

Contents	Corporate direction	Environmental	Social	Governance	Data
Environmental policies and philosophy	Climate change	Air quality	Resource dependency	Water scarcity	Third-party assurance
					Strengthening our business foundations

Climate change

Strategy for addressing climate change Toward a carbon-neutral society

In 2015, the UN Climate Change Conference (COP21) adopted the Paris Agreement to keep the increase in global temperature to “well below” 2° C.

COP26 in 2021 “resolved to maintain efforts to limit temperature increases to 1.5° C” with more emphasis on “limit to 1.5° C” and added “global CO₂ emissions to virtually zero by mid-century.” Furthermore, the Sustainable Development Goals (SDGs) adopted by the UN in 2015, like the Paris Agreement, also call for concrete measures to address climate change.

Nissan has declared its commitment to achieving carbon neutrality by the 2050 vehicle lifecycle. We are focusing on electrification of vehicles and innovation in corporate activities together with our suppliers to achieve this goal.

Climate change scenario analysis to strengthen strategies for 2050 society

Nissan’s efforts toward the environment have achieved continuous results by consistently reaching milestones back-casted from our Long-term vision. However, compared to 2006 when we formulated the Long-term Vision based on the 2° C scenario from the Intergovernmental Panel on Climate Change (IPCC) report, the threat of extreme weather due to climate change is increasing, thus we believe it is necessary to enhance our strategy and make it more resilient amid growing uncertainties.

The scenario analysis conducted for the purpose of strategic enhancements assumes societies based on the 4° C and 2° C scenarios presented in the International Energy Agency (IEA) time horizon up to 2050 and the 1.5° C scenario in the IPCC special report. Furthermore, in consideration of factors including changes in customer and market acceptance, tightening automobile regulations and the transition toward clean energy, Nissan’s business activities, products and services were examined in terms of strategic resilience to the opportunities and risks posed by climate change in the following four steps.

Four steps for review

- Evaluate past materiality, investigate risk factors with a decisive impact on the automotive sector due to climate change in documented studies and define main drivers in categories such as population, economy, geopolitics, climate change policy and technology.

- Categorizing main drivers into physical risks and transition risks, then considering the trade-off relationships of each, we confirmed the degree of risk in three scenarios where the average temperature on Earth increased by 1.5° C, 2° C and 4° C.
- Based on the degree to which the automobile sector was impacted and the timeline, items with a more substantial impact were screened from the main drivers.
- Changes, conditions, and effects were adjusted in each scenario to provide guidance based on qualitative evaluation of the elements necessary for enhancing strategies.

As a global automobile company, it will be more than 170 countries and markets where our production facilities operate and our products are provided, therefore we will get the impact from climate change all over the world. When taking a comprehensive perspective of this scenario analysis, even the market infrastructure, regulations and actual usage are different, Nissan’s electrification and other related advanced technologies have the potential to create opportunities for effective capabilities in scenarios other than 2° C. Nissan has come to recognize once again the importance of further accelerating efforts toward this realization as well as the fact that activities integrated with the supply chain are essential for responding to risks. In particular, the expansion of zero-emission vehicles is not only a major step towards the shift to a carbon-free society as an automobile sector, it is also a technology that contributes to the resilience of society in power management and disaster mitigation and prevention. Nissan believes this will create value for society and business.

Contents	Corporate direction	Environmental	Social	Governance	Data	
Environmental policies and philosophy	Climate change	Air quality	Resource dependency	Water scarcity	Third-party assurance	Strengthening our business foundations

However, if the societal response to climate change is delayed, possible risks include transition additional policies and regulations for a decarbonized society, increases in R&D efforts and changes in market demand or corporate reputation among others. Possible physical risks, such as an increase in extreme weather and rising sea levels may lead to cost increases and declines in vehicle sales that have the potential to substantially influence on our financial situation. To avoid risks such as these to the extent possible and create future opportunities, Nissan is leveraging knowledge gained from scenario analysis for use in actual activities and reviewing strategies for expanding resilience. We believe it is important to more clearly and accurately communicate these impacts and the strategies considered to investors and other stakeholders. Nissan supports the TCFD's recommendations and will strive to disclose information in line with its recommended framework. (TCFD: The Task Force on Climate-related Financial Disclosures)

Envisioned scenarios and associated opportunities and risks

Scenario assumption	Area of impact	Business activity opportunities and risks related to ongoing climate change
1.5°C	Policies and regulations	Respond to further tightening of vehicle fuel efficiency and exhaust gas regulations, develop electric powertrain technologies, and may influence production costs Increased burden of energy costs due to expansion of carbon taxes, expand investment in energy-saving equipment as policy
	Technological changes	Cost effects of utilizing next-generation vehicle technologies such as in-vehicle batteries and other EV-related technologies as well as expanding autonomous driving technologies
		Increased demand will affect supply chains for rare earth metals used for in-vehicle battery material and cause an increase in stabilization costs
	Market changes	Changes in consumer awareness leads to reduced new vehicle sales due to the selection of public transportation and bicycles and the transition to mobility services.
4°C	Opportunities	Expand the provision of power management opportunities with Vehicle to Everything (V2X), an EV energy charging/discharging technology, and redefine the value of EV, especially with Vehicle to Grid (V2G)
	Extreme weather	The impact on the supply chain and the operation of production bases due to extreme weather such as heavy rain and drought will increase property insurance costs and air conditioning energy costs
	Opportunities	The need for securing emergency power sources using EV batteries is increasing as a disaster prevention and mitigation measure

Financial impact assessment of carbon tax effects

In fiscal 2021, we have started a financial impact assessment, based on the scenario analysis that we have already disclosed. Below are the results of our assessment of the impact of carbon taxes.

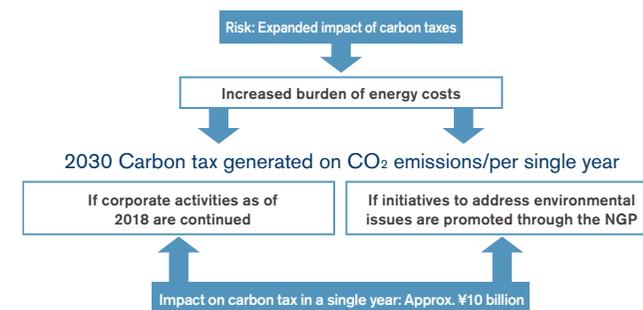
Background of financial impact assessment scenario selection

Pricing for CO₂ emissions is progressing, and an increasing

number of countries and regions are introducing carbon taxes. Although the level of taxation and the industries subject to the tax vary by country and region, this analysis will focus on the financial impact of the carbon taxes due to its significant impact on companies.

Evaluation of calculation methods and estimated taxes, assumptions

In our calculations, we referred to the IEA report and other reports on carbon taxes as the basis for our carbon tax projection. The carbon tax on GHG emissions in 2030 was calculated by comparing cases where:
1) Corporate activities as of 2018 have been continued, and
2) The Nissan Green Program promotes environmental activities and the impact of annual carbon tax could be curbed



Contents	Corporate direction	Environmental	Social	Governance	Data
Environmental policies and philosophy	Climate change	Air quality	Resource dependency	Water scarcity	Third-party assurance
					Strengthening our business foundations

Impact on business outlook

We estimated that the carbon tax impact of Scope 1 & 2 could be kept to approximately ¥10 billion if the environmental issues addressed in the Nissan Green Program were implemented, compared to the case where GHG emissions were not reduced.

Response strategies

Nissan has been promoting the Nissan Green Program for about 20 years to address environmental issues and has achieved an average 27.7% reduction in CO₂ emissions from corporate activities per vehicle in fiscal 2022 compared to the fiscal 2005 level.

The EV36Zero, announced in July 2021, which creates an ecosystem for EV production, and the Nissan Intelligent Factory, announced in October that year, are concrete examples of Nissan's future roadmap. We are working toward energy reduction, making manufacturing facilities more efficient, and applying electrification technology while expanding the use of alternative energy sources such as renewable energy, bioethanol, and solid oxide fuel cells (SOFCs).

In addition, we will assess the impact of the transition to decarbonization and promote activities that consider a just transition that does not have negative impacts, thereby achieving carbon neutrality.

We will continue to improve the accuracy of our scenario analysis methods and expand the scope of clients to be analyzed to ascertain the amount of risk more accurately. We will further enhance our disclosure of information to concretize our vision for 2030 and promote our initiatives while placing importance on dialogue with our stakeholders.

Nissan's steps to reduce CO₂ emissions

The business structure of the automobile industry is changing greatly in the face of demands to reduce CO₂ emissions and dependence on fossil fuels. Nissan has been proactively engaged in environmental responsiveness and the creation of social value, such as reducing CO₂ emissions and realizing the practical use of electrification technologies.

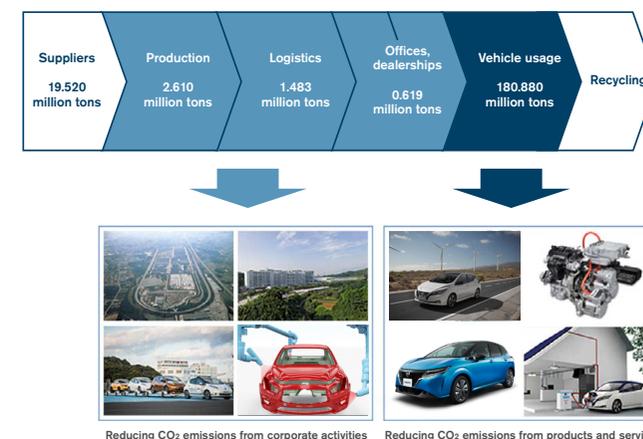
As a global automaker, Nissan considers emissions across the entire value chain it shares with its suppliers, from procurement of raw materials to transportation and operation of vehicles. We understand how important it is to balance environmental initiatives with business activities, and strive to reduce emissions through new technology developments, renewable energy use, and other measures.

