

Introduction to NSG

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Nippon Sheet Glass Co Ltd

TSE Code: 5202

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I. NSG Group Today

NSG Group Today

One of the world's largest manufacturers of glass and glazing

- Supplying Architectural and Automotive glass globally and promoting shift to higher added value
- Leading supplier of Technical Glass products including thin glass for display etc., lenses for printers and scanners, specialty glass fiber products

Principal operations around the world, with sales in over 100 countries

27 float lines worldwide * 1*2

Approximately 26,000 employees globally (as of March 2022)

Reference: Consolidated Revenue JPY600.6bn (2022/3)

*1: Refer to Slide 9 for the location of float lines

*2: Refer to Slide 45 for the float process

History

Globalized with the acquisition of Pilkington in 2006

<p><u>1918 - 1940s</u> Foundation & Expansion</p>	<p><u>1918: America Japan Sheet Glass Co Ltd established in Osaka</u> 1931: Company name changed to Nippon Sheet Glass Co Ltd 1936: Yokkaichi site opened</p>
<p><u>1950s - 1960s</u> Capacity Expansion and Start of Automotive Glass</p>	<p>1950: Listing on stock exchanges in Japan 1952/64: Maizuru / Chiba sites opened 1965: First float glass production in Asia at Maizuru site</p>
<p><u>1970s - 1990s</u> Overseas Expansion & Diversification</p>	<p>1971: First overseas investment made in Malaysia 1978/79: Ultra Fine Float™ / glass fiber business launched 1995: Overseas investment expanded including China and Vietnam</p>
<p><u>2000s</u> Acquisition of Pilkington & Globalization</p>	<p>2004: Headquarters moved from Osaka to Tokyo <u>2006: Acquisition of Pilkington, becoming global leader in flat glass</u> 2008: “Company with committees” governance adopted</p>
<p><u>2010s~</u> Shift to Value-added Business & Focus on Financial Stability</p>	<p>Nov 2018: Announcement of “Our Vision” May 2021: Announcement of Medium Term Vision and Medium Term Management Plan, “Revival Plan 24 (RP24)”</p>

Management Principles – “Our Vision”

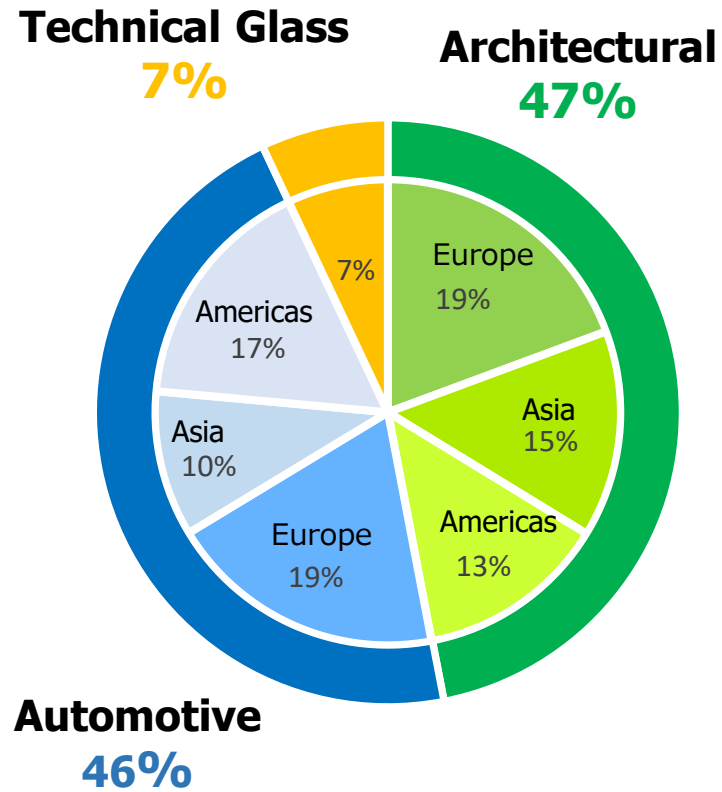
Announced in November 2018, at the Company’s 100th Anniversary



Businesses

Three Global Businesses : Architectural, Automotive, and Technical Glass

Revenue by Business & Region



Architectural

Products

- Building glass & glazing
- Glass for solar panels

Business

- 27 float lines operated globally
- Leading supplier for thin film solar panels

Automotive

Products

- Glazing for new vehicles
- Glazing for replacement markets

Business

- Key operations in 14 countries
- Supplying world's leading vehicle manufacturers
- Key player globally in automotive aftermarket (AGR) glazing distribution and wholesale

Technical Glass

Products

- Thin glass for display etc.
- Lenses for printers, telecommunication devices and medical endoscopes
- Glass code for car engine timing belt, etc.

Business

- Key operations in Asia and Europe
- Unique 'Number One' and 'Only One' niche products

Products

Contributing to society with a variety of glass products

Architectural



↑ Optiwhite™ used for Midtown Hibiya in Tokyo



↑ Glass for electrochromic applications
Courtesy of View Inc.



↑ Glass for thin film Solar panels
Courtesy of First Solar Inc.



↑ Antiviral glass

Automotive

- Windshields with head-up display (HUD)



Courtesy of General Motors



- Lightweight laminated glass
- Infrared reflective solar control coating

- Glass compatible with ADAS*



Technical Glass



↑ SELFOC™ Lens Array



↑ Metashine™

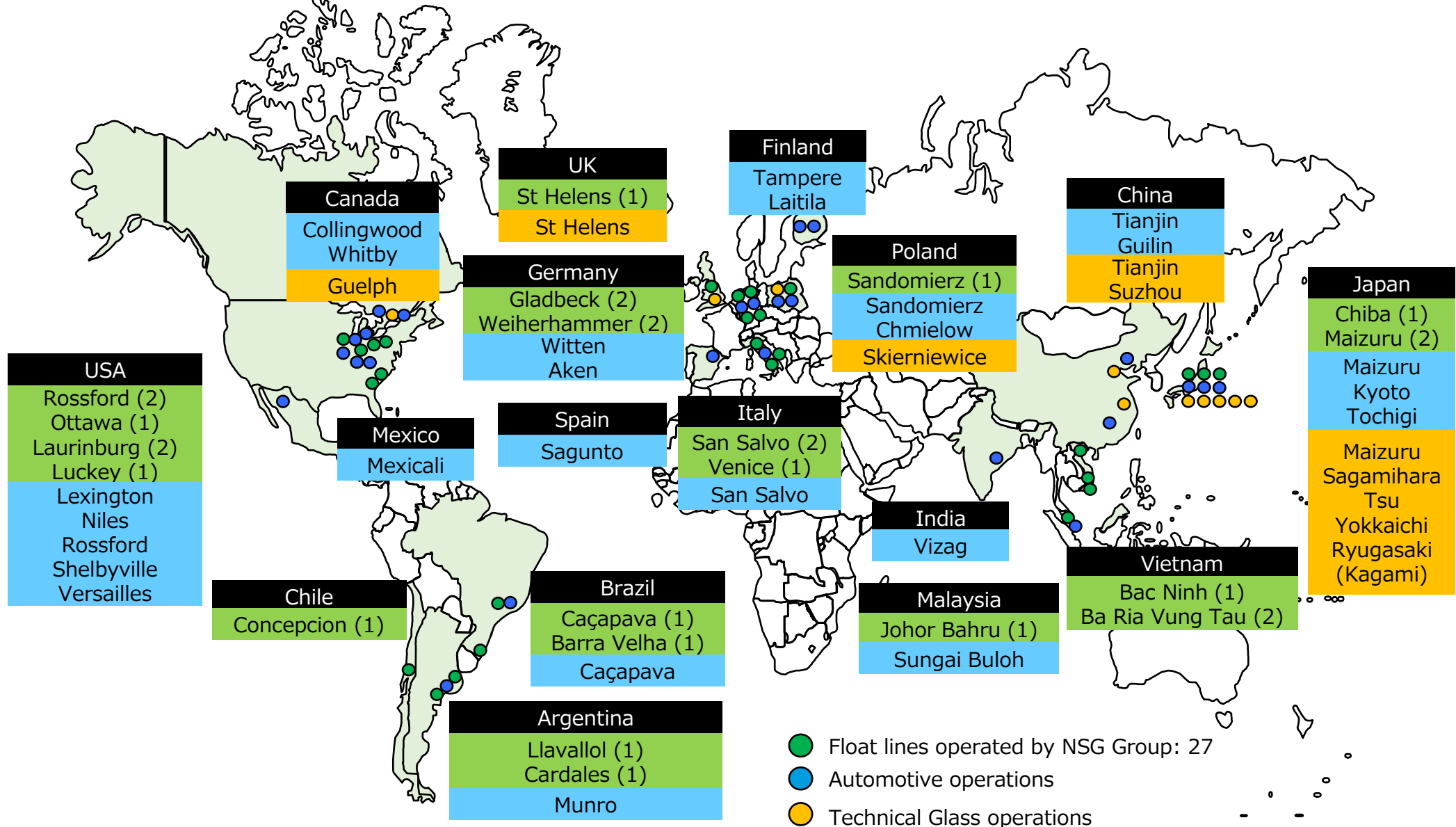


↑ Antibacterial and antiviral coated glass



↑ Glass cord

Global Footprint



II. Medium Term Vision

NSG Group's Medium Term Vision

Medium Term Vision : A global glass supplier contributing to the world with high value-added glass products and services

Three areas the Group aims to contribute to

Three business areas

Safety & Comfort

Home and workplace



Public space



Car interior space



Eco society

Renewable energy



Smart grid



ICT

High speed communication



CASE



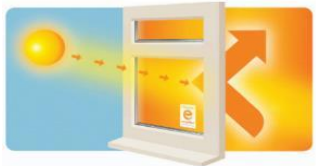



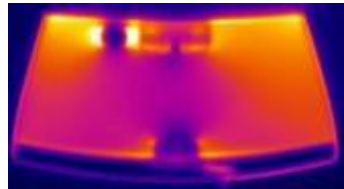




Factory automation



The future direction of the Group

- To never fail to take up challenges and follow through to deliver results
- To continue to provide employees with opportunities to grow and find joy in working

