

Corporate activities

In our corporate activities, including production, logistics, offices, and dealerships, we promote various activities. In terms of manufacturing, we have announced the concept Nissan Intelligent Factory for the next generation of vehicle manufacturing and are making progress in our efforts towards carbon neutrality.

Furthermore, we are promoting initiatives throughout our corporate activities, such as optimizing logistics, promoting the use of renewable energy in offices and dealerships, and striving for overall efficiency.

Nissan is also developing a system to efficiently and sustainably utilize resources and energy throughout entire life cycles, embracing the perspective of a circular economy. Through initiatives involving the circular economy and energy conservation, we strive to efficiently and sustainably utilize resources and energy while minimizing usage and emissions. In fiscal 2008, we added "environment" to the range kaizen issues addressed by quality control (QC) circles.*1 In addition, Nissan incorporates environmental improvement activities into employees' annual goals and evaluates them based on the degree of achievement. To ensure that every employee takes proactive actions towards environmental issues, evaluation systems are implemented for employees at global sites. This encourages and incentivizes employees to actively contribute to environmental initiatives.

Efforts toward carbon neutrality

Efforts toward CO₂ emission reduction through efficient energy use

We is promoting activities aimed at achieving carbon neutrality by 2050 in our corporate activities. Nissan's first priority will be the minimization of energy consumption through energy measurement and energy conservation activities.

In addition, we will make maximum efforts to transition to electrification, and replace them with carbon-free energy. We will also promote technological development to create further opportunities.

Carbon footprint of corporate activities*2

In fiscal 2023, the total of Scope 1 and 2 emissions of our global corporate activities was 1,727 thousand tons ★(Scope 1 emissions: 462 thousand tons ★; Scope 2 emissions: 1,266 thousand tons ★), a 3% decrease from 1,772 thousand tons in fiscal 2022.*3

Scope	2022	2023*4
Scope 1	585	462★
Scope 2	1,187	1,266★
Scope 1 + 2	1,772	1,727★
Japan	994	980
North America	502	501
Europe	81	86
Other	195	161

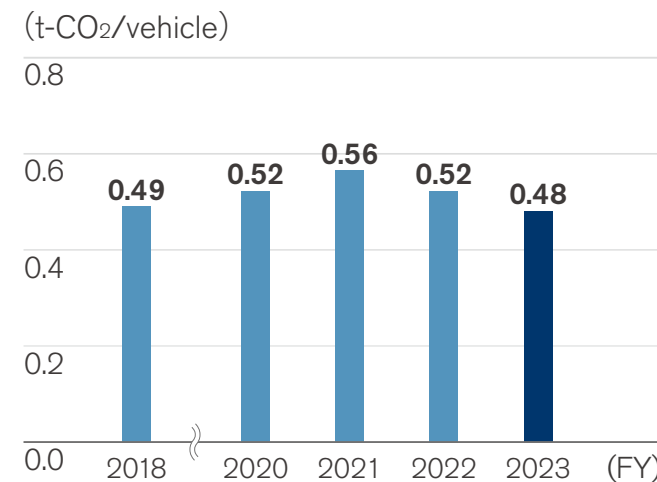
Greenhouse gas (GHG) emissions other than energy-derived CO₂*5

By type	Unit	2022	2023
CH ₄ (methane)	t-CO ₂ eq	5,054	5,705
N ₂ O (nitrous oxide)	t-CO ₂ eq	1,071	1,801
HFCs (hydrofluorocarbons)	t-CO ₂ eq	1,878	148
PFCs (perfluorocarbons)	t-CO ₂ eq	0	0
SF ₆ (sulfur hexafluoride)	t-CO ₂ eq	43	128
NF ₃ (nitrogen trifluoride)	t-CO ₂ eq	0	0

Manufacturing activities

Manufacturing CO₂ per vehicle produced*6

In fiscal 2023, our manufacturing CO₂ emissions per vehicle produced were 0.48 tons, 0.5% less than fiscal 2018.



*1 Quality control (QC) circle: Improvement activities to enhance quality control

*2 The boundary has been changed to align with the financial consolidation group. The figures for fiscal 2022 have been retroactively revised to reflect this change. (Previous boundary: Nissan Motor Co., Ltd., consolidated subsidiaries and some of its affiliates accounted for by the equity method. Revised boundary: Nissan Motor Co., Ltd. and consolidated subsidiaries)

*3 Please refer to the data book for the past 5-year historical trends >>> P148

*4 Due to some differences in the categorization from previous fiscal years, changes have been made starting from the fiscal 2023 by reclassifying a portion of Scope1 to Scope2. The impact of this change for the fiscal 2023 resulted in a decrease of 78 thousand tons of CO₂ emissions in Scope1 and an increase of 78 thousand tons of CO₂ in Scope2.

*5 GHG emissions from Nissan bases in Japan, calculated based on the Act on Promotion of Global Warming Countermeasures.

*6 CO₂ emissions per vehicle produced in the NGP management scope

★ This figure is subject to assurance by KPMG AZSA Sustainability Co., Ltd. For details, please see here. >>> P061

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. Following this, we plan to introduce renewable energy and expand the application of alternative energy.

2030-2050: Toward 2050, our goal is to fully electrify plant equipment that operate under various forms of power, including gas and steam.

