

Environment Management

Our position

Our society today faces various issues such as the depletion of natural resources, climate change, and the destruction of ecosystems, and all business activities have an impact on the environment. It is also true that environment changes can pose a risk of preventing business continuation. For this reason, Yokohama Rubber works to minimize its environmental burdens in all of its business processes. As part of these efforts, the company conducts assessments with respect to the items of the "prevention of global warming," the "recycling and circulation of resources," "resource conservation," and "safety and comfort" in the design review process for new products, to provide customers with environment-friendly products.

To clearly express this way of thinking and these activities, we have formulated the "[Yokohama Rubber Environmental Policy](#)" to declare ourselves as a world-leading environment-friendly enterprise both inside and outside the company. In addition, specific actions that should be taken by employees are stipulated in the "[Yokohama Rubber Group Action Guidelines](#)".

Policy

Yokohama Rubber Basic Environmental Policy

Following the principle of dealing fairly with society and valuing harmony with the environment, we shall stand for "Leave a sound environment to future generations" for the Earth.

I. Sustainable improvement of environmental management

Environmental management will be integrated with "economic" activities.

II. Contribution to a decarbonized society and a recycling-oriented economy

All members of all departments will work to achieve carbon neutrality in all areas of activity.

Resource conservation and recycling will be promoted at all stages, from product planning and development to purchasing, production, sales, and disposal.

Furthermore, the use of renewable and recycled materials will be expanded.

Through these efforts, Yokohama Rubber will work to reduce its environmental impact and achieve a circular economy.

III. Coexistence with Nature

Yokohama Rubber will promote initiatives aimed at achieving a nature-positive society and strengthen environmental risk management.

Yokohama Rubber Environmental Policy

Following the principle of dealing fairly with society and valuing harmony with the environment, we shall embody “Caring for the Future” for the global environment and assert our world-class strengths in technologies to protect it.

1. Under leadership of top management, Yokohama Rubber will implement environmentally-conscious measures in all areas of its global activities, and will put this into practice across its entire organization.
2. Yokohama Rubber will respect international norms, deepen communication with its stakeholders and will strive to make contributions to local communities and to society as a whole by promoting collaboration to working with the value chain.
3. Yokohama Rubber will strengthen its environmental management system and will aim to achieve zero environmental risk by continually striving to help improve the environment by using approaches to mitigate its impact with chemical substance management, prevent environmental pollution, and reduce sensory nuisances.
4. Yokohama Rubber will comply with all related laws, regulations, and agreements as well as endeavor to continually implement activities that help improve the environment.
5. Yokohama Rubber will promote decarbonization measures, such as energy-saving activities and the introduction of renewable energy, and strive to conserve and recycle resources, and the increased use of renewable and recycled materials in order to realize a carbon-neutral and circular economy.
6. Yokohama Rubber will strive to conserve biological diversity and use biological resources sustainably in its business activities, with the aim of realizing a world that coexists with nature.
7. Yokohama Rubber will promote harmony with local communities as part of its commitment to work with and become a company that is trusted by local communities.
8. Yokohama Rubber shall publish this policy and make it known to all.

Yokohama Rubber Group Action Guidelines (Excerpt)

We shall harmonize our activities with the global environment.

<Basic Stance of the Yokohama Rubber Group>

1. As members of a corporate group with the highest levels of contribution to the environment, we shall take up the challenge of environment-related issues and help to build a sustainable society.
2. We shall construct and operate mechanisms for companywide management in order to observe environmental laws and regulations in each host country and region.

<To practice our basic stance — our action>

1. We shall observe all laws and regulations for prevention of air pollution, water pollution, soil contamination, etc.
2. In accordance with laws and regulations, we shall control environment-burdening substances, strive to reduce environmental risks deriving from them, and exclude prohibited chemical substances from our product manufacturing processes.
3. In all stages of our business activities, we shall eliminate the waste of resources and energy, and reduce emissions of CO₂ and other greenhouse gases.
4. In all stages of our business activities, we shall promote the reduction of industrial waste derivation and final disposal volumes.
5. In order to preserve biodiversity, we shall engage in various activities in accordance with our Guidelines on Biodiversity.

Message from a manager

With the aim of achieving harmony with the global environment in line with international protocols, and in order to sustain our business management, the Yokohama Rubber Group is promoting policies of "realization of a low carbon society," "realization of a resource recycling oriented society," and "preservation of biological diversity" while assuring the global consistency of our corporate environmental management.

For realization of a low carbon society, we sell only environment-friendly products that have passed our new product design reviews, and work to reduce greenhouse gas emissions (GHG) throughout the entire value chain in accordance with the medium to long-term targets.

For realization of a resource recycling-oriented society, we promote the recycling of regenerated rubber and reduction of industrial waste, and aim to achieve zero emissions at all of our production sites.

For preservation of biological diversity, we conduct surveys and preservation activities with a view to reducing water risks at our domestic and overseas production sites as well as ensuring the stable supply of natural rubber overseas.

We believe that the tree-planting and sapling-making activities in local communities and disaster areas we have done under the Yokohama Forever Forest Program will be understood as the expression of our intention to work together with local communities in order to "continue to protect our planet."

We will promote these activities in collaboration with our group companies in China, Asia, North America, and Europe.

Goto Yosuke

General Manager,

Head of Environmental Protection Promotion Department, Corporate Social Responsibility Division

Vision for FY 2026

- Sell only environment-friendly products.
- Achieve carbon neutrality of our own activities by 2050.
- Reduce GHG emissions from our own activities by 40% by 2030 (compared with FY2019 level).
- Promote the introduction of solar power generation systems and switching to using renewable energy-derived electricity.
- Promote the effective use of water resources in line with the characteristics of water risks.
- Develop biodiversity preservation activities at production sites.
- Achieve the goal of planting 1.5 million trees under the Yokohama Forever Forest Program by 2030.
- Promote ESG initiatives in the procurement of resources including natural rubber.
- Achieve zero environmental risks.

Environmental Grievance Mechanisms

In the event of a caution, guidance, or recommendation received from a governing authority, we immediately take action in accordance with the emergency response standards specified in our corporate-wide guidelines.

Our environmental protection promotion department will provide advice on countermeasures while receiving advice from the legal division, and the entire company will join forces in the response.

In addition, we have a system of receiving environmental complaints from local residents living in the vicinity of our factories.

From external environment-related information received at each of our sites, we select ones involving environmental risks and opportunities, enter that information in the "external information acceptance ledger," and then determine whether the information constitutes an external complaint based on our corporate-wide guidelines.

If such information is identified as an external complaint, it will be handled in accordance with the emergency response standards of our corporate-wide guidelines.

For types of information that are not identified as an external complaint, an environmental management representative of the site will, as he or she deems necessary, contact the relevant department accordingly.

In the event of a caution, guidance, or recommendations received from a governing authority, an "external information receiving form" will be issued and simultaneously sent to our environmental protection promotion department, other

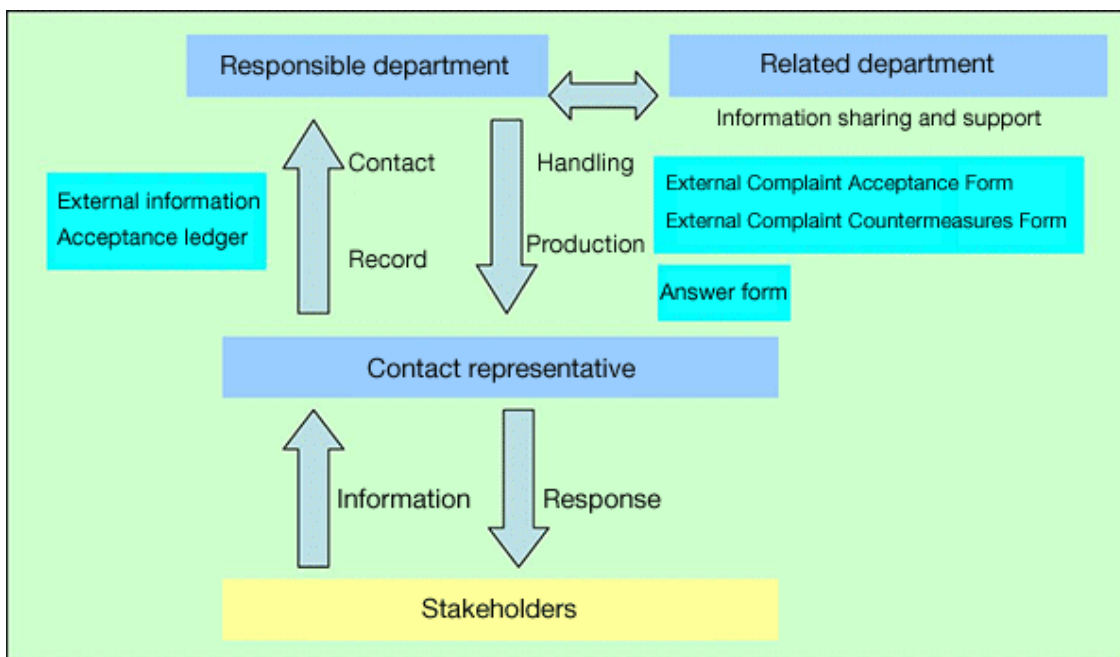
Yokohama Rubber sites, and to the committee secretariats of our corporate tire production environmental task force and the MB (industrial products) production environmental task force, respectively.