Three Areas of Contribution & Products

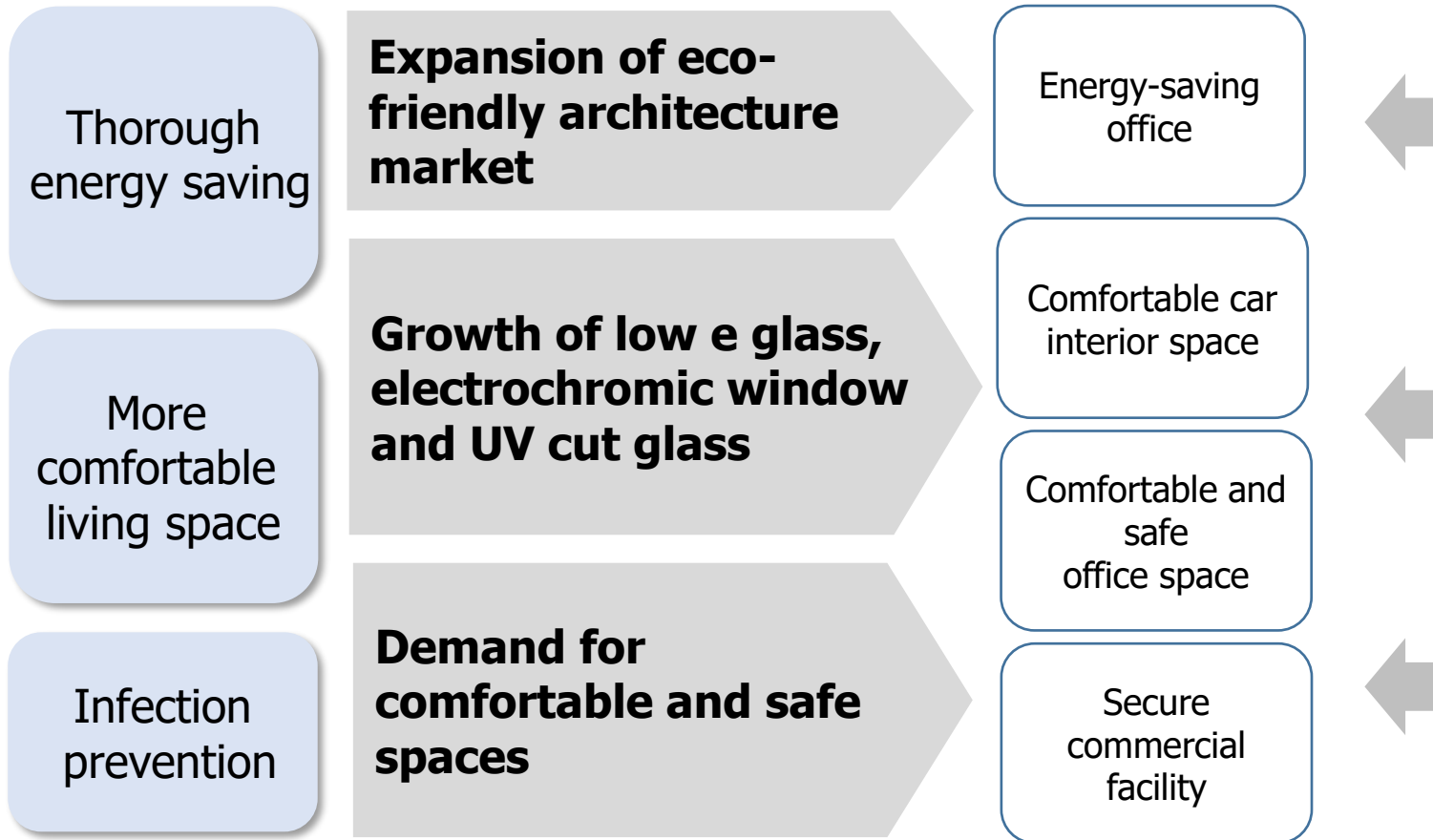
	Architectural	Automotive	Creative Technology & New
Safety and Comfort	<ul style="list-style-type: none"> • Conductive coating • Antimicrobial & antiviral coated glass • Low e glass 	<ul style="list-style-type: none"> • Tinted glass optimized for solar performance • Infra reflective and ultra violet protection • Low e glass 	<ul style="list-style-type: none"> • Antimicrobial & antiviral coated glass 
Eco Society	<ul style="list-style-type: none"> • Glass for thin film solar panels • BIPV* 	<ul style="list-style-type: none"> • Heated windshields 	<ul style="list-style-type: none"> • High modulus glass fiber • Anti-corrosion filler 
ICT	<ul style="list-style-type: none"> • High reflection glass 	<ul style="list-style-type: none"> • Windshields for head-up display (HUD) • Lightweight glass • glass antenna 	<ul style="list-style-type: none"> • Micro Lens Array • Industrial timing belts • Low Dielectric material 

Safety and Comfort

Pursue the value of glass essential in creating comfortable spaces for people

Accelerating changes in needs in the medium to long term

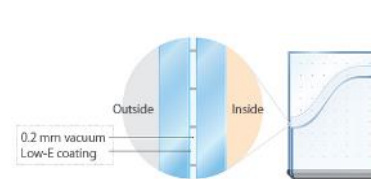
Core technologies to be developed



Low e glass for buildings and cars



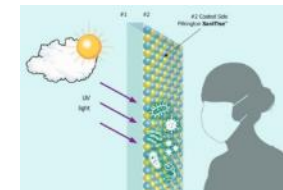
Vacuum glazing



Conductive coating



Antimicrobial & antiviral technologies




Promote shift to renewable energy infrastructure with core and production technologies


Development of renewable energies

Renewable energy will account for circa 50 percent of total power generation in 2030


Dramatic expansion of solar power generation




Growth of wind power generation



BIPV



Smart grid



Core technologies to be developed

Transparent conductive oxide coating for solar power generation



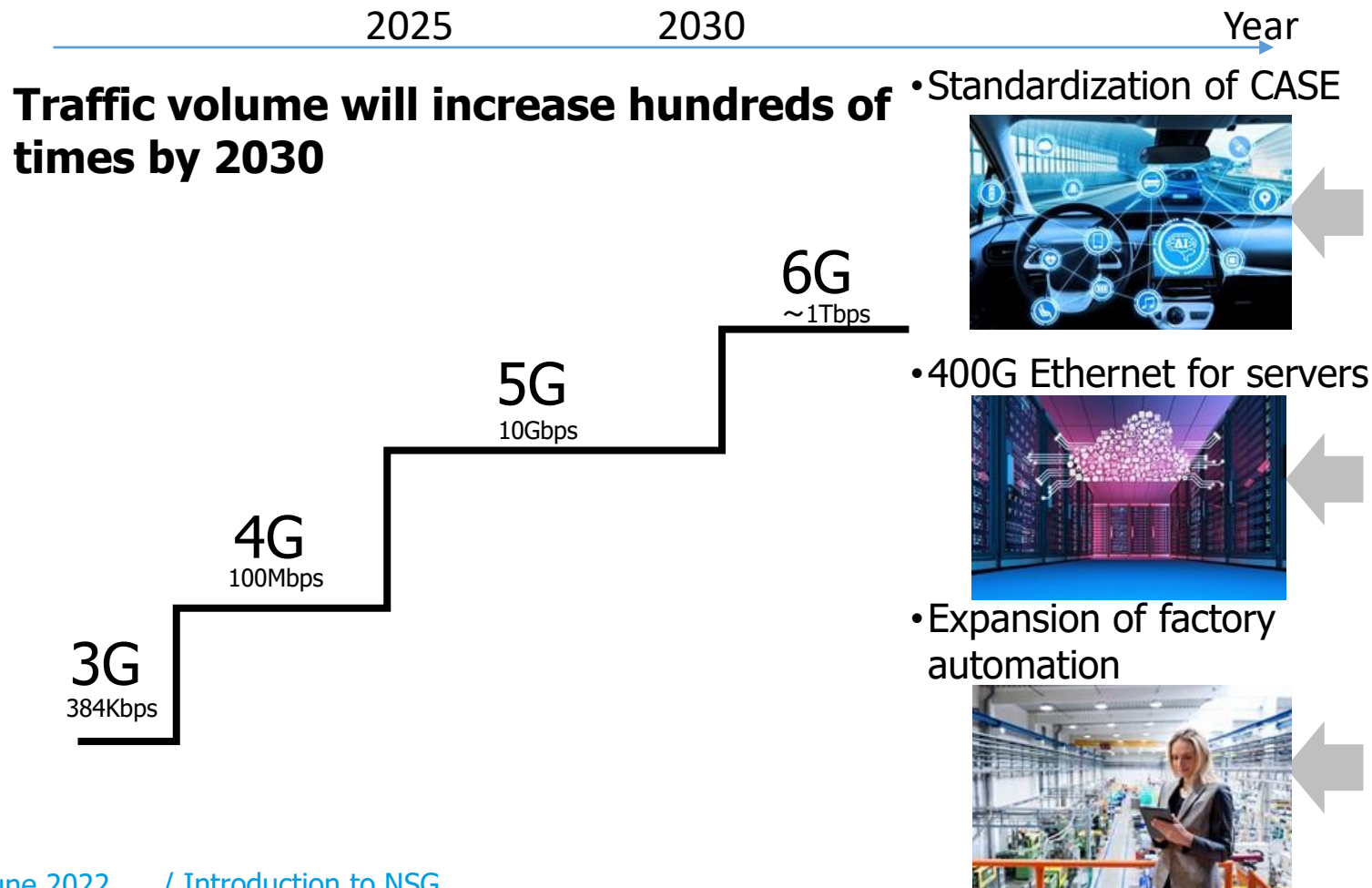
High modulus glass fiber and anti-corrosion filler



Develop key components necessary for digitizing and utilizing information & high speed communication

Dramatic increase in communication speed and capacity

Core technologies to be developed



<p>HUD windshield</p>	<p>Lightweight glass</p>
<p>Micro lens</p>	<p>Lens for 400G</p>
<p>Micro lens array</p>	<p>Industrial belts</p>

III. Medium Term Management Plan “Revival Plan 24 (RP24)”

Roadmap to Achieve Medium Term Vision

Launch of new three-year management plan, Revival Plan 24 (RP24)

Review of Previous Medium-term Plan (MTP)

- As the issues of relatively high fixed cost and cyclical nature of the business remain, further structural reform is needed
- The financial base has weakened significantly due to the pandemic

- Financial sustainability
- Transformation into VA Glass Company*

18/3

21/3

22/3

24/3

25/3

MTP Phase 2

Covid
19

**Step I (RP24)
Business transformation**

Step II
Sustained growth cycle

Establish a sustainable growth cycle through business transformation under RP24 to achieve Medium Term Vision

Fundamental transformation
Restoration of financial stability
Business portfolio transformation

Development of new businesses

Establishing growth cycle

Medium Term Vision

A global glass supplier contributing to the world with high value-added glass products and services

* VA: Value-added

Revival Plan 24 (RP24) – Outline

Committed to the three reforms and two key initiatives to build business strength

RP24 Policy

- The Group will accomplish drastic and fundamental initiatives, revising the business strategy reflecting the changes in the business environment
- RP24 is the period for business transformation and the Group will focus on drastic reform of profit structure, restoration of financial stability and transformation of business portfolio

RP24 Initiatives

- Under RP24, the Group commits to the following Three Reforms and Two Key Initiatives

Three Reforms

- Cost structure reform: cost reduction and productivity improvement
- Business structure reform: expansion of value-added business; development of new growth businesses; emphasis on investment and asset efficiency
- Corporate culture reform: never failing to take up challenges and following through to deliver results

Two Key Initiatives

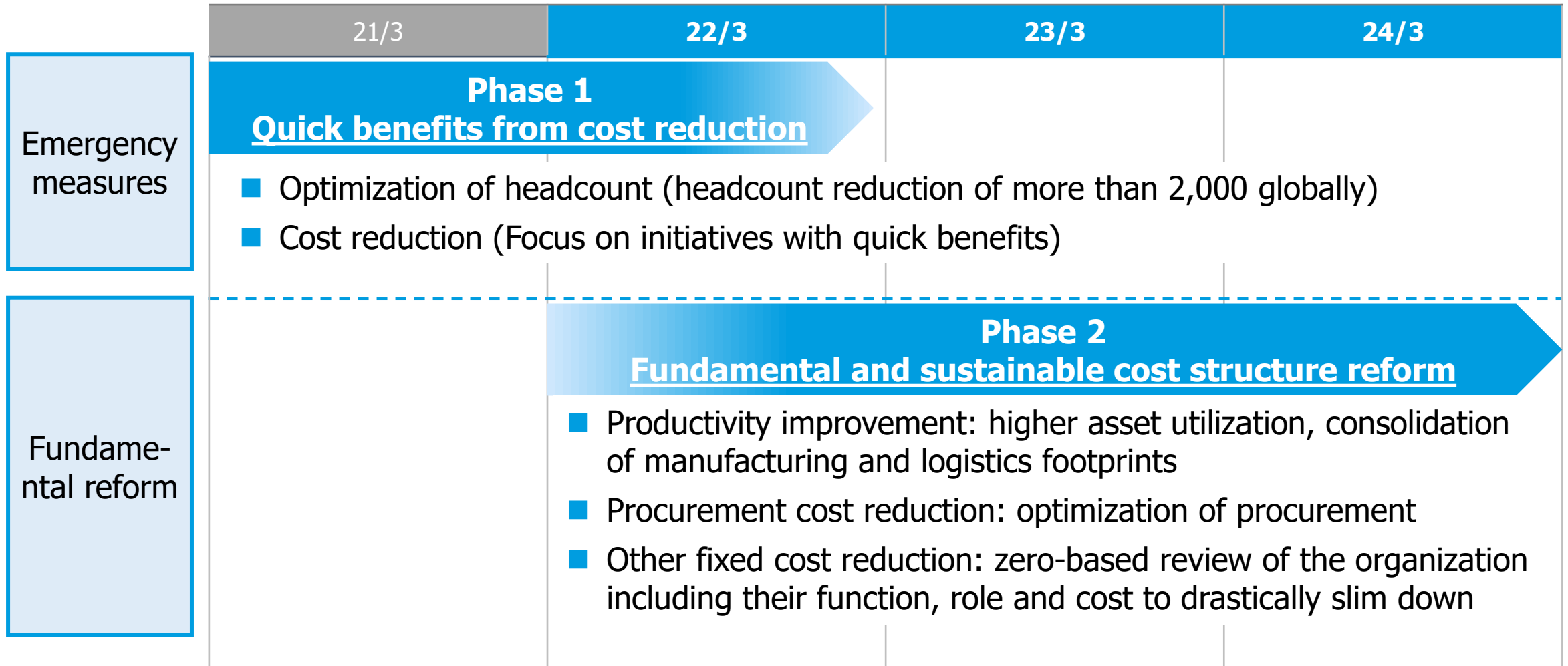
- Restoration of financial stability
- Transformation into more profitable business portfolio

