

Sustainability

Our environment is the basis of all our business
and we will protect nature, communities and people.

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CEO Message

Our strategy and policies underline the unique contribution our products can make to addressing climate change and the challenges we face in improving our own energy usage and resource management. Good management of our people, our resources, our communities and our environment also makes good business sense. This covers our activities and progress over the past year and our targets for the future.



Shigeki Mori
President & CEO, NSG Group

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.

We are fully committed to mitigating the social impact of climate change and the environmental burden by proactively addressing the reduction of greenhouse gases generated in the manufacturing process and providing products that contribute to energy conservation. We strive to make a significant contribution to societies and the environment.

The sustainability targets are set in light of the long-term strategic priorities of the Group. By managing the environmental impact of the activities, we will continue to work in harmony with our local communities and challenge ourselves to improve energy efficiency and resource management. We continue to reduce greenhouse gas emissions through improved utilization of our facilities and energy saving initiatives.

Health and safety of our employees, and of all our stakeholders, is fundamental to our business. The annual 'NSG Group Safety Day' clearly demonstrates this principle. Our Code of Ethics, a natural extension to the UN Global Compact, provides practical guidance on how we should conduct ourselves in our day-to-day business. The NSG Ethics and Compliance Hotline allows anyone, not to mention all employees to raise concerns for illegal acts or misconduct without fear of retaliation.

Good corporate governance is a foundation of the sustainable development of the NSG Group. Our Corporate Governance Guidelines are defined to strengthen this purpose and to signify our support for the Principles of the Tokyo Stock Exchange Corporate Governance Code.

We will continue to embed the principles of sustainability by working safely and ethically, and by making a positive contribution to our environment.

Shigeki Mori
President and Chief Executive Officer

Approach to Sustainability



Executive Officer
Head of Group Sustainability
Shiro Kobayashi

NSG Group will grow together with society through sustainability activities

Sustainability initiatives are important activities that balance both environmental & social issues of society and the sustainable development of our business. They are also effective in terms of risk management and cost reduction.

The NSG Group first established a sustainability policy in 2009 and has promoted sustainability activities throughout the group, led by the Sustainability Committee. Sustainability targets, which are indicators of our activities, are set based on SDGs and material issues identified in consideration of the impact of our activities on the environment & society and requirements of our stakeholders.

Minimizing safety risks is a prerequisite for our business. We have robust safety programs in place and our top priority is to keep the workplace safe. As a group target, we have been working to reduce the Significant Injury Rate.

Responding to a circular economy is a very important issue for a manufacturing company. While minimizing the consumption of natural resources, we are continuously working to reduce waste to landfill.

To respond to climate change, NSG Group has set Science-Based CO2 reduction targets and we actively work to shift to renewable energy and reduce CO2 emissions in our manufacturing process. Together with the further creation of environmentally friendly products, the target forms the framework of the NSG Group's climate change strategy. The Group also has a target to reduce CO2 emissions per unit production. We will endeavor to disclose information on climate change risks and opportunities in line with the TCFD.

Supply chain risks and impacts, especially raw material sustainability and supplier environmental and human rights performance are of great concern to the NSG Group and our stakeholders. To avoid any concerns about these points, we ask our major suppliers to accept the "Supplier Code of Conduct". In addition, the actual performance is evaluated by an independent and specialized external organization. We are requesting suppliers who handle substances with a high risk of environmental impact to introduce an environmental management system.




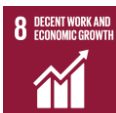

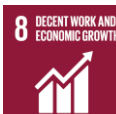


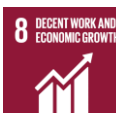


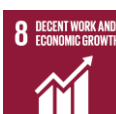




People are NSG Group's most important asset. We conduct regular employee engagement surveys and use the feedback to improve our leadership and development training programs and to create a healthy and motivated work force. Improving inclusion and diversity is a key issue for our global organization, being widely recognized as enhancing both corporate value and working lives of employees.



The NSG Group recognizes the importance of corporate governance and ethical business activities, and will sincerely respond to the growing needs of stakeholders. Based on the NSG Group Corporate Governance Guidelines, we have introduced a group policy regarding compliance and concern reporting. The Group Code of Ethics expresses our determination to engage in business in an ethical manner and minimize regulatory and social valuation risks. We regularly conduct in-house training to disseminate ethical business information throughout the Group.

Executive Officer
Head of Group Sustainability
Shiro Kobayashi

Targets and Results

FY24 Targets

	FY2024 targets	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 	  
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) 	 
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. • 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. 	        
Ethics & Compliance	<ul style="list-style-type: none"> • Hot line utilization (Actual vs. benchmark data collection/analysis) • Increase of hotline calls from Managers Report Form vs. FY20 (30 percent increase) 	 

	<ul style="list-style-type: none"> • Education completion ratio (95 percent completion by managers within 55 days) • Top level communications (Minimum four annually (CEO/C-Suite)) 	 
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Targets and Results

FY20 Targets and Results

	FY2020 targets	FY2020results															
Safety	<ul style="list-style-type: none">• Reduce Significant Injury Rate by 10 percent per year	<ul style="list-style-type: none">• FY2020 SIR result was at the same level as FY2019. <p>SIR improvement rate against prior year (%)</p> <table><tr><th></th><th>FY2017</th><th>FY2018</th><th>FY2019</th><th>FY2020</th></tr><tr><td>Target</td><td>10.0</td><td>10.0</td><td>10.0</td><td>10.0</td></tr><tr><td>Result</td><td>3.0</td><td>6.3</td><td>(3.3)</td><td>0.0</td></tr></table> <p>Up to FY2016, after more than 10 years of safety activities, accidents related to employees' safety awareness, such as glass cuts and falls, continued to occur. In FY2017, a new safety activity, called NABIS was started, but the targets have not been achieved. Improving safety awareness requires long-term efforts, and NSG Group will continue NABIS activities to raise the level of safety culture.</p>		FY2017	FY2018	FY2019	FY2020	Target	10.0	10.0	10.0	10.0	Result	3.0	6.3	(3.3)	0.0
	FY2017	FY2018	FY2019	FY2020													
Target	10.0	10.0	10.0	10.0													
Result	3.0	6.3	(3.3)	0.0													
Waste	<ul style="list-style-type: none">• Reduce waste to landfill by 12kt (40 percent reduction vs. FY2014)	<ul style="list-style-type: none">• The NSG Group has implemented a new environmental reporting tool and the improvements in reporting and data monitoring has highlighted some previous mistakes in waste to landfill reporting that have now been corrected. <p>The integrated report 2019 explained FY2019 progress was 37 percent reduction versus the baseline year FY2014, but with the new tool incorrect classification of waste was discovered. The corrected progress of waste sent to landfill was 23.4 percent reduction.</p> <p>Following the above corrections, the FY2020 waste reduction versus FY2014 was only 8.5kt (28.0 percent reduction) and the target – that was based on a partly incorrect improvement perception - was not fully achieved.</p>															
Energy and CO2 reduction	<ul style="list-style-type: none">• One percent year on year reduction in CO2 intensity across glass manufacturing operations	<ul style="list-style-type: none">• The target was achieved in FY2017-2019. The target was not achieved in FY2020 due to a reduction in product output associated with deteriorating market conditions.															

		<div>Improvement rate against prior year (%)</div> <table><tr><td></td><td>FY2017</td><td>FY2018</td><td>FY2019</td><td>FY2020</td></tr><tr><td>Target</td><td>1.0</td><td>1.0</td><td>1.0</td><td>1.0</td></tr><tr><td>Result</td><td>1.5</td><td>1.4</td><td>2.1</td><td>(1.4)</td></tr></table>		FY2017	FY2018	FY2019	FY2020	Target	1.0	1.0	1.0	1.0	Result	1.5	1.4	2.1	(1.4)
	FY2017	FY2018	FY2019	FY2020													
Target	1.0	1.0	1.0	1.0													
Result	1.5	1.4	2.1	(1.4)													
Sustainable value-added products	<ul style="list-style-type: none">• Increase proportion of value-added products in total sales to 50 percent or more in FY2020s• Demonstrate the added environmental or social benefit of products	<ul style="list-style-type: none">• The VA products ratio in FY2020 was 46 percent and it was a little below the target.															
Responsible Sourcing and transportation	<ul style="list-style-type: none">• 10 percent year on year increase in Supplier Code of Conduct acceptance by our key suppliers• Extend sustainability assessments for key suppliers and continue to monitor suppliers that use materials with a potentially high environmental impact	<ul style="list-style-type: none">• 85 percent of Key suppliers have now agreed to the SCoC or can demonstrate their own equivalent code. The Supplier Code of Conduct was last revised in 2017 to incorporate legislation, including modern slavery and human trafficking.• We have significantly improved our supplier sustainability evaluation by the employment of a specialist independent evaluation agency - EcoVadis. As a result, assessments were completed for 36 percent of our suppliers by external spend. In addition, we monitor our suppliers using 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.															
Employees	<ul style="list-style-type: none">• Improve the Engagement score by 5 points by the end of FY2020• Train all managers in the new Appraisal Model and Talent System by the end of FY2019• Increase the skills of our newly appointed or prospective plant managers by 50 percent of the target population attending the Plant Leadership Program by the end of FY2020	<ul style="list-style-type: none">• Engagement Score from FY2020 was 75, providing an overall improvement of 3 points from the base year FY2017. Also, it had 8 percent improvement against the prior year.• All SABA training completed and all Managers using the SABA system for Performance and Talent Activities. SABA is the software supplier to introduce the global cloud-based talent management system.• Completed. Over 60 percent (44 people) have received training. Programme planned for 2020 postponed due to Covid-19.															