At the completion of the response, an "external complaint response form" will be sent to our environmental protection promotion department.

The environmental management committee secretariat of the site will submit an answer using an "answer form" to the complainant, after reporting the entire process from the receipt of the information to the proposed answer to the complainant in writing to the site manager and gaining his or her approval.

We also have internal and external monitors to regularly check the effectiveness of the system.

External information and complaint handling flow



Environmental Risk Management

Based on our corporate emergency readiness and response guidelines, the environmental manager of each of our sites compiles accidents and emergencies that may have a significant impact on the environment into a List of Accidents and Emergencies and updates it every year.

In addition, in order to confirm the effectiveness of the response procedure, the environmental management representative of each site verifies the procedures for responding to the accidents and emergencies identified at the site, and provides necessary training in accordance with the relevant guidelines.

Environmental risk assessment is conducted at all of our domestic and overseas production sites. The percentage of production sites that conducted environmental risk assessments in fiscal year 2023 was 100%.

Should a case identified as an environmental accident or emergency have occurred, the responsible site will take preventive and emergency measures in accordance with our emergency readiness and response guidelines, and will report to the local governing authority in the event that environmental standards are exceeded.

Immediately after the occurrence of such environmental accident, the information will be conveyed to the relevant departments by means of a "Zero Report" in accordance with the emergency response management guidelines stipulated by the responsible department, and then, such information will be conveyed to the relevant department by using an Environmental (1) Accident, (2) Trouble, (3) Serious Near Miss, (4) Near Miss Report, as a general rule within 24 hours from the occurrence.

In FY2023, there have been no reports of a pollution or contamination incident.

The environmental manager of the responsible site will follow up the status of corrective measures after the accident or emergency in order to ensure the prevention of a recurrence and the prevention of similar accidents, and the site manager will review the procedures after the accident or emergency.

The environmental protection promotion department will work on countermeasures and the prevention of recurrence from both professional and general corporate perspectives.

The environmental managers of other sites who have received the accident/emergency information will apply the same approach based on the information to prevent the occurrence of similar accidents at their respective sites.

In addition, a corporate-wide environmental management committee will investigate the cause of the accident or emergency to make sure that countermeasures are implemented, and will follow up on the implementation to prevent recurrence, and will make the investigation findings available for reference at the ISO 14001 requirements management review.

Environmental Management System

Strengthening Global Environmental Management Based on ISO 14001

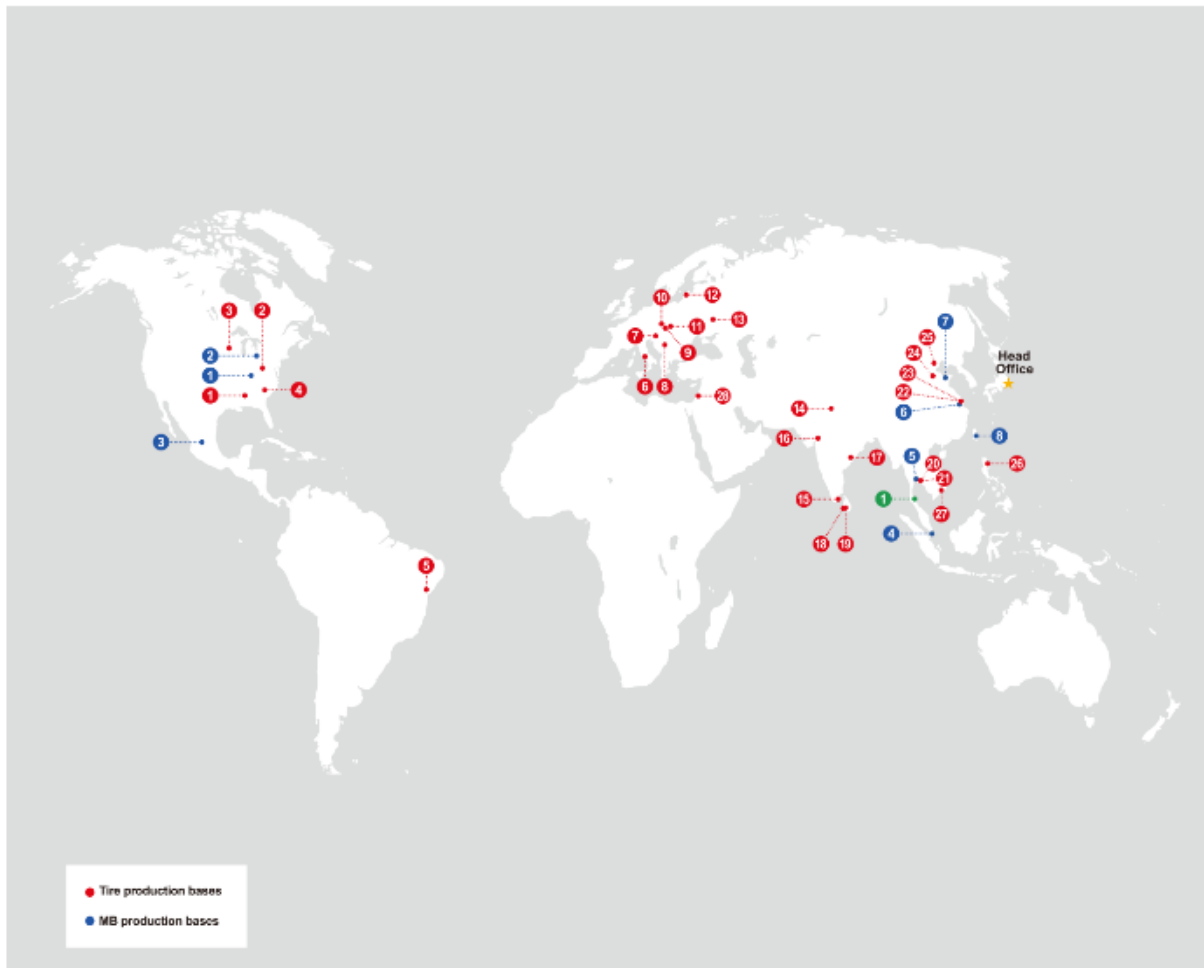
We aim to achieve advanced and consistent environmental management in group companies both domestically and internationally. Our operations are based on ISO 14001, the international standard for environmental management systems. We are actively pursuing ISO 14001 certification at our production sites. We have achieved certification at 16 locations in Japan (8 Yokohama Rubber sites and 8 group company sites) and 18 group production sites overseas (a total of 36 locations). This brings the total number of certified sites to 52, representing a 100% certification rate for our production facilities.

In Japan, we achieved integrated ISO 14001 certification for Yokohama Rubber's production facilities and headquarters in 2012, and in 2018, we obtained integrated ISO 14001:2015 certification for a total of 16 locations including Yokohama Rubber and group companies. This demonstrates a high level of consistency.

For non-production sites, we are promoting environmental management based on our internal "CSR Environmental Management Guidelines." We have achieved ISO 14001 certification at Yokohama Rubber's headquarters, system company, and group sales companies in Australia and Taiwan, further enhancing our environmental management.

In addition, our tire production site in Thailand has obtained ISO 50001 certification for its energy management system.

