

INTEGRATED REPORT 2021

Fiscal Year Ended March 31 2021

NSG Group Integrated Report 2021

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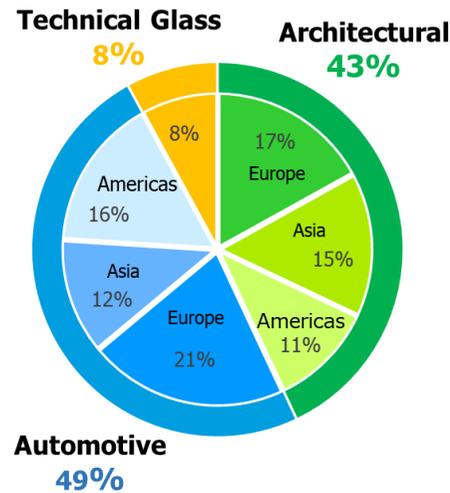
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Group Overview

NSG Group is one of the world's leading manufacturers of glass and glazing systems in the business areas: Architectural, Automotive and Technical Glass.

Businesses Three Global Businesses: Architectural, Automotive, and Technical Glass

Revenue by Business & Region



Architectural	
Products <ul style="list-style-type: none"> • Building glass & glazing • Glass for solar panels 	Business <ul style="list-style-type: none"> • 27 float lines operated globally • Leading supplier for thin film solar panels
Automotive	
Products <ul style="list-style-type: none"> • Glazing for new vehicles • Glazing for replacement markets 	Business <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Thin glass for display etc. • Lenses for printers, telecommunication devices and medical endoscopes • Battery separators, glass code for car engine timing belt, etc. 	Business <ul style="list-style-type: none"> • Key operations in Asia and Europe • Unique 'Number One' and 'Only One' niche products

Architectural

↑ Optiwhite™ used for Midtown Hibiya in Tokyo

↑ Glass for electrochromic applications
Courtesy of View Inc.

↑ Antiviral glass

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

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

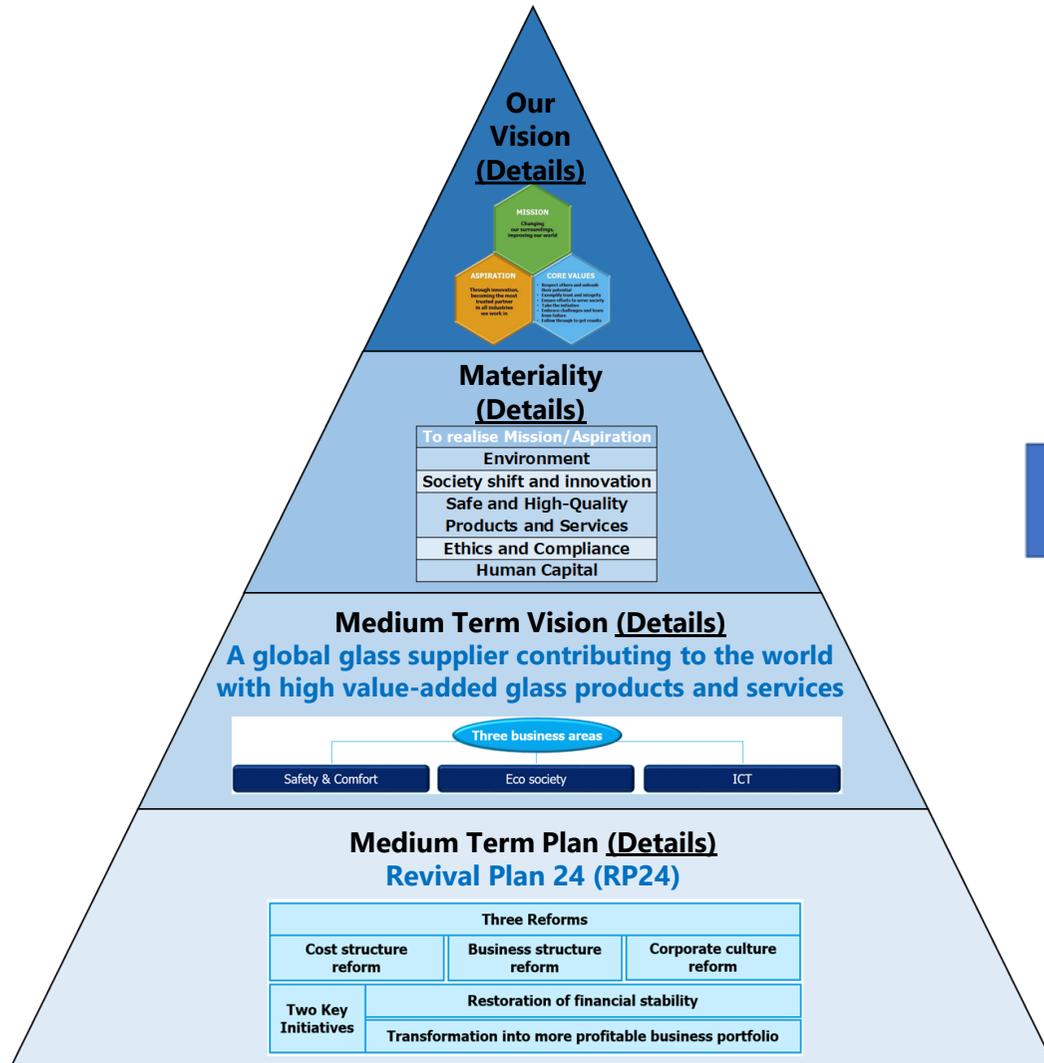
↑ Metashine™

↑ Antibacterial and antiviral coated glass

↑ Glass cord

↑ Super Glass Paper™

NSG Group's Structure of Strategy and ESG



CEO Message

Q1 The fiscal year ending March 31, 2022 is the first year of the newly formulated medium-term management plan (Revival Plan 24, RP24). What are your thoughts on RP24?

(1) In 2018, the NSG Group formulated a new management principle, Our Vision, and established its mission as "Changing our surroundings, improving our world" and its aspiration as "Through innovation, becoming the most trusted partner in all industries we work in" Based on this, the Group redefined the Materiality" consists of "Environment", "Social Shift and Innovation", "Safe and High-Quality Products and Services", "Ethics and Compliance", and "Human Capital".



Furthermore, NSG Group recently formulated a Medium Term Vision to become "A global glass supplier contributing to the world with high value-added glass products and services" as a direction the Group should be heading for. Based on this, the Group has set forth "Three Areas of Contribution" to be focused on as follows:

- 1) Safety & Comfort: To create people-friendly surroundings and a living space that is pleasant, safe and healthy
- 2) Eco society: To create an eco-friendly world by various contributions such as a shift to renewable energy and lowering the usage of air-conditioning and heating
- 3) Information and Telecommunication: To contribute to the development of Information and Telecommunication to make people's lives more convenient and to support the advancement of the society

(2) RP24 was formulated to achieve "Our Vision", "Materiality", and "Medium-Term Vision", and positions the RP24 period as the business transformation period, and consists of "three reforms" consisting of "Cost structure reform", "Business structural reform", and "Corporate culture reform", and Two Key Initiatives" of "Restoration of financial stability", and "Transformation into more profitable business portfolio" in order to build business strength for the cycle of growth.

Although NSG Group started efforts to transform itself into a "VA (Value Added) glass company" under the Medium Term Plan (MTP),

cyclical nature of its business with a high fixed cost ratio has not been changed sufficiently. Reflecting on the outcome, the Group recognized the need for more drastic reforms. Against this backdrop, RP24 was developed to be executed during the critical period from FY2022 to FY2024 in order to build business strength for the cycle of sustained growth.

(3) If we look at the business environment surrounding the Group, in the float glass industry, commoditization of products and competition are intensifying with the entry of glass manufacturers from emerging markets. On the other hand, climate change due to global warming has been recognized as a global risk, and the reduction of greenhouse gas emissions from the glass production process has become one of our material management issues.

Meanwhile, there is a growing need for Technical Glass and it is filled with opportunities to create value and business development from glass. In the Architectural Glass area, demand for energy-saving and energy-generating glass is expanding in line with the increasing use of natural energy and also products which contribute to maintaining health and hygiene is growing. In the Automotive Glass area, expectations are increasing for products that can respond to the "once-in-a-century" technical innovation in the automotive industry (CASE). Moreover, peoples' work and lifestyles are likely to change significantly in the "post-Covid-19 world" with the advancement of digital transformation, which would lead us to much more expectation that glass materials could make a contribution in fields such as life science, IoT and cloud computing.

CEO Message



Q2

Even though the business environment surrounding the Group is forcing you to change, do you mean that there are opportunities for sustainable growth of the Group?

In particular, with regard to the protection of the global environment, tackling climate change has become a global issue, and among the five items set as the Materiality, the Group recognizes that the "Environment" is a high priority management issue.

We aim to reduce greenhouse gas emissions from the manufacturing process by 21% compared to 2018 by 2030, and this goal is certified as an SBT* initiative. In order to achieve this, we aim to reduce CO2 emissions by more than 2% per year during RP24 period by optimizing glass manufacturing processes, developing energy-saving technologies, and expanding the use of renewable energy. The recent announcement of "Architectural Glass Production Powered by Hydrogen in World First" is also part of this initiative. We will start by setting feasible targets for the immediate future and concentrate on achieving them. After that, we will pave the way towards carbon neutrality by means of disruptive innovation. Specific steps to this end should be laid out soon.

In parallel, as a token of endorsing TCFD (Task Force on Climate-related Financial Disclosures) recommendations, which is also referred to in the revised Corporate Governance Code, the Group will conduct internal evaluation and analysis from the four perspectives of "governance", "strategy", "risk management", and "metrics and targets" at an early date so as to solidify its management foundation.

As efforts to address the environment are urgently needed worldwide, products indispensable for promoting energy creation and energy saving are expected to become more important in the future, the Group has the strength in providing such products that can contribute to the advancement of Eco Society as solar energy glass utilizing online coating, which is a technological strength, and energy saving glass for ZEB (Net Zero Energy Building) and ZEH (Net Zero Energy House) and thus, will focus on further expansion of their sales. This is an example of realizing "Social Shift and Innovation" of the "Materiality" that identifies significant challenges to society and providing technology/product/service to their solution in a timely fashion. (See Special Feature: "NSG Group Technology, Online Coating and Solar Glass Deployment".)

* SBT (Science Based Targets) are a set of greenhouse gas reduction targets consistent with scientific knowledge

CEO Message

Q3 The revised Corporate Governance Code has also been announced, but for the sustainable growth of the Group, not only the Environment (E) but also initiatives for society (S) and governance (G) are also extremely important. Please tell us about the Group's initiatives.

(1) With regard to "Society (S)", in order to achieve "Three Reforms" and "Two Key Initiatives" in RP24, incorporate a corporate culture within the organization, such as "customer focus", "swift decision making and action" and "overcoming difficulties" is important. We will strive to secure diversity of core human resources in the Group by development and appointment of those who can lead reform to lead a strong organization that never fails to take up challenges and follow through to deliver results, and strengthens initiatives for Inclusion and Diversity, which newly appointed the CFO as a leader in 2021. This is also an initiative for "Human Capital" in the "Materiality".

As a manufacturer, it is our basic mission to continue to stably provide "Safe and High-Quality Products and Services" to society. In addition, in the future society, value including not only products but also services will be further required. We aim to improve the value provided by the Group by improving the quality of both products and services through quality control and supply chain management.

(2) With regard to governance (G), it is especially important as it has extremely strong impact on and also the foundation of the Group. NSG Group adopts "Company with Three Committees" (Nomination, Audit and Compensation Committees) and the Chairman of the Board as well as chairpersons of all three Committee are all appointed from among the Independent External Directors. Currently, Independent External Directors occupy a majority of the Board of Directors, and it is well balanced to perform the functions of the Board of Directors and supervise the execution of RP24.

In addition, as issues to be resolved through the Board Effectiveness Evaluation, etc., we will support and implement initiatives to ensure diversity of the Board of Directors (pursuit of internationality and gender diversity) more than ever before.

In terms of ethics and compliance, we are promoting initiatives such as (1) establishing a group-wide ethics and compliance hotline that can be used by anyone, both inside and outside the company, and (2) operating a group-wide approval reporting system in high-risk areas (compliance with competition law, anti-bribery and corruption, and avoidance of conflicts of interest). This contributes to "Ethics and Compliance" in the "Materiality".

(3) As I mentioned in the above, in order for the Group to compete intensifying, it is urgent to "restore a financial base" along with reform. We will establish a sustainable growth cycle as the Group through these ESG initiatives and Materiality initiatives.



Shigeki Mori
 Representative Executive Officer
 President and CEO
 Nippon Sheet Glass Co., Ltd.

Special Feature: NSG Group Technology, Online Coating and Solar Glass Deployment

Mike Greenall: Executive Officer, Chief Technology Officer (CTO)
Stephen Weidner: Head of North America, Architectural Glass SBU

Q1 One of the technologies that the Group clearly has a competitive advantage is the CVD (Chemical Vapor Deposition) online coating. What is CVD Online Coating? Please tell us about its development.



Mike Greenall
 Executive Officer,
 Chief Technology Officer(CTO)

Mike Greenall (MG) : CVD coating, (or chemical vapor deposition coating) is a signature product of the NSG group. No other glassmaker has the same depth of knowledge or skill in this field as the NSG group.

The development has been a quite a long story. One of dedication, investment and scientific breakthrough.

In the early 1980s governments around the globe were introducing legislation to improve the thermal insulation of domestic buildings. Glazing Products were emerging that were coated with low emissivity coatings in high vacuum plants. The coatings were difficult for processors to use and NSG recognized that there was a need for a durable product that could be handled as easily as uncoated glass.

To meet this challenge, NSG group companies developed an atmospheric chemical vapor deposition (CVD) process to apply silicon carbide and metal oxide layers at high temperature whilst the glass was being produced on the float glass line. The high temperature process resulted in coatings that were highly durable and easily processed by our customers.

Q2 What were the challenges of the development? What was the breakthrough / success of the technology?

MG : There are several challenges. We must deposit one or more very thin layers of material onto a continuously moving ribbon of glass. The deposition must be very uniform to avoid streaks and other unwanted features. Some of the materials that we use are quite hazardous. And finally, the

manufacturing environment is quite hostile with very high temperatures and an atmosphere of hydrogen and nitrogen in the zone where the materials are deposited.

The break though came from the work of NSGs North American R&D team. They learnt how to design the coating equipment and coating materials to accurately control the Reynolds number of the vapor flow on the glass surface. The Reynolds number helps predict flow patterns in different fluid flow situations. It is controlled by altering density, viscosity and velocity of the vapor.

That was the start. Since then we have gone on to vastly improve and develop the base technology and extend the product line. Coatings now are extremely stable and robust, free from blemishes, uniform in color and with excellent optical properties and low haze.

Q3 The technical story is abstract and a little difficult. Let's talk about specific NSG Group products. How did you develop your product line?

MG : The initial focus in the 1980s was on solar control low emissivity coatings and highly reflective mirror like products.

The first product to be launched was Pilkington Reflectafloat™. A single layer coating. In 1983 Libbey Owens Ford in the USA, operating under a license, developed an improved product by adding a second coating layer. Pilkington K Glass™, a low emissivity product followed. Several competitors look licenses for this first generation of products.

Special Feature: NSG Group Technology, Online Coating and Solar Glass Deployment

This marked the start of 40 years of product and process development by the NSG group in the USA, UK and Japan that has led to unique products comprising up to 8 layers of diverse materials on glass substrates down to 1mm in thickness.

Although competitors continued to develop similar technology, none were able to match the NSG group's product range, quality, and manufacturing efficiency.

But the flexibility of the process enabled the development of products for high technology applications. This family of products became known as NSG TEC™ (Transparent and Electrically Conductive) and these NSG TEC™ products are now widely used in a variety of applications such as freezer doors, oven door windows, touch screens, electrochromic devices and Photovoltaic panels such as those produced by FSLR.

New products developed in the 1990s included NSG TEC™, Pilkington OptAR™ an antireflective coating, Pilkington Activ™ a self-cleaning hydrophilic coating and Pilkington MirroView™ a highly reflective two-way mirror.

Further developments followed: antireflective coatings, self-cleaning coatings, coatings for touch screens and displays along with continual improvements to the existing product range.

In the 2000s focus shifted to extension of the NSG TEC™ product range. Thin film solar was developing and NSG TEC™ products were particularly suited to be

used as substrates upon which the photovoltaic thin films such as amorphous silicon (a-Si) and Cadmium Telluride (CdTe) could be deposited.

NSG in North America began to supply the nascent First Solar company with NSG TEC™ substrate to be used in their development of CdTe PV. As FS developed their product, we realized the important influence that the base NSG TEC™ could have on final product properties and cell efficiency. To support their development NSG has continually optimized our coatings for their needs. The latest incarnation is exclusively supplied to FS from NSG production lines in Vietnam and the USA. It contributes to the protection of the global environment by being used for solar power generation around the world.

Improved versions of these products are still highly appreciated by our customers to this day.

Stephen Weidner (SW) : I have no doubt we will see new markets and opportunities continue to emerge for our technologies just as we have the last 30 years.

Q4 What are our unique strengths in Business Development?

SW : Understanding our unique CVD capabilities and quickly engaging potential end-users across a wide variety of technology sectors affords us the ability to find, grow and develop many different end-uses for our glass products.

Mike Greenall: Executive Officer, Chief Technology Officer (CTO)
Stephen Weidner: Head of North America, Architectural Glass SBU

Speed to market is critical. We can't wait to develop the perfect product. So, what we introduced several years ago was the concept of "Make-Break-Fix."



Stephen Weidner
Head of North America,
Architectural Glass SBU

Special Feature: NSG Group Technology, Online Coating and Solar Glass Deployment

Mike Greenall: Executive Officer, Chief Technology Officer (CTO)
Stephen Weidner: Head of North America, Architectural Glass SBU

First, we “Make” a sample for whatever technology sector we are pursuing. We get the sample(s) into the hands of the customer(s) to allow them to trail it and give us feedback on how to improve the product. This is the “Break” aspect where the customer tells us what they like or don’t like about the product. We then go back to the lab and “Fix” or modify the product based on the customer’s feedback, get them new samples to play with and start the process again.

Q5 [What is the background behind the widespread use of online coated glass? Needs first or seeds first?](#)

SW : Excellent question. The answer is both!

In many instances a new technology start-up will approach us with a specific NEED for a TCO or other type of coated glass. We then work with the R&D team in the “Make-Break-Fix” program to come up with a solution for the specific end-use application.

Another approach we take is to give free samples of the NSG **TEC™** Glass to schools and universities for the students to work on various projects. Our concept here is to have students get to know our product and brand so when they graduate and move into a technology sector, they already understand the nuance of our products and technologies. So, in this instance we are planting SEEDS for the future.

Q6 [The solar glass business that supplies FSLR has been successful. Please tell us about the history and background of the business relationship with FSLR.](#)

SW : Our history and relationship with FSLR goes back long before it was First Solar. We began to work with the group of people who were developing the CdTe PV technology when the company was known as Solar Cells Inc. In 1989 we supplied them our first set of **TEC™** Glass samples - **TEC™** Glass is a special glass whereby we deposit a conductive oxide on the surface of our glass that acts as a TCO (transparent conductive oxide) for FSLR’s technology.

We continued to supply them samples until 1997 when Solar Cells Inc. scaled to a pilot production line. In 1999 a group of investors acquired Solar Cells Inc. and changed the name to what it is today, First Solar.

Our real breakthrough for us and them occurred in 2001 when we modified our **TEC™** Glass (TCO) which made the FS PV modules more efficient than they had been. This efficiency improvement allowed them to rapidly scale to be commercially viable in the marketplace.

Q7 [What did you struggle with in your long-standing partnership with FSLR?](#)

SW : Well this may come as a surprise but my greatest challenge with the FSLR relationship was not with FSLR. It was with senior management within our organization who early on did not believe in the on-line coating CVD technology. At one point prior to NSG, one of the COO’s of our organization gave me one year to close the CVD operations down claiming “you (Weidner) are wasting the company’s time and resources on this technology.”

I didn’t listen to him and as history shows, it was the right move for our company.

Q8 [What is the secret to success?](#)

SW : As with the success we’ve had in other parts of the business, the key to our success with FSLR was first to have engaged with them very early on. As I just mentioned, we began working with them long before they commercialized their technology. By engaging them early in their technology development with the NSG technology, NSG’s **TEC™** Glass became an integral part or component of their technology.

We didn’t stop there. For FSLR to compete in the market it was crucial for them to continue to improve and develop their technology to make it more efficient, generate more electricity, or power, for each of their panels. We joined them on this technology evolution by engaging with them in a joint development program whereby we were tasked with creating a more efficient TCO (transparent conductive oxide) than the standard product we first supplied to them.

This joint development effort has greatly improved the efficiency of FSLR’s technology allowing them to be more competitive in the marketplace and thus increasing the demand for their product.

The second key is to share the success with our customers and partners. We are successful only if the customer is successful. We have a very strong symbiotic relationship with FSLR and several other highly technical VA accounts.

Special Feature: NSG Group Technology, Online Coating and Solar Glass Deployment

Mike Greenall: Executive Officer, Chief Technology Officer (CTO)
Stephen Weidner: Head of North America, Architectural Glass SBU

Q9

What do you think about the relationship between the R&D Group and the Business Development team?

SW : The AG Business Development teams and R&D work extremely well together. We typically have the R&D team members directly engaged with our new customers and technology partners from a very early stage. It is important for the R&D team to have this direct customer-interface in order to properly hear and understand the external expectations. Working in the lab without direct customer input does not allow the R&D and Operation's teams to fully understand the nuance needed for the end product. This helps to speed the overall development process.

Q10

Is there any issue to be solved?

SW : In one word "Speed."

First to market wins. Our R&D Group has done and continues to do marvelous work. I have been a HUGE proponent of moving faster.

I have stated that our industry moves at "glass speed" which I compare to moving slightly faster than glacial speed.

Many of our customers manufacture electronic components. The electronics industry moves at what I call "electronics speed" which is 10,000X faster than what we are used to. Think of a cell phone. Today's cell phone is obsoleted in 6 months. Our glass assets are built to last 15 years! There is a tremendous mismatch in how the glass industry has historically operated versus many of the industries we now participate in. We will never move as fast as our customers, however we need to move much faster than glass (glacier) speed!

Management Strategy

Our Vision

The Group announced its new management principle "Our Vision" at the company's 100th anniversary in 2018.

"Our Vision" comprises the Mission (core purpose), Aspiration (desired future position) and Core Values (the basis on which we work and conduct ourselves).

With "Our Vision," The NSG Group is striving to realize a sustainable society by offering new values and services with glass swiftly and appropriately to meet the growing needs of our customers and society.



Our Vision

Management Strategy

Materiality

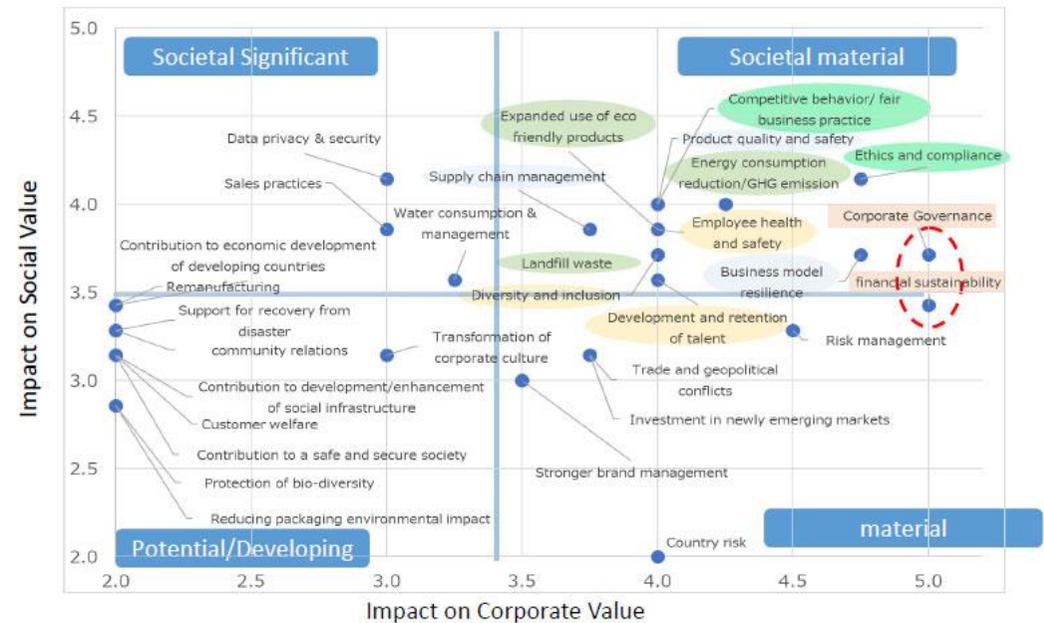
The following five items have been identified as Materiality to attain sustainable growth of the Group and contribute to a sustainable society in the medium- to long-term. The Group selected these five items according to their significance as assessed on the matrix measuring the axes of impacts on both society and the Group.

Based on "Our Vision" announced in 2018, the Group redefined the Materiality in the process of discussion in trying to formulate a new mid-term management plan.

Each item is categorized by referring to the classification in the criteria such as SASB or IIRC, the impact on each stakeholder is scored, and the item with the highest score on the two axes is reclassified as the "priority area" and selected. Of these, "Corporate governance" and "Securing financial base" have extremely strong impact on the Group and are also the foundation of it, so they are set as the issues that the Group will focus on separated from the selection of materiality.

New Materiality

Item	Aspiration
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 to employees' welfare through a variety of initiatives to enhance developing Change Leaders at global level, safety, health, and Inclusion and Diversity



Management Strategy

The Group will set targets for each item and take specific actions accordingly.

Environment	Aspiration	Contribute to the realization of a decarbonized society with GHG emissions reduction by eco-friendly manufacturing process and sales expansion of eco-friendly products
	Background and Focal Points	<p>Glass manufacturing is a fossil fuel-consuming industry. Therefore, it is the most critical challenge for us to address such initiatives as reduction of GHG emission, saving energy and waste management in order to improve environment so that we can attain sustainability for society and the Group. At the same time, we also believe it is mandatory for us to contribute to preserving the environment through provision of products and services. Aiming Carbon Neutral with eco-friendly manufacturing process and products & zero waste to landfill.</p> <ul style="list-style-type: none"> ● Energy consumption & GHG emissions reduction (realize eco-friendly manufacturing process) ● Sales expansion of eco-friendly products ● Reduction of waste to landfill
Society Shift and Innovation	Aspiration	Identify significant challenges to society and providing technology/product/service to their solution in a timely fashion
	Background and Focal Points	<p>Always keep an eye on the rapidly changing movements of society, accurately grasp the flow, and then aim to be the company contributing to the stakeholders with identifying significant challenges to society and providing technology/product/service to their solution in a timely fashion, which are the source of innovation.</p> <ul style="list-style-type: none"> ● Innovate new products/service and revenue increase ● Strengthen business development and R&D function
Safe and High-Quality Products and Services	Aspiration	Enhance both the products and service quality through improvement of quality and supply chain control
	Background and Focal Points	<p>As a manufacturer, it is the minimum mission for our stakeholders to continue to provide safe and high-quality products in a stable manner. In addition, the value of not only products but also services will be much required. The Group aims to increase value for the stakeholders and ensure sustainable growth by consistently supplying customers with safe and high-quality products and services.</p> <ul style="list-style-type: none"> ● Enhance quality assurance ● Enhance supplier management ● Enhance service culture

Ethics and Compliance	Aspiration	Carry off significant trust from stakeholders by constant address on Ethics and Compliance
	Background and Focal Points	<p>As a member of society, it is an essential mission to respect and comply with the rules of society. The Group is aiming to be the company which carry off significant trust from stakeholders through constantly addressing on E&C activities to avoid corporate value deterioration.</p> <ul style="list-style-type: none"> ● Identify/address and info. sharing for E&C risks ● Fair business practice – anti-bribery/corruption, Conflicts of interest and competition compliance ● E&C governance and oversight
Human Capital	Aspiration	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.
	Background and Focal Points	<p>Under one of the core values, "Respect others and unleash their potential", the Group addresses a variety of initiatives to enhance safety, health, I&D while engaging in development/creation of talents who would ensure sustainable growth of the Group. At the same time, we aim to be the company contributing employees' welfare. Ultimate goal for the safety is to keep zero injury.</p> <ul style="list-style-type: none"> ● Inclusion and Diversity ● Health and Safety ● Human development

Management Strategy

NSG Group's Medium Term Vision

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

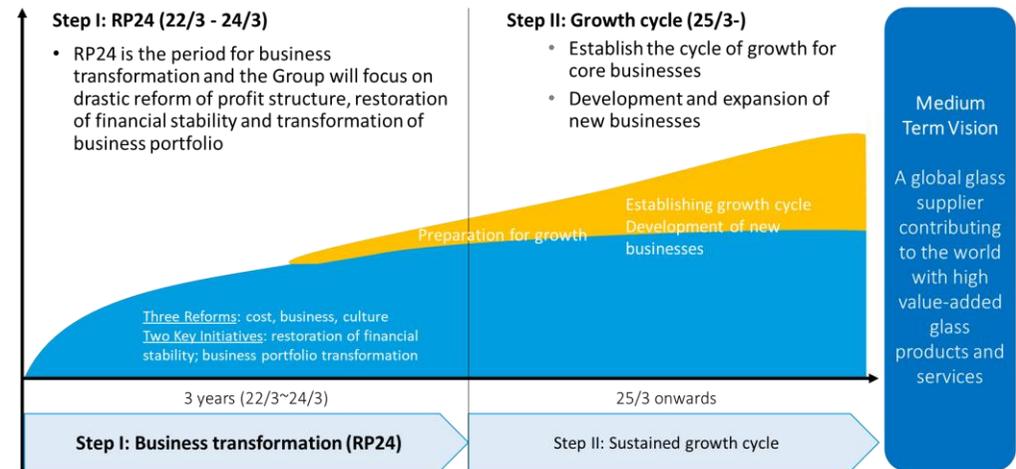
Three focus areas the Group aims to contribute to



Our aspiration for 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

Roadmap to Achieve Medium Term Vision



On 13th May 2021, the Group publicly announced “Revival Plan 24 (RP24)” as its new Medium Term Plan covering a three-year period from FY2022 to FY2024 aiming at building robust business for sustained growth and preparing the Group for the next disruption in the business environment.

In order to achieve Medium Term Vision, we will take actions in two steps, namely, Step I (RP24: FY2022 to FY2024) for business transformation and Step II (FY2025 and beyond) for sustained cycle of growth. RP24 is deemed as the period for business transformation during which time the Group will focus on drastic reform of profit structure, restoration of financial stability, and transformation of business portfolio so as to accomplish drastic and fundamental initiatives as a basic policy.

Management Strategy

Main Initiatives and Financial Targets of RP24

1. Main Initiatives of RP24

In RP24, we will execute the following "Three Reforms" and "Two Key Initiatives" decisively and build business strength to sustain the cycle of growth

Three Reforms

(1) Cost structure reform	Fundamental cost structure reform including headcount reduction, fixed cost reduction and procurement cost reduction will be executed to lower the cost base further
(2) Business structure reform	Expansion of value-added business, development of new growth businesses, and emphasis on investment and asset efficiency to transform business structure and sustain the cycle of growth
(3) Corporate culture reform	Value "customer focus", "swift decision making and action" and "overcoming difficulties," and transform into a company group that never fails to take up challenges and follow through to deliver results

Two Key Initiatives

(1) Restoration of financial stability	<ul style="list-style-type: none"> ● Focus of growth investment on strategically core businesses and selectively allocate and prioritize other capital expenditure ● Thorough review of cost and improvement of productivity to build a robust business that can generate profit and free cash flow constantly ● Generation of free cashflow and net profit aiming to enhance equity, while proactively reviewing further enhancement of equity from a longer term viewpoint
(2) Transformation into more profitable business portfolio	<ul style="list-style-type: none"> ● 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 ● Business profitability improvement and management cost reduction to establish the cycle of sustained growth

2. Financial targets for the final year of RP24 (FY2024)

Please see [CFO message](#)

CFO Message

1. Overview and Results of Business Activities for FY2021 (From 1 April 2020 to 31 March 2021)

The Group's core markets during the first quarter were affected by the dramatic decline in demand due to the COVID-19 pandemic. From June when travel restrictions were eased, demand started to improve quickly, and the recovery trend continued through to the end of the period.