	<ul style="list-style-type: none"> • Increase Inclusion & Diversity awareness by training all managers with designated modules by the end of FY2020 	<ul style="list-style-type: none"> • D&I awareness training was completed by 98 percent of our Senior Management population. This awareness training continues to be issued to newly appointed senior managers as part of their induction process.
Ethics and Compliance	<ul style="list-style-type: none"> • Reissue Governance and Culture Leadership Assessment • Standardized New Employee Compliance Training Package • Ethics and Compliance Interview in the new appraisal system, SABA • Begin review of Code of Ethics 	<ul style="list-style-type: none"> • Randomly selected 5,000 Group employees were invited for 2019 ethical culture assessment and 85 percent of them did it and E&C is analysing its outcome for future action towards program improvement • Launched the training package for new employees covering Code of Ethics, conflict of interest, fraud, social media and Ethics and Compliance reporting and 2,148 people completed it. • Completed FY2019 appraisal process through SABA system which now included ethics and compliance interview • Started the process of reviewing Code of Ethics including other relevant policies and procedures such as competition law compliance, anti-bribery and anti-corruption, and whistleblower protection

Climate Change

Activities of Climate Change

Glass making is an energy-intensive process. Significant energy is consumed in melting the raw materials at a very high temperature for the manufacture of glass. NSG Group is proactively addressing reduction of greenhouse gases generated in the glass manufacturing process.

Despite this necessary resource consumption, this energy can be quickly saved when our products are in use. Our products make a positive contribution to climate change efforts and to the quality of living and working environments.

Requirements from regulators and customers are providing opportunities for sustainable and innovative product design in a shift to eco-friendly products.

Risk and Opportunity

In line with the TCFD framework, NSG Group considers risk and opportunity material to the financial performance of the Group as follows.

Risks <ul style="list-style-type: none">- Translation Risk, for example; Cost increase by carbon pricing policy- Physical Risk, for example; Damage to production facilities by abnormal weather	Opportunity <ul style="list-style-type: none">- Expanding the market for products that contribute to reducing GHG emissions
Mitigating Risks , examples include; <ul style="list-style-type: none">- Activities to achieve our SBT- Equipment maintenance and inspection- BCP creation at major sites- Review coverage of insurance against natural disasters	Activities for seizing opportunity , examples include; <ul style="list-style-type: none">- Expansion of Eco-friendly products' sales- Continuous development of new products within NSG Group portfolio- Collaboration with key stakeholders

Climate Change

Activities to achieve 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.

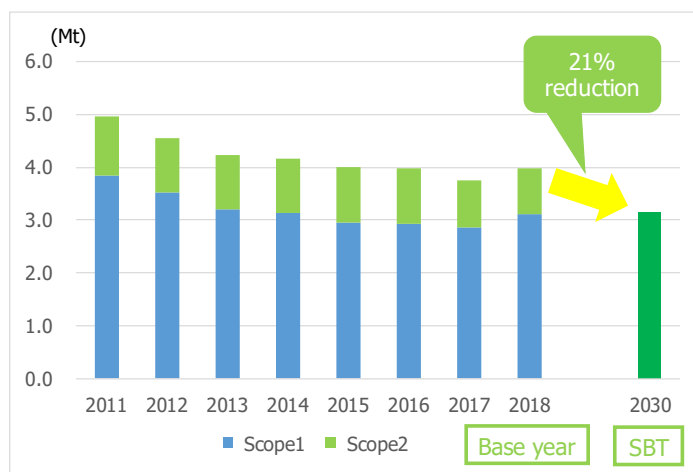
By 2030, NSG Group targets to reduce absolute GHG emissions (Scope 1 and Scope 2**) by 21 per cent compared to the 2018 level.

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.



SCIENCE
BASED
TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

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

Climate Change

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.

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.

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.

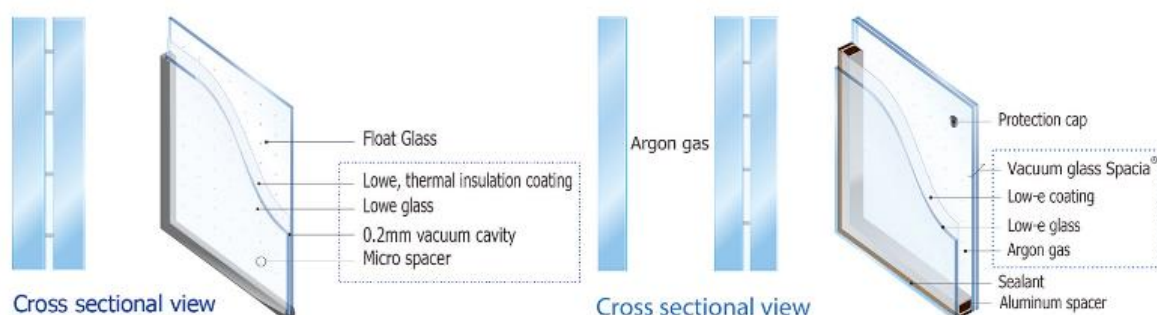


The Pilkington Suncool™ Range comprises our highest performing off-line coated, solar control and low-emissivity glass products.

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.



The 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.

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.



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.

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.

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.



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.

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.

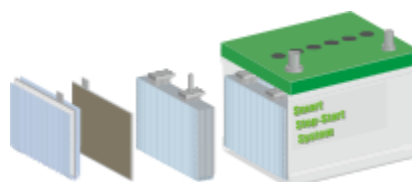
Glass cord engine timing belts

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.



Battery Separator for Cars with Start-stop System

In recent years, vehicles with start-stop technology have been rapidly spreading. On the other hand, as these cars require much more engine rotations when starting, higher durability is needed for their batteries. Our battery separators have features and durability that match these conditions and contribute to CO2 emission reduction by promoting cars with a start-stop system.



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.

<Labour>

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 labour;

Principle 5: the effective abolition of child labour; 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



Policy

The following policies are published on our website.

Sustainability

[NSG Group Sustainability Policy](#)

Environment

[NSG Group Environmental Policy](#)

[NSG Group Energy Policy](#)

[NSG Group Water Policy](#)

Social

[NSG Group Health and Safety Policy](#)

Governance

[NSG Group Corporate Governance Guidelines](#)

Energy

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.

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

Energy Usage

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

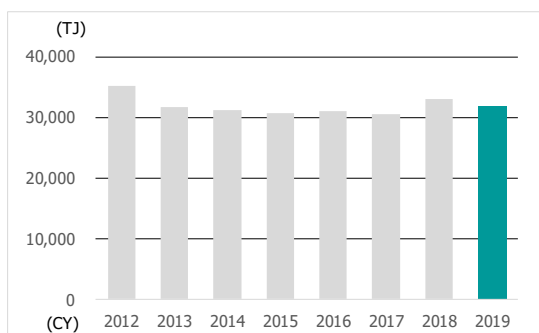
Our energy usage

For both environmental and financial reasons, we continue to use natural gas as the fuel of choice for glass melting.

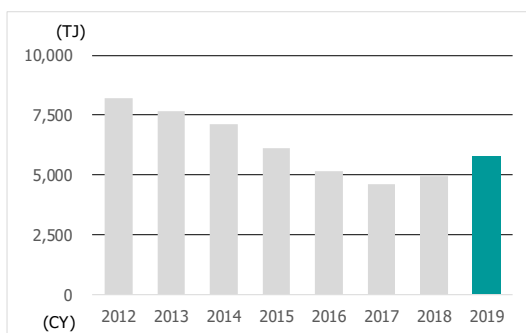
Furnaces continue to be converted from heavy fuel oil to gas. Small quantities of diesel and LPG are used for space heating and back up generators. See the graphs for consumption details.