Overseas group companies that have achieved ISO 14001 certification



Tire production bases

- 1 **Yokohama Tire Manufacturing Mississippi, LLC.**
1 Yokohama Blvd, West Point, MS 39773, U.S.A.
- 2 **Yokohama Tire Manufacturing Virginia, LLC.**
1500 Indiana Street, Salem, VA 24153, U.S.A.
- 3 **Yokohama TWS North America, Inc.**
Charles City Plant
1200 Rove Avenue Charles City IA 50616, U.S.A.
- 4 **Yokohama TWS North America, Inc.**
Spartanburg Plant
790 Reeves Street Spartanburg SC 29301, U.S.A.
- 5 **Yokohama TWS Brazil Industria e Comercio de Borrachas e Polimeros Ltda.**
Feira De Santana Plant
Avenida Deputado Luis Eduardo Magalhães, S/N Quadra J Blocos A e B no Bairro Limoeiro Feira de Santana – Bahia CEP 44.067- 324, BRASIL
- 6 **Yokohama TWS S.p.A.**
Tivoli Plant
Tivoli (RM) Via Nazionale Tiburtina 143 Postal Code 00018, ITALY
- 7 **Yokohama TWS Slovenija d.o.o.**
Kranj Plant
Škofjeloška cesta 6 4000 Kranj, SLOVENIA
- 8 **Yokohama TWS Serbia d.o.o.**
Ruma Plant
Industrijska bb 22 400 Ruma, SERBIA
- 9 **Yokohama TWS Czech Republic a.s.**
Otrokovice Plant
Tomase Bati 1740, 765 01 Otrokovice, CZECH REPUBLIC
- 10 **Yokohama TWS Czech Republic a.s.**
Prague Plant
Švehlova 1900/3, 108 00 Prague 10, CZECH REPUBLIC
- 11 **Yokohama TWS Czech Republic a.s.**
Zlin Plant
Šedesátá 5638, 78002 Zlin, CZECH REPUBLIC
- 12 **Yokohama TWS Latvia LSEZ SIA**
Liepāja Plant
Kapsēdes iela 2 Liepāja LV-3414, LATVIA
- 13 **LLC Yokohama R.P.Z.**
RUSSIA, 399071, Lipetsk region, Gryazy district, Gryazy town, territory of SEZ PPT Lipetsk, building 47, block 11
- 14 **Yokohama India Pvt. Ltd.**
Plot No.1 Sector 4B, Bahadurgarh Industrial Estate, HSIIDC Bahadurgarh, Dist - Jhajjar, Haryana 124507, INDIA
- 15 **ATC Tires Private Ltd.**
Tirunelveli Plant
Plot No. A2, SIPCOT Industrial Growth Centre, Gangaikondan, Tirunelveli, 627 352, INDIA
- 16 **ATC Tires Private Ltd.**
Dahej Plant
D-III, 23 & 23A Dahej Industrial Estate, Village-Samantpore, Taluka-Vagra, District Bharuch, Gujarat-392 140, INDIA
- 17 **ATC Tires AP Private Ltd.**
Visakhapatnam Plant
Plot No.6,7, 8A2, 8A, 8B, 8B1A and 8C situated at Industrial Park, Denotified Area, Atchutapuram, Visakhapatnam, Anakapalle, Andhra Pradesh, 531011, INDIA
- 18 **Yokohama TWS Lanka (Pvt.) Ltd.**
Yokohama TWS Tyres Lanka (Pvt.) Ltd.
Sapugaskanda Plant
Levin Drive Sapugaskanda Makola Postal Code 11640, SRI LANKA
- 19 **Yokohama TWS LK (Pvt.) Ltd.**
Malwana Plant
45, B E P Z Biyagama Walgama Malwana Postal Code 11670, SRI LANKA
- 20 **Yokohama Tire Manufacturing (Thailand) Co., Ltd.**
7/216 Moo.6 Amata City Rayong Industrial Estate, Tambol Mpyangporm, Amphur Pluakdaeng, Rayong Province 21140, THAILAND
- 21 **Yokohama Mold (Thailand) Co., Ltd.**
Eastern Seaboard Industrial Estate, 300/30 Moo. 1 Tambon Tasit, Amphur Pluakdaeng, Rayong, 21140, THAILAND
- 22 **杭州優科賽馬輪胎有限公司**
NO.55, NO.3 Street, Hangzhou Economic and Technical Development Area, Hangzhou, Zhejiang 310018, CHINA
- 23 **蘇州優科賽馬輪胎有限公司**
NO.158, Huaqiao Road, Xuguan Industrial Park, Suzhou National New & Hi-Tech Industrial Development Zone, Suzhou, Jiangsu Province, 215151, CHINA
- 24 **Yokohama TWS (Hebei) Co. Ltd.**
Hebei Plant
NO.788 Zhongxing St. West Xingtai Hebei 054000 P.R.CHINA
- 25 **Yokohama TWS (Xingtai) Co. Ltd.**
Xingtai Plant
NO. 999 Jianshe St. Xingtai Hebei 054000 P.R. CHINA
- 26 **Yokohama Tire Philippines, Inc.**
IE5, Clark Freeport Zone, Pampanga , 2023, PHILIPPINES

27 **Yokohama Tyre Vietnam Inc.**
No.17, Street 10, Vietnam Singapore Industrial Park, Binh Hoa ward, Thuan An city, Binh Duong Province, VIETNAM

28 **Alliance Tire Company Ltd.**
PO BOX No. 48, Hadera 38100, ISRAEL

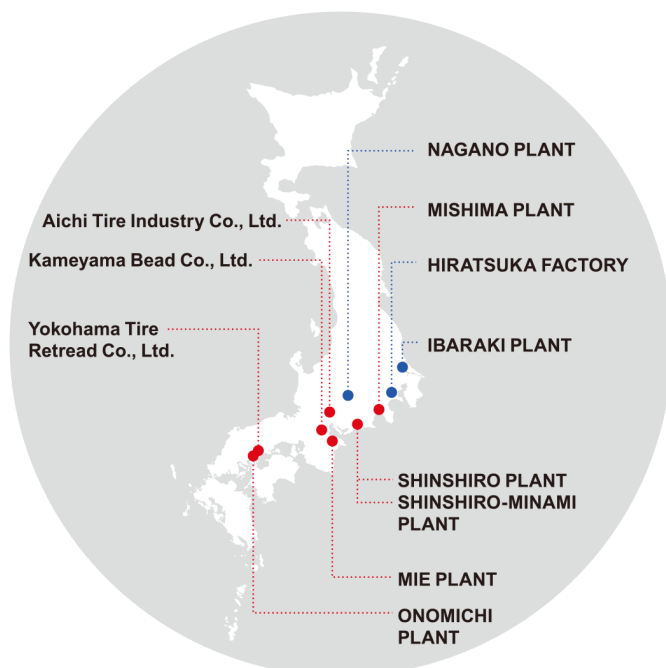
MB manufacturing plants

- 1 **Yokohama Industries Americas Inc.**
105 Industry Drive, Versailles, KY 40383, U.S.A.
- 2 **Yokohama Industries Americas Ohio Inc.**
474 Newell Street, Painesville, OH 44077, U.S.A.
- 3 **Yokohama Industries Americas de Mexico, S. de R.L. de C.V.**
Circuito Cerezos Oriente #101, San Francisco de los Romo, Aguascalientes, C.P. 20355, MEXICO
- 4 **PT. Yokohama Industrial Products Manufacturing Indonesia**
Jl. Mas Surya Negara VIII No. 6 Kawasan Industri Terpadu Kabil Batam 29467, INDONESIA
- 5 **Yokohama Rubber (Thailand) Co., Ltd.**
Eastern Seaboard Industrial Estate, (Rayong) 64 Moo 4 Tambol Pluakdaeng, Ampur Pluakdaeng Rayong 21140, THAILAND
- 6 **杭州優科賽馬橡膠製品有限公司**
NO.89, Sanfeng Road, Qianjin Industrial Park Jiangdong Level Block Hangzhou,311227, CHINA
- 7 **山東橫濱橡膠工業製品有限公司**
Xinzhai Local Town, Linqu County, Weifang City, Shandong Province,262610, CHINA
- 8 **協機工業股份有限公司**
NO.99, Xiyuan Road, Zhongli Dist., Taoyuan City 320, TAIWAN R.O.C.

Natural rubber processing plant

- 1 **Y.T. Rubber Co., Ltd.**
51/2 Moo1 Tambon Tha Sa Thom, Amphur Phunphin Suratthani 84130, THAILAND

Domestic locations that have achieved ISO 14001 certification



Conducting a Comprehensive Environmental Audit

We conduct planned internal audits at each business site as part of our first-party audits, as well as integrated internal audits conducted by the Environmental Protection Promotion Office. We also conduct third-party audits (all in accordance with ISO 14001) by external auditors. These audits assess the continuous improvement of our management systems aimed at enhancing environmental management, environmental performance, and minimizing environmental risks at each business site.

Additionally, domestic group sales companies conduct self-assessments based on the "CSR Environmental Management Guidelines," which are then verified and validated on-site by the Environmental Protection Promotion Office.

There were no indications of any violation of environmental legislation among all the auditing items in fiscal 2023.

Internal Audit

Our overseas production sites each hold ISO 14001 certification and operate under its framework. We conduct internal audits to ensure continuous improvement of our environmental management system. These audits go beyond simply verifying the system's operation and maintenance. They focus on a common theme: "Are the systems effectively functioning, and are departments proactively reviewing and setting environmental goals, objectives, and targets aligned with company policy, as part of their core operations, to actively reduce environmental impact?" We conduct these audits annually and implement corrective actions as needed.