Reiko Kusunose
Senior Executive Officer,
Chief Financial Officer(CFO)

In the fourth quarter, vaccination programs and the gradual loosening of lockdown measures helped uplifting consumer confidence in some markets, whilst in other markets where COVID-19 infections remained high or even increased, governments responded with the further imposition of social rather than industrial lockdowns, enabling the Group's facilities to continue operating.

As a consequence, the Group's year-end results were as shown in the table below.

Consolidated Revenue		Consolidated Operating Profit	
¥499,224m	(down 10.2%)	¥13,067m	(down 38.3%)
Consolidated Profit/(Loss) before Taxation		Consolidated Profit/(Loss) for the Period	
¥(17,171)m	—	¥(16,316)m	—
Consolidated Profit/(Loss) Attributable to Owners of the Parent			
¥(16,930)m	—		

The Group recorded a cumulative net charge with respect to exceptional items of ¥21,400 million, including the costs of COVID-19 of ¥ 16,060 million, restructuring costs of ¥ 14,709 million, and a gain on disposal of non-current assets of ¥ 7,063 million, arising from the sale of land in Japan.

2. Financial position for FY2021 (From 1 April 2020 to 31 March 2021)

The Group's forecasts and projections show that the Group is able to continue to operate within existing financial facilities. The Group will enter renewal negotiations with its providers of finance before such facilities fall due.

Although the Group experienced a circumstance which could have caused a breach of one of the financial covenants provided in loan agreements with some Japanese lenders at the end of FY2021, it obtained advanced written consent from each relevant lender to the effect that they would not test such covenants or it did not constitute a breach of such covenants, as of the end of FY2021. However, if the Company violates the relevant financial covenants in the fiscal year ending March 2022, it will lose the profit due to the term. The directors have reasonable expectation that the Group will have adequate resources to continue in operational existence for the foreseeable future.

Accordingly, the Group continues to apply the going concern basis in preparing these financial statements.

(1) Total assets

Total assets at the end of March 2021 were ¥ 824,963 million, representing an increase of ¥ 59,766 million from the end of March 2020. The increase in total assets was largely caused by foreign exchange translation differences, with JPY weakening during the year against certain other currencies that the Group holds assets in such as EUR, GBP, and USD.

(2) Net debt

Net financial indebtedness increased by ¥ 21,603 million from 31 March 2020 to ¥ 411,771 million at the period end. The increase in indebtedness arose from the cash out-flow during the period arising from the COVID-19 related trading conditions earlier in the year and also the investment in strategically important capital expenditure projects. Gross

CFO Message

debt was ¥ 471,710 million at the period end. As of 31 March 2021, the Group had un-drawn, committed facilities of ¥ 74,934 million.

(3) Net assets

Total equity was ¥ 79,762 million, representing a decrease of ¥ 8,432 million from the March 2020 figure of ¥ 88,194 million. The cumulative fall in total equity was due to the loss recorded for the period and also a loss recorded within other comprehensive income following an update of Retirement Benefit Obligation (RBO) assumptions. These factors were partly offset by an increase in equity due to positive exchange differences arising on consolidation.

(4) Indices per share

Basic net profits or losses per share improved from a loss of ¥ 235.96 in the previous year, to a loss of ¥ 208.32 in FY2021. Earnings per share are calculated by taking the profit attributable to owners of the parent and deducting dividends and redemption premiums paid relating to Class A shares, and dividing this by the weighted average number of ordinary shares in issue during the year. In FY2021, dividends relating to Class A shares of ¥ 1,950 million have been included in this calculation (FY2020: dividends of ¥ 1,750 million and redemption premium of ¥ 750 million).

3. Cash flow for FY2021 (From 1 April 2020 to 31 March 2021)

Cash inflows from operating activities were ¥ 21,053 million. Cash outflows from investing activities were ¥ 25,589 million, including capital expenditure on property, plant, and equipment of ¥ 39,201 million and proceeds on disposal of property, plant, and equipment of ¥ 15,952 million. As a result, free cash flow was an outflow of ¥ 4,536 million. Free Cash flows improved from the previous year (FY2020 free cash outflow of ¥ 26,444 million) as a result of strict control of working capital and restricting capital expenditure.

After taking into account the effect of financing cash flows and movements in exchange rates, cash and cash equivalents at the end of the year increased by ¥ 12,988 million year-on-year to ¥ 53,500 million.

4. Financial Policy

(1) Securing liquidity

The Group's policy is to secure sufficient cash and cash equivalents and maintain its funding capacity by setting un-drawn, committed facilities. Although sufficient liquidity has been secured at the end of the fiscal year, we will continue to maintain our flexible funding capacity by sufficiently securing unused borrowing limits in order to respond to any fluctuations in the business environment.

(2) Financial Policy on the Medium Term Plan "Revival Plan 24 (RP24)"

NSG Group's most urgent task is to recover a sustainable financial base, as set in one of "Two Key Initiatives".

Operating profit Margin*1	8%
Net profit/loss*2	> JPY 30 bn cumulatively for 3 years
Equity ratio	> 10%
Free cash flow	> JPY 10 bn

*1: Operating profit after amortization

*2: Profit attributable to owners of the parent

The Group aims to restore equity ratio to more than 10 percent quickly by steadily generating net profit and free cash flow every term by the following initiatives.

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

CFO Message

- Transformation into more profitable business portfolio by –
 - 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

The transfer of the battery separator business, which was completed in September 2021 is part of these initiatives.

Meanwhile the Group will also proactively review further enhancement of equity from a longer term viewpoint

5. Policy on Return of Our Profits to Shareholders

- 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 common shares based on sustainable business results. To that end, 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.

The Company has set March 31 and September 30 of each year as the record dates for dividends. In addition, in accordance with Article 459, Paragraph 1 of the Companies Act, the Articles of Incorporation stipulate that dividends, etc. of surplus can be paid by resolution of the Board of Directors without regard to the General Meeting of Shareholders.

- Considering factors such as the Group's current financial position and its level of profitability, the Board of Directors has regrettably decided not to declare dividends for ordinary shares for the fiscal year to 31 March 2021. The Group recognizes the importance of dividends to its shareholders and anticipates resuming dividend payments when the financial performance of the Group allows.

The Board of Directors resolved to distribute the designated amount of dividends for Class A Shares.

Business Performance and Strategy

1. Architectural Glass Business

(1) Results for FY2021 (From 1 April 2020 to 31 March 2021)

The Architectural business recorded revenues of ¥ 215,501 million (8% down from FY2020) and an operating profit of ¥ 15,670 million (down from FY2020 ¥ 17,331 million).

Architectural revenues and profits fell from the previous year due to the impact on demand of the COVID-19 pandemic, particularly during the first quarter of the year.

In Europe, cumulative revenues fell due to lower volumes associated with the COVID-19 pandemic during the first quarter. Volumes improved markedly during the second quarter as production was resumed at facilities that had previously been suspended, then strengthened further during the third and fourth quarters. Price levels also recovered in line with an increased level of market demand. The recovery

of profitability was also aided by strong operational performance and tight cost control.

In Asia, cumulative revenues were also below the previous year, largely due to the COVID-19 pandemic, which had a significant impact on construction activity but a relatively minor impact on solar glass volumes. Profits improved however, with a reduction in costs, especially in Japan. The suspension of production at the Chiba #1 furnace and also at a furnace in Malaysia towards the end of the first quarter lowered fixed costs and contributed to the improved profitability.

In the Americas, cumulative revenues and profits were below the previous year due to the impact of the COVID-19 pandemic especially during the first quarter of the year. The new float furnace to produce TCO (transparent conductive oxide) coated glass for solar panels in Luckey, Ohio started operations during the third quarter.

Results recovered from the second quarter, with volumes in South America being particularly strong. Construction of a new float furnace in Argentina has resumed.

(2) Business Outlook

In FY2022, Architectural markets are expected to benefit from a further easing of lockdown measures generating an increase in economic activity. Strong demand should result in a high level of asset capacity utilization and a positive outlook for pricing.

In the medium to long term, commodity products will continue to be strongly affected by the market environment, but demand for value-added glass will increase against the

background of stricter environmental regulations and heightened health and hygiene awareness, and we expect that demand for glass for solar panels will remain strong due to the conversion to renewable energy, and the industrial high value-added glass market will also expand. Demand in emerging markets in South America is expected to remain strong.

(3) Strategy

We will steadily reflect the results of strategic investments already decided and implemented, such as increasing sales of glass for solar panels and starting operation of a new float line in Argentina, which has resumed construction. In addition, we will concentrate management resources in the fields the Group has strength, such as high added value through proprietary technologies such as online coating and sol-gel coating, and discovering partner companies and developing new markets through collaboration. We will provide products that create people-friendly surroundings and a living space that is pleasant, safe and health, such as starting demonstration experiments of products that utilize Low-e glass and vacuum glass technology, as well as solar panels for transparent windows that contribute to the realization of zero energy, and contribute to create "Safety & Comfort" and "Eco Society" among the three contributing fields in the medium-term vision. In addition to improving business performance through the expansion of new products, we will provide an early step toward achieving future carbon neutrality by strengthening our efforts to decarbonize, such as the world's first successful production for building glass using hydrogen energy.



Business Performance and Strategy

2. Automotive Glass Business

(1) Results for FY2021 (From 1 April 2020 to 31 March 2021)

The Automotive business recorded sales of ¥ 245,184million (13% down from FY2020) and an operating profit of ¥ 1,802 million (FY2020 ¥ 6,100 million). In the Automotive business, revenues and profits were below the previous year due to the collapse of demand arising from the COVID-19 pandemic during the first quarter of the year. In the OE business, demand has gradually recovered since June 2020 however, and fourth quarter, three-month, results were significantly better than the previous year which included major customer lockdown closures in March 2020. In the AGR business, demand improved from the second quarter with an easing of lockdown restrictions.

In Europe, cumulative revenues and profits were affected by a collapse in demand during the first quarter as a result of the COVID-19 pandemic. The Group's automotive facilities have operated broadly in line with the Group's customers' facilities, with production restarting towards the end of the first quarter and then steadily increasing from the second quarter. In the AGR business, sales volume recovered as the economy recovered, but were greatly affected by the COVID-19 pandemic.

In Asia, cumulative revenues and profits were also below the previous year due to the COVID-19 pandemic. The Group's automotive facilities have generally remained operational throughout the year, benefitting from increasing volumes from the second quarter, although vehicle manufacturers experienced computer-chip shortages, and also other component shortages following an earthquake that occurred in Japan in the final quarter, which together constrained the recovery of volumes.

In the Americas, cumulative revenues and profits also declined as a consequence of the COVID-19 pandemic, although vehicle production rebounded in North America from the second quarter, driven by customers recovering inventory levels and improving vehicle sales. Final quarter sales have been negatively impacted by shortages of computer-chips and other components at the Group's customers.

Production in South America also staged a recovery although remains at a relatively low level.

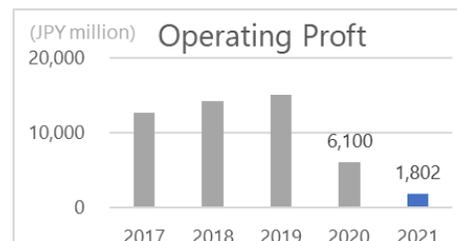
(2) Business Outlook

In FY2022, Automotive markets should benefit from improving consumer confidence, although the early parts of the year will continue to be negatively impacted by COVID-19 lockdown measures and also from shortages of computer chips and other components, which continue to disrupt manufacturing activity at some of the Group's automotive customers.

In the medium to long term, we expect the new vehicle market in the Group's major regions to recover, but not to fully return to the levels before the pandemic during the RP24 period. On the other hand, rapid progress in CASE (Connected, Autonomous, Shared, Electric) is expected to significantly change the supply chain that supports the automotive industry, and the need for windshields with heads-up displays, 5G-enabled glass antennas, and energy-saving coated glass for EVs is expected to increase, but the resource allocation will have to be more selective and focused. In AGR business, the response to CASE is also expected to increase.

(3) Strategy

We will work on fundamental cost structure reforms with a view to unification and consolidation of manufacturing and logistics bases, such as maximizing the capacity utilization rate through a flexible production system that does not focus on productivity improvement and in-house equipment, and minimizing logistics costs by reviewing logistics. At the same time, we intend to expand high value-added products by utilizing our unique technologies such as high-precision windshields. In this realization, the Group's glass for head-up display was featured in General Motors' all new SUV vehicles scheduled to be launched in North America in 2021, and the glass for world's first full augmented reality head up display was selected by Mercedes-Benz's flagship model. We contribute to the ICT field out of the three contributing areas in our medium-term vision. In AGR business, we will strengthen our sales network.



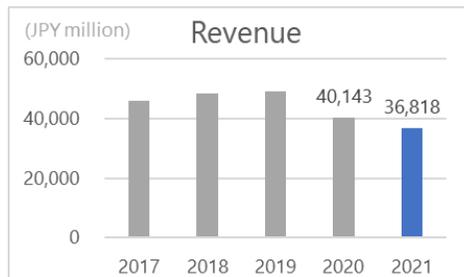
Business Performance and Strategy

3. Technical Glass Business

(1) Results for FY2021 (From 1 April 2020 to 31 March 2021)

The Technical Glass business recorded cumulative revenues of ¥ 36,818 million (8% down from FY2020) and an operating profit of ¥ 6,707 million (4Q FY2020: ¥ 7,116 million). COVID-19 had a limited impact on the fine glass business and results have improved as the year progressed. In the information devices business, volumes of printer lenses were boosted by work from home and school from home demand. Demand for glass cord used in engine timing belts fell during the early parts of the year, reflecting conditions in the automotive sector, although recovered strongly towards the end of the year.

Results in the battery separator business remained stable. The Group disposed of its Battery Separator business in September 2021.



(2) Business Outlook

In FY2022, Technical Glass businesses are also expected to benefit from increasing consumer confidence through the year.

In the medium to long term, with the advent of an ultra-advanced information society, demand for storage and high-speed, high-capacity communication is expected to increase dramatically, and the need for small and high-precision optical components will increase, such as the penetration and expansion of image sensing technology in FA equipment, logistics robots, drones, etc.

(3) Strategy

We will develop highly unique products that meet changes in market needs, mainly in ICT (Information and Communication Technology). For ICT, we have launched the new SELFOC® Lens Array (SLA) "SLA 5DG" for machine vision, which has twofold depth of focus and expanded the range of inspection, and succeeded in developing ultra-thin type of SELFOC® Micro Lens with the same diameter as optical fibers. These are the three contributing areas in the medium-term vision that contribute to ICT field. In addition, amid the growing attention to antiviral materials due to the global pandemic of covid-19, we will start production of "NSG Purity™" an antibacterial and antiviral glass that applies sol-gel coating in the fine glass business, which was previously intended for application in the building glass business, contributing to "Safety & Comfort" fields. In addition, while considering accelerating the creation of new businesses through bold alliances, we will acquire a new customer base through the introduction of new products and accelerate the actual commercialization of new products. We will continue to pursue niche top strategies to promote business growth.

Strategy for Sustainability and Initiatives for TCFD

Positioning of sustainability strategy

In order to contribute to the realization of a sustainable society and world under the management principle “Our Vision”, the NSG Group has recently adopted the NSG Group Basic Policy on Sustainability at its Board of Directors for the purpose of establishing its stance and policy on basic sustainability initiatives.

Based on this, the Group identified material issues (materiality) in order to contribute to the sustainable improvement of corporate value over the medium to long term and the realization of a sustainable society. Through this framework, we are addressing five important issues: “ethics and legal compliance,” “social shift innovation,” “the environment,” “safe, high-quality products and services,” and

“human resources.”

Please refer to the “[NSG Group Basic Policy on Sustainability](#)”

Initiatives for Carbon Neutrality

In order to respond to climate change, we have set scientifically based CO2 reduction targets (SBTs) and are actively working to reduce CO2 emissions in the manufacturing process and shift to renewable energy. These activities, together with the further creation of environmentally friendly products, form the framework of the Group’s climate change strategy.

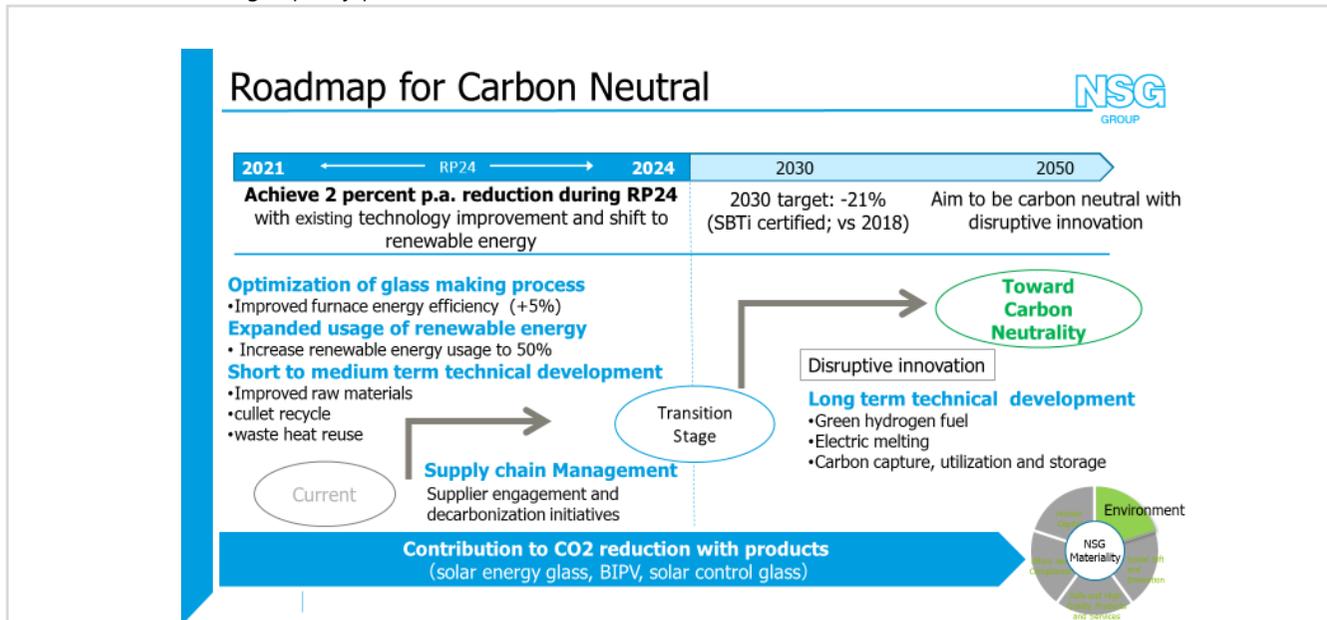
We are also actively engaged in research and development such as hydrogen combustion to achieve future carbon neutrality. (For details see [page 43 \(Sustainability\)](#))

Support and Initiatives for TCFD

NSG Group has been aligning its climate related disclosures with the Taskforce on Climate related Financial Disclosures (TCFD) recommendations utilizing the Carbon Disclosure Project (CDP) framework.

Following the TCFD recommendations, NSG Group has committed to developing an action plan using climate scenario analysis to assess potential impacts from climate related risks and opportunities. This activity will further supplement the existing climate change roadmap focused on minimizing risk and maximizing opportunity associated with the decarbonization of NSG Group activities.

(More information please see the [page 46.](#))



Shiro Kobayashi
Executive Officer,
Sustainability Director

Society Shift and Innovation

- Identify significant challenges to society and providing technology/product/service to their solution in a timely fashion -

Strong R&D is critical to drive the increase in the ratio of value-added products and services among the Group's sales and to establish new pillars of growth, under NSG Group's, new medium-term management plan, "Revival Plan 24 (RP24)".

The focus of R&D's activity is aligned with business strategy.



Mike Greenall
Executive Officer,
Chief Technology Officer(CTO)

"Three Areas of Contribution" to be Focused set in NSG Group's Medium Term Vision

- 1) Safety & Comfort: To create people-friendly surroundings and a living space that is pleasant, safe and healthy
- 2) Eco Society: To create an eco-friendly world by various contributions such as a shift to renewable energy and lowering the usage of air-conditioning and heating
- 3) Information and Telecommunication: To contribute to the development of information and telecommunication technology to make people's lives more convenient and to support the advancement of the society.

Along with the focused areas, the investment allocation of resources in research and development and intellectual property has been cleared, and actions are being taken in collaboration with each SBU. NSG is focusing on well-balanced cost-effective resource allocation on core technologies that the group has strengths in.

R&D Policy

NSG has a long and successful record of developing and exploiting core technologies including areas of distinct competitive advantage such as float glass, coatings, glass fibers and flakes and automotive glazing fabrication.

Increasingly NSG is working in partnership with others in order to develop basic science and to enable us to investigate emerging technologies. The breadth of involvement ranges from long term partnerships with leading Universities to

facilitating start-up companies by offering access to NSG facilities.

The business plays an active role in the prioritization and planning of the project portfolio at a regional and global SBU level. In addition, executive reviews allow members of the management committee to monitor and guide R&D contributions to the Group.

Intellectual Property Policy

NSG is targeting to maintain and advance the Group's competitive trading position by positive use of intellectual property. It is important to align our own patent strategy with our business and R&D strategies, and indispensable to vigorously pursue activities to obtain, maintain and enforce intellectual property rights in accordance with the strategy.

NSG aim to promote patenting activities both in "product development" and "key technology development" areas, which are closely connected with our core and strategic businesses. For this purpose, we seek to obtain patents ahead of competitors, and ensure that patenting activities are performed in a way that meets the needs of businesses, and in the vicinity of development and manufacturing sites.

Going forward, we continue to try to improve patent quality, and obtain intellectual property rights that will better serve the interest of businesses.

Society Shift and Innovation

Contribution for Decarbonization

For example, the R&D function is leading the Group's activity to identify and develop technologies that will allow us to reach our goals for the carbon neutrality by 2050, as the top priority management issue among our sustainability approaches in RP24.

Project Carbon 2050 launched in 2018 supported the development and implementation of a decarbonization roadmap that identifies the technologies, barriers and financial investments required to achieve significant carbon emission reductions in float manufacturing by 2050. This project was expanded into several specific R&D projects to increase the focus in key technology application to support the delivery of the Group MTP targets and longer term Science Based Target goals. One such project is related to the application of Hydrogen as a low carbon alternative fuel in the float glass manufacturing processes.

NSG Group has successfully manufactured architectural glass by the use of hydrogen at its Greengate Works in St. Helens, U.K. A global first, the initiative is part of a project managed by HyNet, a consortium of industries in the North West of England, aimed at reducing carbon emissions from industry, homes and transport.

In the trial in late August 2021, the NSG Group managed to achieve a seamless transition between its current main fuel, natural gas, and hydrogen, with the expertise overcoming many challenges. The trial proved that hydrogen was as capable as natural gas in achieving excellent melting

performance and that it could be possible to operate the furnace with vastly reduced carbon emissions. It is a key step in the Group's plans to decarbonize. The switch to hydrogen to power the production from natural gas means that float glass furnaces - which account for the majority of the Group's overall carbon emissions - would be able to operate with hugely lower emissions.

R&D Costs and Activities by Segment

R&D costs amounted to ¥ 8,256 million for the year ended 31 March 2021. Segmental R&D costs are as listed below.

Segmental	FY2021 (JPY million)
Architectural	2,253
Automotive	2,275
Technical Glass	864
Segmental total	5,392
Other	2,864
Total	8,256

(1) Architectural

The Group continues to strengthen our products in the traditional commercial and residential building segments. Key innovations are aligned with our customers' requirements including further expansion of our insulating and solar control coating range, decorative interior products and improved vacuum glazing products in the Spacia™ range.

During 2021 we launched a new Product Sanitise™ that eliminates viral and bacterial contamination on glass surfaces. And Birdsafe™ a discrete coating that deters migrating birds from impacting high rise buildings.

We have expanded our range of World Leading on-line Chemical Vapor Deposition coatings. These include conductive coatings, anti-reflection and transparent mirrors. Basic research is using computational methods hosted on an IBM Blue Gene/Q supercomputer to explore novel material structures.

We are leveraging NSGs long experience with liquid coatings to develop anti-glare, anti-fingerprint, anti-microbial, anti-static and other properties.

Our products are incorporated into an ever-increasing wide range of products by our customers in markets such as digital signage, touchscreens and point of sale displays, wearable devices, commercial refrigeration, medical applications, heating applications and interiors.

NSG continues to enhance our products for the growing solar, BIPV and electrochromic industry through the further development of our transparent electrodes. We offer tuned versions of our conductive substrates to enable our customers to maximize their product performance.



Society Shift and Innovation

(2) Automotive

The R&D program, based again on our strong core technologies, is developing new products and continuous improvement to our core manufacturing processes. Key areas of innovation are aligned with automotive industry requirements of safety and security, environment, comfort, convenience and style. Increasingly the trend towards connected, autonomous, shared and electric vehicles is presenting new opportunities.

We are working closely with our customers to develop advanced products such as windshields for Head Up Display (HUD) systems. Our developments in the augmented reality HUD field are coming to fruition with the launch of several vehicles that incorporate our product. Customers recognize NSG's leading glass forming and simulation capability, and our deep understanding of how materials and processing combine to meet stringent optical requirements.

We are expanding supply of low emissivity insulating glazing to new customers, using durable coatings adapted from the architectural markets. These will give range extension and improved comfort for electric vehicles in hot and cold climates.

(3) Technical Glass

The Group's Technical Glass business is active in several growth segments using our core technologies of optical design, glass fibers and glass flakes. The policy of the business is to develop a product portfolio for Sustainable Growth.

We are developing advanced optical devices for automated optical inspection, low dielectric materials for 5G applications and new applications for glass fiber.

Our strategy continues to be to introduce new improved products in these fast-moving segments and to enter new markets.

(4) Other

The NSG Group funds a portfolio of longer-term R&D activities centrally. The Incubator portfolio actively searches for new technologies that could be the basis for future products or services for our existing business units.

We do this mainly through links with external partners and universities. When the concept is sufficiently developed the work continues as a business sponsored project to bring the idea to market.

Business Innovation Center (BIC) is included in this segment. For example, the Group has been focusing on the Group's proprietary lenses and pushing toward to develop new businesses, actively promoting collaborations with third parties and open innovation.

Financial, Non-financial Highlight - Financial Highlights -

Consolidated Income Statement	Unit	2017/3	2018/3	2019/3	2020/3	2021/3
Revenue	million yen	580,795	598,897	612,789	556,178	499,224
Trading Profit	million yen	29,862	35,632	36,855	21,177	13,067
Profit before Taxation	million yen	14,751	22,146	22,730	(13,549)	(17,171)
Profit Attributable to Owners of the Parent	million yen	5,605	6,164	13,287	(18,925)	(16,930)
Trading Profit Ratio to Revenue	%	5.1	5.9	6.0	3.8	2.6
Profit Attributable to Owners of the Parent Ratio to Revenue	%	1.0	1.0	2.2	(3.4)	(3.4)
ROE	%	4.5	4.6	10.7	(25.7)	(26.9)
ROA	%	4.0	4.7	5.1	3.0	1.8

By Business Segment (Revenue)	Unit	2017/3	2018/3	2019/3	2020/3	2021/3
Architectural	million yen	237,722	237,966	247,348	233,687	215,501
Automotive	million yen	296,560	311,428	314,645	280,977	245,184
Technical Glass	million yen	46,088	48,429	49,106	40,143	36,818
Others	million yen	425	1,074	1,690	1,371	1,721

By Business Segment (Profit)	Unit	2017/3	2018/3	2019/3	2020/3	2021/3
Architectural (Trading Profit)	million yen	27,044	26,246	25,811	17,331	15,670
Automotive (Trading Profit)	million yen	12,654	14,209	15,118	6,100	1,802
Technical Glass (Trading Profit)	million yen	1,756	5,403	8,062	7,116	6,707
Others (Trading Profit)	million yen	(11,592)	(10,226)	(12,136)	(9,370)	(11,112)
Architectural (Profit Ratio to Revenue)	%	11.4	11.0	10.4	7.4	7.3
Automotive (Profit Ratio to Revenue)	%	4.3	4.6	4.8	2.2	0.7
Technical Glass (Profit Ratio to Revenue)	%	3.8	11.2	16.4	17.7	18.2

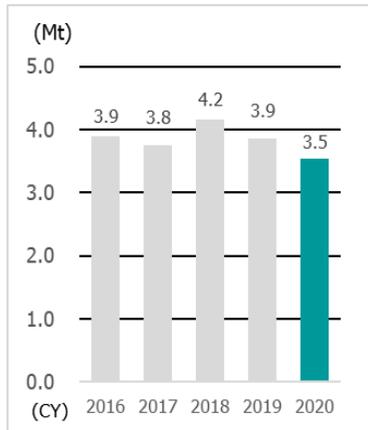
Balance Sheet	Unit	2017/3	2018/3	2019/3	2020/3	2021/3
Total Assets	million yen	790,192	788,592	761,869	765,197	824,963
Interest-bearing Debt	million yen	399,386	372,654	371,508	435,007	471,710
Net Debt	million yen	313,254	306,471	317,700	390,169	411,771
Shareholders' Equity	million yen	124,146	135,192	123,760	73,612	62,937
Shareholders' Equity Ratio	%	15.7	17.1	16.2	9.6	7.6

Cash Flows	Unit	2017/3	2018/3	2019/3	2020/3	2021/3
Cash Flows from Operating Activities	million yen	30,429	34,716	29,030	30,444	21,053
Cash Flows from Investing Activities	million yen	(10,152)	(17,912)	(28,143)	(56,888)	(25,589)
Free Cash Flow	million yen	20,277	16,804	887	(26,444)	(4,536)
EBITDA	million yen	62,051	63,564	64,732	55,023	46,837
Net Debt/EBITDA		5.0	4.8	4.9	7.1	8.8
Capital Expenditure	million yen	(28,013)	(35,512)	(32,150)	(66,971)	(43,347)
Depreciation & Amortization	million yen	32,189	29,436	27,910	34,842	35,768

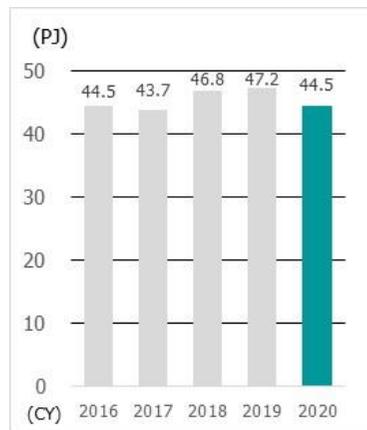
Per Share	Unit	2017/3	2018/3	2019/3	2020/3	2021/3
Earnings per Share	yen	62.0	48.3	115.2	(236.0)	208.3
Book Value per Share	yen	941.8	1,042.7	978.5	470.9	349.6
Cash Flow per Share	yen	224.4	185.7	9.8	(291.7)	(49.9)

Financial, Non-financial Highlight - Non-financial Highlights -

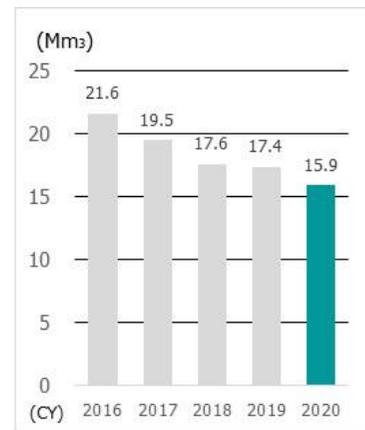
CO2 emissions*



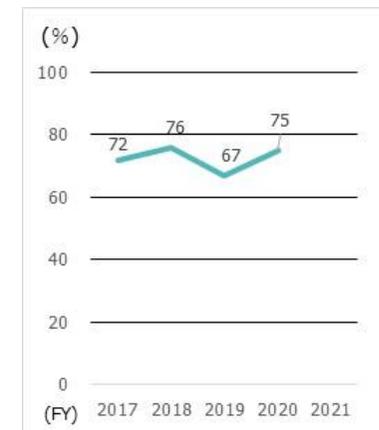
Energy Usage



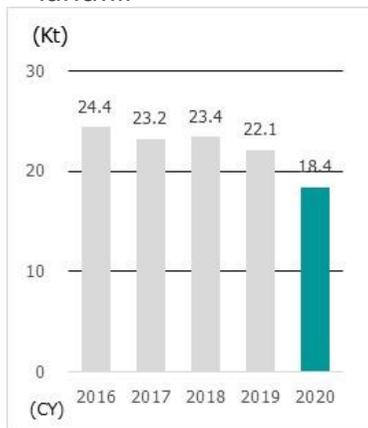
Water Usage



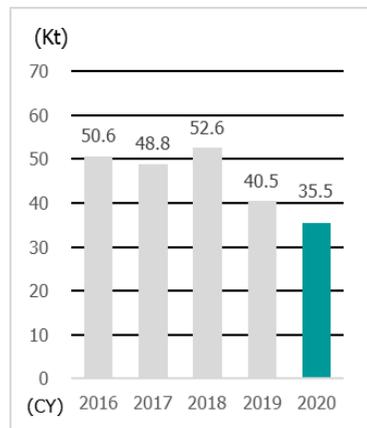
Employee engagement***



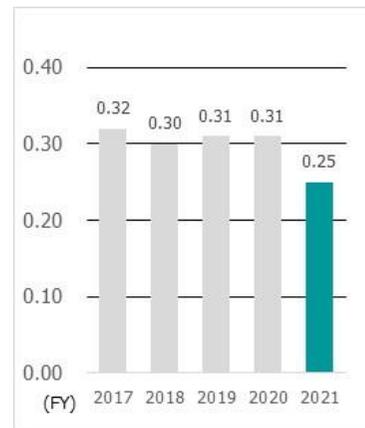
Operational waste to landfill**



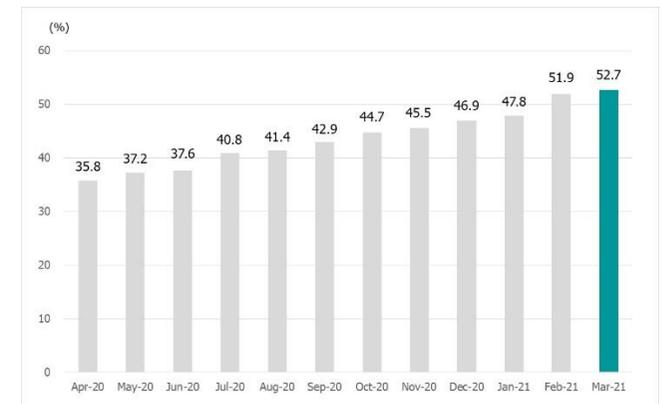
Recycling (not glass)



Significant injury rate (SIR)



FY21 Supplier Spend Assessed By EcoVadis****



* Total CO2 emissions of Scope 1 and Scope 2 Location

** Indicates total amount of glass and non-glass landfill waste

*** Employee engagement in FY21 was not conducted due to the spread of COVID-19 infection.

**** Procurement spend basis

Corporate Governance

Dialogue with External Directors

Yasuyuki Kimoto : Independent External Director Chairman of the Board

Jörg Raupach Sumiya : Independent External Director

Q1 The new medium-term management plan, Revival Plan 24 (RP24), started this fiscal year. As the Board of Directors, what challenges and possibilities of the Group have you seen through the RP24 formulation process?

