

GLASS FOR FUTURE



Nippon Electric Glass



Integrated Report 2020

For the year ended December 31, 2020

Corporate Philosophy

At Nippon Electric Glass, our corporate philosophy is a reflection of our founding mission, a statement of our devotion to creating products infused with the very best of human civilization for the betterment of society.

Our corporate philosophy

We strive to build a brighter future for the world by uncovering the unlimited possibilities of glass for more advanced creative manufacturing.

Firmly rooted in the traditions of our founding mission, the NEG corporate philosophy plots a path for our quest for sustainable growth.

Thanks to material design, melting, forming, and processing technologies, glass can be infused with different properties for a broad range of functions. We are dedicated to unlocking glass's potential to make life better and more comfortable for people and communities the world over.

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Our slogan

GLASS FOR FUTURE

Our vision

The world's leading manufacturer of special glass

Our goal is to become the world's leading manufacturer of special glass, with the best talent, the best technology, and the best creative manufacturing ability. At the same time, we strive to run our Company in a way that inspires pride among our workers and enables us to make a genuine contribution to the community. The way we see it, creative manufacturing is achieved through state-of-the-art technological development, the highest quality standards, efficient production, and a steady supply of products, all underpinned by a fundamental dedication to environmental sustainability.

Our values

Customer first:	Everything is based on accurate understanding and complete satisfaction of customers' requirements.
Get the job done:	We are dedicated to completing every task properly.
Broad minds and open communication:	We think beyond existing norms and encourage frank communication among all departments and generations.
High ethical standards:	We are bound to act ethically and in good faith in all situations.
Consideration for the environment:	We are constantly aware of the need to be considerate of the environment, and strive to reduce our footprint.

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Editorial Policy

Organizations Covered

The Nippon Electric Glass Group's 11 companies in Japan and 15 companies outside Japan are covered in this report. In cases where the coverage area of the data differs, we have indicated the appropriate coverage areas respectively.

Period of Reporting

Fiscal 2020 (January 2020 to December 2020). Some qualitative information regarding fiscal 2021 has also been included in this report.

Publication, Next Scheduled Publication

Issued in May 2021. Next scheduled issue in May 2022.

Editorial Guidelines

IIRC International Integrated Reporting Framework, GRI Standards, and others. The GRI Content Index can be found at <https://www.neg.co.jp/en/ir/archive/annual/>

Disclosure Policy

The Group Code of Conduct stipulates that our Group will disclose necessary corporate information in a timely and appropriate manner to enhance communication with concerned parties. Following this policy, we will continue to disclose important information related to our Group's activities to all stakeholders, including shareholders and investors, in a timely and appropriate manner.

Caution Concerning Forward-Looking Statements

Statements in this Integrated Report with respect to our Group's plans, outlooks, strategies, and other statements that are not historical facts, are forward-looking statements involving risks and uncertainties.

Message from the Chairman

Our Vision

Focused on becoming
the world's leading manufacturer
of special glass

In 2020, after the WHO revealed the emergence of the COVID-19 virus, individual countries were delayed in responding, resulting in the widening spread of the pandemic. The subsequent imposition of lockdowns in an effort to contain the pandemic led to a widespread decline in economic activity. The past year has been characterized by instability as society has alternated between periods of lockdown and periods of economic activity.

In the first half of 2020, our Company, as a supplier of glass products, was also deeply affected by the emergence of the COVID-19 pandemic. Soon after, however, demand for glass, a product essential to the functioning of society, remained strong. In response to this situation, our Group focused on maintaining our planned levels of production despite the difficulties posed by the pandemic.

This effort was supported by our strong company-wide commitment not to allow COVID-19 to impact the sites where we continuously melt glass at a minimum temperature of 1,000°C. In addition, we opened a new manufacturing facility for glass tubing for pharmaceutical and medical use, for which demand has remained quite high, in Malaysia, a country that had also suffered significant impacts from the COVID-19 pandemic. We were fortunate that our productivity in manufacturing display substrate glass, another product that enjoyed strong demand, exceeded our expectations.

We have the resilience to demonstrate our abilities without submitting to the crisis presented by the COVID-19 pandemic. We developed this fortitude by overcoming the many hardships we have encountered since our founding.

One of the biggest crises in our corporate history was the flooding of our Notogawa Plant in 1990. The embankments of the Echi River, which borders the plant site, were breached one night at 1:30 a.m., and our plant was severely damaged by the floodwaters. Before the water had even subsided, our president, supported on each arm by colleagues, entered the premises. By 5:00 a.m. he had established a disaster-response headquarters and launched early recovery efforts. With a strong desire to minimize inconvenience to customers, our employees fired the furnace that evening after a nonstop effort. We will never forget the joy and relief we experienced by overcoming that almost insurmountable challenge.

By the fourth day we had restarted the press forming operation to produce glass for cathode ray tubes, and by the fifth day we had started spinning glass fiber. It took several more days to return fully to normal, but our customers praised our efforts as a remarkable recovery effort, and the sense of accomplishment we felt at that time remains deeply imprinted in our DNA.

I would also like to take this opportunity to express my heartfelt appreciation and respect to all the medical professionals who have remained so dedicated to the battle against COVID-19. We are pleased to have been able to contribute to their efforts by providing a large amount of relief supplies.

Looking ahead, we recognize that our greatest mission is to continue supplying the glass products on which society depends. We intend to demonstrate our strengths at overcoming all adversity, even in midst of the pandemic, as we continue to focus on our goal of becoming the world's leading manufacturer of special glass.

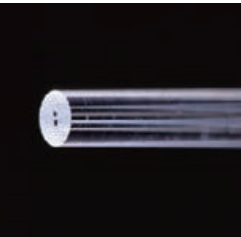


Masayuki Arioka
Chairman of the Board



Business and Product Development

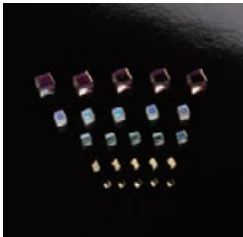
Our two business areas are: Electronics and Information Technology, and Performance Materials and Others. In Electronics and Information Technology, our businesses relate to either displays or optical and electronic devices. In Performance Materials and Others, our businesses relate to either glass fiber or medical care, heat resistance, or building materials. Our glass products are used in wide range of fields in both household and industrial applications.



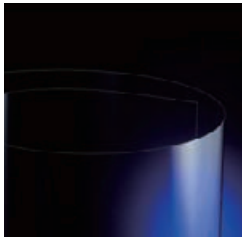
Glass for optical communications
Glass capillaries and ferrules



Glass lens units for optical communications



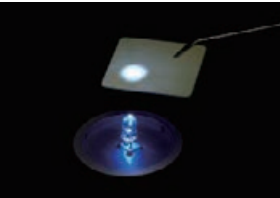
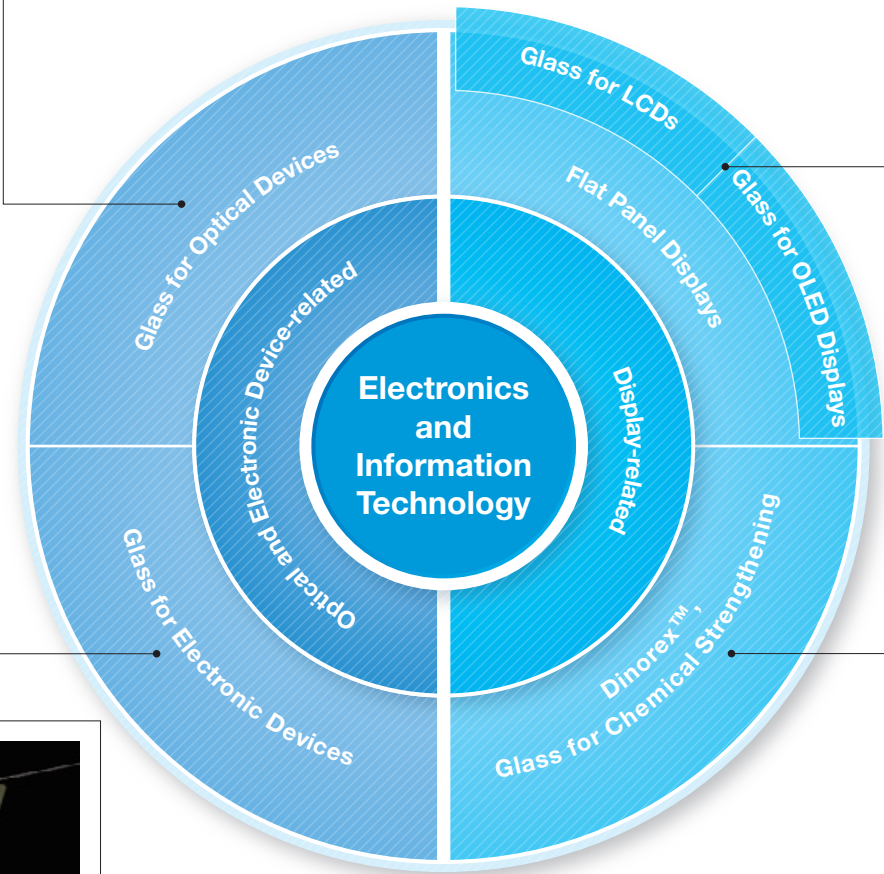
Micro prisms



G-Leaf™, ultra-thin glass



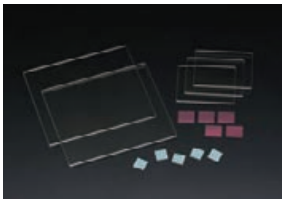
Glass substrate for LCDs and OLED displays



Lumiphous™, phosphor-glass composite



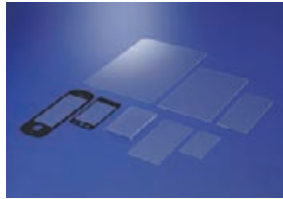
Glass tubing for miniature electronic parts



Cover glass for image sensors



Powder glass



Dinorex™, glass for chemical strengthening

Total

Net sales

242.9 billion
yen

Electronics and Information Technology

Net sales

136.2 billion
yen

Percentage
of sales

56%

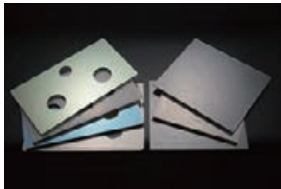
Performance Materials and Others

Net sales

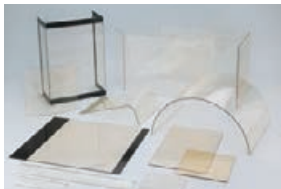
106.7 billion
yen

Percentage
of sales

44%



StellaShine™, super heat-resistant glass-ceramics for cooking appliance top plates



