengthen the supply chain by enhancing information gathering, and improve communication.

Climate Change Response

Vision of society



Important risks and opportunities, and response policies

Scenario	Climate-related matters	Impact on Aichi Steel	Aichi Steel response policies
1.5°C scenario	Major transition in the automotive industry (CASE) • Electrification • Autonomous driving	Risks • Reduced demand for specialty steels associated with reduced emissions intensity of specialty steel usage per automobile • Reduced demand for forged products for internal combustion engines • Supply risks, including shrinking forging market and reduced profits	• Capture demand for specialty steel and forged products for electric vehicles • Fulfill responsibility of supply by maintaining alternative capacity through collaborations with small- and medium-sized forging companies and building high-mix, low-volume production lines
		Opportunities • Increased demand for specialty steel, forged products, and electronic components for electric vehicles • Increased demand for autonomous driving support systems associated with social implementation of those systems	<Existing businesses (specialty steel, forged products, electronic components)> • In addition to a high level of quality, which is a characteristic of specialty steel, provide highly functional, high value-added products by leveraging the strengths of Aichi Steel in materials design, forging, and process technologies, etc. (output shafts for electric axes, power card lead frames, etc.) <New businesses (next-generation electric axes, GVPS*, etc.)> • Strengthen global supply systems in response to high demand • Expand new businesses through development and provision of next-generation electric axes with outstanding environmental performance, including resource saving and high recyclability of rare earth and other materials, and excellent power efficiency, due to reduced weight and size • Promote development and popularize use of the GVPS* autonomous driving support system with a view to social implementation on public roads
	Demands for decarbonization in the steel industry • Demand for electric furnace steel • Innovative technologies	Risks • Burden of research and development, and capital investment, for developing and implementing innovative technologies that help decarbonization • Reduced demand for specialty steel due to a shift to other lightweight materials	• Consider appropriate capital investment plans in light of future demand trends, and mechanisms for making investment decisions based on cost reductions through resource saving and low-carbon emissions • Utilize LCA** evaluation in design and development of products and services
		Opportunities • Increased demand for electric furnace steel with outstanding low-carbon and recycling properties	• Develop high-quality, highly functional products and services that meet the diverse needs of users for quality and volume, and build stable supply systems
	Adoption of carbon pricing, including carbon taxes	Risks • Increased operation costs associated with use of fossil fuels • Increased energy costs associated with increased prices for electricity derived from renewable energy	• Promote development of further energy-saving production technologies through production process improvements, including manufacturing process rationalization, such as producing smaller cross-section steel materials, and utilization of digital transformation • Promote the switch to low-carbon fuels, and shift to renewable energies through initiatives such as adopting in-house energy generation facilities – Switch all electricity used at five of the seven domestic plants to electricity derived from renewable energy** – Switch all gas used at two of the five domestic plants to carbon neutral city gas** • Consider adopting the latest high energy-efficient equipment, including innovative electric furnaces, etc.
