Our climate change initiatives： Disclosure based on TCFD

The issue of climate change is an important issue that must be overcome to bring about a sustainable society. Global efforts towards the faster realization of a carbon-neutral society are accelerating. We value the global consensus of the Paris Agreement, and in order to play a more active role in achieving the carbon-neutralization goals of society set forth in the agreement, we reviewed our “Policies on Climate Change Issues” in May 2021. We have set medium-term goals that show a clearer action plan for “Climate Change Mitigation” and its long-term goals, one of our six important social issues. (For midium-term goals, please refer to Page 14 and Page 39)

Basic Policy

- **Aim to make the Sumitomo Corporation Group carbon neutral in 2050(*1).**
  Develop technologies and business models for creating a sustainable energy cycle by reducing CO2 emissions and achieving negative emissions(*2) for society as a whole.

- **In addition to reducing and absorbing CO2 emissions from our business, we will contribute to the carbon neutralization of society through cooperative initiatives and recommendations made with business partners and public institutions.**

Policy on Business Activities

- **Promote renewable energy, efficient energy utilization and fuel conversion that contributes to reducing CO2 emissions throughout society. We will also work to offer new energy management and mobility services utilizing renewable energy and also to materialize hydrogen technologies and applications.**

- **In the power generation business, we provide a stable supply of the energy, essential for the economic and industrial development of local communities. At the same time, we continuously shift management resources to renewables and other energy sources with low environmental burden in the power generation portfolio.**
  (in 2035: 20% for coal-fired, 50% for gas-fired, and 30% for renewables in terms of net ownership generation capacity(*3))

- **Regarding the development of thermal power generation and fossil energy concession, we will work on the premise of carbon neutralization in 2050.**
  We will not be involved in any new coal-fired power generation business neither IPP (Independent Power Producer) nor EPC (Engineering, Procurement, Construction).
  For IPP business, we aim to reduce CO2 emissions by 60% or more by 2035 (compared to 2019) and we will end all the coal-fired power generation business in the late 2040s.
  We will not make any further investment in the thermal coal mining interest and aim to achieve zero production from thermal coal mines by 2030.

(*1) The scope of business targeted for carbon neutralization is as follows
[Scope1・2] Direct CO2 emissions from Sumitomo Corporation and its subsidiaries, as well as indirect CO2 emissions from the generation of energy used by each company (however, for power generation businesses, emissions from those affiliated companies under the equity method are also included)
[Scope3] Indirect CO2 emissions associated with the use of energy resources produced by fossil energy concession of Sumitomo Corporation Group, its subsidiaries, and affiliated companies under the equity method.
Carbon neutrality means net-zero CO2 emissions that combine CO2 emissions from our business and our contributions to CO2 emission reduction.
(*2) Negative emission refers to the absorption, capturing, and removal of CO2 emitted in the past and accumulated in the atmosphere.
(*3) As of 2020：coal 50%, gas 30%, renewables 20%

Our climate change initiatives： Disclosure based on TCFD

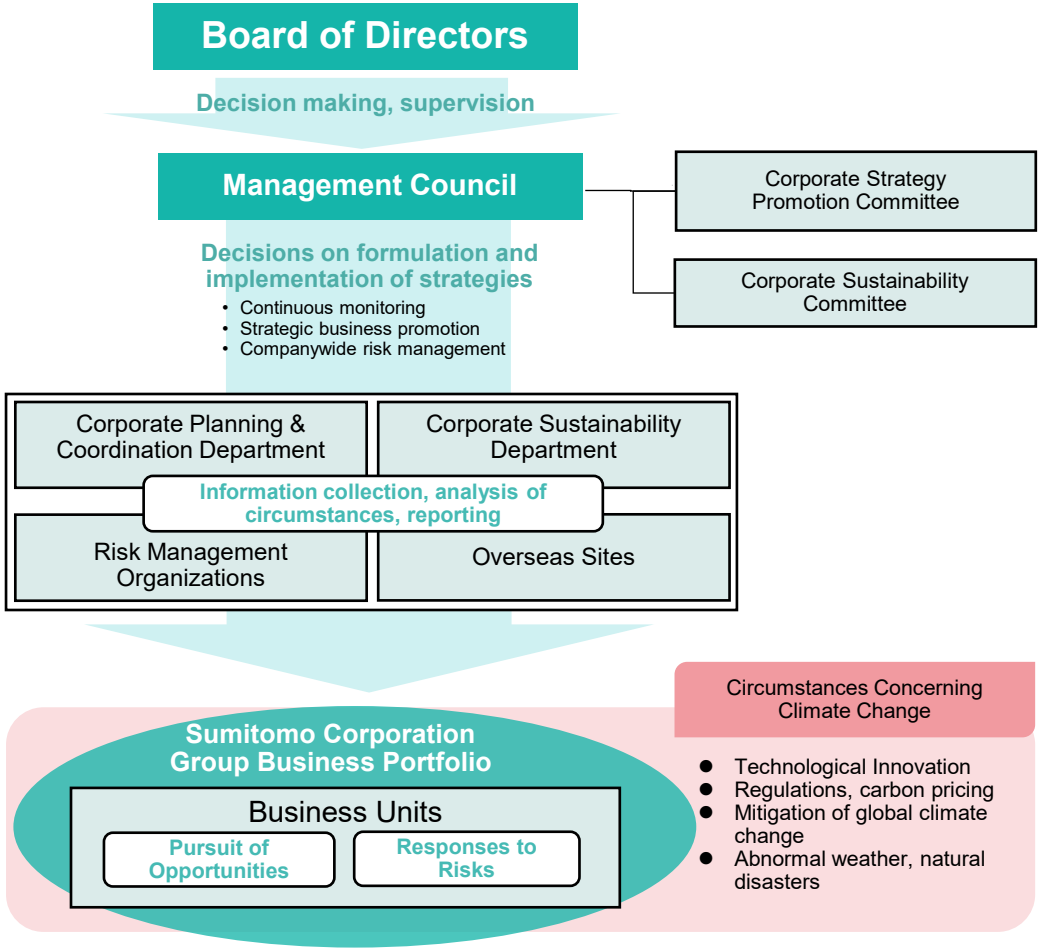
Governance（Structure for Responding to Climate Change Issues）

- With regard to the various opportunities and risks related to climate change issues involved in the Group's diverse business activities, the Board of Directors receives periodic reports on strategies in the Group's diverse activities each business field, their progress, and the status of risks affecting the company's entire business portfolio, and monitors whether appropriate management is being carried out. In addition, the Board of Directors adopts resolutions establishing policies on the Group's responses to climate change problems and discusses the handling of important issues related to policies on responses to climate change issues.