Integrated Internal Audit

Our domestic production sites have achieved integrated certification. To enhance our company-wide environmental management and promote the sharing of key challenges, environmental representatives from each site meet twice a year to discuss the operation of our management system and address any issues.

In fiscal year 2023, internal audits were conducted in line with the 2015 edition of the ISO standard. The focus was on production and development departments, aiming to improve chemical management, compliance assessments, and environmental risk response levels. We also conducted a thorough audit of our social contribution activities and communications with stakeholders, including neighboring residents, from a sustainability perspective.

Overseas sites each hold their own individual certifications. We conduct internal audits at all overseas sites annually, implementing corrective actions for any identified areas of improvement.

External Audit

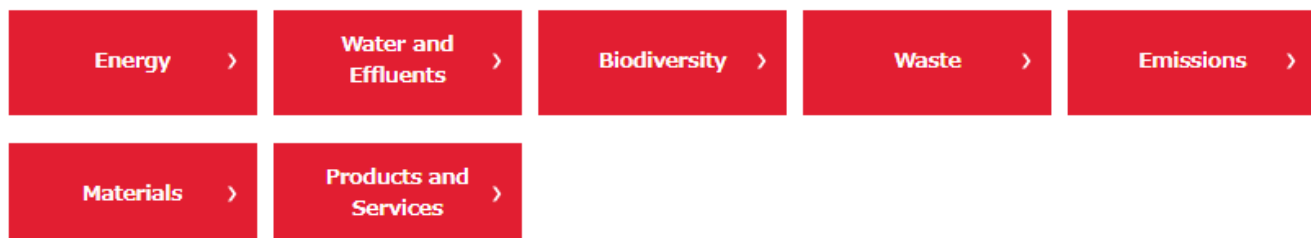
In fiscal year 2023, our domestic group underwent a comprehensive EMS (Environmental Management System) periodic audit conducted by an ISO certification body, covering all production facilities and our headquarters.

While no non-conformities were identified during the audit, we continue to strive for continuous improvement.

Both domestically and internationally, we undergo annual third-party audits and renewal audits every three years to maintain our certification.

Priority action items to be addressed

Considering the level of impact of business activities and the level of social interest, the following have been established as our priority action items to be addressed by the Yokohama Rubber Group.



Energy

KPI

Item	FY 2022 results	FY 2023 results
Total energy consumption	(Consolidated) 1,837,184MWh * Crude oil equivalent: 464,331 KL	(Consolidated) 1,726,925MWh * Crude oil equivalent: 436,486 KL
Total renewable energy consumption	(Consolidated) 41,352MWh	(Consolidated) 137,512MWh
Total external energy consumption * Reported as Scope 3 (Other emissions)	60,455,880 MWh	58,726,590 MWh

Responsible Departments

Each business location

※Activities are conducted by each business location, and the Global Warming Countermeasures Committee that the Environmental Protection Promotion Department serves as a secretariat for implements company-wide policy discussions and activities.
In 2022, the committee structure was revised and changed to the Carbon Neutrality Promotion Committee.

Our position and Targets

Why is “Energy” a critical issue to be addressed?

Explanation of the reason and background

The Yokohama Rubber Group, which conducts production activities in twelve different countries (Japan, United States, the Philippines, China, Thailand, Russia, Vietnam, India, Taiwan, Indonesia, Mexico and Israel) around the world, uses a large volume of energy in the production process. We define energy as one of the most critical issues for us to address since the reduction of energy consumption will accelerate the solution of climate change issues posing a global-scale problem and the effective use of depleting resources while at the same time reducing costs.

Our policy and position relating to energy

The Yokohama Rubber Group states its environmental position in the "[Yokohama Rubber Company-wide Environmental Policy](#)", and in accordance with the "[Yokohama Rubber Group Action Guidelines](#)", we work to minimize our environmental impacts. To that end, in addition to developing and adopting environment-friendly technologies from the design and manufacturing stage, we work to use energy in the most sustainable and appropriate manner possible and to reduce energy consumption throughout the value chain while collaborating with people involved in the provision of related products and services.

We will keep trying to use energy most wisely while making efforts to reduce energy use in accordance with international protocols concerning the proper use of energy, the regulations of countries where we operate (laws equivalent to the Act on the Rational Use of Energy, and the Act on Promotion of Global Warming Countermeasures of Japan), and the policies of related organizations.

Vision and targets

In line with the globally shared goal of achieving carbon neutrality by 2050, the Yokohama Rubber Group is working to reduce total greenhouse gas (GHG) emissions as an indicator for reducing energy consumption.

- Long-term target:
 - Achieve net zero CO2 emissions (carbon neutrality) in our activities by 2050

- Mid-term target:
 - Reduce CO2 emissions from company activities by 40% by 2030 compared to fiscal 2019.
 - Encourage suppliers to collaborate with us in line with our targets.

Measures to pursue our vision

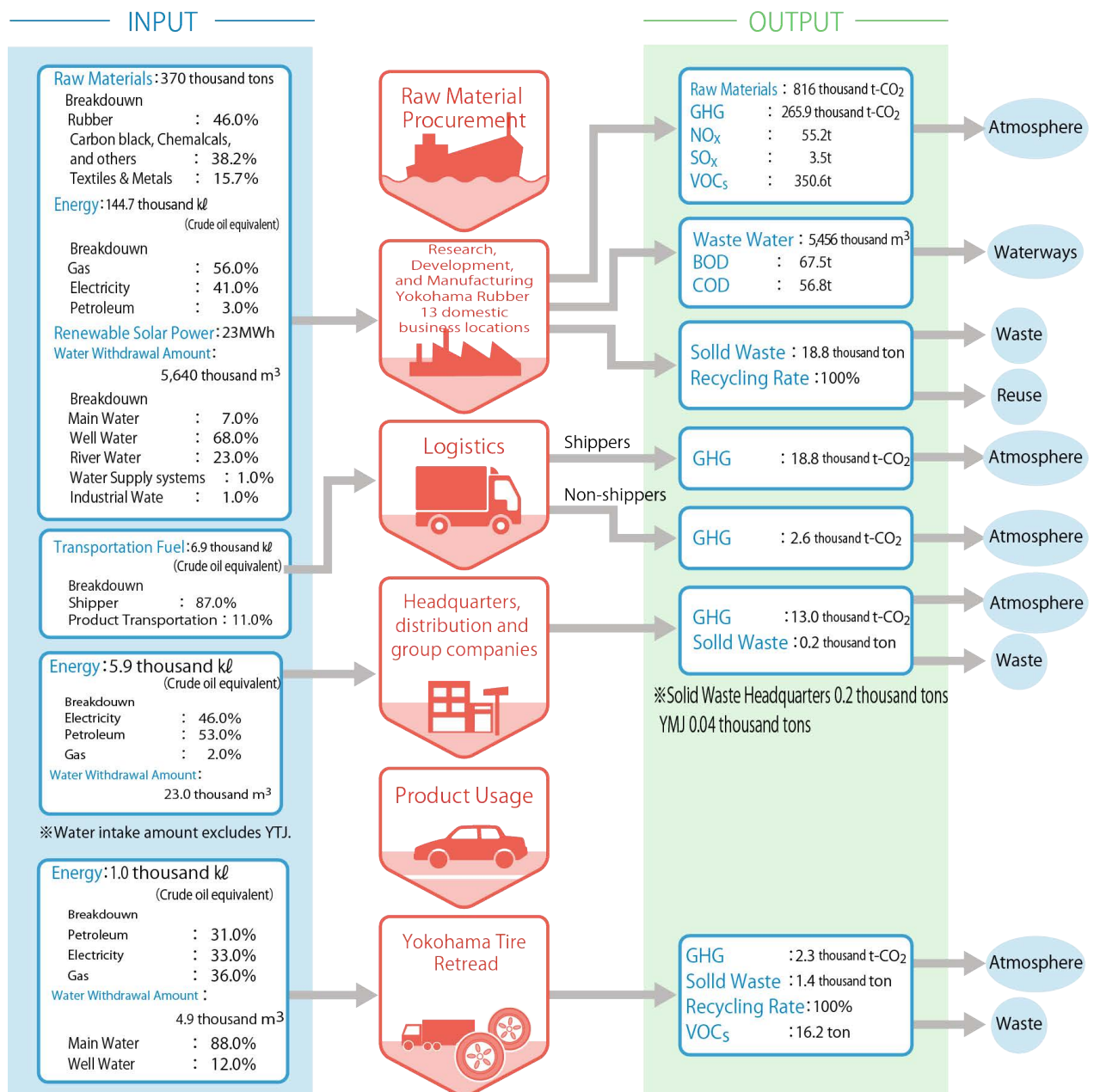
We will implement the following measures aimed at promoting the appropriate use and reduction of energy through our overall business activities:

1. Promote a modal shift in logistics.
2. Conduct energy management in production
Promote the effective use of energy through system improvements, cost saving improvements, process improvements, the development of management systems, the introduction of production systems, and the introduction of new energy (including renewable energy) in the production process.
3. Promote energy reduction activities by establishing seven energy-saving subcommittees.
4. Promote the development and sales of eco-friendly products in order to reduce the amount of energy use resulting from product use.