Neoceram, super heat-resistant glass-ceramics



LX Premium, radiation shielding glass



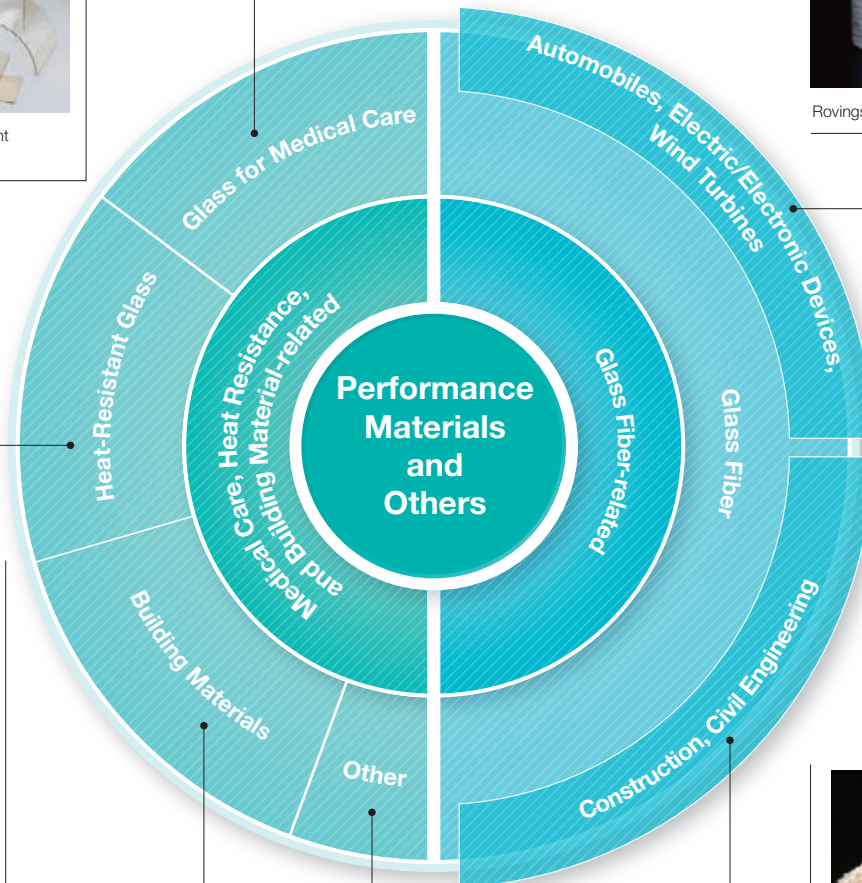
Glass tubing for pharmaceutical and medical use



Chopped strands for high-function plastics



Rovings for reinforced plastics



- Lamion™, ultra-thin glass laminated on resin
- Invisible Glass™, ultra-low reflection glass



FireLite™, fire-rated glass



Neopariés™, glass-ceramic building material



Glass blocks

- Glass for lighting
- Glass for thermos flasks
- Glassmaking machinery



ARG Fiber chopped strands



Wet chops for roofing



ARG Fiber net

Global Operations

Our business is global, aimed at markets around the world. We have manufacturing facilities in each major region to provide responsive shipment, service, and product development. This strategy also reduces risks involving such factors as material procurement, exchange fluctuations, geopolitics, and natural disasters. We also maintain close connections among manufacturing centers to ensure the stable supply of products.



Countries with operations

9

Number of affiliates

26

Percentage of sales outside Japan

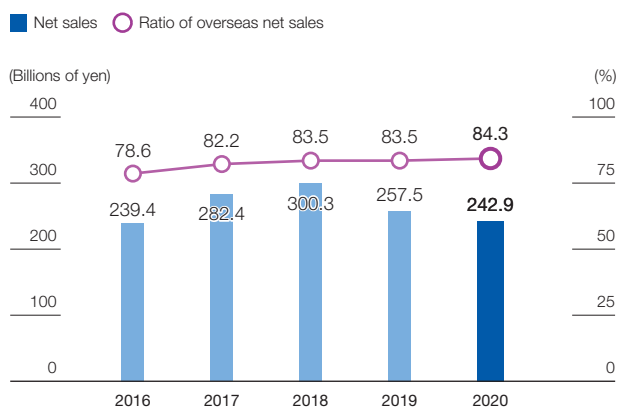
84%



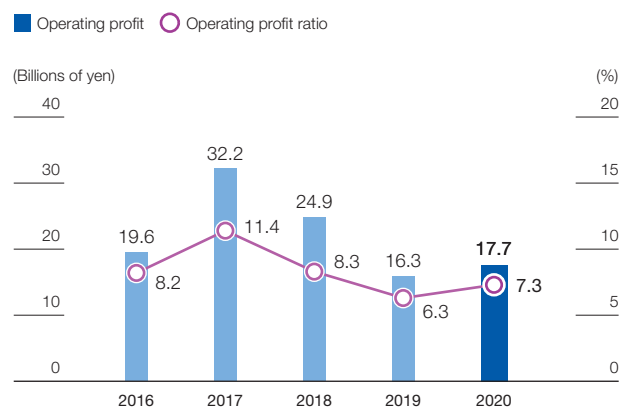
Financial and Non-financial Highlights

Financial Highlights (Consolidated)

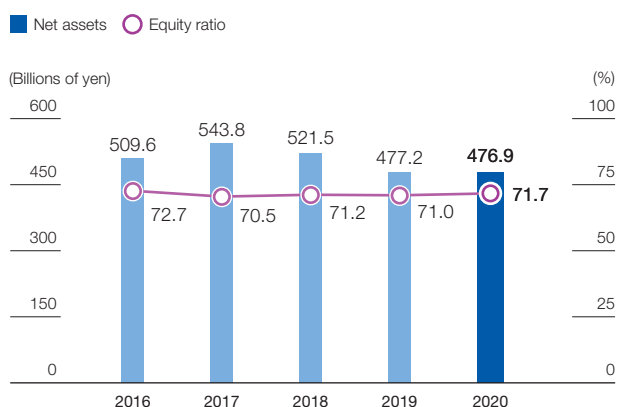
Net Sales, Ratio of Overseas Net Sales



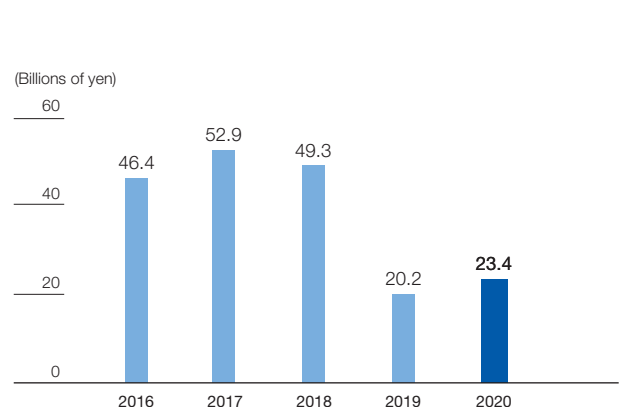
Operating Profit, Operating Profit Ratio



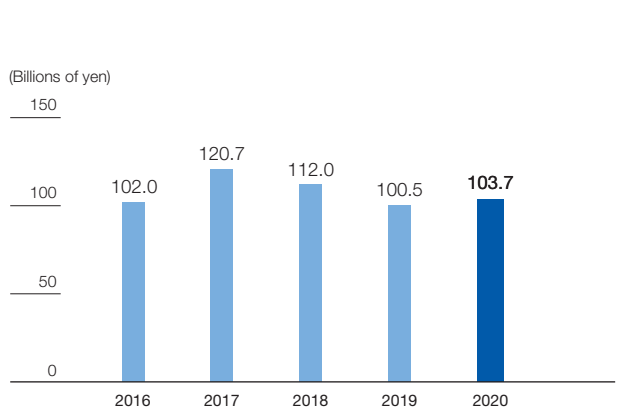
Net Assets, Equity Ratio



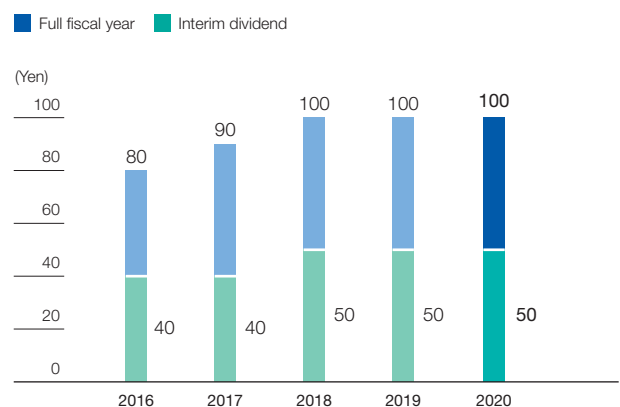
Capital Expenditures



Interest-bearing Debt



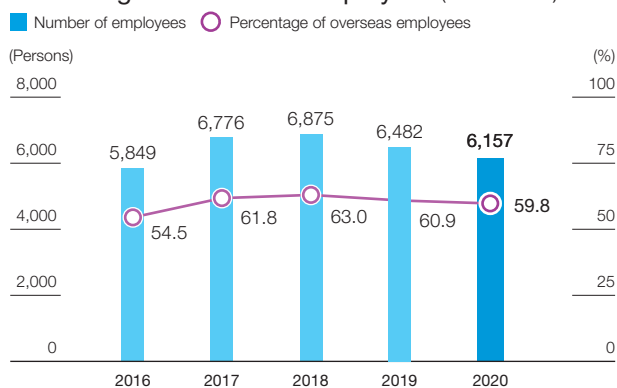
Cash Dividends per Share¹



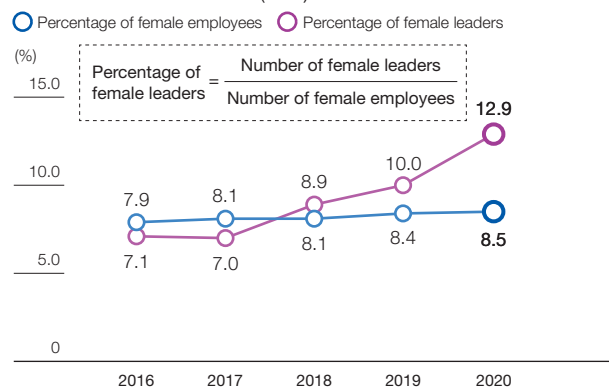
¹Per share of common stock amounts are retroactively adjusted for subsequent stock consolidation. On July 1, 2017, common shares were consolidated at a ratio of 5 to 1 based on the number of shares held by shareholders of record as of June 30, 2017.