Product and corporate activity initiatives

Climate change also greatly heightens customer needs for energy-efficient mobility. We aim to those needs by clearing stringent CO₂ emissions regulations, as outlined in the Nissan NEXT*¹ transformation plan calling for annual aggregate sales of 1 million 100% EV and e-POWER vehicles by fiscal 2023. We will further promote global activities targeting carbon neutrality in 2050, aiming for 100% electrification by the early 2030s in key markets. In our corporate activities, we will actively advance energy-saving measures, shifting to climate-efficient logistics and introducing renewable energy sources. We will realize a carbon-neutral future by promoting the electrification of automobiles and pursuing the sustainability

of our business activities in line with the expansion of renewable energy and charging infrastructure in society. In addition, Nissan has established a medium-term environmental action plan NGP2022*² as its strategy, which runs through 2022, and has developed various future climate change scenarios to strengthen the resilience of its climate change strategy.

CO₂ emissions in the value chain*³



*1 Click here for more information on Nissan NEXT. <https://www.nissan-global.com/EN/COMPANY/PLAN/NEXT/>

*2 Click here for more information on the Nissan Green Program 2022 (NGP2022). <https://www.nissan-global.com/EN/SUSTAINABILITY/ENVIRONMENT/GREENPROGRAM/>

Contents	Corporate direction	Environmental	Social	Governance	Data	
Environmental policies and philosophy	Climate change	Air quality	Resource dependency	Water scarcity	Third-party assurance	Strengthening our business foundations

Product initiatives

Policies and philosophy for product initiatives

Our long-term vision

Based on the IPCC Fourth Assessment Report, Nissan made its own estimation, and in 2006, set a scientifically-based long-term CO₂ emission reduction target for new vehicles by 2050. Recognizing that this would require drastic reduction of "well-to-wheel" CO₂ emissions from new vehicles, we set about developing a new scenario for powertrain technologies. Additionally, under the Nissan Green Program 2022 (NGP2022), to remain on track with the 2050 target, we aimed to reduce CO₂ emissions from new vehicles by 40% compared to fiscal 2000 by 2022 (in Japan, the U.S., Europe and China).

As a global leader in technological advancements through the electrification of our products, we believe we can substantially contribute to global efforts to keep the temperature increase "well below" 2° C. These initiatives also reinforce the sustainability of our own business.

Although NGP2022 has achieved a certain success, the IPCC's Special Report published in 2018 pointed out the impact of 1.5° C of global warming and related global greenhouse gas (GHG) emission pathways on the Earth as a whole. Furthermore, governments, municipalities, and customers in each market have even higher expectations for carbon neutrality.

Nissan is working toward higher goals by aiming for carbon neutrality in the vehicle life cycle and all business activities

by 2050. As a milestone toward the realization of this goal, in January 2021 we announced that Nissan has set the goal of achieving carbon neutrality across the company's operations and the life cycle of its products by 2050. As part of this effort, by the early 2030s every all-new Nissan vehicle offering in key markets will be electrified.

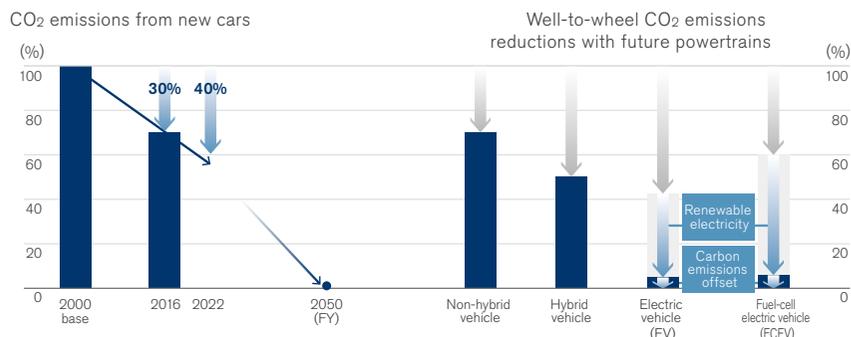
The long-term vision Nissan Ambition 2030*1 positions electrification as the core of its long-term strategy, and we have announced an increase in the number of electrified vehicle models to be launched by 2030 to 27, including 19 EV models.

This supports our goal of achieving carbon neutrality throughout the product life cycle by 2050.

By fiscal 2030, the model mix of electrified vehicles for the Nissan and Infiniti brands combined is expected to increase to over 55% globally, up from the previous forecast of 50%. In Europe in particular, the sales ratio of electrified vehicles is expected to be 98% in fiscal 2026, further accelerating our electrification strategy.

After implementing CO₂ emission reduction activities to the full extent possible, we will also consider offsets and other adaptations for unavoidable CO₂ emissions to achieve our goals throughout the entire lifecycle.

CO₂ Reduction Scenario



Our focus area of the Nissan Ambition 2030



Accelerating electrified mobility with diverse choices and experiences

1. Increase electrification sales mix



Increasing accessibility and innovation in mobility

1. Advanced autonomous vehicle technologies
2. Evolved all-solid-state batteries (ASSB)
3. Create new mobility services for more efficient and sustainable mobility



Global ecosystem for mobility and beyond

1. EV36Zero
2. Enhance infrastructure and support a circular economy in energy management
3. V2X

*1 Nissan Ambition 2030 <https://www.nissan-global.com/EN/COMPANY/PLAN/AMBITION2030/>

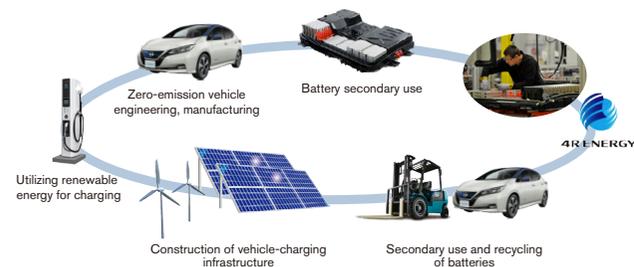
Contents	Corporate direction	Environmental	Social	Governance	Data
Environmental policies and philosophy	Climate change	Air quality	Resource dependency	Water scarcity	Third-party assurance
					Strengthening our business foundations

Establishing leadership in EVs towards zero-emissions society

We consider the introduction and adoption of zero-emission vehicles one of the pillars of our corporate strategy. We are taking a comprehensive approach that involves boosting production and sales of zero-emission vehicles along with other activities coordinated with a variety of partners to popularize their use. We are committed to becoming a leader in the field of zero-emission vehicles.

Increasing uptake of zero-emission vehicles will bring lifestyle changes that lay the groundwork for a new mobility society. We provide more than just EVs themselves; we also embrace the new values that they represent.

Building a zero-emission society with EVs



Our 2010 launch of the first Nissan LEAF made us pioneers of mass-produced EVs. Since then, we have sold more than 1,000,000*¹ EVs (including joint venture sales) around the world in total, which will contribute to carbon neutrality, enable Nissan to achieve sustainable and profitable growth, and contribute to reducing the environmental impacts of company business activities. Our transformation plan, Nissan

NEXT, calls for even more Nissan EVs, designed to appeal to customers with an ever-wider range of needs.

Launch of 100% renewable energy EV charging services at Nissan dealers and other locations

As part of our efforts to create a zero-emissions society utilizing EVs, we have announced that starting September 2023, 100% of the electricity used for quick charging at Nissan dealers will come from renewable energy sources.*²

Through these activities, Nissan is committed to working with everyone toward the realization of a zero-emissions society.



Managing actions through products

Key activities in NGP2022

The CO₂ emissions of a vehicle in use are influenced not only by engine performance and fuel type but also by traffic conditions and driving skills.

Decarbonizing society will require new vehicle usage patterns. Nissan takes a threefold approach to product development aimed at mitigating real-world CO₂ emissions that addresses vehicle, driver, and new mobility value.

1. Adopt cleaner energy to reduce vehicle CO₂ emissions

Extend electrification across all brands under the Nissan Intelligent Mobility strategy.*³ EV lineup and deploy e-POWER technology in core Nissan products.

2. Promote technology-based driver assistance and accelerate connected car development and commercialization

Develop e-Pedal, which regenerates energy when the driver eases up the accelerator pedal, and e-POWER electric powertrain fusing gasoline engines and electric motors. Promote adoption of route guidance technologies based on real-time information from departure point to final destination.

*¹ Result as of July 25th, 2023. Click here for more information on. <https://global.nissannews.com/en/releases/nissan-global-ev-sales-surpass-1-million-unit-milestone>

*² When quick charging using the Nissan Zero Emission Support Program 3 (ZESP3), a charging support program for owners of electric vehicles (EVs). Click here for more information on. (Japanese only) <https://global.nissannews.com/ja-JP/releases/release-33edc71f3a72a841a38960aa7304ed8b-230517-02->

*³ Click here for more information on Nissan Intelligent Mobility. <https://www.nissan-global.com/EN/INNOVATION/TECHNOLOGY/ARCHIVE/NIM/>

Contents	Corporate direction	Environmental	Social	Governance	Data	
Environmental policies and philosophy	Climate change	Air quality	Resource dependency	Water scarcity	Third-party assurance	Strengthening our business foundations

3. Provide new mobility value

Provide new mobility services and expand the value of vehicle use. Pursue global expansion of V2X energy management solutions and engage with stakeholders to support V2X device commercialization.

V2X

Nissan's Vehicle-to-X (V2X) is a technology that efficiently utilizes the electrical energy stored in the batteries of electric vehicles by transferring it to the Smart Grid via bi-directional chargers.

Renewable energy sources such as solar and wind power will drive carbon neutrality. Still, they are also challenging to manage, as fluctuations in power generation can lead to surpluses or shortages.

Electric vehicles' batteries can absorb fluctuations by charging and discharging this valuable electricity to be used more stably in Smart Grid. Also, with its application in times of disaster, the value and potential of V2X are expanding.

Product initiatives: Achievements

Toward a 40% reduction in new vehicle CO₂ emissions

In fiscal 2022, CO₂ emissions*1 in Nissan's main markets of Japan, the U.S., Europe, and China were 41.2% lower than fiscal 2000 levels.