Sustainability

- Work on improvement of existing technology and development of new technology aiming for carbon neutrality in 2050

Reform (1): Cost Structure Reform

Fundamental cost structure reform will be executed to lower the cost base further



Reform (2): Business Structure Reform

Expansion of value-added business, development of new growth businesses and emphasis on investment and asset efficiency

Expansion of value-added business

- Early contribution of strategic investments decided and executed during MTP*
 - ❑ Full operation of new solar energy glass production lines in the USA and Vietnam
 - ❑ Start operation of a new float furnace in Argentina
- Market development with online coating technology
 - ❑ New application development such as electrochromic glass and BIPV

Development of new growth businesses

- Establishing a structure to accelerate new business development and commercialization of new products
 - ❑ Concentration of non-flat-glass businesses in the Creative Technology business
- Acceleration of new business development through business alliances

Emphasis on investment and asset efficiency

- Stricter decision-making and management of capital expenditure
 - ❑ Redoubled attention to asset efficiency
 - ❑ Diversifying away from asset intensive traditional businesses
 - ❑ Prioritization of asset allocation to growth and added-value areas

Reform (3): Corporate Culture Reform

Value “customer focus”, “swift decision making and action” and “overcoming difficulties” and change into an organization that never fails to take up challenges and follow through to deliver results

Goals

Actions to be taken in RP24

Management/
organization
structure

- Realization of Aspiration under Our Vision: "through innovation, becoming the most trusted partner in all industries we work in"
- Autonomous and collaborative organizations

Corporate
culture

- Autonomous and proactive talent and leadership capabilities
- Encouragement of taking up new challenges without fear of failure
- Corporate culture to follow through to deliver results
- A rewarding place to work for all employees

- Effective response to market and customer needs
- Decision making at a business/business region level with accountability
- Streamlining management and administrative work to reduce cost
- Development and appointment of those who can lead reform
 - Diversity: nationality, gender, age, etc.
 - Inclusion: increasing opportunity
- Recognition of delivering on the reform in incentive schemes
- Encouragement of open communication

Two Key Initiatives

Take two key initiatives; (1) Restoration of financial stability and (2) Transformation into a more profitable business portfolio

Restoration of financial stability

- Focus of growth investment on strategically core businesses and selectively allocate and prioritize other capital expenditure
- Thorough review of cost through Cost Structure Reform and improvement of productivity to build a robust business that can generate sustainable profit and free cash flow constantly
- Strict cash management to generate free cash flow, generation of net profit aiming to enhance equity, while opportunistically consider ways to further improve its financial foundations

Transformation into more profitable business portfolio

- In light of changing trade conditions such as markets and competition, bold strategic review of shrinking or exiting non-core businesses
- Focus of management resources on growth and high value-added areas, considering investment and asset efficiency
- Review of business portfolio, profitability improvement and management cost reduction to establish the cycle of sustained growth

Financial Targets

Aiming to recover the equity ratio to at least 10% at the earliest opportunity with stable net profit and free cash flow. Over the medium to long term, the Group will opportunistically consider ways to further improve its financial foundations

(JPY)	21/3	24/3 Target
Operating Profit Margin ^{*1}	2.6%	8%
Net profit ^{*2}	(16.9) bn	> 30 bn cumulatively for 3 years
Equity ratio	7.6%	> 10%
Free cash flow	(4.5) bn	> 10 bn

Improvement of OP margin via:

- Cost structure reform
- Business structure reform
- Business portfolio transformation

Selective and focused investment

- Control of the total capital expenditure
- Prioritization according to asset efficiency, growth potential and added value



Profitable business to generate stable free cash flow
Constant net profit generation to restore equity ratio of more than 10 percent

Revival Plan 24 (RP24) Progress

Aiming to build a strong business structure through three reforms

Cost Structure Reform

- Cost reduction and productivity improvement (2022/3 results)
 - Headcount: 2,340 reduction since 2020/3 (JPY 13.6 bn reduction v. 2020/3)
 - Non headcount: direct costs savings of JPY 5.0 bn via “Kaikaku and Kakushin” activities
additional initiatives in the Automotive business led to JPY 6.8 bn reduction

Business Structure Reform

- Expansion of value-added business; development of new growth businesses; emphasis on investment and asset efficiency
 - Solar energy glass: businesses in North America and Vietnam contributed to profit started test installing transparent solar panels for use as building windows
 - Installed Creative Technology Business Development Division to boost new products launch
 - New float furnace construction in Argentina progressing for full operation in H1 of 2023/3



New float furnace in Argentina

Corporate Culture Reform

- Never failing to take up challenges and following through to deliver results
 - Encourage open communication: holding Town Hall Meetings with top management, promoting discussion based on employee opinion survey
 - Inclusion & Diversity (I&D): increase female manager ratio, revitalize younger generations, celebrated International Women’s Day across the Group

Revival Plan 24 (RP24) Progress

Take two key initiatives to achieve a more profitable business portfolio

Restoration of financial stability

- Focus of growth investment on strategically core businesses and selectively allocate and prioritize other capital expenditure
 - Net profit returned to black (Improved by apprx. JPY 21.0 bn oku compared to the previous year)
 - Equity ratio recovered above 15%
 - Achieved free cash flow target

(JPY)	22/3	24/3 Target
Operating Profit Margin *1	3.3%	8%
Net Profit *2	4.1 bn	> 30 bn cumulatively for 3 years
Equity ratio	15.5%	> 10%
Free cash flow	22.3 bn	> 10 bn

*1 Operating profit after amortization

*2 Profit attributable to owners of the parent

Transformation into more profitable business portfolio

- In light of changing trade conditions such as markets and competition, bold strategic review of shrinking or exiting non-core businesses
 - Disposal of Battery Separator Business on September 1st 2021
 - Promote high profitability of business:
 - ✓ developed "MAGNAVI®", high elasticity and high strength glass fibre
 - ✓ considering increase production capacity in response to First Solar's capacity expansion

IV. Business Strategy Under RP24

Architectural Business

Products

Architectural glass, solar energy glass, value-added glass for industrial applications

Assumption

- Commodity glass will continue to be affected by market conditions considerably
- Demand for high value-added glass will expand against the backdrop of tougher environmental regulations and increasing awareness of health
- Demand for solar energy glass will remain solid with increasing shift to renewable energy
- Demand in emerging markets, especially South America, is expected to be robust
- Demand for value-added glass for industrial application will grow
- Acceleration of the shift from commodity glass to value-added products
 - Add value utilizing proprietary technologies such as online coating and sol-gel coating
 - New market development through finding and collaboration with third parties
- Securing returns on the strategic investments decided and executed during MTP
 - Sales expansion of solar energy glass
 - Start operation of the new float furnace in Argentina

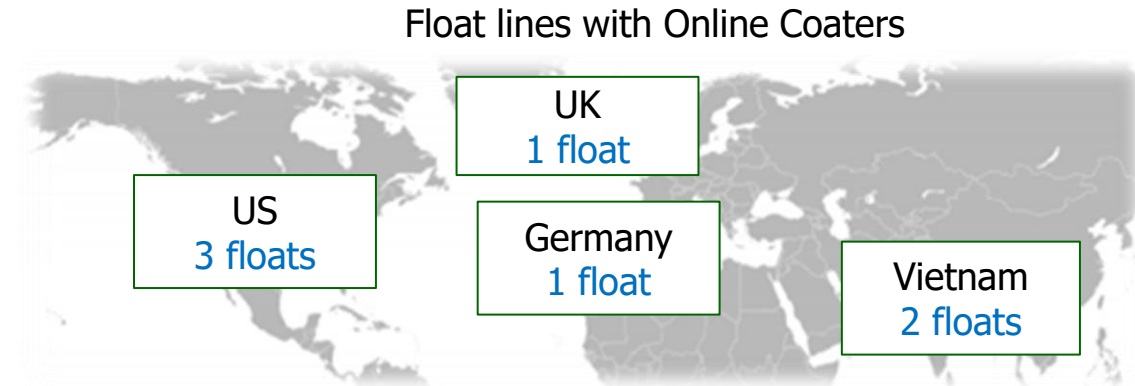
Business Direction

Architectural Business

Acceleration of the shift from commodity glass to value-added products

Strengths and Functions of Online Coating

- NSG’s proprietary technology
- Seven float lines with online coaters globally
- Thin, uniform metallic oxide film deposited over glass while being formed inside the float bath
 - Cost competitive, available in large size
 - Durable and versatile, suitable for further processing and various applications



Function	Use
Conductivity	Heating glass
	Transparent conductive film for touch panels
	Transparent conductive film for thin film solar panels
Infrared reflection	Heat insulation glass
	Heat blocking glass
	Low e glass



↑ Glass for thin film Solar panels
Courtesy of First Solar Inc.



↑ Glass for electrochromic applications
Courtesy of View Inc.