Non-financial Highlights

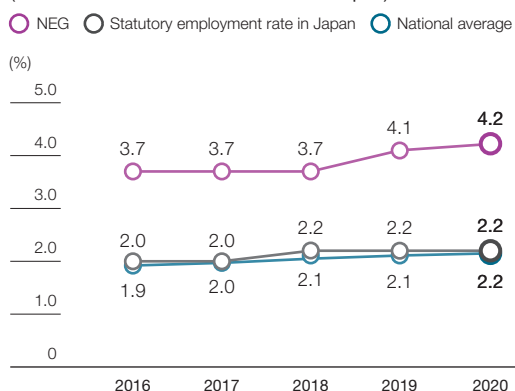
Number of Employees, Percentage of Overseas Employees (consolidated)



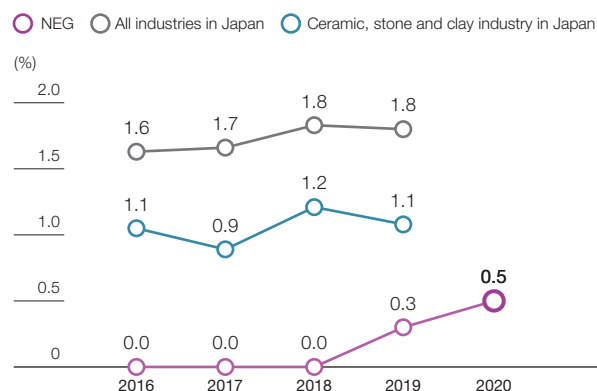
Percentage of Female Employees and Female Leaders (NEG)²



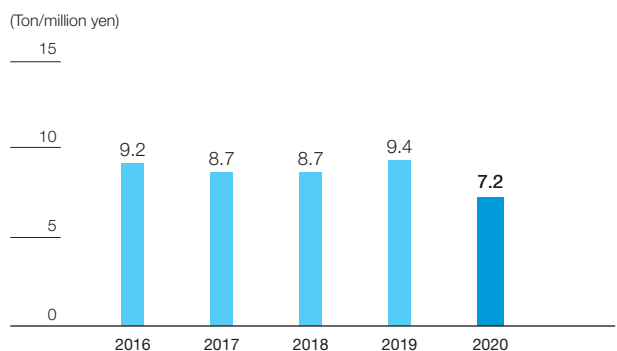
Percentage of Employees with Disabilities (NEG and consolidated subsidiaries in Japan)



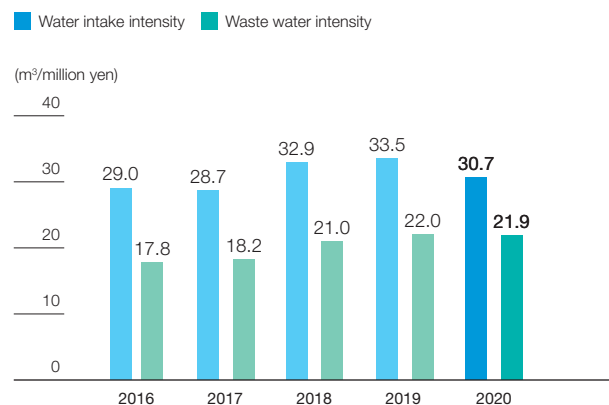
Industrial Accident Frequency Rate (NEG)³



CO₂ Emissions Intensity (to consolidated sales)



Water Intake / Waste Water Intensity (to consolidated sales)

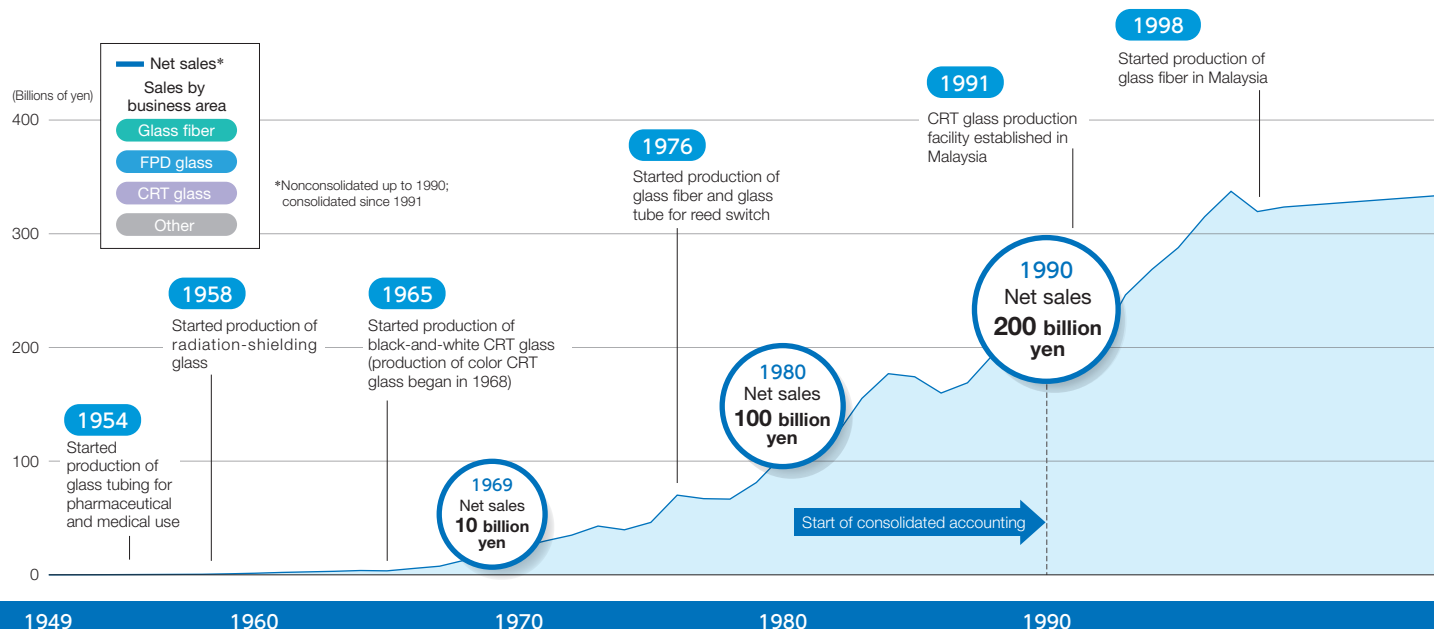


²A female leader is a female employee who oversees and manages subordinates.

³Aggregation period: January 1–December 31 annually for NEG; April 1–March 31 of the following year annually for all industries and for the ceramic, stone and clay industry

The Transformations and Advances of Nippon Electric Glass

Nippon Electric Glass (NEG) was established in 1949 in the chaotic aftermath of the Second World War in Otsu, Shiga Prefecture, with a total of some 90 employees. The Company has evolved to match the needs of the times, developing glass products that contribute to the betterment of people's lives and society's advancement. We will continue working to tap into the unlimited possibilities of glass and create new value for society through creative, advanced manufacturing.



1949–1989

From Establishment to Creating NEG's Foundations

Social Trends

- Continuing growth of the Japanese economy and rise in living standards
- Widespread adoption of CRT TVs and other household appliances and automobiles
- International expansion of Japanese manufacturers in electrical products, automobiles, semiconductors, etc.

Transformational Shift

Enlarging the scale of our business by applying our unique technologies to become a special glass general manufacturer

We started out as a manufacturer of hand-blown glass for vacuum tubes for radios and after succeeding in automatic forming of tube glass, moved on to mass produce such products as glass tubes for fluorescent lighting. In 1965 we enlarged the scale of our business to include producing glass for CRTs. Businesses were launched around glass-ceramics, glass fiber, glass for electronic devices, and more.

1990–2010

The Age of Overseas Development

Social Trends

- Economic stagnation in Japan caused by the collapse of the economic bubble
- Widespread adoption of the Internet and ICT equipment advances
- Adoption of flat-panel TVs and other digital devices

Transformational Shift

Promoting global business as overseas markets expand

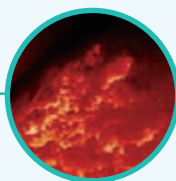
In the 1990s we set up a global production and supply system to meet global demand for CRTs, and grew into one of the world's leading CRT glass manufacturers. In 2000 we started producing substrate glass for LCDs using an overflow process. We were able to respond to needs for larger substrates, higher quality, and the ever-advancing LCD market.

Technological Advances



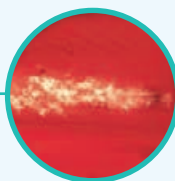
1951

Automated production of glass tubing using the Danner process



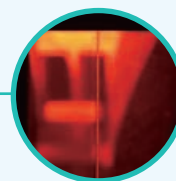
1974

All-electric melting furnaces with no fuel-derived CO₂ emissions brought online



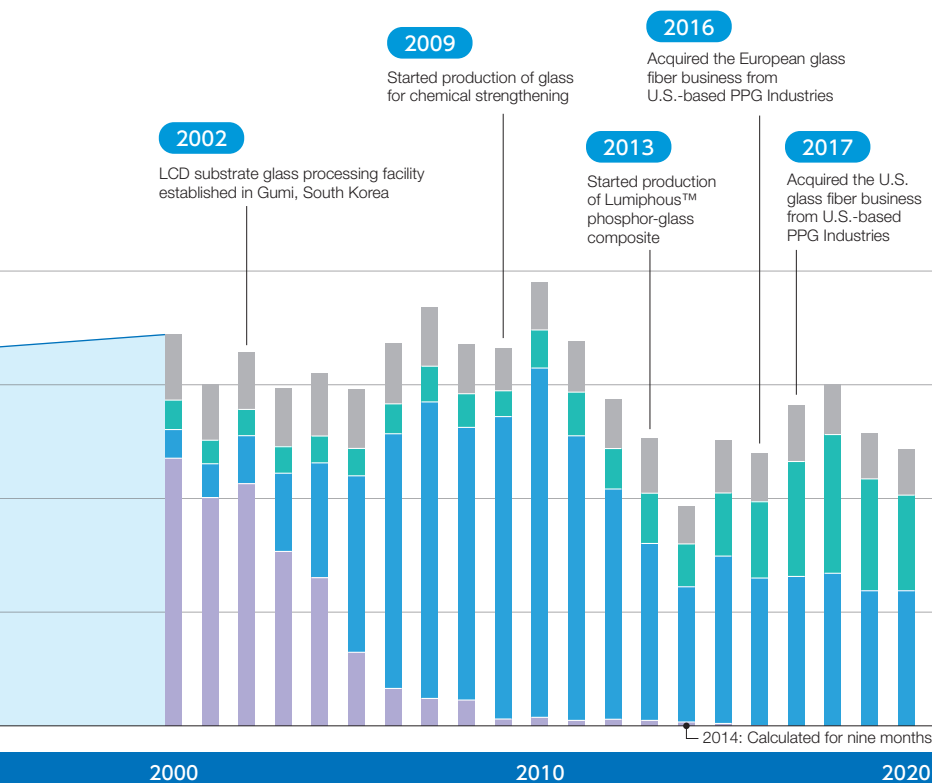
1993

Japan's first oxy-fuel firing furnaces are brought online



2000

Production of LCD substrate glass by applying the overflow process

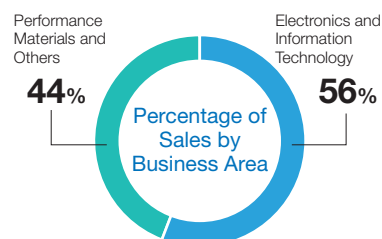


2020

[Net sales] **242.9** billion yen

[Operating profit] **17.7** billion yen

[Number of acquired patents] **2,618**



2011–2020

Reorganizing Our Business Portfolio for a New Age

Social Trends

- Widespread adoption of smartphones and tablet computers
- Advancement of digital platforms
- Heightening awareness of environmental conservation

Transformational Shift

Building a new axis for growth to become the world's leading manufacturer of special glass

We acquired production facilities in Europe and the United States from U.S.-based PPG Industries to expand our glass fiber business. This business grew into a major business for the Company alongside the FPD glass business. We also released new products such as cover glass for smartphones and a phosphor-glass composite, and developed unique products such as glass ribbon and glass with a zero CTE (coefficient of thermal expansion).



2008

Roll-to-roll process achieved for ultra-thin (50 μm) sheet glass



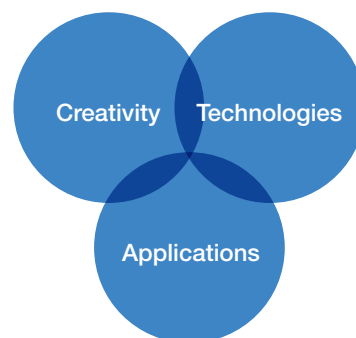
2019

Establishment of an innovative manufacturing process in LCD glass

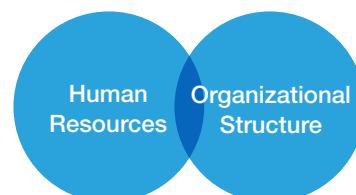
Strengths Built at Nippon Electric Glass

Our strengths are: product development based on cutting-edge core technologies and proprietary production technologies—combined with our corporate ethos (simplicity and fortitude) and open-minded corporate culture.