NSG Group Energy Usage

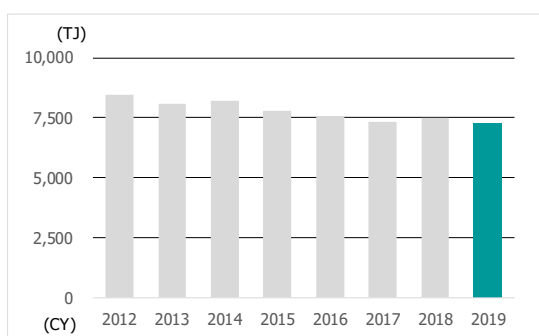
■ Natural Gas



■ Heavy Fuel Oil



■ Electricity



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, chaired by the Chief Operating Officer.

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 25 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 850 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 FY2020 to deliver energy consumption, CO₂ reduction & cost savings. Each manufacturing site within the Group had at least one active OCS energy project in FY2020. Led by Manufacturing Excellence and assisted by other Group functions, NSG Group sites identified more than 150 energy-optimization opportunities, resulting in annual CO₂ savings in excess of 25kt.

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 FY2020. 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 decarbonisation 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. Specific targets for efficiency improvements in addition to the benefit of furnace repair have been established. This program has 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.

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. In FY2020 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 will test 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 will investigate 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 planned for November 2020.



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.

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.

Renewable on-site energy generation and alternative fuels

The on-site photovoltaic generation facility at our technical center in Lathom is now fully operational providing 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.

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.

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; utilisation 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.

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.

To date, the training has directly involved more than 60 delegates, with identification and implementation of over 200 projects.

Energy savings have exceeded ¥ 80 million, and reduced CO₂ emissions by more than 2,000 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)

The training material is available via various internal systems allowing new candidates to undertake the course remotely, with appropriate support. In addition, existing qualified energy champions can 'refresh' their knowledge to ensure they are well informed of the latest applications of technologies across the NSG Group and externally.

NSG Settimo site becomes fully decarbonized



The automotive SBU operations site in Settimo Torinese, Italy has become the first fully decarbonised 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.

Heat Recovery In Poland Operations

A four step program was initiated at the Automotive OE operation in Chmielow, Poland to recover and utilise 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 utilisation 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 utilise 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

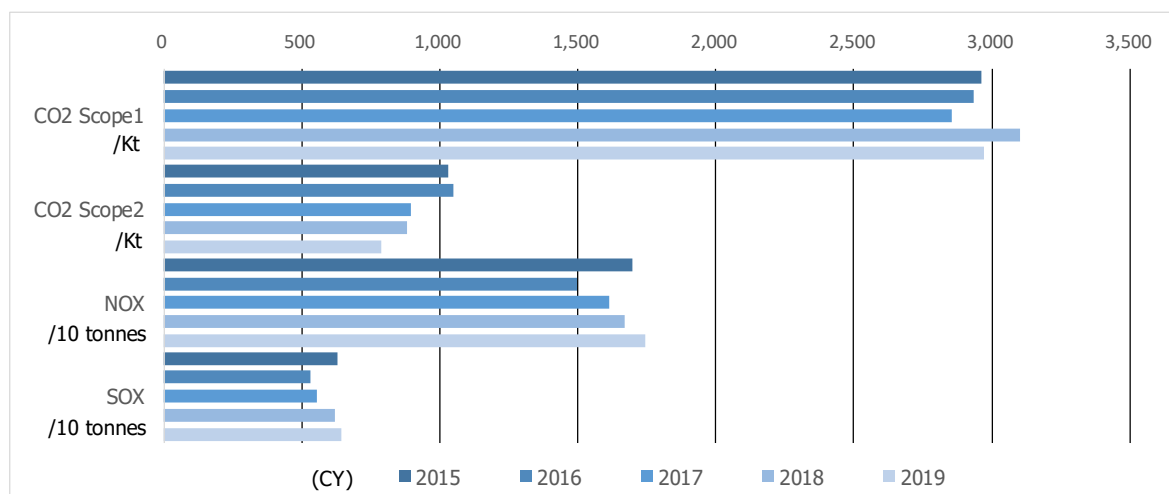
The most significant pollutants from a glass furnace are: nitrogen oxides formed from the nitrogen and oxygen in the air at high temperature; sulfur oxides from the refining agent (and from oil fuel if that is used); and particulate matter derived from compounds volatilized from the molten glass. Carbon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

■ Air Emissions



Novel pollution control plant installed at Ottawa



The abatement plant just installed on NSG Group's OT1 furnace in Ottawa, USA, is a CCF unit purchased from McGill AirClean. The system is based on thousands of ceramic filters, or "candles", in a single unit. Alkali, in this case lime, 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 structure nitrogen oxides are also removed. It is expected that CCF technology will become the standard for new furnace pollution control plant throughout NSG group.

Monitoring and reducing carbon emissions

In 2019, NSG Group was responsible for the emission of 3.8 million tonnes of CO₂e. This is a six percent decrease on the previous year due to a combination of reduced production output, 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 3.0 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 0.8 million tonnes of CO₂e. Scope 3 emissions were estimated at 2.5 million tonnes of CO₂e.

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 has made further progress.

We aimed to reduce CO₂e emissions per tonne of equivalent product by one percent per year until FY20, using FY15 as a baseline performance. This target was achieved every year until FY20. The target was not achieved in FY20 due to a reduction in product output associated with deteriorating market conditions.

Moving forwards, NSG Group has already committed to a Science Based Target verified by the SBTi. This target is an absolute reduction of Scope 1 and Scope 2 CO₂e emissions by 21% compared to a baseline year of 2018. In addition, 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 FY20 baseline.

	Tonnes CO ₂ e / tonne equivalent product	Percentage improvement
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

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.

New pollution control unit at San Salvo

A new NOx control unit (SCR technology) is being retrofitted downstream the existing pollution control plant of San Salvo line 1 (SS1). The NOx abatement plant was purchased from the German company GEA, a well-known firm in the pollution control field. Once the installation is complete and the SCR unit started up, this will be the last step in the control of SS1 Float furnace pollutant emissions. In addition to the obvious beneficial effects on the environment, the new unit will give SS1 Float furnace additional flexibility in the combustion control, with potential benefits in the glass final quality.



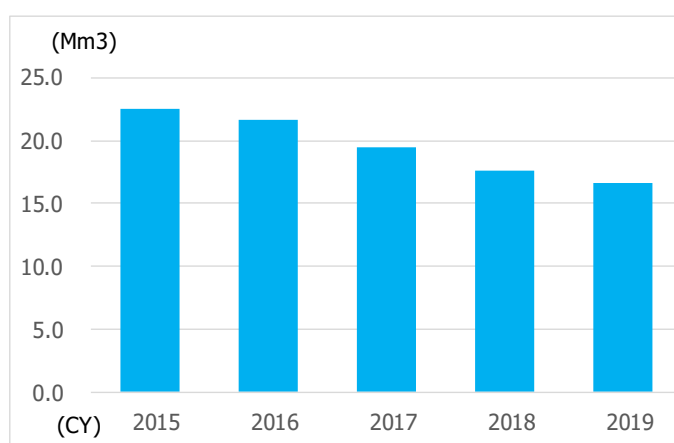
Water

Water utilization and Water management

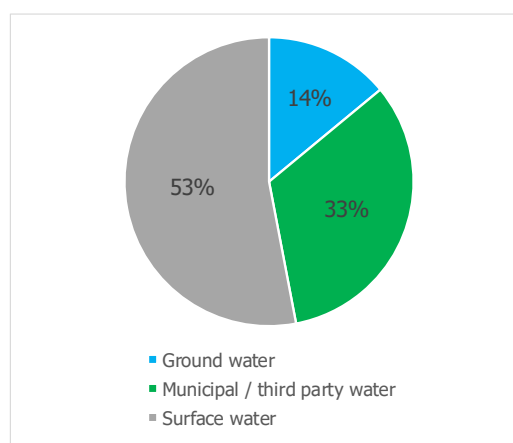
In glass-making, water is used for cooling, and most of our plants operate with closed loop systems and so only require top up. Water is also used for washing glass in plants but there the need is for very high purity, so water is treated and then re-circulated. We seek to minimize our water consumption by working with suppliers to recycle water and to install advanced water treatment facilities. Processes are managed by Manufacturing Excellence's standardisation procedures (eg 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. 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 16.6 million cubic meters of water in 2019.