	Restricted supply of raw materials and other resources • Steel scrap • Ferroalloys • Heavy and mid rare earth materials	Risks • Supply shortages and reduced quality, and increased procurement costs, associated with increased demand for scrap	• Unstable procurement of rare metals and rare earth materials • Ensure stable procurement by strengthening and expanding scrap recycling schemes in collaboration with users • Increase the sophistication of selection technologies and impurity removal technologies through industry-academia collaborations aimed at expanding use of low-quality, low-cost scrap • Promote understanding of, and make proposals for, domestic recycling schemes through industry bodies • Adopt a multi-source policy for suppliers and enhance supply chain management
		Opportunities • Increased demand for highly functional steel and other materials that have caused a reduction in usage of rare metals and rare earth materials	• Expand selling opportunities in various markets by developing and increasing a range of products that are small, lighter, and have outstanding recyclability to reduce resource usage and which include duplex stainless steel that uses less nickel and heavy rare earth dysprosium-free magnets (MAGFINE®)
Popularization of renewable energy	Opportunities • Increased demand for stainless steel for hydrogen infrastructure • Increased demand for magnets used in wind power generation motors	• Contribute to the realization of a hydrogen society by developing and popularizing stainless steel for high-pressure hydrogen applications, with higher strength, higher functionality, and greater resource-saving properties, developed ahead of other companies for use in fuel cell vehicles • Expand selling opportunities in new markets by jointly developing, with motor manufacturers, magnets for wind power generation motors	
	Increased environmental awareness • Expanded information disclosure • Enhanced dialogue • Environmentally friendly products	Risks • Poorer evaluation of companies due to an insufficient response to demand for information disclosure	• Consider obtaining third-party certifications to strengthen communication with stakeholders and disseminate information disclosures and strengthening information collection and management systems, predominantly through the CN Planning Subcommittee
4°C scenario	Natural disasters • Intense abnormal weather events • Increased typhoons and heavy rains • Increased sea levels	Risks • Operation stoppages due to damaged production facilities and equipment • Operation stoppages due to supply chain disruptions • Unstable procurement of raw materials	• With adaptation measures already implemented for heavy rains, typhoons, tsunamis, and high tides, etc., minimize the impact of damages through ongoing BCP measures • Build supply systems able to flexibly respond to demand, and strengthen ties with suppliers • Increase supply chain resilience through such actions as adopting a multi-source policy for suppliers, securing alternate suppliers, and ensuring appropriate inventories and emergency stores
		Opportunities • Due to increased needs for the Japanese government's National Resilience Policy, increased demand for stainless steel associated with infrastructure development, and motors for compact power generators in emergencies	• Contribute to strengthened infrastructure by expanding the range of products, including stainless steel and magnets for compact power generator motors, and expanding production capacity in response to demand
	Reduced yield and lower quality of agricultural products	Opportunities • Increased demand for next-generation fertilizers that will prevent quality deterioration of grain crops due to poor alkaline soils and increase yields	• Contribute to early application of proline deoxymugineic acid, which is a next-generation fertilizer being developed in an industry-academia collaboration, and to solving food shortages through its popularization globally