Architectural Business

Ensuring returns on the strategic investments

Solar: demand remains robust with increasing shift to renewable energy

Capacity expansion of glass for thin-film solar panels

- Vietnam: the second float line started in February 2020, upgrading a dormant furnace
- North America: a new float line built in Luckey, Ohio, started operation in November 2020



South America: leveraging 80 years of business experience and solid market position

Production start of new float line in Argentina

- Facility: the 2nd float line for Vidrieria Argentina SA (VASA*)
- Site: Cardales (near Buenos Aires)
- Market: Argentina and neighboring countries



*VASA: A subsidiary in Argentina, jointly held with Saint-Gobain (NSG: 51%; Saint-Gobain: 49%)

Automotive Business

Develop

Grow

Improve
Profit

NSG
GROUP

Products

Automotive glazing for new vehicles (OE) and for replacement markets (AGR)

Assumption

- Vehicle production volumes in the Group's main markets are not expected to recover to the pre-pandemic levels during RP24
- Strong vehicle demands, but vehicle production constrains caused by parts shortages
- Rapid development of CASE will cause significant changes to the auto industry supply chain
 - While demand for windshields with HUD, glass antenna for 5G and solar control coating on glass for EV is expected to grow, the resource allocation will have to be more selective and focused
 - CASE will also increase its importance in the AGR business


Business
Direction

- Drastic cost structural reform including consolidation of manufacturing and logistics sites
 - Optimization of capacity utilization with improved productivity and flexible manufacturing, diversifying away from asset intensive traditional businesses
 - Minimization of logistics cost through reexamination
- Expansion of value-added products by leveraging the Group's proprietary technologies, especially advanced windshields
- Promoting price pass-through in response to input cost rises
- Strengthen sales and distribution network and ADAS* products in the AGR business

Automotive Business

Expansion of value-added products by leveraging the Group's proprietary technologies, especially advanced windshields

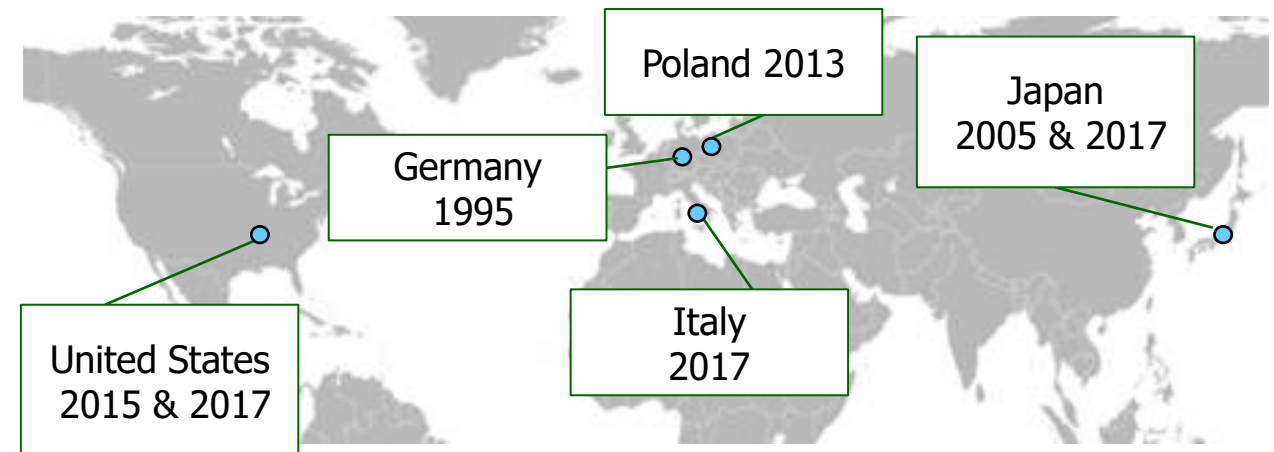
Providing value-added glass for advancing automotive industry, leveraging the Group's technical strengths

-  **Environment: Heated WS**
-  **Safety & Security: ADAS*2**
-  **Connectivity: Next-gen antennas, HUD*3**
-  **Comfort & Convenience: Low e coating**
-  **Style: Complex shaping**

Technology for advanced windshields

- Press bending equipment, APBL*1 developed in house, started production ahead of competitors
- With the advancement of automotive technology such as ADAS*2 and HUD*3, build global production base for advanced windshields whose needs increase

Installation of APBL



*1 APBL: Advanced Press Bending for Laminated Glass

*2 ADAS: Advanced Driver Assistance System

*3 HUD: Head Up Display

Automotive Business

Aim to expand a wide range of sales channels in the AGR business from wholesale to retail business



- Availability & product range
- Well-established wholesale network
- Customer focused services



ADAS calibration

- Impact of ADAS enabled the Group to offer new services

- Opportunity
 - ✓ ADAS systems often require calibration of the cameras after windshield replacement
- Our Business
 - ✓ Opti-Aim™ for ADAS calibration services developed to support the customers in the US
 - ✓ Training services for ADAS calibration are offered in South America

Creative Technology Business

Develop

Grow

Improve
Profit



Products

Optoelectronics products, specialty glass fiber products

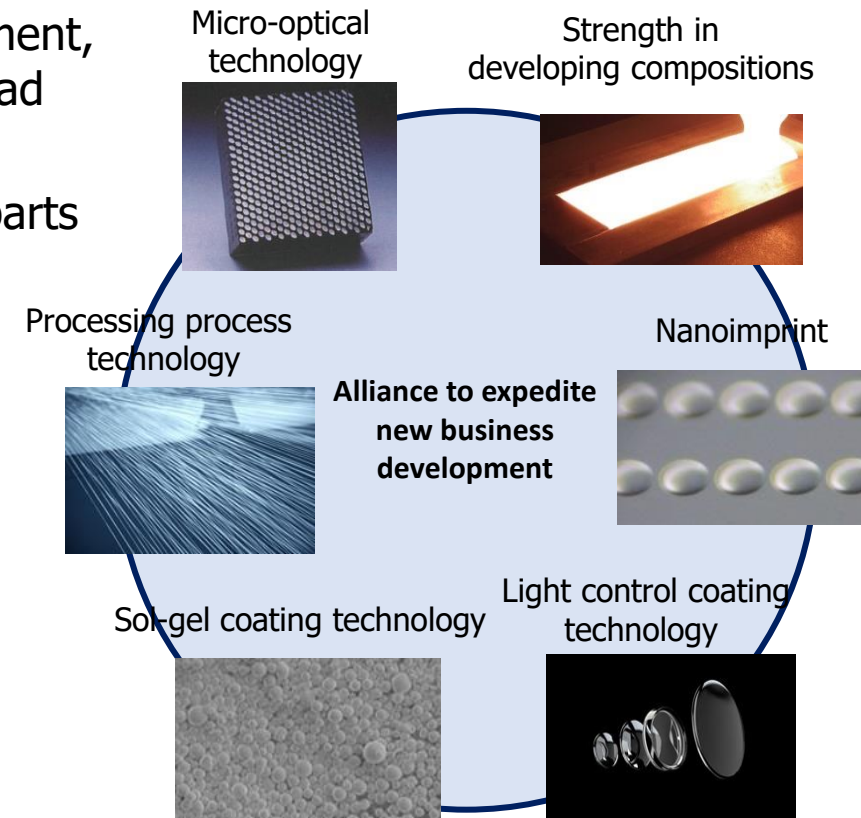
Assumption

- The advancement of a highly information-oriented society will increase demand dramatically for products related to storage and high-speed and large capacity communication
- The application of image sensing technology to FA equipment, logistics robots and drones and other equipment will spread and expand
 - Growing needs for small and high precision optical parts

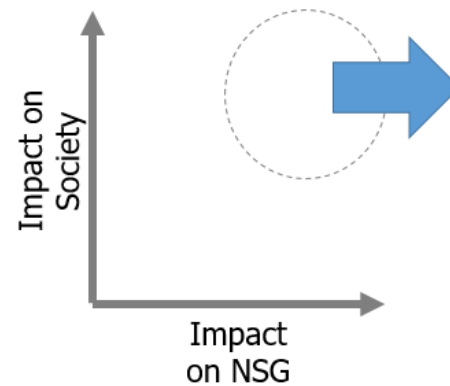
Business Direction

- Pursuing niche-top strategy
- Bold alliance to expedite new business development
- Development of unique products in line with changes in market needs centering around ICT
- New customer base through the launch of new products
- Accelerated commercialization of new products to drive business growth

Anticipating changes in market needs, grow the Group's technological base and develop new applications



V. Sustainability for Creating Value



Materiality

Environment	Contribute to the realization of a decarbonized society with GHG emissions reduction by eco-friendly manufacturing process and sales expansion of eco-friendly products
Society Shift and Innovation	Identify significant challenges to society and providing technology/product/service to their solution in a timely fashion
Safe and High-Quality Products and Services	Enhance both the products and service quality through improvement of quality and supply chain control
Ethics and Compliance	Carry off significant trust from stakeholders by constant address on Ethics and Compliance
Human Capital	Ensure sustainable growth of the Group and contribute employees' welfare through a variety of initiatives to enhance developing Change Leaders at global level, safety, health, and Inclusion and Diversity

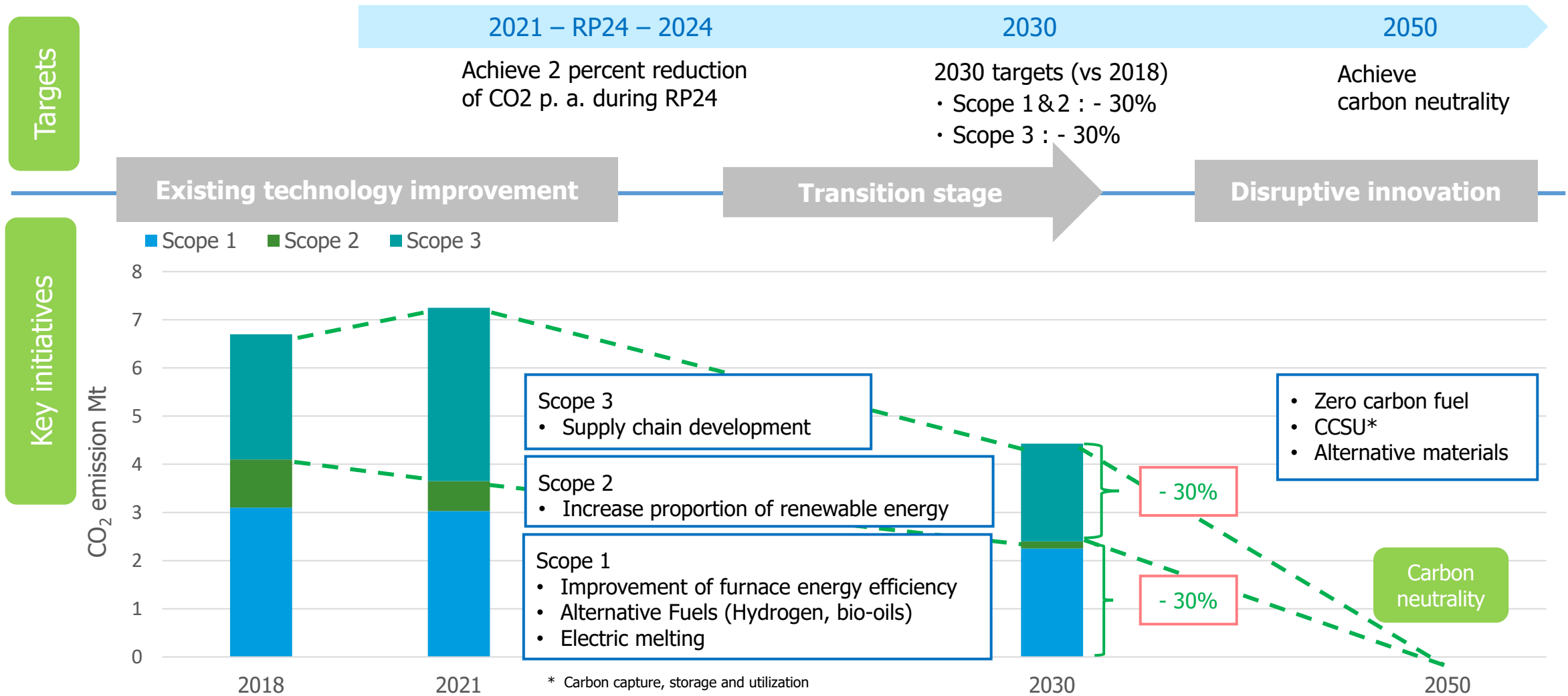
Sustainability Targets and Progresses

Quantitative targets and KPIs set based on identified materiality

	22/3 Results		24/3 Targets
Energy and CO2 reduction	<ul style="list-style-type: none"> 2% improvement compared to 18/3, due to a combination of the implementation of energy & carbon management program and improvement in utilization of production 	Environment	<ul style="list-style-type: none"> 8% reduction in CO2 intensity across glass manufacturing operations compared to 18/3 20% reduction of waste to landfill compared to 20/3
Waste	<ul style="list-style-type: none"> 11% reduction compared to 20/3 		
Safety	<ul style="list-style-type: none"> Significant Injury Rate was increased by 24% as 20/3 	Human Capital	<ul style="list-style-type: none"> Reduction of Significant Injury Rate (20% reduction vs. 20/3) Employee Engagement, "Our Vision" penetration ratio (80%)
Employees	<ul style="list-style-type: none"> Employee engagement score : 84% Increase inclusion & diversity awareness by training managers etc. 		
Sourcing and transportation	<ul style="list-style-type: none"> 93% of key suppliers have agreed to SCoC (Supplier Code of Contact) 	Responsible sourcing	<ul style="list-style-type: none"> To achieve and maintain a 95% acceptance of the NSG Supplier Code of Conduct by our key suppliers. To assess and monitor the sustainability performance of 65% of our suppliers by external spend To achieve and maintain an average 50 sustainability score for all assessed suppliers
Ethics and Compliance	<ul style="list-style-type: none"> Launched the training package covering Code of Ethics, conflict of interest, fraud, social media and Ethics and Compliance reporting etc. 	Ethics & Compliance	<ul style="list-style-type: none"> Hot line utilization (Actual vs. benchmark data collection/analysis) Increase of hotline calls from Managers Report Form (30% increase vs 20/3) Education completion ratio (95% completion by managers within 55 days) Top level communications (Minimum four annually)