■ 2015-2019 NSG Group total water withdrawal 2015-2019



■ NSG Group Water withdrawal by source 2019



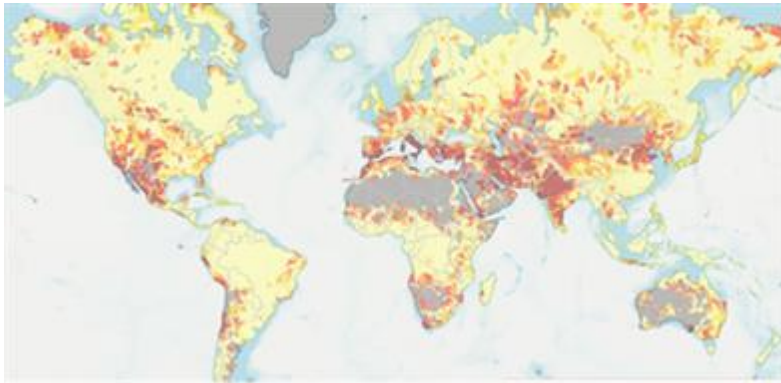
Water risks

We do not have any current stakeholder concerns regarding water scarcity or waste water 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.

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 represents 21% of the total. Those sites are subject to prioritized water management reviews and improvement activities.

Water stress map - source: Aqueduct Water Risk Atlas



Water saving Projects

Amongst other good water saving projects, the water project at the Automotive downstream site Versailles, Kentucky won the internal Environmental Award 2018. The project recovers and re-uses water from numerous glass washing machines, resulting in significant savings of >200,000 m³ water per year.



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, minimise 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.

Purchase amount in CY2019 (Unit: k tonnes)

Sand	2,200
Soda Ash	720
Dolomite	570
Limestone	153
Good glass bought in	105

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 - above ground -mine, sandstone is taken from the ground and crashed down by shredder and milling equipment to produce silica sand for the further melting to glass at another 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 restauration purposes. The restauration areas are then planted with tress 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 restauration
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 eg. 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.

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 Katte-ni (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.

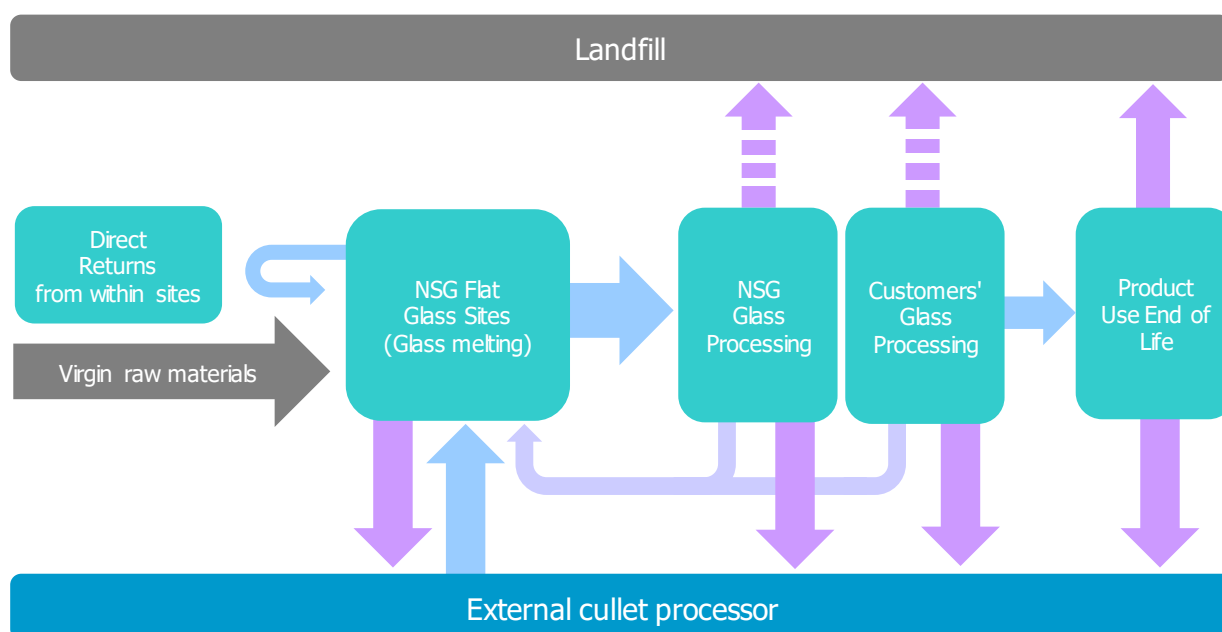
Waste and Circular Economy

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

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.

■ Cullet flow



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.

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 (3.3 kt in 2019 / 3.7 kt 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.

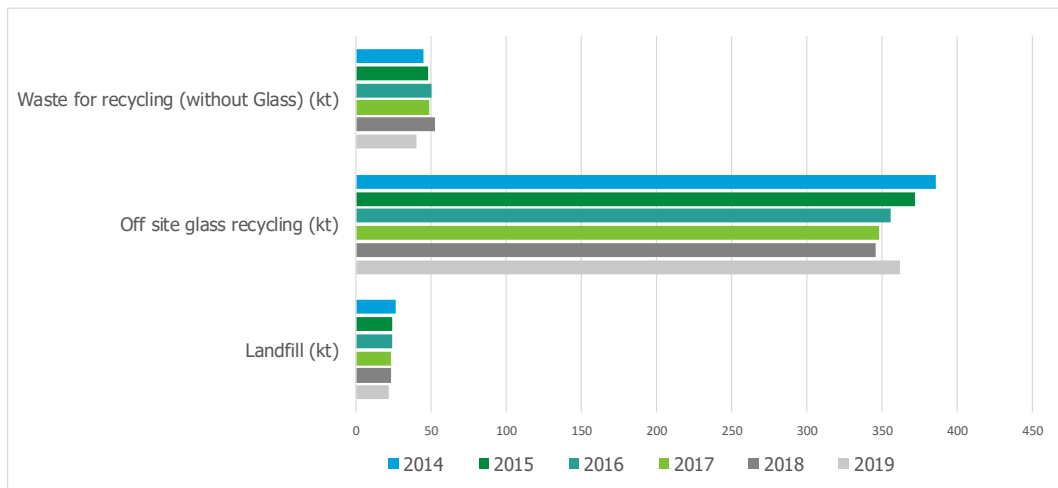
General waste

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.

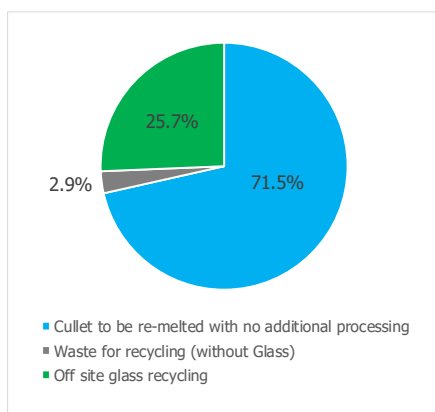
Wastes generated upstream or downstream in the value chain

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.

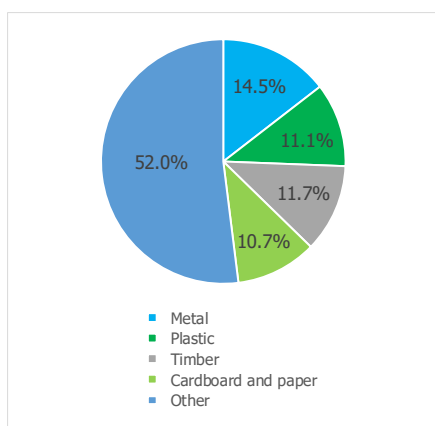
■ NSG Group Waste 2014-2019



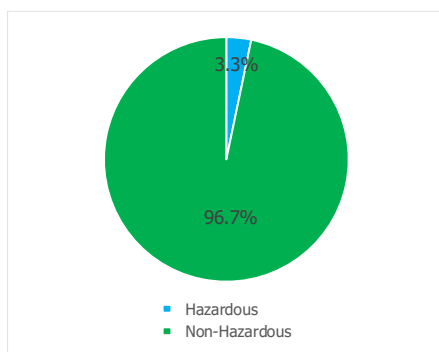
■ NSG Group Materials diverted from Disposal 2019



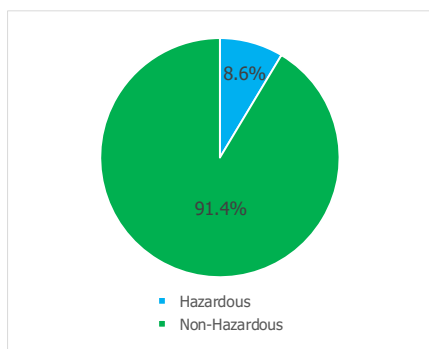
■ NSG Group sorts of waste for recycling (without glass) 2019



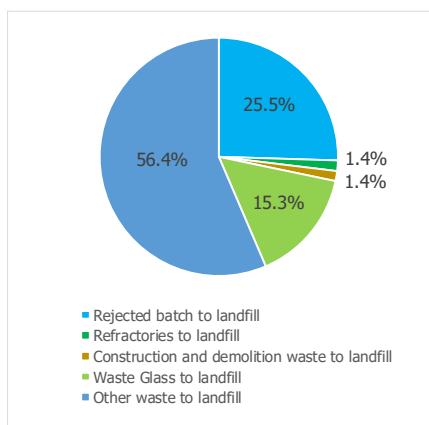
■ NSG Group hazardous/non hazardous waste for recycling (without glass) 2019



■ NSG Group hazardous/non hazardous waste to Landfill (without glass) 2019



■ NSG Group sorts of waste to Landfill (without glass) 2019



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

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.