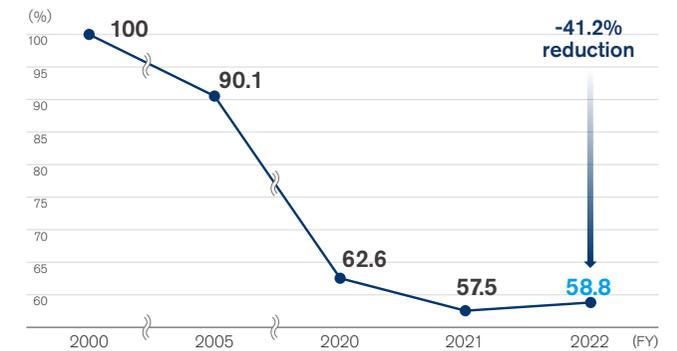
These improvements involve the development of technologies that consider cabin space, application, and price in order to adopt the most fuel-efficient technologies for each vehicle, then bring them to market.

- Improving energy efficiency of engines, transmissions and electric powertrains
- Promoting vehicle electrification and the effective capture and reuse of kinetic energy from braking
- Adoption of materials replacement, structural optimization, and development of new manufacturing processes.

We select the optimal fuel economy technologies for particular vehicles, taking into consideration factors like space within the vehicle, usage, and economics, and bring them to market. Our goal is to reduce both fuel consumption and CO₂ emissions without sacrificing the pleasure and ease of driving,

As a result of these initiatives, we achieved over 40% reduction in CO₂ emission compared to fiscal 2000 levels 1 year ahead of target.

CO₂ emissions from new vehicles (Global)*2



*1 From new vehicles in the Japanese, U.S., European, and Chinese markets.

*2 Reduction in CO₂ emissions calculated by Nissan.

Contents	Corporate direction	Environmental	Social	Governance	Data	
Environmental policies and philosophy	Climate change	Air quality	Resource dependency	Water scarcity	Third-party assurance	Strengthening our business foundations

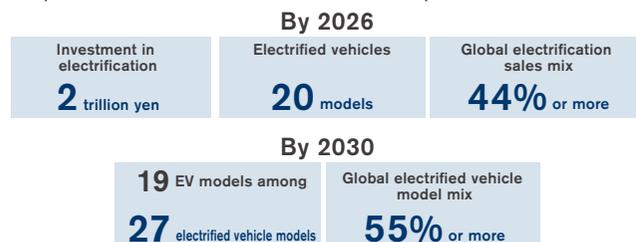
Nissan’s electrification technologies for achieving carbon neutrality

Accelerating the advancement and promotion of electrification technologies

By the early 2030s every all-new Nissan vehicle offering in key markets will be electrified as we pursue further innovations in electrification.

Nissan calculations show that electrified vehicles can reduce CO₂ emissions over their entire life cycle relative to gasoline powered vehicles of the same class—from the extraction of raw materials, manufacturing, logistics, and use to end-of-life disposal. By contributing to the shift to renewable energy, electrified vehicles play an essential role beyond transportation in helping to achieve a low-carbon society. Nissan is working on advances in electrification technologies that can reduce CO₂ emissions, as well as the development of systems that can be installed in various vehicle models. Nissan will promote the spread of electrified vehicles based on the two pillars of EVs and e- POWER, which have the common feature of being 100% motor-driven.

Expansion of electrification lineup



Expanding the EV model lineup

The Nissan LEAF is a Zero-emission vehicle, emitting no CO₂ or other exhaust when driving. Since its launch in 2010, it also earned high praise for the smooth, strong acceleration and quiet operation of its electric motor powered by a lithium-ion battery. *1

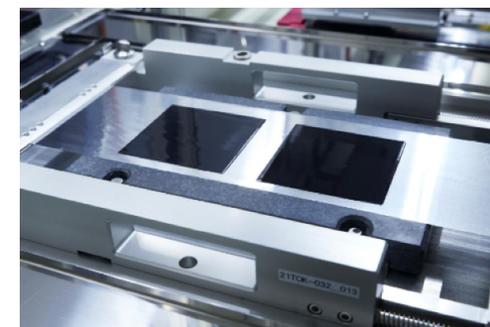
In 2022, following the Nissan LEAF and Nissan ARYA, we launched the Nissan Sakura, a completely new mass-produced minicar that runs on 100% electricity. In addition to the minicar’s unique small turn radius performance, the Nissan Sakura will offer the quiet, powerful, and smooth acceleration unique to Nissan’s EV, fully leveraging technologies cultivated in developing the Nissan LEAF.

The Nissan Sakura is equipped with the same state-of-the-art lithium-ion battery used in the Nissan LEAF. Its universal stack structure, which enhances installation efficiency, facilitates a spacious interior and a cruising range of up to 180 km (WLTC mode), which is sufficient for daily use and provides a high degree of reliability.

The Nissan Sakura also won the 2022–2023 “Japan Car of the Year,” the 2023 “RJC Car of the Year,” and the 2022–2023 “Japan Automotive Hall of Fame Car of the Year.”

EV battery development initiatives

All-solid-state batteries are expected to be a game-changing technology for accelerating the popularity of EV. They have an energy density approximately twice that of conventional lithium-ion batteries, significantly shorter charging time due to superior charge/discharge performance, and the potential to reduce making up mostly battery costs by using less rare metals. With these benefits, Nissan expects to use all-solid-state batteries in a wide range of vehicle segments, including pickup trucks, making its EVs more competitive. Nissan has been developing this technology and aims to bring to market in 2028.



Nissan LEAF



Nissan ARIYA



Nissan Sakura

*1 Click here for more information on Nissan life cycle assessment. >>> P063

Contents		Corporate direction		Environmental	Social	Governance	Data
Environmental policies and philosophy		Climate change		Air quality	Resource dependency	Water scarcity	Third-party assurance
							Strengthening our business foundations

Enhancing our 100% electric motor-powered e-POWER drivetrain

The e-POWER system combines an electric motor, which drives the wheels, with a gasoline engine that charges the vehicle’s battery. e-POWER is a technology that achieves both the smoothness and strength of 100% motor drive and top-level fuel efficiency. It also offers driving comfort similar to that of an EV, making e-POWER a new powertrain completely different from the hybrid systems commonly used in previous compact cars. Also, because the engine and tires are not directly connected, power can be generated at the most efficient engine settings (RPM, load), resulting in high fuel economy.

The driver can accelerate or decelerate simply by using the accelerator pedal, and the regenerative brake system also helps improve fuel economy by charging the battery.

In order to expand the adoption of e-POWER in the global market, Nissan has added e-POWER-equipped models to the Sylphy in China and the Qashqai in Europe. The Qashqai e-POWER became Nissan’s first best-selling vehicle produced in the U.K. and won the Best Innovation award at the Auto Moto Grand-Prix ceremony. In Mexico, the Kicks e-POWER was classified by the Mexican government in the EV category, making it eligible for various preferential treatment as an EV.

Going forward, e-POWER will continue to evolve as a technology that can be installed in a wide range of vehicle models while balancing environmental performance and driving performance at a high level. We are developing technologies that achieve the world’s highest level of 50% thermal efficiency with a next-generation engine dedicated

to power generation for e-POWER and we promote technological developments enabling further reductions in CO₂ emissions (fuel efficiency improvement).

- 2016: Launched Note e-POWER (compact car equipped with the e-POWER electric powertrain) in Japan
- 2018: Serena e-POWER
- 2020: e-POWER expanded to Nissan Kicks
Launch of New Note Equipped with Second Generation e-POWER
- 2021: Note Aura was launched, won 2021–2022 “Japan Car of the Year,” “31st Annual (2022) RJC Car of the Year,” and “2021-2022 Japan Automotive Hall of Fame Car of the Year”, while the second-generation e-POWER installed on both models won the “RJC Technology of the Year 6 Best”, among many other automotive-related awards.
- 2022: X-Trail was launched, combining a power generating engine and VC-Turbo with a variable compression ratio to realize a more powerful and quiet e-POWER system.
The 4WD models feature its new twin-motor all-wheel control technology called e-4ORCE.

Next-generation powertrain X-in-1

In March 2023 Nissan unveiled its new approach to electrified powertrain development, which it calls “X-in-1”.

Under the approach, core EV and e-POWER powertrain components will be shared and modularized, resulting in a 30% reduction, compared to 2019, in development and manufacturing costs by 2026.

At present, Nissan is developing a 3-in-1 powertrain prototype, which modularizes the motor, inverter, and reducer, which is planned for use in EVs. Also 5-in-1 prototype, which additionally modularizes the generator and increaser, is being developed for use in e-POWER vehicles.

New HEV system equipped with a smart multimodal gearbox

The new JUKE HEV*¹ unveiled in Europe operates up to 80% as an electric vehicle in urban areas, thus reducing fuel consumption by up to 40%.

The gearbox is controlled by an advanced algorithm, which controls shift points and battery regeneration. Thus, driver can enjoy responsible acceleration as well as efficient low emissions.

*1 Click here for more information about JUKE HEV. <https://europe.nissannews.com/en-GB/releases/nissan-juke-new-hybrid-powertrain-combines-innovation-driving-fun-and-efficiency?selectedTabId=releases>

Contents	Corporate direction	Environmental	Social	Governance	Data
Environmental policies and philosophy	Climate change	Air quality	Resource dependency	Water scarcity	Third-party assurance
					Strengthening our business foundations

The growing importance of commercial vehicle electrification

It is estimated that commercial vehicle sales, which account for 25% of automobile sales, will increase to 50% in 2030, thus commercial vehicle electrification is important for carbon neutrality*1.

History of commercial electric vehicles at Nissan

In June 2014, Nissan sold the EV multipurpose commercial van e-NV200 in European countries and Japan. The e-NV200 has power outlets in two locations drawing up to a total of 1,500 W of electricity from the onboard engine for electrical generation, which can be used to secure power on the road during normal operation, on the go in business, for leisure activities, as well as a power source in the event of a disaster.

On construction sites, noise problems can be alleviated as there is no need to use an engine-powered generator. In Europe, Nissan is proposing a concept combining comfort and practicality to enhance outdoor activities in winter with the e-NV200 Winter Camper concept making it possible to charge the 220-volt battery using solar panels mounted on the roof.