- As a recent example, our Management Council repeatedly discussed the path to achieve the Group‘s long-term goal of “becoming carbon neutral in our business activities by 2050 and taking on the challenge of realizing a sustainable energy cycle,” the policies of our power generation and energy-related businesses, and the initiatives necessary to realize a carbon-neutral society. Based on this, the Board of Directors reviewed the “Policy on Climate Change Issues” and resolved the medium-term goals for “Climate Change Mitigation.” The Group holds biannual strategic conferences with the participation of Management Council members to discuss strategies in each business field including measures for addressing social problems such as climate change under the Medium-term Management Plan.

- In addition to the measures taken by individual business units with regard to the opportunities and risks presented by climate change issues, the Corporate Sustainability Department, a dedicated organization for dealing with social problems, the Corporate Planning & Coordination Department, which creates the company's overall management plans and formulates key initiatives, and the risk management organizations work together, formulating company-wide policies and promoting necessary initiatives. Based on information provided by investigative organizations and sales organizations within the Group, overseas sites, and other parties, they deliberate on companywide measures.

- The Corporate Sustainability Committee (chairperson: Chief Strategy Officer, secretariat: Corporate Sustainability Department) follows global climate change mitigation trends and the Corporate Strategy Promotion Committee (chairperson: Chief Strategy Officer, secretariat: Corporate Planning & Coordination Department) deliberates on strategies and risk management measures related to climate change. The two committees provide reports and refers issues to the Management Council, which makes critical decisions regarding climate change-related measures.



Our climate change initiatives： Disclosure based on TCFD

Strategy: Climate Change-Related Risks and Opportunities

To overcome the issue of climate change, it is necessary to bring about a carbon-neutral cycle by shifting to decarbonization technology and renewable energy across the industry and utilizing emitted CO2.

We will respond to the risks posed by changes in various technologies and business models due to decarbonization as we globally develop businesses in a wide range of industries. At the same time, we will cultivate diverse business opportunities and meet the new social needs that arise in response to these changes.

Develop new businesses for realizing a sustainable energy cycle

We established the Energy Innovation Initiative (EII), a new business organization that aims to create next-generation businesses that contribute to the realization of a carbon-neutral society, in April 2021.

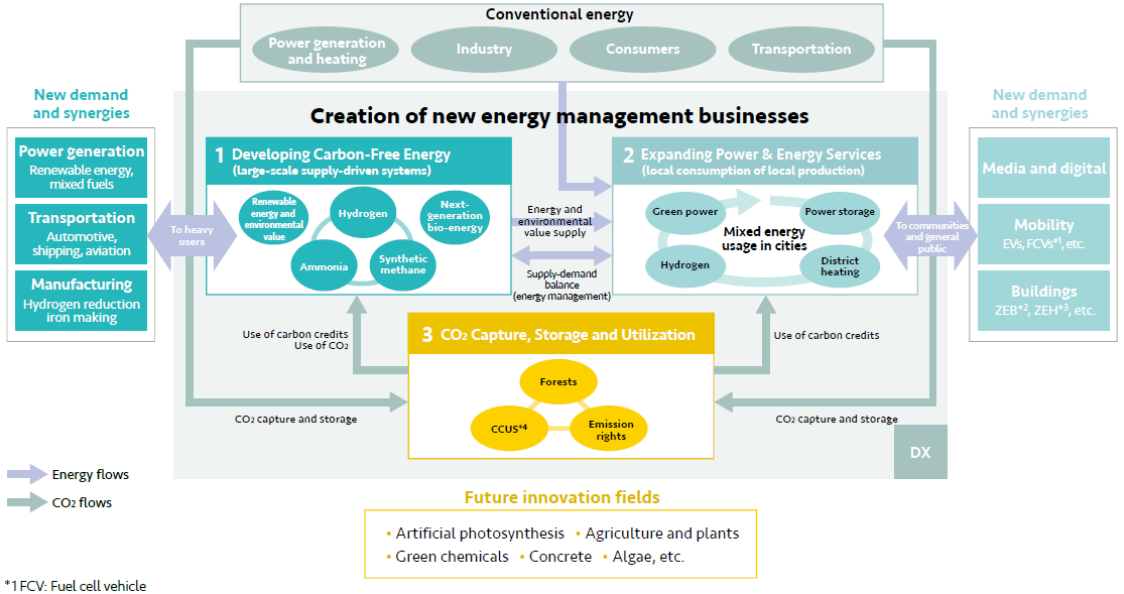
This organization aims to develop a decarbonization and recycling energy system and is engaged in cross-organizational efforts.

Specifically, these efforts are carried out in the three priority fields of “developing carbon-free energy” (such as hydrogen and next-generation bio-energy), “expanding power & energy services” (such as large-scale storage batteries and distributed power resources), and “CO_2 capture, storage and utilization”.

These three priority fields do not exist independently of each other but rather are interrelated, forming a single energy system. It will create new value by combining and uniting these fields. The EII calls this “the new energy management business” and is pursuing the creation of a next-generation business by combining related demand and synergy. The various projects of the EII include ones already commercialized and ones in different stages from field testing to social implementation. Work is underway to establish a sizable earnings base with 2030 as one possible target.

In addition to these initiatives, we will continue to build businesses that serve as the basis for the sustainable energy cycle of society. This will be achieved through expanding the supply of renewable energy and the switching of fuels, electrification, and improvements to energy and carbon efficiency across various industries, along with the expansion of businesses that promote energy conservation.

Creation of next-generation businesses for a carbon-free, recycling-oriented energy system



*1 FCV: Fuel cell vehicle

*2 ZEB: Net zero energy building
A building that aims to reduce the net annual primary energy consumption to zero

*3 ZEH: Net Zero Energy House
A house that aims to reduce the net annual primary energy consumption to zero

*4 CCUS: Carbon dioxide Capture, Utilization and Storage
Technology for capturing, effectively utilizing, and storing CO_2

Our climate change initiatives： Disclosure based on TCFD

Strategy: Climate Change-Related Risks and Opportunities

- With regard to the problem of climate change, various regulations may be introduced in the future to encourage carbon emissions reductions and decarbonization, in the long term, advances in international deliberations, revisions to the greenhouse gas reduction plans of individual countries, and changes in the technologies and markets of diverse industrial fields may bring about various changes in our Group's business environment.
- We are analyzing the impact on businesses including power generation/energy and resource-related businesses, automobiles, aircraft, shipping business, steel, chemicals, cement, aluminum smelting, and real estate, which are presumed to be fields that face a relatively high risk of change in the business environment. These include changes in technology related to climate change mitigation and the introduction of regulations. It is assumed that there are risks that affect business activities in these fields. By recognizing the magnitude of the risks through regular scenario analysis and considering appropriate countermeasures, we are working to keep the negative impact on business performance to a minimum. We are also strengthening initiatives that contribute to the development of business opportunities, such as the construction of carbon-free and recyclable energy systems.