Kimoto: The previous medium-term management plan, MTP Phase 2, ended in the fiscal year ending March 2020, but the announcement of the new medium-term management plan, RP24, was delayed by one year due to the rapid spread of the new coronavirus (COVID-19) infection. We took this delay as a sort of a chance to expose not only the impact of COVID-19 pandemic but also the essential changes in the business environment, and were able to identify the issues to be addressed and incorporate measures to resolve them.



Jörg Raupach Sumiya

Yasuyuki Kimoto

Raupach: That's right, even before COVID-19, the Board of Directors had been discussing the Company's strategic challenges, but COVID-19 has accelerated this process. While improving and strengthening the financial base is the most urgent task at hand, I also believe that the speed and the decisiveness in transforming the business portfolio will be a major challenge for the success of RP24. Moreover, we need to realize the next pipeline of innovations for growth during this RP24 period in addition to the strategic investments we made in the solar panel business and the architectural glass business in Argentina during MTP Phase 2.

Kimoto: The Group's top priority during the three-year period of RP24 is "structural reforms", and it is crucial for the Group to accomplish them. In the cost structure reform, which is the main pillar of RP24, the fixed cost reduction has already been implemented as Phase 1 according to the plan. Additionally, as Mr. Raupach pointed out, we need to have in-depth discussions in the Board of Directors meetings on the issues to be tackled as a next step, which is "establishment of a growth cycle".

Q2 What are the expectations for the implementation of RP24 and the perspective of future supervision by the Board of Directors as the Group is executing measures to address such issues (restoration of financial stability, business transformation and etc.) and initiatives to enhance the corporate value in the medium to long term (growth strategies, sustainability actions and etc.)?

Raupach: RP24 is an ambitious but realistic plan based on the Group's robust management, organizational strength,

technological capabilities, and business resources as well as a clear assessment of market opportunities. Based on its strong market position and technology base, the Group has identified three areas of contribution, i.e. Safety & Comfort, Eco society and ICT, shifting from the traditional focus on industries and business units to a focus on markets and applications. Above all, I believe that there is a great potential in photovoltaic products, a market that is expected to expand further in the field of renewable energy.

Kimoto: Yes, I agree. While highlighting such medium-term opportunities, RP24 sets forth three reforms (cost structure reform, business structure reform, and corporate culture reform) and two key initiatives (restoration of financial stability and transformation into more profitable business). All of these measures are designed to lay the groundwork for the next step, and all employees must get united and work together to achieve the plan so that we can build a resilient business structure capable of achieving sustainable growth. We "just have to get it done". The Board of Directors is in a position to oversee the efforts of the executive team, but we are also ready to support and fight together as a team.

Raupach: The Board of Directors is not an advisory council but is responsible for the decisions taken by the Company and their consequences. Therefore, we would like to monitor carefully the actions of the executive team with a focus on implementation of RP24 as has been decided and speeding up of the decision making process and execution of these decisions. While supporting the executive team, we will also need to be particularly attentive to risks, articulate our views clearly, and take initiatives proactively when necessary.

Corporate Governance

Dialogue with External Directors

Yasuyuki Kimoto : Independent External Director Chairman of the Board

Jörg Raupach Sumiya : Independent External Director

Q3 Could you provide an assessment of the current situation and recommendations for the future with regard to the direction the company should pursue in the area of sustainability, particularly in addressing environmental issues.

Kimoto: Based on the concept of corporate citizenship, the Group, as a global company, is required to conduct business activities with an awareness of the entire planet. Especially, in the face of environmental and climate change issues, it is critical for us to delve into what we can do for our survival and accumulate activities steadily rather than having conceptual discussions.



Raupach: The Group has a variety of products and technologies to provide practical solutions to climate change, including the efficient use of energy in buildings and creation of renewable energy. Moreover, NSG’s Board of Directors as well as the management team have a keen interest in and the management capability for sustainability issues, and the Group occupies a leading position in the industry.

Kimoto: In the "2050 Declaration on Carbon Neutrality", Japanese government unveiled its goal to achieve a carbon neutral society and virtually zero greenhouse gas emissions by 2050. As a milestone towards carbon neutrality, the Group has set a goal of reducing CO2 emissions by 21% by 2030 (compared to 2018, SBTi certified). Of course, it is important to respond to such national policies, but on the other hand, there are many examples of the initiatives that are one step ahead in the private sector. We also need to be flexible and broad-minded in our approach to sustainability, keeping a close eye on social trends and the results of scientific analysis and research on climate change along with the changing times.

Raupach: On the other hand, NSG has an energy-intensive business structure and long-term asset investments and thus, the climate change poses a critical risk. The investment decisions we make today will have a long-term impact on our business and our competitiveness. It is a difficult task to balance the non-financial requirements of addressing environmental issues with the financial requirements of investing in assets, and furthermore, the short-term and long-term aspects. In this context, the Group’s success in the

world's first experiment in the production of architectural glass using hydrogen energy this year is a key step in the Group's decarbonization endeavor. Besides innovative technologies, however, collaborative approaches are essential. In particular I see promising opportunities in working with local municipalities and communities at our production sites, and engaging with our employees and local citizens.

Kimoto: The world of energy is undergoing strategic structural changes which will affect all aspects of the Group’s business activities including production, consumption, and logistics, and at the same time, present significant opportunities for us in resolving associated issues. The Board of Directors will constantly monitor the risks that the Company faces in relation to sustainability and actively support the efforts of the executive team, viewing them as important opportunities to enhance the corporate value.



Corporate Governance

Dialogue with External Directors

Yasuyuki Kimoto : Independent External Director Chairman of the Board

Jörg Raupach Sumiya : Independent External Director

Q4 Lastly, please tell us your views on our corporate culture and organizational structure for promoting the efforts to implement RP24.

Kimoto: RP24 takes up "corporate culture reform" as one of the three reforms and values "customer focus", "swift decision making and action" and "overcoming difficulties" with a goal of transforming into an organization that never fails to take on challenges and follow through to deliver results. All of such actions are important for a company to change, but in my experience, it is much more difficult to change a corporate culture than it is to change an organization or how we work. I have been on the Board of NSG for five years now, and have found through my interactions with its employees that they are "sincere," "honest," and "diligent" about their work. Of course, there are things that need to be changed, but I believe it is also important to recognize and cherish the good points of our corporate culture for further development.

Raupach: You are right, Mr. Kimoto. COVID-19 has brought to light various challenges the Company is facing and the management had to make painful decisions, but in the midst of all this, I saw concerted and dedicated efforts by the employees to assure health and safety, and to recover the performance. I have been impressed by this strength of our corporate culture.

Kimoto: In terms of the organizational structure, the reform team, each business unit, and functional division are beginning to function more closely together, led by CEO. Although they are still in the middle of reforms, improvements are already observed including speeding up of the decision-making process. Through such initiatives, the Group should continue to promote the corporate culture reform, while at the same time, the Board of Directors will work more intensely with the management team to set out the strategic directions that the company should take in concrete terms, and support and supervise their actions.



Board of Directors (As of 29 June 2021)



Yasuyuki Kimoto
Independent External Director
Chairman of the Board



Jörg Raupach Sumiya
Independent External Director



Hiroshi Ishino
Independent External Director



Kunihito Minakawa
Independent External Director



Yoshihiro Kuroi
External Director



Shigeki Mori
Director
Representative Executive Officer
President and CEO

Nomination Committee	Audit Committee	Compensation Committee
Hiroshi Ishino (Chairman of Nomination Committee)	Kunihito Minakawa (Chairman of Audit Committee)	Jörg Raupach Sumiya (Chairman of Compensation Committee)
Yasuyuki Kimoto	Yasuyuki Kimoto	Yasuyuki Kimoto
Jörg Raupach Sumiya	Jörg Raupach Sumiya	Hiroshi Ishino
Kunihito Minakawa	Hiroshi Ishino	Kunihito Minakawa
Shigeki Mori		Shigeki Mori

Executive Officers (As of 29 June 2021)

Representative Executive Officers



Shigeki Mori
Director
Representative Executive Officer
President and CEO

Senior Executive Officers



Tony Fradgley
Chief Transformation Officer (CTrO)



Koichi Hiyoshi
Chief Legal Officer (CLO), Chief Risk Officer (CRO), Company Secretary and Officer in charge of Ethics and Compliance



Munehiro Hosonuma
Head of Architectural Glass SBU



Reiko Kusunose
Chief Financial Officer (CFO)



Hiroshi Nishikawa
Transformation Director Asia, Country Manager Japan



Rob Purcell
Head of Automotive OE SBU



Phil Wilkinson
Head of Automotive AGR SBU

Executive Officers



Mike Greenall
Chief Technology Officer (CTO)



Shiro Kobayashi
Global Sustainability Director



Yutaka Nakashima
Chief Human Resources Officer (CHRO)



Iain Smith
Finance Director – Global Finance



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

Corporate Governance

Nippon Sheet Glass Group (the "NSG Group" and the "Group") believes that achieving and maintaining an advanced level of corporate governance is a key management agenda. We have created and adopted "NSG Group Corporate Governance Guidelines", supporting and endorsing the spirits and principles of Corporate Governance Code provided by Tokyo Stock Exchanges.

These Guidelines are intended to define and embed the basic principles and framework of our corporate governance in the organization. To further secure such purposes the Group has also adopted a self-disciplinary approach for the Guidelines



Koichi Hiyoshi
 Senior Executive Officer
 Chief Legal Officer(CFO), Chief Risk Officer(CRO),
 Company Secretary and Officer in charge of Ethics
 and Compliance

which, among others, requires it to give a reasonable account to our shareholders if the Group should proceed with any actions deviating from these Guidelines.

Please refer to the "[NSG Group Corporate Governance Guidelines](#)".

NSG Group Corporate Governance Guidelines Fundamental Principles

The Group considers achievement of an advanced level of corporate governance a key management objective and will implement the following.

(1) Organizational structure

The Group's ultimate parent company, Nippon Sheet Glass Company, Limited will adopt a Company with Three-Committee structure and the Company hence will establish and maintain the Board of Directors (the "Board"), the Nomination Committee, the Audit Committee, the Compensation Committee (individually referred to as the "Committee") and office of Executive Officers.

The Board will authorize the Executive Officers to make decisions on the execution of businesses for the Company within the scope as permitted by law, thereby facilitating separation between business execution and oversight, enhancing the transparency of the management processes and strengthening the Board supervisory function over the executive management.

The Company will establish and maintain an internal control system operating on a Group-wide basis including in relation to financial reporting (J-SOX).

(2) Stakeholders Communication

The Group aims to be judged by as best in class by our many stakeholder groups in a variety of settings across the whole group (including shareholders, customers, suppliers and local communities) from their own perspectives and also will develop, maintain and enhance good relationship with any of such groups.

In relation to the matter of disclosure of corporate information whether or not it is to be made according to legal requirements, the Group always aims to act in a timely and appropriate manner both in terms of the substance and form, with a view to maintaining and invariably enhancing transparency of management of the Group.

(3) Code of Conduct

The Group will, in order to materialize those values, create the NSG Group Code of Ethics which all entities and employees etc of the Group must comply with and will be regularly reviewed in light of the status of implementation/embedding within the Group and the contents.

Corporate Governance

Corporate Governance Structure

NSG Group adopts “Company with Three Committees” governance structure, and has in place, as statutory corporate organizations, Board of Directors and —Nomination Audit and Compensation Committees, and an office of Executive Officer. Currently, the Chairman of the Board as well as chairpersons of all three Committee are all appointed from among the Independent External Directors.

Various steps have been taken to date so that NSG Group has enhanced management transparency by further separation of functions between business execution and its supervision and strengthened role of independent external directors. For example, according to the NSG Group Corporate Governance Guidelines, the roles of Chairman of the Board and CEO are clearly distinguished. In the event that Chairman of the Board is not an Independent External Director, a Lead Director whose role is to advise Chairman of the Board on matters

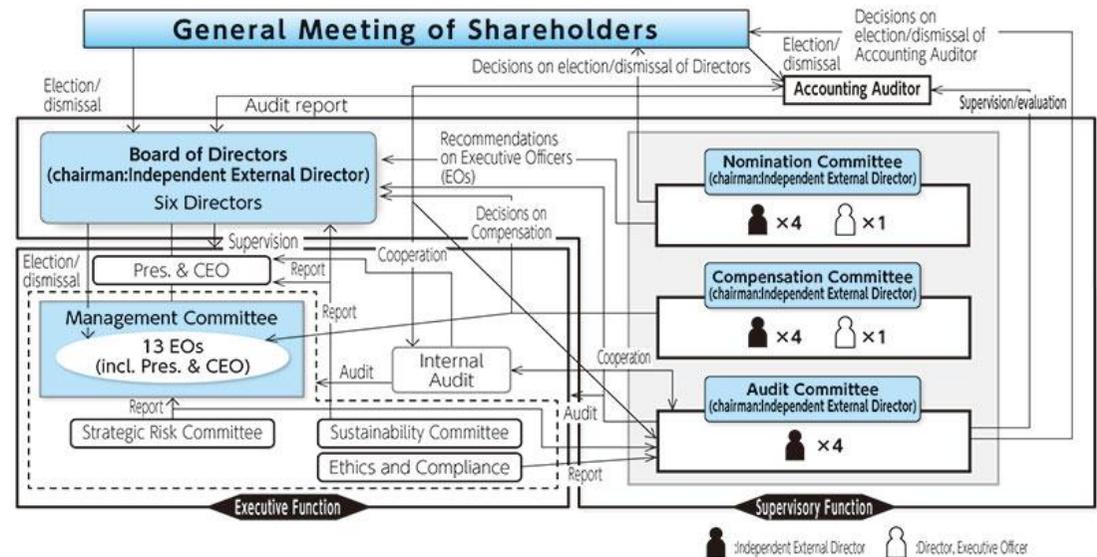
concerning corporate governance shall be appointed from among Independent External Directors. Independent External Directors meet on an as-needed basis, even without presence of executives, for discussion concerning matters such as corporate governance and businesses.

As regards executive function, the Group also has Management Committee, Sustainability Committee, and Strategic Risk Committee. Currently, thirteen (13) Executive Officers are responsible for the business execution. One (1) of them is Representative Executive Officer performing the duties of CEO.

Overview of Corporate Governance Structure (As of 1 July 2021)

Key Items	Description
Type of Governance structure	Company with Three Committees
Number of Directors / term of office	6(5) / 1 year
Number of Independent External Directors	4
Chair of the Board	Mr. Yasuyuki Kimoto (Independent External Director)
Chair of Three Committees	Nomination: Mr. Hiroshi Ishino (Independent External Director), Audit: Mr. Kunihito Minakawa (Independent External Director), Compensation: Dr. Jörg Raupach Sumiya (Independent External Director)
Number of Executive Officers (Representative Executive Officers) / term of office	13(1) / 1 year
Compensation system	Executive Officer (including those who concurrently serve as Directors)
	External Director
Accounting Auditor	Ernst & Young ShinNihon LLC

Corporate governance mechanism (As of 1 January 2021)



Corporate Governance

Director Skills Matrix

In order to develop and enhance the enterprise value of the Group in a sustainable manner on a medium to long term basis, the Board is required to effectively supervise the execution of duties by executive officers, etc., while preparing for a corporate environment which would enable the executive management to take proper degree of risks associated with business. Based on the company situation and the issues to be solved in the execution of the three-year medium-term plan starting from this year, the experience and specialized knowledge for the director candidates, which the Nomination Committee considers to be particularly important, are defined as follows, and the composition of directors would be well-balanced as a whole in consideration of diversity.

- Global Company Management Experience: Management experience in a global or multinational business environment is required and it is a core item clarified in the NSG criteria for nomination of the director candidates.
- Financial Expertise: The item required from the perspective of leading the statutory audit committee in a company adopting the committee-based governance structure, and supervising executive management from the financial aspect. More specialized expertise is desirable, not just accounting experience.
- Risk Management/Governance: The item that should be expressed from the perspective of supervising the execution

of duties, which is one of the important roles of the board of directors in a company adopting the committee-based governance structure. Also, ESG initiatives are becoming more important, and governance being conscious 'E' 'S' is required.

- Portfolio management / New Business Development: The item should be expressed from the perspective that effective and efficient supervision is required for initiatives against "Business structure reform" such as new business development and Portfolio transformation to highly profitable business.

- Operational Excellence / Supply Chain Management : As a manufacturing company, improving on-site operational work performance is essential, and from procurement / manufacturing to logistics, cost structure reform that transcends the boundaries of each function and optimal manufacturing / supply chain are important. Therefore, the item should be expressed from the perspective that effective and efficient supervision is required for initiatives against "Cost structure reform" "Business structure reform" and "Restoration of financial foundation".

- Marketing/Commercial: Strategic marketing is needed to develop the business, and the item should be expressed from the perspective that effective and efficient supervision is required in implementing initiatives for "Business structure reform" and customer-oriented "Corporate culture reform".

Name	Global Company Management Experience	Financial Expertise	Risk Management / Governance	Portfolio management / New Business Development	Operational Excellence / Supply Chain Management	Marketing / Commercial
Y.Kimoto	○	○	○			
J.Raupach-Sumiya	○		○	○		
H.Ishino	○	○	○	○	○	○
K.Minakawa	○	○	○			
Y.Kuroi	○	○	○	○		
S.Mori	○	○	○	○	○	○

Corporate Governance

Board Effectiveness Evaluation

[Our Effectiveness Review Process]

The Board confirmed the progress of the action plans effective from prior years for improvement realized during FY ended March 2021. The effectiveness review of the Board and Committees was conducted with reference to feedback and views taken from each Director in terms of composition, status of meeting management, agenda setting, manner and substance of deliberation and direction in the role of each such organization. The entire process for such review was led and supervised by the Independent External Directors under the leadership of the Chairman of the Board of Directors.

[Evaluation Summary]

The effectiveness review endorsed that the Board and the Committees were all properly and soundly operated to ensure their effectiveness. On the other hand, the following points were confirmed individually.

- In executing structural reforms and key initiatives in NSG Group's Medium Term Management Plan, the Group needs to identify a more concrete execution plan and improve effectiveness of such efforts including speed
- In order to increase the Group's corporate value over the medium to long term, it is also necessary to conduct in-depth examinations and discussions to come up with specific measures to address important management issues such as business structure reform, business strategy, growth strategy, organizational strategy, and sustainability issues such as climate change agenda

- The Group should develop a plan for director candidates to seek and deliver desirable diversification including adding further international experience or election of a female directorship currently vacant

With the aid and on the basis of the evaluation results and views, the Board adopted the following improvement plans through the exchange of views at sessions consisting exclusively of Independent External Directors and discussions at the Board meetings, with a view to ensuring the execution of the Revival Plan (RP24) and the improvement of the Group's corporate value over a medium to long term in a sustainable manner through the Board and the Committees.

- Monitoring of the Revival Plan (RP24) to ensure its rapid implementation and check progress status and facilitating in-depth discussions on overall management issues of critical importance to the Group
- Promotion of diversity at the Board

Criteria of Independency for External Director at NSG

An External Director is a director who has never been a director, executive officer nor employee of the company nor its subsidiary.

To enhance the transparency of business management, the Company has appointed five External Directors out of the six Directors, four of whom are designated as Independent Directors under the TSE.

In addition to the criteria for independency defined by the TSE, the Company has established its own criteria of independency for External Directors, taking into consideration their relationship with the Group including such with its officers and major shareholders. All of the four External Directors satisfy the criteria of independency, its officers, major shareholders, etc. These all five External Directors meet the relevant criteria of independency.

Please refer to [the Group's Criteria of independency for External Directors](#)

Corporate Governance Report

The Group has filed the Corporate Governance Report in accordance with the TSE Corporate Governance Code revised in June 2018.

Please refer [the Group's Corporate Governance Report \(as of 13 July 2021\)](#).

For more detail please see NSG website

[Approach \(nsg.com\)](#)

Ethics and Compliance

Transparency In All That We Do

Working ethically and safely is essential for NSG Group to be sustainable.

The Group Ethics and Compliance function supports the Group in achieving its goals by assessing and analyzing ethics and compliance risks and establishing ethics and compliance programs that align with the Group's strategic goals to ensure the success of our business.

In line with these objectives, more specific key performance indicators (KPIs) have been developed to help measure the effectiveness of the ethics and compliance program as shown [here](#).

Code of Ethics and Education

The NSG Group Code of Ethics broadly covers the ethical behavior expected of our employees in the workplace,

including compliance with all laws and all major Group policies, procedures and guidelines. The Code is available in all 19 Group languages. The Code was revised considering the relevant risks in accordance with the current business environment. An online education module of the new Code was issued to the Group employees on the last day of the Group's first-ever Ethics and Compliance Week (please see the section of "Group E&C Function and Communication" below). This is a mandatory education for them to complete within the timeframe given. The Group's new employee education is to cover not only the Code of Ethics, but also conflict of interest, fraud, IS security and social media. Even for other existing Group employees, the fraud and IS security educations have become mandatory in FY2022. Key Roles for competition law compliance (CC) and anti-bribery and anti-corruption (ABAC) are also required to complete the relevant online education. The education modules will be assigned to the Group employees accordingly through the NSG Group Ethics and Compliance Education Center. We will continuously monitor its effectiveness as well as the completion rate of the educations.

479 (FY2021)

New starters completed the training packages at their onboarding

4137 (FY2021)

Key Roles completed the CC and/or ABAC trainings accordingly

Ethics Network

A Global Ethics Network is aimed to enhance the ethical culture and monitor compliance risks throughout the Group. The Ethics Network consists of senior managers who have been appointed Regional Ethics Ambassadors and Ethics Champions. Both roles will play a vital part in the communication and promotion of the Code of Ethics by leading and championing ethics and compliance in their local region or function which in turn will help embed ethics into the business.

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Ethics Ambassadors across SBUs and Functions all over the world

Group E&C Function and Communication

Group Ethics and Compliance has a direct reporting line to NSG Group Audit Committee. Its responsibilities include the development, implementation and maintenance of an integrated internal ethics and compliance management and control system, as well as the creation and review of relevant Group policies and procedures. Group E&C function has regional structure with E&C regional managers in Europe, North America, South America and Asia to embed E&C culture into the whole organization as well as cover risks in each region. In this regard, Group E&C puts importance on local communications even online during the COVID situation to reach out to local business/function people, liaising with the relevant Ethics Ambassadors and Champions.

Ethics and Compliance

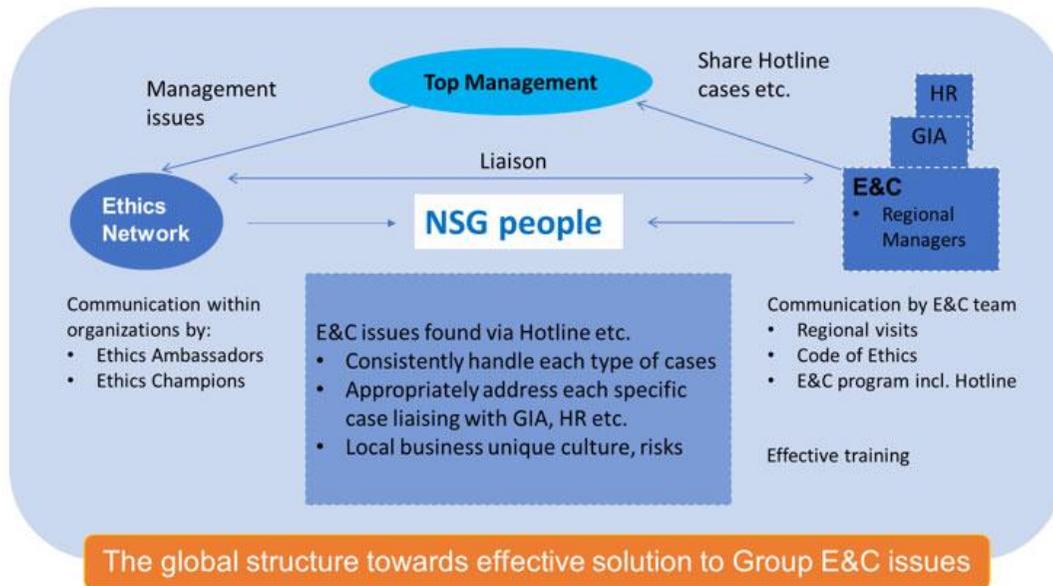
The Group set November 8 to 12, 2021 as its first-ever Ethics and Compliance Week, which reconfirmed our commitment to ethics and compliance, raising awareness of its significance for the Group business. The concept was "Back to Basics." Various events were held throughout the Group organizations including CEO message video, daily communications and regional activities as well as the online education of the revised Code of Ethics as explained above.

Group E&C periodically issues Group Ethics and Compliance Briefings to employees. The Group's communications team

translates the briefing into multiple languages and distributes to all NSG Group locations, which is also made available on the Group's Intranet. In addition, each regional E&C manager issues regional E&C newsletter to the relevant local employees. Group E&C shares with the heads of Strategic Business Units and HR the case details reported via the E&C Hotline system to help improve the workplace environment and even business performance while taking care of its confidentiality. Group E&C regularly reports to the Audit Committee.

Conflict of Interest Disclosure

Under our Code of Ethics, all employees are responsible for acting in the best interest of the Group. Employees are required to complete an educational module and at the end are asked to disclose any outside interest, activity or investment which actually or potentially could cause conflict against that of the Group, or otherwise certify they do not have any such conflict of interest. Group E&C reviews all reported disclosures and discusses certain matters with the relevant business or function head if necessary. Feedback is provided to all reporters and in some cases, possible plans to mitigate exposure are also provided.



Ethics and Compliance

Compliance System

To ensure transparency of employees' actions related to our core compliance programs, NSG Group requires the reporting of certain high-risk areas such as competition law compliance and ABAC. Group E&C centrally manages an online reporting system where employees are required to document or obtain prior permission from Group E&C whenever they contact our competitors, join a trade association, make charitable contributions, give or receive certain amount of gifts and entertainment, do businesses with third parties, and interact with public officials. The specific requests and notifications are reviewed and approved by the relevant E&C regional managers.

NSG Group is monitoring around 500 third parties such as agents, consultants and joint venture partners that meet certain risk criteria of ABAC. This process includes due diligence, assessment and reputational screening.

Reporting of Concerns – Ethics and Compliance Hotline

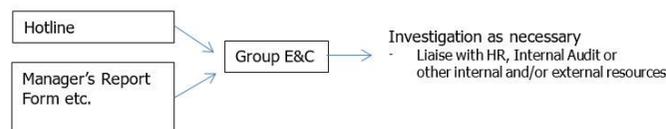
NSG Group is committed to maintaining an environment in which employees can report, without fear of retaliation, any conduct they know of or suspect to be in violation of law, Group Code of Ethics policies/procedures or guidelines.

For this purpose, the Ethics and Compliance Hotline system provides an easy and simple way to report concerns, while employees are encouraged to speak to HR or line management first.

Hotline	■ Open to third parties
	■ Anonymous report is acceptable unless prohibited by law.
	■ 7/24/365/Multiple languages
	■ Toll free
	■ Anyone can ask questions.
	■ Operated by a qualified third party with a data privacy module

Managers who received the report from their colleagues must file the designated reporting form (Manager's Report Form) or report it directly to Group E&C if he/she believes that it has a potential adverse or negative legal, financial or reputational impact on NSG Group.

NSG Group Anti-retaliation and Reporter Protection Policy clearly stipulates that any form of retaliation against an individual who has reported a concern or incident in good faith shall not be tolerated.



Since inception in FY2013 there have been 514 reported concerns managed via the Ethics and Compliance Hotline case management system. FY2021 experienced 137 allegations reported via the Ethics and Compliance Hotline and Manager's Report Form. The number of the cases is consistently increasing due to the communication and promotion of the system within the organization, which we

believe contributes to realizing more transparent corporate culture throughout the NSG Group. NSG Group constantly measures the effectiveness of the system by using the metrics against the benchmark region by region.

In addition, the Ethics and Compliance Hotline was formally certified as Whistleblowing Compliance Management System or WCMS (self-declaration basis) * on 30 April 2021.

* The system that certification is given to a whistleblowing structure of private company based upon their self-assessment against the guidelines of Japanese Consumer Affairs Agency when a designated assessment organization confirms it.



Categories of the reported concerns	%
Accounting and Financial Reporting	3%
Misuse, Misappropriation of Corp. Assets	4%
Environmental, Health & Safety	23%
HR, Diversity and Workplace Respect	59%
Business Integrity	9%
Inquiries	2%



Risk Management

Basic policy

Consistent with the “Our Vision” management principles, NSG Group aims to enhance corporate value by way of sustained growth in line with the Medium-Term Plan RP24. That said, the business environment enveloping the Group has become increasingly complex after the global pandemic and is continuing to dynamically transform. We see risks in the uncertainties that stem from both internal and external factors, which threaten to affect the Group’s ability to achieve its business targets. We therefore position risk management, which is tasked with identifying, assessing, and properly managing major risks, as an important part of our management foundation in order to minimize the negative effects and maximize positive results. By systematically and methodically implementing appropriate risk management across the entire Group, we can not only achieve our short-term business targets, but also reliably execute business strategies.