Manufacturing Strength



Solutions Capability



Strengths of Nippon Electric Glass

Over the years, we have developed a wide range of glass technologies including material design and evaluation, melting, forming, and processing. These technologies are brought together in our production facilities, which are the foundation for the development of new applied technologies. It is through these technologies that we can create unique, high-function glass products.

Manufacturing Strength

Creativity

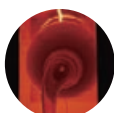
Creating new value with glass that takes a variety of forms and functions

Variety of Forms

Substrate



Tube



Sphere



Fiber



Powder



Molded



Hybrid products



Functions

Optical

Light absorption, wavelength conversion, optical thin film

Electromagnetic

Insulation, dielectric, conductive film, magnetism

Thermal

Heat resistance, fire prevention, low-temperature sealing

Mechanical

High strength by chemical strengthening or crystallization

Chemical

Acid resistance, alkali resistance, sustained release of chemicals

Others

Gas barrier, plastic and cement reinforcement

Technologies

Combining basic technologies and applied technologies for the commercialization of high-quality glass

Basic Glass Technologies

Material design and evaluation

Process design and development

Melting

Our melting technology and the design of our melting furnaces involve advanced and precise furnace operations—for example, controlling combustion and temperature while reducing environmental burdens. These technologies help us to produce high-quality glass.

Forming

One thing that sets our Group apart from the competition is our wide range of forming technologies. These technologies enable us to achieve high dimensional accuracy and high productivity. We can use the most suitable forming method for each product and respond to the various needs of our customers.

Processing

New functions and features are given to glass through a variety of working processes. These processes include reforming by heating and softening, crystallizing by firing, coating films, precision cutting and polishing, and compounding with crystals or organic substances.

Commercialization research

Applied Technologies

Precision forming and processing

Ultra-thin substrate forming

Hybrid technologies (use of thin film and laminating with other materials)

Ultra-large substrate manufacturing

Crystallization

Applications

Expanding the fields for
our products to meet
society's needs in a
new era

Expansion and Reinforcement Areas



Automotive and Transportation

- Lightweight materials
- Vehicle lighting
- Displays
- Self-driving vehicles
- Vehicle cameras
- Electronic devices



ICT and Semiconductors

- High-speed, large-capacity optical communication devices (5G compatible)
- Next-generation semiconductors (compact and high definition, advanced functions)



Medical Care

- Advanced pharmaceutical containers
- Advanced medical equipment and facilities



Displays

- Next-generation displays (high definition, thin and lightweight, flexibility)

Strategic Development Areas



Lighting

- Next-generation lighting (energy saving, high luminance, high output)



Energy

- Renewable-energy systems
- Rechargeable batteries



Social Infrastructure

- High-function fire-rated equipment
- High-performance structural materials (safe, durable, lightweight)



Home Appliances and Housing Equipment

- High-function home appliances, housing materials
- Multifunction wall materials



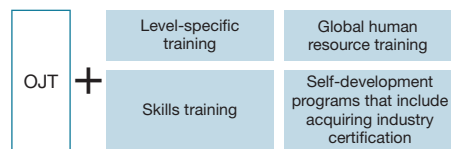
Solutions Capability

Human Resources and Organizational Structure

Responding rapidly with
solutions for customers
through organizational
and employee
competence

Various Human Resource Development Programs

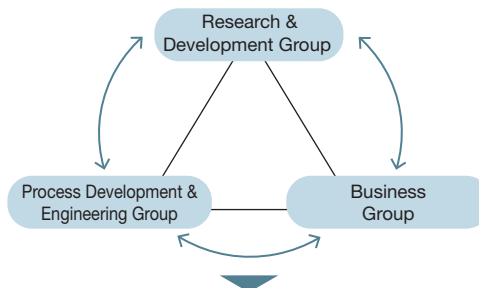
Promoting multi-faceted opportunities for skill
improvement, plus on-the-job training



Developing personnel capable of
world-class performance in every challenge

Supporting Seed Technologies and Responding to Needs Organizationally

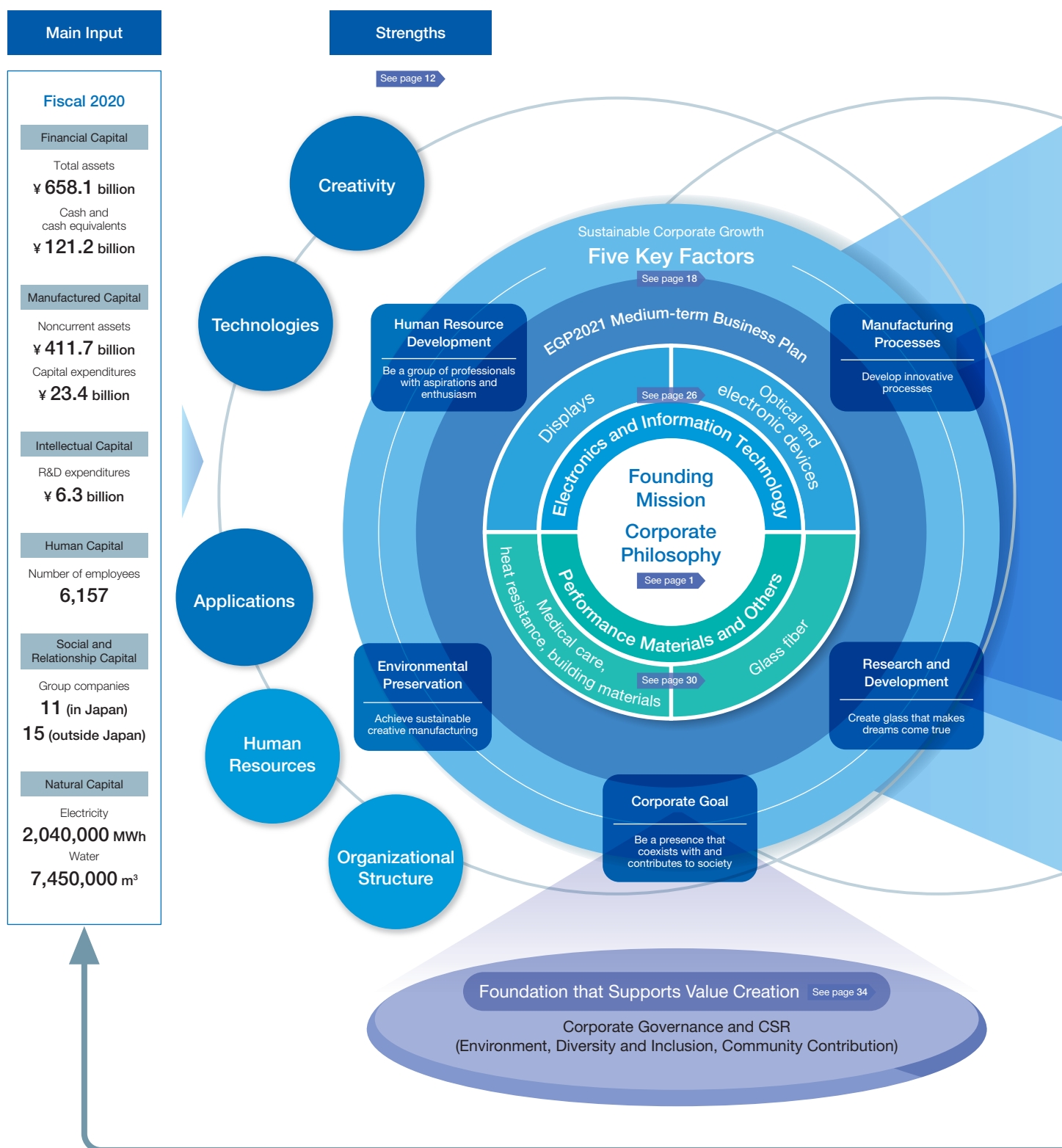
Building a new organizational structure to
facilitate smoothly integrated information sharing



Three-pronged development system will
promote product development for markets
5 and 10 years ahead

Value Creating Process

Utilizing six resources of capital for our business operations, we pursue the unlimited possibilities of glass while providing value to society through our innovative products. We will continue our efforts to realize sustainable societies.



Our Goal

See page 1

The world's leading manufacturer of special glass

Product Areas

See page 4

Global Operations

See page 6

Automotive
and
Transportation

ICT and
Semiconductors

U.S.A.

Medical Care

Europe

Displays

Lighting

Asia

Energy

Social
Infrastructure

Japan

Home
Appliances and
Housing
Equipment

Main Output

Fiscal 2020

Financial Results

Net sales

¥ **242.9 billion**

Operating profit

¥ **17.7 billion**

Cash dividends

¥ **100 /share per year**
(DOE 2%)

Intellectual Property

Number of
acquired patents

2,618

Diversity and Inclusion

Percentage of employees
with disabilities

4.2%

Health and Productivity
Management Outstanding
Organization

Certified 3 years
in a row

Community Contribution

Number of participants in
community activities

Approx. 300 people

Environment

Sales of environmentally
friendly products

See page 51

Approx. ¥ 68 billion

Creation of Social Value

Reduction of
environmental impact

Utilizing natural energy

Innovations in ICT

Advancement in
medical care

Improvements in safety
and comfort of daily life

Advancement in
transportation

Creating a robust and
durable social
infrastructure

A fair work environment and
human resource training to
develop tomorrow's leaders

Meeting society's challenges

Sustainable Development
Goals (SDGs)

SUSTAINABLE DEVELOPMENT GOALS



The Value Chain and Sustainable Development Goals

In each process of the value chain, we strive to increase the positive effects of our business activities and minimize the negative effects. We will continue to work hand-in-hand with our stakeholders in order to raise corporate value, solve society's problems, and achieve the SDGs.



- 5**
 - Helping women reach their full potential
 - Support for raising the next generation
- 8**
 - Diversity initiatives
 - Contribution to cutting-edge science and technology
 - Occupational health and safety activities, work-style reforms
- 16**
 - Formulation and dissemination of our corporate philosophy structure
- 17**
 - Collaboration with Shiga Prefecture
 - Endowment course at the University of Shiga Prefecture



- 3**
 - Glass tubing for pharmaceutical and medical use
 - Radiation-shielding glass for patient diagnosis
 - Flat-panel detector glass for X-ray diagnostic devices
 - Antimicrobial glass

- 7**
 - Resin-reinforced glass fiber to reduce the weight of automobiles
 - Resin-reinforced glass fiber for wind turbine blades
 - Glass substrates for FPDs, G-Leaf™ ultra-thin glass
 - Lamion™ lightweight composite material
 - Lumiphous™ phosphor-glass composite

Note: See page 51 for details on our environmentally friendly products.

