

世界に誇れる、 化学を。

その仕事は、未来に新しい価値を提案しているか。

人と地球の明日を幸せにしているか。

私たちが創立以来、追求してきたのは

ほかの誰にもできない、デンカならではの強みを生かして

社会を、世界を、よりよく変えていく挑戦です。

100年を越える伝統と、最新のテクノロジーを融合させ

化学の未知なる可能性を切りひらくこと。

未来のニーズを予測し、まだ見ぬ豊かさを創造すること。

環境・エネルギー分野での先端素材の開発や

ライフサイエンス領域のさらなる推進など

私たちは「世界にとってかけがえのない存在」となる

企業をめざし、多様化する社会の課題に挑み続けます。

Denka

デンカ株式会社
東京都中央区日本橋室町2-1-1 日本橋三井タワー
www.denka.co.jp

スウェーデン・スコネ

The Denka Way

Autumn
2023 Vol.17

Publisher: Corporate Communications Dept., Denka Co., Ltd.
Nihonbashi Mitsui Tower, 2-1-1 Nihonbashi-muramachi, Chuo-ku, Tokyo 103-8338
Editor-in-chief: Hiroyuki Yamamoto / Publisher: October 1, 2023



Unauthorized
reproduction prohibited

Denka

The Denka Way

Autumn

2023

Vol.17

Contents

- | | |
|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| 02 Business Value Creation
Achieving Carbon Neutrality Through the Power
of Business Value-Creating Chemistry | 15 A Specialist's Perspective |
| 10 Achieving Non-Financial KPI Goals
Toward Achieving Non-Financial KPI Goals
Activities of the Sustainability Committee | 16 My Vision
Denka's Future as Envisaged
by Each of Us |
| | 18 Denka TOPICS |



*A sustainable
future
supported by
chemistry*

For the future of Earth

Achieving Carbon Neutrality Through the Power of Chemistry.

As per its management plan "Mission 2030," Denka will make 85 billion yen in environmental investments over the next eight years. In view of "Achieving carbon neutrality (zero emissions of greenhouse gas)" in 2050, the company aims to reduce CO₂ emissions by 60% by 2030 (compared to FY2013). Denka will also realize the energy power output of 150 MW as its maximum. This Special Feature introduces the current sustainability measures being pursued by Denka.

Toward carbon neutrality in 2050



Establishing a low-carbon acetylene chain and reducing CO₂ emissions

While Denka's main products, such as chloroprene rubber and acetylene black, have excellent functions, a significant amount of CO₂ is generated during the manufacturing process. A "low-carbon acetylene chain," to which technology is being newly introduced, is expected to drastically contribute to CO₂ reduction.

Reduce CO₂ emissions

Securing the necessary power for plant operations by expanding clean energy

Denka has utilized hydroelectric power generation to run the Omi Plant for more than 100 years. In addition, the company plans to actively introduce solar power generation at individual sites.

Clean Energy

With clean energy for the next 100 years

Run-of-river hydroelectric power generation at the Omi Plant

The Omi Plant in Itoigawa City, Niigata Prefecture, takes advantage of the steep terrain to build and operate a run-of-river hydroelectric power plant, utilizing energy in harmony with the environment for manufacturing purposes.