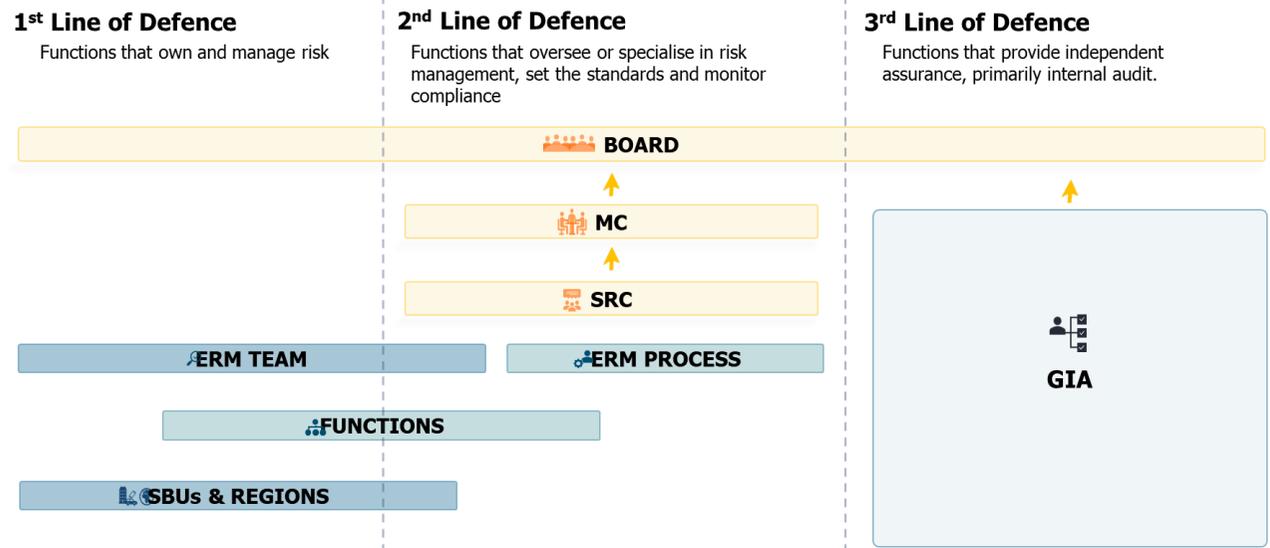
NSG Group’s risk management is carried out in accordance with our Basic Policy on Internal Control Systems, which was resolved by the Board of Directors pursuant to the provisions of the Companies Act. Specific measures for addressing risks that arise in connection with our corporate activities are prescribed in our NSG Group Risk Management Policy and are consistent with ISO 31000 (principles and guidelines on risk management) as well as the COSO Enterprise Risk Management model.

Looking to the future, the Group has reviewed its risk management system against the requirements of the revised Corporate Governance Code, and we are confident that the principles are fully met. Nevertheless, we are looking to continuously improve our systems in line with developing standards and the evolving risk landscape.

Framework

NSG’s risk management systems are established so that they are fully embedded within the Group’s day to day operations and operate as “three lines of defence”. The first line of

defence is established within the business SBU’s and Group Functions who operate controls and mitigations to identify, assess and manage risks across all the activities of the Group as part of its the day to day operations. The second line of defence is made up of the Group Functions and management forums who not only set the operating and risk management policies and standards for the operations, but also monitor the effective operation of the controls. The third line of defence is provided by the Group Internal Audit Function who make an independent evaluation of the effectiveness of the controls and the risk management processes.



Risk Management

At the heart of its enterprise risk management system, NSG Group employs a two-tiered risk management framework comprising the Strategic Risk Committee (SRC) and the Enterprise Risk Management (ERM) Team, both of which are under the supervision of the Management Committee, and report onwards to the Board of Directors.

The SRC is chaired by the Chief Risk Officer (CRO) and its members are mostly executive officers including the CEO.

The SRC determines the companywide risk management policy and framework, based upon which it identifies and classifies: (a) high-level risks thought to have a serious impact on the Group; and (b) operational risks that ought to be

managed by SBUs or Group functions. It then monitors how those risks are being addressed and requests that additional measures be taken if required. For high-level risks, the SRC appoints "risk owners" to manage the collection of risk information and the progress of countermeasures.

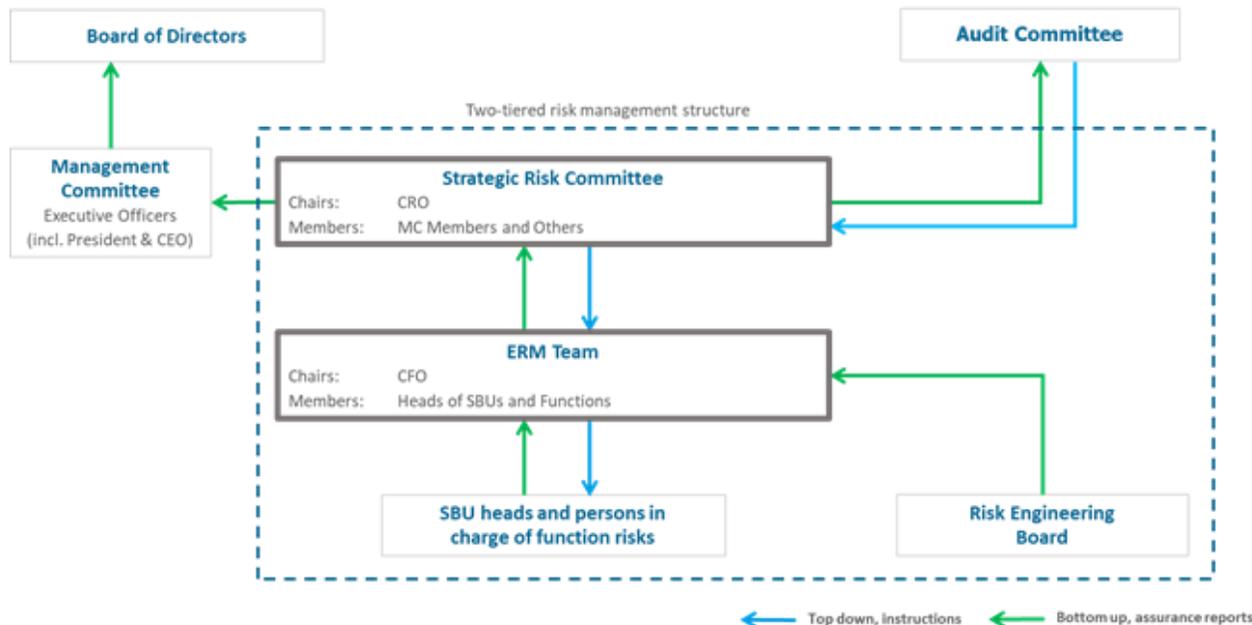
The CRO presides over all SRC meetings and, as representative of the committee, periodically reports to and receives feedback from the Management Committee and the Audit Committee regarding the effectiveness of the Group's basic internal control system and risk management structure.

In FY2021, the SRC convened three meetings and reported once each to the Management Committee and the Audit Committee.

The ERM Team is chaired by the CFO and its members comprise SBU general managers and heads of functions such as accounting, finance, and human resources. Every year this team identifies, assesses, and prioritizes the key risks pertaining to business execution and endeavors to improve the effectiveness of risk management by formulating necessary measures to mitigate risks. The ERM Team periodically, or whenever requested, reports on its activities to the SRC.

The Internal Audit Department's role is to provide assurance, from an independent standpoint, regarding the companywide effectiveness of risk management, and the effectiveness of specific risk mitigations.

To transfer or share risks, we have established an NSG Group Insurance Program. The program identifies the key insurable risks, including property losses caused by natural disasters, and endeavors to transfer them by placing cost effective insurance. Every year, under the supervision of the SRC, we review the Group's comprehensive insurance coverage under the global insurance program.



Risk Management

Major risks for NSG Group

In FY2021 the SRC identified, assessed and monitored the following risks, listed in order of priority. For each risk, an owner has been appointed from among the executive officers, to take responsibility for appropriately managing it.

For each of the key risks being monitored, the SRC has determined that sufficient mitigations are in place, or are being progressed, to manage the risk within the Group's appetite.

Risk
1. Business continuity risk
2. Supply chain non-performance
3. Cyber risk
4. Loss of competitiveness to key customers
5. Economic risk
6. Financial risk
7. Product quality risk
8. Climate change risks
9. Political & fiscal risks
10. Labor/talent shortage
11. Ascertaining and responding to technological innovation
12. Business strategy risk
13. Compliance risk
14. New or amended laws and regulations
15. Intellectual property risk
16. Organizational culture transformation failure

Sustainability

FY24 targets and FY21 progress

	FY24 targets	FY21 progress	SDGs
Environment	<ul style="list-style-type: none"> 8 percent reduction in CO2 intensity across glass manufacturing operations compared to FY18 20 percent reduction of waste to landfill compared to FY20 	<ul style="list-style-type: none"> KPI of 0.79 kg CO2(e) / tonne glass (e) was measured during FY21. This represents a 6% deterioration in the KPI since 2018. This deterioration in performance during 2020 is primarily a result of the significant impact of deteriorating market conditions associated with Covid-19 pandemic and associated reduction in utilisation of the group operations. Waste sent to Landfill got reduced by 3.7kt vs. FY20 - down to 18.4kt. This represents a reduction of 17%. 	  
Human Capital	<ul style="list-style-type: none"> Reduction of Significant Injury Rate (20 percent vs. FY20) Employee Engagement, "Our Vision" penetration ratio (80 percent) Female managers in NSG Group - 12.7% as of 2021 June 31 - FY24 target : female manager increase at least 1% in each SBU and Function 	<ul style="list-style-type: none"> Significant Injury Rate was 0.25, a 19% reduction compared to FY20, and it had a significant improvement. The leadership that we have been working on has been strengthened, which has led to a decrease in the rate. Employee engagement in FY21 was conducted due to the spread of COVID-19 infection. However, the safety of our team members is placed front and center of all activities, and our managers played a critical role included embracing technology to enable conversations, meetings and wellbeing 'check-in' points. Since the target is based on the result as of the end of June 2021, there is no progress in the fiscal year ending March 2021. 	  
Responsible sourcing	<ul style="list-style-type: none"> To achieve and maintain a 95 percent acceptance of the NSG Supplier Code of Conduct by our key suppliers. 	<ul style="list-style-type: none"> 90% of Key suppliers have now agreed to the SCoC or can demonstrate their own equivalent code. The Supplier Code of Conduct has been revised in 2021 to make the ESG theme more prominent and to incorporate additional topics relating to water convention, resources management, intellectual property and cyber security. Further details of NSG expectations in relation to topics such as human rights and risk management have also been included in this revision. 	  

	FY24 targets	FY21 progress	SDGs
Responsible sourcing	<ul style="list-style-type: none"> To assess and monitor the sustainability performance of 65 percent of our suppliers by external spend. To achieve and maintain an average 50 sustainability score for all assessed suppliers. 	<ul style="list-style-type: none"> A step change of +17pts was achieved vs FY20 with EcoVadis sustainability assessments completed for 53% of external supplier spend. In addition, we monitor our suppliers of materials with a potentially high environmental impact, and in accordance with our Supplier Performance and Risk Management Procedure require them to be certified to ISO14001 or a recognized national equivalent. Average scoring of all suppliers Ecovadis assessments also increased by 3 pts to 55. 	     
Ethics & Compliance	<ul style="list-style-type: none"> Hot line utilization (Actual vs. benchmark data) Increase of hotline calls from Managers Report Form targeting 30 percent of the total report Education completion ratio (95 percent completion by managers within 55 days – 5 days before the deadline of the education campaign) Top level communications (Minimum four annually (CEO/C-Suite)) 	<ul style="list-style-type: none"> NSG Group received 137 reports for FY2021 with increase by 44 from FY2020. The benchmark for similar-sized enterprises in number of employees is 258 according to an external consulting firm. Group E&C continues to analyze variance between the number of the actually received reports vs. the benchmark data. The ratio of reports from Managers Report Form (MRF) was 11 percent of the total reports in FY2021. Group E&C continues to promote MRF via various communication channels such as internal bulletins and newsletters. 99.6 percent of Key Roles completed relevant trainings during the annual education campaign in FY2021. 76 percent of managers completed within 5 days before the deadline. Top level communications regarding ethics and compliance were made four times during the fiscal year such as an internal bulletin by the name of CEO, the message of the head of Architectural Glass SBU addressed to the relevant employees. 	   

Climate Change

Science Based Targets (SBT)

The Greenhouse gas reduction target of NSG Group has been approved by the Science Based Targets initiative (SBTi*) in October 2019 as "a science-based target to limit the average rise of global temperature

to below 2°C from pre-industrial revolution levels" in line with the goals of the Paris Agreement.

By 2030, NSG Group targets to reduce absolute GHG emissions (Scope 1 and Scope 2 **) by 21 per cent compared to the 2018 level.

Committed to help mitigate risks of climate change, NSG Group is actively pursuing the following measures:

- Converting the energy source in glass manufacturing processes from heavy oil to natural gas.
- Implementing the measures, including the use of LED lights, inverters and waste heat, to reduce CO2 emissions in glass manufacturing processes.
- Expanding the use of renewable energy.
- Supplying the glass products highly effective in saving and generating energy to reduce CO2 emissions.

By reducing CO2 emissions from business operations and supplying innovative glass products, NSG Group will continue its contributions to mitigating climate change risks.

CO2 emission and SBT



*SBTi is a partnership between CDP (former Carbon Disclosure Project), UN Global Compact, WRI (World Resources Institute) and WWF (World Wildlife Fund), which helps companies set the science-based goals for reducing GHG emissions to prevent the impact of climate change.

**Scope 1: Direct emissions by business operators (Use of fuel in manufacturing processes, etc.)
 Scope 2 Location: Indirect emissions by consumption of energy sources (Purchased electricity used in manufacturing processes, etc.)

Climate Change

CO2 emission reduction target toward FY24

In 2020, NSG Group was responsible for the emission of 3.3 million tonnes of CO₂e. This is an eleven percent decrease on the previous year due to a combination of the impact of low process utilization associated with the Covid-19 pandemic, increases in the proportion of renewable electricity use and many proactive operational energy and CO₂ saving initiatives as described in the energy use section.

Our scope 1 emissions were 2.8 million tonnes. These direct emissions occur from a combination of the combustion of fossil fuels within the manufacturing process, transportation of product and the decomposition of carbonate raw materials in the glass melting process.

Our scope 2 emissions (market based approach) were 0.5 million tonnes of CO₂e. Scope 3 emissions were estimated at 3.0 million tonnes of CO₂e. This 3 figure has increased since last year due to improved scope 3 reporting.

In the operation of our float plants, heavy oil to natural gas conversion has helped to reduce carbon emissions by around 50 percent over the past 40 years and a combination of design and operational innovations have made further progress.

We have introduced a revised target for CO₂e emission per tonne of equivalent product, with the new target being an 8% improvement in this metric by end of FY24 compared to FY18 baseline.

During FY21, numerous decarbonization project activities continued to be implemented. The benefit of these project was more than offset by the continued market deterioration due to Covid19 pandemic resulting in the KPI not being achieved.

	Tonnes CO ₂ e / tonne equivalent product	Percentage improvement
FY2021	0.79	(6.2)
FY2020	0.74	(1.4)
FY2019	0.73	2.1
FY2018	0.75	1.4
FY2017	0.76	1.5
FY2016	0.77	1.5
FY2015	0.78	1.2

Climate Change

Initiatives for TCFD

NSG Group has been aligning its climate related disclosures with the Taskforce on Climate related Financial Disclosures (TCFD) recommendations since 2017 utilizing the CDP framework. The table below summarizes the main aspects of the current efforts in disclosure.

Following the TCFD recommendations, NSG Group has committed to developing an action plan using climate scenario analysis to assess potential impacts from climate related risks and opportunities. This activity will further supplement the existing climate change roadmap focused on minimizing risk and maximizing opportunity associated with the decarbonization of NSG Group activities.

TCFD Recommendation		NSG Group Approach	Further Disclosure / Information sources
Governance	Describe the board's oversight of climate related risks and opportunities	The Group CEO and Board of Directors establish the basic policies and goals of all Group activities including climate change. Climate related issues are discussed at both Management Committee (MC) and Sustainability Committee (SC) level with the aim of ensuring targets & action plans fulfil all sustainability goals and connect to all relevant business aspects. This includes, for example, strategies and actions based on risk and opportunity analysis to achieve both corporate growth and positive social contribution	CDP report 2021 C1.1 – C1.1b NSG website (https://www.nsg.com/en/about-nsg/governance/corporate-governance)
	Describe management's role in assessing and managing climate related risks and opportunities	At the Sustainability Committee the concrete actions for the sustainability policies, goals and targets are managed. The principle roles of the SC include; to act as an advisory body for the CEO to review the strategy, coordinate all sustainability activities within the Group and ensure effective communication of these matters with our stakeholders. The membership of the SC consists of global leaders of all Group functions and SBU heads.	CDP report 2021 C1.2
Strategy	Describe the climate related risks and opportunities the organization has identified over the short, mid and long term	<p>Risks & opportunities identified include impacts from:</p> <p>Current regulation, e.g. European Energy Directive – opportunity in supplying high performance products associated with the directive Emerging regulation, e.g. new industrial Emissions Trading Schemes (ETS) leading to risk of increased operational costs. New EU building ETS leading to opportunities to supply high performance energy saving products.</p> <p>Technology development, e.g. EV market growth, low energy buildings market growth.</p> <p>Legal compliance – risk & cost of meeting future compliance, opportunities associated with more stringent product demands and NSG competitive product development.</p> <p>Market aspects, e.g. customer specifications for building / vehicle efficiency with associated opportunities for product development.</p> <p>Reputation, e.g. risk associated with customer or other stakeholder perceptions.</p> <p>Acute Physical, e.g. flood, typhoon – risk impact to operations & value chain (supply continuity) - opportunity for specific product development e.g. storm glazing.</p> <p>Chronic Physical, e.g. sea level rise – primarily risk impact to current and future operations and value chain.</p>	CDP report 2021 C2.1 – C2.4

Climate Change

Initiatives for TCFD

TCFD Recommendation		NSG Group Approach	Further Disclosure / Information sources
Strategy	Describe the impact of climate related risks and opportunities on the organizations business strategy and financial planning	<p>NSG Group business strategy already incorporates the risks and opportunities identified from the 2019/20 materiality assessment and the 2°C scenario analysis. Examples of key initiatives regarding mitigation of climate impacts and maximising opportunity include; Working with supply chain and value chain partners to establish win-win scenarios for product development supporting the low carbon transition</p> <p>Investment in R&D technology developments to reduce operational GHG emissions as well as development of new products to support society decarbonisation.</p> <p>Such activities match precisely to the NSG Group mission of 'Changing our surroundings, improving our world'.</p>	<p>NSG website https://www.nsg.com/en/investors/management-policy-and-sustainability/management-strategy</p> <p>https://www.nsg.com/en/investors/management-policy-and-sustainability/materiality</p> <p>https://www.nsg.com/sustainability/ceo</p> <p>https://www.nsg.com/en/sustainability/sustainability-of-nsg-group/climate-change/va-products-and-services</p>
	Describe the resilience of the organization strategy, taking into consideration different climate related scenarios including a 2°C or lower scenario	<p>NSG undertook an analysis of climate reliance based on a 2°C warming scenario in 2019/20. The output from this analysis led to the implementation of a Science Based Target (SBT), the achievement of which is fully integrated into the business strategy. Adherence to this target will improve the resilience of the Group to climate related risks from both physical and transitional impacts</p>	<p>CDP report 2021 C2.3a – C3.1f</p>
Risk Management	Describe the organizations processes for identifying and assessing climate related risks	<p>The Group maintains a formal Enterprise Risk Management (ERM) process, managed by the Strategic Risk Committee (SRC) and based on ISO31000. The SRC defines the risk appetite and tolerance thresholds associated with the Group activities and undertakes a regular process to identify and assess the risks to the achievement of its strategy. Climate related risks are included within the risks identified and monitored by the SRC, and these are assessed using quantitative criteria across four vectors: financial impact; operational impact; compliance impact and reputation impact.</p>	<p>CDP report 2021 C2.1 – 2.2a NSG Website: https://www.nsg.com/en/investors/management-policy-and-sustainability/risk-management</p>

Climate Change

Initiatives for TCFD

TCFD Recommendation		NSG Group Approach	Further Disclosure / Information sources
Risk Management	Describe the organisations processes for managing climate related risks	Climate related risks are assessed and monitored by the SRC following the same criteria as other strategic risks. The SRC evaluates the controls and mitigations which address the risk and directs additional treatment measures to be implemented as necessary. A risk owner is defined who takes responsibility for monitoring and reporting the progress against the defined action plans to manage the risk within the Group's appetite. Individual controls and countermeasures are managed within the SBU's and Group Functions and operational reports are also made to the MC and SC.	CDP report 2021 C2.2
	Describe how processes for identifying, assessing and managing climate related risks are integrated into the organizations overall risk management	Climate related risks are assessed and monitored by the SRC following the same process and criteria as other strategic risks. The identified risks and opportunities presented to the SRC are also presented to the MC on a regular (minimum 6 monthly) basis to ensure full integration of the overall risk management and business strategy.	CDP report 2021 C2.2
Metrics and Targets	Describe the metrics used by the organisation to assess climate related risks and opportunities in line with its strategy and risk management process	NSG Group monitors all GHG emissions across the supply chain (scope 3), own operations (scope 1 & 2) and customer impacts (scope 3). The primary metric tracked is absolute tonnes of CO ₂ (e) emissions across these three emission scopes. Supplier sustainability impacts are also tracked using software tools such as the EcoVadis platform. Future predictions of the GHG emissions are used to estimate the impact of the various actions for GHG emission mitigation, with a hierarchal approach of these actions to ensure investment and implementation is optimised according to the strategic risk and opportunity for each action and overall impact to the Group goals and targets.	NSG Website: https://www.nsg.com/en/sustainability/sustainability-of-nsg-group/target-and-results
	Disclose scope 1, scope 2 and if appropriate scope 3 greenhouse gas (GHG) emissions and the related risks	CO ₂ (e) emissions in the baseline year for the NSG Group SBT were as follows; Scope 1 = 3103 ktonnes. Scope 2 (location) = 1050 ktonnes. Scope 3 = 2513 ktonnes. In the latest report year (CY2020) the emissions across the three scopes were as follows; Scope 1 = 2817 ktonnes. Scope 2 (location) = 728 ktonnes. Scope 3 = 2952 ktonnes. A program of operational decarbonisation actions has supported and will continue to support achievement of GHG emission reductions. These actions play a key part in the climate change risk mitigation strategy of NSG Group	CDP report 2021 C4, C6, C7.

Climate Change

Initiatives for TCFD

TCFD Recommendation		NSG Group Approach	Further Disclosure / Information sources
Metrics and Targets	<p>Describe the targets used by the organisation to manage climate related risks and opportunities and performance against targets</p>	<p>The NSG Group has a SBT verified in 2019. This target is a 21% reduction in absolute CO₂ (e) emissions across Scope 1 and Scope 2. 2020 performance is on track to deliver this SBT, with absolute emission reduction of 15% achieved, although significant proportion of this reduction was associated with reduced production activities due to the Covid19 pandemic.</p> <p>In addition, the Group has the following two key climate change related targets;</p> <p>To reduce CO₂ emission / tonne of glass packed (e) by 2% year on year between FY21 & FY24</p> <p>Performance against this target in CY2020 was 6% behind the target primarily due to the impact of the Covid19 pandemic on the Group’s operational utilisation.</p> <p>To achieve a level of 50% of consumed electricity from certified renewable sources by end of FY24.</p> <p>Performance against this target in CY2020 was on track, with 25% of consumed electricity from renewable sources.</p> <p>Other targets regarding supply chain compliance with NSG sustainability goals are also in place</p> <p>Finally, the Group is also planning to re-establish a target for the proportion of revenue generated from ‘eco-friendly’ products.</p>	<p>CDP report 2021 C4.1a – 4.2b</p> <p>NSG website https://www.nsg.com/en/sustainability/sustainability-of-nsg-group/climate-change/reducing-co2-emissions</p>

About this report: This report includes information that has already been disclosed by NSG Group (e.g. within the Integrated report 2020 or as part of its CDP climate change reporting). Information from these existing disclosures has been summarized to provide a relevant, succinct disclosure of the current status of activities. The timeframe for risk and opportunity analysis is consistent with that previously reported, in that short term = 1 – 2 years, mid-term is 2 – 4 years and Long term is 4 years and beyond (typically up to 15 years). Further references are provided in case readers are interested to seek further information within the existing NSG Group publications of relevance.

Eco-Friendly Products

Architectural Products

Our Architectural Products play a vital role in improving energy efficiency and reducing CO2 emissions. They also offer other advanced functionality, protecting against fire, insulating against noise, safety and security, privacy, decoration and even self-cleaning properties.

Please refer to the ["Architectural"](#)

Affordable Clean Energy

With our solar photovoltaic and concentrated solar power glass range, we help to generate renewable energy reducing CO2 emissions significantly.

Our range of solar glass products includes NSG TEC™ and Pilkington Optiwhite™.

NSG TEC™

is a group of products, including a comprehensive range of TCO glass (Transparent Conductive Oxide coated glass), optimized to suit a variety of thin film photovoltaics (PV) modules.



Pilkington Optiwhite™

is a range of extra clear low-iron float glass products with very high solar transmittance, offering improved solar energy conversion and consistent performances. This range of low-iron glass products is suitable for use in thin film photovoltaics, concentrated solar power technology, solar thermal collectors and solar mirrors.



Sustainable Cities and Communities

NSG Group's broad solar control glass range can help reduce unwanted heat gain to avoid unnecessary energy consumption for air conditioning. And they help to save CO2 across the world with our insulating low emissivity products.

Eco-Friendly Products

Architectural Products

Unwanted heat gain

NSG offers a wide range of products for solar control benefit, for example:

Pilkington Solar-E™

is a range of good solar control performance on-line coated glasses offering low solar heat coefficient gain, low reflectivity, reduced glare and low-emissivity.



Pilkington Suncool™ Range

comprises our highest performing off-line coated, solar control and low-emissivity glass products.

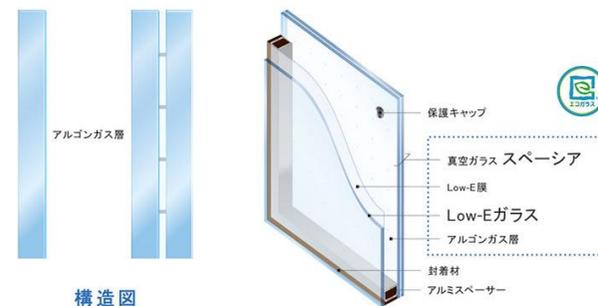
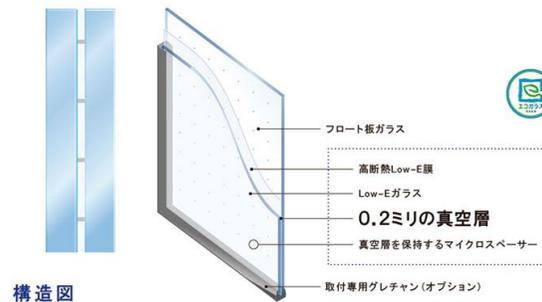


Insulating low emissivity products

NSG improves the energy efficiency of domestic or commercial buildings around the globe, for example:

NSG Spacia™

is a unique Insulating Glass Unit which provides similar or better energy efficiency performance as an IGU unit, but in a much thinner profile, so it can be used in slim frames.



Pilkington Optitherm™ Range

are high performance, off-line coated low-e glass products specially developed for use in Insulating Glass Units (IGUs) to help with energy saving.



Eco-Friendly Products

Automotive Products

The NSG Group's advanced automotive glazing is used to improve the safety, efficiency, and comfort of the vehicles we drive.

The importance of environmentally-friendly vehicles is growing which is increasing consumer demand in the market. NSG's light-weight designs and solar control glazings are just a few of the ways we are able to contribute to reduced CO2 emissions and improve the overall energy efficiency of the vehicles we drive.

Please refer to the ["Automotive"](#).

CONSERVING ENERGY THROUGH GLASS TECHNOLOGY

Electric vehicles produce no exhaust emissions so they are able to offer our world a cleaner means of transportation.

NSG's solar control and Low-E glass are already used extensively in buildings to improve energy efficiency, and we can offer the same benefits for vehicles.

Our vehicle-glazings can provide advanced solar control properties by absorbing or reflecting infra-red energy from the sun. Control of heat energy entering vehicles directly impacts air-conditioning usage leading to reduced energy consumption and CO2 output.

Infra-Red Reflective Glazing

NSG coated windshields reflect more than 30 percent of the sun's energy which is more than five times that of a standard glass. This particularly benefits the new generation of vehicles that are commonly designed with larger glass areas.



Low-Emissivity glazing

Low-E glazing can provide benefits in cold climate environments by improving vehicle efficiency through a reduction in HVAC usage to extend electric vehicle battery range. NSG offers the best thermal performing product that can be used for monolithic tempered glazing.

Lightweight Glazing

Weight saving in vehicles helps them to achieve their CO2 emissions targets as well as or an increased range for electric vehicles. It is possible to achieve a 40 percent weight reduction in the glass component while also maintaining its solar and acoustic performance with no additional risk from debris impacts.



Eco-Friendly Products

Creative Technology

Our glass technologies are used to improve the energy efficiency and sustainability of products across a diverse range of market segments.

Glass is a high-tech material equipped with many properties such as being light, strong, fire retardant, non-conductive and resistant to chemicals. Our patented products are used in transmission belts to improve fuel consumption, for LED printers that use less energy to operate, and for coatings to protect the longevity of our buildings and equipment. Our expertise in manufacturing ultra-thin float glass UFF™ is contributing to the development of the next generation touch-screen devices.

Please refer to the ["Creative Technology"](#).

Glass cord engine timing belts

Timing belts made with NSG'S glass cord realizes higher driving efficiency for automotive engines, thus contributing to saving fuel consumption and reducing CO2 emissions compared to metal chains. We are also working on development and expanded use of more efficient and higher modulus glass cord.





Environment

We care passionately about the environment and are committed to integrating sustainability considerations into all our business decisions. As a minimum we comply with all relevant country-specific laws and regulations. Where relevant we take additional internal steps to meet our sustainability objectives, protect the environment and reduce any impact.

Please refer to the "[NSG Group Environment Policy](#)".

The use of many of our products will lead to positive environmental impacts and if adequately segregated, our glass is 100 per cent recyclable at the end of the product life.

Energy Usage

We work continuously to minimize energy input into all our processes, so that the usage of glass contributes net benefit to sustainability.

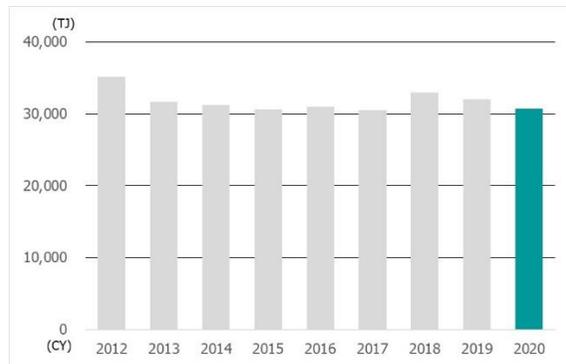
Please refer to the "[NSG Group Energy Policy](#)"

Our energy usage

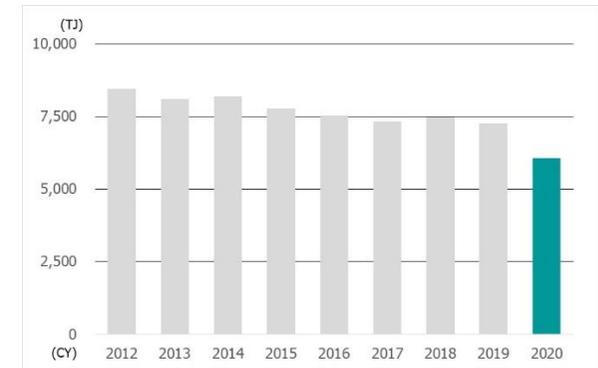
For both environmental and financial reasons, we continue to use natural gas as the fuel of choice for glass melting. Furnaces continue to be converted from heavy fuel oil to gas. Small quantities of diesel and LPG are used for space heating and back up generators. See the graphs for consumption details.

NSG Group Energy Usage

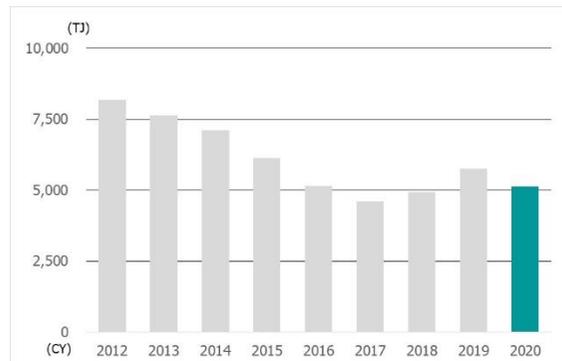
■ Natural Gas



■ Electricity



■ Heavy Fuel Oil



Initiatives to reduce energy usage & carbon (CO2) emission

Energy & Carbon Management

All initiatives are monitored by the Heads of SBUs and Group functions at six-monthly Energy & Carbon management Committee meetings.