	FY2018	FY2019	FY2020
Total monetary value of significant fines [Million Yen - JPYm]	0	1.1	1.5
Total number of non-monetary sanctions	0	0	1.0
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 to the internationally recognized ISO 14001 environmental management standard and now have 77 certified sites around the world, representing ~ 80 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 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.

Suppliers

Suppliers of Safe & High Quality Products & Services

We purchase materials, goods and services from more than 20,000 suppliers worldwide. In support of Group Environmental Social Governance (ESG) goals, Procurement's aim in working with our suppliers is 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.

Suppliers

Supplier Code of Conduct

The Code of Conduct outlines these behaviors, processes and procedures — in short, the 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.



Please see the website for the contents of each item of "Environment", "Society" and "Compliance".

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

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

Code of Conduct Key Areas :

Anti-Slavery & Child Labour

All NSG suppliers must conform to the relevant International Labour Organisation Labour Standards as a minimum. NSG will not engage with suppliers who apply or support forced labour 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)

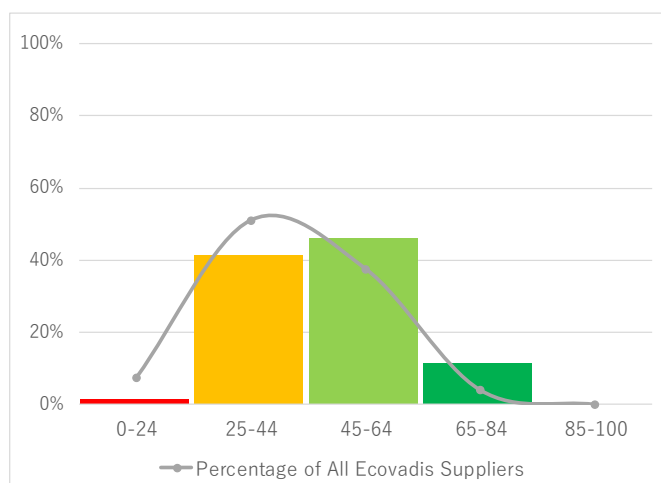
NSG Group and its subsidiaries do business with a range of persons and entities in the private sector including, but not limited to, agents, consultants, distributors, service providers, freight forwarders and customs clearance agents (collectively, "Third-Parties"). We continually review our suppliers 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.

Supplier Development

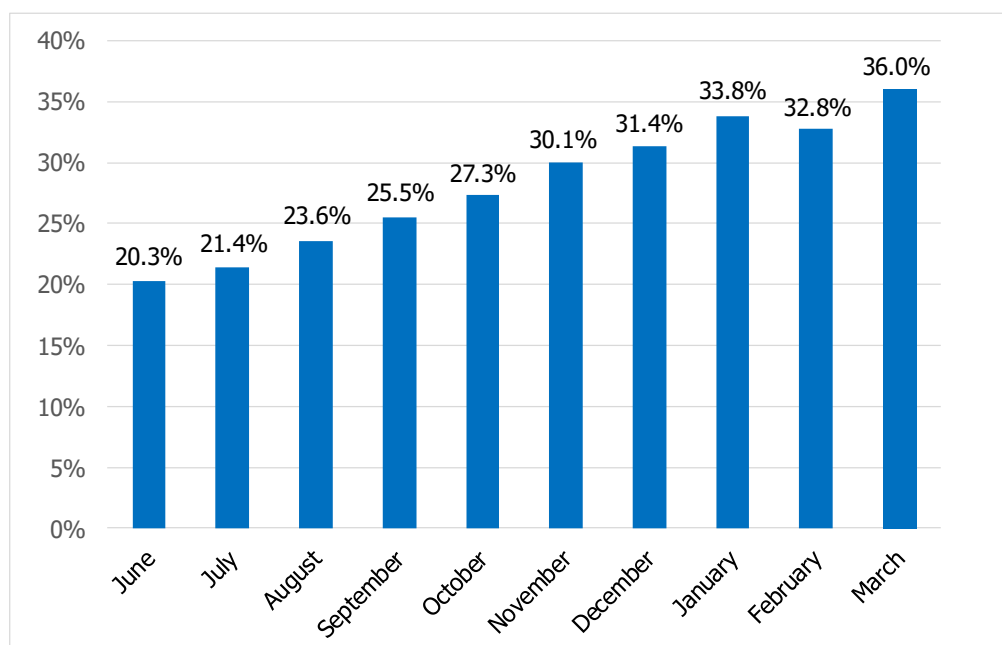
Measuring the performance of our suppliers against Key Performance Indicators (KPI's) we strive to continually improve the sustainability of our supply base. Increasing the coverage of CSR assessments through our partner EcoVadis and engaging with suppliers through Improvement Action Plans we strive to shape and improve our supply base in the areas of Environment, Labour & Human Rights, Ethics & Sustainable Procurement. Good progress with EcoVadis assessments can be seen on the Non Financial Highlights section. This progress was recognised by EcoVadis with an award during their 2020 annual conference.

NSG suppliers average score of 47.85 exceeds EcoVadis average for all companies measured;-

■ Overall Score Distribution

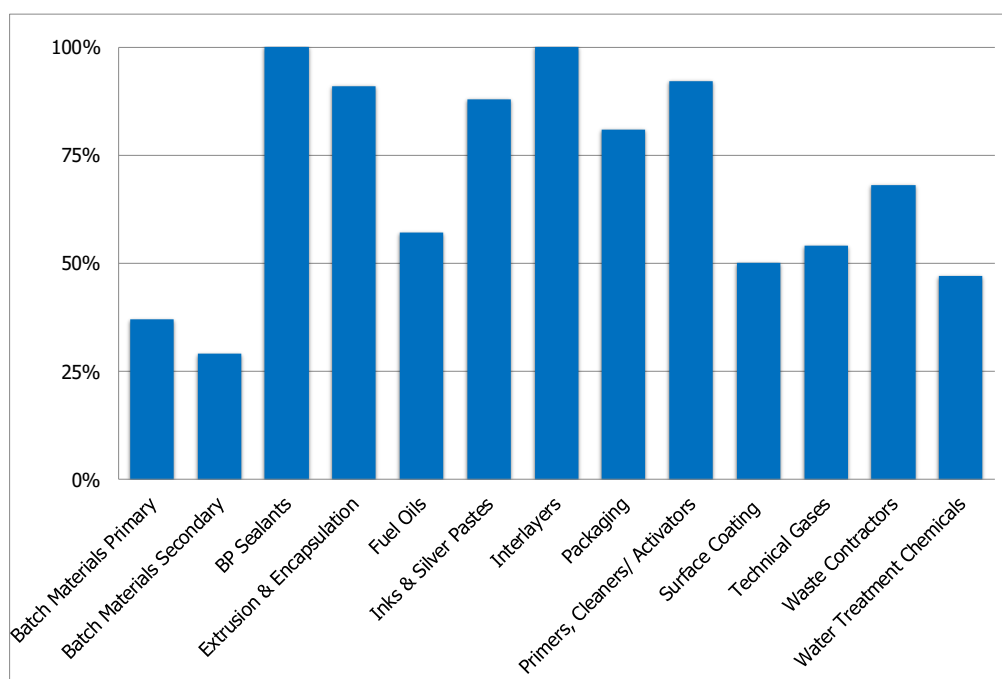


■ FY20 Supplier Spend Assessed by EcoVadis (% Annual Spend)



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.