Scenario Analysis

- We see climate change as a major issues faced by the entire world, and we identify businesses on which climate change will have a significant impact and perform scenario analysis based on the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

Climate scenario selection

- In the event of significant changes to the business environment, from the perspective of objectively evaluating new business opportunities and business resilience, we are analyzing the impact on business by 2050 using the below scenarios. In doing so, we primarily reference the IEA's (International Energy Agency) World Energy Outlook 2020, and Energy Technology Perspective 2020, Net Zero by 2050 Roadmap for the Global Energy Sector. These scenarios are referenced as examples of possible changes in the business environment of each sector for long-term trends in global climate change mitigation, and do not necessarily represent assumptions for our management policies or business strategies.

Referenced scenarios	• NZE (Net Zero Emission Scenario): A scenario that backcasts global accomplishment of net zero by 2050 *1.5℃ increase by 2100 (50% probability) • SDS (Sustainable Development Scenario): Towards the achievement of the goals of the Paris Agreement and the SDGs, a sustainable growth scenario that achieves carbon neutrality by 2070 *Less than 1.65℃ increase by 2100 (50% probability) • STEPS (Stated Policies Scenario): A public policy scenario in line with policies already announced by governments and Nationally Determined Contribution (NDC) submitted by each country *Less than 2.7℃ increase by 2100 (50% probability)

Our climate change initiatives： Disclosure based on TCFD

Strategy: Climate Change-Related Risks and Opportunities

Identifying the businesses for which to perform scenario analysis

◆ Our scenario analysis scope encompasses all of our business sectors which will be highly affected by business environment changes related to climate change mitigation, regardless of the scale of the business.
This fiscal year we are conducting scenario analysis after confirming trends in technological changes and the introduction of regulations for businesses in power, energy, transportation, materials industry, and real estate.

Business sectors selected for scenario analysis

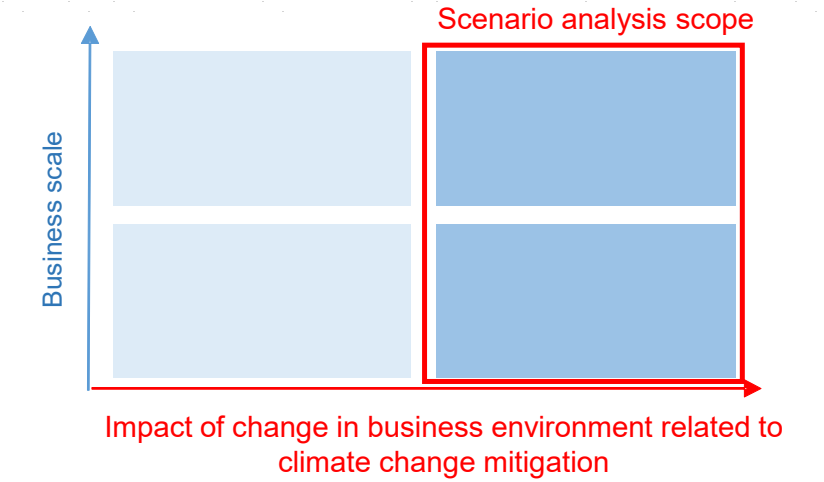
Electric power: Power generation (Coal and gas), Renewable energy

Resources: Thermal coal and coking coal, Natural gas and LNG, Metals and rare metals (Nickel, copper, and iron ore)

Transportation: Vehicles (Manufacture and sales of automobile parts/sales of finished vehicles), Shipping (Shipbuilding/ship ownership and operation), Aviation(Lease business)

Material industry sector: Steel (Steel sheets & tubular products manufacturing &sales), Cement (Distribution business), Chemicals (manufacturing/trade), Aluminum (Smelting and refining business)

Real estate sector: Office buildings/residential building sales business



Results of scenario analysis

◆ For the recognition of the business environment related to the sectors identified for scenario analysis, power, energy, transportation, materials industry, and real estate, the future demand trends for each sector listed in the main scenarios presented by the IEA are evaluated in three levels: positive, neutral, and negative. The forecasts for demand trends and the business environment shown by these scenarios include many potential risks and uncertainties. Also, our policies and initiatives related to each sector describe the policies and initiatives that consider the factors and certainty of various changes in the business environment shown in these scenarios and the circumstances unique to our business.

Our climate change initiatives： Disclosure based on TCFD

Strategy: Transition Risks and Opportunities Related to Climate Change <Scenario Analysis>

Electric power sector

◆ **Power generation (Coal and gas)**

	NZE／SDS	STEPS
Business environment assessment	• In SDS, coal-fired thermal power is reduced to about 80% compared to 2019 in 2040. Gas-fired thermal power temporarily increases as a substitute but decreases about 34% compared to 2019 in 2040. • In NZE, there are no new coal-fired thermal power plants at the current point in time. In developed countries, coal-fired thermal power without CCUS is abolished in 2030 and is abolished globally in 2040. Gas-fired thermal without CCUS power peaks in 2030 and decreases 90% compared to 2020 by 2040.	• For 2040, demand for coal-fired thermal power generation will decrease by about 14% from 2019. Demand for gas-fired thermal power generation is expected to increase by about 16% in 2040 from 2019. • Power generation demand for gas-fired thermal power increases about 16% compared to 2019 in 2040.
	Negative	Neutral
Our policies and measures	We will shift our allocation of management resources from coal-fired thermal power to power businesses with low environmental impact, such as renewable energy. Regarding coal-fired thermal power businesses, we will not work on new projects, and we plan to complete all of our businesses and withdraw by the latter half of the 2040s. Most of our existing coal-fired thermal power generation businesses are based on long-term contracts with governments of developing nations where power demand continues to increase. Provisions are included in power sales contracts that hedge against risks in return volatility caused by changes in the legal system. We have also obtained guarantees from the governments regarding the performances of these contracts, and we are covered by NEXI foreign investment insurance. Even with demand for coal-fired thermal power decreasing across society as a whole, risks for the significant deterioration of the commercial viability of individual projects are not considered to be high. However, we will continue to monitor changes to the surrounding business environment.	