Energy & Carbon Management Core Team

A senior management team representing key functions including; manufacturing, engineering, procurement and R&D coordinate all project activities to ensure maximum engagement in the Group energy & carbon management program.

Energy & carbon management pilot plants

The concept of the pilot plants is to make a step change reduction in energy consumption & CO2 emission by using energy more efficiently and effectively. This initiative continues to expand across the Group with more than 27 sites engaged in the program. These sites represent in excess of 85 percent of NSG Group's energy spend and in excess of 75% of NSG Group's CO2 emissions.

Cross-functional pilot site teams are led locally by the plant manager, with proactive support from other Group functions, and extensive use is made of third-party suppliers. Over 1,000 projects have been implemented or continue to be evaluated.

Operational energy-efficiency projects

The Operational Cost Saving program aims to reduce all operational costs in the areas of prime and overhead costs. One of the largest prime costs for the Group is energy.

To support the cost saving activities across sites, a deep analysis of all energy projects within the OCS database is regularly completed. Multiple projects were identified for rapid dissemination in FY2021 to deliver energy consumption, CO2 reduction & cost savings. Each manufacturing site within the Group had at least one active OCS energy project in FY2021. Led by Manufacturing Excellence and assisted by other Group functions, NSG Group sites identified more than 160 energy-optimization opportunities, resulting in annual CO2 savings in excess of 30kt.

Major projects include; furnace fuel combustion optimization, reducing electrical requirements of motors, optimizing compressed air systems, energy sub metering, energy efficient lighting, fuel switching, cogeneration processes, waste heat and energy recovery.

An initiative to engage in Industry 4.0 or Internet of Things (IoT) for energy management was progressed during FY2021. This includes analytics of process data including energy metering with the goal of optimization of energy consumption & CO2 emission. The analytics also supports the identification and development of new projects, such as identifying energy waste & management of tariffs.

NSG are actively engaged in the development of glass industry decarbonization roadmaps, with publication of these roadmaps for both the European and UK glass industry. This activity supports the development and application of both existing and novel technologies available across the glass industry, including recommendations for appropriate application at NSG Group sites.

A focus on the energy & carbon efficiency of operating furnaces when they are repaired was launched in FY2020 and continued to be implemented in FY2021. Specific targets for efficiency improvements in addition to the benefit of furnace repair have been established. This program has now been implemented at several furnace repairs resulting in significant improvements in efficiency expected across the full life (at least 15 years) of the furnace operation.

Initiatives to reduce energy usage & carbon (CO2) emission

R&D activity

Reducing CO2 emissions and maintaining the security of energy supply for our furnaces will remain fundamental to our continued business. Implementation of incremental technology changes will be required in the short term to minimize capital expenditure.

Project Carbon 2050 launched in 2018 supported the development and implementation of a decarbonization roadmap that identifies the technologies, barriers and financial investments required to achieve significant carbon emission reductions in float manufacturing by 2050. During FY2021 the integrated activities of these specific R&D projects continued to increase the focus in key technology application to support the delivery of the Group strategic mid term targets (RP24) and longer term Science Based Target goals.

One such project is related to the application of Hydrogen as a low carbon alternative fuel in the float glass manufacturing processes. NSG Group are conducting tests of the use of hydrogen at its Greengate Works in St. Helens, U.K. A global first, the initiative is part of a project managed by HyNet, a consortium of industries in the North West of England, aimed at reducing carbon emissions from industry, homes and transport. NSG Group are investigating whether hydrogen can be used to wholly or partly replace the natural gas and oil that are the standard fuels for the glass making industries. If all of the natural gas can be replaced with hydrogen this would reduce emissions of CO2 by around 80%. The work is supported by £5.2m of funding from the UK government under the Industrial Fuel Switching Scheme with first trials completed in September 2021.

Energy Savings Opportunity Scheme (ESOS)

All UK manufacturing sites are continuing to participate in the UK government Energy Savings Opportunity Scheme (ESOS). Currently in phase 2, the scheme is linked to the UK government commitment to the EU Energy Directive article 8. Sites are assessed by certified external auditors with the aim of identifying viable energy saving project activities. The assessment includes verification of energy consumption data and site energy audits which result in a set of published recommendations signed off by a UK senior management representative. A number of initiatives identified within the scheme have been implemented and disseminated across other regions. Similar schemes exist in several EU and other countries either at a mandatory or voluntary level with many sites participating.

Management systems

We have maintained ISO 50001 certification across all operations in Germany, Italy, Finland and the Automotive engineering function. Investment in sub-metering hardware and software installations allows a high level of transparency in energy consumption and enables a sophisticated energy planning process with improvement activities, target setting and frequent reviews to be established.



Initiatives to reduce energy usage & carbon (CO₂) emission

Renewable on-site energy generation and alternative fuels

In 2020 the Group published (via CDP response) a target to increase the proportion of certified renewable electricity (as purchased and/or via on-site generation) to 50% vs 2018 baseline consumption proportion. Progress towards this target was significant during the year with several specific project initiatives launched. These included the purchase of certified renewable generation electrics (REC's) in countries across Europe, the America's and Asia regions. In addition, continued investigation and investment (via internal capex or utilizing third party funding approaches) in on-site generation has been made.

The on-site photovoltaic generation facility at our technical center in Lathom, installed and fully operational since 2019 continues to deliver in excess of 30 percent of the site's annual electricity demand.

Our Northwood technical center in North America produces about 7 percent of its own electricity with on-site photovoltaic generation. We also have photovoltaic panels on the roof and former car parking areas of our German Weiherhammer plant.

Investment has also been made for a new self generation PV facility at the Rossford fabrication operations in Ohio, USA. This facility will come on stream during 2021. Further on-site generation projects are under evaluation in Malaysia, Japan and several other locations.

We continue to evaluate and utilize alternative low carbon / renewable fuel sources across the Group operations. This includes use of waste derived biofuel oil which cuts CO₂ emissions on a furnace by 8kt / year. There are also plans to utilize a sustainable, bio-derived liquid fuel for a trial at one of the Group's float operations in Europe.

Partnership with suppliers

We continue to partner with key suppliers to develop projects to reduce energy consumption in our manufacturing sites. Close collaboration with leaders in specific technologies is enabling us to implement optimum solutions to specific energy management challenges. Collaborative projects undertaken include; utilization of battery storage systems to support reduction in consumption peaks in electricity demand, addressing compressor inefficiency and installation of high efficiency motors and to make better use of waste heat generated in our glass-making processes.

A battery storage installation at Collingwood, North America is the first such NSG project in collaboration with an energy storage developer, Convergent Energy. The project is designed to disconnect the plant from grid connection during periods of high peak demand. The province of Ontario (Canada) uses natural gas electricity generating stations to produce the energy required for these peak usage periods. This project represents 5 MWh of power that the province will not need to produce during such peaks.



Initiatives to reduce energy usage & carbon (CO2) emission

Employee energy efficiency awareness

An energy management training program, designed to help the Group deliver cost savings and reduced CO2 emissions, has continued to be rolled out globally.

Launched in 2016, the program has been implemented across European, South American, Japan and South East Asia operations.

The initial program involved local site energy champions in a 'back to school' initiative that increased levels of energy awareness and supports the on-going generation of energy and carbon management project activities.

The key aspect of the training is to help the delegates understand the approach to energy and carbon management, how they can identify and implement activities at their sites and encourage others to do so.

In FY2021, with the impact of the Covid19 pandemic and associated restriction in global travel, it became necessary to develop remote training solutions to continue to implement this program. Several discrete training sessions were held to both educate new energy champions as well as providing 'refresher' training to previous attendees.

To date, the training has directly involved more than 65 delegates, with identification and implementation of over 250 projects.

Energy savings have exceeded ¥ 100 million, and reduced CO2 emissions by more than 2,500 tonnes.

The initiative comprises three levels of training, with level 1 involving 50 hours in all aspects of energy management.

The course is organized with the support of local functional teams and was led by David Cast, Climate Change Director, NSG Group.

It is designed to support site energy management activities and give formal qualifications to the delegates with the cost of the course being recovered by the delegates identifying and delivering energy cost-saving projects.

Following successful completion of level 1, delegates are encouraged, where appropriate to their role, to continue energy management training with external organizations leading to level 2 and level 3 qualifications. Several delegates across the NSG Group have achieved the level 3 qualification

Project examples that have been implemented so far include:

- LED lighting replacement and controls
- Staff awareness campaigns including 'shut-off' activity and inappropriate energy use
- Replacement of motors & drives with variable speed devices
- Optimizing combustion set up in furnaces and boilers
- Introducing energy 'mini audits' in daily routines (part of 5S activities)

NSG Settimo site becomes fully decarbonized



The automotive SBU operations site in Settimo Torinese, Italy has become the first fully decarbonized site within the NSG Group. Starting in April 2020, the site has been operating solely on renewable energy provided by a combination of certified renewable electricity and a district heating network.

This will reduce the site's emissions by 1,650 tonnes of CO2 per year, the equivalent of planting around 2,400 trees or removing almost a thousand cars from the roads.

Initiatives to reduce energy usage & carbon (CO₂) emission

Heat Recovery in Poland Operations

A four step program was initiated at the Automotive OE operation in Chmielow, Poland to recover and utilize waste heat generated at various stages in the manufacturing process. Stage 1 and 2 involved the capture and recirculation of heat generated from air compressors on the site. Stage 3 focused in capture and utilization of waste heat generated from the air handling units providing conditioned air to the clean rooms for pre-lamination stage of the process. Step 4 is planned to install heat recovery units on the glass bending furnaces and utilize this heat for generation of hot water for plant space heating. Total energy savings delivered by the project will be in excess of 2.5 GWh/yr and in excess of 500 tonnes of CO₂ avoided for generation of thermal energy.

Lathom Solar Project

NSG Group and Lightsource BP have installed and connected a 2.3MW solar installation at the European Technical Centre in Lathom, Lancashire, UK. The site is anticipated to provide 30 percent of the facility's annual electricity demand.

This project was developed and funded entirely by Lightsource BP, with no capital investment required from NSG Group and no disruption to their daily operations during construction.

NSG Group buys the clean, renewable electricity via a Power Purchase Agreement (PPA) with Lightsource BP, which provides a fixed, index-linked rate designed to hedge against future price fluctuations and deliver operational savings over the 25-year contract period.

This project is especially significant for both Lightsource BP and NSG Group as the installation showcases one of the glass manufacturer's own products. The solar modules selected were sourced from First Solar, one of NSG Group's largest global customers. Research and development for the glass contained within the solar modules was conducted at the European Technical Centre itself, where operations will now be powered by their own hard work.

As well as reducing electricity costs, the solar installation is a crucial part of NSG Group's drive to improve our sustainability credentials, and this project will help us meet carbon reduction targets by saving an estimated 848 tonnes in emissions each year - the equivalent of taking 180 family cars off the road.

Air Emissions

The main emissions from a flat glass furnace come from the combustion of fuel and the decomposition of the carbonate and sulphate raw materials. The raw materials are melted at a very high temperature so the process is extremely energy-intensive.

Emissions to air

The most significant pollutants from a glass furnace are: nitrogen oxides formed from the nitrogen and oxygen in the air at high temperature; sulfur oxides from the refining agent (and from oil fuel if that is used); and particulate matter derived from compounds volatilized from the molten glass. Carbon dioxide comes from both the decomposition of carbonates and from combusted fuels.

We are tackling pollutant air emissions with a range of primary and secondary abatement techniques. Primary methods, such as special burners or carefully-chosen raw materials, including more cullet (recycled glass), reduce pollutant formation and can also improve the thermal performance of the furnaces.

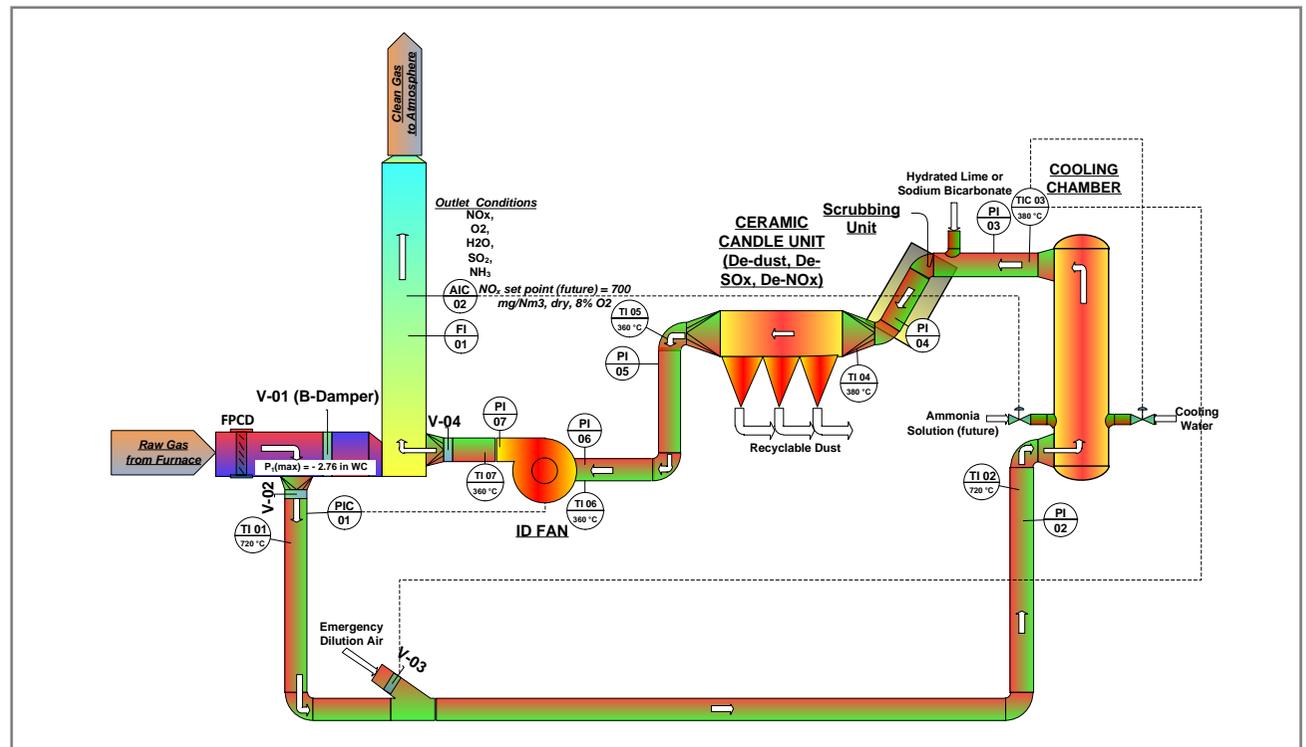
Secondary abatement removes the pollutants from the furnace waste gases before they are emitted through the chimney.

Until recently, the furnace emission pollution control plants in operation around NSG Group have all been based on standard technology. This removes the pollutants from the waste gases in three stages: alkali is injected into a scrubber to remove

acid gases, the resultant reaction products and particulate emissions are then collected in an electrostatic precipitator, and finally nitrogen oxide is removed using ammonia injected into a selective catalytic reduction unit. However, the latest pollution control plant built by NSG Group uses a novel technique called a catalytic ceramic filter, or CCF.

The system is based on thousands of ceramic filters in a

single unit. Alkali is added to the waste gas and the resultant reaction products and primary particles are collected by the filter. The novelty of the process is that the fibers of the filters are coated with a metal catalyst so when the gases pass through the filter structure and ammonia is added to the system nitrogen oxides are also removed. It is expected that CCF technology will become the standard for new furnace pollution control plant throughout NSG group.



Air Emissions

The first CCF pollution control plant in Argentina is being built on NSG VV4 site (Los Cardales – Buenos Aires). Though not the first time for NSG to adopt this novel technology [existing CCF abatement lines are already in operation at Ottawa (USA, IL) and Luckey (USA, MI)], VV4 PCP will be the first ever to be constructed in Argentina on a glass plant.

VV4 Float glass plant construction started in 2019, however site activities were frozen beginning of 2020 due to the Covid pandemic; CCF plant construction activities were frozen as well. It is planned to restart site activities in September 2021, with the objective to complete the CCF plant construction by April 2022.

The picture shows the steelwork structure that will accommodate filter modules. The plant will be made of 14 filter modules, each of them equipped with 256 filter elements; in total 3584 elements. VV4 CCF is, so far, the largest pollution control plant (ceramic catalytic filter technology) built by the US company McGill and one of the largest of this type ever built.



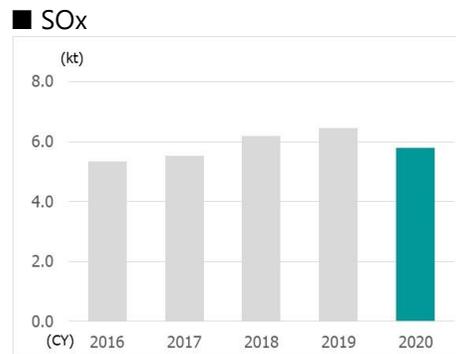
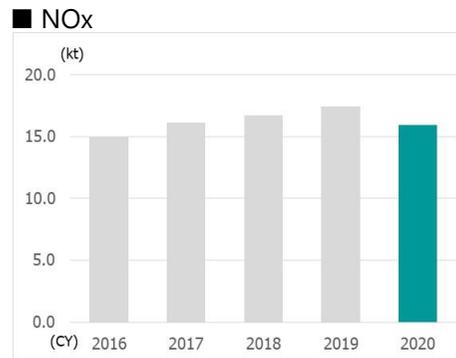
Recycled glass to improve efficiency and reduce emissions

Glass for recycling is a valuable resource. Wherever quality allows, we recycle any glass off-cuts or cullet within our own glass melting lines. Glass from our downstream operations and from our customers represents a potentially useful resource to us. We gain a double benefit from the use of such cullet: its use to make glass reduces the requirement for raw materials and avoids disposing of what would otherwise be a waste material and closes the recycling loop.

Ten percent cullet use saves three percent furnace energy and leads to reductions in CO2 emissions. One of our sites has manufactured glass using only cullet.

Cullet return projects are ongoing to try to minimize the need for virgin raw materials. Landfill is the least favored disposal option.

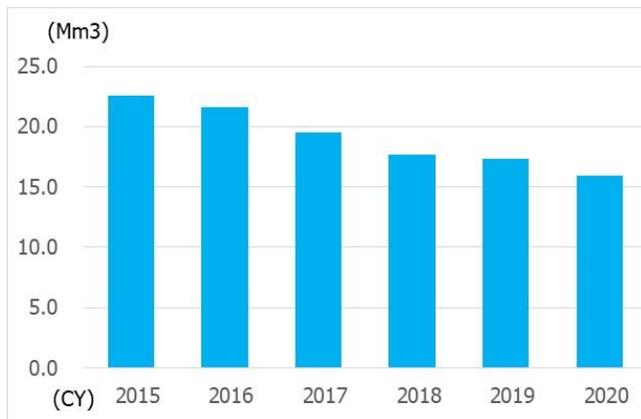
If glass is produced that cannot be remelted on-site, it is sent, where practicable, for external recycling.



Water utilization and Water management

In glass-making, water is used for cooling, and most of our plants operate with closed loop systems and so only require top up. Water is also used for washing glass in plants but there the need is for very high purity, so water is treated and then re-circulated. We seek to minimize our water consumption by working with suppliers to recycle water and to install advanced water treatment facilities. Processes are managed by Manufacturing Excellence's standardization procedures (e.g. turn off washer sprays when not needed, use optimal sized nozzles, install water catchers, implement controls to prevent overflows and maintain to prevent leaks, etc). This not only reduces the withdrawal of water itself but also the chemicals used in the treatment of the water.

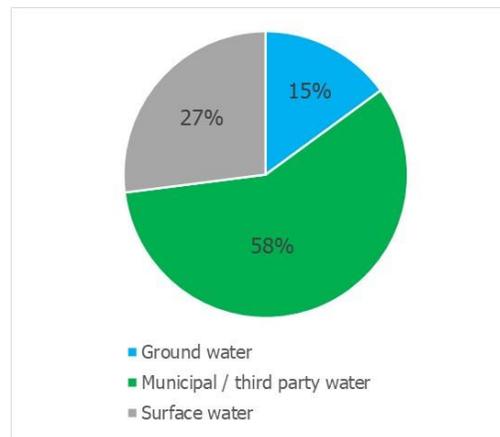
■ NSG Group total water withdrawal 2015-2020



Across the Group, water consumption can vary considerably according to process and product demands as well as water quality. Approximately 2.6m³ are required to manufacture one tonne of float glass and approximately 0.12 cubic meters are required to process each square meter of automotive product. We withdrew a total of 15.9 million cubic meters of water in 2020. This represents an 8% reduction on the previous year but is partly due to reduced production output.

Please refer to the ["NSG Group Water Policy"](#).

■ NSG Group Water withdrawal by source 2020



Water risks

We do not have any current stakeholder concerns regarding water scarcity or wastewater quality. On the other extreme of water risks, flood planning and prevention strategies have been applied where indicated. Water risks do not register as significant in the NSG Group risk assessment process, however, we will continue to risk assess all facilities. The NSG Group Sustainability Committee is the global forum of the senior management to review the risk and performance and to discuss related activities on water management.

The NSG Group has implemented a new Water Policy to ensure a clear statement of NSG Group's approach to water stewardship and in order to address water quality challenges and the risks of water scarcity in support of the Group Sustainability and Environmental Policies.

Water

In 2019 the NSG Group implemented a new and more sophisticated Environmental Reporting and Analysis database. All sites are reporting their specific information and water data into this central database for further aggregation, analysis and monitoring on corporate and site level. Our 2019 data reporting and reviews highlights that 9 NSG sites are located in water stressed areas in accordance with the global Aqueduct Water Risk Atlas. The water withdrawal at those sites represent 21% of the total. Those sites are subject to prioritized water management reviews and improvement activities.

Water saving Projects

Amongst other good water saving projects, the water project at the Float Glass plant of VFG, Vietnam won the internal Environmental Award 2020. This project reduces the consumption of heated water for the washing of the float glass by interrupting the water spray during the gaps between glass sheets on the line.

The project team has developed and installed the necessary machinery control equipment on their own. This project lead to a reduction on water consumption by 24%.



Water stress map - source: Aqueduct Water Risk Atlas



VFG Award application

Materials

Responsible sourcing of materials

NSG Group aims to meet the requirement of the UN Sustainable Development Goal 12 to use natural resources sustainably.

Where possible, NSG Group implements circularity measures to prevent the generation of waste and mitigate negative impacts when it is generated. We aim to retain the value of products, components and materials that are circulating in the economy.

Our principal raw materials are mineral in nature, therefore we have a particular obligation to ensure that, in obtaining those minerals, natural habitats and biodiversity are preserved or enhanced.

We will responsibly manage all materials in proportion to their environmental risk and exercise responsible stewardship of those lands for which we are accountable. (from NSG Sustainability Policy)

Before a raw material is approved for use by NSG an auditing process is carried out to ensure the material meets the requirements for its use in glass making and conforms to our ethical sourcing policies. In the case of mined or quarried materials this will involve a site visit to check that the supplier has extraction rights and approvals, including remediation plans, in place.

Regularly monitor, minimize and safely use hazardous chemicals and encourage the re-use and recycling of materials.

Encourage co-operation with our customers and suppliers to facilitate good environmental practices and to promote the efficient use, reuse, recovery and recycling of glass and other materials involved in glass manufacture, processing, packaging, and delivery. (from NSG Environmental Policy)

The principal raw materials used in the manufacture of soda-lime silicate glass are sand, sodium carbonate (synthetic or natural origin), dolomite, limestone, feldspar or nepheline syenite, sodium sulphate, carbon in the form of anthracite or pet coke and cullet. Cullet is crushed glass which originates from various sources including glass manufacture and processing and recovery of used parts. To contribute to our SBT objective, NSG Group will continue working on replacing virgin raw materials with crushed glass cullet.

Flat glass making may also involve use of small amounts of some additives mentioned as materials of concern in the Drive Sustainability Material Report. These include iron (rouge), titania (in both natural and synthetic form), cobalt (in the less hazardous Co₃O₄ form) and ceria where these confer specific optical properties to glass for special applications. NSG uses the minimum feasible amount of these additives and all are sourced ethically as described above.

During the synthesis of glass, all raw materials react together in the furnace at approximately 1,550°C and form a new single constituent substance glass, with the exhaust of gases NO_x, SO_x and CO₂.

Materials

Purchase amount in CY2020 (Unit: k tonnes)

Sand	1,797
Soda Ash	613
Dolomite	529
Limestone	138
Good glass bought in	100

The majority of our raw materials are sourced from third party suppliers, however, NSG Group has minority shares in Lochaline Quartz Sand (Scotland), MI Tunisia and ViCo (Vietnam) and wholly owns Melfi sand quarry in Italy. The last of which provides 5% of our Group sand consumption.

Restoration and Biodiversity at the Sand quarry at Melfi, Italy

The NSG Group owns and operates a sand quarry at Melfi, Region Potenza, in Italy. This quarry is located in the mountainous area in the valley of the Ofanto river.

At this open mine, sandstone is taken from the ground and is crushed by shredder and milling equipment to produce silica sand for melting to glass at NSG sites in Italy.

Water is taken from the Ofanto river to wash the sand. The water is given back to the river after sedimentation of

particles from the washing process. Unwanted natural material from the mining operation as well as the sedimented material from the washing process is then filled into the finished quarry areas for restoration purposes. The restoration areas are then planted with trees and other plants which occur in the local habitat to minimize the impact on biodiversity. The selection of the plants is done in close cooperation with experts from local authorities.



Re-filling and restoration of the sand quarry at Melfi



Planted trees at finished areas at the sand quarry of Melfi



Reduced visual and biodiversity impact after restoration of finished parts of the sand quarry at Melfi

Smaller quantities of chemicals and materials are used for glass coating, laminating, IGU manufacture, automotive value added components and technical glass.

Our management systems identify hazardous substances and NSG Group engages with suppliers to use less harmful alternatives where possible. R&D actively reformulate products to eliminate hazardous substances e.g. we have recently removed nickel as a tinting additive in our glass.

Chemicals are not required for the glazing products during their operational use. At the end of its life, all glass sold can be recycled as cullet if adequately segregated for re-incorporation back into glass.

Please refer to the "[Conflict Minerals](#)"

Materials

In 2019, NSG Group implemented new environmental reporting software that will allow all raw materials to be monitored and associated scope 3 CO2 emission to be reported and tracked at site and Group level. Supplier engagement activities will help to measure and ultimately reduce these scope 3 emissions. Wherever possible, our raw materials are locally sourced to reduce transport emissions.

Materials for packaging purposes

In Europe, much of our glass is transported on steel stillages - in cycles with the customers - without packaging and utilizing specialist 'Floatliner' vehicles for the large raw glass plates. We use a significant quantity of renewable wooden packaging in our operations and work with our suppliers to design reusable units. Due diligence is carried out to ensure that timber comes from legal and sustainable sources.

Polymeric beads are used as interleavants to protect the glass from scratching during transport between industrial manufacturing sites. Our Procurement and R&D teams are currently engaging with suppliers and universities to develop an alternative protective medium for transport.

Commendation from WWF Japan for biodiversity initiative

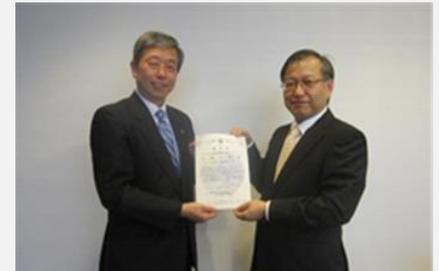
NSG Group received the "Business & Biodiversity Katteni (Arbitrary) Award" Special Prize (the "Japanese Peeper Prize") from WWF (World Wide Fund for Nature) Japan, an international environmental conservation organization, in 2015. The Awards were instituted to recognize and honor public companies undertaking advanced initiatives in biodiversity from WWF Japan's independent and unique perspective. NSG Group was highly evaluated for requiring CoC certification for its packaging materials.

Reason for commendation is as follows (quoted from WWF Japan press release dated 19 February 2015).

"While packaging materials may be a part of the peripheral area of its business activities, NSG Group classifies wooden packaging as one of the purchase categories to be covered when identifying suppliers that have a potentially high impact on the environment, and requires suppliers to obtain Chain of Custody certification for the wood used for their packaging materials. In comparison with such companies that use wood in their main business field, its absolute usage of wood may be limited. Nevertheless, the requirement for Chain of Custody certification by a user of packaging materials can have a significant impact on packaging materials producers, which is too large to be ignored. For the purpose of establishing a credible certification system, it is essential to have Chain of Custody certification validated throughout the supply chain starting from certification at the origin. NSG Group's initiative is uniquely distinctive among the companies evaluated by WWF."

NSG Group will continue to tackle environmental issues including biodiversity for the future.

Certificate of Commendation is presented from WWF Japan



"Business & Biodiversity Katteni (Arbitrary) Award"

WWF Japan evaluated 1,818 companies listed on the First Section of the Tokyo Stock Exchange from its unique perspective, and nine companies were recognized for their biodiversity undertakings and awarded.

CoC (Chain of Custody) certificate

The program to provide assurances to consumers that wood products originate from sustainably managed forests and managed appropriately throughout the supply chain.

Waste and Circular Economy

The NSG Group is fully committed to reduce adverse environmental impact by maximizing the reuse, recycling or recovery of resources and minimizing the production of waste involved in glass manufacture, processing, packaging, and delivery.

Please refer to the "[NSG Group Sustainability Policy](#)" and the "[NSG Group Environment Policy](#)".

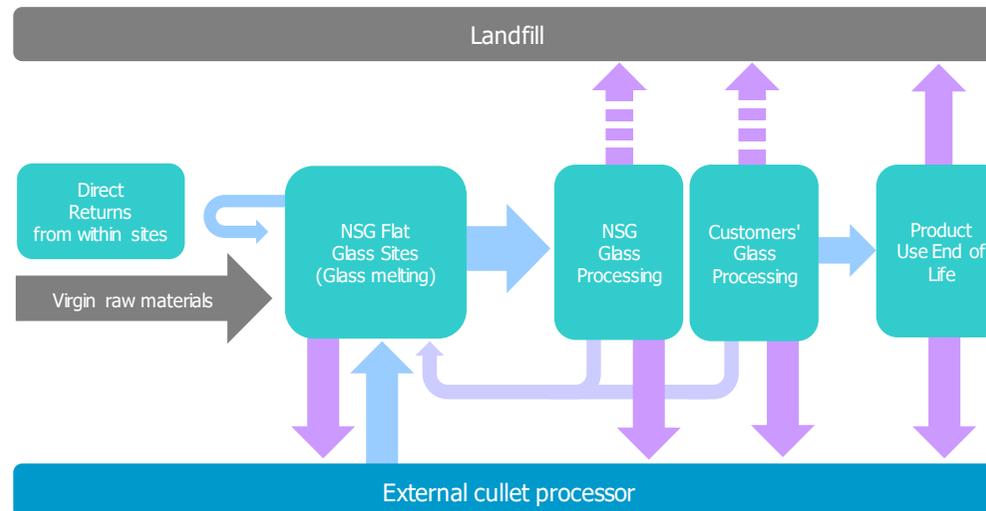
Re-use and Recycling of Glass

The glass manufacturing process itself produces very little waste material. All trimmed glass from the manufacturing processes of raw float glass plates is reused in the melting process and replaces virgin raw material. Cullet and rejected parts from further glass processing for Automotive or Architectural Glazing parts is reused or recycled at the NSG Group glass melting process or given to external glass recycling partners to be used in other glass melting sectors. Re-melting of glass cullet significantly helps to reduce energy consumption and related CO2 emissions. Remelting of one tonne of cullet avoids approximately 400-600 kg of CO2 emission.

Compiling and monitoring of waste data

In 2019 the NSG Group has implemented a new and more sophisticated Environmental Reporting and Analysis database. All sites are reporting their waste data into this central database for further aggregation, analysis and monitoring on corporate and site level. If not monitored internally (e.g. re-used internal cullet) - the waste quantity data is based on waste transfer notes.