Roadmap to Carbon Neutrality for 2050

Aiming for 2030 reduction target, as first step to achieve carbon neutrality by 2050



Contribution Opportunities for NSG Products

Wide range of solutions to support the evolution of society, including smart buildings, ZEB & ZEH and electric vehicles

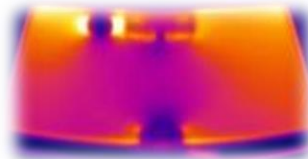
Low-E and vacuum glass for solar control and heat insulation



Transparent BIPV joint development



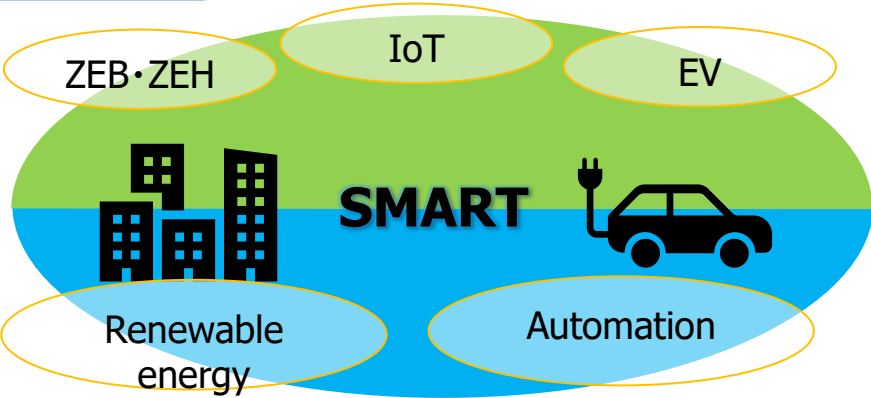
Heated WS to save energy



Online-coated glass for dynamic windows



Electrochromic window by View Inc.



Automotive low e glass to reduce air conditioner usage

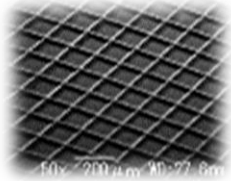


Thermochromic glass to control light

Glass for solar farms to supply renewable energy to buildings



Sensors for automation



Approach to TCFD

The Group has announced its support for TCFD recommendations in Nov. 2021
Planning to enhance the disclosure content

Governance

- Supervision by the Board of Directors is enhanced in response to Revised Japan's Corporate Governance Code
- Roadmap to address climate change is established by Management, and Sustainability Committees

Risk Management

- Climate Change risks are managed regularly at Strategic Risk Management Committee

Task force on Climate related Financial Disclosures

Strategy

- Scenario analyses to identify and quantify potential risks and opportunities being developed to improve the Group's resilience

KPIs and Targets

- Commit Carbon Neutrality by 2050
- Targets for Scope 1, 2 and 3 emissions have been set (Certified by SBTi)
- Further review would be made should requirements of society and stakeholders change

- CO₂ emissions of NSG Group:
- <https://www.nsg.com/en/sustainability/environment/air-emissions>
- <https://www.nsg.com/en/sustainability/data/environment>

Contribution to Society

Mission and responsibility as good corporate citizen

Employees

- Development and appointment of reform leaders and promoting “inclusion and diversity” are key actions in the Corporate Culture Reform under RP24
- In 2021, CFO was appointed as the leader to promote inclusion and diversity



Reiko Kusunose
CFO

Ethics and Compliance

- A group-wide ethics and compliance hotline that can be used by anyone inside or outside the company is available (certified as Whistleblowing Compliance Management System (WCMS))
- A compliance system for high-risk areas such as competition law compliance, ABAC* and conflict of interest is in place
- Ethics and compliance education and communication are conducted at the group and regional level

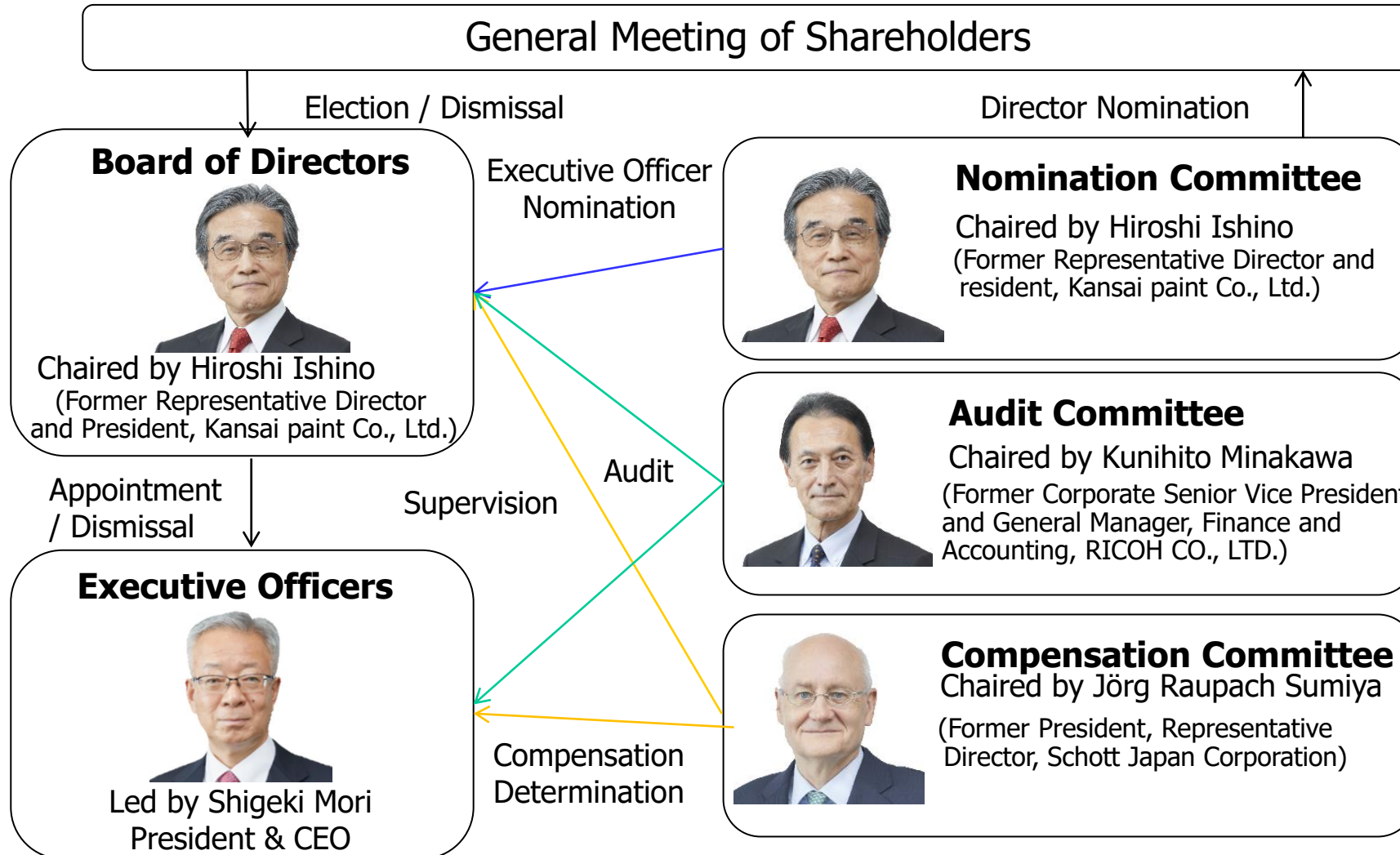
NSG Foundation

- NSG Foundation was established to commemorate the 60th anniversary of NSG with the aim to contributing to the promotion of R&D activities on inorganic materials through research grants, which amounts to JPY1,740 million for 1,363 projects cumulatively

VI. Corporate Governance

Corporate Governance Structure

The Board & Committees all chaired by Independent External Director



Nomination Committee
Hiroshi Ishino (Chairperson) Jörg Raupach Sumiya Kunihito Minakawa Shinji Asatsuma Shigeki Mori
Audit Committee
Kunihito Minakawa (Chairperson) Jörg Raupach Sumiya Hiroshi Ishino Shinji Asatsuma
Compensation Committee
Jörg Raupach Sumiya (Chairperson) Hiroshi Ishino Kunihito Minakawa Shinji Asatsuma Shigeki Mori

Board of Directors

Robust governance with a majority of the Board of Directors being external

	Independent External Director	Independent External Director	Independent External Director	External Director	Independent External Director	Director	Director	Director
	Hiroshi Ishino Chairperson of Nomination Committee	Jörg Raupach Sumiya Chairperson of Compensation Committee	Kunihiro Minakawa Chairperson of Audit Committee	Yoshihiro Kuroi	Shinji Asatsuma	Shigeki Mori President Chief Executive Officer	Munehiro Hosonuma Vice President Chief Operating Officer	Tony Fradgley Chief Transformation Officer
<Skill Set>								
Global Company Management Experience	●	●	●	●	●	●		
Financial Expertise			●		●			●
Risk Management			●	●	●	●		
ESG/ Sustainability		●		●				
Portfolio management/ New Business Development		●				●	●	
Operational Excellence/ Supply Chain Management	●						●	●
Marketing/Commercial	●						●	●

Executive Officers

International executive team

Representative Executive Officers



Shigeki Mori
Director
Representative Executive Officer
President and Chief Executive Officer



Munehiro Hosonuma
Director Representative Executive Officer,
Vice President and
Chief Operating Officer

Senior Executive Officers



Tony Fradgley
Director Chief
Transformation Officer



**Leopoldo Garces
Castiella**
Head of
Architectural Glass



Koichi Hiyoshi
CLO, CRO, Company
Secretary, and Officer
in charge of Ethics and
Compliance



Reiko Kusunose
Chief Financial
Officer



Hisashi Okamoto
Head of Creative
Technology



Rob Purcell
Head of
Automotive OE



Phil Wilkinson
Head of
Automotive AGR

Executive Officers



Mike Greenall
Chief Technology
Officer



Shiro Kobayashi
Sustainability
Director



Yutaka Nakashima
Chief Human
Resources Officer



Iain Smith
Finance Director



Milena Stanisci
Head of Manufacturing
Excellence and
Head of Manufacturing,
Automotive OE

Corporate Governance

Framework to bolster sustainable growth

Diversity & independence of Board of Directors – material decision making and supervision of executives, representing shareholders

- Clear separation of roles between Board chairperson and CEO; robust succession plan
- Adequate pay incentives aligned with interests of shareholders

Key developments

2008: “Company with Committees”; 4 Independent External Directors

2012: All 3 Committees chaired by Independent External Director

2013: The Board chaired by Independent External Director

2014: Share purchase element in LTIP; shareholding targets for EOs

2015: Publication of NSG Group Corporate Governance Guidelines

2016: 1st Effectiveness Evaluation; compliance with all the principles of CGC

2021: Disclosure of board members’ skill set

Board Effectiveness Evaluation

Led by Independent External Directors; the following action plans have been set and followed up

- Deeper discussion on key agenda items such as growth, finance, HR and ESG strategies
- More understanding of executive resources and stronger monitoring to improve performance
- Thorough following-up of the executives' execution and delivery of key decisions and tasks
- Promotion of diversity including appointment of non-Japanese and/or female director(s)

Notice

The projections contained in this document are based on information currently available to us and certain assumptions that we consider to be reasonable. Hence the actual results may differ. The major factors that may affect the results are the economic and competitive environment in major markets, product supply and demand shifts, currency exchange and interest rate fluctuations, changes in supply of raw materials and fuel and changes and laws and regulations, but not limited.