◆ **Power generation (Renewable energy)**

	NZE／SDS	STEPS
Business environment assessment	• With carbon-neutral trends growing globally, renewable energy is increasingly becoming a primary power source in many countries. In NZE/SDS, consumer demand for renewable energy increases. • In SDS the total renewable energy ratio which includes solar and wind power, increases 22% compared to 2019 in 2040, and the renewable energy ratio is 36%. In NZE, in 2050 there is a 59% increase compared to 2020, and the ratio is 88%.	• Demand for renewable energy sources is expected to increase by 83% in 2040 from 2019.
	Positive	Positive
Our policies and measures	To overcome the issue of climate change and bring about a carbon-neutral society, the Sumitomo Corporation Group is engaged in various renewable energy businesses such as wind, solar, geothermal, hydroelectric, and biomass. While providing the stable supply of energy essential for the development of economies and industries in local societies, we are putting forward a policy of continuing to shift managerial resources to a power generation portfolio with low environmental impact. We have set goals to have the scale of our renewable energy provided at over 3GW and share the power generation capacity ratio to be move from 50% to 20% for coal, 30% to 50% for gas, 20% to 30% for renewable energy.	

Our climate change initiatives： Disclosure based on TCFD

Strategy: Transition Risks and Opportunities Related to Climate Change <Scenario Analysis>

Resources sector

◆ **Thermal coal and coking coal**

	NZE／SDS	STEPS
Business environment assessment	• In SDS, due to impacts from the shift from low-grade to high-grade coal, the reduction and streamlining of coal-fired thermal power, and hydrogen reduction in steel, demand will fall 65% compared to 2019 in 2040. • In NZE, demand for coal will drop rapidly. The creation of new coal mines and expansion of existing mines will become unnecessary. Demand for coking coal will decrease at a slower rate than thermal coal. Existing production sources will cover demand until 2050. Demand for coal will fall over 90% compared to 2020. • In NZE, the implementation of CCUS is proceeded significantly in the 2040s, and CCUS will be applied to about 80% of coal production facilities in 2050.	• Demand for coal-fired thermal power generation will decline, and by 2040, demand for coal will decline by about 12% from 2019.
	Negative	Negative
Our policies and measures	We will not acquire new interests in the thermal coal mine development, and we plan to aim for zero equity production volume from thermal coal mines. The proportion of thermal coal interests in our energy portfolio is relatively small and we are maintaining satisfactory competitiveness. Going forward, each mine is scheduled to reach the end of its mine life gradually. Regarding coking coal, with the shift to electric furnaces that use scrap and the practical application of iron-making process with low CO2 emissions, it is forecast that demand for coking coal will decrease in the long term. However, it is predicted that steel businesses that use blast furnaces with CCUS technology installed will be preserved for the time being. We believe that the superiority of our high-quality coking coal interests will be maintained.	

◆ **Natural gas and LNG**

	NZE／SDS	STEPS
Business environment assessment	• In SDS, while gas-fired thermal power will replace coal-fired thermal power as a source of power, demand for natural gas will remain persistent until around 2030, and in 2040 will decrease 12% compared to 2019. In 2040, demand for LNG will increase about 1.5 times globally compared to 2020. In NZE, to bring about carbon neutrality by reducing gas-fired thermal power, the development of new gas fields will not be necessary. Usage of natural gas will peak in the mid-2020s, decrease after 2030, and in 2050 will decrease 55% compared to 2020, with LNG decreasing 60%. • In SDS and NZE, gas fuel is increasingly replaced with hydrogen and biomass fuel, and mainly in Europe, regulations may become stricter.	• There is no switch to renewable energy as a power source, and as a replacement for coal-fired thermal power, demand for natural gas and LNG increases about 30% compared to 2019 in 2040.
	Negative (NZE) / Neutral (SDS)	Neutral
Our policies and measures	In the transition phase to a low-carbon society, gas will be used as a replacement power fuel for coal. It will continue to play an important role as chemical raw material and fuel for transportation. In particular, it is anticipated that LNG demand will increase focused on China, India (which does not have a pipeline for import), and the ASEAN nations. It is expected that business opportunities will increase in the Asian Pacific (including India). Going forward, we will focus on strategic regions in the medium-to-long term perspective, and we will work to create a natural gas and LNG value chain.	

Our climate change initiatives： Disclosure based on TCFD

Strategy: Transition Risks and Opportunities Related to Climate Change <Scenario Analysis>

◆ **Metals and rare metals (Nickel, copper, and iron ore)**

	NZE／SDS	STEPS
Business environment assessment	• With the dissemination of renewable energy and electric vehicles, in NZE, demand for metal resources (rare metals) will increase seven times compared to 2020 in 2030, and in SDS will increase by roughly four times compared to 2020 in 2040. • In SDS and NZE, it is believed that demand for iron ore will increase steadily, supported by robust demand for steel.	• While the dissemination speed of EV and renewable energy is slow, expansion to a certain extent is visible, and by 2040 demand, for metal resources will be roughly double compared to 2020. • Steel demand will increase compared to NZE and SDS, and as a result, demand for iron ore will also increase.
	Positive	Positive
Our policies and measures	Regarding nickel, to respond to growing global demand, we are proceeding with projects as a producer in the Republic of Madagascar. We sell the products to Japan, Europe, North America, and Asia, and we are aiming to create further business opportunities. Regarding copper, through investing in copper mines overseas, we are involved in copper refining and the sale and production of copper bullion which are the upstream of the copper production value chain. Regarding iron ore, through our projects in South African and Brazilian mines, we contribute to stable supply of commodities to Asia with a focus on China and Japan. Going forward, so that we do not lose sales opportunities due to supply not keeping up with the rapid increase in demand for metal materials, we will continue to promote the securing and expansion of procurement sources in line with increasing demand for rare metals in light of market trends, securing scarce resources based on trends in the circular economy. With regard to iron ore, we will continue to secure sources for stable supply while paying close attention to the impact on demand due to changes in the iron-making and steel-making processes in response to decarbonization in the steel industry, and also to the impact of an increase in the ratio of electric furnace steel.	

Transportation sector

◆ **Vehicles (Manufacture and sales of automobile parts/sales of finished vehicles)**

	NZE／SDS	STEPS
Business environment assessment	• In SDS and NZE, sales of passenger vehicles will remain steady, driven by economic growth in developing nations. Sales will increase by 18% compared to 2019 in 2030. On the other hand, consumers' preference for car ownership will change due to the development of MaaS. • In SDS, EVs will account for roughly 40% of the sales of passenger vehicles by 2030. There will be a significant reduction in demand for internal combustion engine parts. • In NZE, the diffusion of EVs will increase with the introduction of restrictions in various countries. By 2030 EVs will account for 60% of the sales of passenger vehicles, and by 2035 the sale of gasoline passenger vehicles will be forbidden. In SDS and NZE, carbon neutralization initiatives for the OEM supply chain will speed up.	• The sales of passenger vehicles will increase 30% compared to 2019 by 2030. The EV ratio will remain at 20%, and there will be a limited reduction in demand for internal combustion engine parts. • The carbon neutralization of OEMs will develop gradually.
	Neutral	Neutral
Our policies and measures	At the Sumitomo Corporation, we are involved with the manufacture and sales of finished vehicles, automobile finance, and automobile leasing. The handling of internal combustion engine parts is only a small proportion of the parts manufacturing business, so we consider the direct impact to automobile-related businesses due to the switch to EVs to be limited. Also, as a response to carbon neutralization, including OEM supply chains, we will investigate the use of carbon-free energy and low-carbon and carbon-free technology in manufacturing and transporting parts. With the switch to EVs and developments in MaaS, changes to the business model of our automobile-related businesses are conceivable. However, we see these changes as business opportunities. We will develop new business foundations, including car sharing businesses and parking businesses, creating added value for existing businesses, and reviewing our product portfolio.	