■ Cullet flow



Waste and Circular Economy

Third party waste management

Where possible, glass cullet from the manufacture of flat glass and downstream glass processing is reused back into the melting process under NSG supervision and management. Pre-consumer waste, either diverted from disposal or directed to disposal, are managed by third parties. All contracts with waste management and recycling partners are arranged with the imperative requirement to meet local environmental legislation and the NSG Group data reporting requirements.

In this regard - and as a pre-condition of the waste-service contract - the waste and recycling contractors are obliged to accept the NSG Group Supplier Code of Conduct and have to maintain certificates of their environmental and waste management qualification (ISO 14001 or equivalent).

Following a risk approach, additional audits were conducted by internal environmental experts in order to determine whether the waste/recycling contractor manages the waste in line with contractual or legislative obligations.

Waste sent to Landfill

In line with the tradition and commitment of the Sumitomo Group of Companies, the NSG Group is setting focus targets to reduce waste to landfill. Thus, because of the potentially significant negative impacts on the environment and human health and because the resources and materials contained in waste that is landfilled are lost to future use, which accelerates their depletion.

In former years the NSG Group reduced the waste sent to landfill by 50 percent up to 2013 versus the selected baseline year 2007 – and again by 16 percent until end of 2019 versus the baseline year 2014. NSG Group set a new Sustainability target to reduce this environmental impact by an additional 20 percent on FY20 by the end of FY2024. A small portion of glass cullet from Glass processing NSG Group 3.9kt in 2020 (3.5kt in 2019 / 3.7kt in 2018) is sent to landfill because of contamination – which is included in our Sustainability improvement target on waste to landfill and related activities.

Other specific wastes

Grinding sludge

The waste stream from grinding of automotive glass edges and glass drilling cannot be prevented, but we have been actively seeking recycling partners to divert this waste from landfill and provide a raw material for concrete products and other aggregate manufacturers.

Float rejected raw material

In 2019, we continued to seek avoidance and/or recycling opportunities for glass dust and rejected batch - occasional off-specification raw material that often cannot be blended and some sorts of dust collected by the pollution abatement equipment.

General waste

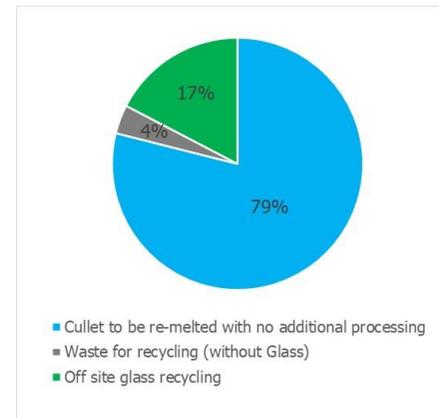
Focus and support have been given to the highest volume producers to further improve general waste avoidance and segregation. Focus has been given to the avoidance and/or reuse of packaging materials. For the remaining sorts of general waste procurement has been actively involved in finding local recycling partners - rather than sending mixed general waste to landfill or incineration.

Waste and Circular Economy

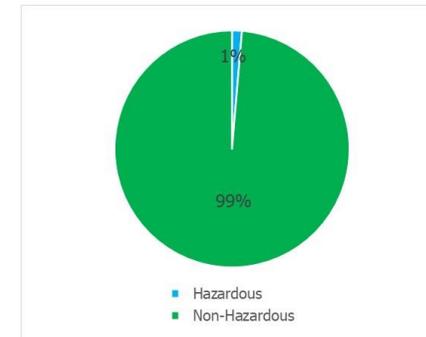
Wastes generated upstream or downstream in the value chain

Post-consumer cullet is not currently used in the flat glass sector because the segregation of the end of life product (car/building/PV panel) does not lead to sufficient quality cullet. Its inert properties mean that it is currently used as an aggregate substitute. It does not emit hazardous chemicals or decompose to emit ghg at the end of life. However, NSG Group is committed to engaging with customers, architects and regulators to improve the circular economy of flat glass and ensure that it is sufficiently well segregated at the end of life to be re-melted as a raw material in the glass sector. The environmental impacts of waste from upstream suppliers is included as part of life cycle analysis studies.

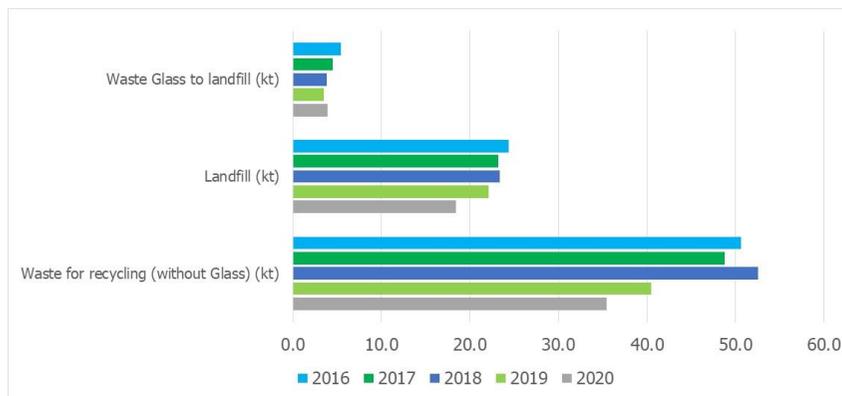
■ NSG Group Materials diverted from Disposal 2020



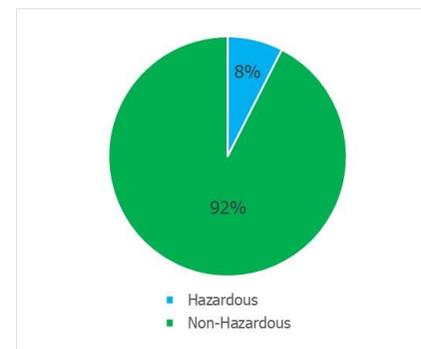
■ NSG Group hazardous/non hazardous waste for recycling (without glass) 2020



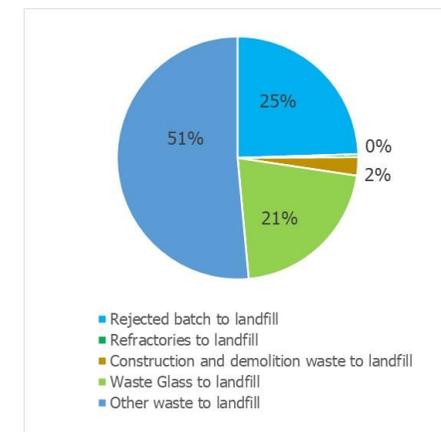
■ NSG Group Waste 2016-2020



■ NSG Group hazardous/non hazardous waste to Landfill (without glass) 2020



■ NSG Group sorts of waste to Landfill (without glass) 2020



Environmental Compliance

Environmental Compliance

Adherence to regulations, including permits, licenses, building deeds and other requirements to which the NSG Group subscribes, is a fundamental condition for the fulfilment of the Sustainability Policy and the Environmental Policy.

Each site establishes and maintains procedures to identify and list all environmental laws, regulations, requirements and rules that apply to their operations. Site registers for legal and other requirements include the source of a requirement (e. g. law, regulation, agreement or permit), the related environmental aspect of the site, the applicable obligations for the site and the responsibility and/or relevant procedures in place to fulfil the obligations.

Legal & other requirements are tracked - e. g. through a subscription service for all national and regional regulations. Respective changes are reviewed on how this new or changed requirement applies to the organization's environmental aspects. Applicable new or changed requirements are subsequently routed to the relevant level of responsibility in the organization.

Certified Environmental Management Systems to ISO 14001 are implemented at the vast majority of the NSG glass melting and downstream manufacturing operations. This includes frequent internal as well as 3rd party Environmental audits to confirm ongoing effectiveness of the Environmental Management, continuous improvement and Environmental compliance monitoring.



Environmental Audit at an NSG plant

Environmental Compliance

Non-Compliance

Despite the Environmental Compliance controls in place, some cases of Environmental Non-compliance occurred and sanctions were raised by authorities. They are registered as failures in the Environmental Management System and were subject to immediate corrective actions, root cause analysis and implementation of control measures.

	FY2019	FY2020	FY2021
Total monetary value of significant fines [Million Yen - JPYm]	1.1	1.5	0
Total number of non-monetary sanctions	0	1.0	0
Cases brought through dispute resolution mechanisms	0	0	0

Cases of significant fines:

Fine in FY2020 (China - Tianjin site)

Environmental Impact Assessment issue.

Corrective Action: The Environmental Impact Assessment of an additional production line has been conducted and the application process for the operational permit is ongoing.

Fine in FY2020 (China - Tianjin site)

VOC waste gas issue at a production line. VOCs discharged without installation of pollution treatment equipment.

Corrective action: In April 2020, an UV light oxygen catalysis purifier has been installed and put into use.

Fine in FY2019 (USA - Lexington site)

Overdue air permitting renewal application and incorrect/missing air reporting issues.

Corrective action: Air permit renewed and issued. Air reports corrected/completed and filed with authorities. Management of change and training systems at the site improved and implemented.

Certification

ISO 14001 Environmental Management System

We aim to certify our manufacturing facilities and larger distribution centers to the internationally recognized ISO 14001 environmental management standard and now have 77 certified sites around the world, representing ~ 84 per cent of our business by number of employees. Our Automotive business was one of the first in the automotive industry to achieve a corporate certificate for environmental management. A single ISO 14001 certificate from TUV SUD Management Service GmbH covers relevant group functions and all of our Automotive plants worldwide.

ISO 50001 Energy Management System

We have maintained ISO 50001 certification across all operations in Germany, Italy, Finland and the Automotive engineering function. Investment in sub-metering hardware and software installations allows a high level of transparency in energy consumption and enables a sophisticated energy planning process with improvement activities, target setting and frequent reviews to be established.

Environmental Product Declarations (EPDs)

EPDs allow architects to access environmental information and complete sustainability assessments of buildings. The German Institute of Building and Environment (IBU) awarded EPDs for Pilkington Pyrostop® and Pilkington Pyrodur® fire-resistant glass, according to ISO 14025 and EN 15804. NSG Group has received Japan's first EPD for architectural glass products, including float, insulated glass units, laminated and toughened glass. NSG in the US completed an EPD project with the National Glass Association (NGA). NGA is an industry association for the automotive and architectural glass markets. NGA and its member companies created an industry-average environmental product declaration (EPD) for their flat glass to better understand their glass products' environmental performance.

Environment Data

CO2 emissions

		CY2016	CY2017	CY2018	CY2019	CY2020
CO2 (Kt)	Scope 1	2,933	2,855	3,103	2,970	2,817
	Scope 2 Location	956	896	1,050	885	728
	Scope 2 Market	-	-	891	790	530
	Scope 3	-	-	2,513	2,819	2,952

(Reference) CO2 emissions in Japan

		CY2018	CY2019	CY2020
CO2 (Kt)	Scope 1	471	516	423
	Scope 2 Location	183	179	158
	Scope 2 Market	183	159	122
	Scope 3	252	267	345

Breakdown of CO2 emissions (Scope 3)

	CY2018	CY2019	CY2020
Purchased Goods & Services	1,055	1,289	1,532
Processing of sold products	735	600	600
Fuel & Energy related materials	356	547	472
Investments	200	200	200
Downstream transportation & Distribution	140	145	119
Employee Commuting	10	10	2
Upstream transportation & Distribution	0	6	6
Capital goods	0	4	4
Waste	12	10	15
Business travel	6	7	1
Total (Kt)	2,513	2,819	2,952

CO2 reduction per unit of production volume

	FY2019	FY2020	FY2021
CO2 emission (tonne) / equivalent product (tonne)	0.73	0.74	0.79

Air emissions (except CO2)

	CY2018	CY2019	CY2020
NOx (Kt)	17	17	16
SOx (Kt)	6	6	6

Environment Data

■ Energy

	CY2018	CY2019	CY2020
Natural gas (TJ)	32,968	32,016	30,746
Heavy fuel oil (TJ)	4,927	5,764	5,124
Electricity (TJ)	7,478	7,275	6,074

■ Water

	CY2018	CY2019	CY2020
Water usage (Mm3)	17.6	17.4	15.9

■ Operational waste to landfill

	CY2018	CY2019	CY2020
Waste glass to landfill	3.8	3.5	3.9
Non-glass waste to landfill	19.6	18.6	14.5
Total (Kt)	23.4	22.1	18.4

■ Recycling

	CY2018	CY2019	CY2020
Recycling (not glass) (Kt)	52.6	40.5	35.5

Social

Safe and High-Quality Products and Services

Our Aspiration

Our NSG Vision is through innovation to become the most trusted partner in all industries that we work in. Our commitment to the delivery of Safe and High-Quality Products is of material importance to the achievement of this goal and this is reflected in our new Group level quality policy.



Milena Stanisci
 Executive Officer
 Head of Manufacturing Excellence
 and Head of Manufacturing,
 Automotive OE SBU

“The NSG Group is committed to designing, producing and delivering safe and high quality products and services that add value for our customers in order to consistently meet the goal of being a trusted partner within all the industries that we work in.”

1. We will innovate and define processes and procedures that ensure all of our products and services meet or exceed specifications agreed with our customers and the requirements of the relevant national and international standards and regulations.
2. We will continuously improve our products, services and management systems based on proper risk management, a “Right First Time” philosophy and with a focus on safety and the environment.
3. We will ensure all employees have the appropriate training, skills and experience to successfully carry out their roles within the organization and contribute to the improvement of our products and services.

Our supporting programs focus on three key areas:

- Consistent Customer Satisfaction
- Right First Time Product and Service Introduction
- Operational Excellence



Consistent, high quality supply and “Right First Time” delivery of new products and services allows NSG to become a trusted partner for our customers.

Safe and High-Quality Products and Services

Three Lines of Defence

Three Lines of Defence

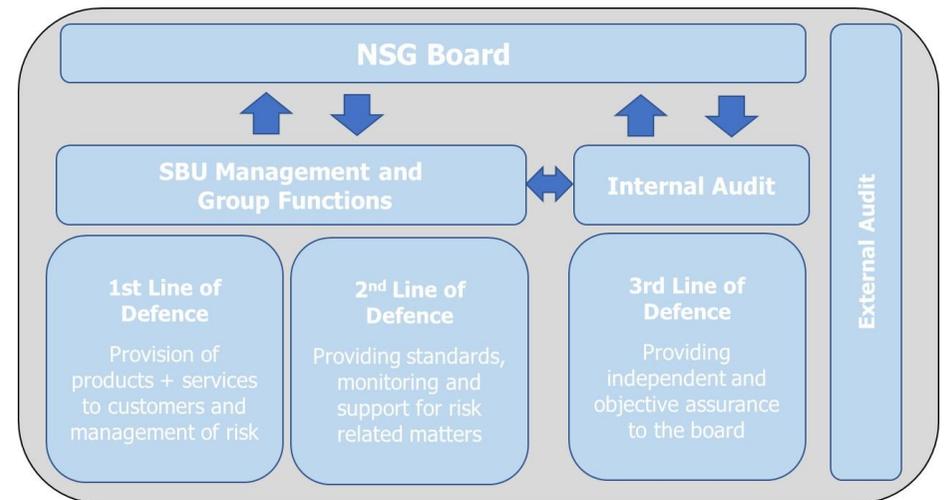
Consistent customer satisfaction is an important foundation for the delivery of Safe and High-Quality Products and Services.

Product quality failure is one of strategic risks for the Group and taking into account quality assurance failures in the external environment we have updated our existing quality management approach by the adoption of a Three Lines of Defence Model (TLoD) for quality assurance.

Our quality organization based within the Strategic Business Units continues to provide a dynamic, robust 1st Line of Defence with independent assurance via external audit of management systems according to ISO9001 and/or IATF 16949. This forms the foundation of Safe and High-Quality Products*.

To reinforce this foundation we have introduced a 2nd Line of Defence within our Manufacturing Excellence team to provide additional monitoring and create Group wide standards in key areas of risk.

Our Group Internal Audit team provides a 3rd Line of Defence focusing on risk based audits of Group quality standards.



Three Lines of Defence Model for Quality Assurance

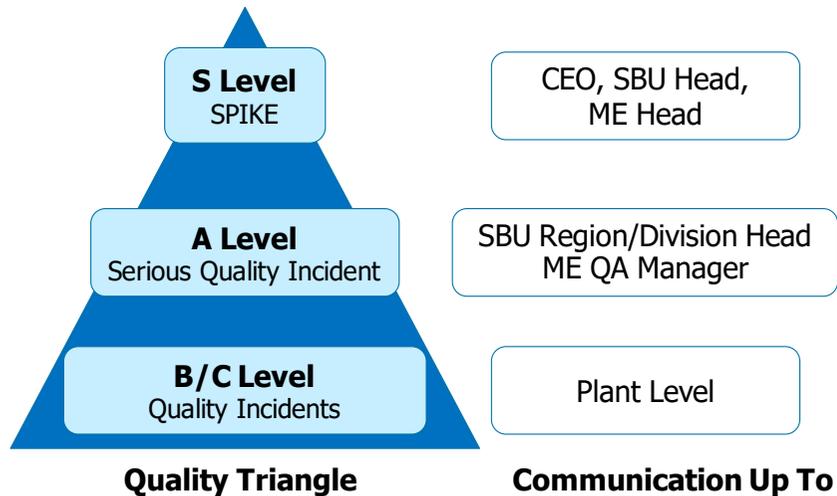
*We apply the same high standards to our suppliers as to ourselves, through structured supplier assessment covering a wide range of topics and including application of a Supplier Code of Conduct (SCoC), further details are found on p83. Supplier performance monitoring systems are implemented and any issues impacting on quality are rigorously investigated.

Safe and High-Quality Products and Services

Three Lines of Defence

Example: Quality Incident Communication

We have introduced new Group wide standards for the communication and investigation of significant quality incidents with a clear procedure for the escalation of new quality issues through the organization. According to this new standard we have started to gather data regarding the number of quality incidents in each Strategic Business Unit based on a standardized definition, with the aim to achieve year-on-year improvements.



Example: Ethical Dilemmas

We have updated our Ethical Dilemma database with new examples relating to product quality to provide a clear message throughout the organization that every NSG employee must always uphold the highest standards when dealing with quality assurance.

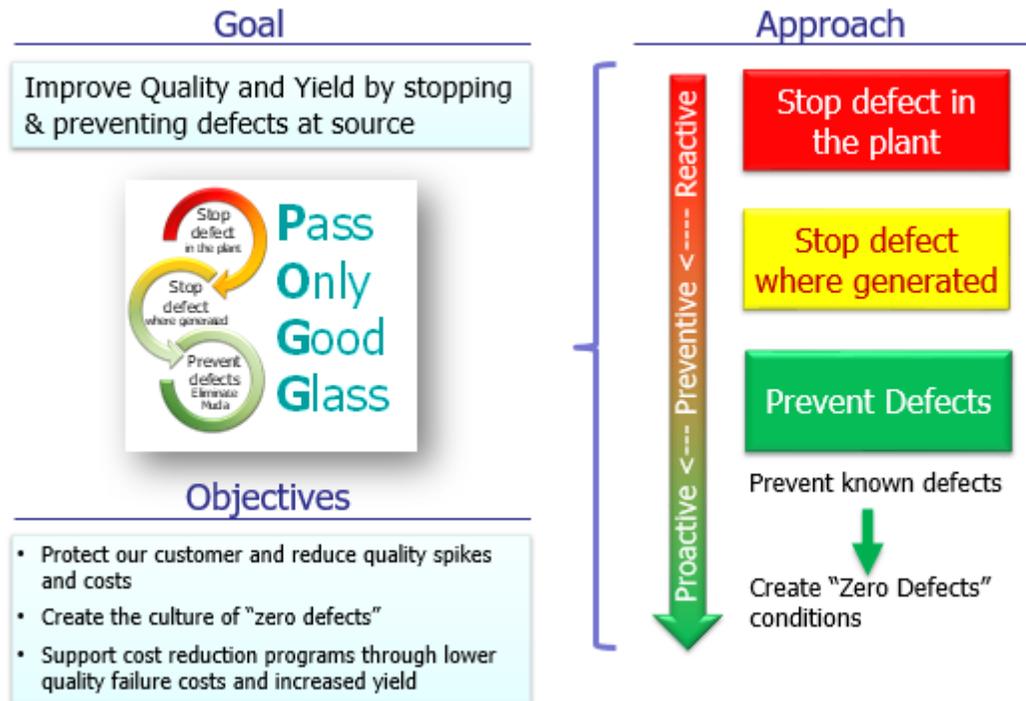
Ethical Dilemma Example	Answer
You realize a colleague has adjusted some details on a Certificate of Conformity supplied to the customer. The product is fit for purpose but the manufacturing date has been adjusted on the certificate as it was slightly outside of a shelf-life limit agreed with the customer.	Falsification of details on data provided to customer is never acceptable. This should be reported to your manager.

Safe and High-Quality Products and Services

Pass Only Good Glass

Pass Only Good Glass

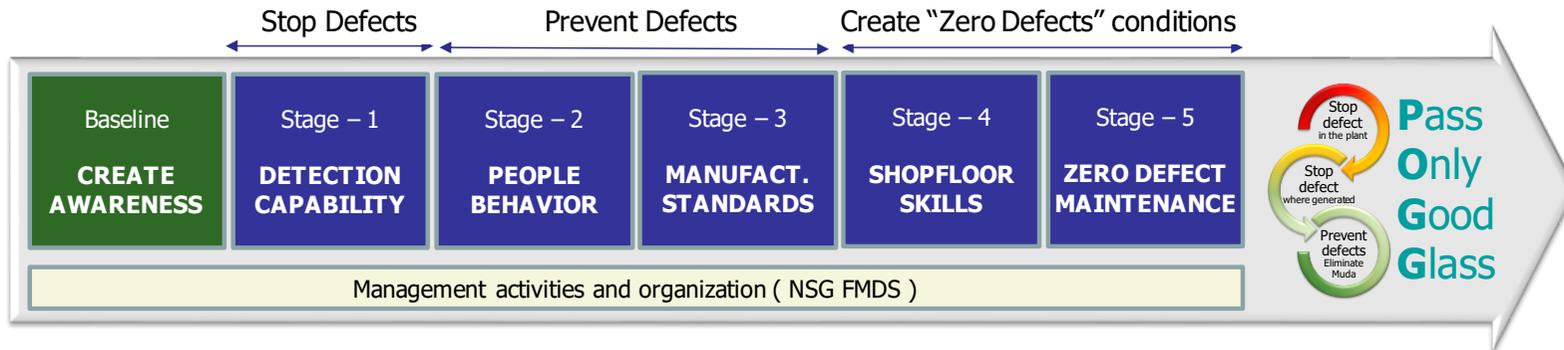
A Right First Time philosophy supports consistent performance for both ongoing supply and the introduction of new products and services. Within NSG a “Pass Only Good Glass” (POGG) initiative has been introduced to drive quality improvement and further mitigate our quality risk. The goal of the Pass Only Good Glass program is to improve quality and yield performance by stopping and preventing defects at source. This protects our customers and also allows us to focus on internal cost reduction.



Safe and High-Quality Products and Services

Pass Only Good Glass

The Pass Only Good Glass program utilizes a toolbox of quality improvement methods within a structured approach working across the whole production environment.



- Baseline: Create awareness on what are the problems and how everybody can contribute to solve them
- Stage 1: Establish Effective Quality Network to stop defects
- Stage 2: Establish Key Behaviors and Habits
- Stage 3: Confirm Effectiveness of Manufacturing Standards
- Stage 4: Establish operators and Process Improvers skills to manage process parameters and quality defects
- Stage 5: Establish and maintain "Zero Defect" production conditions

Safe and High-Quality Products and Services

Pass Only Good Glass

Example: Automotive Traceability

Part level traceability within our Automotive SBU has been a key challenge for sites working to trace product quality issues right back to source. This requires marking of each piece of glass within a serial number.

A pilot application of a new traceability solution in North America has now concluded with excellent feedback from the customer and the goal is now to expand this approach more widely to support the detailed investigation of quality issues.



Example: Collaborative Robots

Use of collaborative robots (cobots) is being rolled out as a project designed to eliminate human error during repetitive or difficult task involved in the production of Automotive parts. A key feature is the possibility for the robot to work with an operator without safety risk and the cobots are able to learn to replicate operator movements.



Safe and High-Quality Products and Services

Enhance Operational Excellence

Enhance Operational Excellence

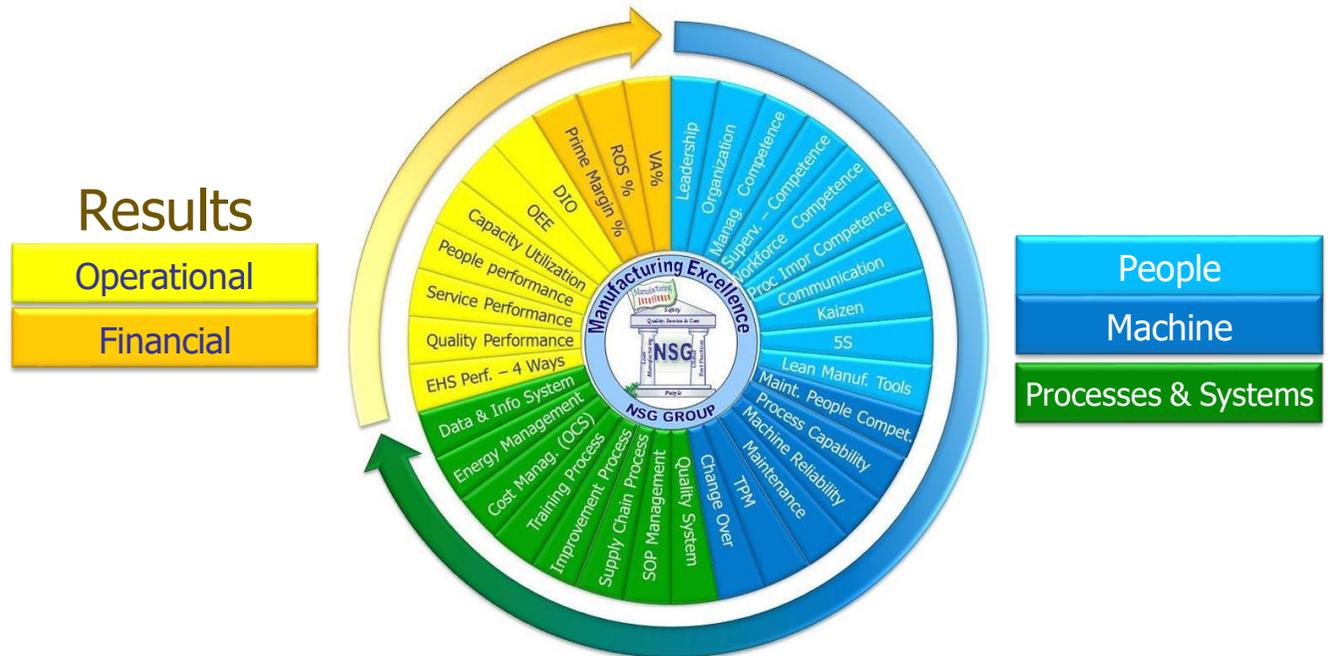
Our global Manufacturing Excellence focus drives improvement in our operations and the products and services we supply, guided by identification of the risks within our internal and external environment.

Manufacturing Excellence 360

ME360 is the NSG standard program to improve operations towards excellence.

Key drivers and results have been selected among a wider range to ensure utmost focus on the basics and on the priorities of NSG medium term plans.

Standard scoring (1-5) and roadmaps have been developed for each driver.



Suppliers

Suppliers of Safe & High Quality Products & Services

We purchase materials, goods and services from more than 15,000 suppliers worldwide. In support of Group Environmental Social Governance (ESG) goals, NSG's aim in working with our suppliers are to have alignment with our principles and for them to strive for the same goals we set ourselves. Our policies and procedures are structured to ensure conformity throughout the complete sourcing and supplier management process in order to mitigate risk in our supply base. Managing our suppliers ethically with a high focus on health and safety is fundamental to our way of working. In addition to specific measures and Key Performance Indicators (KPI's) we also assess supplier sustainability in partnership with EcoVadis. Our Supplier Code of Conduct illustrates the key areas included within our drive for a sustainable supply base.

Supplier Code of Conduct

The Code of Conduct outlines these behaviors, processes and procedures — in short, the minimum standards we expect from our suppliers.

We have communicated our Code of Conduct to all current and new suppliers and have already obtained agreement to its provisions from the majority of our key contracted suppliers.



It is the responsibility of all our suppliers to follow the principles of this code. NSG Group asks that all suppliers agree to our Code of Conduct as a pre-requisite for conducting business with us.

The code is available in several languages below:

Japanese	English	Chinese
Danish	Dutch	French
German	Hungarian	Italian
Malay	Norwegian	Polish
Portuguese (LA)	Romanian	Spanish (EU ES)
Spanish (LA)	Swedish	Vietnamese

* The Code is updated periodically to accommodate changes in legislation. The most recent updates include money laundering, modern slavery, human trafficking and Conflict Minerals.

Please see the [website](#) for the contents of each item of "Environment", "Society" and "Compliance".



Suppliers

Code of Conduct Key Areas

Code of Conduct Key Areas:

Anti-Slavery & Child Labor

All NSG suppliers must conform to the relevant International Labor Organization Labor Standards as a minimum. NSG will not engage with suppliers who apply or support forced labor or employ young people under the age of 15 or older if defined by law.

We employ the following strategies as part of our due diligence against slavery and trafficking in our supply chain:

- Defining our expectations in the SCoC
- Assessing suppliers in conjunction with EcoVadis
- Supplier Audits

A hotline is available to all NSG Group employees and third parties for reporting of suspected violations of human rights. Reporters may be anonymous in most countries and all reporters are protected from retaliation in any form.

Conflict Minerals

NSG Group supports the goals and objectives of the Dodd-Frank Wall Street Reform and Consumer Protection Act's Section 1502, which aims to prevent the use of conflict minerals that directly or indirectly finance or benefit armed groups in The Democratic Republic of the Congo (DRC) or an adjoining country as defined in the Act.

Identifying suppliers who provide materials that could potentially include these minerals is a very important part of our procedures and due diligence is regularly completed via an online questionnaire.

Anti-Bribery Anti-Corruption (ABAC)

NSG Group and its subsidiaries do business with a range of persons and entities in the private sector including, but not limited to, agents, consultants, distributors, service providers, freight forwarders and customs clearance agents (collectively, "Third-Parties"). We continually review our suppliers in order to identify those considered to be a high ABAC risk. The NSG Group Ethics and Compliance function carries out due diligence that includes a questionnaire and screening process. The Third-Party may be screened against various lists including sanctions lists, watch lists, PEP (politically exposed persons' lists) and checked for exposure in adverse media.

Suppliers

Examples of Supplier Engagement in 2020

Energy Efficiency and CO2 Reduction

For more than eight years, NSG Group has been implementing a globally coordinated and supported energy efficiency program across its operations. Procurement together with other central resources from Research and Development, Manufacturing Excellence and local management teams are focused on reducing our energy consumption and costs across the entire Group. In October 2019, in alignment with the Paris Climate Change Agreement, NSG Group committed to Science Based Targets (SBT) to reduce absolute Scope 1 and 2 CO2 emissions from glass manufacture by 21% of CY2018 baseline levels by 2030.

In addition to Scope 1 and 2, NSG Group is also committed to reducing its Scope 3 CO2 emissions. Scope 3 emissions include other CO2 emissions in NSG's value chain, for example, raw materials, transportation, services, business travel, employee commuting, emission by our JV investments and certain emissions by our customers in the processing of our glass.

Scope 3 CO2 emissions (kt)

Category	CY2020
Purchased Goods & Services	1,532
Processing of sold products	600
Fuel & Energy related materials	472
Investments	200
Downstream transportation & Distribution	119
Employee Commuting	2
Upstream transportation & Distribution	6
Capital goods	4
Waste	15
Business travel	2
Total	2,952

In 2017, NSG Group started the process to improve the quantification of its Scope 3 emissions. The 2020 Scope 3 emissions can be seen in the table above. We also started an engagement with key suppliers to better understand the CO2 in our supply chain and to identify and share best practices with our partners.

Energy

Energy represents one of the largest spend areas for NSG; In CY20 it was 15% of the total Procurement spend for the group. In addition, scope 1 and scope 2 energy consumption represents 53% of the CO2 emissions of NSG Group. Consequently, NSG Group has for some years been implementing a global energy management programme aimed at reducing our energy consumption and emissions. To date, this programme has been implemented in 25 of our sites representing 75% of our energy based scope 1, 2 and 3 emissions. In every individual site project we engage with our supply base to identify a range of projects to reduce energy consumption and CO2 emissions or to introduce renewable energy generation within the Group.