In 2020, the Tokyo Fire Department began using a zero-emission EV ambulance based on the NV400. Nissan thinks quiet EVs with low vibration ambulances have strong merits. As this vehicle is also equipped with two lithium-ion batteries providing 33 kWh and 8 kWh, it is possible to operate electrical equipment and air conditioners for longer periods of time. It also enables these ambulances to be used as a mobile power source in the event of a power outage or disaster.

In 2022, Nissan pursued equality and functionality with the launch of the Townstar, based on the Renault-Nissan-Mitsubishi Alliance CMF-C platform. With commercial EV van and wagon configurations, Townstar can flexibly handle delivery operations in urban areas.

Going forward, Nissan will continue to expand its lineup of electric commercial vehicles and promote the manufacture of commercial vehicles with zero emissions.

Progress in plug-in hybrid vehicles

Plug-in hybrid electric vehicles (PHEVs) are hybrid cars that can run on electricity charged from an external source as well as fuel. With this combination of engines and electric motors, they provide motor operation equivalent to EVs. We are actively developing PHEVs, leveraging Alliance technologies with a view to launching them in the future.



As a mobile power source, the e-NV200 has a range of business applications.



Zero-emission EV ambulance based on the NV400

*1 Based on PwC Consulting LLC research

Contents	Corporate direction	Environmental		Social	Governance	Data
Environmental policies and philosophy	Climate change	Air quality	Resource dependency	Water scarcity	Third-party assurance	Strengthening our business foundations

Fuel-cell electric vehicles

Powered by electricity generated from hydrogen and oxygen, fuel-cell electric vehicles (FCEVs) are another type of zero-emission vehicle that does not produce CO₂ or other harmful emissions. We believe that, as part of building a sustainable mobility society, both FCEVs and EVs are viable options from an energy diversity perspective.

In alignment with Japanese government policies, we joined forces with Toyota Motor Corporation, Honda Motor Co., Ltd., and other companies to establish Japan H2 Mobility, LLC (JHyM), targeting the full-fledged development of hydrogen stations for FCEVs in Japan. Addressing the key issues raised during the initial stage of FCEV promotion, JHyM will ensure that infrastructure developers, automakers, and investors all do their part to support the successful strategic deployment of hydrogen stations and effective operation of the hydrogen station business in Japan.

In June 2016, Nissan unveiled an e-Bio Fuel-Cell system that runs on bioethanol electric power. The new system features a solid oxide fuel-cell (SOFC) power generator. SOFC technology can produce electricity with high efficiency using the reaction of oxygen with multiple fuels, including ethanol and natural gas.

SOFCs can use a variety of fuels, enabling the use of existing fuel infrastructure, and have the advantage of presenting relatively low hurdles in terms of infrastructure adoption. Because our technology combines the efficient electricity generation of SOFC with the high energy density of liquid fuels, it can enable driving ranges on par with gasoline-powered vehicles.

Commercial users that require higher uptime for their

vehicles should increasingly be able to take advantage of this solution thanks to the short refueling times it offers.

Weight-reduction technologies supporting carbon neutrality

Along with improving the efficiency of batteries, engines, and electric powertrains, reducing the weight of vehicles is important for reducing CO₂ emissions.

Nissan is working on weight reduction in three points of view: Materials, Structural optimizations, and Processes.

Materials

Nissan is rapidly expanding the use of Ultra-High-Tensile Steel realizing high strength and formability, which is used for the body frame components on a wide range of vehicle models, from “kei” minicars to the INFINITI. In 2018, we adopted 980 megapascal (MPa) Ultra-High-Tensile Strength Steel with High Formability, which features further improvements in collision energy absorption performance, for the INFINITI QX50, and in 2019, SAE International presented Nissan with the “SAE/AISI Sydney H. Melbourne Award for Excellence in the Advancement of Automotive Steel Sheet,” among other accolades. In 2020, we expanded this material to the Rogue, Qashqai, and Note, then to the Nissan ARYA in 2022.

Structural optimizations

The e-POWER system, which integrates motors and inverters, was adopted in the 2020 Note, achieving a 6% increase in output while reducing the weight of the motor by 15% and the inverter by 30%. The same technology is used in the 2022 Nissan Sakura.

Processes

Nissan is engaged in the practical application of a new casting method called vacuum low-pressure die casting (V-LPDC). This method was applied to the 1.5-liter 3-cylinder turbo engine cylinder head of the Rogue and Qashqai, contributing to a 4% weight reduction.

Nissan will continue proactively developing lightweight technologies to reduce CO₂ emissions and dependence on newly mined resources in order to achieve carbon neutrality.

Efforts to reduce CO₂ emissions during parts manufacturing through the use of green steel and green aluminum

Since approximately 60% of a vehicle’s weight is made up of steel parts and around 10% of its weight is made up of aluminum parts, the use of green steel and green aluminum is a very effective way to reduce CO₂ emissions during parts manufacturing, which is part of the vehicle’s life cycle. In collaboration with Kobe Steel, Ltd., Nissan has decided from January 2023 to use green steel ^{*1} and green aluminum^{*2} for Nissan vehicles is due not only to the significant CO₂ emission reductions during manufacturing, but also because they offer same level of high quality as conventional products. In addition, we will further reduce CO₂ emissions during manufacturing by promoting closed-loop recycling^{*3}, which also utilizes recycled materials generated at Nissan production sites.

*1 Green steel: Low-CO₂ blast furnace steel with significantly reduced CO₂ emissions in the blast furnace process

*2 Green aluminum: Aluminum that is electrolytically smelted using only electricity generated by solar power, thereby reducing CO₂ emissions during aluminum ingot production by approximately 50%.

*3 Closed-loop recycling process: The reuse of waste and scrap generated during manufacturing and used products collected in-house as materials for parts of the same quality or reuse in similar products. Click here for more information on aluminum recycling. >>> P049

Contents	Corporate direction	Environmental	Social	Governance	Data
Environmental policies and philosophy	Climate change	Air quality	Resource dependency	Water scarcity	Third-party assurance
					Strengthening our business foundations

Initiatives for partnerships with society

Nissan energy: Solutions that enrich life and society with EVs

Furthermore, our history with EVs goes deeper than simply manufacturing and selling the vehicles themselves. We helped to establish an environment allowing EVs to become part of our customers' lifestyles and developed the Nissan Energy solution for enjoying life with an EV to the fullest. Together, these initiatives are creating what we call the Nissan EV ecosystem.

Nissan Energy Supply

Nissan Energy Supply includes various electric charging solutions that bring ease and convenience to the lifestyles of our EV customers.

The majority of our EV customers find it convenient to charge their EVs at home. To help ensure that our vehicles can be safely charged, we guide customers to use suitable charging equipment and engage qualified installers to install electrical outlets dedicated to EVs.

The Nissan LEAF, which offers an ample driving range for daily use, utilizes a fast-growing charging network, providing drivers with confidence during longer distance drives and short outings.

Our dedicated EV app lets customers find and check the real-time status of charging stations. This not only makes charging easier and more convenient but also provides a seamless charging experience. As of the end of May 2022, approximately 56,000 quick chargers conforming to the CHAdeMO protocol*1 have been installed worldwide.

Nissan Energy Share

The electricity stored in the Nissan EV's battery can do more than just power a vehicle; it can be shared with homes, buildings, and local communities through bi-directional chargers.

Using inexpensive electricity in the evening during off-peak periods and excess electricity generated by solar panels during daytime reduces electricity costs and helps promote a model of local generation of electricity for local-consumption. Furthermore, Nissan Energy Share makes it possible for EVs to provide backup power during blackouts or emergencies. Local communities can connect multiple EVs to regional power grids to charge or discharge electricity in accordance with power supply and demand balance, which contributes to the stability of a community's power supply and promotes renewable energy use. EV's high-capacity batteries have high potential for usage as social infrastructure, by storing renewable energy like solar power for which generation is difficult to control.

Nissan EV ecosystem



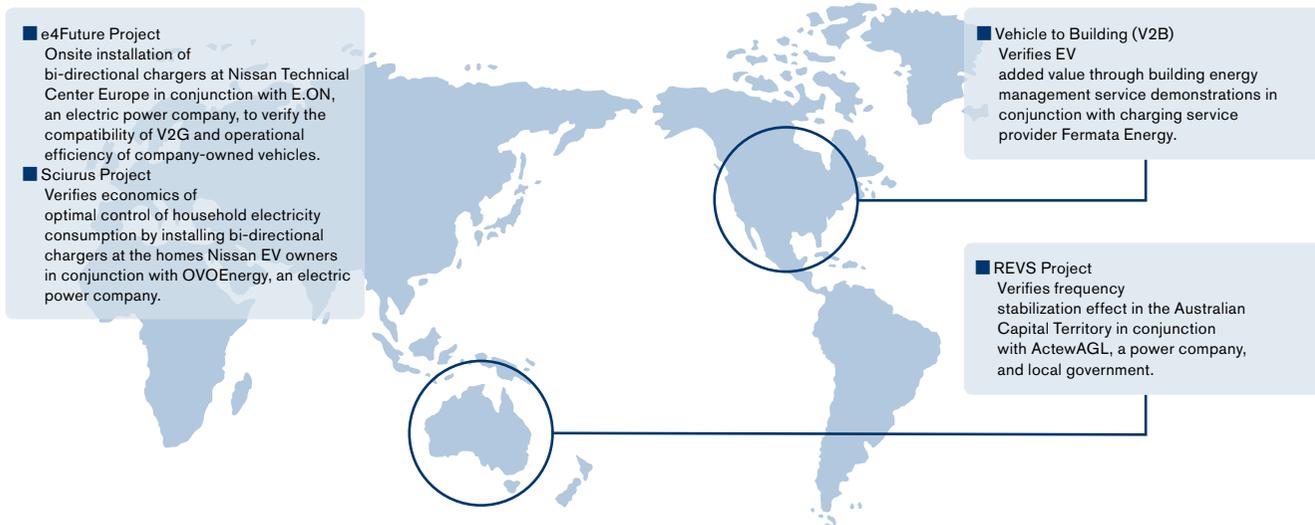
*1 Click here for more information about CHAdeMO protocol. <https://www.chademo.com/>

Contents	Corporate direction	Environmental	Social	Governance	Data	
Environmental policies and philosophy	Climate change	Air quality	Resource dependency	Water scarcity	Third-party assurance	Strengthening our business foundations

Global spread of Nissan Energy Share

Nissan participates in collaboration with electric power companies and others in demonstration projects around the world to verify how Nissan EV charge and discharge control (V2G or Vehicle to Grid), which is connected to power systems, help stabilize the supply and demand of electricity in society and the extent of economic and environmental benefits.