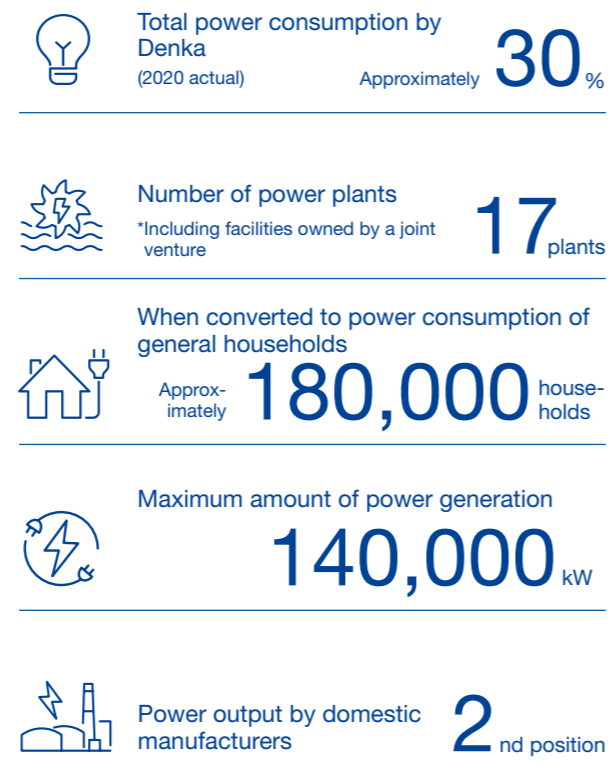


Denka Shin-Omigawa Power Plant



Inside Shin-Omigawa Power Plant's Aqueduct

Denka's hydroelectric power generation in figures



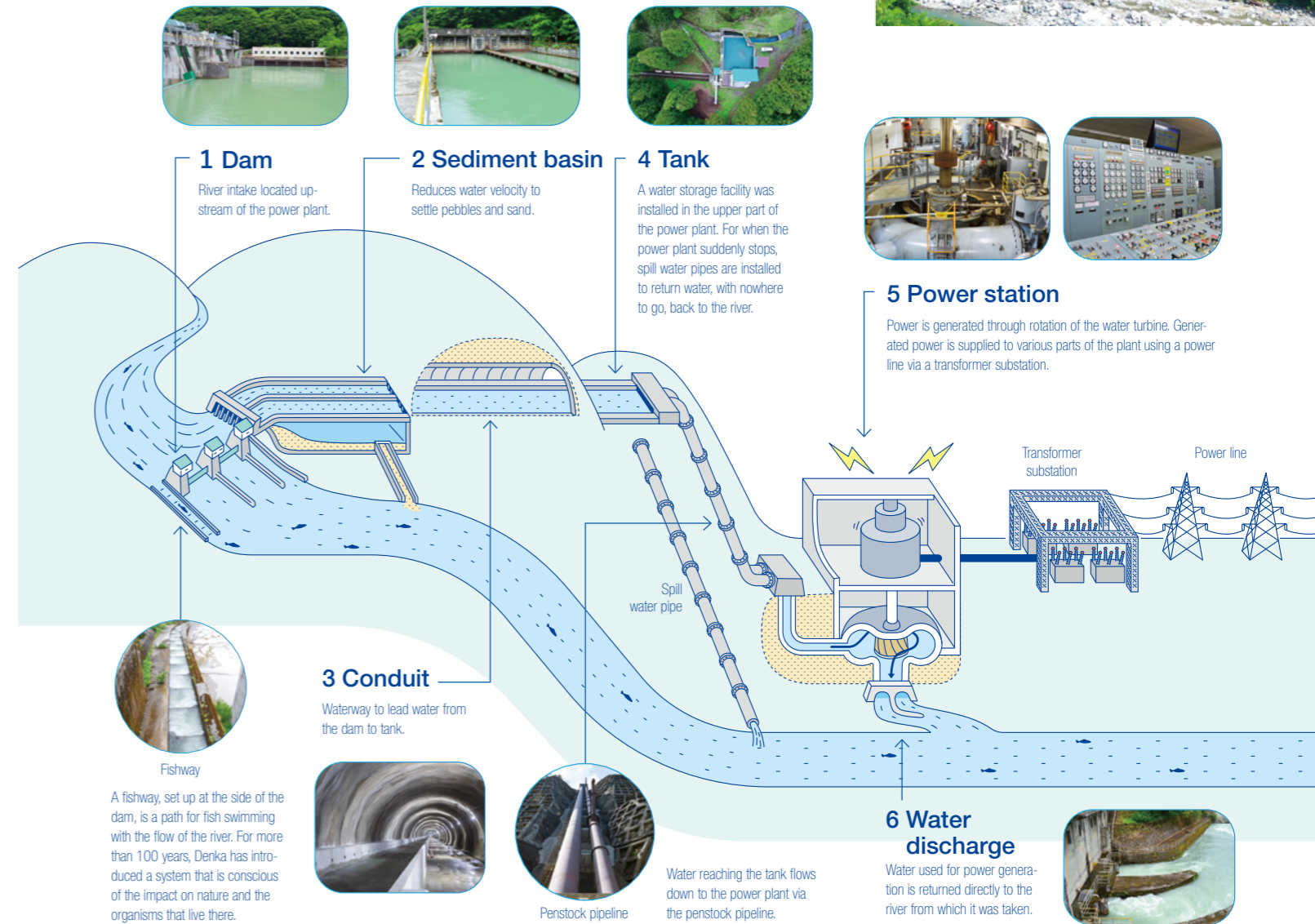
Though power output fluctuates with the flow of the river, costs and environmental burdens can be kept to a minimum with the run-of-river system.

Differences in hydroelectric power generation methods

	Construction/Maintenance costs	Amount of power produced	Power generation cost	Stable supply capability	Environmental burden
Run-of-river	Small	Small	Small	Small	Small
Reservoir system (dam)	Large	Large	Medium	Medium	Large

Taking advantage of rich nature and terrain and turning them into energy

Run-of-river hydroelectric power generation takes advantage of rivers and steep terrain to lead the waterflow of a river directly to the power plant and returns it to the original river after generation. It is a mechanism that generates efficient and clean energy and has less of an environmental burden without CO₂ emissions. By utilizing electricity that is permanently generated while living in harmony with nature, it contributes to the realization of a sustainable society.



Clean energy is an important management resource for Denka

Yutaka Saito
Sustainability Promotion Department

From various viewpoints, such as the rationalization of energy use and the reduction of environmental burdens and power costs, clean energy is an important management resource for Denka. The company will promote improving power generation efficiency with the renewal of existing hydroelectric power plants and the introduction of solar power generation at individual sites. In addition, in response to the medium- and long-term, initiatives toward the expansion of renewable energy will be accelerated mainly through the construction of new hydroelectric power plants and feasibility studies of wind and geothermal power generation.



Maintaining stable operations of power plants to pass them on to the next generation

Hisashi Sato
Hydroelectric Power Section, Electric Power Department, Omi Plant

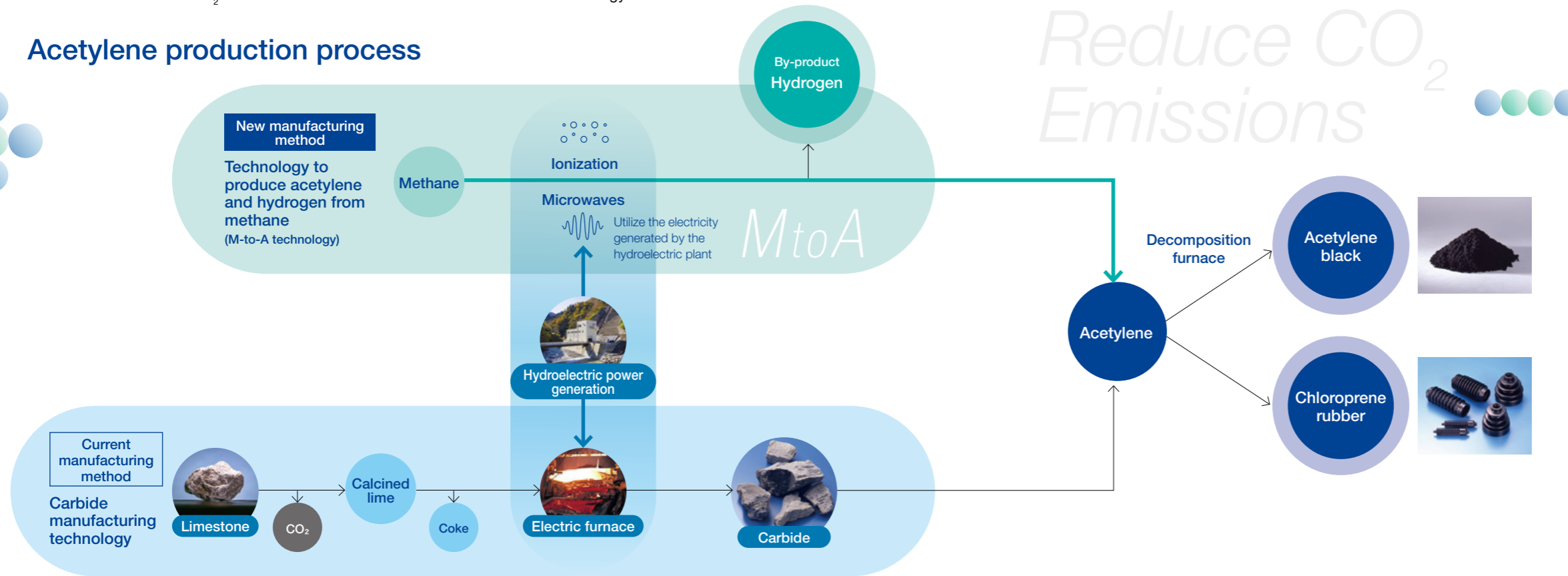
Power generation, transmission and distribution facilities, in addition to their construction and operation technologies, have been cultivated over 100 years since the foundation of Denka. The electric power available from 17 hydroelectric power plants currently accounts for about 30% of total power consumption by Denka. By continuously protecting and stably operating existing power plants built by senior employees, Denka will continue with business activities based on clean energy. In addition, the company will also study the introduction of the latest maintenance technology that can be applied for the next 100 years.