Our climate change initiatives： Disclosure based on TCFD

Strategy: Transition Risks and Opportunities Related to Climate Change <Scenario Analysis>

◆ Shipping (Shipbuilding/ship ownership and operation)

	NZE／SDS	STEPS
Business environment assessment	• In SDS and NZE, demand for marine transportation will remain steady. In SDS, demand will rise roughly 3.3 times compared to 2019 in 2070, and in NZE, it will rise roughly 2.7 times compared to 2020 in 2050. On the other hand, with IMO restrictions and the dissemination of LNG ships, there is the possibility the demand for ships that emit large amounts of CO_2 will decrease. • In SDS, the rate of low-carbon-fuel (ammonia, hydrogen, and biofuels) will be a little over 5%, and the reduction in CO_2 emissions by improving fuels and optimization of logistics will be vital. In NZE, low-carbon-fuel will comprise less than 20% of all ships. • By 2050, in SDS, more than 50% of fuel consumption will be low-carbon-fuels, and in NZE, it will be over 80%.	• The demand for marine shipping will increase 3.6 times compared to 2019 by 2070. • Demand for ships with high CO_2 emissions may decrease slowly. Dissemination of low-carbon-fuels will also be gradual.
	Neutral	Neutral
Our policies and measures	At the Sumitomo Corporation, we are involved in shipbuilding, and we also own and operate our own ships. As a result of CO_2 reduction targets by IMO and changing preferences from shippers, we assume that the shift from heavy fuel oil ships to low CO_2 emission fuels and heavy oil dual-fuel ships will continue in the medium to long term. While monitoring regulations of nations and trends in markets and technology, we believe that we will be able to create new business opportunities and flexibly respond to changes in the business environment as a result of the move to a carbon-neutral society by promoting the review of the product lineup of our manufacturing businesses and our portfolio of ships.	

◆ Aviation (Lease business)

	NZE／SDS	STEPS
Business environment assessment	• While the behavior of some consumers has changed and they are avoiding using aircraft, demand for air travel is steady driven by the economic growth of developing nations. In SDS, demand for air travel will increase around 2.5 times compared to 2019 by 2050. In NZE, demand for air travel will increase 1.7 times compared to 2019 by 2050. • In SDS and NZE, the switch to fuel-efficient aircraft and engines will progress due to ICAO regulations. In 2030, SAF (Sustainable Aviation Fuel) will comprise 7% of total aviation fuel consumption. In NZE, this will be about 18%, of which almost all will be biojet kerosene (a type of liquid biofuel). In 2050, the SAF percentage will increase to roughly 50% in SDS and 78% in NZE, with the remainder being offset by BECCS (Bio-Energy CCS) and DAC (Direct Air Capture).	• Changes in consumer behavior will be limited. Demand for air travel will increase 3 times compared to 2019 by 2050. • The switch to fuel-efficient aircraft and engines will progress to a certain extent, and the dissemination of SAF will be moderate.
	Neutral	Neutral
Our policies and measures	At the Sumitomo Corporation, we are involved in the lease of aircraft and engines along with the manufacture of some aircraft parts. Going forward, it is assumed that the shift to fuel-efficient aircraft will continue in the long term due to ICAO regulations. However, for our aircraft and engine lease business, we procure new aircraft and engines for lease, reflecting on the demand from each passenger airline company. We also continuously replace our aircraft and engine portfolio through sales at the end of the lease. Therefore, by monitoring market and technology trends and laws and regulations regarding aircraft fuel efficiency, we believe we can respond flexibly to changes in the business environment by controlling the risk of reductions in leasing fees and aircraft price.	

Our climate change initiatives： Disclosure based on TCFD

Strategy: Transition Risks and Opportunities Related to Climate Change <Scenario Analysis>

Material industry sector

◆ **Steel (Steel sheets & tubular products manufacturing and sales)**

	NZE／SDS	STEPS
Business environment assessment	• In terms of SDS/NZE, global steel demand is to remain robust until 2050. • Green Steel activities, e.g., use of carbon-free energy and efficient hydrogen use, is to speed up, with SDS target set on 2070 and NZE target on 2050. • In SDS/NZE, greater demand for decarbonization in the supply chain is expected from users.	• In addition to increased demand, material efficiency has not declined, resulting in an approx 30% increase in production in 2050 compared to 2019.
	Neutral	Neutral
Our policies and measures	Sumitomo Corporation engages in the processing and marketing of steel sheets, tubular products and other steel products. Because the business operation excludes nearly all of the steel refining process, CO2 emission is limited. If demand for decarbonization in the supply chain rises among the end-users, of which the leading customers are in the fields of transportation systems, household appliances, energy, etc., demand is likely to shift to recycling-derived steel products and in the long term to products that utilize decarbonization and decarbonization technology, represented by direct reduction steelmaking utilizing hydrogen. For this reason, effort will be directed to cultivating business opportunities that emerge from the carbonization of steelmaking technologies, in coordination with the leading customers and business partners.	

◆ **Cement (Distribution business)**

	NZE／SDS	STEPS
Business environment assessment	• Alongside growth in power generation with renewable energy sources and in energy-related infrastructure, the SDS target is set at 2040, with NZE target at 2030. Global cement demand is expected to increase but decline by 2050, remaining roughly constant vis-à-vis the 2020 level. • The ratio of clinker ash (cement material) that rates high in CO2 emission is expected to fall from roughly 71 to 60 percent in terms of SDS and from 70 to 57 percent for NZE. • In terms of SDS/NZE, roughly 2/3 of CO2 emission in the cement production process derives from raw materials. Carbon neutrality will be promoted with CCUS, by switching from fossil fuel-derived energy to carbon-free energy.	• The growth in demand, combined with the absence of dip in material efficiency, is expected to result in increase in production output by more than around 20% compared in 2050. • Clinker ash ratio does not decline, and little progress is made in reduction of CO2 emission from manufacturing process.
	Neutral	Neutral
Our policies and measures	Sumitomo Corporation engages in cement distribution business. Because the business operation excludes nearly all of the cement production process, CO2 emission is limited. While effort is underway for transition in fuel used in the cement productions process to clean energy sources and research conducted on replacement of limestone used as the principal raw ingredient with other materials, Sumitomo Corporation is utilizing its own information network to explore into effective CCUS technologies, etc., in the cement industry.	