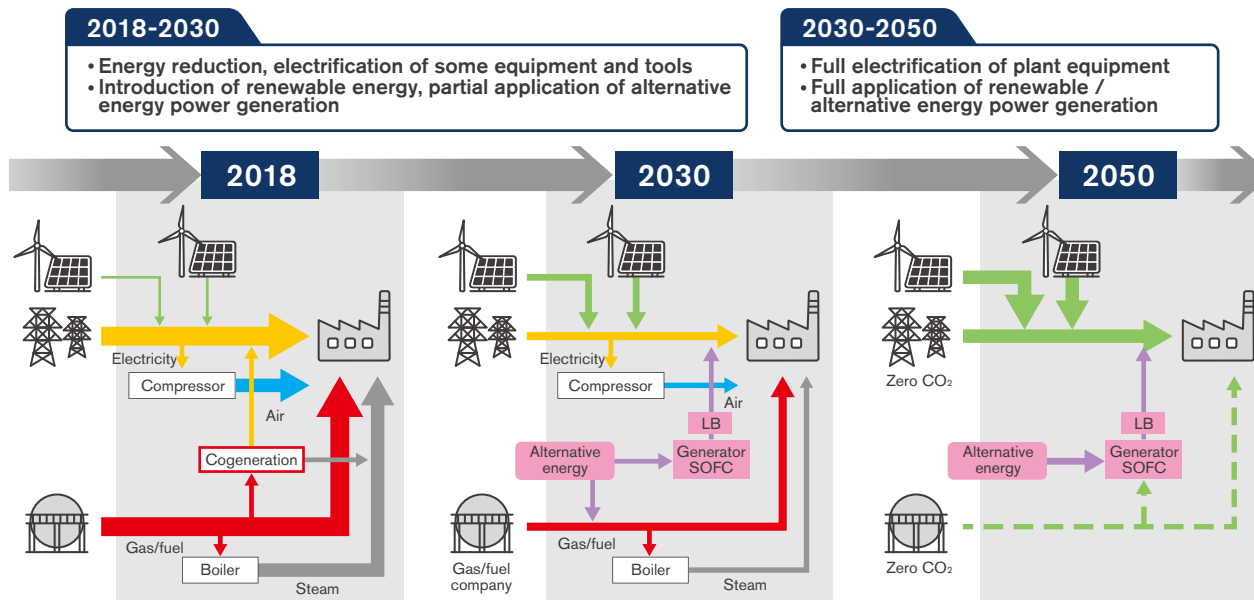
At the same adopting time, we are striving to achieve carbon neutrality at our plants by fully adopting electricity generated in-house by fuel cells that use renewable energy and alternative fuels.

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

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

Nissan announced its Nissan Intelligent Factory concept for the next generation of vehicle manufacturing as the advancement of Nissan Intelligent Mobility such as electrification and intelligence accelerates. As the functions and structures of cars become more complex, and further technological innovation becomes essential in the production process.

The pillar of Nissan Intelligent Factory, the Zero Emission Production System, promotes activities based on the carbon neutrality roadmap at production plants.



*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>

Key initiatives toward carbon neutrality by 2050 at production plants

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

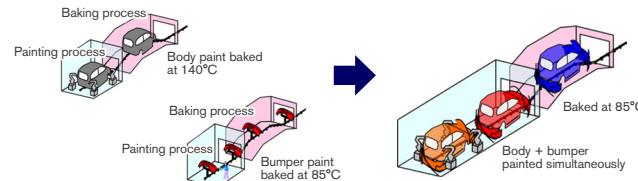
Most CO₂ emissions in the manufacturing process come from the consumption of energy generated by fossil fuels. We engage in a variety of energy-saving activities in the manufacturing process in pursuit of the lowest energy consumption and CO₂ emissions among automakers.

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 enable 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).

Simultaneous Painting of Body and Bumpers



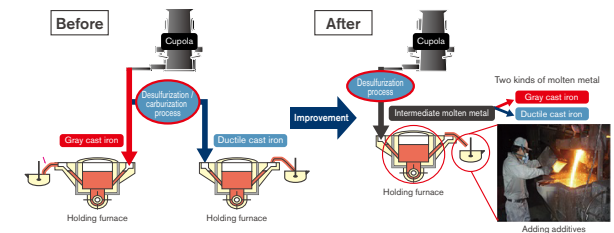
CO₂ emissions have been reduced by simultaneously painting the body and bumpers using a new technology and consolidating them into one process (right) and drying at a low temperature (85°C) instead of the conventional two-step process (left).



Initiatives in the field of powertrain production technology

In powertrain production technology, Nissan is working to reduce energy usage in holding furnaces during the cast iron melting processes carried out by the Casting Division. In the conventional melting process, two holding furnaces were used to store two types of cast iron melts with adjusted carbon and sulfur component content. 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 change in the melting process has reduced power consumption at the cast iron factory in the Tochigi Plant by approximately 11%. 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

Energy-saving activities at Nissan Energy Saving Collaboration (NESCO)*1

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 reductions compared to project costs. In Japan, aging facilities are being transformed into cutting-edge, high-efficiency facilities to improve energy consumption efficiency. In terms of facility operation, meticulous management of lighting and air conditioning systems is carried out to ensure thorough energy consumption control and minimize waste during operations. 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-conserving technology from Japan to our plants worldwide. Our plants globally engage in learning and sharing best practices with each other, while NESCO diagnoses energy loss at plants in the regions where we operate and proposes new energy-saving countermeasures. These proposals amounted to a potential reduction in CO₂ emissions of some 42,599 tons*2 in fiscal 2023.

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

As a result of these activities, CO₂ emissions at production plants in fiscal 2023 amounted to 0.48 tons per vehicle, a reduction of 1.4% from the fiscal 2018 level.

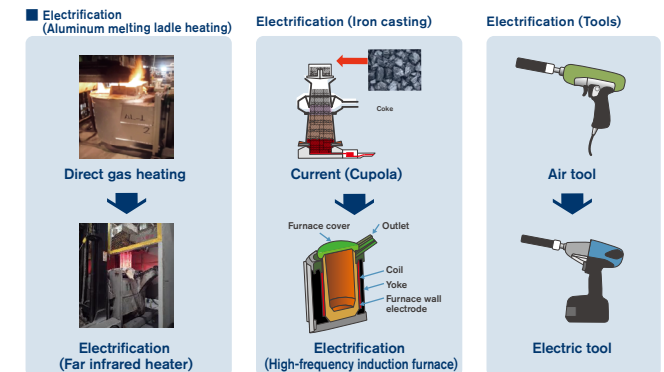
Nissan North America receives its 15th ENERGY STAR® Partner of the Year award

Nissan North America was selected as ENERGY STAR® Partner of the Year by the U.S.A. Environmental Protection Agency (EPA) for its significant contributions to energy efficiency and the transition to a clean energy economy. Additionally, Nissan's ongoing efforts to improve energy efficiency were recognized with the ENERGY STAR® Sustained Excellence Award, the highest award given, for the 13th consecutive year.