*1 Global Magnetic Positioning System, an autonomous driving support system, developed by Aichi Steel, that employs vehicle body sensor modules to detect the magnetic force of magnetic markers that have been laid in the road to measure vehicle position with a high degree of accuracy
*2 Life Cycle Assessment, a method for quantitative evaluation of the environmental impact through all processes of products and services, from collection of the raw materials to product usage, and disposal
*3 Carbon-free electricity through the purchase of non-fossil certificates traded on the non-fossil value trading market of Japan Electric Power Exchange (JEPX)
*4 Adopting carbon neutral city gas, provided by Toho Gas Co., Ltd., produced using carbon-offset LNG that offsets CO₂ emitted throughout the process from natural gas extraction to combustion by reducing and absorbing the CO₂ through forest conservation and other projects

Indicators and targets: CO₂ emissions in the supply chain

The following table details Scope 1 and 2 CO₂ emissions arising from use of energy in Aichi Steel business activities, and Scope 3 CO₂ emissions in the supply chain as calculated using methods such as the Green Value Chain Platform from the Ministry of the Environment.

Management indices	CO ₂ emissions (thousand t-CO ₂)				Calculation methods
	2013 (Base year)	2019	2020	2021	
Scope 1 (Direct emissions from in-house use of fuel and industrial processes)	239	251	217	248	Refer to Scope 1 and 2 Calculation Method below
Scope 2 (Indirect emissions associated with use of electricity and thermal energy purchased by Aichi Steel)	556	436	345	383	
Scope 1 + Scope 2 (Reduction compared to FY2013)	795	687	562	631 (-20.6%)	
Emissions intensity of production (kg-CO ₂ /t) (Reduction compared to FY2013)	546.4	509.7	470.0	442.6 (-19.0%)	
Scope 3 (Other indirect emissions related to business activities in the Aichi Steel supply chain)					
1. Purchased goods and services	–	806	718	948	• Calculated by multiplying purchased amounts of raw materials and other resources (purchase price) by the emissions intensity
2. Capital goods	–	60	44	30	• Calculated by multiplying capital expenditures by the emissions intensity
3. Fuel- and energy-related activities (not included in Scope 1 or 2)	–	125	111	126	• Calculated by multiplying usage amounts of purchased electricity and fuel by the emissions intensity
4. Upstream transportation and distribution	–	33	28	34	• Calculated by multiplying transportation distances, and transportation means and distances for Category 1 purchases, according to the Energy Saving Act report, by the emissions intensity
5. Waste generated in operations	–	11	11	11	• Calculated by multiplying the emissions intensity for each type of waste
6. Business travel	–	0	0	0	• Calculated by multiplying payment amounts for each travel means by the emissions intensity
7. Employee commuting	–	3	3	4	• Calculated by multiplying payment amounts for each travel means by the emissions intensity

Figures in the above table are rounded to the nearest thousand tons, with "0" representing "less than 500 tons."
<Scope of calculations> Scope 1 and 2: Aichi Steel alone / Scope 3: Aichi Steel alone in relevant categories
<Scope 1 and 2 Calculation method> Calculations are based on the Act on Promotion of Global Warming Countermeasures, Act on Rationalizing Energy Use, and Standard Calorific Value and Carbon Emission Factors by Energy Source (Agency for Natural Resources and Energy), and emissions coefficients from contracted power companies for each fiscal year
<Scope 3 Emissions Intensity> According to the "Database on Emissions Unit Values for Accounting of Greenhouse Gas Emissions, etc." by Organizations Throughout the Supply Chain" (Ver. 3.2, March 2022) from the Ministry of the Environment; and the "IDEA LCI Database" (Ver. 2.3) created by the Advanced LCA Research Group at the Research Institute of Science for Safety and Sustainability of the National Institute of Advanced Industrial Science and Technology (AIST), and Sustainable Management Promotion Organization (SuMPO)

Specific initiatives

Deepening and pursuing energy savings

Approximately 90% of all emissions at Aichi Steel come from the use of electricity and city gas in our manufacturing processes.
In addition to further efforts to save energy on top of our steady progress made so far, we are working to develop new technologies based on our accumulated technologies and know-how, such as our first adoption of an electric furnace exhaust heat recovery system in Japan in 2020, and improve energy efficiency through digital transformation technologies, such as use of IoT and AI. During fiscal 2021, we reduced CO₂ emissions by 18,000 tons through energy saving activities such as improved combustion efficiency using oxygen-enriched burners.

Utilizing renewable energy

We use large amounts of electricity in electric furnaces when producing steel, so we are actively adopting measures like electricity derived from renewable energy. Three of our seven domestic plants achieved carbon neutrality in 2021 (Seki, Gifu, and Higashiura). We plan to make another two plants carbon neutral in fiscal 2022 as well. Going forward, we will work to further expand our use of renewable energy through things like actively adopting in-house solar power generation.

Supply chain

To realize a low-carbon society, we need efforts from the entire value chain, not just from Aichi Steel.
We are working to promote an understanding among members of the Suppliers Convention, which is an association of our major suppliers, of the importance of the entire supply chain working together, and to call for cooperation and collaboration on future initiatives.

Awareness within the company

To achieve our goal of carbon neutrality by 2050, it is important that every employee becomes more aware of climate change and other social issues, and works together. This is also why we are actively working to raise awareness, including the creation, and distribution to all employees, of the Carbon Neutrality Handbook, which is a collection of everything from basic information about carbon neutrality to the latest case studies.



- (Examples of initiatives)
- Creation of the Carbon Neutrality Handbook and posting of it on the company intranet
 - Holding of study groups for employees (webinar and archive distribution)
 - In-house competition to design mascots