- 9**
 - ARG Fiber for reinforcement in construction
 - Development and sales of glass for optical communication and electronic devices

- 11**
 - Lamion™ for train station platform doors
 - FireLite™ fire-rated glass for fireproof public facilities
 - Glass fiber for reinforcement in construction
 - Glass fiber for resin railroad ties



Sales

Product use

Final
product
disposal



- 12**
 - Recycling water and raw materials
 - Capture and reuse of exhaust gas
 - Pursuit of highly efficient manufacturing
 - Extending the life of facilities

- 13**
 - Global warming mitigation measures (e.g., reduction of CO₂ emissions)
 - Environmental education

- 15**
 - Supporting local forestry association activities
 - Removal of invasive fish species in Lake Biwa
 - Forest conservation around factories

- 16**
 - Thorough compliance
 - Human rights initiatives



- 12**
 - Recycling packaging

- 13**
 - Modal shift in shipping
 - Joint shipping with customers (e.g., reciprocal utilization of trucks)



- 12**
 - Reuse of waste glass

Message from the President



M. MATSUMOTO

Motoharu Matsumoto
President

We remain committed to addressing a range of social issues, including preservation of the global environment, while pursuing the sustainable growth of our business.

A year of contending with the COVID-19 pandemic

Even as we implemented comprehensive infection-control protocols, we focused on ensuring a stable supply of products.

Fiscal 2020 was a year in which we witnessed remarkable shifts in the economic environment due to the effects of the COVID-19 pandemic.

Upon receiving news of the spread of the virus from China, where our business is based, we implemented our Business Continuity Plan and immediately made it our top priority to protect the health and safety of our employees and their families as well as our customers, business partners, and other stakeholders. We also undertook a focused effort to control the spread of the infection.

Specifically, we set up a disaster-response headquarters within the company in anticipation of an increase in telecommuting due to restrictions on workplace attendance. By the first half of February, we were already expanding our network capabilities and securing mobile tools for our employees. At the same time, we thoroughly managed risk by reviewing infection control guidelines as needed in response to changes in the circumstances related to virus transmission. Although more than 80% of our sales are to Asia, Europe, and North America, we were subject to considerable restrictions on business execution, such as having to reduce international business travel almost to zero due to clampdowns on international travel. To accommodate this situation, we responded flexibly in each circumstance by resorting to web conferencing, providing online guidance to various sites, and utilizing local personnel for construction projects outside Japan.

In addition to our efforts to prevent the outbreak of in-house clusters of infection that would have an impact on production, we also undertook early procurement of raw materials and components and diversified suppliers across our supply chain. Fortunately, as of this writing, we have experienced no impact on production due to the impact from virus infections.

In preparation for the risk of financial market instability caused

by the COVID-19 pandemic, we increased our cash reserves in March 2020 as part of our response to the crisis. In addition, we have ensured a sound financial footing by flexibly implementing measures such as operational adjustments, cost reductions, and prioritization of capital expenditures in order to respond to the anticipated sharp decline in demand.

Initiatives and achievements for fiscal 2020

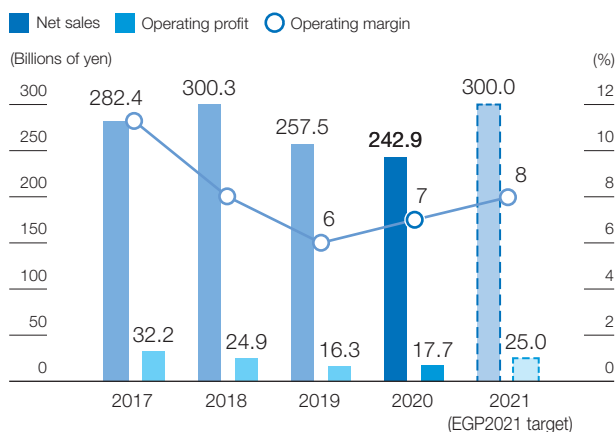
Improving productivity by adopting technological innovations in our manufacturing processes

Looking to our financial performance for fiscal 2020, although sales fell sharply in the second quarter due to the slowdown arising from the COVID-19 pandemic, we witnessed a remarkable recovery trend beginning in the third quarter. In retrospect, the business environment in which we operate did not plummet throughout the year as we had initially feared.

In the display glass business, sales of displays remained strong against the backdrop of high demand arising from increased telework and the home-centered “nesting” trend, and we posted record-high shipments. On the other hand, we very much regret the temporary inconvenience to our customers at the end of last year arising from delayed shipments due to an unplanned power outage at our plant in Japan. The affected production line has already been restored and production is back on track. As for our glass fiber business, although demand for automobile parts and wind turbine blades was sluggish in the first half of the fiscal year, it recovered rapidly in the second half and continues to boom. In addition, while demand for glass tubing for pharmaceutical and medical use remained robust, it was further boosted by surging demand for pharmaceutical containers for vaccines of COVID-19, with the result that our operations are now running at full capacity. In the latter half of last year, we started operation of a new manufacturing facility for glass tubing for pharmaceutical and medical use in Malaysia, and we continue to work hard to meet the growing demand.

Message from the President

Consolidated net sales totaled 242.9 billion yen, which represents a decline relative to the preceding fiscal year, but operating profit was 17.7 billion yen, representing a year-on-year increase partly attributable to a significant improvement in productivity, mainly in the production of display glass.



Fiscal 2021 earnings forecast

All our business divisions are expected to exceed the results of the preceding fiscal year.

The market for display glass continues to be favorable, and we anticipate that sales of glass for optical and electronic devices, glass fiber for automobile applications and wind turbine blades, and glass tubing for pharmaceutical and medical use will also remain strong. Both sales and operating profit are expected to exceed those of the preceding fiscal year.

Looking to the display business, we recognize the importance of expanding the production capacity of our facilities in Xiamen and increasing production and sales of 10.5-generation substrate glass in order to accommodate the Chinese market, which represents the main battlefield. As for the glass fiber business segment, applications related to automobile parts, wind turbine blades, and housing applications are all expected to increase. With regard to automobile parts applications, the shift to electric vehicles is progressing against the backdrop of heightened environmental awareness, and inquiries about functional parts have been increasing. As the importance of developing glass fiber suitable for new components and applications grows ever more important, we intend to fulfill market demand by focusing on the need for greater strength, increased thermal resistance, and additional weight reduction.

Our capital expenditures for the coming fiscal year are expected to total 60 billion yen. Going forward, we will continue to

invest in growth markets in a timely manner, with operating cash flow exceeding 50 billion yen and free cash flow remaining positive over the medium and long terms.

Regarding dividends, we have held to our policy of maintaining stable dividends over the long term by maintaining or increasing our dividend for more than 20 years without a single decrease or interruption. In fiscal 2021, we plan to pay a dividend of 100 yen per share, maintaining the same dividend as that of the previous fiscal year.

Outline of the EGP2021 Medium-term Business Plan

Basic Policy

Pursue further growth toward becoming the world's leading manufacturer of special glass

Slogan

Strong Growth—Raise Aspirations and Break through Walls

Growing our operations, our human resources, our technological foundation, and our developmental strengths.

Making "strong" corporate fundamentals our priority.

Priority Areas

(1) Research and development (2) Business strategies (3) Strategic investments (4) CSR

Performance Targets

Net sales ¥300 billion

- Electronics and Information Technology: ¥150 billion
- Performance Materials and Others: ¥150 billion

Operating profit ¥25 billion

Operating margin 8%

Review of EGP2021, our medium-term business plan

Accelerating efforts to achieve sustainable growth for the next generation

Fiscal 2021 marks the final year of EGP2021, our medium-term business plan. Although it can be difficult to achieve numerical targets regarding sales growth, we have been rewarded with positive results as a result of EGP2021. We believe we have achieved considerable progress in strengthening our basic technologies such as manufacturing process technology and product development, which symbolize the twin pillars of a manufacturing company. In particular, we have firmly established the innovative manufacturing process technologies we have been advancing in Japan, and we intend to extend these assets horizontally in the future. Moreover, this process will strengthen profitability by improving productivity and

is expected to reduce CO₂ emissions, thus contributing to the promotion of carbon neutrality in the years ahead.

Looking to product development, we are posting steady results in the areas of infrared transmitting glass used for night vision applications, deep UV transmitting glass used for sterilization equipment, and exceptionally safe all-solid-state sodium-ion rechargeable batteries. We will work closely with our Corporate Strategy Department and Marketing Department to commercialize these products successfully.

Formulating a new medium-term business plan

Protecting the global environment while improving our business performance

In formulating our next medium-term business plan, we believe we must not only aim for improved business performance, but also adopt initiatives that incorporate perspectives related to ESG (environmental, social, and governance issues) and the SDGs (sustainable development goals established by the UN). This approach must include addressing environmental issues with a commitment to sustainable growth over the medium and long term.

We have always been aware of the large environmental impact of the glass industry, so we have resolved to conduct our business operations with consideration for the residents of the communities in which we operate. With little regard for the cost, we have always adopted the latest environmental equipment, actively promoted the “3 Rs” (reduce, reuse and recycle), and incorporated environmental expertise and technologies. In addition, we have followed an environmental business plan that incorporates our operational management approach, and for more than two decades we have emphasized the need to reduce waste generation and water consumption. Notably, this year we have added energy management to our list of priorities.

In recent years, the global movement toward carbon neutrality has been accelerating. In the future, improving the power ratio of heat sources in order to reduce CO₂ emissions attributable to the manufacturing process is likely to become a pressing issue. With regard to our approach to reducing CO₂ emissions, we are preparing to announce specific targets as well as a schedule at the appropriate time.

We hold the view that highly efficient manufacturing is environmentally friendly manufacturing. Specifically, we believe

that ensuring high production efficiency and high quality in our manufacturing processes results in minimal consumption of raw materials, efficient fuel consumption, and reduced emissions of waste and CO₂, which together contribute to environmental conservation. Under our next medium-term business plan, we will focus our efforts on our priorities related to environmental conservation and the pursuit of profits through improved manufacturing processes.

Envisioning growth over the medium and long terms

Pursuing a role as the manufacturer of the industry's best glass and products that amaze the world

We have adopted the policy of fulfilling our corporate vision as the world's leading manufacturer of special glass. Though this may not qualify as a particularly flashy goal, we intend to become known as the manufacturer of the best glass products in the world. Likewise, even as we focus on developing products that meet the needs of society, we pledge to remain a company renowned for its devotion to customer satisfaction.

At the same time, we recognize that these objectives are completely reliant on the contributions of our human resources. While the COVID-19 pandemic has focused attention on a variety of new work styles, we will continue to consider innovative approaches to work in keeping with changing times. We will also strengthen our human resource foundation in order to support the sustainable growth of the Company with the aim of realizing a workplace where everyone can work and demonstrate their full potential with vigor. In this effort, we will remain aware of the need to support diversity, such as promoting the active participation of female employees, supporting the employment of foreign nationals, and expanding the employment of people with disabilities.

Since our founding, we have prided ourselves on our ability to operate with clear-eyed determination, never flinching in the face of adversity. As the business environment continues to shift dramatically, we will remain dedicated to producing the industry's best glass as well as products that amaze the world, all the while maintaining our contributions to society. We look forward to the continued support of our shareholders as we pursue these objectives.

Special Feature

Responding to COVID-19

The COVID-19 pandemic has had a significant impact on our daily lives. Under these circumstances, our Group has managed to maintain regular business operations while implementing steps to minimize the spread of the virus. Through this effort, we have afforded top priority to the health and safety of all stakeholders, including our employees and their families as well as our customers and business partners.