2. Expanded electrification of production facilities

Electrification of fossil fuel facilities is indispensable to achieving carbon neutrality. We have initiated the electrification of aluminum melting furnaces and gas heating equipment used for casting. Additionally, we have plans to convert various heat treatment furnaces and cupolas, which currently use coke as fuel, into electric furnaces. These efforts aim to minimize emissions and promote the use of cleaner energy sources in our manufacturing processes. 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.



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

*2 Source: Nissan

3. Promoting renewable energy

Nissan takes three approaches to promote the adoption and integration of renewable energy in line with the characteristics of each region: (1) Generating our own renewable energy in company facilities; (2) sourcing clean energy and (3) promoting 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 2023, we updated the wind turbine facilities. We are continuously exploring ways to enhance power generation efficiency. At our Iwaki Plant, the guest hall for plant visitors is powered by solar energy. By storing surplus electricity in 2nd life Nissan LEAF batteries, the plant both stabilizes the energy supply and uses resources more effectively.

Regarding the second approach, Renault Nissan Automotive India Private Limited in India actively uses energy generated from wind power and biomass. In fiscal year 2023, the proportion of renewable energy in the total electricity consumption averaged approximately 73% annually and reached a maximum of 100% on a monthly basis. Under contract with a PPA provider, Dongfeng Nissan Passenger Vehicle Company (DFL) commenced the operation of solar power generation systems at three of its plants in fiscal 2023. The generation capacity of the system at the company's Huadu Plant is approximately 20MW and those at the Changzhou and Zhengzhou Plants 3MW and 5MW, respectively. Having also accelerated the introduction of solar power generation at its global sites for example, the Sunderland plant in the U.K. and the Tan Chong Motor in Malaysia are both operating 20MW systems. Nissan has steadily installed renewable energy systems.



Solar power generation at the Thailand Plant



Solar power generation at the Tan Chong Motor

4. In-house power generation using alternative fuels

In 2016, Nissan became the first automotive company in the world to incorporate e-Bio Fuel-Cell technology, a fuel cell system that uses solid oxide fuel cells (SOFC*2) as a vehicular propulsion system. Based on its experience in developing SOFCs for automotive applications, Nissan will apply this technology to stationary power generation systems*3.

On March 6, 2024, Nissan announced that it had developed a stationary, bio-ethanol-fueled system capable of high-efficiency power generation and commenced trials at its Tochigi Plant.

Moving forward, Nissan aims to improve its power generation capacity through trial operations and work towards full-scale operations starting from 2030.



In-house power generation using SOFC and other methods

*1 Power Purchase Agreement

*2 SOFC (Solid Oxide Fuel Cell)

*3 Click here for more information on stationary power generation systems.

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
 - AESC will build a new giga-factory for battery 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 mobility. The transformational project has been launched with an initial £1 billion investment by Nissan and its partners 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 knowhow gained through the project will be shared globally, enhancing Nissan's global competitiveness.



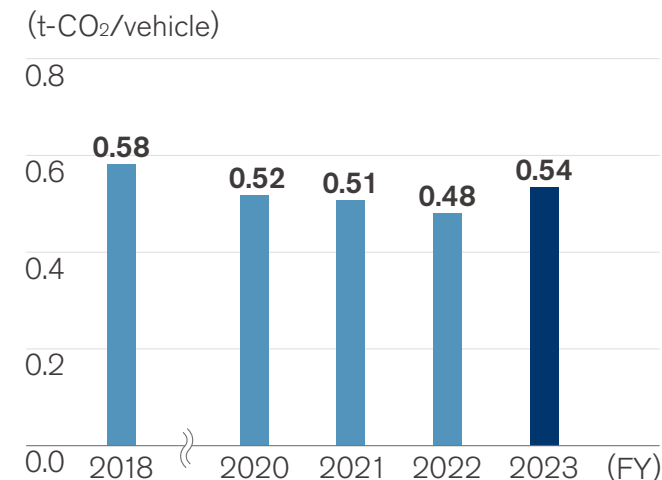
Initiatives in the logistics field

Nissan endeavors to achieve carbon neutrality within the 2050 life cycle, with a firm commitment to exploring initiatives in the logistics field. To begin with, we have formulated a roadmap for 2030, laying the foundation for our ongoing activities.

To optimize transportation efficiency, we have implemented several measures. These include shortening transportation distances, improving load configurations to reduce volume, and enhancing transportation loading efficiency.

We proactively pursue sourcing components as close to our manufacturing plants as feasible, aiming to minimize transportation distances. Additionally, we prioritize the design of parts to enhance transportation efficiency, thereby reducing the number of parts procured per vehicle and subsequently decreasing transportation volume. Collaborative transport partnerships with other companies further promote improved loading ratios. 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. Our company is committed to reducing CO₂ emissions in our logistics operations by strengthening collaboration with carriers dedicated to environmental measures, and by introducing environmentally friendly solutions such as LNG-powered vessels, biofuel ships, and electric trucks. In fiscal 2023, CO₂ emissions per global vehicle were 0.54 tons, a reduction of 6.4% compared with 2018.

CO₂ emissions per vehicle transported



CO₂ emissions from Logistics

In fiscal 2023, CO₂ emissions from logistics were 1,981k-tons.

(FY)

	Unit	2022	2023
Total*1,2	t-CO ₂	1,590,741	1,981,139
Inbound*3	t-CO ₂	408,443	552,112
Outbound*4	t-CO ₂	1,182,298	1,429,027

Sea	%	35.1	37.0
Road	%	58.3	57.3
Rail	%	3.4	3.1
Air	%	3.1	2.6

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 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.

Renewable energy 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.

From 2023, approximately 7,000MWh/year of the electricity used at the Global Headquarters has been 100% renewable energy.



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 the 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).

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 building 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.

*1 Due to the change in global emission factors based on GHG Protocol, changes have occurred in the figures since the fiscal year 2018.

*2 CO₂ emissions include those from transportation of parts to our manufacturing bases and transportation of vehicles from our manufacturing bases to dealerships.