Toward establishing a low-carbon acetylene chain

Achieving carbon neutrality by converting to a manufacturing method to produce acetylene and hydrogen from methane

To reduce Denka's CO₂ emissions, it is essential to take measures that suppress CO₂ emissions generated during the carbide process, which account for a large portion of total CO₂ emissions. Through joint research and the introduction of facilities with an American venture company, Transform Materials, which has outstanding technology to realize low carbonization in acetylene production, Denka is addressing the challenge of a drastic reduction in CO₂ emissions and also the commercialization of the technology.

Acetylene production process



As Denka targets a 60% reduction of CO₂ emissions in 2030 and carbon neutrality in 2050, it is inevitable that the company takes measures to reduce CO₂ emissions in the manufacturing of carbide raw material used to produce acetylene, which is one of the main causes of CO₂ emissions.

The company aims to newly develop a methane-to-acetylene (M to A) manufacturing technology where methane (hydrocarbon) is ionized using microwaves to produce acetylene. All of the raw material used in this process, hydrocarbon, is theoretically converted to acetylene and hydrogen, leading to a drastic reduction in the amount of CO₂ emissions. In addition, the utilization of hydrogen as a by-product is also expected. In the manufacturing process of the acetylene used for Denka's main products, such as chloroprene rubber and acetylene black, it is important that the company reduces CO₂ emissions to meet customer and social needs. It is anticipated that this new manufacturing method will reduce CO₂ emissions by 300,000 tons (including the conversion to the new method and hydrogen as a by-product).

Transform Materials, with which Denka concluded an agreement on joint research and the introduction of demonstration facilities, owns acetylene manufacturing facilities as well as a technology to ionize hydrocarbon using microwaves to produce acetylene and hydrogen. The period of joint research will last until the end of 2028. In addition, with 2026 as a target, Denka will introduce demonstration facilities to explore the possibilities of actual implementation.



Signing ceremony between Denka and Transform Materials on May 23. Mr. Takahashi, Senior Managing Executive Officer, Denka (left) and Rachelle Goebel, CEO of Transform Materials at the time of signing (right)

02 Reduce CO₂ Emissions

M-to-A Q&A

Q | What is M-to-A technology?

Methane (hydrocarbon such as natural gas, LP gas, etc.) as a raw material is ionized by using microwaves to decompose it into acetylene and hydrogen. Acetylene and hydrogen of a 4:1 weight ratio are produced.

Q | Why was Transform Materials selected as a partner?

The main reason is that because the company is developing a manufacturing method to produce acetylene at a high yield rate using a highly unique technology of plasma and taking advantage of easy-to-procure methane as a raw material. In addition, the fact that valuable hydrogen is generated as a by-product is considered a great advantage, as it will offer a wide range of alternatives for utilization in future carbon-neutral measures.

Q | By how much will implementing M-to-A technology reduce CO₂ emissions?

The amount of CO₂ emissions originating from the raw materials in the manufacturing process is expected to be reduced by a little more than 300,000 tons. The extent of the impact is about 10 to 15% of the 2.47 million tons of CO₂ emissions produced in 2013. In addition, it is anticipated that, depending on how the hydrogen by-product is used, it may be possible to further reduce emissions, and there is a plan in place to establish effective measures in R&D in the future.

Q | From where will the methane be supplied?

Though plans are not yet fixed, Denka assumes it will continue to procure natural and LP gas from the gas company that is currently supplying Denka. However, there is also a plan to diversify the source of raw materials by, for example, producing methane in-house through methanation (technology that combines CO₂ and hydrogen into methane) using the hydrogen produced as a by-product of this technology in view of collaborating with other companies.

Q | How will the hydrogen by-product be utilized?

In the M-to-A manufacturing process, a large amount of hydrogen is generated as a by-product. Denka will proceed with the study of the low-carbon acetylene chain as a business while exploring the possibilities of new businesses based on hydrogen.

Granted a maximum subsidy of 3.3 billion yen

On August 8, the New Energy and Industrial Technology Development Organization (NEDO) officially decided to grant a subsidy to Denka's technological development initiative to establish a low-carbon acetylene manufacturing technology. This action is in response to the certification received from the Ministry of Economy, Trade and Industry on June 16 as a "Supply Security Plan for Storage Batteries." Of the project's total 6.7 billion yen cost, 3.3 billion yen will be subsidized. As ultra-high-purity acetylene black has a high conductivity property, its demand is expected to rapidly increase as a key material to support electrification of mobility and higher performance of storage batteries. The establishment of a manufacturing method to secure acetylene as its raw material with low environmental burden and stability matches the Japanese government's strategy to expand the domestic supply chain of storage batteries.