Based on results obtained from projects in each region, Nissan wants to maximize the efficacy and economic benefits of EV charging and discharging operations and make Nissan Energy Share into a business as soon as possible.



Nissan Energy Storage

Nissan EV batteries offer high performance even after being used in cars.

As more and more customers switch to EVs, the supply of batteries capable of secondary use is expected to increase significantly.

In 2010, Nissan, as an EV pioneer, joined forces with Sumitomo Corporation to establish 4R Energy Corporation, which specializes in repurposing lithium-ion batteries. The intention is to fully utilize resources by promoting the four Rs of lithium-ion batteries — reuse, resell, refabricate, and recycle — with the aim of building an efficient cycle of battery use.

Reuse system realized using EV batteries

The market for used batteries will expand with the spread of EVs and that their utilization will become an issue in the future. Based on this recognition, 4R Energy Corporation, established together with Sumitomo Corporation in 2010, has promoted the development of technologies for the reuse of used batteries at its plant in the town of Namie, Fukushima Prefecture. 4R Energy is building a business model in which used batteries collected from the market are sorted according to their condition and performance and supplied to various secondary users, passing on the value of reused batteries to customers. Expanding this model into a business and further reducing the hurdles to EV ownership for customers will lead to the further spread of electric vehicles.

Contents	Corporate direction	Environmental	Social	Governance	Data
Environmental policies and philosophy	Climate change	Air quality	Resource dependency	Water scarcity	Third-party assurance
					Strengthening our business foundations

Nissan to start verification tests of energy management system in Namie, Fukushima

EV charging and discharging to aid achievement of carbon neutrality

In February 2022 Nissan announced, Nissan began verification tests of the energy management system it has established in Namie. The energy management system utilizes an autonomous control system that generates 100% renewable energy for charging electric vehicles by sending electricity to and from them. *1

This verification will be conducted based on initiatives targeting the utilization of renewable energy and a low-carbon society in the "Agreement on Collaboration for Community Development Using New Mobility in the Hamadori Region of Fukushima Prefecture."

Specifically, the project will utilize RE power generation equipment and power control system (PCS) owned by Roadside Station Namie, a commercial facility located in the

town of Namie, as well as the Nissan LEAF EV, the official vehicle of Namie Town, to verify efficient energy operations and establish an energy management system to promote the local production for local consumption of clean energy by installing Nissan's charge and discharge control system in the PCS.

Renewable energy generates varying amounts of electricity depending on weather conditions, creating an imbalance between the supply and demand of electricity. Using EVs as storage batteries and combining them with a system that independently charges and discharges EVs is expected to facilitate the effective use of renewable energy and stabilize power grids.

Nissan will contribute to Namie Town's aim of realizing "local production for local consumption of energy" and the "Zero-carbon City Declaration" as well as the achievement of a carbon-neutral society through the practical application and verification of an energy management system in Namie Town.



Demonstration test launched in U.S. and Japan aimed at expanding EV range

California, USA: Aiming for 5 million zero-emission vehicles by 2030

Objective: Expanding from short-distance EV travel such as commuting and shopping, to inter-city travel.

Initiative: Nissan and Kanematsu Corporation in partnership with U.S. charging infrastructure service provider EV go are installing 57 fast chargers in 26 new locations along one of California's most important travel arteries.

Japan: NEDO commissioned business

Objective: To expand the range of EV usage to inter-city travel.

Initiatives: Establish information services and other systems to guide EV users to the most appropriate quick chargers, and verify their effectiveness in expanding the range of EV usage (launched in November 2016). By September 2020, survey, analyze, and study various EV usage patterns to establish a model for the spread and expanded use of EVs.

*1 Click here for more information about verification tests of energy management system in Namie. <https://global.nissannews.com/en/releases/release-b55e8bf1f8f64c95b00977f836063f8e-220112-01-e>

Contents		Corporate direction		Environmental		Social		Governance		Data	
Environmental policies and philosophy		Climate change		Air quality		Resource dependency		Water scarcity		Third-party assurance	
										Strengthening our business foundations	

Corporate activity initiatives

Policies and philosophy for corporate activity initiatives

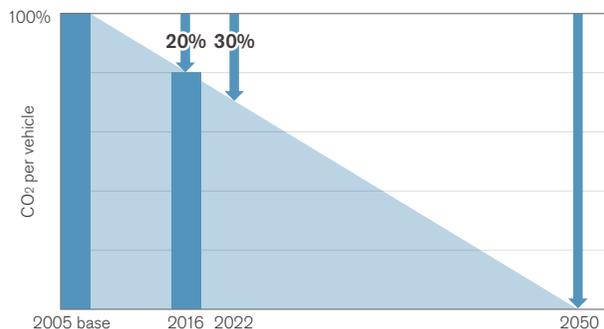
Reducing CO₂ emissions from corporate activities

Nissan is taking steps to reduce its greenhouse gas emissions from corporate activities by promoting energy efficiency measures and also the use of renewable energy. Based on calculations incorporating the findings of the Fourth Assessment Report from the Intergovernmental Panel on Climate Change (IPCC), Nissan established the goal of reducing its overall corporate CO₂ emissions by 2050. Also, as part of the Nissan Green Program 2022 (NGP2022), we set the midterm goal of a 30% reduction in overall corporate CO₂ emissions by 2022. Manufacturing is our largest emissions source, but we are also aiming to reduce greenhouse gas emissions from logistics, offices and dealerships, by setting targets and taking action in each area.

NGP2022 long-term vision

As announced in January 2021, to realize carbon neutrality in the vehicle life cycle, we are also promoting efforts aimed at achieving carbon neutrality by 2050 through our corporate activities.

NGP2022 long-term vision



Management of corporate activity initiatives

NGP2022 objectives

Targets for each link in the value chain under the Nissan Green Program 2022 (NGP2022) aimed at achieving our long-term goal of carbon neutrality in the vehicle life cycle by 2050 are as follows:

Overall (Manufacturing, logistics, offices, dealerships):

30% reduction in CO₂ emissions from global corporate activities by 2022 (vs. 2005/per vehicle sold)

Manufacturing

36% reduction in CO₂ emissions from global manufacturing sites by 2022 (vs. 2005/per vehicle manufactured)

Logistics

12% reduction in CO₂ emissions from logistics in Japan, North America, Europe, and China by 2022 (vs. 2005/per vehicle manufactured)

Offices

12% reduction in CO₂ emissions from global offices by 2022 (vs. 2010/per floor area)

Dealerships

12% reduction in CO₂ emissions from dealerships in Japan by 2022 (vs. 2010/per floor area)

Contents	Corporate direction	Environmental	Social	Governance	Data
Environmental policies and philosophy	Climate change	Air quality	Resource dependency	Water scarcity	Third-party assurance
					Strengthening our business foundations

Corporate activity initiatives: Achievements

27.7% reduction in CO₂ emissions from corporate activities

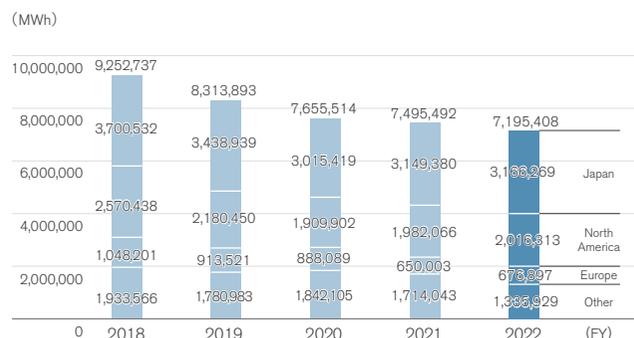
The scope of management regarding climate change through corporate activities includes all vehicle and parts production sites, logistics activities, office locations, and sales companies within the consolidation scope, including subsidiaries and affiliates.

This represents that Nissan has significantly expanded the scope of its CO₂ emission reduction activities, which previously covered only production sites, and has broadened the scope of initiatives that have been conducted individually, such as the introduction of highly efficient equipment, energy conservation activities, and renewable energy from fiscal 2011. The objective is to strengthen the management level of the entire company's activities.

In addition to overall corporate activities, we have set KPIs and targets for each domain that enable us to identify the progress of each. For overall corporate activities, we have established a target of reducing CO₂ emissions from corporate activities by 30% per unit of global sales compared to fiscal 2005 by fiscal 2022*. In fiscal 2022, we reduced CO₂ emissions (t-CO₂/unit) by 27.7% compared to fiscal 2005. *1

Trend in energy consumption

The total energy consumption of our global corporate activities during fiscal 2022 was 7,195 thousand MWh, a 4% decrease from 7,495 thousand MWh in fiscal 2021.*2 The total energy consumption from manufacturing processes during fiscal 2022 was 6,462 thousand MWh★, a decrease from 6,875 thousand MWh in fiscal 2021.