In 2019 the NSG Global Energy Management Programme was re-launched as the Energy and Carbon Management programme to reinforce the emphasis on CO2 reduction, in support of NSG's Science Based Targets (SBT) for carbon reduction, which were externally announced in October 2019. In parallel with these SBT's, NSG decided to set targets for renewable electricity to be used across the Group's operations.

Suppliers

Examples of Supplier Engagement in 2020

In 2020 the proportion of the Group's electricity coming from renewable sources grew to 25%, an increase of 5% vs 2019. The commitment to increase this to 50% by 2024 remains. During 2020 NSG Group signed its first offsite Power Purchase Agreement (PPA) covering approximately 25% of electricity demand in Argentina and this project is expected to reduce carbon emissions by 5,000 tonnes per year. Additionally, renewable electricity grid supply contracts were signed in Chile and Poland to further reduce scope 2 carbon emissions. Following on from the renewable electricity grid supply contract signed in 2019, NSG Group's Settimo site in Italy was connected to a supplier's local district heating network, making it the first major manufacturing facility in NSG Group to be net zero for its energy consumption. In Japan NSG Group has signed an agreement with Osaka Gas for the supply of "carbon offset" gas to its Kyoto automotive facility.

Synergies with Strategic Raw Material Suppliers

Batch Materials used in the manufacture of 'Float Glass' represent around 10% of total Procurement spend. The manufacture and processing of raw materials contribute 975 thousand metric tonnes of scope 3 emissions or 15% of total NSG Group CO2 emissions. Of the total CO2 emissions from any given float line, on average, around 17% comes purely from the decomposition of carbonate raw materials, with the remainder coming mainly from the melting of these and other raw materials, including cullet, to make glass, and a smaller amount from the forming and annealing processes. Evaluating alternatives to carbonate raw materials has, therefore, been a key focus in NSG's efforts to reduce the CO2 emissions from glassmaking.

We are working with a number of strategic suppliers on projects to reduce CO2 emissions and at the same time reduce energy consumption. In summer 2019 discussions commenced with a strategic soda ash supplier to the Group. Soda ash acts as a fluxing agent during glass manufacture playing a vital role in reducing the furnace temperature necessary to melt silica and therefore, reducing the energy required. However, the production of soda ash also releases a significant portion of CO2 into the atmosphere. NSG and the supplier are evaluating potential synergies between our two high energy demanding – and hence high CO2 emitting – companies.

Low carbon raw materials

The manufacture and processing of raw materials (Scope 3) contribute slightly more CO2 emission so reduction of the raw materials CO2 burden is very important to achieving our SBT. R&D, in collaboration with Procurement, have been working to find viable low carbon batch materials that can be used to reduce these emissions and recently conducted trials of a calcined carbonate raw material, which contains no CO2. In 2020 our main activity has been focused on preparing for a large scale trial of calcined dolomite on a float line in South America, where we have been working with the existing dolomite supplier and a new company which specializes in high quality calcination, enabling a suitable material to be produced for float manufacture. Calcined dolomite contains no CO2 in the form of carbonate species and current indications are that it will give a significant fuel saving as well.

Preparations are ongoing at the float line to commission engineering solutions required to carry out this trial safely, as well as ensuring a sufficient quantity of high-quality raw material will be available to trial. The aim is to conduct a trial lasting ~10 days, to enable NSG to gather all the required data and experience of working with this novel material, including energy and CO2 savings, but also any changes to the chemistry and mechanism of the production process, to evaluate if the technology is suitable for implementation across the Group. This trial has been, and continues to be, delayed by COVID, but we are optimistic the trial will be able to take place before the end of 2021.



Suppliers

Examples of Supplier Engagement in 2020

Other activities in 2020 have included re-engaging with our existing soda ash suppliers, to better understand their plans for reducing CO2 emissions during manufacture, and the assessment of other alternative materials using new analytical methods which allow us to directly quantify the melting energy requirements of these materials relative to our existing raw materials. This data gathering will continue throughout the coming year, with the goal being to be able to propose the best suite of raw materials to achieve the desired glass properties, whilst minimizing CO2 emissions and input costs.

Transport & Warehousing

Transport and Warehousing activities account for 16% of the NSG Group Procurement's spend across its global operations with transportation alone accounting for 12% of this. The European road transport supplier costs account for 45%, SEA accounting for 17% and the Americas accounting for 38% of the Global Group road transport spend. The supplier engagement currently equates to 71% coverage in Europe, 37% coverage in Japan and 39% in North America. From these engagements we now collate detailed distance travelled data.

There is a strong emphasis on improving efficiency, reducing empty driven miles and increasing the weight of product carried. All of these initiatives will reduce our environmental impact. Many positive projects delivering environmental benefits are being actively managed. Our main focus is to work with our lead suppliers to drive sustainable improvement through network optimization. This encompasses lane

management, backloading and triangulation of flow leading to increased efficiency of vehicle utilization which reduces the number of journeys we make as a business to fulfil customer demand. Working across multiple NSG Business Units we can drive synergies across our distribution profile.

In Europe we have been working with our partners to assess the use of Liquefied Natural Gas (LNG) as a replacement for diesel fueled vehicles. A successful trial was completed in the UK in July 2020. On average we have the potential to save up to 92% of CO2 if Bio-LNG trucks can replace diesel fueled vehicles.

Across the world we are exploring more intermodal solutions as NSG's rail distribution only accounts for 4% of our overall volume distribution but this program has been delayed due to the impacts of the global pandemic.



Suppliers

Examples of Supplier Engagement in 2020

Contracts with Suppliers

NSG Group seeks to have a clear and mutually beneficial trading relationship with its suppliers of goods and services. This is best achieved by agreeing appropriate contracts with all our suppliers of goods and services. All supplier contracts must be approved internally within NSG Group by the appropriate management before the agreement can be formalized with suppliers.

NSG Group and its Affiliates (as defined in the versions of PCP2 below) will ensure that contractual relations with our suppliers are governed by the most appropriate Terms and Conditions of purchase. For most suppliers this is in the form of our standard Terms and Conditions of purchase (PCP2 issued 2008).

The master version of PCP2 will be the English version. For the convenience of our suppliers in other countries we have translated PCP2 into a number of other languages however suppliers are reminded that, and any disputes will refer to the English version of PCP2.

Various language versions of PCP2 (as follows) are posted on the homepage.

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Terms and Conditions of purchase (EU, India, Malaysia & Russia)

- English
- Czech
- Dutch
- French
- German
- India (English language)
- Italian
- Japanese
- Malay
- Polish
- Russian
- Spanish (European)
- Swedish

Terms and Conditions of purchase (North America, Canada & Mexico)

- English
- Spanish (Mexican)

Terms and Conditions of purchase (Brazil)

- Portuguese (Brazilian)

Suppliers

ESG Objectives

Supplier Development

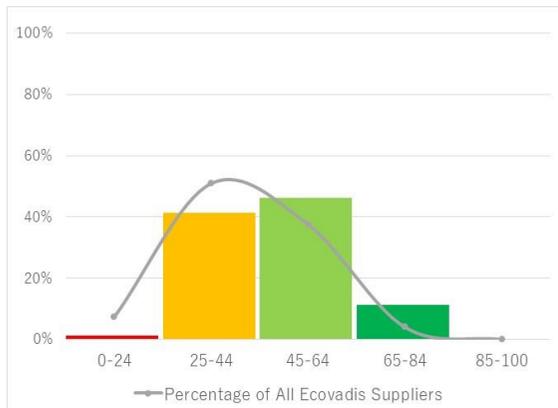
Measuring the performance of our suppliers against Key Performance Indicators (KPI's) we strive to continually improve the sustainability of our supply base. Increasing the coverage of ESG assessments through our partner EcoVadis and engaging with suppliers through Improvement Action Plans we strive to shape and improve our supply base in the areas of Environment, Labor & Human Rights, Ethics & Sustainable Procurement. We continue the good progress made in FY20

with an increase of 17% of Procurement FY21 spend covered with EcoVadis assessments. NSG suppliers' spend weighted average score of 55 exceeds EcoVadis average for all companies measured; -

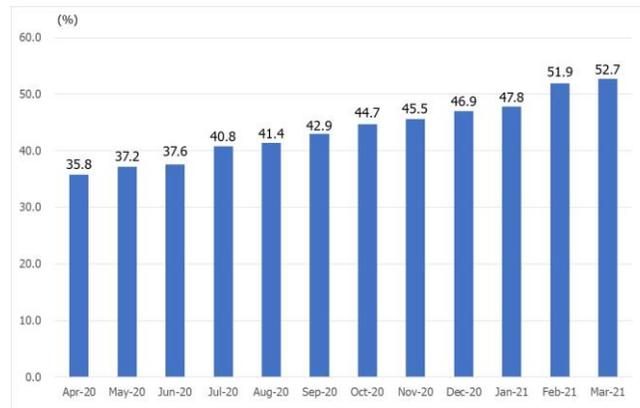
We pay particular attention to suppliers who potentially have a High Environmental Impact (HEI). Our aim is to ensure that these suppliers minimize their potentially negative impacts and work positively on environmental initiatives. 13 of our material categories, see chart below, fall within the scope of

HEI, including wooden packaging, batch materials, waste management, contractors and chemicals. We expect that all suppliers in these categories have internationally recognized environmental certification such as ISO14001 or national equivalent and/or EcoVadis assessment. In the case of wooden packaging, paper and cardboard, we look for a recognized chain of custody (e.g. FSC or PEFC) in regard to the raw material supply.

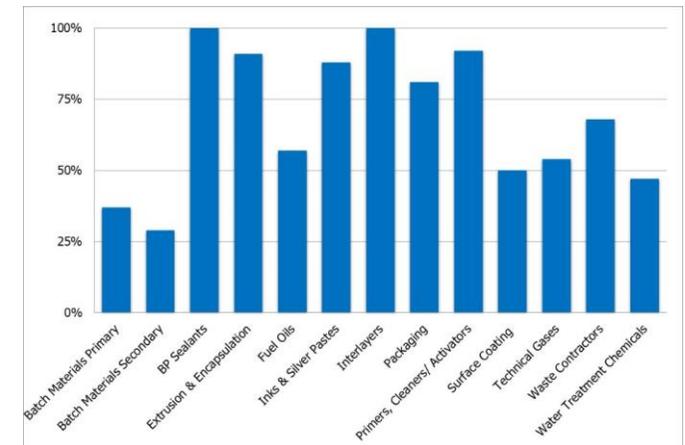
■ NSG Suppliers' FY21 Overall Score Distribution



■ FY21 Supplier Spend Assessed by EcoVadis (% Annual Spend)



■ HEI Compliance - FY21

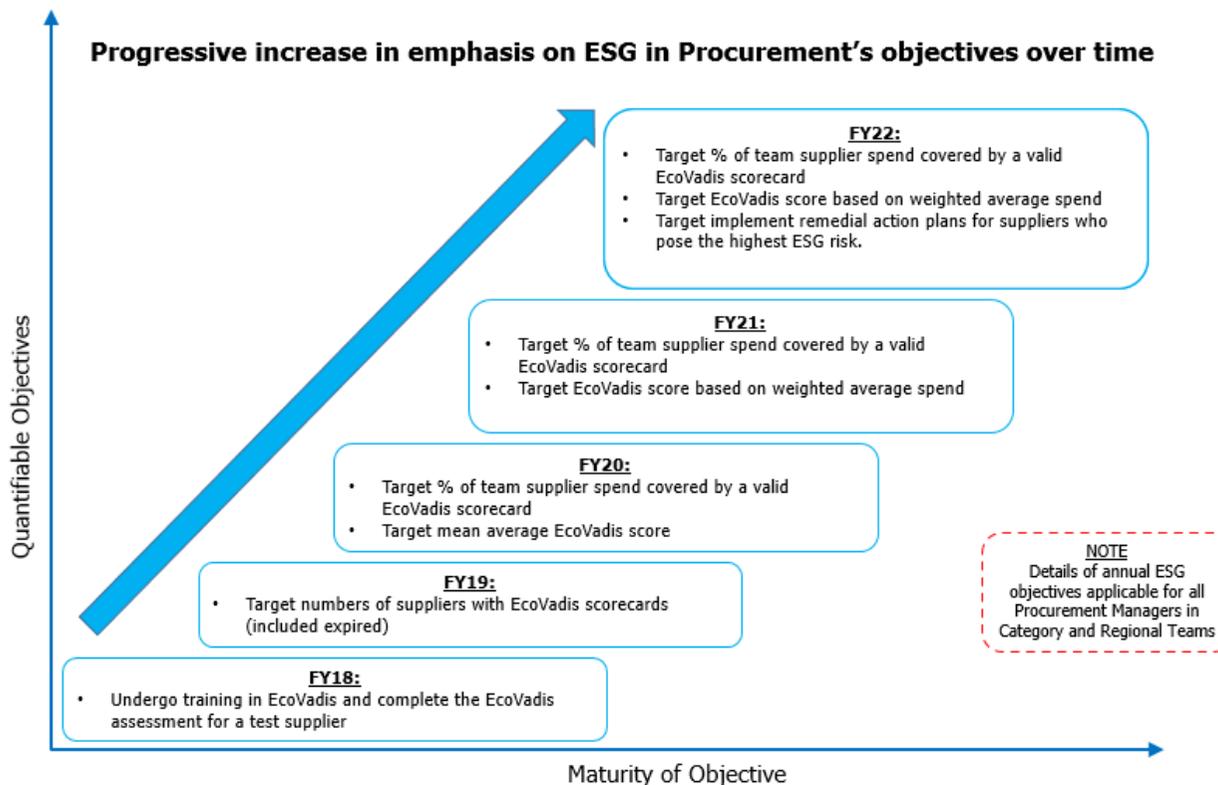


Suppliers

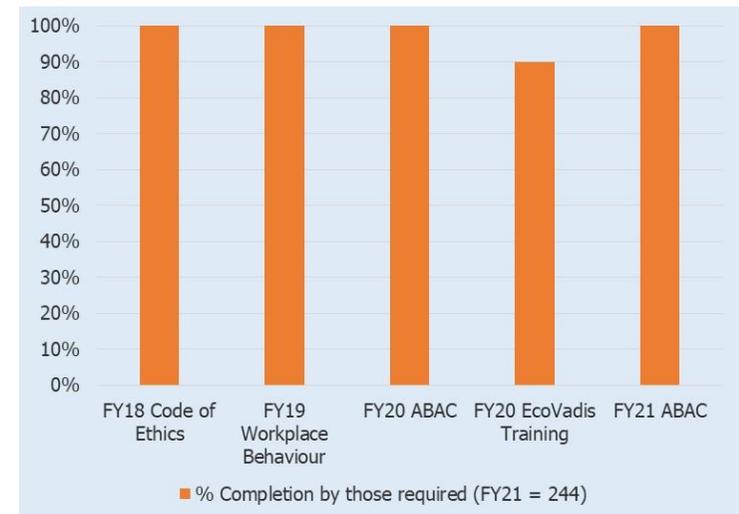
NSG Buyers' ESG Objectives

NSG Buyers are set SMART objectives in the ESG area, and are required to undertake annual training covering a variety of ESG topics.

■ Development of Buyers' ESG Objectives



■ ESG Training in Procurement



Human Resources

We have put great importance in the philosophy of “People are our most important asset”. NSG commits to “Respecting others and unleashing their potential” as the first of our six core values under the management philosophy demonstrated in “Our Vision”. Based on “Our Vision”, the Group also redefined the Materiality. “Human Capital” is one of the most important issues in the Materiality to attain sustainable growth of the Group and contribute to a sustainable society in the medium- to long-term.

We train and develop our people while respecting their human rights, promoting Inclusion & Diversity and keeping them safe from workplace injuries or occupational illness.



Yutaka Nakashima
Executive Officer, Chief Human Resources Officer(CHRO)

In May 2021, the Group publicly announced NSG Group’s “Medium Term Vision” and “Revival Plan 24 (RP24)” as its new Medium-Term Plan.

We stated “Respect others and unleash their potential”, one of our “Core Values” set in “Our Vision” In the “Medium Term Vision”

- To continue to be an employer who provides employees with opportunities to grow and find joy in working

We explained that “Corporate Culture Reform” is one of our three reforms in RP24,

- Development and appointment of those who can lead reform (Inclusion & Diversity)
- Recognition of delivering on the reform through incentive schemes
- Encouragement of open communication b/w management and frontline/region/business units

In order to achieve our “Medium Term Plan” and RP24, we aim to change into an organization that never fails to take up challenges and follow through to deliver results, focusing on “Human Rights and Employment”, “Inclusion and Diversity” and “Talent Development and Work Environment”.



Human Resources

1. Human Rights and Employment

Our Code of Ethics reflects our Integrity, as articulated in our Core Values, and forms part of "Our Vision". It defines what is expected of all our employees. It particularly emphasizes safety, respecting human rights, taking personal ownership for actions and communicating with openness and involvement.

The overriding basis of the Code is that we will carry out our business activities in a safe, professional, legal and ethical manner, and in a way that demonstrates corporate social responsibility and sustainability.

For example, one of our key employment standards in the Codes is "We won't engage or support forced labor. We won't employ young people under the age of 15, or older if defined by law". We ensure we have no child labor and no Forced or Compulsory Labor.

The Code acknowledges internationally proclaimed human rights. These are also reflected in our overall employment policies and standards, providing our employees with reassurance on how they will be treated.

Our Equal Opportunities and Diversity policy prohibits discrimination based on race, color, creed religion and beliefs, age, gender, sexual orientation, national origin, disability, union membership, political affiliation, or any other status protected by law.

2. Promoting Inclusion and Diversity (I&D)

Global Inclusion and Diversity (I&D) is a key issue for many companies, being widely recognized as enhancing both corporate value and the working lives of employees. NSG Group is firmly committed to further improve its own I&D, embracing the internally and externally declared Statement of Intent and one of our Core Values, "Respect Others and Unleash their Potential".

Statement of Intent:

Having an Inclusive Culture and Environment:

We give everyone an equal opportunity to contribute to their full potential and harness the richness of ideas.

Having a Diverse Workforce:

Any differences in individuals' backgrounds, experiences, preferences and beliefs are recognized, respected and valued for their variety of perspectives.

1) Our effort

The NSG Group established a Global I&D Steering Committee with the aim of enhancing inclusion and diversity across the entire group. The Committee comprises 20 members, covering all business units, functions, and regions. It works with individual businesses to identify and implement local, regional, and global initiatives, identifying areas for improvement and measuring progress. One central focus is to move I&D beyond the Human Resources department and establish it within all thinking.

2) Taking action

In line with the annual Group and Regional I&D Action Plans, each country or site is implementing their own actions. One of the annual implementations at site level is to celebrate International Women's Day through various local events.

Another strategic implementation at Group level is the provision of Unconscious Bias Training to all managers across the Group. Unconscious bias occurs as our brains filter information, categorizing people and situations, in order to make quick decisions. Everyone has unconscious bias that is a result of their own cultural environment and accumulated life experiences. Unconscious bias is far more prevalent than conscious prejudice and is often incompatible with our conscious values. All managers across the NSG Group undertake online training to learn what unconscious bias is, how to recognize it in themselves and in others, and how to mitigate the potential impacts.

I&D Newsletters are issued three times a year to inform all Group employees about the latest activities on Inclusion & Diversity within the NSG Group.

Human Resources

Inclusion and Diversity (I&D) actions for 2020 were largely regionally lead due to the differing impacts of the COVID 19 pandemic in each of the countries we operate. Examples of diversity days which were celebrated and recognized were days such as International Women’s Day and International Day of People with Disabilities. Inclusion and Diversity objectives have also been set for our Senior Leaders and various countries have also set up their own Inclusion and Diversity country committees.

3) Inclusive Leadership

Inclusive leadership is a set of proactive behaviors that recognize, respect and value individuals with the goal of unleashing their potential. Global I&D Steering Committee members are advocating the Inclusive Leadership behaviors.



Guido Di Martino
Sustainability Coordinator
for South America

"Our organization becomes more inclusive and valuable by respecting differences in our people."



Noline Srougi
Supply Chain Director OE
North America

"We encourage an inclusive culture and equality of thought with all employees."



Shirley Sergeant
R&D Director Europe

"We value the unique contributions that each person brings to the team."

Human Resources

4) Promotion of Female Career Advancement

NSG Group supports our female career development through Inclusion and Diversity programs. We were certified as Platinum Kurumin Certification by Japanese Ministry of Health, Labor and Welfare in 2019 as we achieved high standards of the targets for our employees to satisfy both their career and childcare.



Online workshops have been regularly held for female managers to improve their networking and career planning opportunities, which in turn have helped with career motivation for participants. Examples of improvements include: greater visibility for females in succession planning discussions, identifying and confirming the positions to which female managers can be positioned, and encouraging more paternity leave.

We also introduced an exchange program with Sumitomo Group female members. During an online career seminar in 2021, attended by several companies in the Sumitomo Group, participants explored opportunities to discuss their own leadership style and consider future career options. Their experiences were shared within the Company and contributed to our female career advancement.

The Group is promoting the appointment of female managers to achieve our Medium Term Plan - RP24 goal "Corporate Culture Reform".

- Female managers in NSG Group
 - 12.7% as of 2021 June 31
 - FY24 target: female manager increase at least 1% in each SBU and Function

5) Promotion of Foreign and Mid-career Employees

We operate as an integrated international Group, with a multinational management team. We believe that our diverse workforce with its range of nationalities, skills, qualifications and experience is a substantial benefit to our business. Our management style is to put the best person in each job, regardless of nationality or region. Our overseas subsidiaries are managed by local Leadership teams.

- Foreign Senior Managers in the Group
 - 80.7% as of 2020 March 31
 - 82.5% as of 2021 March 31

NSG Group has diverse workforce with its range of skills, qualifications, and experience in the world. We are promoting the mid-career employment in Japan to satisfy the skills and careers required by our businesses and functions.

- New Employment in Nippon Sheet Glass
 - FY21: 34 new graduates and 67 mid-careers
 - FY22: 26 new graduates and 8 mid-careers

Human Resources

3. Investment in human capital and improvement of working environment

The NSG Group continuously cultivate our employees through learning and development opportunities, aiming to provide a working environment that allows our people to reach their full potential and meet our customers' expectations. In particular, with an emphasis on dialogue to increase employee engagement to achieve the Medium Term Plan - RP24. During the pandemic we embraced the use of technology and used Microsoft Teams to hold dialogue sessions with our employees across the Group. This included a number of 'NSG Summits' to improve communication with our global Leaders, and Management 'Town Hall' meetings for middle managers around the world, In addition, from 2021, and as part of our wider Listening Strategy we are conducting an employee survey for all employees, enabling us to listen to the "Voices" of our people and understand how we can improve the working environment.

■ Talent Management



1) Investment in human capital

In 2018, we introduced Talent Management as part of our wider Talent Strategy supporting the Group's Vision and Values. With this introduction, we migrated key global talent records and data to a new talent management system, while at the same time providing all managers with comprehensive training on talent development processes. Since then, we have continued to expand the use of our Talent Management system, which involved the introduction of our NSG Behavioural Competency model to the Performance Review discussion in 2019. Integrating our NSG Competency Model globally across our core people processes continues to support and drive culture change.



“ Leaders are those who are able to engage and motivate our employees (People) and through them achieve short-term performance (Results) and long-term success (Vision) ”

This global approach to talent management is more inclusive and reduces 'organizational silos', by sharing the talent data such as Performance Reviews and Succession Plans via our Talent Management system, we have a transparent and dynamic approach to Talent Management.

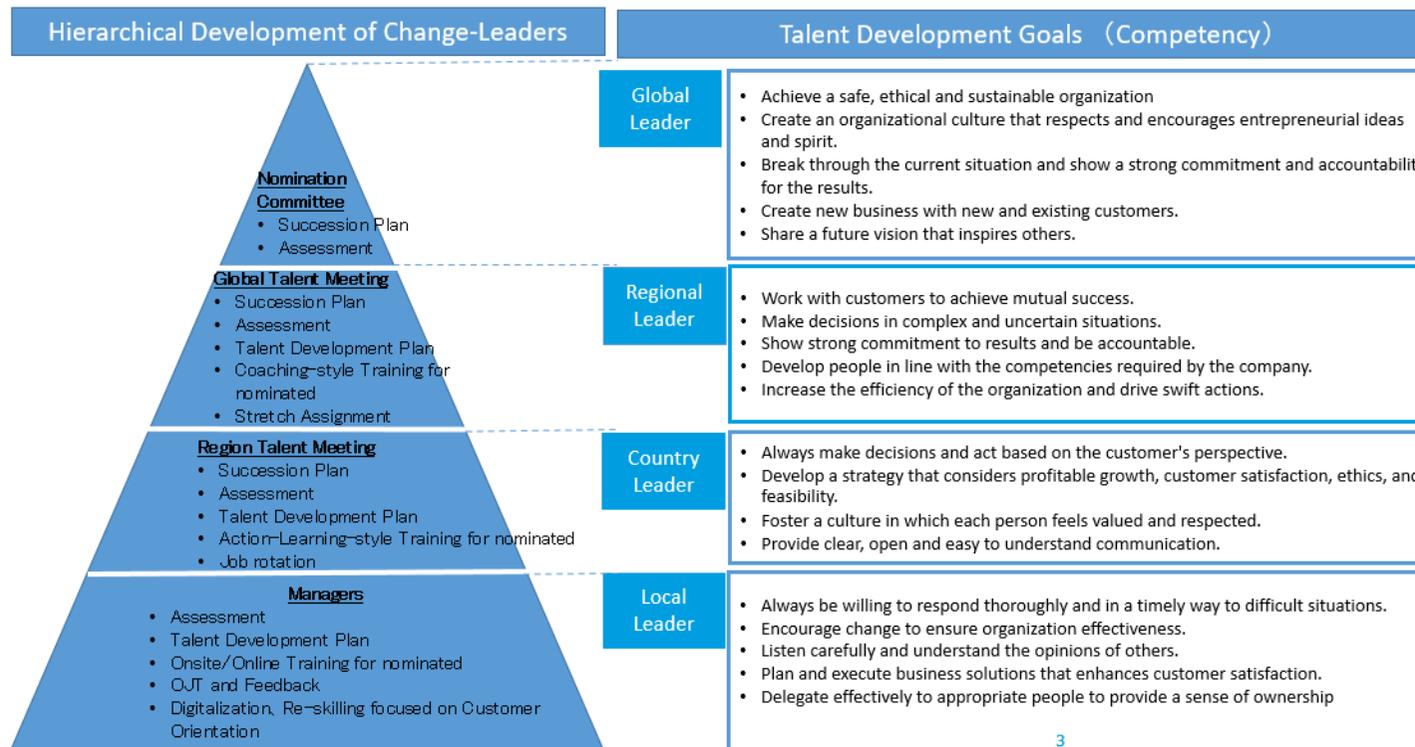
During 2020-2024 our goal is to embed the knowledge and application of Talent Management practices in the workplace and to develop leaders at all management levels, who have the ability to realize the Medium Term Plan – RP24.

Our Human Capital investment includes; Leadership assessment, selection, and training by emphasizing specific areas of the NSG Competency Model, which align with the RP24 Corporate Culture reform - "Customer focus", "Swift decision making and action", and "Overcoming difficulties". At the same time, we will also provide employees with reskilling and training in areas such as digitalization, marketing, and new business development necessary for the reform. In addition, by encouraging feedback and an environment throughout the group where employees can interact with their supervisors through their daily work, we will encourage each employee to adopt behaviours to realize RP24.

Human Resources

Through ongoing training, we will provide continuous learning opportunities at all levels even in the environment of "With Corona", and promote the transition of our Group programs from face to face learning events to an appropriate mix of 'Blended Learning', which includes virtual class rooms, action learning sets and face to face development activities.

Human Resource Investment for RP24 Achievement



Human Resources

2) Improving Working Environment

The NSG Group think "People are our most important asset", and health promotion is indispensable for employees to maximize their individual abilities, and it leads to the sustainable improvement of the company's value. In January 2020, we made a "Health Management Declaration" in Japan.

"Health Management Declaration"

In order to improve the sustainable value of the Group and contribute to society, we believe that the health of employees and their families is the foundation.

Since its establishment in 1918, Sumitomo's philosophy of "People are our most important asset" has been valued, and "Respect others and unleash their potential" has been set as the first core value in the current corporate principles "Our Vision".

Based on the idea, the Group is working on promoting the health of each and every employee and advancing the health management so that employees can maximize their abilities.

The activities for advancing the health management lead by the head of Group sustainability are discussed by the executive officers in Japan.

Our effort

1. Improving health literacy (awareness of health) and promoting health of employees and their families

Health education and seminars, health promotion programs, health information dissemination

2. Health check-ups and measures against lifestyle-related diseases

Periodic health check-ups, specific health guidance, metabolic syndrome prevention, measures against second-hand smoke

3. Mental health measures

Stress check and counseling

4. Work styles reforms

Curbing long working hours, promoting paid leave, childcare / long-term care support, flexible working style (telework)

The NSG Group is working to improve the environment for realizing diverse working styles in the "new normal" based on the demands of society and the guidelines of the government. We are reviewing the way organizations and individuals should be and aim to shift to a new work style that maximizes productivity and performance under infection control measures.

- Work style that is not bound by place and time
 - Expansion of remote work
 - Introduction of flexible time without core time
- Business management focusing on an importance of communication
 - Promoting meetings online
 - Improvement of management of subordinates (introduction of regular check-in)
 - Support managers for remote team management and communication,
 - Setting up a remote counter for health consultations, etc.
- Improvement of IT environment for working from home

Human Resources

3) Employee Engagement

In order to measure the Group’s sustainable engagement, an Employee Survey was conducted across the NSG Group. The 2019 survey was carried out across 4 regions (Europe, Asia, South America and North America) targeting 6,989 employees in 17 countries and 6,153 of those responded to it (Response ratio 88%). The Survey was available for 3 weeks and 2,645 free-text comments were provided which were reviewed by respective supervisors and action plans were discussed and established in the teams.

During 2020 our approach to Employee Engagement changed significantly, due to the global pandemic. Our usual approach to surveying our people was not feasible as during the first half of 2020 many team members were either working reduced hours, furloughed or working remotely. Our Leaders and Managers placed the safety of our team members front and center of all activities. Our Managers played a critical role in engaging with their team members during this difficult time, in many teams across the group this included embracing technology to enable conversations, meetings and wellbeing ‘check-in’ points.

During the second half of 2020 a communication and engagement strategy was developed. This included holding a series of Town Hall meetings, targeting regional and country leaders in order for RP24 to be communicated and well understood. These Town Hall meetings were followed by ‘Pulse Check-in’ surveys, to measure the understanding of RP24 and to gauge the engagement levels of our management population. Our initial ‘Pulse Check-in’ issued in March 2021, was open to 1916 Managers across our four regions (Europe, Asia, South and North America), it was available for two weeks and received a positive 88% response rate with over 800 comments, which were received and discussed by the local Management Teams and Regional Transformation Directors. This feedback provided managers with the opportunity to discuss the transformation and strengthen commitment for its delivery within their teams.

During 2021 our approach to Employee Surveys will be improved further. By continuing our partnership with Willis Towers Watson and using their newly developed employee survey software, we will embrace technology and carry out a group-wide survey targeting ‘all employees’.

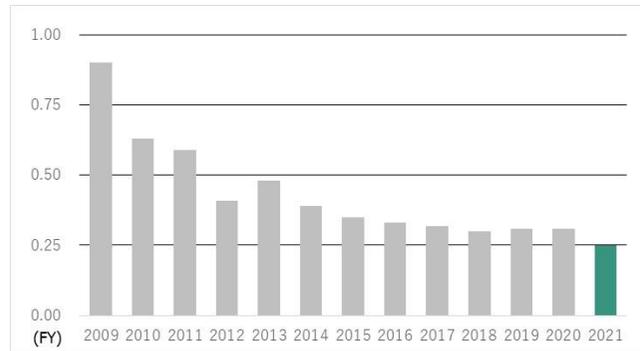
Health and Safety

Our safety programs emphasize the importance of our vision and values, that people are our most important asset and the safety of our employees and the communities in which we operate is a core part of our ethical business philosophy.

Please refer to the "[NSG Group Health and Safety Policy](#)".