Toward demonstration tests of low-carbon acetylene chain

Introduction of facilities to the Omuta Plant

With 2026 as a target, Denka will introduce M-to-A demonstration facilities to the Omuta Plant, proceeding with the demonstration of manufacturing technology and technological improvements toward mass producing acetylene.

The methane-to-acetylene (M-to-A) manufacturing technology use to ionize methane (hydrocarbon) and produce acetylene is an innovative technology that reduces CO₂ emissions and generates a large amount of hydrogen as a by-product. Denka was granted a subsidy from the Ministry of Economy, Industry and Trade's "Supply Security Plan for Storage Batteries" to introduce demonstration facilities. As the technology contributes to the plan's objective, "Supply Security Plan for Storage Batteries," it was decided to build demonstration facilities with an annual production of 1,600 tons at the Omuta Plant, which is also a manufacturing base for acetylene black. The facilities are scheduled to start operations in 2026.

There are many challenges to be solved toward

the implementation of a low-carbon acetylene chain. First of all, how should Denka, who does not have know-how about ionization, handle highly reactive acetylene safely and at an industrial scale? The company will implement a comprehensive review of the establishment of in-house safety conditions.

Another important challenge is the reduction of manufacturing costs of acetylene. Based on the fact that the implementation requires a huge investment and that it is a technology powered by electricity, whose cost is soaring recently, it is crucial to build a cost structure that enables business to continue under rising power costs and that is strong against external environmental changes.

Reduce CO₂ Emissions



Using Denka's technology to contribute to carbon neutrality in Japan

Soichiro Nakanishi
Sustainability Promotion Department

With the shift to M-to-A technology for manufacturing, the amount of CO₂ emissions can be reduced drastically compared to the conventional method. In addition, depending on how the hydrogen by-product is utilized, it may offer the possibility for Denka to advance into the greening business. On the other hand, implementation is expected to require a large investment. For this very reason, Denka concluded an agreement with Transform Materials,

which has low-carbon acetylene technology, for technological improvements.

With the early establishment of the M-to-A technology, I expect that Denka will not only exert its presence in the acetylene black and chloroprene markets but will also become a company that plays a part in the carbon neutralization of Japan in cooperation with neighboring companies as well as other companies developing a greening business.

For the environment in the next 100 years



Susumu Kuwana
Head of the Sustainability Promotion Department

Realizing carbon neutrality with new ideas not extended from conventional methods

The Sustainability Promotion Department is in charge of tackling growing global environmental ("E" in ESG) issues. As a general chemical manufacturer, Denka uses a large amount of energy for its production activities and assumes a heavy responsibility in the realization of a sustainable society. The company recognizes that to continue business activities for more than another one hundred years, the promotion of countermeasures for environmental issues is essential. In order to manufacture and supply materials that are valuable to society in an eco-friendly manner, Denka positions the "pursuit of sustainability" as its most important theme.

Since the time of its foundation, Denka has taken advantage of hydroelectric power generation at the Omi Plant. As illustrated by the recent introduction of high-efficiency gas turbines at both the Omi and Chiba Plants and the installation of solar power generation facilities at individual sites, the company has continuously addressed activities to save energy and reduce environmental burdens and, in doing so, has accumulated various achievements.

However, it is impossible to realize carbon neutrality as an extension of conventional efforts. It is necessary to review how business management and production activities should be from the ground up and from new perspectives. The first initiative in introducing innovative technologies is the study of implementing M-to-A conversion. In addition to this, Denka is addressing the expansion of the use of renewable energy, non-fossilization of purchased power, reforms of business portfolios that are consistent with "Mission 2030," etc., and plans to achieve the current target of a 60% reduction of greenhouse gas (GHG) by 2030. In order to promote emissions reductions over the life cycle of products in general and not just those from in-house sites (Scopes 1 and 2), the company pays strict attention to Scope 3, aiming to develop technologies and products that contribute to reductions in environmental burdens, in addition to cooperating with companies across the entire supply chain.

Furthermore, toward the realization of carbon neutrality in 2050, Denka will promote the introduction of innovative technologies, such as fuel conversion to clean energy (hydrogen, ammonia, etc.) at thermal power plants, installation of CO₂ separation and recovery facilities at individual plants, and the development of chemical synthesis technology using recovered CO₂ as a raw material. To accelerate these initiatives, the company is also exploring the possibilities of efficient inter-industry cooperation.

It is very much expected that each and every employee thinks about environmental friendliness in their own fields and participates in these initiatives so that Denka will be able to establish a firm position as a pioneer in the environmental field and continue to contribute to society in this field in 2050.

Major eco-friendly initiatives since the establishment of the Sustainability Promotion Department

October 2019	Sustainability Promotion Department established. Accelerated initiatives toward environmental issues, such as the support of international frameworks on climate change issues
September 2020	Announced Denka's support of Task Force on Climate-related Financial Disclosures (TCFD) proposals
October 2020	High-efficiency gas turbine generators completed at the Omi Plant
January 2021	Brought Shin-Omigawa Power Plant (Itoigawa, Niigata Prefecture) online
September 2021	Concluded an ESG/SDGs-Linked Syndicated Loan agreement with Sumitomo Mitsui Banking Corporation
January 2022	Decided on the construction of a chemical recycling plant for polystyrene resin
January 2022	Submitted a proposal to NEDO's "Development of Technology for Producing Concrete and Cement Using CO ₂ " green innovation fund project as a consortium member, which was duly adopted
March 2022	Concluded Mizuho Positive Impact Finance Agreement with Mizuho Bank, Ltd.
April 2022	Shin-Himekawa No. 6 Power Plant (Itoigawa, Niigata Prefecture) started commercial operations
June 2022	Consortium, whose leading firms are Kajima, Denka, and Takenaka, for a NEDO Green Innovation Fund Project, "Development of Technology for Producing Concrete and Cement Using CO ₂ ," kicked into gear
June 2022	High-efficiency gas turbine generators completed at the Chiba Plant
July 2022	Participated in "WIPOGREEN" a global platform for environment-related technologies, as a partner
November 2022	Announced sustainability measures for management plan "Mission 2030" in addition to 2030 KPIs
May 2023	Concluded an agreement for joint research and introduction of demonstrations with Transform Materials toward the establishment of a low-carbon acetylene chain

Toward Achieving Non-Financial KPI*¹ Goals

Activities of the Sustainability Committee

To meet the objectives of management plan “Mission 2030,” it is important to achieve non-financial² KPIs. In April 2023, Denka established a Sustainability Committee to discuss the progress of non-financial targets and KPIs of the Head Office administrative departments and five business divisions, responses to risks, and earnings opportunities as well as to make proposals for achievements. This article describes the purpose of this committee and the goals it is working to achieve.