We have also taken the opportunity presented by this disruption to rethink our conventional approach to work while implementing measures to further improve our work efficiency. We continue to develop products intended to minimize infection as we increase production without slowing down our processes.

We pledge to maintain our current measures and will not let down our guard as we combat the spread of this infectious disease.

Our COVID-19 Policy Response



Initiatives Related to Our Business Operations



Impact on Specific Businesses (2020)

Electronics and Information Technology

Displays

- ▶ Rapid recovery in the second half of the year after bottoming out in the second quarter due to a temporary decline in customers' production
- ▶ Significant market expansion arising from the rise in telecommuting and the home-centered "nesting" trend

Electronic Components

- ▶ Gradual recovery in automotive demand after bottoming out in the third quarter
- ▶ Decreased demand for general-purpose products in the first half of the year
- ▶ Consistent strong demand for 5G and other communications infrastructure

Performance Materials and Others

Glass Fiber

- ▶ Although market conditions deteriorated in the first half of the year, the market for both automobile parts and wind turbines recovered sharply after hitting bottom in the second quarter.

Medical care, heat-resistant products, building materials

- ▶ Medical care: Strong demand across all countries
- ▶ Heat-resistant products: Gradual recovery as customers in the U.S.A. and Europe resumed operations
- ▶ Building materials: A cooling market due to a decreased number of housing starts in Japan

Contributing to the Community

We donated health and hygiene supplies through local government agencies.

Main donations

Japan

Masks 133,000 units

Medical rubber gloves 75,000 units

South Korea

Masks 2,000 units



Products for the Medical Sector

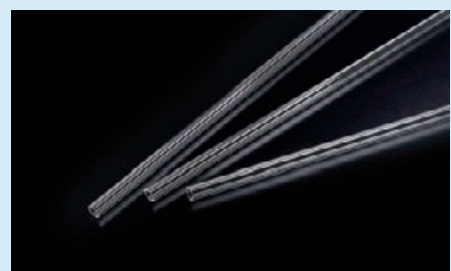
Glass Tubing for Pharmaceutical and Medical Use

The glass tubing for pharmaceutical and medical use we produce exhibit excellent chemical resistance and workability. They are processed into ampoules and vials and are used as containers for pharmaceutical products, including containers for COVID-19 vaccines. Since our new facility in Malaysia started operation in October 2020, our production capacity has increased significantly.



Deep UV transmitting Glass

Deep ultraviolet radiation, which has a relatively short wavelength for the ultraviolet spectrum, has a bactericidal effect and serves to decompose organic substances. Lamps and LEDs that emit deep ultraviolet radiation are used in medical facilities and food processing plants. Special glass capable of efficiently transmitting deep UV radiation is used to protect the UV light source. Our glass is also incorporated into equipment used for sterilization of the novel coronavirus.



Research and Development

Uncovering the Unlimited Possibilities of Glass

Glass is a unique material that can be customized into different shapes with a wide variety of functions by modifying its composition and altering the various forming and processing methods used. By combining our accumulated glass technologies with original ideas, we continue to deliver a variety of high-performance glass products matching contemporary needs.

R&D Policy

We pursue basic research encompassing material design and evaluation, process design and development, commercialization built on trial production and product refinement, and computational science, which includes ICT and AI-driven data analysis.

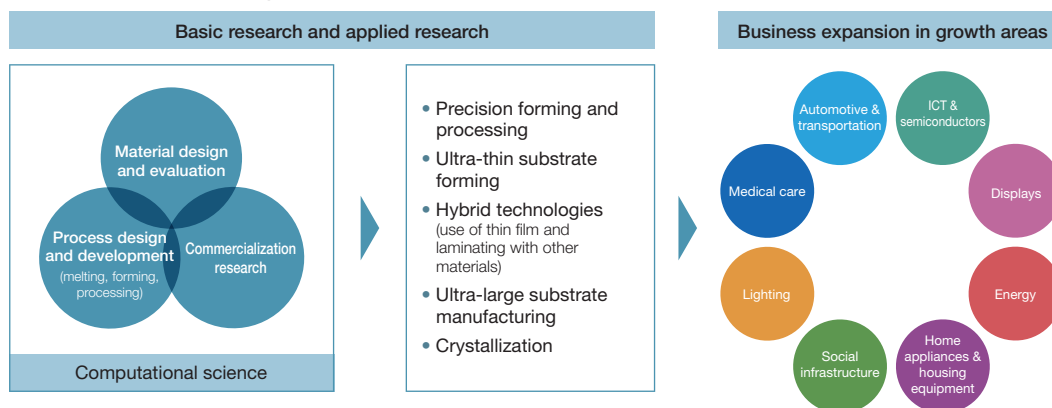
With this basic research we combine applied research in areas including precision forming and processing and ultra-thin substrate forming.

We aim to develop glass products that provide value for

society, as we focus on expanding business in growth areas such as automotive, ICT, medical care, and displays.

Under our EGP2021 Medium-term Business Plan, we are making research and development a top priority. By incorporating product, technology, and manufacturing processes into a single, integrated development structure, together with more robust marketing functions and other measures, we facilitate stronger collaboration among our different departments to create “glass that makes dreams come true.”

R&D and Business Development



R&D Organization

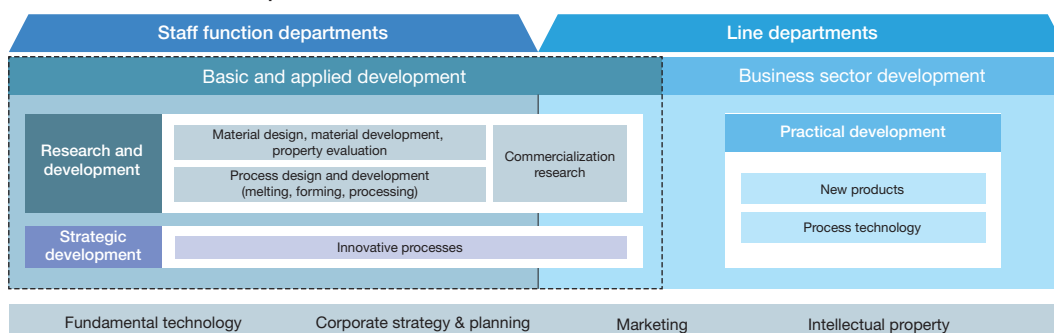
Our Research & Development Group and the Process Development & Engineering Group, as staff function departments, engage in R&D in the areas of material design and development, property evaluation, and process design and development. Meanwhile, our line departments carry out practical development such as product commercialization, product improvement, and development of advanced functions.

The staff function departments and the line departments collaborate on strategic development aimed at resolving medium-term development issues. Our Fundamental Technology Division collaborates with institutions around the world in the area of

material science, the foundation of our glass research. Our Corporate Strategy Division supports other departments in relation to information analysis and planning.

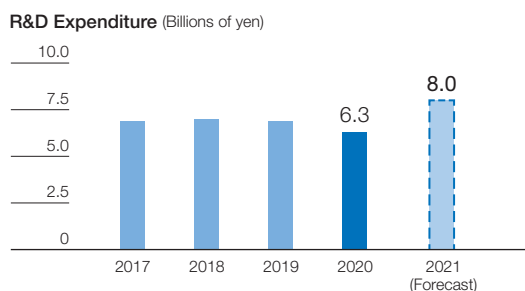
In conjunction with this, as a measure of our EGP2021 Medium-term Business Plan, our Research & Development Group, Process Development & Engineering Group, and Business Divisions responsible for commercialization of new products will construct an integrated development system and provide information and advice on sales strategies through a cross-sectional marketing organization.

Collaboration between Departments



R&D Investment

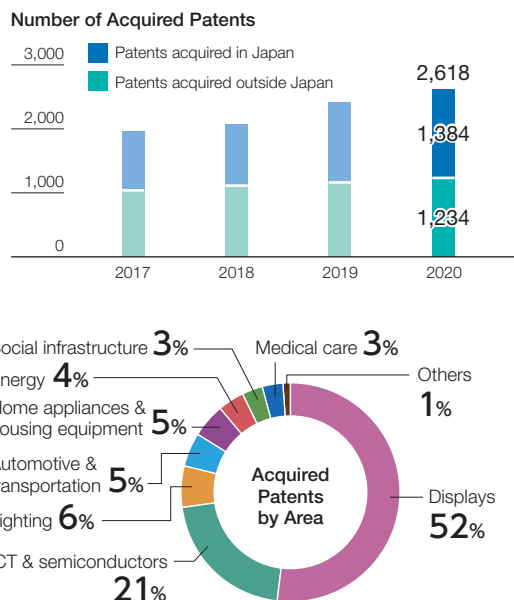
We are working tirelessly in R&D in order to realize our corporate philosophy: "We strive to build a brighter future for the world by uncovering the unlimited possibilities of glass for more advanced creative manufacturing." We also aim to integrate and evolve our manufacturing processes and product development, and reflect the results in our management strategy in order to realize medium- and long-term growth. Our R&D expenditure was 6.3 billion yen in fiscal 2020. We will continue boosting our R&D activities.



Intellectual Property

At the Company, our approach to intellectual property is to pursue systematic synergy between glass manufacturing and glass product and process R&D in order to generate technological results that we

protect and utilize as intellectual property providing us with competitive advantages, which contribute to the development of the Company. And we are increasing the number of patents we hold in and outside Japan, focusing on key business areas and areas of future business development, so that we will have a network of patents to effectively support our business.

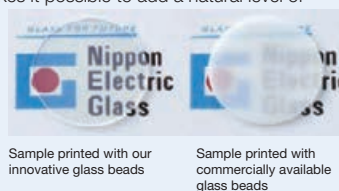


R&D News

New product

Announced February 4, 2020
Glass Beads Contributing to the Production of Translucent 3D Printed Models

Utilizing our expertise and years of experience in the material design of optical glass with our bead manufacturing technology, we have succeeded in developing micro glass beads that match the refractive index of the resins used for 3D printing. Typically employed for fashioning temporary teeth, this innovative material makes it possible to add a natural level of translucency to an artificial tooth while also improving the heat resistance and strength of the modeled product.



New product

Announced August 26, 2020
5G-Suitable Low-Temperature Co-fired Ceramic Material with the Industry's Lowest Loss Tangent

We have expanded our product line by developing a low-temperature co-fired ceramic (LTCC) material exhibiting a low loss tangent. This material is ideal for use in components incorporated into 5G communications infrastructure. We are developing three types of this new material featuring, respectively, low dielectric constant, high coefficient of thermal expansion, and high mechanical strength. All three types share the common feature of low loss tangent. This new material minimizes the transmission loss of 5G communications, thus contributing to more efficient communications.



R&D innovation

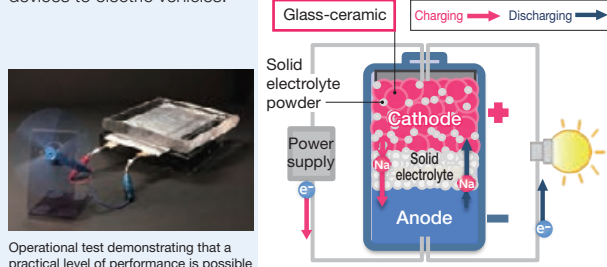
Announced June 12, 2020
Achieving Progress in the Development of an All-Solid-State Sodium-ion Rechargeable Battery

We have achieved a milestone in the development of an all-solid-state sodium-ion rechargeable battery, which we have been developing since 2017. As of this writing, we have achieved a practical level of performance by significantly reducing the electrical resistance inside the battery.