Nippon Sheet Glass Company, Limited

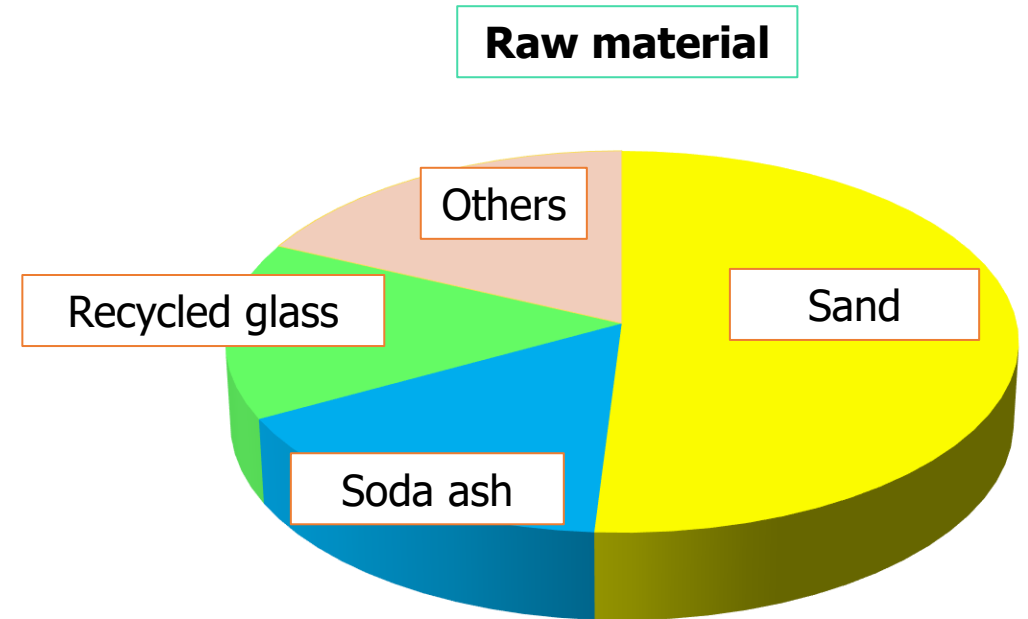
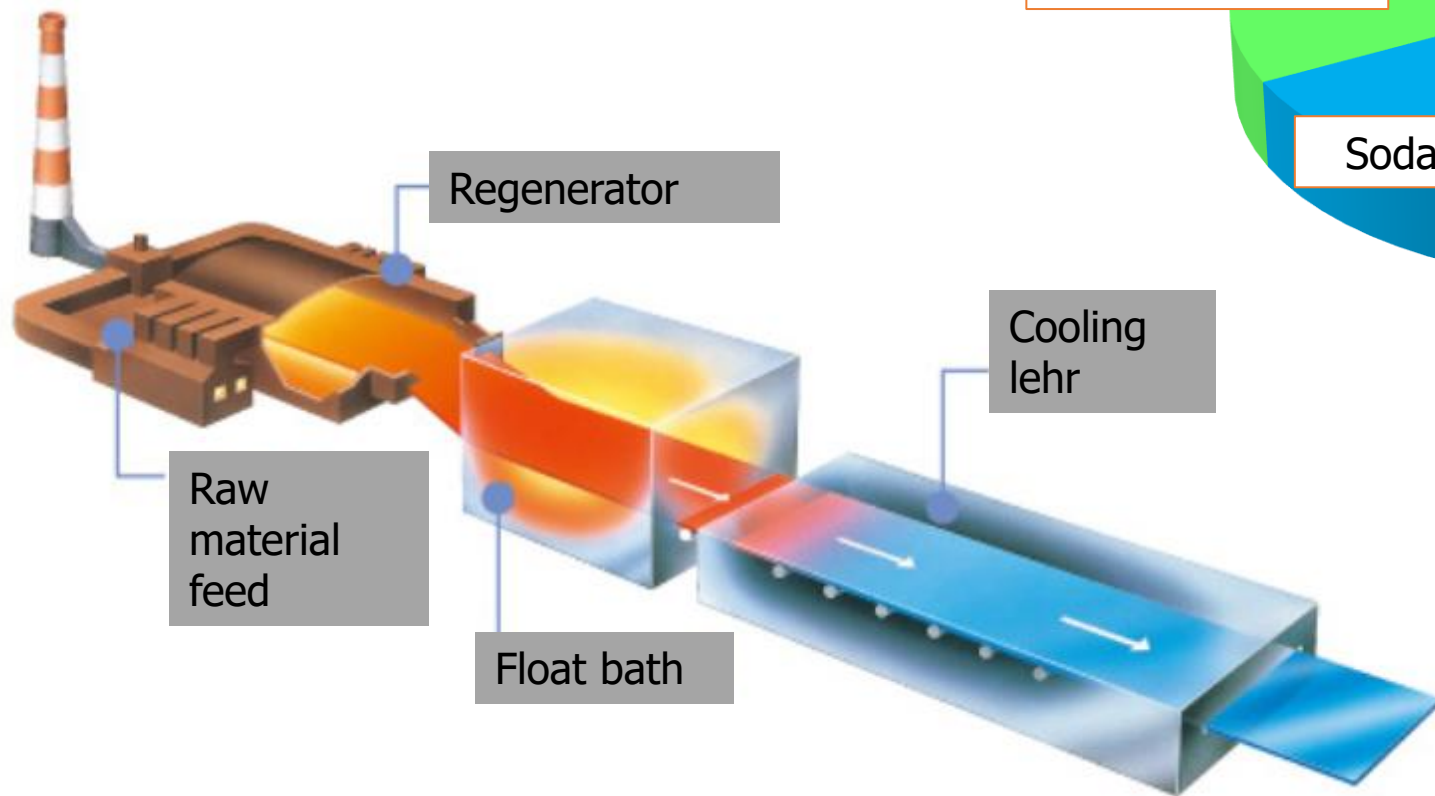
VII. Appendices

- Manufacturing Process P.45~P48
- Solar Panels & Glass P.49
- Energy-saving Regulations P.50
- Shares Information P.51~P52
- Financial Data P.53~P57

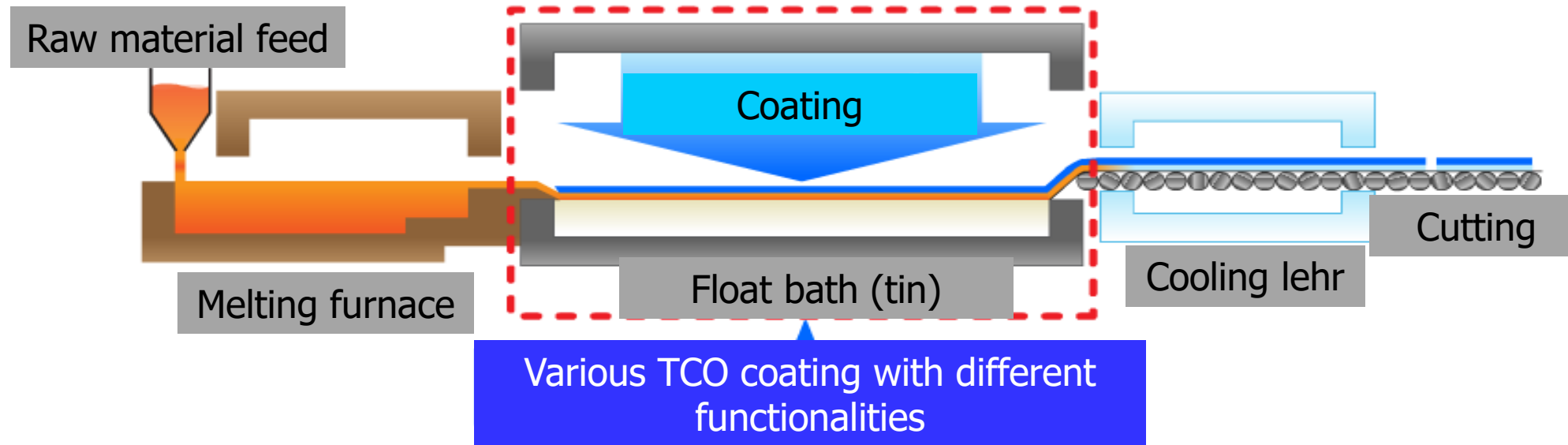
Float Process

Float glass:

Molten glass is poured continuously from a furnace onto a shallow bath of molten tin. It floats on the tin, spreads out and forms a level surface. This method was introduced to the world as the float process in 1959.



Online Coating



- Thin, uniform metallic oxide film deposited over glass while being formed inside the float bath
- Cost competitive, available in large size
- Durable: suitable for further processing & for use as an external glass pane
- Versatile: architectural, solar & automotive applications
 - Technical applications include thin or curved displays, OLED lighting and thin-film sensors

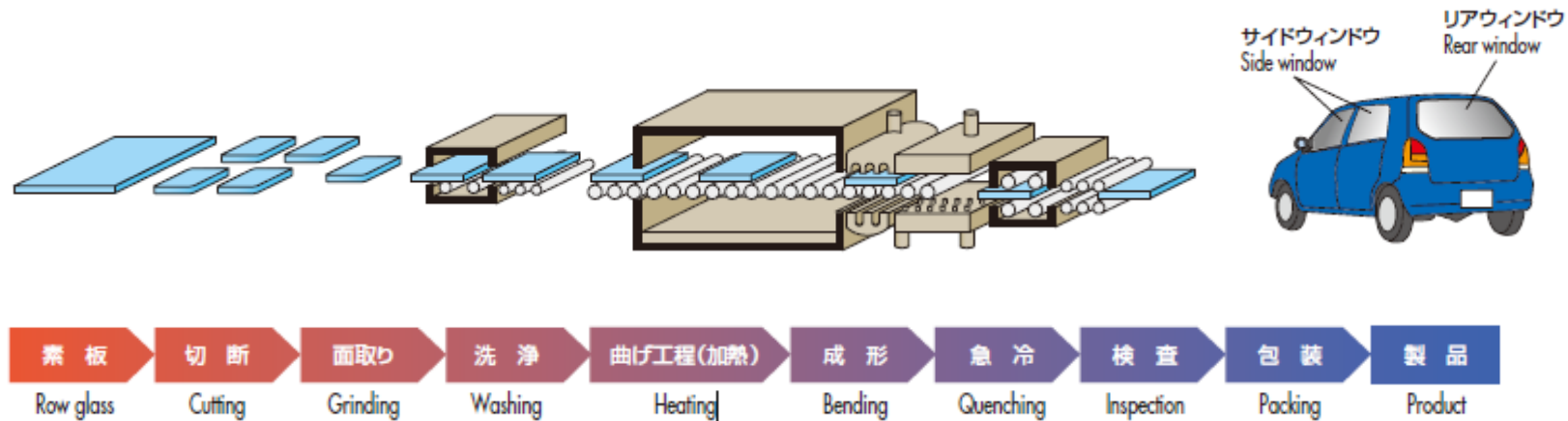
Automotive Glazing – Toughening

Toughened Glass:

Flat glass is placed in a tempering oven, and heated to between 650 and 700°C, which is near the glass softening temperature.