*KPI: Key Performance Indicator
²Non-financial information: ESG management information that is not indicated in financial statements and will be the source of future earnings and success, including corporate management strategies, challenges, and risks as well as initiatives pertaining to ESG and sustainability.

What is the Sustainability Committee? Accelerating effective ESG management

Directly reporting to the Board of Directors as an organization within the executive division

Upon the receipt of activity status reports on non-financial targets from the Head Office and individual business divisions, the Sustainability Committee deliberates on risks and business opportunities from the perspective of ESG and directly reports to the Board of Directors, which is the highest management decision-making body. It assumes a role to reinforce the supervision of ESG management and the reflections of opinions by the Board of Directors.

The background of its establishment is the requirement to improve on responses to sustainability issues of public companies in recent years. In the Tokyo Stock Exchange’s Corporate Governance Code, revised in June 2021, as well as the Financial Services Agency’s Guidelines for Dialogue Between Investors and Companies, public companies are required to establish a committee on sustainability under the Board of Directors or on the side of management. The committee is to actively and positively deal with challenges pertaining to sustainability while improving the quality and quantity of information disclosures with awareness of the impact from sustainability risks and earnings opportunities as well as consistency with management strategies and challenges.

In management plan “Mission 2030,” Denka set targets of non-financial KPIs for the first time. Following this, by establishing an organization to manage



and operate sustainability management in general within the executive division, it is expected that a culture of effective sustainability management more closely linked to businesses will be cultivated.

Pay attention to not only the figures but also the processes of KPIs

Committee meetings are held five times a year after the Board of Directors meetings. The administrative divisions plan to report twice a year, while the business divisions do so once a year. The first committee meeting was held on July 10. On this meeting, two groups, namely Compliance/Internal Control and Human Assets/Processes, presented reports. During the discussion on human assets, there was a debate on Denka’s competitiveness in terms of mid-career human resource recruitment and compliance education. A member of the committee made a point by saying, “Just pursuing figures assigned to

KPIs is not the real objective. It is necessary to pay attention to the processes that achieve the targets and think carefully about what values can be offered to all stakeholders after satisfying the KPIs.” The content of deliberation was reported to the Board of Directors at a meeting the following month, on August 7.

Toward being a leader of sustainability management

Non-financial targets set forth in management plan “Mission 2030,” are reflected upon those of individual organizations and employees. Denka considers that when the efforts of each employee in terms of safety, environment, quality, governance, etc. are properly evaluated, thereby creating business opportunities on the basis of sustainability challenges and improving the control of management risks, it will lead to the growth of the entire group.



ESG management promotion structure



Non-financial KPI goals in management plan “Mission 2030”

CO ₂ emissions (compared to FY2013) 60% reduction	Maximum output of renewable energy power (FY2021: 133 MW) 150MW	Average training costs (compared to FY2021) Double
Investment in process reforms (FY2023–2030) 50 billion yen	Number of high-risk suppliers 0	Visualization and ongoing improvement of engagement
Identification of human rights risks and establishment of response processes	Number of cases of serious quality accidents 0	Managerial positions occupied by women, foreign nationals, and mid-career hires 50%
Rate of lost-worktime injuries (FY2021: 1.1) 0.2 or less	Number of serious compliance violations 0	

Sustainability Committee members

[Chairperson] President	[Assistant Chairperson] Officer in charge of corporate planning	[Committee member] Officer in charge of the Head Office administrative division	[Observers] Chairperson, Audit Committee Member, Outside Directors	[Secretariat] Corporate Planning Dept
-----------------------------------	---------------------------------------------------------------------------	-------------------------------------------------------------------------------------------	------------------------------------------------------------------------------	-------------------------------------------------

Deliberation process



Discussion Themes of the Sustainability Committee

The Sustainability Committee divides the themes it deals with into five groups and officers and the heads of individual divisions and departments compile reports.

Individual departments' strategies to achieve non-financial KPI goals

In this article, with regard to the actual content of activities and their progress, the heads of six departments discuss strategies toward achieving targets and their enthusiasm about meeting KPI goals.