Our climate change initiatives： Disclosure based on TCFD

Strategy: Transition Risks and Opportunities Related to Climate Change <Scenario Analysis>

◆ Chemicals (manufacturing/trade)

	NZE／SDS	STEPS
Business environment assessment	• Alongside growth in power generation with renewable energy sources and in energy-related infrastructure, the global demand for chemical products is expected to grow by 30% in 2050 vis-à-vis the 2019 level in terms of SDS. 30s% growth is expected vis-à-vis the 2020 level in NZE. • In terms of SDS/NZE, fossil fuels have been used as raw material for petrochemical products. For this reason, use of fossil fuel is expected to remain to a certain degree, and carbon neutrality will be promoted through activities based on use of carbon-free energy and CCUS.	• The growth in demand, combined with the absence of dip in material efficiency, is expected to result in increase in production output by more than 30% in 2070 vis-à-vis SDS. • Market share of chemical products manufactured with materials other than fossil fuels fails to rise, resulting in continued application of conventional manufacturing methods.
	Neutral	Neutral
Our policies and measures	Sumitomo Corporation engages in petrochemical product trade and manufacturing. In petrochemical product manufacturing,, naphtha produced by refining petroleum and gas is used as the principal raw material. Carbon dioxide is released in huge quantity from fossil fuel energy used in the synthesis and decomposition processes. In the long term process of energy decarbonization, the supply of naphtha used as raw material is expected to decline, and demand for use of renewable energy is expected to grow. Sumitomo Corporation expects to continue gaining revenues from global trade by adjusting changes in supply and demand in petrochemical product raw materials and finished product markets and at the same time plans to monitor trends in customer demands and in relevant technologies, in order to explore into business opportunities in the effective use of biomass materials and chemical product manufacturing utilizing CCU (carbon dioxide capture and utilization).	

◆ Aluminium (Smelting business)

	NZE／SDS	STEPS
Business environment assessment	• In terms of SDS, dissemination of electrified vehicles and reduction in weight of transport vehicles are expected to increase demand in aluminum by roughly 20% in 2040 over the 2018 level (*). • Although developments in aluminum is not explicitly referred to in NZE, demand for the material is to increase further, even when compared with the SDS, with wider use of electrified vehicles. • In SDS/NZE, user demand is expected to grow for aluminum smelted with renewable energy-powered electricity.	• Dissemination of electrified vehicles, etc., is expected to increase aluminum demand by more than 60% in 2040 vis-à-vis the 2018 level. • User demand for aluminum smelting powered with renewable energy-derived electricity is not likely to spread, and manufacturing with conventional production method is likely to continue.
	Neutral	Neutral
Our policies and measures	Sumitomo Corporation's aluminum production business in southeast Asia chiefly utilizes hydroelectricity. For this reason, future risks pertaining to carbon pricing is expected to be limited, and the business is likely to remain competitive in the medium and long range. For this reason, future demand for decarbonization in the supply chain from end-users is expected to present business opportunities where Sumitomo Corporation is able to utilize its strengths.	

(*) Limited to demand forecast data for smelted aluminum only; refer to WEO 2019 figures.

Our climate change initiatives： Disclosure based on TCFD

Strategy: Transition Risks and Opportunities Related to Climate Change <Scenario Analysis>

Real estate sector

◆ **Office buildings/residential building sales business**

	NZE／SDS	STEPS
Business environment assessment	• In terms of SDS/NZE, real estate demand is expected to remain strong with growth in population in newly emerging and developing countries. In terms of NZE, floorspace and commercial and residential buildings is expected to increase by roughly 1.2 times over the 2020 level by that year 2030 and by 1.7 times in that year 2050. • In NZE, all new buildings built as of the year 2030 are to be compliant with "zero-carbon ready" criteria. • In terms of existing structures in industrialized nations, roughly 28% are expected to be renovated to satisfy the criteria in terms of SDS and roughly 45% in NZE. In NZE, 85% of all buildings in 2050 are to be compliant with "zero-carbon ready" criteria in 2050.	• Real estate demand is expected to remain robust. • Dissemination of environment-conscious structures and changes in customer preferences are expected to remain moderate
	Neutral	Neutral
Our policies and measures	Sumitomo Corporation engages in real estate business, including office buildings, commercial facilities, residential housing, distribution facilities and real estate funds. In view of the fact that energy consumed in buildings and homes is perceived as a source of CO2 emission and in face of demand for zero carbon emission, continued effort will be directed to improving energy efficiency and to introduction of renewable energy in the course of installation of new facilities in new buildings and facility updates in existing buildings. For office buildings, distribution facilities and real estate fund operations, action will be taken to acquire environment-related certification. In residential home business, attention is directed to development of ZEH condominium complexes.	

(*) Structure to undergo decarbonization by 2050 by means of high energy efficiency and choice of energy sources for the purpose and to achieve zero carbon emission without additional changes in facilities.

Progress in decarbonization across sectors

As the scene in the new decarbonization targets and rise in existing target levels by various countries at the April 2021 Leaders Summit on Climate, global acceleration is underway for activities aimed at realizing carbon neutrality at an early stage. In addition to decarbonization effort by individual industries in each country and region, action is underway to promote decarbonization across industries, with establishment of carbon pricing and promotion of sustainable financing.

The introduction and reinforcement of CO2 emission trade and carbon tax by various nations have combined with the carbon border adjustment mechanism under study in Europe and other regions, raising the possibility of impact on supply chain in various industries across national and regional boundaries. Forecast on carbon pricing differs by region. As of 2040, it is expected to be in the range of 125-140 dollars/t-CO2 in SDS and 30-205 dollars/t-CO2 in NZE scenario. Carbon pricing levels in terms of carbon tax and emission trade in the future are expected to hugely affect business performance, chiefly in the carbon-intensive industries.

Additionally, financial support is provided in the use of decarbonization and decarbonization technologies in various nations and regions. For this reason, effort is underway to develop sustainable financing guidelines, including the EU taxonomy.