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

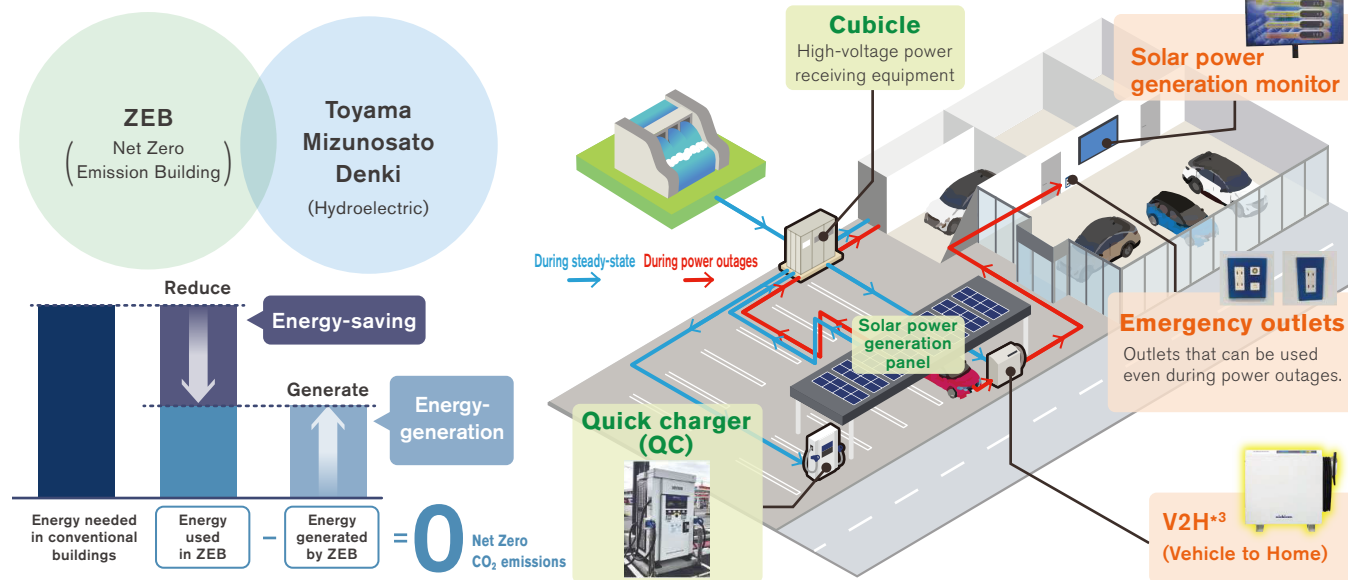
*4 "Outbound" includes transportation of complete vehicles and service parts. [Click here for more information on the data for the past 5 years. >>>P150](#)

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 2030 (NGP 2030), and specific measures such as reducing electricity consumption and switching to LED lighting have been incorporated into the activity plans of each company.

Through these efforts, we are realizing carbon neutral dealerships that both conserve and create energy. Nissan Satio Toyama will promote Electrify Japan Blue Switch Program activities to resolve local issues using electric vehicles and V2H,^{*3} contribute to the realization of carbon neutrality in Toyama Prefecture centered on these key dealerships, while further promoting the spread of electric vehicles and trains.

Carbon neutral activities at local dealerships

In the Hokuriku region, the Takaoka Interchange branch of the Nissan Satio Toyama dealership located in Toyama Prefecture became first in the region to be designated as a carbon neutral dealership in December 2022, followed by the Toyama Higashi branch in July 2023. In addition to the building's high thermal insulation, the incorporation of high-efficiency air conditioning and sensor-based lighting controls have enabled the building to achieve a 63% reduction in standard primary energy consumption and obtain ZEB-Ready^{*1} certification. In addition, solar panels are installed on the roof of an outdoor showroom to generate electricity on-site, and for additional electricity needs, the dealership utilizes the Toyama Mizunosato Denki^{*2} renewable energy menu from a hydroelectric dam located in Toyama Prefecture, leveraging the value of locally sourcing renewable energy.

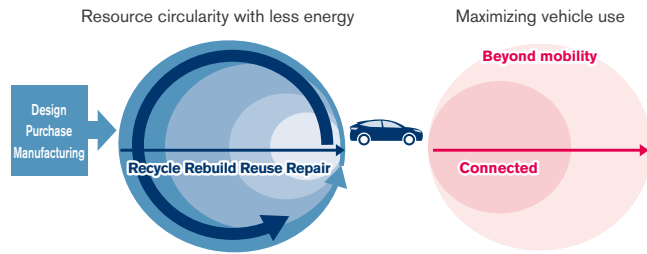


^{*1} ZEB (Net Zero Energy Building) A building that aims to achieve a balance of zero in the annual primary energy consumption, while providing a comfortable indoor environment.
^{*2} Toyama Mizunogou Denki A menu of renewable electricity that utilizes the electricity generated from the Toyama Prefecture-owned hydroelectric power plants and its environmental value. This electricity has high added value, including not only the environmental value of zero carbon dioxide emissions associated with electricity usage but also the specified power source value derived from hydroelectric power plants and the local value of being produced in Toyama Prefecture.
^{*3} V2H (Vehicle-to-Home) A system that allows EVs to supply electricity to buildings by drawing power from them. During power outages caused by disasters or other events, this system enables the use of lighting, outlets, and other electrical devices in offices, conference rooms, and other locations by supplying power from EVs.

The Nissan circular economy (resource circularity and mobility usage)

Nissan promotes the efficient and sustainable use of resources for vehicles as well as their maximum utilization.