Compliance & internal control		Human resources & processes	
<p>Mission 2030 policy Enhancement of corporate governance</p> <p>Targets Number of serious compliance violations 0</p>	<p>Mission 2030 policy Human resource development, DE&I, Health and productivity management, and work style reforms</p> <p>Targets Average training costs Double Employee engagement Ratio of managers 50%</p>	<p>Mission 2030 policy Process reforms and productivity improvements</p> <p>Targets Investments in process reforms 50 billion yen</p>	
<p>Legal Dept.</p> <p>Progress report items</p> <ul style="list-style-type: none"> • Compliance & risk management • Compliance education for all Group companies • Whistleblowing system operations <p>Strengthening compliance activities throughout the Denka Group</p> <p>In this fiscal year, the Legal Dept. is proceeding with initiatives pertaining to compliance and risk management, mainly involving the formulation and maintenance of the group policy and its dissemination and education, education in labor law observance and harassment prevention, and the strengthening of the compliance system for export-related laws and regulations. As for compliance education for all Group companies, the department plans to revise the Standards of Business Conduct leaflet, conduct relevant training at main business bases, and check the extent of absorption by conducting e-learning. Regarding the operation of the whistleblowing system, the department promotes the enhanced dissemination of the system, disclosure of processing results, support and follow-up for those involved in whistleblowing, and initiatives to improve the skills of internal points of contact and investigation staff.</p>	<p>Internal Control Dept.</p> <p>Progress report items</p> <ul style="list-style-type: none"> • Improvement of the internal control framework within the Group <p>Promoting education to process owners</p> <p>The Internal Control Dept. aims to achieve a target of implementing the internal control framework (FW) at all Group companies by 2030. To achieve this goal, it is necessary for the head of each internal control process (process owner) to understand control requirements and assume risks more effectively, so explanatory videos for each process have been prepared and made available for viewing. As such improvements often take approximately a year to implement, the Internal Control Dept. is engaged in shortening the time and promoting the efficiency of, for example, the FW and current statuses gap analysis stage, which especially takes a lot of time. In FY2022, improvements were finished at five sites with plans to complete improvements at five more sites this year.</p>	<p>HR Dept.</p> <p>Progress report items</p> <ul style="list-style-type: none"> • Human resources development (average training costs) • DE&I (ratio of females/foreign nationals/mid-career hires, childcare leave acquisition rate of men) • Health and productivity management and work style reforms (employee engagement, overtime, percentage of employees taking paid holidays, telework rate, health and productivity management index) <p>Investments in human resources and system reforms</p> <p>This fiscal year, the HR Dept. is considering new development programs for newly employed human assets in order to build an education system that is common for all companies and cultivate a culture of autonomous learning. As for the ratio of females, foreign nationals, and mid-career hires in managerial positions, Denka is actively recruiting employees who will make up the population. In regard to the visualization and ongoing improvements of engagement, the results of the employee awareness survey conducted in April were visualized and disclosed and will continue to identify issues to make continuous improvements. Toward a reduction in the number of smoking employees, various guidelines, such as a no-smoking day and improving support to quit smoking, have been decided on this fiscal year.</p>	<p>Production & Process Technology Dept.</p> <p>Progress report items</p> <ul style="list-style-type: none"> • Investment in process reforms and labor productivity <p>To improve labor productivity</p> <p>In order to continue production activities with limited human resources, the Production & Process Technology Dept. fully utilizes digital and robot technologies, strives to change the organization by drastically reforming existing processes, and carries out initiatives to improve labor productivity. This year has been allocated to understanding the current status, selecting business (plants/products) whose processes require reform with priority, and ranking them according to where Denka's limited resources should be focused. In addition, the department will realize the sharing of a corporate-wide awareness of technology by rolling out process innovation technologies (81 themes in six fields), which were established with a small start in the previous management plan company-wide. In addition, progress is confirmed and information is shared through process reform study meetings held for individual plants.</p>
<p>Michiaki Watanabe General Manager</p> <p>In the Legal Dept., we consider ourselves to be missionaries of fair play, leading the company in the proper and healthy direction. All members of the department understand the need to improve the quality and reliability of legal affairs, work to solve various issues facing the company, and contribute to strengthening the management base and enhancement of the non-financial value of the entire Denka Group.</p>	<p>Tetsuya Moriguchi General Manager</p> <p>There are efforts in place to increase the number of staff in charge of promotion at overseas regional holding companies and our department's Internal Control Promotion Office to accelerate introductions and improvements, while focusing on the education and training of staff in charge as a means to improve the quality of work. In addition to actively utilizing digital technology to share and disseminate information and improve the knowledge management of our members, we will work systematically and continuously on learning with the aim of becoming a trusted professional group.</p>	<p>Akinori Adachi General Manager</p> <p>Under the policy of "Human Resources Value Creation," the HR Dept. is working toward being a company where each employee can really sense their own growth by setting up non-financial KPIs for human resource investments and system reforms. To realize "Mission 2030," there are many obstacles that cannot be overcome with conventional approaches or ideas. I believe that even if I cannot do something on my own, things can be achieved when united and working together.</p>	<p>Kazuyuki Yubune General Manager</p> <p>Due to a declining birthrate and an aging population, the working age population (15–64 years old) in Japan will drastically decrease to 68.75 million people (92% compared to 2022) in 2030. Process reforms (initiatives for improving labor productivity) are imperative to achieving sustainability. With all people involved working together, there are efforts in place to achieve non-financial KPIs with common understanding and a sense of speed.</p>



Individual departments' strategies to achieve non-financial KPI goals

Supply chain

Mission 2030 policy Product safety

Targets Number of serious quality accidents 0

Quality Assurance Dept.

Progress report items

- Integration of quality control systems and enhancement of control standards

Product safety and compliance observance

In order to deliver reliable products and services and contribute to the sustainable growth of society and the environment, the Quality Assurance Dept. has set a target of zero serious quality accidents and is improving quality control processes and enhancing control standards utilizing its quality control system as a foundation. The department established quality monitoring guidelines as a mechanism to improve quality control processes and raise standards of the entire Group and started operations. To enhance control standards, the department has been working on the establishment of complaint management and chemical substance control systems utilizing digital technology under a three-year plan.



Jun Takahashi
General Manager

In response to improper actions, such as a third-person authentication, that were revealed in May and under the instructions of an external investigation committee, work is conducted on the confirmation of facts, identification of similar cases, and the planning of recurrence prevention measures. All people involved with quality assurance come together to seriously reflect upon the improper actions, identify their essence, and review quality assurance activities, eliminating serious quality accidents and enhancing compliance.

Safety & environment

Mission 2030 policy Placing the utmost priority on safety and environmental conservation & minimization of environmental burden

Targets Rate of occupational injuries 0.2 or under

Environment and Safety Dept.

Progress report items

- Rate of occupational injuries
- Occupational safety & security disaster prevention education
- Continue with zero waste emissions

Focusing on securing safety and zero waste

The current occupational accident frequency rate is around 1.0. A key issue is how to prevent the labor accidents of inexperienced employees and staff from affiliate companies. The Environment and Safety Dept. heralds five key items, such as essential safety and improved education, in promoting safety activities. Additionally, the department exchanges opinions with on-site leaders to plan and execute easy-to-understand and more effective activities. The department is also focusing on the continuation of zero emissions, which is an effective global warming prevention strategy (continuing with 1% or less of final waste disposal volume). In consideration of the abolition of cement kilns in 2025, the department is aiming to reduce the volume of generated waste by improving various production processes and the sorting of waste for valuables.