All-solid-state sodium-ion rechargeable batteries are expected to emerge as next-generation rechargeable batteries capable of solving the shortcomings of mainstream lithium-ion rechargeable batteries, notably product safety and instability in the sourcing of raw materials.

By using a solid electrolyte in the form of an inorganic oxide glass-ceramic for the cathode, we are developing a battery with a simplified structure that is capable of generating a high level of energy. We are

targeting a wide range of practical applications for this battery, from mobile devices to electric vehicles.



Business Overview

Electronics and Information Technology



Display-related Business

Director and Senior Vice President,
Group General Manager of Display
Glass Group

Tomonori Kano

Trend in Net Sales (Electronics & IT)



Main Products

[Display-related Business]

■ Glass for flat-panel displays (FPDs)

Manufactured by the overflow process, this glass substrate has an exceptionally smooth surface. It is used in displays such as flat-panel TVs and mobile devices.

■ Dinorex™ glass for chemical strengthening

This product is used as a cover glass for smartphones, tablets, in-vehicle displays, and other applications. It protects screens from scratches and impacts.

[Optical and Electronic Device-related Business]

■ Glass for optical devices

We provide a variety of products that connect high-speed optical communication networks, including micro prisms, micro lens arrays, and micro capillaries.

■ Glass for electronic devices

A vast range of applications are available, including cover glass for image sensors and powder glass, glass paste, precision glass tubes, and phosphor-glass composite in the electronic components in home appliances, automobiles, industrial machinery, and the like.

The Business Environment

The display market expanded significantly in 2020 due to the spread of the COVID-19 pandemic, which resulted in increased telecommuting and a trend toward home-centered “nesting.” We believe this trend will continue in 2021. In the panel industry, we are witnessing the continued operation of South Korean panel manufacturers that had been scheduled for shutdowns. At the same time, Chinese panel manufacturers are continuing to start up plants for 8.5-generation and 10.5-generation panels. We are working to further improve productivity and increase production capacity in Xiamen, China in order to meet growing demand for 10.5-generation glass and other products.

Our Strengths

We use the overflow process to manufacture glass for flat panel displays (FPDs) as well as glass for chemical strengthening. Since our manufacturing method avoids contact with both sides of the glass substrate, we can produce thin and large flat glass sheets of high surface quality without the need for surface polishing. Currently, we have mass production technology for FPD glass capable of producing panels up to the size of the 10.5 generation. We also manufacture ultra-thin glass G-Leaf™ with a maximum thickness of 200 μm that is flexible enough to be bent like a film, so we are developing applications for flexible devices.

In order to improve productivity, reduce energy consumption, and reduce CO₂ emissions, we have been developing innovative manufacturing process technologies. Going forward, we intend to enhance our competitiveness in terms of cost and quality by horizontally deploying these innovations. We are proud to have earned the trust of our customers by always responding with sincerity to their requests through our sales skills and technological development capabilities.



Corporate Strategies

- Expanding production and sales in the booming Chinese market while growing market share
- Expanding sales of ultra-thin glass as a cover glass for foldable devices and a substitute for resin films for displays
- Promoting the development of new products other than displays by applying our overflow technology to various other glass materials

Business Overview

In fiscal 2020, we were able to provide a stable supply of high-quality FPD glass products by improving productivity through innovative manufacturing process technology and by extending the service life of our equipment. Sales were impacted by our customers' reduced production levels in the second quarter (April–June 2020). However, the TV and IT-related display market recovered rapidly in the third quarter (July–September 2020), with shipments exceeding those of the previous fiscal year.

Shipments of glass for chemical strengthening decreased due to sluggish demand for smartphones and other products, but progress was achieved with increased adoption of in-vehicle displays. In addition, by applying our overflow technology, we have succeeded in developing Dinorex UTG™, a 25-μm (0.025 mm) glass for chemical strengthening — the industry's thinnest — which has resulted in a durable foldable display.



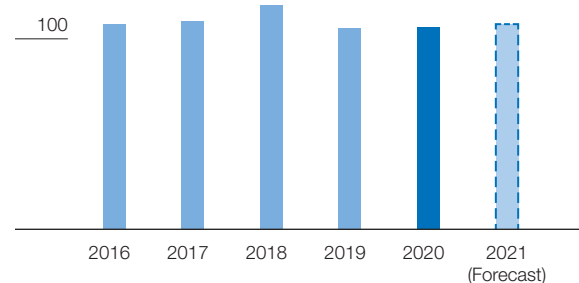
10.5-generation substrate glass

Outlook for Fiscal 2021

In order to ensure our production capacity is increased in fiscal 2021, we intend to make a third investment in Xiamen, China. We will also undertake horizontal expansion of our innovative manufacturing processes in order to continue competing on the basis of cost, quality, delivery, and service. These initiatives will enable us to meet this growing demand.

Net Sales of FPD Glass Business

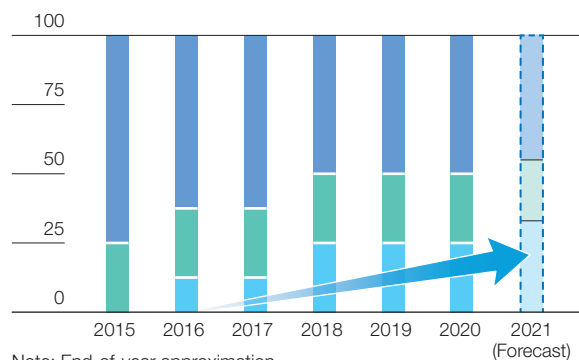
(Billions of yen)



Forming Capacity of FPD Glass

■ Japan ■ South Korea ■ China

(%)



Note: End-of-year approximation



Optical and Electronic Device-related Business

Vice President and Group General Manager of Electronic Products Group

Masahiro Kobayashi



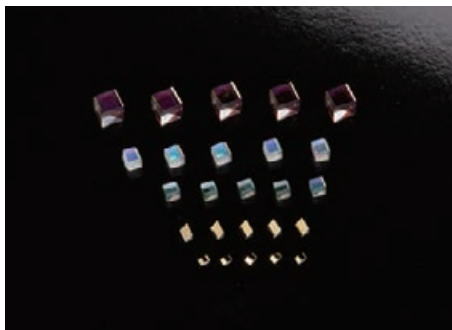
The Business Environment

■ Glass for optical devices

The market is growing due to greater investment in 5G and other communications infrastructure and increased data traffic due to the impact of the COVID-19 pandemic. We have a significant market share in this field, and we are developing new products such as micro prisms and ball lenses with a full AR coating — both of which result from our high-precision processing and assembly technologies — utilizing our high-performance thin films.

■ Glass for electronic devices

Various products in this field are widely used in electronic devices incorporated in household appliances, automobiles, and industrial equipment. Many of these devices have a large market share. Because the rate of technological innovation for such devices is fast, the product cycle is therefore shorter than it is for other businesses. Utilizing the fundamental technologies that contribute to our strong market share, we are promoting product development with an eye on market needs mainly in the 5G communication, automotive, semiconductor, and medical sectors.



Micro prisms

Our Strengths

To support rapid industrialization and commercialization, we engage in wide-ranging in-house efforts focused on materials development, products design and development and process development. In addition, our production system and quality assurance system can handle glass melting and forming; processing; incorporating high added value (including coating and compounding); and analysis. As a result, we have earned high praise from customers in terms of our quality and stability of supply. It is thus no surprise that we have been able to establish relationships of trust with our customers and have benefitted from a positive profile for our brand in the marketplace.

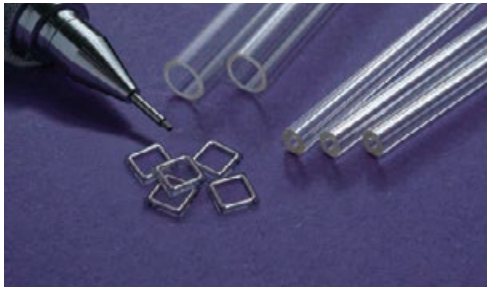
Corporate Strategies

Developing products and expanding sales in the growth markets of telecommunications, automobiles, and medical care; strengthening offerings in the areas of materials as well as devices

- Promoting product development and commercialization utilizing our strong ties with customers
- Building a supply system that meets market needs by enhancing quality, improving characteristics, and reducing costs
- Developing products with a long-term perspective by strengthening internal and external collaboration

Business Overview

In fiscal 2020, shipments increased year over year due to strong sales of glass for optical devices, although shipments decreased mainly in the automobile parts segment. Our joint venture in the LTCC (low-temperature co-fired ceramics) market also contributed to sales. As this is a new product, we have been able to develop materials for LTCCs suitable for parts and devices used in 5G communications networks while contributing to the improved performance of next-generation communications equipment. We have also commercialized products that address current social issues, such as our adaptation of high-efficiency deep UV transmitting glass for sterilization equipment in the medical segment.



Deep UV transmitting glass used for deep UV sterilization LEDs

Outlook for Fiscal 2021

In fiscal 2021, we expect steady growth centered on markets for household appliances, automobiles, and semiconductors. We remain committed to developing products with an eye on market needs. We will continue our three-pronged development approach in concert with our Research & Engineering Group and Process Development & Engineering Group while utilizing the support of our marketing organization in devising sales strategies for business growth. Currently, commercialization is progressing for infrared transmitting glass and for lids with a sealing material for packages for optical devices, which we anticipate will be employed in the automobile and medical segments. Moreover, we expect that our investments in LTCCs used in the semiconductor manufacturing process will bear fruit in fiscal 2021.

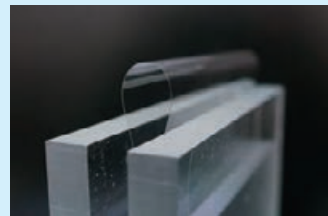


Infrared transmitting glass

In Focus Display-related Business

Developing the industry's thinnest cover glass

We have succeeded in developing Dinorex UTG™, a 25-μm (0.025-mm) glass for chemical strengthening — the industry's thinnest — for use as the cover glass of foldable displays. Formed with the overflow technology we have perfected through the manufacture of FPD glass, it demonstrates excellent bending characteristics due to its high surface smoothness and uniform plate thickness. This makes it ideal for use as a robust foldable display.



Outstanding bending characteristics

In Focus Optical and Electronic Device-related Business

Developing a lid with sealing material for packaging

In an effort to manufacture a highly reliable LED, LD, and sensor package, we focused on developing a successful base sealing material that reduces the stress generated by the difference in heat shrinkage between the lid and the solder after sealing the lid and the cavity. As a result, we have commercialized a "lid with sealing material" that integrates gold-tin (AuSn) solder. We will develop it for applications that require high reliability, such as deep UV LEDs used for sterilizing interior spaces as well as light sources for vehicle headlights.



Lid with sealing material

Business Overview

Performance Materials and Others



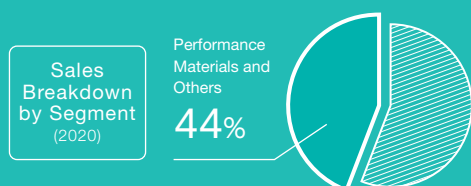
Glass Fiber-related Business

Senior Vice President and Group General Manager of Glass Fiber Group

Norio Nakamura

Trend in Net Sales (Performance Materials & Others)

(Billions of yen)



Main Products

[Glass Fiber-related Business]

■ Glass fiber

Glass fiber is a material made up of thin glass filaments ranging in diameter from a few micrometers (μm) to around 10 or so micrometers. It has a high mechanical strength and produces exceptional composite materials. It is used in a variety of applications, including reinforced plastics and reinforced cement products.