Energy consumption

	Unit	2021	2022
Total	MWh	7,495,492	7,195,408
By region			
Japan	MWh	3,149,380	3,166,269
North America	MWh	1,982,066	2,016,313
Europe	MWh	650,003	676,897
Other	MWh	1,714,043	1,335,929
By energy source			
Primary			
Natural gas	MWh	2,907,420	2,828,289
LPG	MWh	145,717	130,508
Coke	MWh	112,154	119,767
Heating oil	MWh	69,868	58,579
Gasoline	MWh	177,147	120,565
Diesel	MWh	23,800	26,016
Heavy oil	MWh	22,383	9,767

	Unit	2021	2022
External			
Electricity(purchased)	MWh	3,859,586*5	3,737,002
Renewable energy*3	MWh	229,754	275,807
Chilled water	MWh	3,598	3,929
Steam	MWh	114,506	125,761
Internal			
Electricity(in-house generation)	MWh	59,313	35,226
Renewable energy*4	MWh	59,313	35,226
Total renewable energy	MWh	289,067	311,033

*1 Global CO₂ emissions per vehicle sold by dividing the total volume of CO₂ emissions produced through Nissan's corporate activities globally by the number of Nissan vehicles sold globally.

*2 Please refer to the data book for the past 5-year historical trends. >>> P147

*3 Volume of renewable energy in electricity purchased by Nissan.

*4 Volume of renewable energy generated by Nissan at its facilities and consumed for its own purposes. *Please refer to the data book for the past 5-year historical trends.

*5 Due to an error in the disclosure of last fiscal year's figures, the figures for fiscal 2021 were revised.

★ This figure is subject to assurance by KPMG AZSA Sustainability Co., Ltd. For details, please see here. >>> P058

Contents	Corporate direction	Environmental	Social	Governance	Data	
Environmental policies and philosophy	Climate change	Air quality	Resource dependency	Water scarcity	Third-party assurance	Strengthening our business foundations

Carbon footprint of corporate activities

In fiscal 2022, the total of Scope 1 and 2 emissions of our global corporate activities was 2,096 thousand tons, a 6% decrease from 2,231 thousand tons in fiscal 2021.*1

Total CO₂ emissions from manufacturing processes were 1,798 thousand tons ★ (Scope 1 emissions: 579 thousand tons ★; Scope 2 emissions: 1,219 thousand tons ★), a decrease from 1,944 thousand tons in fiscal 2021.

Carbon footprint aligned with financial statements

Nissan has recognized the importance of disclosing carbon footprint in alignment with financial statement and have recalculated the scope.

- Previous scope: Nissan Motor Co., Ltd., consolidated subsidiaries, and part of its affiliates accounted for by the equity method
- New scope: Nissan Motor Co., Ltd. and consolidated subsidiaries

	Unit	2021	2022
Scope 1+2	kt-CO ₂	1,844	1,794

Reference: Data based on the conventional scope

	Unit	2021	2022
Scope 1	t-CO ₂	690,155*2	661,241
Scope 2	t-CO ₂	1,541,276	1,435,081
Scope 1 + 2	t-CO ₂	2,231,430*2	2,096,322
Japan	t-CO ₂	982,671*2	978,051
North America	t-CO ₂	507,584	526,414
Europe	t-CO ₂	112,157	105,974
Other	t-CO ₂	629,019	485,882
Scope 3	t-CO ₂	127,546,646*3	118,828,370

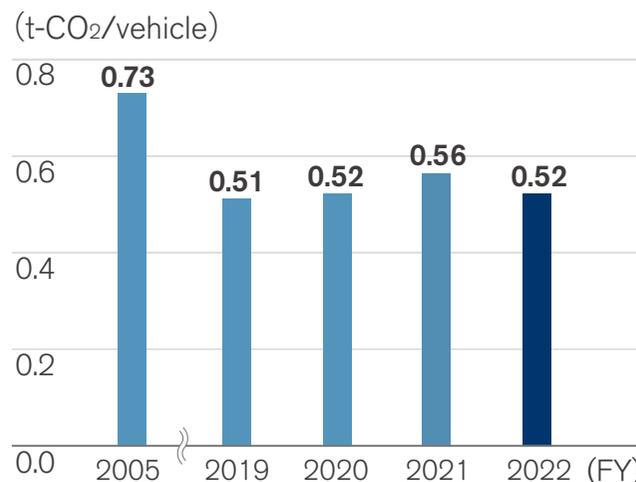
Greenhouse gas (GHG) emissions other than energy-derived CO₂*4

By type	Unit	2021	2022
CH ₄ (methane)	t-CO ₂ e	5,088	5,054
N ₂ O (nitrous oxide)	t-CO ₂ e	1,244	1,071
HFCs (hydrofluorocarbons)	t-CO ₂ e	1,320	1,878
PFCs (perfluorocarbons)	t-CO ₂ e	0	0
SF ₆ (sulfur hexafluoride)	t-CO ₂ e	43	43
NF ₃ (nitrogen trifluoride)	t-CO ₂ e	1	0

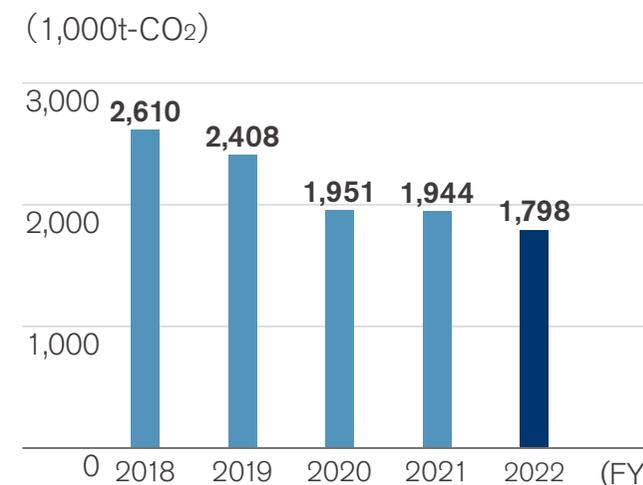
Manufacturing activities

Manufacturing CO₂ per vehicle produced

In fiscal 2022, our manufacturing CO₂ emissions per vehicle produced were 0.52 tons, 28.8% less than fiscal 2005.



Carbon footprint of manufacturing activities



*1 Please check the data book for the past 5-year historical trends. >>> P148

*2 The values for fiscal 2021 have changed due to the disclosure of greenhouse gases other than CO₂ emissions from energy use as a separate item.

*3 Among Scope 3 emissions, the values for fiscal 2021 have changed due to a modification in the calculation method for Category 1 and the determination of fuel efficiency values published by the government for Category 11.

*4 GHG emissions from Nissan Motor Co., Ltd. domestic sites calculated based on the Act on Promotion of Global Warming Countermeasures.

★ This figure is subject to assurance by KPMG AZSA Sustainability Co., Ltd. For details, please see here. >>> P058

Contents	Corporate direction	Environmental	Social	Governance	Data
Environmental policies and philosophy	Climate change	Air quality	Resource dependency	Water scarcity	Third-party assurance
					Strengthening our business foundations

Carbon neutrality roadmap at production plants

Nissan is promoting activities aimed at achieving carbon neutrality at its plants, with the goal of achieving this by the 2050 life cycle. In October 2021, we announced a roadmap to achieve carbon neutrality in 2050 at our plants to steadily promote initiatives to achieve this goal.*1

By 2030: We will first promote the introduction of innovative production technologies and electrification while reducing energy consumption in plants. We will then introduce renewable energy and expand the application of alternative energy sources.

2030-2050: Toward 2050, we will fully electrify plant equipment that operate under various forms of power, including gas and steam.

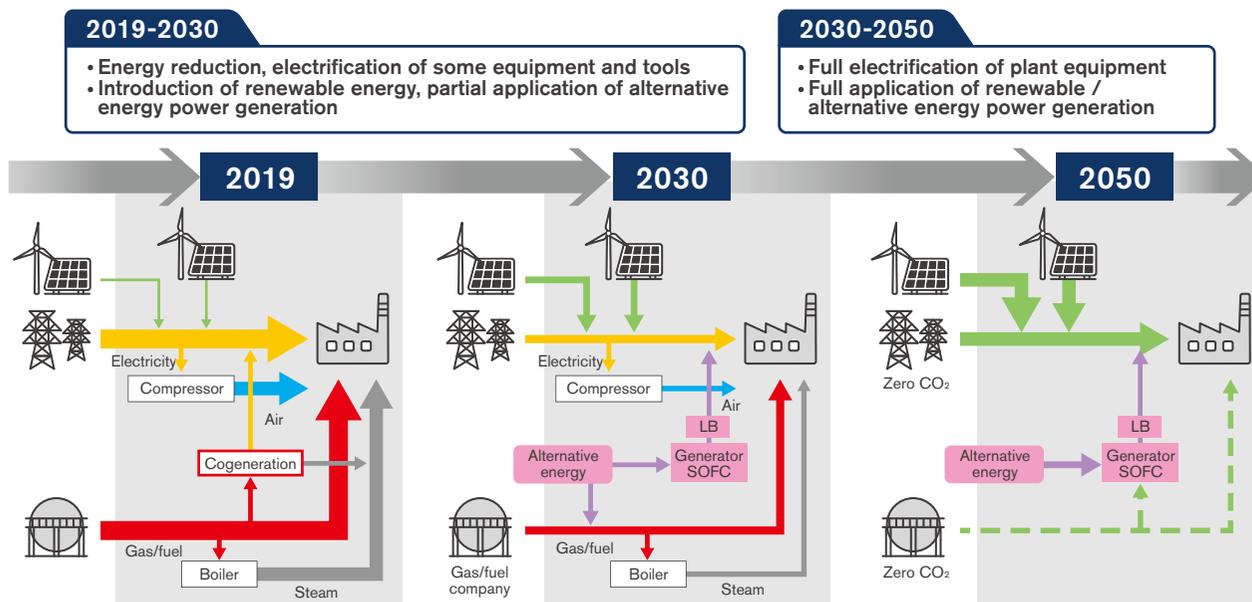
At the same time, we will achieve carbon neutrality at our plants by fully applying electricity generated in-house by fuel cells that use renewable energy and alternative fuels.

Aiming to achieve carbon neutrality by 2050 through innovation in production technology

Nissan Intelligent Factory, a next-generation vehicle manufacturing concept*2

In line with the acceleration of vehicle electrification, intelligence, and the Nissan Intelligent Mobility concept promoted by Nissan, vehicle functions and construction are becoming increasingly complex. As further technological innovations will be essential in the production process, we announced the Nissan Intelligent Factory vehicle manufacturing concept.