Circular economy



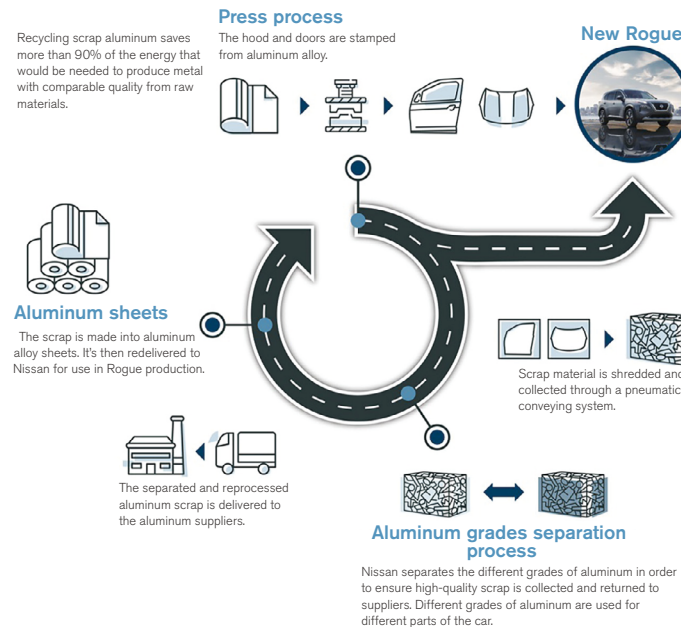
Resource circularity with less energy Initiatives to expand use of recycled materials (ferrous and nonferrous metals)

In fiscal 2023, ferrous metals accounted for 61% of the materials used in our automobiles by weight. Nonferrous metals made up another 15% and resins 13%, with miscellaneous materials making up the final 11%. To further reduce our use of natural resources, we are advancing initiatives to expand the use of recycled materials in each of these categories.

We are taking steps to reduce the steel and aluminum scrap left over in the manufacturing process, and working globally with business partners to collect and reuse this scrap as material for new vehicles through closed-loop recycling initiatives.

Currently, at Nissan Motor Kyushu and plants in North America and Europe, where X-Trail, Rogue and Qashqai are manufactured, we are collaborating with aluminum manufacturers to adopt a closed-loop recycling process that recycles aluminum scraps generated during manufacturing into aluminum alloy sheets for automobiles. The sorting and collecting of scrap in this process control impurities, realizing horizontal recycling without quality deterioration, which contributes to reductions in the amount of newly mined resources (aluminum ingots) used. Aluminum road wheel scrap generated from end-of-life vehicles (ELVs) and the market are also used for suspension parts after sorting

Closed-loop recycling of aluminum

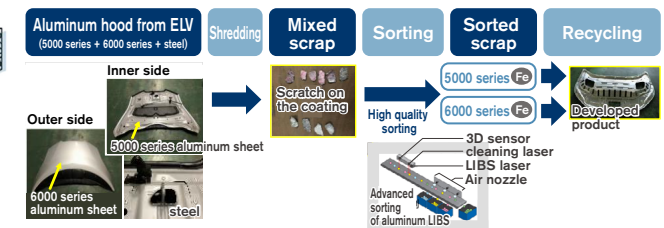


and removing impurities and making them compliant with Nissan's quality standards. We aim to achieve closed-loop recycling for ELV aluminum doors and the like, which are being promoted to reduce weight. We aim to improve the accuracy of aluminum sorting through research and development as "advanced sorting of automotive aluminum panels".*1 We then control the composition to secure the necessary formability for aluminum panels, after innovating the shredding method to improve the accuracy of aluminum sorting, and aim to achieve closed-loop recycling rather than the conventional cascade recycling method.

Horizontal recycling of aluminum



Upgrade recycling of Aluminum



*1 These R&D projects are undertaken as part of our recycling optimization support business, using surplus money from recycling fees deposited for three specified components (refrigerant, airbags, ASR) based on Japan's End-of-Life Vehicle Recycling Law. Click here for more information on the implementation of Nissan's project to advance recycling (Japanese only). https://www.nissan-global.com/JP/SUSTAINABILITY/ENVIRONMENT/A_RECYCLE/R_FEE/SAISHIGEN

Initiatives to expand use of recycled materials (resins)

In addition to our initiatives to expand the use of recycled steel and aluminum, Nissan also strives to use more recycled resins.

After resin materials are manufactured from crude oil and residue resin parts are applied to vehicles and scrapped, most resin parts are collected as automotive shredder (ASR) and used as energy in the form of thermal recovery. Compared with conventional materials, recycled resin can reduce the amount of CO₂ generated during material production, contributing significantly to effective resource use and waste reduction.

Nissan is promoting R&D into material and chemical recycled resins to establish a circular economy for resin materials. As a material recycling initiative, our Oppama Plant and Dongfeng Motor Co., Ltd. (DFL), our joint venture in China, are recycling painted bumpers generated at the plants. These are utilized as materials for new car bumpers or after-sales service bumpers. Additionally, replaced bumpers collected from dealerships are being recycled as materials used in undercovers and for other components. We collected and recycled approximately 89,000 bumpers in fiscal 2023, representing 56% of bumpers removed at Japanese dealerships.

Furthermore, 30% of the ASR processed at dedicated processing plants is made from resins. To utilize these resins in automobiles, we are running a number of R&D projects on topics, such as optimizing the recycling process for resins recovered from ASR, and the chemical recycling of auto waste plastic.*1

Closed-loop recycling of resins



Recycling of resin materials



*1 These R&D projects are undertaken as part of our recycling optimization support using surplus money from recycling fees deposited for three specified components (refrigerant, airbags, ASR) based on Japan's End-of-Life Vehicle Recycling Law. Click here for more information on the implementation of Nissan's project to advance recycling (Japanese only). https://www.nissan-global.com/JP/SUSTAINABILITY/ENVIRONMENT/A_RECYCLE/R_FEE/SAISHIGEN

End-of-life vehicle recycling

Nissan considers the three Rs —reduce, reuse, and recycle—from the design stage for new vehicles. Since fiscal 2005, all new models launched in the Japanese and European markets have achieved a 95% or greater recyclability rate.*1 We have also joined forces with other automotive companies to promote the recycling of ELVs through dismantling and shredding.

Based on Japan's End-of-Life Vehicle Recycling Law, Nissan has achieved at least 95% effective recycling rate of ELVs in Japan since fiscal 2005. In fiscal 2023, we achieved a final recovery ratio for ELVs of 99.4%*2 in Japan, greatly exceeding the target effective recycling rate of 95% set by the Japanese government.

Since 2004, Nissan and 12 other Japanese auto manufacturers have supported ASR recycling facilities, as called for in Japan's End-of-Life Vehicle Recycling Law, as an integral part of a system to recycle ASR effectively, smoothly, and efficiently. Nissan is taking an important role in this joint undertaking.

Additionally, Japan Automobile Manufacturers Association, Inc. (JAMA) established a common scheme for recovering used lithium-ion batteries along with a system for processing these batteries appropriately, and put both into operation in fiscal 2018.