Review of FY 2023 Activities

In Japan, Yokohama Rubber achieved a 19% reduction in GHG emissions on a non-consolidated basis compared with 2013 levels, as a result of promoting system improvements (development of energy-saving vulcanization system, and utilization of co-generation), cost saving improvements (increased use of LEDs, and improvement of facility operation rate), process improvements (optimization of rubber kneading process), and the introduction of new energy (introduction of solar power generation system).

Overall picture of the environmental burden in Japan



※GHG emission is calculated based on the actual emission coefficient.

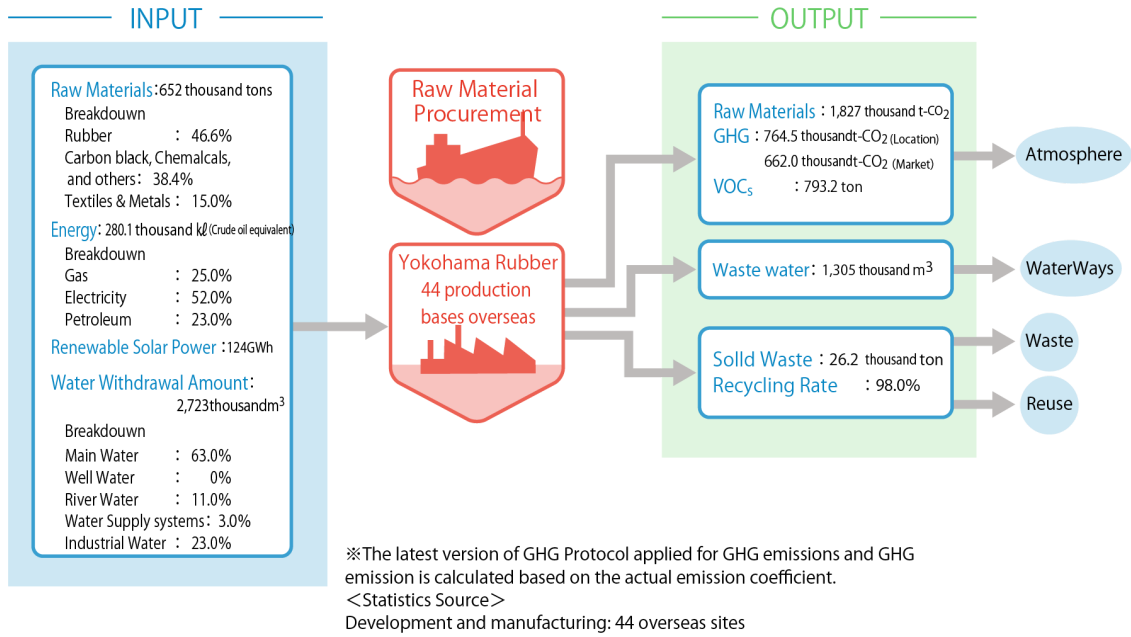
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Research, Development, and Manufacturing: Yokohama Rubber 13 domestic sites

Headquarters and Distribution: Headquarters, tire and industrial goods distribution companies 72 sites

Retread Tires: Yokohama Tire Retread (YTR) 4 sites

Overall picture of the environmental burden overseas

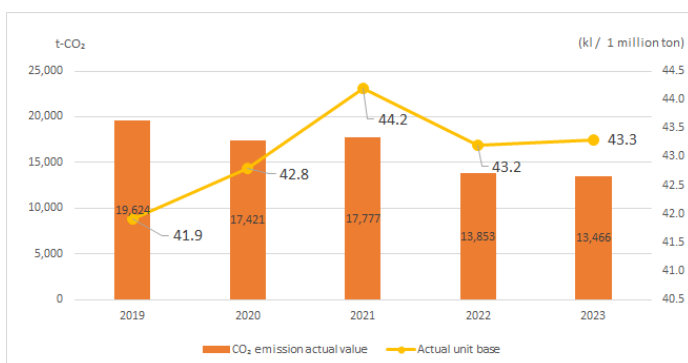


Introduction of Initiatives

Reduction of energy usage and CO₂ emissions in logistics

- Target: We are working on the reduction of CO₂ emissions in line with the corporate mission of the Yokohama Rubber Group.
- Results: In FY2023, we continued to review transportation routes, reduce warehouse transportation volume, and improve loading efficiency, achieving 2.8% reduction from the previous year with emissions being 13,466t-CO₂. The unit rate remained nearly flat, increasing by only 0.2% to 43.3 KL/million ton-kilometers.

CO₂ emissions and emissions per unit of output



* yokohama Rubber on a non-consolidated basis

Energy management

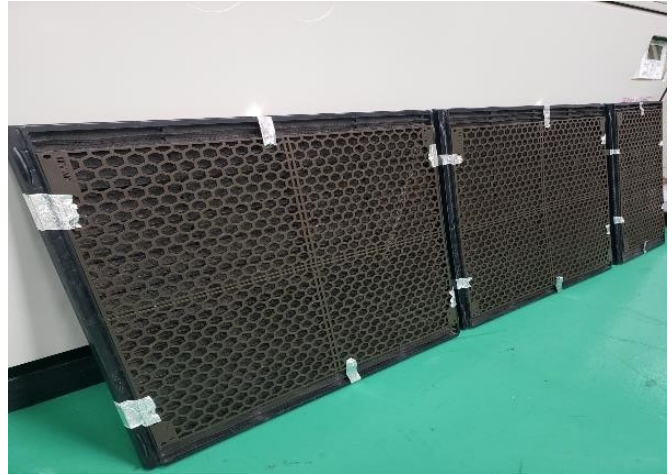
1. Visualization of energy use
2. Control of peak power by means of demand control equipment
3. Heat insulation for plant building roofs
4. Reduction of boiler fuel by updating the water supply system of boiler facilities to reduce the boiler drainage rate (introduction of a device to automatically control the number of air compressors in operation)

Installation of negatively charged filters in air conditioning units

Installing negatively charged filters in air conditioning units removes statically charged air, thereby optimizing air flow and improving the efficiency of the air conditioning system.



[Air conditioner]



[Implementation of negatively charged filters in air conditioning units]

Steam Trap Diagnostic

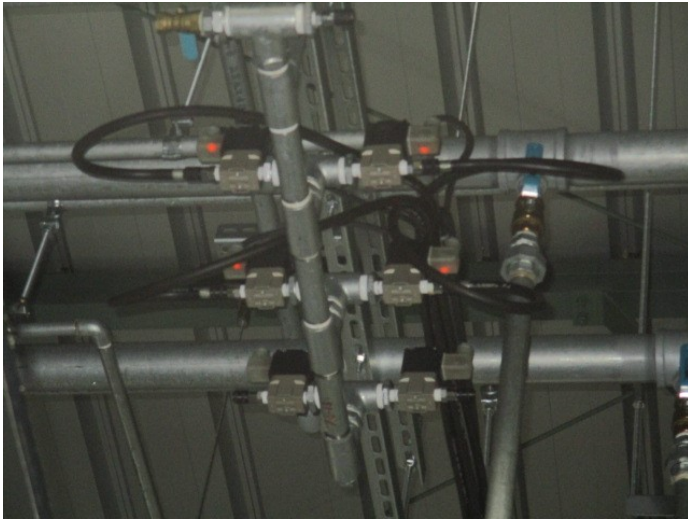
- Conducted diagnosis on the steam drain trap to control steam energy loss.



[Steam drain trap (Upper photo: defective trap, lower photo: new trap)]

Valve Management During Non-Operating Periods

- We have implemented air supply valves on equipment, which are closed during non-operating periods to minimize air leakage losses.



[Air valve management during non-operating hours (closed)]

Application of Insulating Paint

- In the finishing press for conveyor belts, insulating paint is applied to the sides of the hot plate to minimize heat dissipation losses.



[Before Applying Insulating Paint]



[After Insulating Paint Application]

Installation of Insulation Material

Installed the detachable heat insulation material at the uninsulated part of the once-through boiler to control heat radiation loss.



Removable heat insulator

The discovery of air and steam leaks, along with the installation of branch pipes and valves in the piping system, has resulted in the cessation of unnecessary steam supply.