Zero-emission production system, a pillar of the Nissan Intelligent Factory: We will promote activities based on the carbon neutrality roadmap at our production plants as we work to achieve carbon neutrality.



*1 Click here for more information on our roadmap for carbon neutrality at production plants. <https://global.nissannews.com/en/releases/release-c252360e116720126985295f9d7480af-new-nissan-intelligent-factory-opens-in-tochigi>

*2 Click here for more information on the Nissan Intelligent Factory. <https://www.nissan-global.com/EN/INNOVATION/TECHNOLOGY/ARCHIVE/NIF/>
Click here for more information on a next-generation vehicle manufacturing concept. (Japanese only) <https://global.nissannews.com/ja-JP/releases/191128-02-j>

Contents	Corporate direction	Environmental	Social	Governance	Data
Environmental policies and philosophy	Climate change	Air quality	Resource dependency	Water scarcity	Third-party assurance
					Strengthening our business foundations

Key initiatives toward carbon neutrality by 2050 at production plants

1. Global energy-saving activities (adoption of new technologies, improved processes)

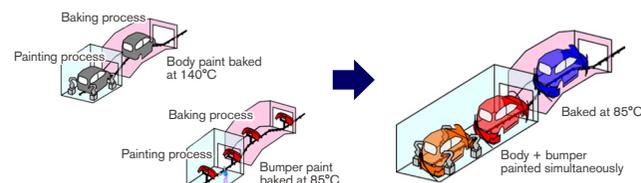
Most CO₂ emissions in the manufacturing process come from the consumption of energy generated by fossil fuels. We engage in a variety of energy-saving activities in the manufacturing process in pursuit of the lowest energy consumption and CO₂ emissions of any automaker.

Initiatives in automotive production technology

In the realm of automotive production technology, we are introducing highly efficient equipment and improving manufacturing techniques. Other key approaches are the three-wet paint process and low-temperature baking technology used for vehicle painting, which enables the body and bumpers to be painted at the same time. Approximately 30% of CO₂ emitted from manufacturing plants comes from the painting process, thus shortening or eliminating processes and lowering temperatures during the process will lead to a reduction in CO₂ emissions. The low-temperature three-wet painting technology introduced by Nissan enables the body and bumpers, which were previously painted separately, to be painted at the same time, reducing CO₂ emissions from the painting process by 25% or more.*¹ Nissan has implemented this technology in the new production line at the Tochigi Plant in the Nissan Intelligent Factory (launched in 2021) and will gradually expand its

roll out as painting facilities become more sophisticated in the future. Also, systems for recycling air expelled from booths for reuse needed dehumidifying processing to ensure that the air was at the humidity required. Dry paint booths can reuse air without dehumidifying it, reducing energy consumption to less than half its previous levels. This technology was adopted for the dry paint booths at our Sunderland Plant in the U.K. (operating since September 2018).

Three-wet paint process (Combined primer and topcoat application)



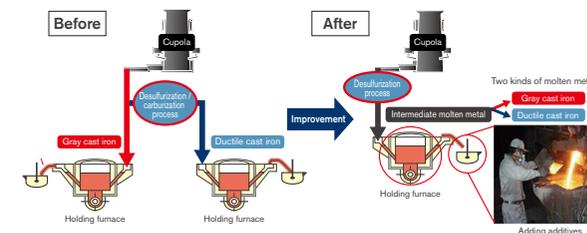
Simultaneous Painting of Body and Bumpers
CO₂ emissions have been reduced by simultaneously painting the body and bumpers using a new technology and consolidating them into one process (right) and drying at a low temperature (85°C) instead of the conventional two-step process (left).



Initiatives in the field of powertrain production technology

In the powertrain production technology area, Nissan is working to reduce holding furnace energy usage in cast iron melting processes conducted by the Casting Division. Conventionally in the melting process, two holding furnaces were used to store two types of cast iron melts with adjusted carbon and sulfur component contents. Now, intermediate molten metal with a low carbon and sulfur content is stored in one holding furnace. When transporting from the holding furnace to another process, the ingredients are adjusted by adding additive materials, creating two types of molten metal and making it possible to eliminate one holding furnace. As a result, power consumption was reduced by approximately 3,600 MWh per year (CO₂ conversion: Approximately 1,700 tons per year; oil conversion amount: Approximately 900 kiloliters per year). This corresponds to about 11% of the power consumed in the melting processes conducted by the cast iron factory located on site at the Tochigi Plant. In light of this achievement, Nissan won the Agency for Natural Resources and Energy Award in the Small Group Activities category at the Energy Conservation Grand Prize Awards for fiscal 2019, sponsored by The Energy Conservation Center, Japan (ECCJ).

Cast Iron melting process



*1 Source: Nissan

Contents	Corporate direction	Environmental	Social	Governance	Data
Environmental policies and philosophy	Climate change	Air quality	Resource dependency	Water scarcity	Third-party assurance
					Strengthening our business foundations

Energy-saving activities at Nissan Energy Saving Collaboration (NESCO)

To reach our defined objectives for CO₂ emissions and energy use, we solicit facility proposals from each global site, preferentially allocating investment based on the potential CO₂ emission reduction compared to project costs.

In Japan, we converted outdated facilities into cutting-edge, high-efficiency facilities with investments to improve energy efficiency, including energy-saving roof insulation upgrades. Our plants use finely controlled lighting and air conditioning for low-energy consumption and low-energy-loss operations. We promote CO₂ emission reduction activities and introduced cutting-edge, energy-conservation technology from Japan in our plants worldwide. Around the globe, our plants learn and share best practices with each other, while Nissan Energy Saving Collaboration (NESCO)*¹ diagnoses energy loss at plants in regions where it is active and proposes new energy-saving countermeasures. These proposals amount to a potential reduction in CO₂ emissions of some 40,115 ton*² in fiscal 2022, according to our calculations.

When sourcing energy, we consider the balance of CO₂ emissions for the entire company alongside renewable energy usage rate and cost, choosing suppliers best suited for achieving each goal.

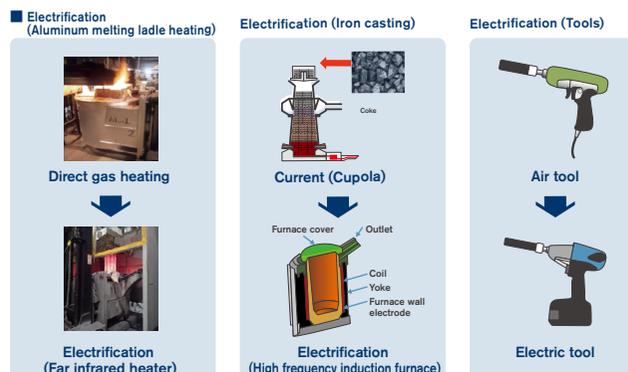
As a result of these activities, CO₂ emissions at production plants in fiscal 2022 amounted to 0.52 tons per vehicle, a reduction of 28.8% from the fiscal 20205 level.

2. Expanded electrification of production facilities

Electrification of fossil fuel facilities is indispensable to achieving carbon neutrality. We have therefore begun electrifying aluminum melting furnaces and gas heating equipment used for casting, while are also planning to convert various heat treatment furnaces and cupolas that use coke as fuel into electric furnaces.

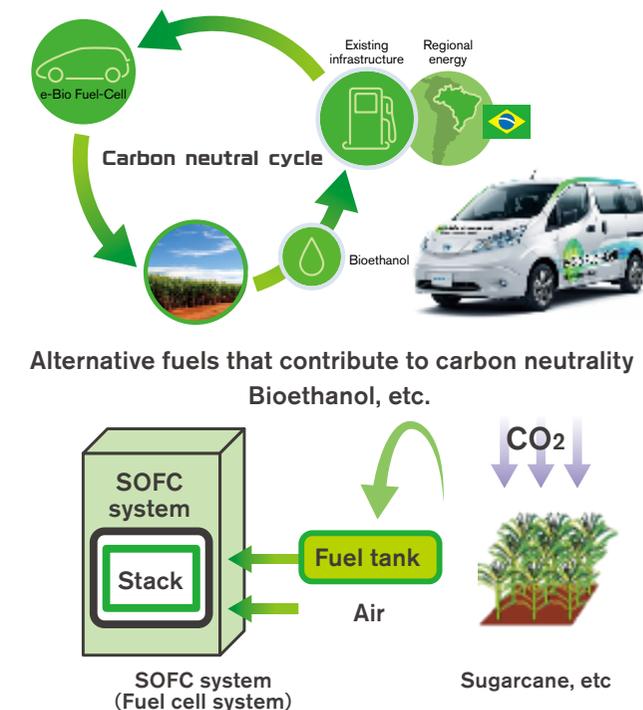
Electrification of compressed air, which has low energy efficiency, is also effective in reducing CO₂ emissions. For this reason, we are reducing our compressed air usage by converting air tools in the assembly process to electric tools and migrating from water removal by air blowing to vacuum drying in the machining process.

We will continue to expand production facility electrification in these and other ways.



3. In-house power generation using alternative fuels

We are developing SOFC*¹ fuel cell systems, which are being developed as vehicle fuel cell systems, for energy storage system applications while also developing applications for the generated electricity at factories. The use of carbon neutral alternative fuels such as bioethanol in SOFCs is expected to contribute significantly to the carbon neutrality of plants.