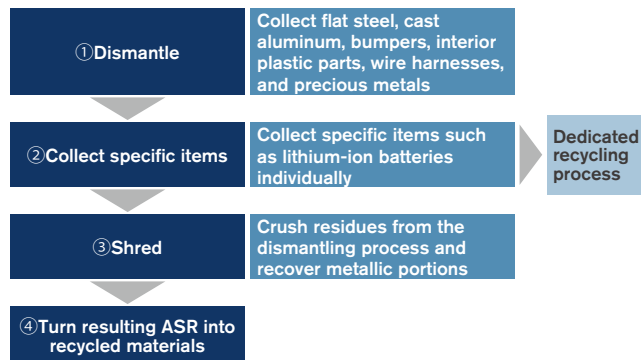
We have also established a take-back system for ELVs in Europe. This network of Authorized Treatment Facilities was developed for individual countries in collaboration with contracted dismantlers, contracted service providers, and governments in alignment with a European ELV directive.

Reducing use of scarce resources

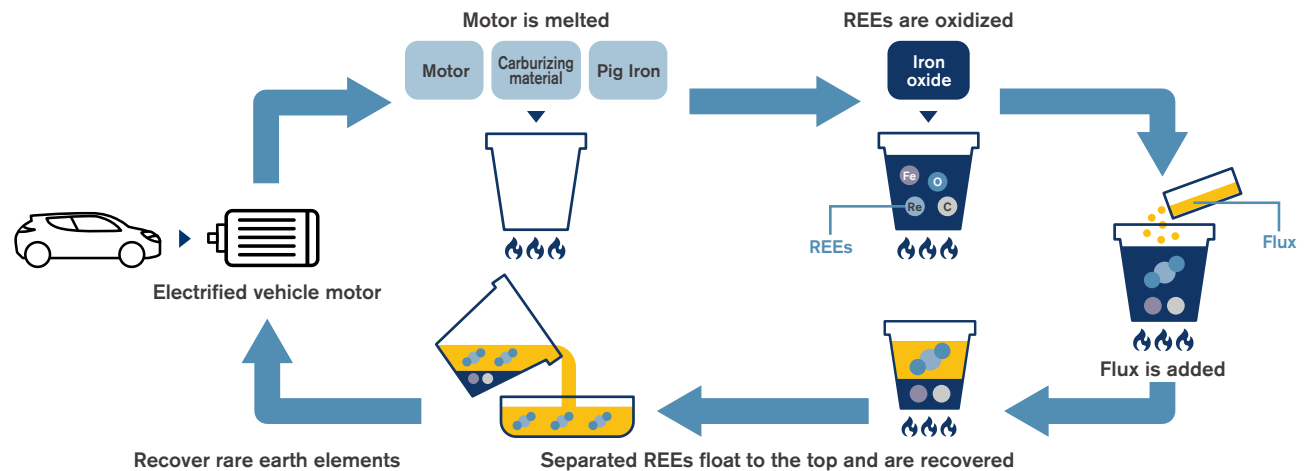
Permanent magnet motors for EVs, HEVs, and e-POWER use scarce resources called rare earth elements (REEs). Reducing their usage is important because REEs are unevenly distributed around the globe, and the shifting balance of supply and demand leads to price fluctuations. Nissan has continuously reduced the use of heavy REEs, which are the rarest, and in 2020, the Note e-POWER adopted magnets with 85% less heavy REEs compared with 2010. Furthermore, the 2022 Nissan Ariya uses an electrically excited synchronous motor without permanent magnets.

For motors that use magnets, we will continue our R&D aimed at eliminating heavy REEs.

ELV processing flow



Recycling process for rare earth elements (REEs) used in electrified vehicle motors

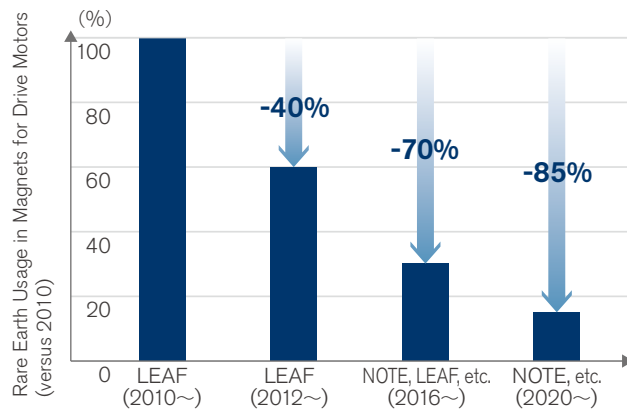


*1 Calculated based on 1998 JAMA definition and calculation guidelines (in Japan) and ISO 22628 (in Europe).

*2 Based on Nissan research

As a new initiative, Nissan is also promoting the development of rare earth metal recovery technologies from drive motor magnets. Previously, the recycling of the magnets used in motors had required multiple processes that included the manual disassembly and removal of the magnets making economic efficiency an issue. Nissan and Waseda University collaborated to establish technologies for recovering REEs in highly pure states through direct dissolution using borate as a flux, eliminating the need to dismantle the motor rotors. Currently, we are conducting trial testing using motors that did not meet our shipping standards to put the new technologies into practical use around 2030. In these ways, with respect to motors, which are a key technology, Nissan is engaged in developments corresponding to the circular economy concept, from reducing the amount of REEs used to utilizing resources efficiently and sustainably.