Then the glass is quenched by blowing air evenly on both sides, causing the surface to harden first, with the inside cooling and shrinking later. The result is the formation of a stable compressive stress layer at the surface, and the glass is 3 to 5 times more resistant to impact than ordinary glass.

This glass is mainly used for the side and rear windows of automobiles.



Automotive Glazing – Laminating

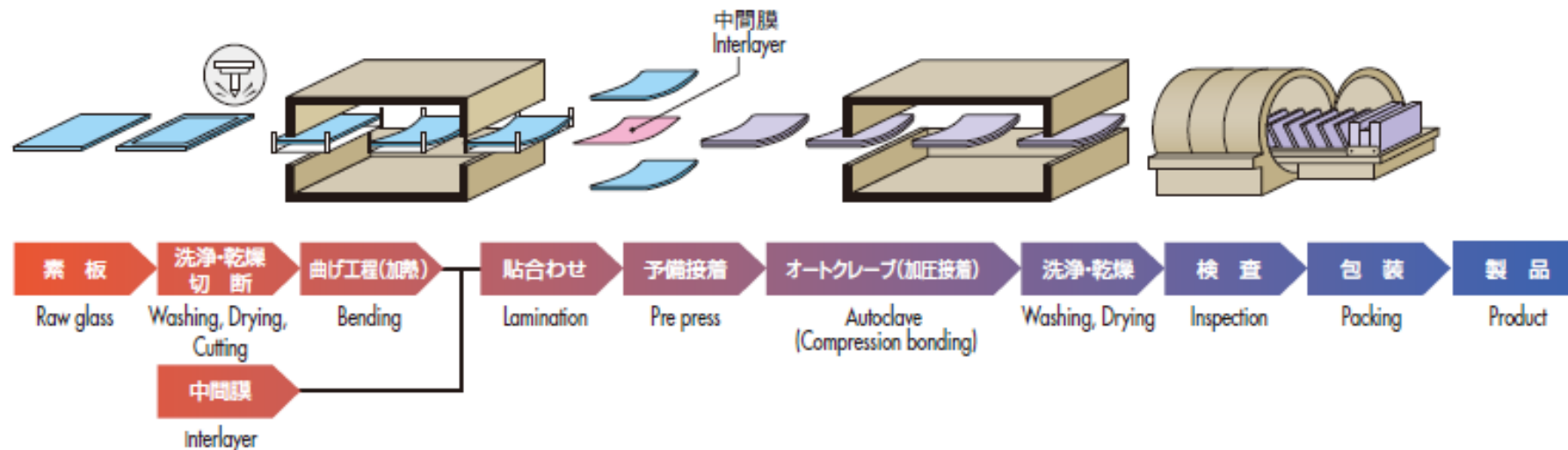
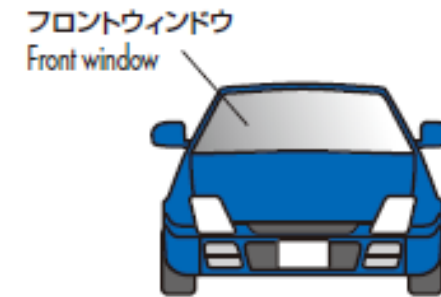
Laminated Glass:

Laminated glass consists of two pieces of glass with a sandwich of transparent plastic interlayer.

This is then placed into an air-pressure autoclave, and treated at high temperature and pressure.

Some special products are made with 3 or more sheets of glass.

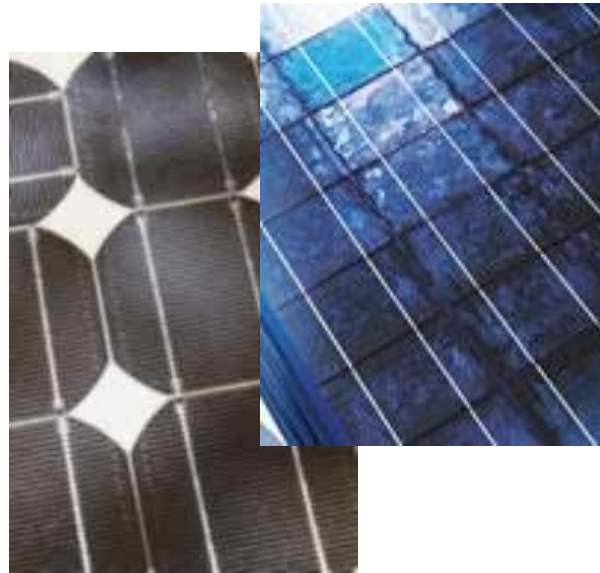
This glass is mainly used for the front windows of automobiles.



Solar Panels & Glass: Crystalline vs Thin Film

Crystalline Silicon Solar Panels

High efficiency, Chinese manufacturers



Low iron rolled glass
+AR (Anti Reflection) coating,
mainly for cover glass

Thin film solar panels

Total cost competitiveness, strength in large size and high temperature applications



TCO coated flat glass, forming part of solar cell

Energy-saving Regulations

Growth opportunities with stricter energy-saving regulations

- In response to heightening calls for CO2 emission reduction, governments across the globe have been tightening building energy-saving regulations and introducing zero-emission building targets.
- Behind in energy saving, the private sector including offices and houses are now adopting more functional windows such as triple glazing with low e coating instead of double glazing or single pane windows. Windows equipped with photovoltaics (BIPV) may pave its way into buildings soon.

<Zero Energy Building Targets>

Japan (Commercial buildings)

- 2030: All new buildings
- 2050: Net zero of total of all buildings

Japan (Houses)

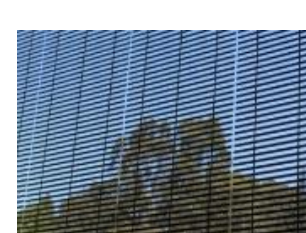
- 2030: Solar power generation equipment installation for 60% of new houses
All new houses
- 2050: Net zero of total of all houses

USA

- 2030: All new commercial buildings
- 2050: All commercial buildings

EU

- 2050: All buildings



BIPV (Building Integrated Photovoltaics)



Spacia™
(Vacuum glazing)

Shares Information

History Data

		15/3	16/3	17/3	18/3	19/3	20/3	21/3	22/3
Numbers of shares outstanding (common on stock*)	K	903,551	903,551	90,366	90,487	90,594	90,642	90,811	91,000
Earnings per share *1	¥	1.9	-55.2	62.0	48.3	115.2	-236.0	-208.3	24.1
Book value per share *1	¥	194.6	114.1	941.8	1,042.7	978.5	470.9	349.7	1,256.0
Cash dividends Yen*1	¥	-	-	-	20	30	-	-	-
Stock price (High)	¥	149	142	951	1,080	1,315	965	613	785
Stock price (Low)	¥	94	64	600	743	767	282	257	362

*1: Effective as from 1 October 2016, the Company conducted a share consolidation in which every ten common shares

Dividend Policy

- Recognizing the distribution of profit to shareholders as one of its important management objectives, the Group has upheld a stable basic policy of declaring dividend payments on ordinary shares based on sustainable business results.
- Dividend payments by the Group will be determined in view of the enhancement of its financial status and accumulation of the appropriate level of retained earnings for future business growth.

Record date for dividend

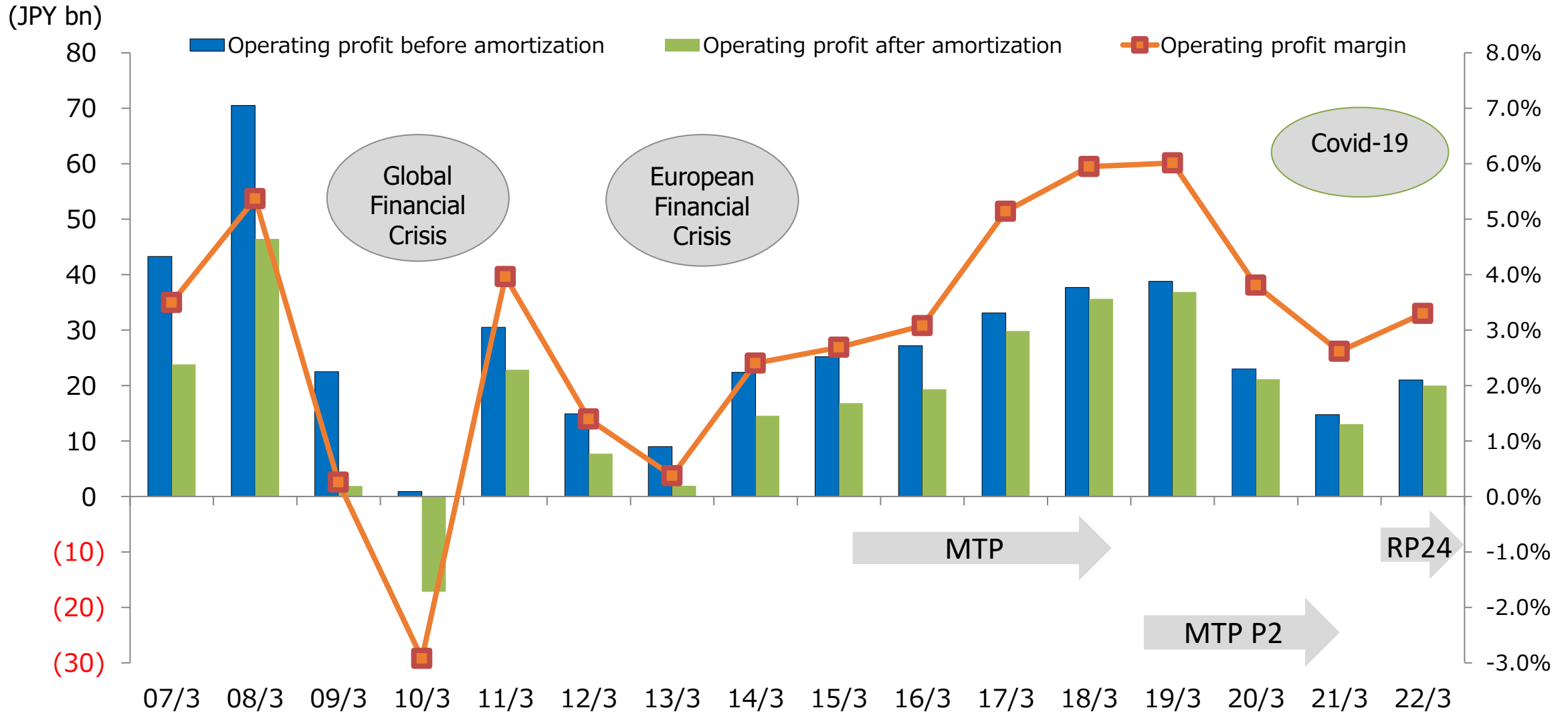
- 30 September, 31 March

Class A Shares Detail

Redeem Class A Shares at the earliest possible timing, while maintaining financial stability