Because the weight of carbon-intensive manufacturing businesses is limited in Sumitomo Corporation's business portfolio, the direct impact of the aforementioned developments is expected to be limited. However, attention will be directed to the impact of these decarbonization promotion measures and policies on the supply chains that are linked to Sumitomo Corporation's business operations, in order to explore into new business opportunities with attention to changes in technologies and business models through decarbonization.

Our climate change initiatives： Disclosure based on TCFD

Strategy: Physical risks related to climate change and countermeasures

Because Sumitomo Corporation Group engages in business activities over a wide range of industrial sectors in various countries, possible escalation in climate change is likely to cause the following risks to become chronic and impact its business operations.
(For sector category and characteristics of risks per sector, referred to UNEP FI reports on physical risks, etc. / For analysis on water stress and temperature rise, refer to Representative Concentration Pathway (RCP) 8.5 scenario by the Intergovernmental Panel on Climate Change (IPCC).)

Sector	Awareness of the impact of physical risks in each sector		Principal business related to the risk described at left
	Chronic	Acute	
Power generation	Water shortage resulting in decline in production efficiency and in operation efficiency	Damage on facilities, disruption of operation, etc., caused by flooding and huge rainstorms	Thermal power generation in Southeast Asia, Middle East and Africa; renewable energy power generation, including solar power generation, etc., in Japan
Resource & interest	Rise in temperature & water shortage resulting in decline in production efficiency, disruption in operation, risk of flooding with rise in sea level, etc.	Damage on facilities, disruption of operation, etc., caused by flooding and huge rainstorms	Mining operations in North America, South America, Australia, Africa, etc.; energy interests in Southeast Asia, Middle East & Europe; and sales of such resources and energy
Raw materials	Rise in temperature & water shortage resulting in decline in production efficiency, disruption in operation, etc.	Damage on facilities, disruption of operation, delay in raw materials/product shipment, etc., caused by flooding and huge rainstorms	Manufacturing, processing, sales, etc., of metal products, transportation equipment and parts, chemical products, materials, etc.
Transportation systems	Water shortage resulting in decline in production efficiency, disruption of operation, etc.	Damage on facilities, disruption of operation, delay in raw materials/product shipment, etc., caused by flooding and huge rainstorms	Manufacturing and sales, etc., of transportation equipment and parts
Real estate	Delay in project schedule, rise in air-conditioning cost, decline in property value with a rise in sea level, etc., resulting from rising temperature	Delay in project schedule, decline in property value caused by structural damage & flooding, etc., caused by flooding and huge rainstorms	Office building leasing, development of commercial complexes & distribution facilities, condominium sales, etc.
Agriculture	Rise in temperature & water shortage resulting in decline in production efficiency, etc.	Disruption in operation, etc., caused by huge rainstorms, flooding or drought	Agriculture & import and wholesale of food products, retail sales business, etc.

Physical risks are largely divided into chronic risks that have continual and chronic impact on business activities (e.g., rise in average temperature, change in rainfall pattern and rise in sea level) and acute risks caused by unforeseen disasters (e.g., escalation of abnormal weather conditions such as huge rainstorms, flooding, drought, etc.). The impact is wide-ranging, including direct impact related to production site facilities and working conditions and indirect impact on a broad range of supply chains for raw materials and products. In view of Sumitomo Corporation's business operations over a broad range of fields and regions, studies will be conducted on investments related to impact of the region's weather conditions, geographical factors, etc., continual assessment after project participation, identification of its own scope of liability under contract terms and conditions, nonlife insurance contracts, etc., for management of such risks. In the following analysis, we focused on power generation, energy and natural resources, real estate, and agriculture, and analyzed their physical risks based on the location of their main sites, focusing on two main factors: water stress and continuous temperature rise.

- In the study of resources & energy interest business in terms of continual temperature increase risk, there were regions found to have relatively high risk of long-term increase in the number of days when temperature reaches 35°C or higher and possibility of water shortage. Sumitomo Corporation plans to execute risk control through assessment of disaster risks vis-à-vis geographical conditions, etc., definition of working conditions with sufficient attention to temperature and other conditions, subscription to nonlife insurance, etc.
- The analysis of water stress on power generation business showed there are regions with possibility of possible water shortage. However, water used in the business operation, e.g., cooling water for the power generation operation, etc., is supplied by seawater, water production facilities within the power plant, etc., leading to the conclusion that the risk of operation disruption caused by water shortage, etc., is not significant.
- In the real estate business, sufficient research and analysis are being conducted on flooding risks for various locations during the development studies stage. Property projects are being selected through conservative assessment of risks based on information from hazard maps and specific conditions of each property site, etc. In promoting project development, measures are being taken on physical risks in order to minimize them. For this reason, risks in the business portfolio as a whole is not considered significant.
- In the analysis of temperature rise and water stress for major agricultural sites in each country, there are regions with possibility of increase in the number of days when temperature rises to 35°C or higher and of possible water shortage. Although adverse impact is anticipated on such agricultural operations if such risks affect agricultural product quality, output, etc., Sumitomo Corporation has diversified crop varieties and regions in the business and has therefore built risk resistance to a certain degree in terms of total performance.

Our climate change initiatives： Disclosure based on TCFD

Risk Management

◆ Our Group's activities cover businesses across a broad range of fields and regions, and involve various social issues. We always attach great importance to these social issues, and in order to appropriately control the social and environmental impact of the entire Group's business activities, establish policies such as the Environmental Policy, Human Rights Policy, CSR Action Guidelines for Supply Chain Management, Anti-Corruption Policy, and Compliance Guiding Principles, and publicize and thoroughly enforce them within the Group.

◆ We evaluate social and environmental risk and confirm response measures as part of our deliberation processes when considering and implementing new business from a broad perspective. In particular, with regard to climate change, we confirm the following with regard to risks (and opportunities) related to business continuity being impeded by the inability to appropriately respond to changes in the business environment resulting from social and environmental problems such as climate change.

- The impact of climate change such as the frequent occurrence of natural disasters and abnormal weather
- The impact of the introduction of regulations
- The impact of technology changes, etc.
- The potential for the expansion of business or the improvement of business performance through advances in climate change mitigation and adaptation to climate change

◆ With regard to our existing business, as well, we regularly monitor the overall management status of these risks to each business, including social and environmental risks. In addition to managing risk related to individual businesses, we assess the status of companywide social and environmental risks and develop systems that enable these assessments to be used to make strategic management decisions.

◆ With regard to the handling of the risks of climate change, each business unit assesses the introduction of regulations and market changes for related business sectors and conducts business activities, and as a part of companywide portfolio management, the Corporate Sustainability Department summarizes the status of major risks to the Group, taking into consideration global efforts relating to climate change and regulatory trends. The results are periodically reported to the Management Council and the Board of Directors. If there are any unacceptable risks from the perspective of the portfolio as a whole, measures including reduction of exposure are investigated with organizations responsible for risk management.