■ HEI Compliance - FY20



Suppliers

Examples of Supplier Engagement in 2019

Energy Efficiency and CO2 Reduction

For more than eight years, NSG Group has been implementing a globally co-ordinated 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	(tonnes)
Category	CDP 2019 response
Purchased Goods & Services	962,579
Processing of sold products	600,000
Fuel & Energy related materials	546,594
Investments	200,000
Downstream transportation & Distribution	145,241
Employee Commuting	9,955
Upstream transportation & Distribution	6,017
Capital goods	4,174

In 2017, NSG Group started the process to improve the quantification of its Scope 3 emissions. The 2019 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.

Synergies With Strategic Raw Material Suppliers

Batch raw materials (dolomite, limestone and soda ash) represent 0.8 million tonnes or 33% of total Scope 3 emissions.

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

Manufacture, processing and transport of raw materials (Scope 3) contributes 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. There are numerous technical issues to overcome but further trials are being planned to fully assess and mitigate risks identified.

The project has recently been expanded to look at alternative low carbon materials which due to their risks, cost and/or availability, have never seriously been considered before by NSG Group. The work will require closer collaboration with our existing suppliers, developing relationships with new types of suppliers and a great deal of research to improve NSG Group's technical knowledge of the new materials, including how they are produced and their behaviour in our processes. There are significant hurdles to overcome and it may not be possible to implement low carbon materials on all sites and all products but, like increased cullet usage, low carbon materials could, potentially, contribute to achieving around 1/3 of our SBT CO₂ reduction.

Suppliers

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 formalised 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.

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)

Social

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".

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



Human Resources

Our management philosophy values the health and safety of our employees above all other considerations and we aim to ensure that we provide a working environment that allows our people to reach their full potential and meet our customers' expectations.

Our employees are our most valuable asset

We value people as the most important asset of our Group. Our HR strategy aims to ensure we have the right people and that we maximize our talent management around the world. Safety and quality underpin everything we do, with open communication central to our employment policies.

We operate as an integrated international Group, with a multinational management. 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 approach to rewards and retention includes market-based competitive pay and benefits for eligible employees.

We are putting policies in place to attract and retain talent - particularly in emerging markets. We work to create a culture that allows employees the opportunity to work without fear of intimidation, reprisal or harassment. Our systems permit employees to raise any concerns in a confidential and timely manner.

Inclusion and Diversity

Valuing differences in our people

Statement of Intent

In 2017 the Group has published the following 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.



Inclusion and Diversity

Our effort

Inclusion & Diversity

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 18 members, covering all business units, functions and regions. It works with individual businesses to identify and implement local and global initiatives, identifying areas for improvements and measuring progress. One central focus is to move I&D beyond the Human Resources department and establish it within all thinking.

Taking action

In line with the annual Group and Regional I&D Action Plans, each country or site is implementing the actions. One of the annual implementations at site level is to celebrate the 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.



Inclusion and Diversity

Inclusive Leadership

Inclusion & Diversity

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 behaviours.



"Our organization becomes more inclusive and valuable by respecting differences in our people."
Guido Di Martino, Sustainability Manager for Argentina and Sustainability Coordinator for South America.



"We act with humility, seeking contributions from others in order to compensate for our own acknowledged weaknesses."
Julie Jackson, Group Tax Controller.



"We value the unique contributions that each person brings to the team."
Shirley Sergeant, R&D Director Europe.



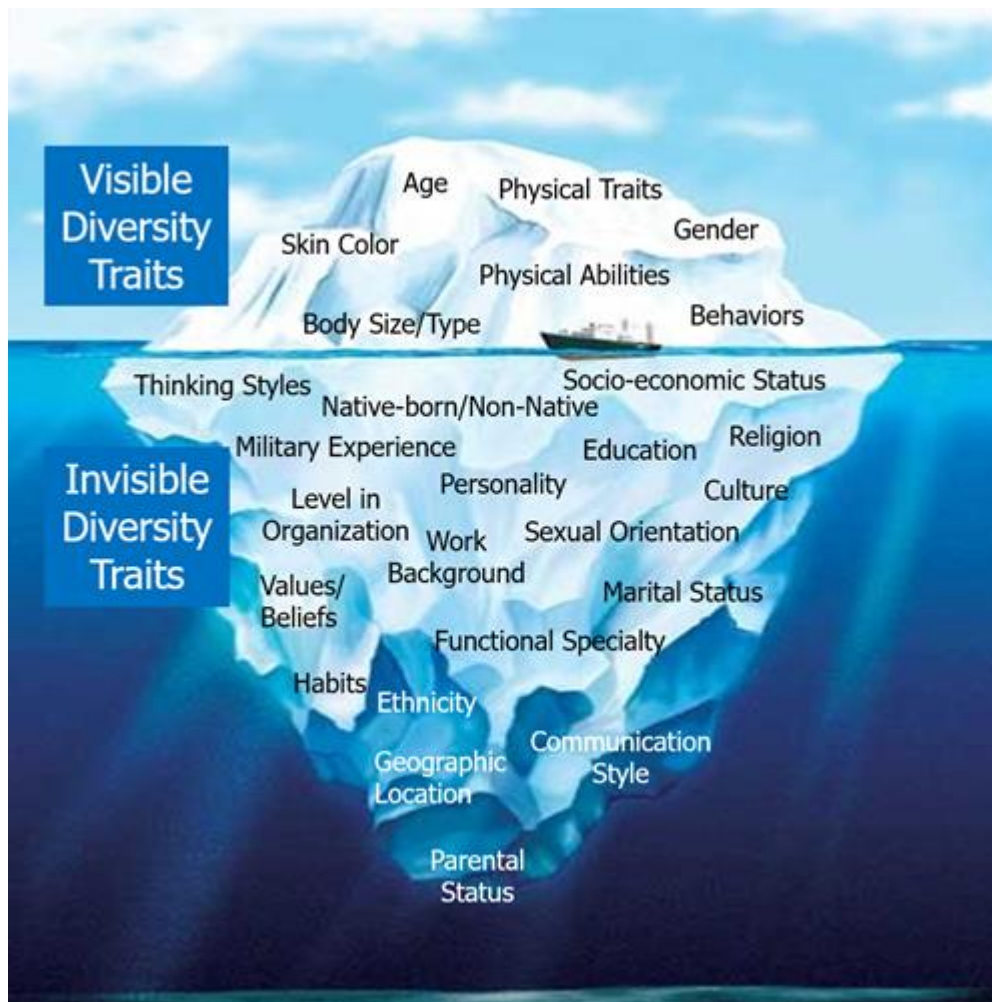
"We encourage an inclusive culture and equality of thought with all employees."
Noline Srougi, Procurement Director North America.

Inclusion and Diversity

Visible & Invisible Diversity

Inclusion & Diversity

When we talk about diversity, we are inclined to highlight “visible” diversity traits such as gender, age and physical abilities. However, there are also a lot of “invisible” diversity traits to acknowledge. Greater diversity brings different points of view, which leads to greater innovation. Our aim is to promote an inclusive working environment where people feel valued for the unique contributions they bring.



Employees

Our management philosophy values the health and safety of our employees above everything else. We aim to provide a working environment that allows our people to reach their full potential and meet our customers' expectations.

Safety, Ethical Leadership, Quality, Customer Focus and Sustainability underpin everything we do, with the principles of trust, mutual respect and open communication being central to our employment policies.

	Group
Permanent Male FTEs	22,038
Permanent Female FTEs	4,104
Total Permanent FTEs	26,142
Temporary Male FTEs	1,880
Temporary Female FTEs	603
Total Temporary FTEs	2,483
Total Male FTEs	23,918
Total Female FTEs	4,707
Total FTEs	28,625
Male Managers FTEs	2,174
Female Managers FTEs	391
Total Managers FTEs	2,565

Data collection at the end of December 2019

Employees

Ethics, Inclusion and Diversity

Our Code of Ethics reflects our Integrity, as articulated in our Core Values, and forms part of the newly introduced "Our Vision". It defines what is expected of all our employees. It particularly emphasises 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 aims to prohibit discrimination based on race, color, religion and beliefs, age, gender, sexual orientation, national origin, disability, union membership, political affiliation, or any other status protected by law.

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".

Inclusion and Diversity (I&D) actions for 2019 have largely focused on building increased awareness of I&D and further developing our activities across the Group. Each Strategic Business Unit and Function have made progress on their own local and regional action plans, and these have been reviewed by Senior Leaders on a quarterly basis at our senior management meetings. All of our Managers have now completed Unconscious Bias training.

Centrally, the Global I&D Steering Committee has designed a special logo which is being used on all of our I&D Communications. Newsletters have been produced on a regular basis which have promoted the activities which have taken place, including recognition of International Women's Day and International Day of People with Disabilities, and concepts such as the importance of inclusive leadership have also been covered.