Amount (No of Shares)		JPY40 billion (40,000 shares) *Number of outstanding shares after redemption as of March 2022: 30,000 (Issued value: JPY30,000m)					
Planned Allottees (Amount & No of shares)		Japan Industrial Solutions Fund II		JPY20 billion (20,000 shares)			
		UDS III Corporate Mezzanine Limited Partnership		JPY10 billion (9,000 shares)			
		UDS IV Corporate Mezzanine Limited Partnership		JPY10 billion (11,000 shares)			
Voting Rights		None					
Preferred dividend rate (Cumulative)		31 March 2017 ~ 31 March 2018		4.5%			
		1 April 2018 ~ 31 March 2020		5.5%			
		1 April 2020 ~		6.5%			
Call option (Company's option)	Consi-deration	Cash		Put option (Planned Allottees' option)	Consi-deration	Ordinary Shares	
	Redemp-tion	1 April 2018 or later			Redemp-tion	1 July 2020 or later, unless conversion restriction removal reason exists *A conversion restriction removal reason occurred on 22 May 2020	
	Redemp-tion Amount per share	Paying-in amount per share + cumulative accrued dividend amount + daily prorated accrued preferred dividend amount + redemption premium <Redemption premium> 1 April 2018 ~ 30 June 2018 : 1.08 1 July 2018 ~ 30 June 2019 : 1.15 1 July 2019 ~ 30 June 2020 : 1.22 1 July 2020 ~ 30 June 2021 : 1.29 1 July 2021 ~ 30 June 2022 : 1.36 1 July 2022 ~ : 1.43			No. of Ordinary Shares to be Issued per Class A Share	(Paying-in amount per share X ordinary share redemption premium) / acquisition price <Ordinary share redemption premium> 1 April 2017 ~ 30 June 2017 : 1.05 1 July 2017 ~ 30 June 2018 : 1.08 1 July 2018 ~ 30 June 2019 : 1.15 1 July 2019 ~ 30 June 2020 : 1.22 1 July 2020 ~ 30 June 2021 : 1.29 1 July 2021 ~ 30 June 2022 : 1.36 1 July 2022 ~ : 1.43	
Design		<ul style="list-style-type: none"> The Planned Allottees may exercise their put option for 4,000 or less Class A Shares, when the Company notifies the exercise of its call option for the entire outstanding Class A Shares. 					

Operating Profit & Operating Profit Margin



Operating profit margin : based on operating profit after amortization of non-tangible assets arising from the acquisition of Pilkington plc

Financial Data (1)

		15/3	16/3	17/3	18/3	19/3	20/3	21/3	22/3
Revenue	□bn	626.7	629.2	580.8	598.9	612.8	556.2	499.2	600.6
Architectural		252.9	262.6	237.7	238.0	247.3	233.7	215.5	281.8
Automotive		314.0	316.3	296.6	314.4	314.6	281.0	245.2	276.2
Technical Glass		58.7	49.5	46.1	48.4	49.1	40.1	36.8	39.8
Others		1.1	0.8	0.4	1.1	1.7	1.4	1.7	2.7
Trading profit	□bn	25.2	27.2	33.1	37.7	38.8	23.0	14.7	21.0
Operating profit	□bn	16.8	19.4	29.9	35.6	36.9	21.2	13.1	20.0
Architectural		17.0	24.6	27.0	26.2	25.8	17.3	15.7	28.1
Automotive		9.4	9.8	12.7	14.2	15.1	6.1	1.8	-7.9
Technical Glass		4.9	0.3	1.8	5.4	8.1	7.1	6.7	9.9
Others		-14.5	-15.3	-11.6	-10.2	-12.1	-9.4	-11.1	-10.1
Operating profit ratio to revenue	%	2.7%	3.1%	5.1%	5.9%	6.0%	3.8%	2.6%	3.3%
Architectural		6.7%	9.4%	11.4%	11.0%	10.4%	7.4%	7.3%	10.0%
Automotive		3.0%	3.1%	4.3%	4.6%	4.8%	2.2%	0.7%	-2.9%
Technical Glass		8.4%	0.5%	3.8%	11.2%	16.4%	17.7%	18.2%	24.9%
Exceptional items	□bn	5.5	-35.1	2.9	-1.3	-7.1	-24.0	-22.0	3.6
Financial expenses (net)		-17.9	-18.2	-19.2	-14.6	-13.3	-11.8	-11.0	-12.5
Share of JVs associates		0.4	-3.4	1.1	2.4	6.2	1.1	2.7	7.5
Income before income taxes/Profit before taxation		4.8	-37.4	14.8	22.1	22.7	-13.5	-17.2	11.9
Net income/Profit attributable to owners of the parent	□bn	1.7	-49.8	5.6	6.2	13.3	-18.9	-16.9	4.1

Financial Data (2)

		15/3	16/3	17/3	18/3	19/3	20/3	21/3	22/3
Assets	□bn	920.1	812.1	790.2	788.6	761.9	765.2	825.0	939.3
Interest-bearing debt		442.7	437.0	399.4	372.7	371.5	435.0	471.7	467.9
Shareholders' equity		175.7	103.1	124.1	135.2	123.8	73.6	62.9	145.3
Called up share capital		116.4	116.4	116.5	116.5	116.6	116.6	116.6	116.7
Net debt		374.1	381.0	313.3	306.5	317.7	390.2	411.8	365.2
EBITDA		57.8	60.3	62.1	63.6	64.7	55.0	46.8	56.7
Net debt/EBITDA		6.5x	6.3x	5.0x	4.8x	4.9x	7.1x	8.8x	6.5x
Net debt/Equity ratio		2.0x	3.4x	2.3x	2.1x	2.4x	4.4x	5.2x	2.2x
Shareholders' equity ratio	%	19.1%	12.7%	15.7%	17.1%	16.2%	9.6%	7.6%	15.5%
Trading profit ratio	%	4.0%	4.3%	5.7%	6.3%	6.3%	4.1%	3.0%	3.5%
Net cash flows from operating activities	□bn	24.6	21.8	30.4	34.7	29.0	30.4	21.1	45.1
Net cash flows from investing activities		-23.2	-26.4	-10.2	-17.9	-28.1	-56.9	-25.6	-22.8
Cash flow before financing activities		1.4	-4.6	20.3	16.8	0.9	-26.4	-4.5	22.3
Capital expenditures		36.6	28.2	28.0	30.6	32.2	67.0	43.3	28.6
R&D costs		8.2	9.8	8.5	9.1	9.4	9.0	8.3	7.7
Depreciation and amortization		41.7	40.9	32.2	29.4	27.9	34.8	35.8	36.7

Financial Data (3) – Exchange rate trend -

Average rates used

	15/3	16/3	17/3	18/3	19/3	20/3	21/3	22/3
GBP	177	181	142	147	146	138	139	153
EUR	139	132	119	130	129	121	124	130
USD	110	120	108	111	111	109	106	112
BRR	44.5	33.5	32.8	34.4	29.4	26.4	19.7	21.0
ARS	13.10	11.35	7.22	6.30	-	-	-	-

※ Closing rates are applied – hyperinflation for ARS from 19/3

Closing rates used

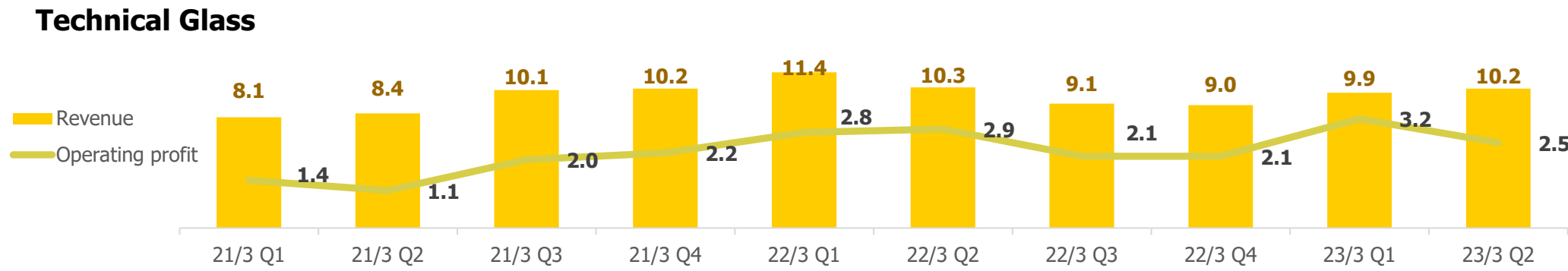
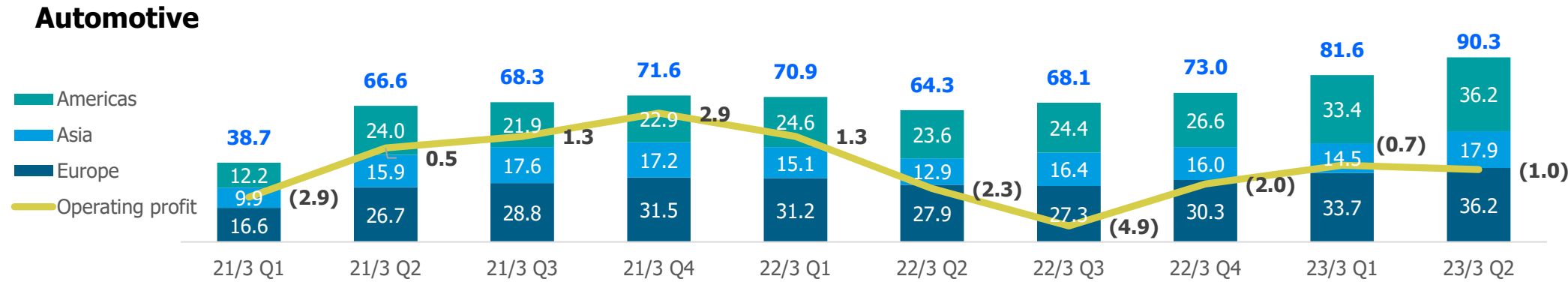
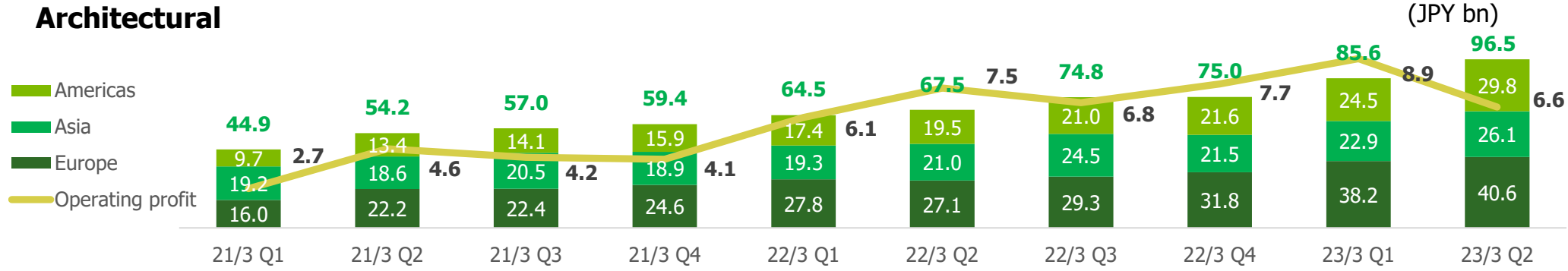
	15/3	16/3	17/3	18/3	19/3	20/3	21/3	22/3
GBP	178	161	139	150	144	133	152	160
EUR	130	127	119	132	124	119	130	136
USD	120	113	111	106	111	108	111	122
BRR	37.3	31.1	35.3	32.1	28.3	20.8	19.1	25.5
ARS	13.66	7.69	7.24	5.30	2.53	1.68	1.20	1.10

FX Sensitivity

Increase (decrease) if the value of the yen depreciates by 1% (all other things being equal):

	22/3
Equity	JPY 4.0 billion
Profit for the period	Improve by JPY 0.1 billion

Revenue & Operating Profit – Quarterly Trend



NSG

GROUP