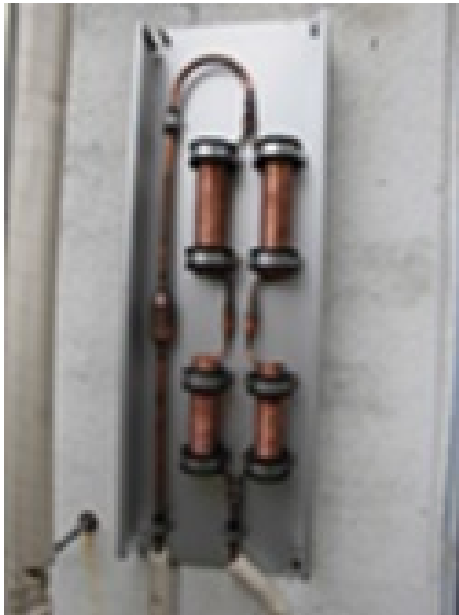
• At our domestic factories, we utilize air leak visualization equipment to identify air and steam leaks, thereby mitigating the increase in losses caused by air leakage.

Following an energy efficiency audit conducted by the manufacturer, we implemented modifications to the steam-based unit heater system, including the installation of branch piping and individual valves. These improvements have resulted in a reduction of energy losses by eliminating unnecessary steam supply to non-operating areas.



High-Efficiency Condensing Heat Exchanger for Air Conditioning Refrigerant

By incorporating a high-efficiency condensing heat exchanger into the air conditioner's outdoor unit, we have significantly improved the refrigerant's liquefaction rate. Air conditioners rely on the phase change of the refrigerant between gas and liquid to facilitate heat exchange. When refrigerant condensation occurs in the outdoor unit, any remaining gas reduces the efficiency of heat exchange. By passing the refrigerant through a high-efficiency condensing heat exchanger, we accelerate the condensation process, thereby increasing the overall efficiency of the air conditioner.



[High-efficiency refrigerant liquefaction heat exchangers]

High-efficiency refrigerant liquefaction heat exchangers were additionally installed on air conditioners and coolers to improve their heat-exchange efficiency.

Full Operation of Co-generation Systems

At tire plants using a large volume of energy and steam, it is possible to achieve a significant reduction in CO₂ emissions through the adoption of co-generation systems that supply energy and steam simultaneously. As of 2023, the co-generation system is operating at three domestic plants. As a result of continuous 24-hour operations, 70% of the energy and nearly all of the steam used by these plants are now supplied by the co-generation systems, contributing to the reduction in CO₂ emissions and the reduction of the amount of power purchased from the electric company and power consumption during peak time. This system has also been adopted at our Thai plant.



Mie Plant co-generation system



Mishima Plant co-generation system



Shinshiro Plant co-generation system



Thai Plant co-generation system

Improving the efficiency of motors and pumps for production equipment

The booster pumps of the pressure testing machine were switched to air hydro pumps with intermittent operation control, and the duct fan V-belt was replaced with an energy-saving type, which has led to an effective reduction of power consumption.



[Air hydro pumps]

Conversion of the Hydraulic Unit to Inverter Drive

· By implementing inverter technology in the hydraulic units of our equipment, such as multi-axis automatic lathes, we have achieved significant power savings during standby periods. Inverter control allows for adjustments in pressure, maintaining high pressure during operation and lowering it during standby, leading to reduced energy consumption.



[Hydraulic unit inverter conversion]

Switching to High-Efficiency Motors

We are switching other existing motors to high-efficiency ones.



High-efficiency motor



Improving the efficiency of cooling-water pumps for production equipment

In conjunction with the renewal of the calendar equipment hotbed device, the heat exchange system was changed (from direct mixing to indirect heating) to reduce steam consumption.

In winter, when the water temperature in the cooling-water tank drops, the circulating cooling tower equipment is deactivated to reduce electricity consumption.



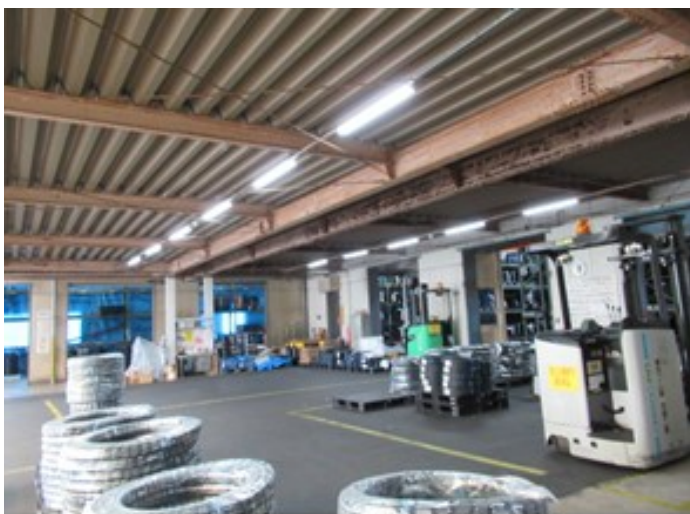
Cooling-water pump



Optimizing the chiller tank

Adoption of LED lights

We are replacing ceiling lights, in our domestic and overseas sites, which were previously mercury or fluorescent lights, with LED lights or other high-efficiency lighting products. In addition, the use of human detecting sensor control has been promoted, achieving the highly effective reduction of electricity consumption.



Conversion to motion sensors and LEDs





Mercury lighting → LED lighting



Replacement of lighting

Solar power generation

We are proceeding with the installation of environment-friendly solar power (renewable energy) generation facilities. Solar power generation was introduced in the plants in India and China (Suzhou) in FY2017, in the plant the Philippines in FY2019, and in the Shinshiro-Minami Plant in FY2023.



Solar power generation (Suzhou, China)
installed capacity: 3,000 kw



Solar power generation (Hangzhou, China)
installed capacity: 80 kw



Solar power generation (India) installed
capacity: 200 kw



Solar power generation (Mie) installed capacity:
500 kw



Solar power generation (Philippines) installed
capacity: 4,000 kw



Solar power generation (Shinshiro-Minami)
installed capacity : 1,040kw

Biogas

Food waste used to go to a landfill at the Tirunelveli Plant in India. In addition to a hygiene-related issue, the generation of methane, whose emission factor is 25 times higher than that of CO₂, used to be a persistent problem. To cope with this, we built a biogas plant and began to process 250kg of food waste per day to generate gas in FY2019. In 2023, LPG gas consumption was reduced by 355kg, resulting in a reduction of 1.07t-CO₂.



Other Energy-Saving Measures

We are also implementing the following energy-saving improvements:

- Upgrading equipment to newer, more energy-efficient models, such as transformers.
- Utilizing demand control devices to curb peak power consumption.
- Optimizing equipment operation by adjusting the number of units in use based on capacity and demand.
- Removing or disconnecting unnecessary or idle equipment, piping, and wiring to minimize heat and power consumption.
- Monitoring energy usage to identify and eliminate unnecessary energy consumption.
- Installing motion sensors to control lighting, automatically turning lights on and off based on occupancy.

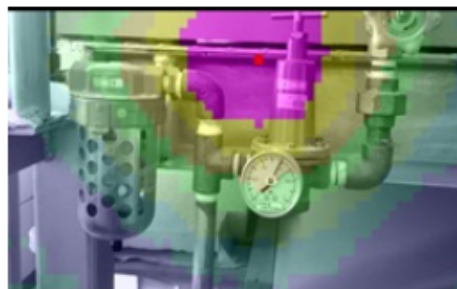
Energy-saving monthly activities

Under the slogan of "Let's Conquer Winter with Energy-Saving Actions!" after sharing recognition on the significance of energy saving, that is, "strengthening corporate competitiveness through cost reductions, responding to fossil fuel depletion, reducing impact on the global environment, and fulfilling corporate social responsibility," and after carrying out adequate preparations, the production department, the equipment maintenance department, and administration department made concerted and united efforts and accumulated multiple small effects and results during the "Energy-Saving Month" of February. For example, in an energy-saving diagnosis, the maintenance department conducted inspection on equipment and found steam and air leakage, and repaired the leaks.

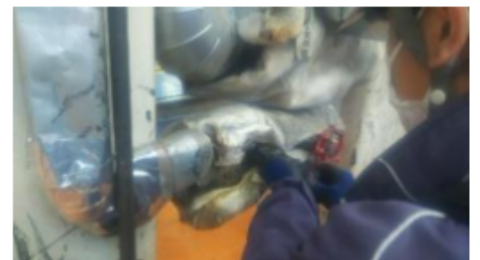
As an example of our energy-saving initiatives, our aerospace parts factory has implemented a company-wide patrol program. Supervisors from each department and workplace conduct regular patrols to promote energy conservation.