Our Employee Resource Group Guidelines have been drafted, and during 2020-2024 we are working on implementing a range of development programmes to promote increased female leadership in the organization. There has also been a review of recruitment practices across the Group to ensure all of our activities during 2020-2024 are fair and inclusive.

Employees

NSG Group Talent Management

During 2019, as part of our wider Talent Strategy supporting the Group's Vision and Values, we 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. Integrating our NSG Competency Model globally across our core people processes continues to support and drive culture change.

We have also continued to encourage ownership of talent processes by our managers by providing 'Co-ownership' of Succession Plans via our Talent Management system, continuing to deliver a more transparent and dynamic approach to Talent Management.

During 2020-2024 our goal is to embed the knowledge and application of talent practices into every day management life, encouraging a feedback culture across the Group. We will do this by developing a more inclusive and flexible approach to learning and development practices. This will include embracing technology for a greater level of 'blended, virtual' learning options. Our plan includes the transition of our Group programs from face to face learning events to an appropriate mix of virtual class rooms, action learning sets and face to face development activities.

■ Talent Management-Strategy



■ NSG Group Competency Model



Employees

Employee Engagement

We continue to use our Employee Survey to measure sustainable engagement within the Group. In 2019, the survey covered 17 countries in four regions (Europe, Asia, South and North America), and involved 6,989 employees, achieving a response rate of 88 per cent. It was open for completion for three weeks and generated more than 2,645 comments, which were reviewed by the local management. As a result of the review action plans were developed and executed.

Pulse Survey 2019



The Pulse Employee Survey was accessible to 6,989 NSG Group employees in 17 countries across 4 region and available in 12 languages



The questionnaire consisted of 30 'core' questions (5 new this year) and then 49 tailored 'supplementary' questions (across 13 locations)



The survey was open between 23rd September - 11th October 2019



166 online results reports generated



The open questions received more than 2,645 comments



Overall response rate remains high at 88%, with 6,153 people taking part

Gender Pay Gap Reporting

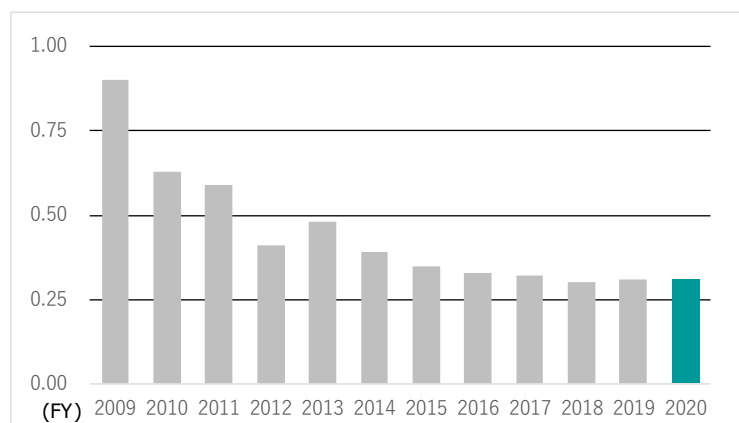
Under the UK Governments new Gender Pay Gap regulations, UK companies must publish the Gender Pay Gap for all legal entities within the UK that employ more than 250 people. This report covers the snapshot data from 5 April 2018.

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.

Significant Injury Rate (SIR)

■ Significant Injury rate (SIR)



■ Percentage Significant Injuries (%)

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

Safety organization and strategy

The NSG Group Sustainability Director reports to the Chief Operating Officer.

Monthly safety updates are provided to the COO 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 March and October 2019, and March 2020.

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.

Safety performance

Safety improvement has been developed to focus on three main areas: leadership, specifically our first line leaders; managing our high risk activities and understanding the behaviors that lead to injuries. 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 Covid 19 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.

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 2020 remained at 0.31.

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 FY20 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.

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.

To further support the the groups drive for improvements in SI and HPS reporting in FY21 the group will replace its global reporting system AIRSWEB with the newest version 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 11, 2019 its main focus across the group was mental health and wellbeing. Plants around the globe delivered information and training to all levels of the organisation in an effort to raise awareness of mental health issue. The group will continue to have its 10th safety day in October 2020. The challenge will be having safety day with our employees whilst ensuring that all CoVid 19 precautions are in place.

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. These audits were across regions and across sites within a region for maximum impact.
- 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.

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

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.

The following posters are available at sites to aid communications:



Communities

We aim to be a good neighbor, wherever we operate. We have around 27,000 permanent employees (as of the end of March 2020), 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.

Activities for Earth Day in North America

In recognition of the 49th Anniversary of Earth Day, NSG Group members at locations throughout North America (all strategic business units in USA, Canada and Mexico) undertook a variety of activities on and around 22nd April 2019. It's purpose was to help ensure a sustainable future through reducing environmental impacts to our air, land and water. The activities also helped to raise the environmental awareness for employees.

Main activities included planting trees or flowers, and distribution of reusable grocery shopping bags and water bottles with NSG logo. Other activities focused on improvements to recycling, waste reduction and cleanup.

Earth Day is an important time to reflect on preservation and enhancement of the environment in which we live and work, and provides an opportunity for us to demonstrate our commitment to a clean and safe environment. NSG Group will continue with these activities in the future.



Planting at Laurinburg



Cleanup at Northwood



Reusable grocery shopping bag

Bike-building in Canada

The employees at NGF Canada, one of the companies of NSG Group, took part in the bike-building competition and turned out ten bikes - together with safety helmets - to be passed on to the local Hope House charity which helps less fortunate people to rebuild their lives. Bike parts were sourced in the form of kits from local suppliers and the employees split into 10 teams to build - and decorate - the bikes. All the participants really empathized with the idea that our bike-building activity will go on to help people in the local community for a long time to come.

At the end of the event, reusable water bottles made by Cupanion, a local company, were distributed to the participants. Every time the user refills the bottle, they scan the barcode with their phone and Cupanion donates the cost of a cup of clean water to the Deliver Life Program in Sub-Saharan Africa. The scheme brings vital refreshment to water-poor communities in Africa as well as to the employees themselves.



NGFC employees drink to a BETTER WORLD

A scheme to distribute reusable water bottles at NGFC in Guelph, Canada, will bring vital refreshment to water-poor communities in Africa as well as to the employees themselves.

Cupanion NGFC bottle

The bottles, made by local company Cupanion, come with a barcode plus a QR code. Employees scan the bottle, then the user scans the bottle. They scan the barcode with their phone and Cupanion donates the cost of a cup of clean water to the Deliver Life Program in Sub-Saharan Africa.

Run by the charity WaterAid, the program's current focus is on improving water, sanitation and child mortality in the Gambia and Senegal, two of the world's poorest countries, where only 40% of the population have clean water, toilets, and soap.

The app has benefits, too: employees can track their own water consumption.

To make sure they're staying hydrated, Cupanion and Environmental Coordinator Jenna Apple, have also introduced their 'reusable' program by adding up how many single-use cups are discarded. They've saved 10,000 cups so far.

Housekeeping and HR's standards at NGFC are also expected to improve. "Based on the waste generated by single-use containers, these bottles reduce the risk of spills and breakages from drinks being 'knocked over'," said General Manager Lee Thompson.

"In addition, they are designed to keep our drinks hot as well as keeping cold drinks cold so they're ideal for our Canadian climate."

FILL IT

SCAN IT

GIVE IT

Tree planting in Argentina

At VASA in Argentina, one of the companies of NSG Group, the employees and their families built composters with recycled wood from our process, and planted native trees on site.

A specialist was invited to the site and taught participants about planting including compost, native tree species and recycling. They learned reforestation techniques, and children also learned about recycling through playing games.

Many trees that were planted are going to be donated to local authorities in order to reforest some green area of the communities.



10th anniversary in Italy

At Primo, NSG Group plant in San Salvo, Italy, 230 employees and their families celebrated 10 years of activity since opening the plant on 16th September in 2019. The plant has been contributing to society through producing heated windshields and wired glass. The plant has been focusing on safety measures and received the Confindustria National Safety Award in 2014.

At the ceremony, the Mayor of San Salvo, Tiziana Magnacca, thanked the top management for choosing this area as site for the Primo plant, and expressed his gratitude to employees and their families for 10 years activities here.

After viewing a video about the production process and conducting a plant tour for deeper understanding of its operation, the cutting of the cake closed the important Open Day anniversary. The plant will continue to contribute to society through the manufacture of glass products.