[Medical Care, Heat Resistance, and Building Material-related Business]

■ Glass for medical care

Borosilicate glass tubing has excellent acid and chemical resistance and high strength, making it well suited as a material for ampoules, vials, and other medical containers. LX Premium, with its exceptional radiation-shielding properties, is used in medical facilities to protect medical personnel from radiation exposure.

■ Heat-resistant glass

Thanks to its exceptional thermal shock resistance and mechanical strength, this glass is used in heater and fireplace windows, the top plates of cooking appliances, and in other housing equipment.

■ Glass for building materials

NEG's glass for building materials comes in a variety of shapes with a variety of properties. They include fire-rated glass, glass-ceramic building materials, and glass blocks.

The Business Environment

Automobile parts applications, which account for the majority of our glass fiber sales, were significantly affected by the COVID-19 pandemic in the first half of 2020, but demand recovered sharply in the second half of the year. As environmental awareness increases, the shift to electric vehicles and fuel cell vehicles is likely to accelerate. Moreover, in response to the demand for improved fuel economy, automobile parts will become lighter, leading to increased use of glass fiber for use in reinforced plastic. With regard to wind turbine blade applications, stable demand is expected over the long term, with windmill blades becoming larger as large-scale wind power generation projects proceed apace around the world arising from the global shift to renewable energy.

Our Strengths

With production bases in Japan, Malaysia, the U.S.A., and Europe, we operate a global production and supply system that enables us to supply products, provide services, and engage in rapid development. In addition, we have earned praise and gained trust for our technologies related to the development of binding agents (surface treatment agents) for application to the surfaces of glass fibers in order to form strong bonds between the glass fibers and resin. This has enabled us to continue increasing our market share as well as our competitiveness. In terms of environmental technology, for more than 20 years our plants in Japan and Malaysia have been reusing all of the waste glass generated in our production processes, a resource that was normally disposed of in landfills. We have thus led the industry in establishing a production system committed to recycling.

Corporate Strategies

- Building a competitive global supply system by increasing production capacity at our Malaysian Plant and improving the configuration of our plants in Europe and the U.S.A.



■ Expanding market share in automobiles, wind power generation, infrastructure, and other growth segments

■ Pursuing environment-friendly manufacturing (improving long-term competitiveness by improving raw material efficiency and energy efficiency and improving our glass melting technology)

Business Overview

In fiscal 2020, shipments fell sharply in the second quarter (April–June 2020) due to the effects of the COVID-19 pandemic, compelling us to implement major production adjustments at our plants in Japan, Malaysia, the U.S.A., and Europe. In the third quarter (July–September 2020), shipments of glass fiber, used mainly in automobile parts, began to recover due to rapidly recovering demand in the automobile market and other segments. Overall, however, shipments declined year-on-year.

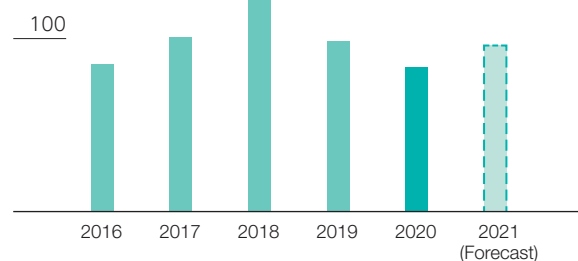
Against this background, we were able to institute structural reforms at our plants in Europe and the U.S.A. without losing momentum. In the U.S.A., we consolidated our three plants into two plants in fiscal 2020, while in Europe we are working to streamline the organization to improve productivity and reduce costs.

Outlook for Fiscal 2021

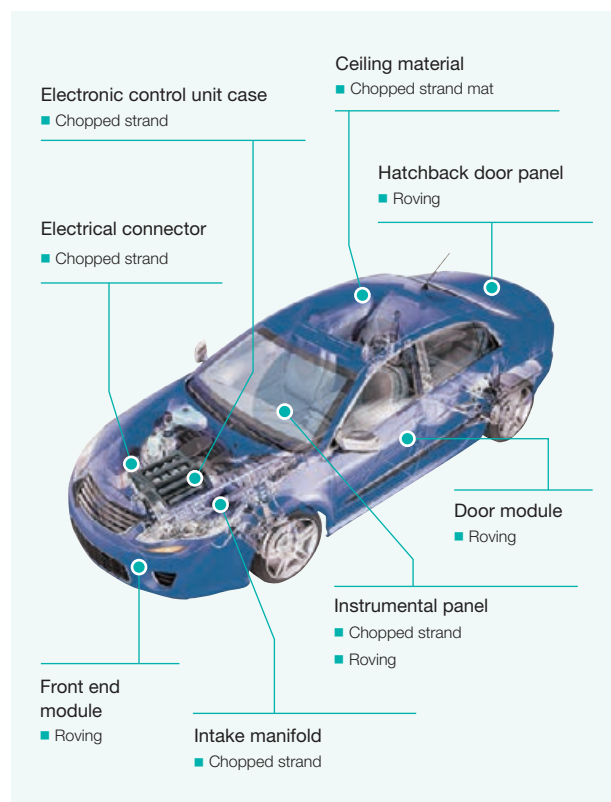
As market conditions rapidly recover In fiscal 2021, we will restart equipment that had been sidelined to fine tune production at an early stage and rebuild our production system globally to meet demand. Our plants in Europe and the U.S.A. will engage in accelerated efforts to achieve profitability. We have also decided to introduce the most advanced equipment in our Malaysia facilities to meet the growing demand, and we will increase production globally. As for new products, we will expand sales of flat glass fiber, high elastic modulus glass fiber, and alkali-resistant glass fiber.

Net Sales of Glass Fiber Business

(Billions of yen)



Automotive Applications for Glass Fiber





Medical Care, Heat Resistance, and Building Material-related Business

Senior Vice President and Group General Manager of Consumer Glass Products Group

Akira Kishimoto



The Business Environment

■ Glass for medical care

With the growing sophistication of medical care worldwide, demand is increasing for high-grade pharmaceutical glass tubing with excellent chemical resistance and processability. In 2020, we saw added demand for vaccine containers to combat the COVID-19 pandemic, so our glass tubing for pharmaceutical and medical use business is required to expand production and supply capacity. Moreover, the market for radiation-shielding glass is expected to enjoy stable demand.

■ Heat-resistant glass

In the first half of 2020, the COVID-19 pandemic had a major impact, with customers outside Japan temporarily suspending operations. By the second half of the year, however, the market had returned to a gradual recovery trend.

■ Glass for building materials

The market was sluggish in 2020 due to the postponement and cancellation of construction projects, but this market is expected to exhibit a moderate recovery in 2021.

Our Strengths

We remain committed to developing technologies related to glass composition, melting, and forming in order to develop a high-quality product line beyond the capabilities of our competitors. Our glass tubing for pharmaceutical and medical use exhibits world-class quality in terms of properties such as chemical durability, glass homogeneity, and forming accuracy. Our products have earned the trust of the pharmaceutical industry across Japan and around the world. Meanwhile, our radiation-shielding glass offers excellent shielding, is available in larger sizes, and contributes to sophisticated medical care and improved safety. We are also working on products that take advantage of the characteristics of our glass-ceramic, which is unique in the industry. We are promoting other notable products such as top plates for cooking appliances, stove windows, and fireproof windows made of Neoceram, which has an excellent coefficient of thermal expansion and an expansion coefficient of almost zero.

Corporate Strategies

■ Glass tubing for pharmaceutical and medical use
Responding to strong demand by expanding the production and supply system

■ Heat-resistant glass
Expanding sales of top plates for cooking appliances to the European market; developing products and applications that take advantage of the unique properties of our glass-ceramic

■ Glass for building materials
Expanding sales of our FireLite™ fire-rated glass for fire protection applications
(Highlighting how the properties of our FireLite™ product differ from those of heat-resistant tempered glass and wire-mesh glass)

Business Overview

In fiscal 2020, shipments of glass tubing for pharmaceutical and medical use increased compared with the previous fiscal year as a result of strong demand in related markets. Shipments of heat-resistant glass and glass for building materials decreased from the previous year due to the effects of the COVID-19 pandemic.

Outlook for Fiscal 2021

We have achieved solid results by focusing on increasing sales of glass tubing for pharmaceutical and medical use in markets around the globe, and particularly in the growing market of China. In fiscal 2021, we will respond to rising demand by improving production efficiency at several sites, including our new Malaysian facility that went into operation in October 2020. In addition, with a view to expanding our sales in the global marketplace, we will establish a production system that will enable us to supply a wide variety of products.

In the area of heat-resistant glass, we have reduced lead times and have instituted a product development system intended

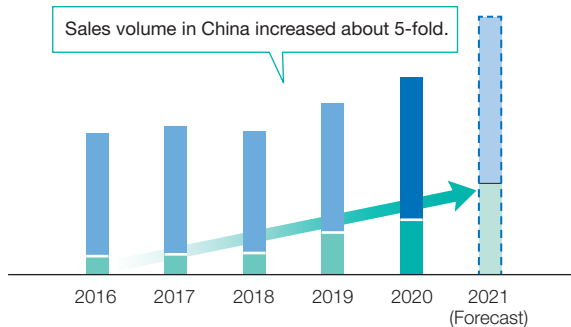


to expand sales of top plates for cooking appliances to European customers. In fiscal 2021, we will coordinate with our customers on the establishment of a mass production system.

In the market for glass used in building materials, we have highlighted the outstanding characteristics of products such as the industry's largest glass plate for fire protection equipment, which was introduced in August 2020. We therefore enhanced our presence in the construction industry. Going forward, we will promote automation of production processes and will improve production efficiency while reducing costs.

Unit Sales of Glass Tubing for Pharmaceutical and Medical Use

■ China ■ All Markets ex-China



Glass tubing for pharmaceutical and medical use

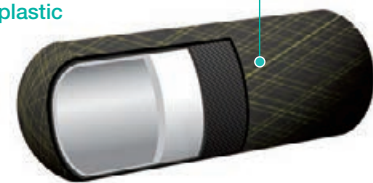
In Focus

Glass Fiber-related Business

Contributing to the acceptance of fuel cell vehicles (FCV)

FCVs replenish their hydrogen fuel at hydrogen stations. The hydrogen is compressed to a high pressure and transferred to a designated tank in the vehicle. These tanks feature triple-layer construction to contain the high-pressure hydrogen, and their surface is protected by glass fiber-reinforced plastic.

Glass fiber-reinforced plastic



In-vehicle hydrogen tank with surface protected by glass fiber-reinforced plastic

In Focus

Medical Care, Heat Resistance, and Building Material-related Business

Introducing FireLite™, the world's largest sheet of heat-resistant glass-ceramic for fire protection equipment

In recent years, as architectural designs have become more varied, the size of openings has also become larger. Consequently, a need has arisen for larger sheets of transparent fireproof glass that have a clear view and can contribute to secure evacuation routes and high visibility. To meet these market needs, we have developed and marketed the world's largest such glass product, which is now even larger than before.



FireLite Plus™, in the industry's largest sheet