*1 Established in Japan in 2003, then in Europe, Mexico, and China in 2013

*2 Source: Nissan

Contents	Corporate direction	Environmental	Social	Governance	Data
Environmental policies and philosophy	Climate change	Air quality	Resource dependency	Water scarcity	Third-party assurance
					Strengthening our business foundations

4. Promoting renewable energy

Nissan takes three approaches toward promoting the adoption and integration of renewable energy in line with the characteristics of each region: (1) generating our own power in company facilities; (2) sourcing energy with a higher proportion of renewables; and (3) promote the introduction of renewable energy through contracts with PPA*1 providers. As an example of the first approach, our Sunderland Plant in the U.K. introduced 10 wind turbines supplying 6.6 MW of power. In fiscal 2022, an additional 20 MW of solar power generation capacity was installed, bringing the total amount of power generated by solar power generation to 25 MW. At our Iwaki Plant, the guest hall for plant visitors is powered by solar energy. By storing surplus electricity in secondhand Nissan LEAF batteries, the plant both stabilizes the energy supply and uses resources more effectively. At the Huadu Plant of Dongfeng Nissan Passenger Vehicle (DFL-PV) in China, solar panels with a total capacity of 30 MW have been in operation since 2017, providing roughly 8% of the electricity used at the plant. Additional solar power capacity of 18MW was introduced at the Huadu Plant and of 3MW at the Changzhou Plant in 2022.

Regarding the second approach, Renault Nissan Automotive India Private Limited in India actively uses energy generated from wind power and biomass, achieving a renewable energy usage rate of 72% in 2022.

Under contract with a PPA operator, we installed and commenced operation of a solar power generation system on the roof of a parking lot at our India plant in October 2020, and 5.5 MW system at our Thailand plant in January 2022. Through these efforts, we are enhancing the renewable

energy usage rate at our production plants, which reached 11.9% in fiscal 2022.



5.5 MW of solar power generation at the Thailand Plant

*1 Power Purchase Agreement

Contents	Corporate direction	Environmental	Social	Governance	Data
Environmental policies and philosophy	Climate change	Air quality	Resource dependency	Water scarcity	Third-party assurance
					Strengthening our business foundations

EV36Zero, an electric vehicle (EV) hub to achieve carbon neutrality

Nissan is a pioneer in not only the development and production of EVs, but also in comprehensive efforts to utilize the onboard battery as a storage battery and for secondary use, with the aim of achieving carbon neutrality throughout the entire life cycle of a vehicle. In July 2021, we unveiled EV36Zero as the world's first hub to create an ecosystem for electric vehicle (EV) manufacturing in order to advance the next phase of the automotive industry together with our partners and achieve carbon neutrality in Europe.

- New-generation Nissan electric crossover to be manufactured at the Nissan Sunderland, U.K. Plant
- Envision AESC will build a new giga-factory with an annual production capacity of 9GWh adjacent to the Nissan Sunderland Plant
- Renewable energy 'Microgrid' to deliver 100% clean electricity for the Sunderland Plant
- 2nd life EV batteries used as energy storage for ultimate sustainability
- This comprehensive project represents 6,200 jobs at Nissan and at its U.K. suppliers

Centered around the plant in Sunderland, U.K., Nissan EV36Zero will supercharge the company's drive to carbon neutrality and establish a new 360-degree solution for zero-emission motoring. The transformational project has been launched with an initial £1 billion investment by Nissan and its partners Envision AESC and the Sunderland City Council. Comprised of three interconnected initiatives, Nissan EV36Zero brings together EVs, renewable energy and battery production, setting a blueprint for the future

of the automotive industry. The experience and know-how gained through the project will be shared globally, enhancing Nissan's global competitiveness. Nissan will continue to leverage its strengths in electrification to become a company that continues to provide value to its customers and society.



Contents	Corporate direction	Environmental	Social	Governance	Data	
Environmental policies and philosophy	Climate change	Air quality	Resource dependency	Water scarcity	Third-party assurance	Strengthening our business foundations

Initiatives in the logistics field

Nissan is optimizing the frequency of deliveries and transport routes, improving packaging specifications (load shapes), and engaging in cooperative transport with other companies to promote better loading ratios and realize efficient transportation requiring fewer trucks. From the new vehicle development stage, we make efforts to source components as close to our plants as possible to reduce transportation distances. In addition, we incorporate parts shapes that take transportation efficiency into consideration during parts design, thereby reducing the number of parts procured per vehicle, which in turn reduces transportation volume.

In response to social trends in workstyles, such as driver shortages and shorter working hours, we are constantly reviewing our logistics methods and proactively promoting a modal shift to rail and marine transport. In Japan, parts shipments between the Kanto and Kyushu areas are conducted by rail and ship to the maximum extent possible.

In the future, we will collaborate with carriers that are working on environmental measures and introduce ships powered by LNG to establish logistics with a lower environmental impact.

We are targeting a 12% reduction in CO₂ emissions by fiscal 2022 compared to fiscal 2005 levels, as measured by the index of CO₂ emissions per vehicle.*¹ In fiscal 2022, CO₂ emissions per global vehicle were 0.25 tons, a reduction of 40.9%.

CO₂ Emissions from Logistics

(FY)

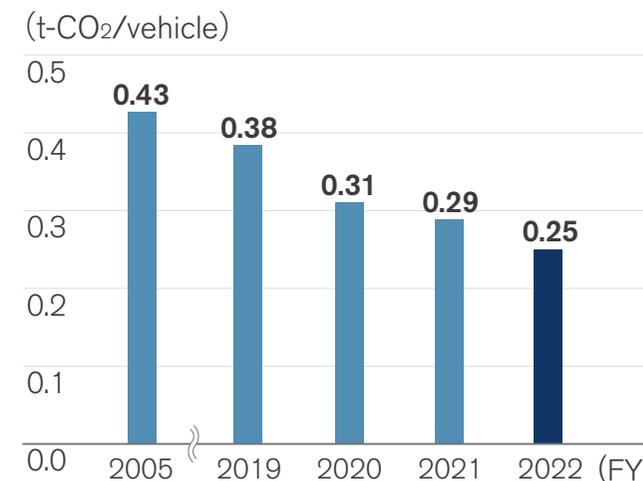
	Unit	2021	2022
Total	t-CO ₂	874,936	771,102
Inbound* ²	t-CO ₂	366,190	316,541
Outbound* ³	t-CO ₂	508,746	454,561

Sea	%	20.8	27.7
Road	%	65.6	57.8
Rail	%	7.1	7.1
Air	%	6.5	7.1

In fiscal 2022, CO₂ emissions from logistics were 771 k-tons, down approximately 12% from the previous fiscal year.

CO₂ emissions per vehicle transported

In fiscal 2022, CO₂ emissions per vehicle transported were 0.25 tons.



*¹ Total CO₂ emissions from transportation of parts to our manufacturing bases in Japan, United States, Mexico, Europe, China, Thailand, and India, and transportation of vehicles from our manufacturing bases to dealerships, divided by the number of vehicles produced.

*² "Inbound" includes parts procurement from suppliers and transportation of knockdown parts.

*³ "Outbound" includes transportation of complete vehicles and service parts. * Please check the data book for the past 5-year historical trends. >>> [P150](#)

Contents		Corporate direction		Environmental		Social		Governance		Data	
Environmental policies and philosophy		Climate change		Air quality		Resource dependency		Water scarcity		Third-party assurance	
										Strengthening our business foundations	

Office initiatives

Nissan promotes efforts to reduce CO₂ emissions at Nissan offices in Japan, North America, Europe, and China. In Japan, through Nissan Trading, we operate the Nissan Power Producers and Suppliers (PPS) scheme, sourcing clean energy for which CO₂ emissions and costs have been taken into account through Japan's PPS system. Nissan Energy Saving Collaboration (NESCO) teams have also expanded the scope of their activities beyond production plants to contribute to reducing emissions in the Nissan Technical Center in Atsugi. Our efforts for environment go beyond just CO₂ management. Employees are encouraged to use online meeting tools as much as possible to reduce the number of business trips required worldwide, which also improves workplace efficiency and reduces the costs.

Renewable energy introduction initiatives at Nissan global headquarters

At our Global Headquarters, we are promoting energy conservation activities through daily improvements that include turning off lights and installing LEDs, as well as reducing CO₂ emissions through the introduction of renewable energy. In 2011, we installed a solar power generation system providing approximately 40kW and Nissan LEAF lithium-ion batteries. The electricity generated is stored in batteries housed in the Global Headquarters building, then used for electric vehicle charging systems installed onsite. Surplus power generated is effectively used as electricity for the building.

Using a FIT Non-Fossil Certificate with Tracking, approximately 7,000 MWh of electricity used annually at the Global Headquarters will be converted to 100% renewable energy, which is expected to reduce annual CO₂ emissions by approximately 40 tons.

Green building policy

Based on ISO 14001 management processes to evaluate environmental impact, we make it a key task to optimize our buildings during construction or refurbishing to make all our structures greener. Evaluation metrics in this area include environmental footprint, such as CO₂ emissions; waste and emissions from construction methods; and use of hazardous materials and other quality control issues. Furthermore, one performance index for Nissan in Japan is MLIT's Comprehensive Assessment System for Built Environment Efficiency (CASBEE).^{*1} Among our current business facilities, our Global Headquarters in the city of Yokohama, Kanagawa Prefecture, has earned CASBEE's highest "S" ranking, making it the second Nissan structure to do so following the Nissan Advanced Technology Center (NATC) in Atsugi, which is located in the same prefecture. Our Global Headquarters gained a Built Environment Efficiency Rating of 5.6, the highest CASBEE rating for a new structure, making it one of Japan's greenest office buildings. The building's use of natural energy sources to reduce its energy usage and its CO₂ emissions were evaluated highly, as were its methods of water recycling and its significant reduction in waste produced.

Dealership initiatives

Nissan promotes efforts to reduce CO₂ emissions at dealerships. Our retail outlets also work continually to increase energy efficiency. Many have adopted high-efficiency air conditioning, insulation films, ceiling, fans and LED lighting. During renovation work, some outlets have installed lighting systems that make use of natural daylight, as well as insulated roofs. In April 2000, we introduced the "Nissan Green Shop" certification system, a proprietary environmental management system based on ISO 14001 certification, to promote energy conservation and other CO₂ reduction activities as one of our environmental initiatives. A set of standards has been established enabling CO₂ reduction activities to be conducted in accordance with a unified concept based on the Nissan Green Program (NGP), and specific measures such as reducing electricity consumption and switching to LED lighting have been incorporated into the activity plans of each company.

^{*1} Comprehensive Assessment System for Built Environment Efficiency.