Hiroki Yamamoto
General Manager

I hope to achieve the target occupational accident frequency rate ahead of schedule, before 2030. Our department aims to maintain zero waste emissions at a high-quality level. For both safety and the environment, a system will be created from a holistic perspective, clarify what needs to be done as a corporation, and plan and promote more effective activities. In line with this, good, successful external practices and cutting-edge digital technologies will be incorporated.

Future action plan

The results of initiatives for non-financial KPI goals are scheduled to be disclosed in the financial results announcement of FY2024. The status of achievements will be explained in the integrated report and other formats.

As for operations of the Sustainability Committee, it is being considered to promote it into a consultative committee of the Board of Directors and to reflect feedback from external experts, aiming toward a structure that can be evaluated as top-class sustainability management.



Exploring the Possibilities of LDM to Prepare for a World of Next-Generation High-Speed Communication Technology, including 5G and 6G

It is said that the fifth generation mobile communication system, 5G, will revolutionize our society. The issue to address in preparation for its growing popularity is the performance improvement of electrical equipment and terminals that receive radio waves. Denka's Low-Dielectric Macromonomer, LDM, developed using our coordination polymerization technologies, are attracting attention as a possible solution.

Arai of Electronics & Innovative Products is involved in the design of LDM, including next-generation LDM, its market development, and the education of human resources. Leveraging the abundance of knowledge he

gained during approximately 25 years of fundamental research and with the support of young researchers, Arai aims to develop LDM with excellent functionality. Speedy development is essential, especially in a world of 5G and 6G. He strives to promote LDM development by gaining a broad and accurate understanding of user needs, improving experiment efficiency, and utilizing external resources.

Arai is confident that no matter the new field, Denka will be a world-leading company in four years if development is efficient. Everything Denka does is to realize a better society. "My future dream is that LDM will be the standard material for 5G and 6G."

LDM (Low-Dielectric Macromonomer)
Product name: SNECTON

As a low-dielectric, heat-resistant curable resin, this product is expected to be used in 5G and 6G electronic circuit boards.



Specialist

Toru Arai

**Business Promoting Dept.
Electronics & Innovative Products**

Joined Denka in 1989. Worked in fundamental research for many years and is now the leading expert on Denka's coordination polymerization technology. Is involved in the development of LDM, next-generation products, and the market, exploring new themes.



















My Vision

Denka's Future as Envisaged by Each of Us

Part 2:

“ What kind of specialist do you aspire to be? ”

We will ask employees from various positions, generations, and workplaces about the future they envision for Denka, changing the theme in each issue.

 <p>Continuous value creation</p>	 <p>A determined person with an inquisitive spirit</p>	 <p>Someone who always takes on new challenges</p>	 <p>Connect people and products</p>	 <p>Be caring and autonomous</p>	 <p>To always care about others</p>
<p>Junya Nitta Aluminum Production Sect., Production Dept. 4 Omuta Plant</p>	<p>Rio Miyoshi Electronic Products Dept., Electronics & Innovative Products Shibukawa Plant</p>	<p>Ayaka Okawara Polymer Processing Research Dept. Iseaki Plant</p>	<p>Yuji Saito Chief, Gosen Site</p>	<p>Mika Takagi Environmental Material Sect. Fukuoka Branch</p>	<p>Hinano Inaba Environmental Material Sect. Sapporo Branch</p>
 <p>Create innovation</p>	 <p>Connect Denka's technology with the world</p>	 <p>“Motivator of Responsible Practices”</p>	 <p>Work with care and always be willing to improve</p>	 <p>Actively improve, strive to advance</p>	 <p>Improve my worth, and then improve it more</p>
<p>Hiroaki Fujisawa Tohoku Sales Office</p>	<p>Seiya Tomizawa Denka Chemicals G.m.b.H</p>	<p>Romy Töpfer Site Manager Icon Genetics G.m.b.H</p>	<p>Lanzhu Zhao Denka Inorganic Materials (Tianjin) Co., Ltd.</p>	<p>Xiling Tang Denka Electronics Materials (Dalian) Co., Ltd.</p>	<p>Jiannan Li Denka Advanced Materials (Suzhou) Co., Ltd.</p>
 <p>Make persistent, positive effort</p>	 <p>“Technology innovations for a better society”</p>	 <p>A person who continues to take on challenges, grow, and improve value!</p>	 <p>Realize new possibilities</p>	 <p>“An inspiring person to motivate others”</p>	 <p>“Leader of the way in the construction industry”</p>
<p>Bairu Qian Denka Chemicals Development Suzhou Co., Ltd.</p>	<p>Huan Yao Denka Chemicals Shanghai Co., Ltd.</p>	<p>Jiajun Li Denka Taiwan Corporation</p>	<p>Kim Sewha Denka Korea Co., Ltd.</p>	<p>Lenice Png Yi Zhen QC Denka Singapore Pte. Ltd. (DSPL)</p>	<p>Mark Yves Own Lauresta Technical Dept. Denka Construction Solutions Malaysia Sdn. Bhd.</p>

6-8
June Aug.Pick Up
JuneDenka joined COMNEXT
(Next Generation Communication Technology & Solutions Expo)

From the person in charge

Yuya Matsui
Advanced Specialty Materials Dept.

At this year's COMNEXT, over 500 people visited Denka's booth. Denka is happy to have had the chance to socialize with customers at this event, which acted like a venue for proposing next-generation materials. Additionally, the customers showed an interest in Denka's products and made requests of the company, which Denka will use in future activities.



Inside Denka's booth

COMNEXT (formerly the 5G & 6G Expo), an exhibition of next-generation communication technology where companies exhibit 5G/6G materials, next-generation communication solutions, optical communication technology, video transmission/8K technology,

and other related products and technology, was held at Tokyo Big Sight from June 28 to 30. Over the duration of this year's 3-day event, there were 13,625 attendees.

This year, Denka introduced the functions of dielectric control fillers, SNECTON (low-dielectric

macromonomer (LDM)), and SNECTON & Silica Slurry from the Advanced Specialty Materials Department and LCP Film from the Business Promoting Department. At the booth, Denka proactively asked customers about their needs and gathered details on what new products they want.