Significant Injury Rate (SIR)

■ Significant Injury rate (SIR)



■ Percentage Significant Injuries (%)

(FY)	2015	2016	2017	2018	2019	2020	2021
Glass handling	30	30	38	45	29	34	21
Manual work	23	19	21	24	35	27	16
Slips/trips/falls	11	22	14	10	16	7	11
Engineering	14	0	0	0	0	0	0
Machinery	5	16	13	6	6	5	11
Blade	7	5	5	2	6	7	7
Fall from height	0	3	4	8	2	15	0
Others	10	5	5	5	6	5	5

Safety organization and strategy

The NSG Group Sustainability Director reports to the President and CEO Shigeki Mori.

Monthly safety updates are provided to the Operational Performance Review meetings while more in-depth management reviews are completed every six months with the senior operations team comprising the heads of the four SBUs and the heads of the Group functions. These reviews were held by round table in each month.

All injuries at work are regarded as avoidable. We require full reporting of all incidents, no matter how minor, and appropriate investigation to ensure we learn from all such events. The Group has a focused site approach that provides additional support and more regular reviews for sites that have more than a defined number of significant injuries.

Health and Safety

2021 Global Pandemic

2021 has seen unprecedented changes to the way in which businesses are being managed. The global pandemic has required the NSG group to develop its processes and people management skills to meet the fast changing situation. The group primarily focused on meeting the requirements within each country of operation; developing and sharing best practices around the globe to meet these requirements. Everyone including employees and their representatives, management teams, contractors and suppliers have worked together to ensure that people are safe.

Safety performance

Safety improvement has been developed to focus on three main areas: leadership, specifically our first line leaders; understanding the behaviors that lead to injuries and managing our high risk activities. NSG Group drives proactive safety through a measure called NABIS (NSG Anzen Bunka Improvement Strategy) this process has three main areas reflecting our focus points.

Leadership

Asking our leaders at all levels of the business to show visible and demonstrated leadership, through discussion and spending more time in our production areas talking to leaders and teams about improvements using systems such as GEMBA walks. More recently the GEMBA process now includes CoVid19 reviews using the GEMBA principles. We continue to ensure all our leaders assess themselves against our 10 key leadership behaviors, asking them to lead by example and to review their teams against a set of principles, such as never walking past an unsafe act without talking to the individual.

Responsibility and accountability of the leaders are to ensure that people follow the procedures and safety rules for the tasks we ask them to complete. This area continues to ask leaders to consistently review the ability of their colleagues to competently complete the tasks. Improving the way in which we communicate safety through regular opportunities for two-way briefings and more formal safety meetings with employees and their representatives is an important way of providing clear information on both reactive and proactive safety initiatives; this area has posed challenges during the CoVid19 pandemic however teams have continued to find innovative ways to communicate with remote teams and social distancing rules are in place for teams attending sites. Leadership teams are required to ensure this communication process is effective. Training our colleagues is a fundamental part of delivering our services to our customers. Ensuring our employees have the tools and ability to deliver our

commitments in a safe and ethical manner requires a continual review and update on training needs and competences. Leaders are required through NABIS to ensure that, from a safety point of view, people have the correct knowledge to complete this task.

Asking people to become proactively involved in safety in our plants is part of the leader's responsibility and in NABIS we ask our leadership teams to look for opportunities to involve teams and individuals in safety projects, with the implementation of suggestion schemes and participation in Kaizen processes across many of our larger manufacturing plant being a part of this process.

Health and Safety

The second part of NABIS is measuring Safety 4 Ways, which includes:

- Safety Improvement Plans (SIP) – reducing hazards and risks through planned improvements of conditions and behaviors that lead to incidents.
- Incidents of High Potential Severity (IHPS) – reviewing all incidents with a critical eye, asking what could have happened and could the incident have led to a serious injury or fatality; then taking preventative actions.
- Key Safety Behaviors (KSB) – focus on how our employees complete tasks, working to reduce at-risk behaviors through frequent feedback.
- Significant Incident Rate (SIR) – The Significant Injury Rate (SIR) is our primary reactive indicator.

The SIR records injuries requiring medical treatment or the reallocation of duties to allow an individual to continue working, expressed as a rate per 200,000 hours worked. The Significant Injury Rate for the year to March 31 2021 remained at 0.25.

Finally, NABIS requires our leadership teams to manage our high-risk activities.

We are committed to our high-risk reduction program and the safety tools we have in place. We continue to focus on the following areas:

- Working where there is a risk of falling
- Vehicle and pedestrian safety
- Machinery safety: guarding, frequent access and complete isolation
- Contractor control, including permits
- Materials handling: moving glass, load security, grabs, trolleys and pallets
- Driving in connection with work

The Groups commitment to NABIS for larger sites has been reinforced around the globe with a verification process. This ensures EHS professionals within the group review the self assessment scores submitted by the larger operational plants. This process forms part of plant leadership teams performance reviews.

During FY21 the group continued with its planned expansion of the NABIS process into smaller sites and into its office environments, this process is in place to achieve the overall goal of all NSG employees being involved in a NABIS process.

NABIS for smaller sites: NABIS continues to utilize the headings of the main NABIS tool. However, in the case for NABIS for smaller sites it takes into account the different operational and management requirement of smaller businesses within the group.

NABIS for Offices: This NABIS is for the functional and operational parts of our organization that do not have a standard manufacturing format and focuses on the risks identified by these functional groups and asks leaders to involve their teams in performance improvement relevant to their activities. The global COVID pandemic has slowed this process during FY21 with more of the implementation and meetings moving online through Microsoft Teams meetings with functions.

Improving our root cause analysis is a fundamental part of the groups improvement strategy, it is only by identification of the underlying causes of accidents and incidents that the group operations will improve in the longer term. To help improve this the group introduced the 5Q process within its significant injury (SI) and incident of high potential severity (HPS) reporting processes. The questions require sites to provide information to SBU regional leadership teams about longer term actions related to the areas.

Health and Safety

To further support the groups drive for improvements in SI and HPS reporting in FY22 the group will replace its global reporting system AIRSWEB with the newest version NSG AVA. This update will enable plants to report issues on the shopfloor, review and discuss possible improvement with employees at the time and record this in a single place. In addition, the system will allow action to be more easily tracked to completion. The reporting process on AVA will include the 5Q system described previously.

NSG Group Annual Safety Day

The NSG Group Annual Safety Day took place on October 2020 its main focus across the group was mental health and wellbeing. Our 10th safety day was completed innovatively utilizing many different tools whilst maintaining the COVID controls. Plants around the globe delivered information and training to all levels of the organization in an effort to raise awareness of mental health issue. The group will continue to have its 11th safety day in October 2021. The safety challenges will continue with COVID precautions still in place in many countries. NSG Group will continue to challenge and deliver safety day activities in a COVID secure manner.

Moving safety to the next level

The safety strategy remains the same, with a focus on improving the effectiveness of our safety tools and programs. We believe that our employees and leaders will make the difference in moving safety to the next level through the following initiatives:

- Independent audits of our safety tools to drive a more consistent approach, develop our safety skills and improve our shared learning. As travel restrictions have continued these audits have moved to remote review completed via Microsoft Teams.
- Further improve our level of proactive employee involvement as a means of continuing to change our safety culture.
- Further develop our first-line supervisors to improve our overall level of safety leadership.
- In FY22 the NSG Group will develop a cultural survey tool to measure the safety culture in its larger operation, pilot site will complete the survey by the end of FY22 with full role out in FY23.

COVID-19

Coronavirus Infection Prevention Measures

NSG Group greatly values the dedication and commitment of the healthcare workers, local communities and governments around the world who work in the front line to contain the virus. NSG Group's health & safety programs emphasize the importance of Our Vision. Employees are the most important asset for the Group. The health & safety of the employees and the communities in which they live is a core part of our ethical business philosophy. This principle remains unchanged despite the challenges of the Covid-19 pandemic.

Organization and Policy

The Executive team of the NSG Group regularly addresses issues around employees' health and business continuity. The regional and country management teams continuously monitor, develop and implement actions focusing on the health and welfare of the employees, whilst at the same time ensuring the needs of the customers are met.

All employees are strongly encouraged to follow local government advice in relation to country specific actions that are being taken to reduce the spread of the virus.

Main infection control at the Group level

1. Information sharing

- The NSG group utilizes its SharePoint site for sharing best practice between all levels of the business. In addition, the group monitors the number of cases within its regions.

2. Infection prevention

- Regular hand wash with soap and water
- Maintain social distance
- Wear a mask (face covering) or a face shield
- Stay at home if you have symptoms
- Visitor screening to ensure that essential site visitors complete reviews and understand local NSG Group requirements

In addition, regarding the following items, each facility made efforts to implement appropriate measures according to the actual situation.

- Covid-19 risk assessment and control measures to reduce the risk to employees, visitors and contractors attending the plants
- Installation of local controls to segregate and ensure social distancing where required
- Review of working practices to accommodate local social distancing rules
- Increased cleaning regimes especially those of "touch points" and workstations
- Disinfection of workplace should there be an infected individual, thoroughness of quarantine of anyone in close contact
- Limited number of people at each meeting room and canteen, revised layout of desks, tables and chairs
- Improved access to hand washing facilities and hand sanitizers
- Availability of face coverings and, where required, masks or screens between individuals



COVID-19

Examples of the Main infection controls at in each region

1. Europe

- Completion of Covid-19 specific risk assessments at all sites
- Implementation of local government rules
- Consultation with employees and employee representatives
- Communications material for employees
- Regular senior manager reviews of larger operations, together with the relevant plant managers
- Covid-19 updates during business reviews

2. Asia

- Quarantine facility (e.g. shelter) in place in case of a suspected infection
- Covid-19 specific risk assessments and improvement plans
- Local announcements and specific rules based on local government requirements
- Weekly information sharing
- Frequent communication with all sites (weekly)

3. North America

- Senior managers attend daily calls to coordinate pandemic response
- Covid-19 preparation checklist based on CDC (Centers for Disease Control and Prevention) and government guidelines
- Daily calls leading up to site restarts following lockdown
- Installation of monitoring equipment in accordance with local rules

4. South America

- Weekly regional directors' calls in order to coordinate pandemic response
- Weekly Senior Managers calls at each site
- Daily safety and health messages
- Behavioral Observation program with KHB (Key Health Behaviors)
- Completion of Covid-19 specific risk assessments at all sites
- Communications material for all employees

General business actions

1. Travel restrictions (as of 7th July 2020)

- Business travel restricted to business-critical travel only.
- All employees intending to travel to review procedures of the country concerned including country specific quarantine rules.
- All regional travel to be approved by Regional Strategic Business Unit (SBU) Head or Function Head.
- All travel outside of the employee's own region to be approved by the Global SBU or Function Head. All travel by Global SBU or Function Heads to be approved by CEO, COO or CAO.
- When planning any business travel, employees must inform the site that they intend to visit about the planned visit and make sure they are aware of all relevant control measures and requirements at the site. The local site management can reject the intended visit.

2. Remote working

- During the different stages of the pandemic in each region office-based employees have been working from home. Even when they needed to attend their place of work, offices have reviewed the rules as necessary and safety precautions have been implemented so that individuals can return safely.

3. Staggered shifts to reduce mass arrivals and departure staggered shifts ease congestion at entrances and clocking points.

- To reduce congestion when teams enter and exit facilities
- By staggering shift arrivals, the demand on public transport is reduced even in sites like India where we supply the transport. The buses have reduced capacity by COVID safety rules.

4. Remote conferencing

- External and internal meetings held as remote conferences when possible.
- Technically advanced conferencing systems available to enable online meetings.
- Additional access points available for secure remote access to NSG Group's systems
- Standardized screen saver on workstations and laptops to remind employees of prevention measures.

COVID-19

The following posters are available at sites to aid communications:

+hink safety

COVID 19 重要安全行動

ソーシャル ディスタンス
2mの間隔を守りましょう

+hink safety

COVID 19 重要安全行動

COVID-19 遵守項目

「ソーシャル ディスタンス」と
「衛生管理のルール」を守りましょう

+hink safety

COVID 19 重要安全行動

1 水で手を濡らし、石鹸をつき手の甲を互いにのぞります
2 手の甲をのぞくようにこすります
3 指の間を洗います
4 指先を互いにこすりこぎます
5 親指と手のひらを回して洗います
6 手の甲を互いにこすりこぎます

頻繁に手を洗いましょう。石鹸と水で20秒以上かけてください。

+hink safety

COVID 19 重要安全行動

頻繁に手を洗いましょう。石鹸と水で20秒以上かけてください。

+hink safety

COVID 19 重要安全行動

アルコール消毒液で手指をきれいにしましょう

+hink safety

COVID 19 重要安全行動

発熱や咳の症状が出たら、自宅でご過ごしてください

+hink safety

COVID 19 重要安全行動

マスク着用の指示のある場所では、マスクを正しく着用しましょう

+hink safety

COVID 19 重要安全行動

事業所で指定された口や目、顔、手の保護具を正しく着用しましょう

+hink safety

COVID 19 重要安全行動

握手 抱き合う 口を寄せる

濃厚接触となるような挨拶は避けましょう

+hink safety

COVID 19 重要安全行動

この部屋の最大収容人数:

ソーシャル ディスタンス
施設や設備の規則を守りましょう

+hink safety

COVID 19 重要安全行動

感染防止のために、口や目、鼻を直接手で触ってはいけません

+hink safety

COVID 19 重要安全行動

咳やくしゃみをするときには、手のひらで押さえず、ティッシュペーパーやひじの内側で押さえます。あなたの手から、周りの設備や人を汚染させる危険があります

「咳エチケット」を守りましょう



Communities

We aim to be a good neighbor, wherever we operate. We have around 26,000 permanent employees (as of the end of March 2021), with principal operations in Europe, Japan, North and South America, China and South and South East Asia.

The local communities throughout the world in which NSG Group operates are the foundation of our business and the lives of employees. Without a relationship of mutual benefit with these communities, the Group as a whole could not sustain its operation.

The effects of necessary investments on our communities are generally beneficial, bringing additional employment and economic benefits. For every investment we make, an impact assessment is conducted to ensure we understand and manage the likely effects on the community, the environment and the local economy.

As a responsible and often prominent member of the communities in which we operate, we believe it is important to be involved actively by leveraging our core business and management resources to help to address local issues.

Aims and objectives

We want our operations to function in healthy, thriving communities and to be seen as a good neighbor to those communities. We know that if we want to operate effectively and to be able to expand or change when the time is right, we need the goodwill that comes from being an active supporter of the community.

In addition to our business investments helping to sustain local operations, we also invest in the communities in which we operate. We aim to help - through direct cash donations to charities and other projects or through in-kind resources - to improve the health of the community or tackle specific social issues. We operate programs that assess and manage the impacts of our operations on communities, including entering, operating and exiting.

We also involve our staff in providing a lead in developing our relationships with the communities in which we operate. This can take the form of matching contributions raised by staff or allowing staff time to make personal contributions of time and effort in local projects.

Communities

Back-to-school project in North America

The AGR Columbus Distribution Center (CDC) of NSG Group has supported “Back-to-school” project for the last seven years. The Back-to-School Project provides backpacks fill with the basic school supplies to area children who are in need and allows them to begin the school year.

In August 2021, the project delivered 11,400 backpacks to disadvantaged children through community agencies to those most in need throughout Ohio. To support this project, the CDC provided space, tables, chairs and misc supplies for backpacks and school supplies packing, and hand washing stations, cooler, ice and bottle water for workers. In addition, its employees operated the forklifts and helped with the packaging.



Tree4us project in South America

Tree4us project was born from the idea that environmental is everyone responsibility. That’s why a group of AGR Brazil Distribution Center in Caçapava has decided to do its part and help people to develop a sustainable mindset, engage employees and create the sense of social responsibility. The main idea is to plant seedlings in part of the São Francisco Xavier park and take care of them until they become trees.

The project has a monthly regularity and the target is to plant 700 seedlings over the project. It is a partnership between Pilkington Brasil, that provides the seeds and resources for planting and São José dos Campos city hall, responsible of environmental education and guidance.

Planting is carried out in workshops with few guests due the pandemic. So far, there were three workshops held in 2021 involving AGR Brazil Distribution Center employees.



Human Resources Data

■ Number of employee by gender

		FY2019	FY2020	FY2021
NSG	Male FTEs	1,979	1,993	2,000
	Female FTEs	194	197	198
	Total FTEs	2,173	2,190	2,198
Subsidiaries	Male FTEs	22,689	21,925	21,573
	Female FTEs	4,538	4,510	4,534
	Total FTEs	27,226	26,435	26,106
NSG Group	Male FTEs	24,668	23,918	23,573
	Female FTEs	4,732	4,707	4,732
	Total FTEs	29,399	28,625	28,304

Data collection at the end of December in each year

■ Number of employee by region and gender

		FY2019	FY2020	FY2021
Japan	Male FTEs	4,431	4,252	4,005
	Female FTEs	839	829	755
	Total FTEs	5,270	5,081	4,760
Asia	Male FTEs	2,834	2,963	2,802
	Female FTEs	583	571	548
	Total FTEs	3,417	3,534	3,350
Europe	Male FTEs	11,107	10,696	10,692
	Female FTEs	2,148	2,196	2,255
	Total FTEs	13,254	12,892	12,947
North America	Male FTEs	3,625	3,495	3,540
	Female FTEs	928	847	918
	Total FTEs	4,553	4,342	4,458
South America	Male FTEs	2,671	2,512	2,534
	Female FTEs	234	264	256
	Total FTEs	2,905	2,776	2,790
NSG Group	Male FTEs	24,668	23,918	23,573
	Female FTEs	4,732	4,707	4,732
	Total FTEs	29,399	28,625	28,304

Data collection at the end of December in each year

Human Resources Data

■ Number of employee by gender and employment contract

			FY2019	FY2020	FY2021
NSG Group	Male	Permanent employees FTEs	22,482	22,038	21,832
		Temporary employees FTEs	2,186	1,880	1,741
		Total FTEs	24,668	23,918	23,573
	Female	Permanent employees FTEs	4,089	4,104	4,231
		Temporary employees FTEs	643	603	501
		Total FTEs	4,732	4,707	4,732
	Total	Permanent employees FTEs	26,571	26,142	26,063
		Temporary employees FTEs	2,829	2,483	2,241
		Total FTEs	29,399	28,625	28,304

Data collection at the end of December in each year

■ Number of employee by region and employment contract

		FY2019	FY2020	FY2021
Japan	Permanent employees FTEs	4,407	4,252	3,990
	Temporary employees FTEs	863	829	770
	Total FTEs	5,270	5,081	4,760
Asia	Permanent employees FTEs	2,937	3,082	2,889
	Temporary employees FTEs	480	452	461
	Total FTEs	3,417	3,534	3,350
Europe	Permanent employees FTEs	11,931	11,796	12,056
	Temporary employees FTEs	1,324	1,097	891
	Total FTEs	13,254	12,892	12,947
North America	Permanent employees FTEs	4,431	4,285	4,421
	Temporary employees FTEs	122	57	37
	Total FTEs	4,553	4,342	4,458
South America	Permanent employees FTEs	2,865	2,728	2,707
	Temporary employees FTEs	40	48	83
	Total FTEs	2,905	2,776	2,790
NSG Group	Permanent employees FTEs	26,571	26,142	26,063
	Temporary employees FTEs	2,829	2,483	2,241
	Total FTEs	29,399	28,625	28,304

Data collection at the end of December in each year

Human Resources Data

Number of new permanent employees

			FY2019	FY2020	FY2021
NSG	New graduates recruitment	Male	21	28	25
		Female	3	6	1
		Total	24	34	26
	Mid-career recruitment	Male	39	58	7
		Female	4	9	1
		Total	43	67	8
	Total	Male	60	86	32
		Female	7	15	2
		Total	67	101	34

Data collection from April to March in each year

Percentage of new permanent employees

		FY2019	FY2020	FY2021
NSG	New graduates and mid-career	2.9%	4.5%	1.6%

Data collection at the end of March in each year

Retention rate of new graduates recruitment

		Male	Female
NSG	Number of new graduates recruitment at 1st April 2018	21	3
	Number of enrolled employees among them at 1st April 2021	16	2
	Retention rate after 3 years	76%	67%

Employment rate of permanent employees with disabilities

	FY2019	FY2020	FY2021
NSG and main subsidiaries in Japan	2.2%	2.2%	2.4%

Data collection at the end of March in each year

Main subsidiaries in Japan:

- NSG Building Products Co., Ltd., Thanxs Corporation Co.,Ltd.,
- Nippon Sheet Glass WIN-TEC Co., Ltd.

Turnover of permanent employees

		FY2019	FY2020	FY2021
NSG	Number of employees leaving	34	41	73
	Turnover rate	1.5%	1.8%	3.4%

Data collection at the end of March in each year

Human Resources Data

Percentage of senior management from the local community

	FY2019	FY2020	FY2021
NSG Group	81.3%	80.7%	82.5%

Data collection at the end of March in each year

Percentage of female in managerial positions

	FY2019	FY2020	FY2021
NSG Group	12.8%	15.2%	14.0%

Data collection at the end of December in each year

Union Organization Rate

	FY2019	FY2020	FY2021
NSG	70.0%	70.6%	71.1%

Data collection at the end of March in each year

Parental leave of permanent employees

			FY2019	FY2020	FY2021
NSG	Number of employees taking parental leave	Male	1	1	6
		Female	3	6	3
		Total	4	7	9
	Return to work rate	Male	100%	100%	100%
		Female	100%	100%	100%
		Total	100%	100%	100%

Data collection from April to March in each year

Work-life balance index of permanent employees

		FY2019	FY2020	FY2021
NSG	Acquisition rate of paid holidays	83.5%	83.5%	81.7%
	Annual overtime hours worked per person	179	169	114
	Annual actual working hours per person	1,902	1,869	1,840

Data collection from April to March in each year

- [Notes]
- 1) "NSG" in the tables means Nippon Sheet Glass Co., Ltd.
 - 2) "FTE" in the tables means Full-Time Equivalent.

Evaluation by External Party

CDP Rating

Since 2011, NSG Group has participated in annual CDP* Climate Change and Water reporting. This year, the Group's CDP Climate Change 2020 score improved from previous B management rating to an A- leadership rating. This score improvement recognizes the Group's climate change actions and commitment to transparency. It encourages the Group to continue its ongoing efforts to achieve its 2030 Science Based Targets for CO2 emission reduction.

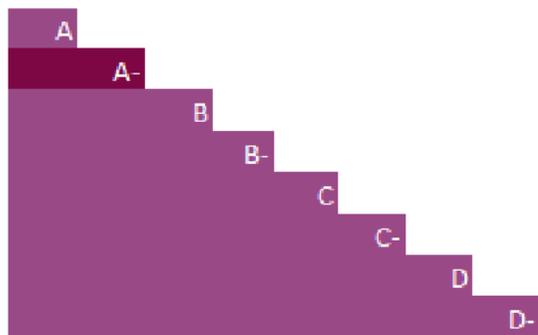
NSG Group's CDP Water 2020 score improved from previous B- to B and demonstrates its progression through the management level rating.

NSG Group uses CDP's global environmental disclosure system to transparently respond to multiple stakeholder requests in a consistent way. CDP reporting allows investors and customers to understand how emerging risks and opportunities on climate change and water security are managed in the value chain and quantify embodied impacts in products.

CDP reporting has guided NSG Group to develop a data driven strategy, prepare for environmental regulation, set challenging Science Based Targets, introduce internal carbon pricing and align to best practice TCFD recommendations.

Annual feedback scores allow NSG Group to track progress and benchmark its environmental performance against the industry peers.

Rating on Climate Change (Excerpt from the CDP report)



Nippon Sheet Glass Company, Ltd received a A- which is in the Leadership band. This is higher than the Asia regional average of D, and higher than the Other materials sector average of C.

- Leadership (A/A-):** Implementing current best practices
- Management (B/B-):** Taking coordinated action on climate issues
- Awareness (C/C-):** Knowledge of impacts on, and of, climate issues
- Disclosure (D/D-):** Transparent about climate issues

*CDP is a not-for-profit charity that runs the global disclosure system for investors, companies, cities, states and regions to manage their environmental impacts on climate change, water security and deforestation.

Evaluation by External Party

EcoVadis CSR Rating

EcoVadis operates an independent, external platform allowing companies to assess and benchmark their environmental and social performance on a global basis. The process assesses company policies, implemented procedures and published reports with regards to environmental, labor practices & human rights, fair business practices and sustainable procurement issues. The assessment is conducted by CSR experts of EcoVadis on the basis of company answers to a survey which is dynamically adapted to country, sector and size, using scorecards covering 150 industry categories and 21 CSR criteria. The rating is based on supporting documentation, public and stakeholder (NGOs, trade unions, press) information.

We used this assessment tool to gain a picture of our CSR performance and to understand areas for improvement. We were rated as Silver regarding our approach to CSR management.



Inclusion in FTSE Blossom Japan Index

Nippon Sheet Glass Co., Ltd. (NSG) has been selected for the first time as a constituent of the FTSE Blossom Japan Index, an index of Japanese companies that demonstrate outstanding Environmental, Social and Governance (ESG) performance.

Please refer to the news releases.

[First Time Inclusion in FTSE Blossom Japan Index \(August 31, 2021\)](#)



FTSE Blossom Japan

Evaluation by financial institutions

In 2018, NSG Group has received the highest rating as "especially progressive environmental initiatives" by Development Bank of Japan, Inc. (DBJ) under its "DBJ Environmentally Rated Loan Program". Also, NSG Group scored highly in the "commitment line syndication based on an ESG/SDGs evaluation" arranged by Sumitomo Mitsui Banking Corporation.

Please refer to the news releases.

[NSG Receives Highest Mark in Environmentally Rated Loan by Development Bank of Japan \(October 1, 2018\)](#)

[NSG Received High Scores in the First Commitment Line Syndication based on ESG/SDGs Evaluation by SMBC \(November 14, 2018\)](#)

In pursuit of our Group mission of "Changing our surroundings, improving our world", we aim to contribute to a sustainable society. This will be done by addressing environmental opportunities and fulfilling our Corporate social responsibilities through proactive actions.

UN Global Compact

Participation to the United Nations Global Compact

NSG Group has been an active participant in the United Nations Global Compact (UNGC) since January 2012. We support the ten principles of "Human Rights, Labor, Environment, and Anti-Corruption" advocated by the United Nations Global Compact, and practice them through all our business activities. These ten principles are in common with the NSG Group's Code of Conduct, which sets out corporate responsibility for society and the environment.

The UN Global Compact expects each company to demonstrate responsible and creative leadership in order to achieve sustainable growth of the world. The UNGC was advocated by Coffey Annan, the United Nations Secretary-General (then), at the 1999 World Economic Forum (Davos Conference), it was officially launched in 2000 at UN Headquarters. As of September 2020, more than 15,000 companies and organizations have participated worldwide.

The Ten Principles of the UN Global Compact

<Human Rights>

Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and

Principle 2: make sure that they are not complicit in human rights abuses.

<Labor>

Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;

Principle 4: the elimination of all forms of forced and compulsory labor;

Principle 5: the effective abolition of child labor; and

Principle 6: the elimination of discrimination in respect of employment and occupation.

<Environment>

Principle 7: Businesses should support a precautionary approach to environmental challenges;

Principle 8: undertake initiatives to promote greater environmental responsibility; and

Principle 9: encourage the development and diffusion of environmentally friendly technologies.

<Anti-Corruption>

Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery



100 Years of History

1910s - 1940s

- Foundation and expansion



Futajima Plant in Fukuoka, Japan

1918	America Japan Sheet Glass Co., Ltd. was established in Osaka Japan
1920	New capacity added at Kitakyushu
1931	Company name changed to Nippon Sheet Glass Co Ltd
1935	New plant at Yokkaichi

1950s-1960s

- Production capacity and capability increases.
- Full scale entry to the Automotive glass business.




First piece of float glass ever made in Asia | Maizuru Plant in Kyoto, Japan

1950	Company shares listed in Tokyo and other stock exchanges in Japan
1951	New plant at Maizuru
1963	New plant at Chiba
1965	Float glass production commenced in Asia with technology licensed from Pilkington

1970s-1980s

- Automotive glass business growth and Globalization of Architectural and Automotive Glass businesses.
- Focus on new products and technologies.
- Overseas investments as foundation of the Technical Glass business.



The SELFOC is still core technology in NSG

1968	SELFOCTM™ was developed Established Research Center at Itami
1970	Manufacturing footprints expanded in Kanagawa and Kyoto
1971	The first overseas investment in Malaysia
1975	Automotive joint venture established in Mexico
1978	Thin glass UFF™ production start
1979	Launch of the glass fiber business NSG Foundation established to commemorate the 60th anniversary of the Company
1980	New plant at Sagamihara
1986	Automotive joint venture established in the US

100 Years of History

1990s-Today	
<ul style="list-style-type: none"> Further globalized business through the acquisition of Pilkington 	
 <p>Vietnam Float Glass Co Ltd</p>	
1990	A 20 per cent stake of Libbey-Owens-Ford Company acquired
1995	An Automotive joint venture established in China and an Architectural joint venture in Vietnam
2000	A share of Pilkington acquired
2001	Increase in Pilkington shareholding to 20 per cent. Pilkington became an affiliate of the Company
2004	Company headquarters moved to Tokyo
2006	Acquisition of Pilkington plc
2007	Second Architectural joint venture established in Vietnam
2008	Adopted "Company with Three Committees" system
2018	100th Anniversary
2021	Medium Term Vision and Medium Term Management Plan, "Revival Plan 24 (RP24)" launched

Shareholder Information

Corporate Data (As of March 31, 2021)

Stock Listing	Tokyo Stock Exchange, 1st section (Code:5202)
Authorized Shares (Note)	177,500,000
Issued Shares (Note)	90,810,899(Common Shares)
Number of shareholders	52,157(Common Shares)
Trading unit of shares	100(Common Shares)
Year end	March 31
Ordinary General Meeting of Shareholders	June
Record Dates	Ordinary General Meeting of Shareholders: 31 March
	Dividend: 30 September and 31 March
	If there is any other need, a certain day public noticed in advance
Transfer Agent	Sumitomo Mitsui Trust Bank, Limited. Stock Transfer Agency Division 4-1, Marunouchi 1-chome, Chiyoda-ku, Tokyo, Japan
Accounting auditor	Ernst & Young ShinNihon LLC

Note: Effective as from 1 October 2016, the Company conducted a share consolidation in which every ten common shares were consolidated into one share.

Share ratio in status of shareholders (Common Shares)



		2017 March	2018 March	2019 March	2020 March	2021 March
Financial institutions and securities firms	%	22.5%	25.2%	26.8%	25.0%	27.3%
Other corporations	%	4.8%	4.4%	3.4%	4.1%	3.7%
Foreign investors	%	16.9%	22.0%	25.7%	13.7%	21.1%
Individuals and others	%	55.8%	48.4%	44.1%	57.2%	47.9%

Numbers of shares and shareholders (Common Shares)



		2017 March	2018 March	2019 March	2020 March	2021 March
Numbers of issued shares excluding own shares	1000units	90,354	90,473	90,575	90,621	90,787
Numbers of shareholders	people	67,878	59,893	55,359	58,333	52,157

Shareholder Information

Major Shareholders (Common Shares)

	Number of shares (1000units)	Percentage of shares
The Master Trust Bank of Japan, Ltd. (Trust Account)	8,992	9.90
Custody Bank of Japan, Ltd. (Trust Account)	2,897	3.19
JUNIPER	1,760	1.93
Custody Bank of Japan, Ltd. (Trust Account 5)	1,555	1.71
STATE STREET LONDON CARE OF STATE STREET BANK AND TRUST, BOSTON SSBTC A/C UK LONDON BRANCH CLIENTS – UNITED KINGDOM	1,414	1.55
BNYM SA/NV FOR BNYM FOR BNY GCM CLIENT ACCOUNTS M LSCB RD	1,365	1.50
Custody Bank of Japan, Ltd. (Trust Account 6)	1,356	1.49
Client stock ownership of Nippon Sheet Glass	1,327	1.46
STATE STREET BANK WEST CLIENT-TREATY 505234	1,225	1.34
Custody Bank of Japan, Ltd. (Trust Account 1)	1,127	1.24

Stock indices

Stock indices that include Nippon Sheet Glass Co., Ltd (As of August 1, 2021)

- NIKKEI 225
- TOPIX
- TOPIX Small
- TOPIX 1000
- NIKKEI 500 Stock Average
- S&P/JPX Carbon Efficient Index
- FTSE Blossom Japan Index

Other Related Links

[Annual Consolidated Financial Statements 2021 \[PDF\]](#)



<https://www.nsg.com/>

November 30, 2021 : Edition 1
December 3, 2021 : Edition 2
December 24, 2021 : Edition 3