Our climate change initiatives： Disclosure based on TCFD

Metrics and Targets

Targets：Effort for carbon neutrality

The Group has adopted the following as its basic policy on climate change issues.

- Reduce CO_2 emissions 50% or more by 2035 (compared to 2019)

  Power generation business

  CO_2 emissions: Reduce 40% or more (of which 60% reduction or more for coal-fired power generation business)

  Net ownership generation capacity: coal 20%, gas 50% renewables 30%

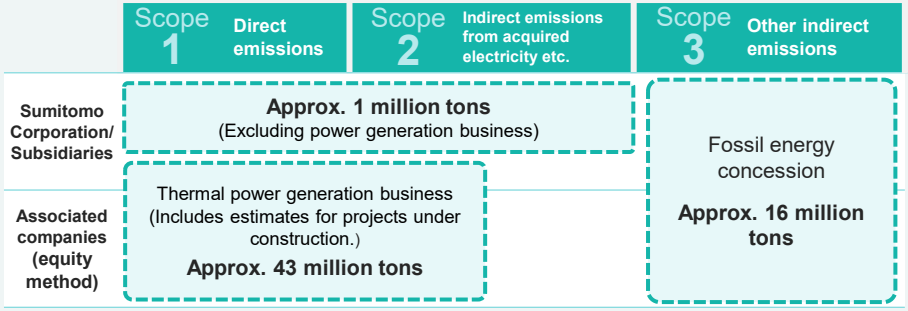
  Fossil fuel upstream business

  CO_2 emissions (*1): Reduce 90% or more

- For coal-fired power generation business, no further involvement in IPP (Independent Power Producer) nor EPC (Engineering, Procurement, Construction) business and will end all the coal-fired power generation business in the late 2040s. For thermal coal mine interest, no additional investment and aim to achieve zero equity production from thermal coal mines by 2030.

- increase supply of renewable energy (3GW or more by 2030)

Targets：Effort for carbon neutrality(*2)



*1 Indirect CO2 emissions by others associated with the use of energy resources produced
*2 As of 2019

Results

CO2 Emissions

(Thousand t-CO2e)

Index	Result of 2019 (The base year)	Result of 2020	Percentage of change	Reduction targets of 2035
Entirety	59,939	55,367	**▲7.6%**	**50%** or more
Power generation business (*1)	43,126	40,581	**▲5.9%**	**40%** or more
Of which, coal-fired power generation (*1)	34,452	32,337	**▲6.1%**	**60%** or more
Fossil energy concession	15,808	13,811	**▲12.6%**	**90%** or more

Figures for active power generation projects and fossil energy interests are calculated with the advice of a third party.
(*1) Includes estimates for projects under construction.

Net ownership generation capacity portfolio（Figures noted in brackets indicate net ownership generation capacity)

(MW)

Index	Result of 2019 (The base year)	Result of 2020	Targets of 2035
Coal	**54%** (5,240)	**53%** (5,208)	**20%**
Gas	**31%** (3,011)	**31%** (3,011)	**50%**
Renewable energy (*2)	**15%** (1,397)	**16%** (1,509)	**30%**
Total	**100%** (9,651)	**100%** (9,731)	-

Net ownership generation capacity of Renewable energy

(MW)

Index	Result of 2019 (The base year)	Result of 2020	Targets of 2035
Renewable energy (*2)	**1,397**	**1,509**	**3,000** or more

(*2) Includes capacity held by a fund whose management company is 51% owned by Sumitomo Corporation.

DX X Sustainability

Through its Group companies, Sumitomo Corporation conducts business globally on a wide range of industrial fields and has many business sites and customer bases. In order to solve on-site problems, create new customer value, and solve social issues, in addition to providing functions for trading and business investment, we collaborate with Group companies, such as SCSK, to provide digital transformation solutions from the comprehensive perspective unique to an integrated trading company.

Business description

Initiatives for Inter-Company EV Sharing and Energy Managing Using EVs

Against a backdrop of decreased opportunities for mobility in conjunction with the widespread practice of remote work due to the COVID-19 pandemic and the acceleration of initiatives that take environmental issues into consideration, the optimal status of company-owned vehicles and vehicles for company use is being called into question, and there are expectations regarding the use of digital technologies for optimum use.
The Sumitomo Corporation Group is developing a MaaS for Business service that proposes the best mobility mix from among the various forms of mobility available to corporations, and we are currently working to develop a new service model, referred to as e-MaaS for business, that utilizes electric vehicles (EVs). In collaboration with Nippon Gas Co., Ltd. and REXEV Inc., we launched a trial of an EV car sharing service for corporate clients in March 2021. Two EVs are located in a car port with solar panels on the roof. The vehicles are used for car sharing by multiple companies during business hours. In addition, digital technologies are employed to measure the rate of charging using renewable energy generated by the solar panels, calculate the amount of CO2 emissions reduction, and verify the possibility of energy management and environmental contribution.
In addition to achieving optimal use of company cars and giving consideration to the environment, in the future, we will investigate even more convenient and appealing new services and create new value.

Nippon Gas head office parking lot (Chuo-cho, Kagoshima City)

Tackling the challenges of new “Beyond Mobility” business that integrates mobility and different industries

Business description

Digital transformation in the production site utilizing local 5G communication

In order to resolve the issues of labor shortage and lack of skilled workers brought on by falling birthrate and aging population, automation, greater work efficiency, etc., have begun urgently necessary in recent years in manufacturing in Japan. To resolve these issues, interest is growing in the use of local 5G communication as infrastructure (*).
In 2021, Sumitomo Corporation conducted a pilot experiment for production site DX utilizing local 5G network at Summit Steel Osaka Factory, in cooperation with Sumitomo Corporation Global Metals, Sumitomo Shoji Machinex, Grape One, etc. The experiment specifically focused on automation of visual inspection through high-resolution image AI analysis and remote quality inspection with high-resolution image transmission in the local 5G environment. It became an effort that paves the way for the future of the production plant where various solutions are put into operation in a local 5G environment. The knowledge and experience gained through the experiment utilizing the local 5G infrastructure that supports social change is expected to be applied beyond manufacturing to a broad range of sectors, including medicine.

(*)The pilot experiment was selected by the Ministry of Internal Affairs and Communications (MIC) as a consignment project involving the investigation/examination of technological conditions for local 5G at manufacturing plants (automation of visual inspections and remote verification of quality) in connection with its FY2020 Development Demonstrations for Realizing Local 5G to Solve Local Issues.

Summit Steel Osaka Factory in operation (1)

Summit Steel Osaka Factory in operation (2)