A close look at the secret story behind the development of LDM: a revolutionary material gathering attention from the next-generation communication and semi-conductor fields

LDM (SNECTON) is a thermosetting resin developed using Denka's proprietary coordination polymerization technology. It is expected to be used in antenna materials, insulation materials in packages (material that insulates electricity and prevents it from flowing into circuits other than the ones necessary), and circuit boards that are used for 5G and 6G and require excellent low-dielectric properties (a characteristic necessary for high-frequency electrical signals to transmit accurately and without attenuation) due to it being composed only of carbon and hydrogen. There were various issues on the path to developing LDM. From 1996, coordination polymerization technology, the basis of LDM synthesis, was originally being developed for thermoplastic elastomers use in medical tubes, interior automotive materials, etc. However, development

stopped in 2015 due to cost balance issues. The exploration of its use as a resin additive, solar battery materials, and more was occurring in parallel with its development, but no cost advantage over competing products could be found.

Everything turned around in 2018. During this time in which communication technology is expanding and the need for high-performance circuit boards for high-speed communications is growing, we at Denka believed we could meet market needs by utilizing Denka's coordination polymerization technology and restarted development in 2018. Conventionally, LDM was a thermoplastic resin that got soft when exposed to heat, but Denka morphed it into a thermosetting resin so that it could be used in the circuit boards of advanced communications. The company also further promoted its low dielectric properties. The

resulting LDM is a soft resin, possessing top-class low-dielectric, heat-resistant properties, and it is also easy to compound and mold due to its good compatibility with other low-dielectric materials, gathering lots of attention as a match for the circuit boards of next-generation, high-frequency, high-speed communications.

In addition to the production of LDM toward launch on the market, Denka's coordination polymerization technology can also provide high-frequency communication materials with various features. Going forward, Denka will create original, higher-performance, new products by coordinating with various fields and combining coordination polymerization technology with Denka's other technologies.

We asked two people about the secret story behind the development of next-generation LDM and its market.

Business Promoting Department
Electronics & Innovative Products

Toru Arai

Group Leader
Advanced Polymer Research Department
Denka Innovation Center
New Business Department

Yuhei Ishigaki

Jun.

The 164th ordinary general meeting of shareholders held

On June 22, the 164th ordinary general meeting of shareholders was held at Nihonbashi Mitsui Hall. It was attended by 82 shareholders and broadcasted live on the internet. As President Imai, chairman, expressed his condolences for the accident at the Omi Plant and his determination to prevent the reoccurrence of a similar accident, he also shared the business report and issues that should be addressed. After explaining Management Plan "Mission 2030," which was implemented this fiscal year, President Imai voiced his apologies for the quality issue of resin products and the Omi Plant accident, as well as his resolve to do all he can to prevent its reoccurrence. Following this, all proposals on the agenda were approved and passed as drafted.



Jul.

An announcement concerning the signing of the United Nation's Global Compact

Denka signed the United Nations Global Compact (UNGC) and was registered as a participating company on June 8, 2023. Denka also joined the UNGC's local Japanese network, Global Compact Network

Japan. By signing the UNGC, Denka will demonstrate its determination to realize a sustainable society; its support of the ten principles related to human rights, labor, environment, and anti-corruption advocated by the UNGC; and put them into practice through Denka's business activities.



Aug.

Grant awarded based on the Ministry of Economy, Trade and Industry's "Supply Security Plan for Storage Batteries"

Denka reinforced its Japanese supply system of acetylene black, a conductive auxiliary for lithium-ion batteries. After being approved by the Ministry of Economy, Trade and Industry (METI), Denka received a grant from the New Energy and Industrial Technology Development Organization (NEDO). Denka is promoting the reduction of CO₂ emissions in line with Management Plan "Mission 2030," which was implemented this fiscal year. Foreseeing the growth in demand for materials for electric mobility and storage batteries, Denka is preparing by introducing technology of an American venture, developing low-carbon acetylene production technology, and more.



Jul.

Signed as an official sponsor of the Fukuoka Softbank Hawks

Denka concluded a contract to become an official sponsor of the Fukuoka Softbank Hawks. From July 2023, signboards featuring the company name were posted at the FUKUOKA PayPay Dome home stadium (Fukuoka City, Fukuoka) and the home stadium of the Hawks' second team, Tama Home Stadium Chikugo (Chikugo City, Fukuoka). Denka's long, deep connection with this local region, in which Denka's Omuta Plant (Omuta City, Fukuoka) is manufacturing products for ICT & Energy, one of the core fields of "Mission 2030," and the Fukuoka Branch resides, is what ultimately led to the conclusion of this contract.



Jul.

Sponsorship of the 21st Japan Science & Engineering Challenge (JSEC2023): Establishment of the Denka Award

Denka decided to sponsor the JSEC2023, hosted by The Asahi Shimbun Company and TV Asahi. JSEC2023 is an independent science technology research contest aimed at all Japanese high school and technical college students, in which students are encouraged to explore issues concerning math and science on their own, following their interests. The contest aims to raise the standard of science technology. Denka decided to sponsor the contest as the social contribution policies of JSEC matched the Denka Group Social Contribution Policy "...proactively providing assistance to forward-looking academic pursuits and research activities. Simultaneously, the Group will contribute to cultural development." In line with Denka's sponsorship, the Denka Award was newly established.



Aug.

Financial results briefing held for first quarter of FY2023

A financial results briefing for the first quarter of FY2023 was held online on August 7, 2023. The briefing was attended by a total of 77 people, including institutional investors, analysts, people from financial institutions, and President Imai and 4 executives from Denka. The operating income for the first quarter was 2.8 billion yen, 2.1 billion less than the same period last fiscal year. Forecasts for the first half of the fiscal year were revised downward due to the decrease in demand for chloroprene rubber and other products, and the full-year operating results forecast will be put under close examination. He also explained that, due to the uncertainty of the economic environment, the forecast will remain unchanged until there is more certainty of the earnings forecast.