Local Cleaning Activities in Japan

At all plants (Chiba, Maizuru, Kyoto, Yokkaichi, Tsu, and Tarui) of Nippon Sheet Glass Co., Ltd (NSG) it is considered that connections with and contribution to local communities are important. That is why they have been engaged in local cleanup activities for many years. At Chiba, employees have participated in the "National Route 16 Clean Day" as part of the "Volunteer Support Program" sponsored by local companies and supported by Ichihara City for 17 years. At Maizuru, employees take part in the "Maizuru Clean Campaign" hosted by Maizuru City every year. In addition, employees at Yokkaichi and Tsu have also been involved in activities of the community cleaning day for many years, in which a total of 200 employees participated in 2019. At Tarui, employees have helped cleaning the Aikawa river which is a place of recreation and relaxation for the local community for 38 years.

Each plant of NSG will continue to strengthen ties with local communities and develop with the people in these communities.

Cleaning activity at Chiba/ Maizuru/ Tarui



Chiba



Maizuru



Tarui

Environment Data

■ Air Emissions

		CY2017	CY2018	CY2019
CO2 (Kt)	Scope 1	2,855	3,103	2,970
	Scope 2	896	880	790
	Total	3,750	3,983	3,760
NOx (Kt)		16	17	17
SOx (Kt)		6	6	6

■ CO2 emission (Scope 3)

	CY2019
Purchased Goods & Services	963
Processing of sold products	600
Fuel & Energy related materials	547
Investments	200
Downstream transportation & Distribution	145
Employee Commuting	10
Upstream transportation & Distribution	6
Capital goods	4
Total (Kt)	2,475

■ CO2 reduction per unit of production volume

	FY2018	FY2019	FY2020
CO2 emission (tonne) / equivalent product (tonne)	0.75	0.73	0.74

■ Energy

	CY2017	CY2018	CY2019
Natural gas (TJ)	30,547	32,968	31,877
Heavy fuel oil (TJ)	4,595	4,927	5,764
Electricity (TJ)	7,331	7,478	7,275

■ Water

	CY2017	CY2018	CY2019
Water usage (Mm3)	17.6	17.5	16.6

■ Operational waste to landfill

	CY2017	CY2018	CY2019
Waste glass to landfill	4.5	3.7	3.4
Non-glass waste to landfill	18.6	19.6	18.6
Total (Kt)	23.2	23.3	21.9

■ Recycling

	CY2017	CY2018	CY2019
Recycling (not glass) (Kt)	42.0	48.6	40.5

Human Resources Data

■ Number of employee by gender

		FY2018	FY2019	FY2020
NSG	Male FTEs	1,943	1,979	1,993
	Female FTEs	201	194	197
	Total FTEs	2,144	2,173	2,190
Subsidiaries	Male FTEs	22,493	22,689	21,925
	Female FTEs	4,453	4,538	4,510
	Total FTEs	26,946	27,226	26,435
NSG Group	Male FTEs	24,436	24,668	23,918
	Female FTEs	4,654	4,732	4,707
	Total FTEs	29,090	29,399	28,625

Data collection at the end of December in each year

■ Number of employee by region and gender

		FY2018	FY2019	FY2020
Japan	Male FTEs	4,428	4,431	4,252
	Female FTEs	818	839	829
	Total FTEs	5,246	5,270	5,081
Asia	Male FTEs	2,784	2,834	2,963
	Female FTEs	572	583	571
	Total FTEs	3,356	3,417	3,534
Europe	Male FTEs	11,049	11,107	10,696
	Female FTEs	2,132	2,148	2,196
	Total FTEs	13,181	13,254	12,892
North America	Male FTEs	3,530	3,625	3,495
	Female FTEs	914	928	847
	Total FTEs	4,444	4,553	4,342
South America	Male FTEs	2,645	2,671	2,512
	Female FTEs	219	234	264
	Total FTEs	2,864	2,905	2,776
NSG Group	Male FTEs	24,436	24,668	23,918
	Female FTEs	4,654	4,732	4,707
	Total FTEs	29,090	29,399	28,625

Data collection at the end of December in each year

■ Number of employee by gender and employment contract

			FY2018	FY2019	FY2020
NSG Group	Male	Permanent employees FTEs	22,234	22,482	22,038
		Temporary employees FTEs	2,202	2,186	1,880
		Total FTEs	24,436	24,668	23,918
	Female	Permanent employees FTEs	4,016	4,089	4,104
		Temporary employees FTEs	638	643	603
		Total FTEs	4,654	4,732	4,707
	Total	Permanent employees FTEs	26,250	26,571	26,142
		Temporary employees FTEs	2,840	2,829	2,483
		Total FTEs	29,090	29,399	28,625

Data collection at the end of December in each year

■ Number of employee by region and employment contract

		FY2018	FY2019	FY2020
Japan	Permanent employees FTEs	4,354	4,407	4,252
	Temporary employees FTEs	892	863	829
	Total FTEs	5,246	5,270	5,081
Asia	Permanent employees FTEs	3,006	2,937	3,082
	Temporary employees FTEs	350	480	452
	Total FTEs	3,356	3,417	3,534
Europe	Permanent employees FTEs	11,839	11,931	11,796
	Temporary employees FTEs	1,342	1,324	1,097
	Total FTEs	13,181	13,254	12,892
North America	Permanent employees FTEs	4,249	4,431	4,285
	Temporary employees FTEs	195	122	57
	Total FTEs	4,444	4,553	4,342
South America	Permanent employees FTEs	2,803	2,865	2,728
	Temporary employees FTEs	61	40	48
	Total FTEs	2,864	2,905	2,776
NSG Group	Permanent employees FTEs	26,250	26,571	26,142
	Temporary employees FTEs	2,840	2,829	2,483
	Total FTEs	29,090	29,399	28,625

Data collection at the end of December in each year

■ Number of new permanent employees

			FY2018	FY2019	FY2020
NSG	New graduates recruitment	Male	18	20	28
		Female	3	3	6
		Total	21	23	34
	Mid-career recruitment	Male	28	38	57
		Female	1	4	9
		Total	29	42	66
	Total	Male	46	58	85
		Female	4	7	15
		Total	50	65	100

Data collection from April to March in each year

■ Percentage of new permanent employees

		FY2018	FY2019	FY2020
NSG	New graduates and mid-career	2.2%	2.9%	4.5%

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 2017	18	3
	Number of enrolled employees among them at 1st April 2020	15	2
	Retention rate after 3 years	83%	67%

■ Employment rate of permanent employees with disabilities

	FY2018	FY2019	FY2020
NSG and main subsidiaries in Japan	2.0%	2.2%	2.2%

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

		FY2018	FY2019	FY2020
NSG	Number of employees leaving	27	34	41
	Turnover rate	1.2%	1.5%	1.8%

Data collection at the end of March in each year

■ Percentage of senior management from the local community

	FY2018	FY2019	FY2020
NSG Group	86.7%	81.3%	80.7%

Data collection at the end of March in each year

■ Percentage of female in managerial positions

	FY2018	FY2019	FY2020
NSG Group	13.1%	12.8%	15.2%

Data collection at the end of December in each year

■ Union Organization Rate

	FY2018	FY2019	FY2020
NSG	70.4%	70.0%	70.6%

Data collection at the end of March in each year

■ Parental leave of permanent employees

			FY2018	FY2019	FY2020
NSG	Number of employees taking parental leave	Male	1	1	1
		Female	5	3	6
		Total	6	4	7
	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

		FY2018	FY2019	FY2020
NSG	Acquisition rate of paid holidays	78.5%	83.5%	83.5%
	Annual overtime hours worked per person	172	179	169
	Annual actual working hours per person	1,903	1,902	1,869

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.

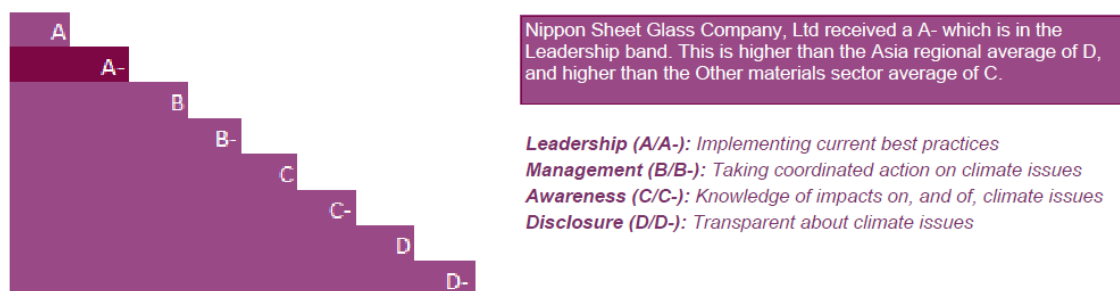
Evaluation by External Party

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.

Rating on Climate Change (Excerpt from the CDP report)



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.



*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.



Evaluation by External Party

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.