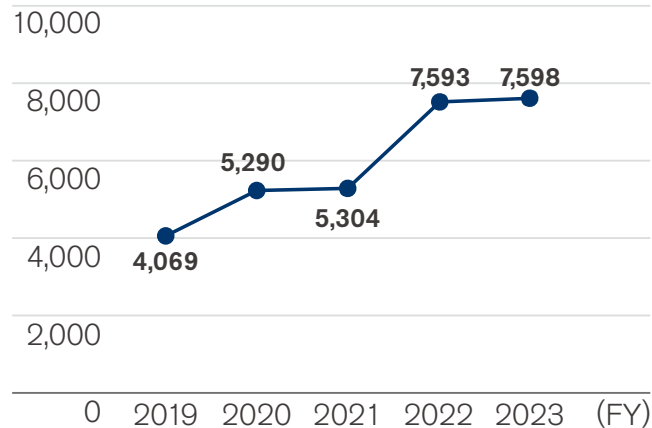
Rare Earth Usage in Magnets for Drive Motors



Proper use of regulated chemical substances

Nissan revised its standard for the assessment of hazards and risks, actively applying restrictions to substances not yet covered by regulations but increasingly subject to consideration around the world. As a result, the number of defined chemical substances covered in fiscal 2023 rose to 7,598. These steps are thought to be necessary for future efforts in the repair, reuse, remanufacture, and recycle loop for resources.*1

The number of defined chemical substances



Expansion of remanufactured parts

Parts reclaimed from ELVs and those replaced during repairs include potential parts for recycling. In Japan, we collect these parts and go through quality checks to sell them under the Nissan Green Parts initiative. Nissan Green Parts have two categories: remanufactured parts, which are disassembled and have components replaced as needed,

and reusable parts,*2 which are cleaned and tested for quality.

By further accelerating such Nissan Green Parts initiatives, particularly in Japan, Europe, and North America, Nissan aims to supply parts to customers stably while effectively using limited resources.

Example of Nissan Green Parts in Japan



Alternator | Air conditioning compressor | Starter motor

Maximizing vehicle use: Mobility and connected services

We are also exploring the maximization of vehicle use by employing mobility and connected services.*3

*1 Click here for more information on chemical substances governance. >>> P023

*2 Not available at some retail outlets.

*3 Click here for more information. >>> P040

Impacts and dependencies on nature in corporate activities (resources, water and air)

Resource dependency: Achievements in waste reduction

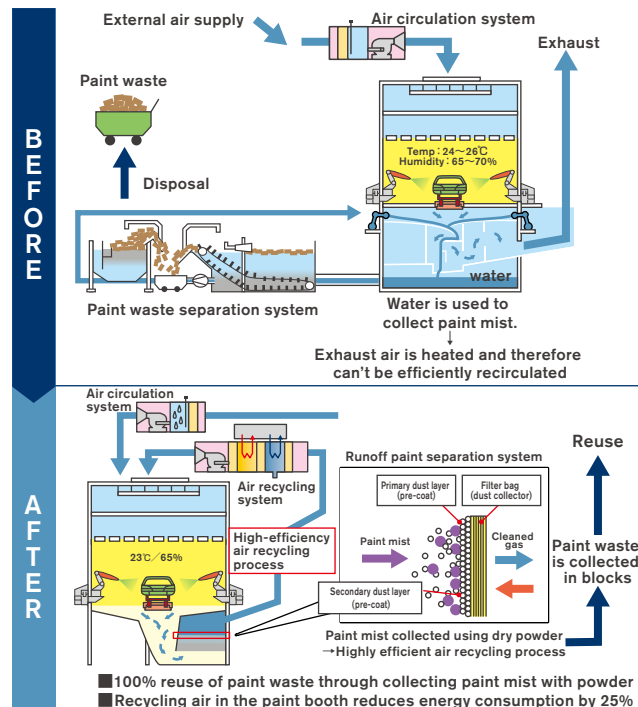
Thorough measures for waste materials

Nissan actively promotes measures based on the 3R (Reduce, Reuse, Recycle) approach in its production processes whenever possible, striving to minimize the waste generated and maximize recycling efficiency by thorough waste sorting. At the end of fiscal 2010, we achieved a 100% recycling rate at all of our manufacturing sites in Japan, including five manufacturing plants, two operation centers, and seven affiliates. Overseas, we have reached 100% recycling rates at plants in India, Brazil, and elsewhere. We are also working to reduce waste at global production factories, including Japan, by reducing packaging materials for imported and exported parts, distributing parts between overseas bases, and repeatedly using plastic and returnable containers.*1

Furthermore, we have optimized parts shape at parts design stage which is called logistics simultaneous activities to reduce the volume of packaging materials used. We also contribute to waste reduction by selecting recyclable materials at the packaging material selection stage and are actively engaged in the development of recycling technologies for carbon fiber-reinforced plastics (CFRP).

Promoting recycling with dry paint booths

Recycling is also being promoted at the Nissan Intelligent Factory, which began operations in 2021. Conventionally, residual paint in the air during the painting process has been mixed with water and disposed of as waste. By employing dry booths that do not use any water, 100% of the paint mist is collected in the plant and recycled as a substitute for the auxiliary agent used to remove impurities in the iron casting process.



Waste

Global regular waste generated from corporate activities in fiscal 2023 amounted to 170,491 tons, waste generated globally from production sites in fiscal 2023 was 171,598 tons *(regular waste*2 : 164,947 tons, non-regular waste*3 : 6,651 tons).

Regular waste generated from corporate activities

	(FY)	
	2022	2023
Total*4,5	157,982	170,491

By region		
Japan	51,069	57,638
North America	52,007	53,802
Europe	36,577	43,037
Other	18,329	16,015

By treatment method		
Waste for disposal	8,688	7,746
Recycled	149,293	162,746

(Unit : Tons)

*1 Returnable containers: Containers for packing parts that can be returned to the sender after parts delivery and used repeatedly. Nissan has adopted a folding structure in consideration of transportation efficiency at the time of return.

*2 Regular waste generated from production, maintenance, and issue resolution activities.

*3 Waste generated irregularly from activities such as installing new processes, relocating equipment, and dismantling facilities.

*4 The total disclosed amount since 2019 is the total amount of regular waste generated from production sites and office sites, excluding *3.

*5 Click here for more information on Resource dependency (Facility waste). >>> P153

* This figure is subject to assurance by KPMG AZSA Sustainability Co., Ltd. For details, please see here. >>> P061

Water-related achievements

Reducing water used in corporate activities

Nissan views water as a contextual issue, and in areas with a high risk of water stress, Nissan prioritizes efforts aimed at reducing water usage, including wastewater recycling and the effective use of rainwater, while also contributing to the resolution of local water issues. Nissan also strives to manage and reduce water usage at every plant.

To reduce water usage, we built reservoirs to collect rainwater at the Chennai Plant in India and the second Aguascalientes Plant in Mexico, and installed wastewater recycling equipment at the Chennai Plant, the Huadu Plant in China, and the Oppama Plant in Japan.