Education activities during the Energy Saving Month



Leakage inspection and visualization



Leak repair

Energy saving subcommittee

To promote energy efficiency, our domestic factories hold regular "Energy Conservation Subcommittees" led by designated energy conservation specialists. These meetings focus on developing annual energy reduction plans, planning energy-saving equipment investments, and tracking progress. Furthermore, we actively participate in energy-saving seminars hosted by manufacturers and share best practices and initiatives across our facilities, contributing to significant energy savings.



Activities of the Energy Saving Subcommittee

Activities to enhance energy management based on guidance from consultants

We are working on the enhancement of energy management (adoption of a just-in-time system for energy) through various means such as reductions of energy loss in line with production variation (switching equipment on and off). The bases in Japan and overseas benefit from guidance provided by consultants every year.

Future challenges

We are going to continue to expand the introduction of co-generation systems to achieve the reduction of total energy usage.

Regarding the increase of renewable energy usage ratio, we are going to expand the introduction of solar power generation, etc. and increase the ratio of renewable energy used at our bases.

Emissions

KPI

Item	FY 2022 results	FY 2023 results
Emissions of greenhouse gases	(Consolidated) Scope1 648 thousand tons Scope2 593 thousand tons Scope3 26,661 thousand tons ※The boundary has been adjusted ※The Y-TWS component to Scope 1 and 2 emissions have been added	(Consolidated) Scope1 588 thousand tons Scope2 494 thousand tons Scope3 25,718 thousand tons
Ozone-depleting substances	Emissions of CFCs (Non-consolidated) 1,263 tons (Domestic) 1,356 tons	Emissions of CFCs (Non-consolidated) 1,384 tons (Domestic) 1,391 tons
HAPs (Hazardous Air Pollutants)	(Domestic) 12.5 tons	(Domestic) 18.8 tons

Responsible Departments

Each business location

※Activities are conducted by each location, and the direction of policies and activity measures are decided on by bodies that include the Global Warming Countermeasures Committee and the Chemical Substance Management Committee.

Our position and Targets

Why is “Emissions” a critical issue to be addressed?

Explanation of the reason and background

We use resources to manufacture and sell various rubber products such as tires, hoses, and belts. In particular, we recognize that reducing the amount of emission in the manufacturing process and the use-phase is a particularly important initiative that will lead to the prevention of global warming and environmental pollution, as well as continuous business operation at each site.

Our policies and position relating to emission

The Yokohama Rubber Group will work to minimize the burden on the environment by providing products and services in accordance with the "[Yokohama Rubber Environmental Policy](#)" and the "[Yokohama Rubber Group Action Guidelines](#)".

To this end, we will develop and introduce environmental technologies while working together with various people involved in the provision of products and services to promote the reduction of emissions into the atmosphere throughout the entire value chain.

We are determined to control the emissions not only by complying with international agreements on emission, and the regulations of each country, such as the Energy Conservation Act, the Act on Promotion of Global Warming Countermeasures in Japan, and regulation-responding policies from related organizations such as the Japan Rubber Manufacturers Association, but also by voluntarily setting even stricter standards.

Risks and opportunities of the Yokohama Rubber Group associated with greenhouse gas emissions

<Risks>

Risks include an increase in facility investment costs for emissions reduction, an increase in energy costs related to the use of renewable energy, and an increase in investment costs necessary to deal with the deterioration in working environments due to global warming as well as to take countermeasures.

<Opportunities>

By the reduction of emissions the atmosphere, we contribute to society through promoting the efficient use of energy necessary for operation, conserving the environment of the areas we operate our business, and externally providing heat-insulating materials, etc. Controlling not only the emissions of greenhouse gas but also those of volatile organic compounds (VOCs) and air pollutants makes it possible to reduce the cost of environment-related investment, which will leads to a reduction in product manufacturing costs.

Use of offsets

Offsets are not used.

Vision (attainment goal) / target

As international regulations related to emissions become increasingly stringent, as a general rule we aim to achieve control standards equivalent to those of the developed economies.

The Yokohama Group is working to reduce total greenhouse gas (GHG) emissions as an energy use reduction target.

- Long-term target:
 - Achieve net zero CO2 emissions (carbon neutrality) in our activities by 2050
- Mid-term target:
 - Reduce CO2 emissions from company activities by 40% by 2030 compared to fiscal 2019.
 - Encourage suppliers to collaborate with us in meeting our targets.

Measures for vision achievement

Our Group conducts the following measures to monitor and reduce the environmental burdens generated throughout our activities including production activities, R&D, and office work.

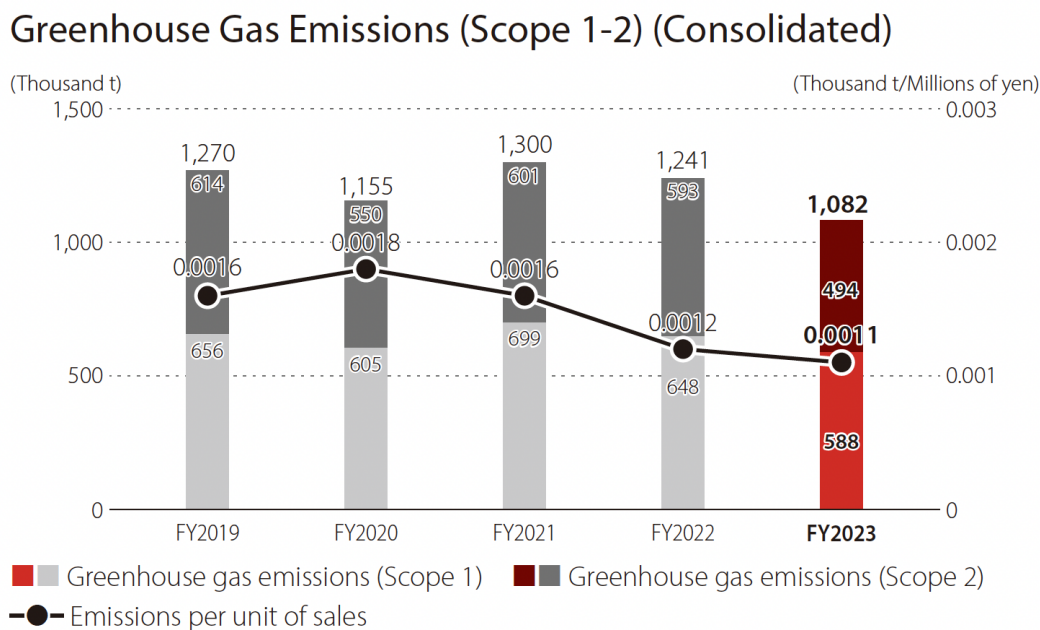
1. We set voluntary control criteria that are stricter than those required by laws and regulations and constantly conduct monitoring.
2. We regularly report legally-required measurement results to government authorities and local residents.
3. We enhance activities toward the reduction of environmental burdens, such as one for the improvement of our production process. We promote the switch of energy source to be used, the introduction of renewable energy, the control of exhaust heat with heat retention and insulation materials, and the introduction of the latest environmental technologies and systems.
4. Prevention of environmental pollution
We identify environmental pollution risks and take remedial measures accordingly, and regularly implement monitoring and measurements, etc.
5. Chemical substance management
We ascertain the suitability of chemical substances contained in materials to be used in our products at the time of adoption or when laws and regulations are changed.
We minimize the use of environmentally hazardous substances in our business activities and products, and control the emissions of VOCs and hazardous substances.

Review of FY 2023 Activities

Greenhouse Gas (GHG) Emissions

➤ Response to climate change (Disclose information on TCFD)

Greenhouse Gas Emissions (Scope 1-2) (Consolidated)

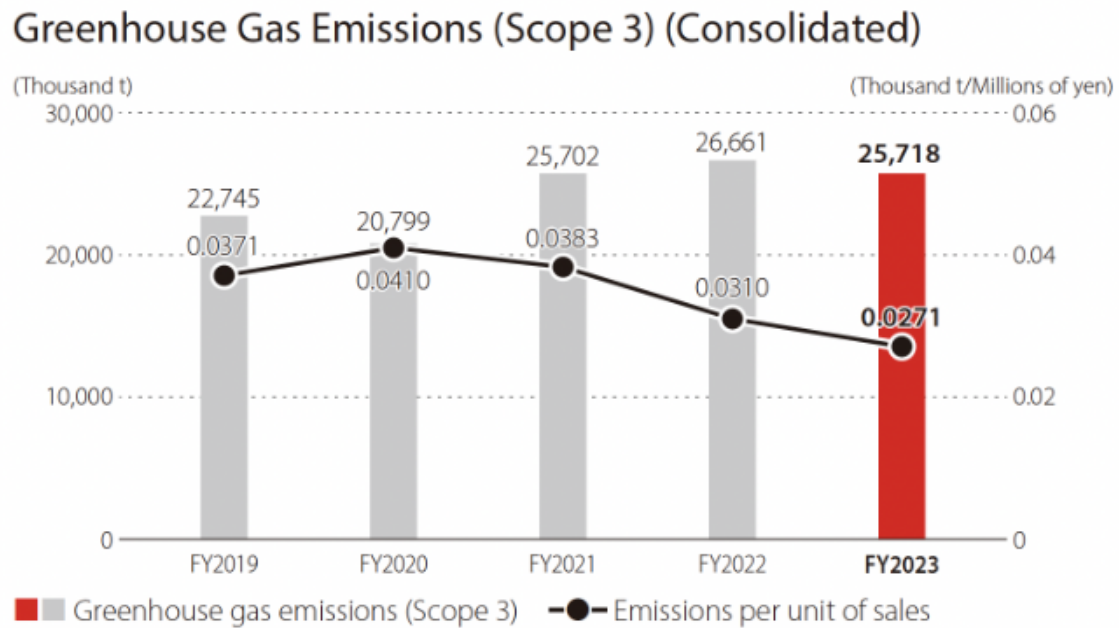


Our efforts to reduce greenhouse gas emissions have yielded positive results. Scope 1 emissions decreased by 9.3% and Scope 2 emissions by 17% compared to the previous year. While our Scope 1 and 2 emissions per unit of revenue showed a slight improvement, we remain committed to continuous improvement in our environmental performance.

※Please note that the greenhouse gas emission data (Scope 1 and 2) for each fiscal year includes emissions from Yokohama TWS prior to the merger.

Scope 3 estimation

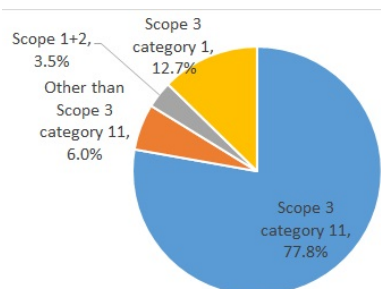
Greenhouse Gas Emissions (Scope 3) (Consolidated)



Our Scope 3 greenhouse gas emissions decreased by 3.5% compared to the previous year. This reduction was primarily driven by improvements in Category 1 (purchased goods and services) and Category 11 (use of sold products). Additionally, our Scope 3 emissions per unit of revenue improved by 16% year-over-year.

※Please note that the greenhouse gas emission data (Scope 3) for each fiscal year does not include emissions from Yokohama TWS prior to the merger.

Scope 3 covers the calculation of 13 categories. Scope 3 accounts for 96.5% of all categories from Scope 1 to 3 combined, in which "Use of products" accounts for 78%. Our Company will endeavor to spread environmentally friendly products and fuel efficient tires while making concerted efforts with our suppliers to promote the reduction of GHG emissions in our value chain.



(Emissions Unit: thousand t-CO₂)

Cat	Scope 3 category	FY2021	FY2022	FY2023
1	Purchased products and services	4,031	4,022	3,381
2	Capital goods	152	175	199
3	Fuel and energy	147	129	139
4	Transportation and distribution (upstream)	154	125	136
5	Waste	50	27	29
6	Business travel	5	5	13
7	Commuting employees	21	19	24
8	Upstream lease assets	NA	NA	NA
9	Downstream transportation and distribution	72	59	74
10	Processing of sold products	10	14	10
11	Use of products	19,940	21,087	20,735
12	Disposal of products	875	906	913
13	Downstream lease assets	NA	NA	NA
14	Franchise	NA	NA	NA
15	Investment	246	92	67
SUM		25,701	26,661	25,718

※1 Scope 1: Direct emissions of greenhouse gases by the Company (examples: fossil fuel, natural gas, etc.)

※2 Scope 2: Indirect emissions of greenhouse gases by the Company (electric power use, etc.)

※3 Scope 3: Greenhouse gases emitted indirectly by the Company through its supply chain activities (manufacturing, transportation, business travel, commuting, etc.)

※4 Calculation was conducted in accordance with the criteria of Scope 3 issued by the "GHG Protocol."

Verification of greenhouse gas (GHG) emissions

We had the calculation results verified by a third-party institution in order to ensure the accuracy and reliability of our GHG emission calculation.

- Third-party greenhouse gas verification report
 - Japanese version (814KB)
 - English version (732KB)

Emissions of NOx, SOx, etc.

There was no occurrence of events leading to air pollution.

The emission concentrations of NOx and SOx are controlled to comply with legal regulations on concentration values.

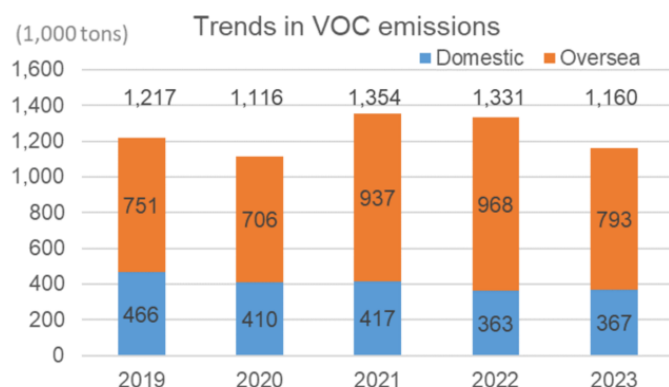
However, our overseas operations have faced some challenges related to air pollution. In 2023, Yokohama Tire Manufacturing Virginia, LLC (YTMV) incurred fines for air pollution violations. In 2022, Hangzhou Yokohama Rubber Products Co., Ltd. (YIPHZ) also faced similar penalties.

(Domestic) (Unit: tons)

Cat	NOx	SOx
FY 2022	98.4	3.7
FY 2023	55.2	3.5

Regarding the use and emission of ozone-depleting substances, we use class I specified products, such as air-conditioning facilities, which includes the use of chlorofluorocarbon. In FY2023, since following the updating of equipment, a lot of waste was disposed, we registered our leak level. There were no cases of dioxin emission.

Our VOC emissions decreased by 13% year-over-year, primarily due to a 4.5% reduction in production volume and our ongoing emissions reduction efforts. We changed raw materials from organic solvent-based to water-based materials, and also implemented measures to prevent the volatilization of solvents in the work process. We plan to include emissions from Yokohama TWS in our reporting starting next fiscal year.



Introduction of Initiatives

Switch of energy source to natural gas

We have been promoting the switch of the fuel used in domestic plants to gas that is supplied via environment-friendly gas pipelines. Effort has been made even in some countries where a gas pipeline system has not been fully developed. For example, the Vietnam Plant has switched from heavy fuel oil to gas by using tank lorries to transport it, and the India Plant has also switched from heavy fuel oil to gas by using gas cylinder, both of which has contributed to the reduction of CO₂ emissions.



Switch to gas cylinders in the India Plant



Installation of solar lights

Street lights combining a high efficiency solar panel and LEDs have been installed.

Since using an independent power supply, the street lights will be effective even in the event of a disaster or power outage.



Installation of solar street lights



Installation of solar and wind powered street lights

Employing heat recovery technology to utilize factories' waste heat for air-conditioning (absorption chilling equipment)

Employing the absorption chilling equipment with a heat recovery system to use waste heat, etc. has contributed to the reduction of CO₂ emissions as well as to the reduction of power consumption during peak time during summer months.



Absorption chilling equipment

Steam driven compressor

The plant gets air supply by operating the air compressor powered by the energy generated from the pressure difference resulting from steam decompression, which has never been used before.

Showing results in cutting down power consumption and CO₂ emission.



Steam driven compressor

Energy saving improvements through heat insulation materials

We manufacture and install heat insulation materials fitting the size of equipment and piping.

We are implementing energy-saving activities that control heat release by installing heat insulation materials on and near steam pipework in our business locations both in Japan and overseas.



Pipe insulation

Energy-Saving Technology Committee

We have held Energy-Saving Technology Committee meetings to promote the adoption of energy management methods conforming to the Energy Conservation Act and the introduction of energy-saving equipment, which has led to the effective reduction of energy consumption.



Energy-Saving Technology Committee

We are also promoting energy-saving activities from a management perspective.

1. Promote in-house black illumination, encouraging employees to leave work on time.
2. Promote a cool biz campaign in summer and a warm biz campaign in winter in-house for energy saving.
3. Make sure to turn off office automation equipment when they are not being used to reduce standby power consumption.
4. Enhance energy saving awareness by visualizing electricity usage.
5. Drive company-wide efforts for energy-saving improvement by sharing information on improvement cases (creating a database)

Future challenges

Our challenges to be addressed include accurately managing the data on air emission volumes at overseas sales bases, etc. in a global scale, and working to reduce the amount of "emission into the atmosphere" in collaboration with the supply chain.