In particular, Chennai Plant, which is located in a water basin with valuable water resource, continues its efforts to reduce

water usage and is also engaged in the restoration of nearby ponds and lakes. The Plant's efforts have been recognized as an excellent example of water resource management by the Confederation of Indian Industry (CII). Furthermore, as a result of a rigorous audit by a third-party, the plant obtained the prestigious "Water Positive Certification (Platinum Category)" in February 2024, for its comprehensive water strategy, which includes reducing water usage at the plant and the restoration of nearby ponds and lakes.

Our plants are competing among themselves to find new activities for reducing water usage, such as by filtering wastewater from pre-painting processes at Nissan North America (NNA) which improves water quality.

We are also working to reduce water usage at Nissan's Global Headquarters in Yokohama, Japan, by processing rainwater and wastewater from kitchens and other internal

sources to be reused for flushing toilets and watering some plants.



Chennai Plant, honored by the CII.



Water Positive Certification (Platinum Category)

Examples of efforts to reduce water usage at manufacturing plants and offices in India

In India, where the handling of water resources has a significant impact on people's lives, our manufacturing plant has installed water treatment facilities using an RO membrane to reduce water usage. After treating domestic wastewater, it is reused as cooling for the manufacturing process and cooling towers. As a result, we are able to reduce consumption by approximately 78,000 kiloliters of water per year, which is equivalent to the amount of water used by about 320,000 households a day. In addition, India is working to revitalize lakes and ponds around its plants with consideration of the use of water in the local communities regarded as important. India completed revitalization of Sitheri Lake in 2020 and committed to revitalizing ten lakes and ponds, including Oragadam lake which is the primary source of water for six villages, in 2023. Dredging and increasing the capacity of lakes and ponds contributes to securing drinking water and sustains biodiversity.

Moreover, Nissan Motor India's service centers provide customers with car wash services using the latest foam car wash technology. This reduces the amount of water used by 45%, from approximately 160 liters to approximately 90 liters per car washed. As well as saving water, the foam car wash service reduces wash time as it does not use strong chemical detergents and improves a car's gloss by approximately 40%.



Environmental principles and policies

Understanding of environmental issues

Strategic approach to environmental issues

Global environmental management framework and governance system

Nissan Green Program

Value chain activity achievements

Third-party assurance

Water intake for corporate activities

In fiscal 2023, water intake for our global corporate activities was 20,034 thousand m³, same level as 20,208 thousand m³ in fiscal 2022.

In fiscal 2023, water intake from global production sites was 18,939 thousand m³ ★, the same level as 19,065 thousand m³ in fiscal 2022.

(FY)

	2022	2023
Total	20,208	20,034
Japan	10,472	10,564
North America	4,235	4,382
Europe	1,270	1,288
Other	4,231	3,799

(Unit : thousand m³)

Water discharge from corporate activities

The total amount of water discharged in global corporate activities in fiscal 2023 was 13,929 thousand m³, same level as 13,319 thousand m³*1 in fiscal 2022.

(FY)

	2022	2023
Total	13,319*1	13,929
Japan	8,902	9,376
North America	2,610	2,753
Europe	596	613
Other	1,210*1	1,186

(Unit : thousand m³)

Quality

Chemical oxygen demand (COD) Japan only	24,884	24,811
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(Unit : kg)

Nissan thoroughly processes wastewater at its various plants. Wastewater from Mexico plant, is used to maintain landscaping on the sites, with no off-site discharge. We are also strengthening water pollution prevention measures at our Japanese plants. In preparation for unexpected occurrences, such as a discharge of oil, we have attached water quality sensors to the discharge points of wastewater treatment facilities. The discharge of water outside the sites is automatically suspended if water quality problems are detected. In addition, we installed water quality sensors on rainwater drainage outlets which automatically close floodgates in the event of heavy rain.

Water consumption in corporate activities

The total amount of water consumed in global corporate activities in fiscal 2023 was 6,105 thousand m³, *2 a decrease from 6,889 thousand m³ *1 in fiscal 2022.

(FY)

	2022	2023
Total	6,889*1	6,105
Japan	1,570	1,188
North America	1,625	1,629
Europe	674	675
Other	3,021*1	2,613

(Unit : thousand m³)

Air quality: Achievements

Plant emission management

In Japan, we have promoted strict countermeasures for emissions of nitrogen oxides (NOx) and sulfur oxides (SOx) as air pollutants. We have lowered NOx and SOx emissions by introducing low-NOx burners in the ovens and boilers that provide heat for painting lines, and by switching the fuel used by those burners from heavy oil and kerosene to alternatives with low SOx emissions.

From a carbon-neutral perspective, facilities that use fuel will be increasingly electrified. As a result, emissions from production plants are expected to be further reduced. We will continue to implement appropriate management on an ongoing basis.

Reducing VOC from production processes

Volatile organic compounds (VOCs),*3 which readily evaporate to become gaseous in the atmosphere, account for approximately 90% of the chemicals generated as the result of our vehicle production processes. Lowering VOC emissions is a challenge that we are working to address. We strive to increase our recovery of cleaning solvents and other chemicals to limit the amounts of these substances emitted from our plants ahead of the implementation of new regulations in each country where we operate, while also advancing planned measures to increase the recycling rate for waste solvents. We are also introducing water-based paint lines that limit VOC emissions to less than 20 grams per square meter of painted surface. We have adopted these lines in the Nissan Motor Kyushu Plant as well as the two plants in Aguascalientes in Mexico, the Resende Plant in Brazil, the Smyrna Plant in the U.S.A., the Huadu Plant in China, and the Sunderland Plant in the U.K. Nissan will continue to manage VOC at manufacturing sites.

*1 The figures for fiscal year 2022 have been changed due to an error in calculating the previous fiscal year's figures.

*2 Based on GRI 303, total water consumption is total water withdrawn minus total water discharged as calculated by Nissan.

*3 VOCs: Organic chemicals that readily evaporate and become gaseous under normal temperature and pressure conditions. Click here for more information on air quality. >>> P156

★ This figure is subject to assurance by KPMG AZSA Sustainability Co., Ltd. For details, please see here. >>> P061