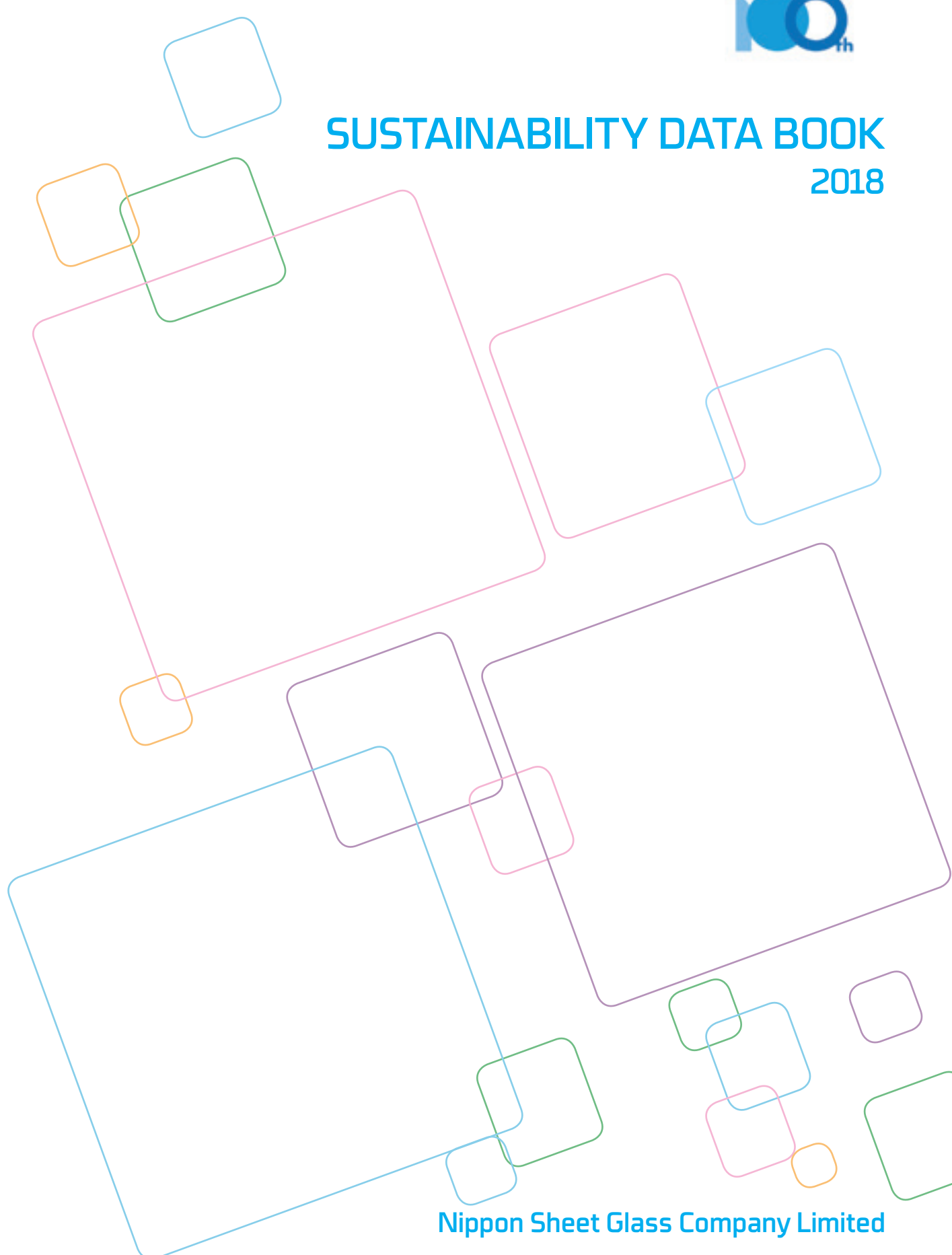


SUSTAINABILITY DATA BOOK

2018



WELCOME TO OUR SUSTAINABILITY DATA BOOK 2018

The NSG Group is one of the world's largest manufacturers of glass and glazing products for the Architectural, Automotive and Technical Glass sectors. With around 27,000 permanent employees, we have principal operations in 27 countries and sales in over 100.

NSG Sustainability Agenda and Associated Targets

Glass is playing an important role in society's efforts to reduce greenhouse gas emissions and to mitigate the effects of climate change. We aim to be the global leader in innovative high-performance glass and glazing solutions, contributing to energy conservation and generation, while working safely and ethically.

Our efficiency programs are continuing to deliver reductions in energy consumption, greenhouse gas emissions and waste production. We train and develop our people while respecting their human rights and keeping them safe from workplace injuries or occupational illness. We encourage our contractors and supply chain to take similar steps through the ongoing evaluation of our key suppliers' sustainability practices.

This sustainability agenda is integral to decreasing our costs and increasing our market opportunities. Over the past year, we have continued our efforts and made progress in our target areas.

NSG Sustainability target data 2020

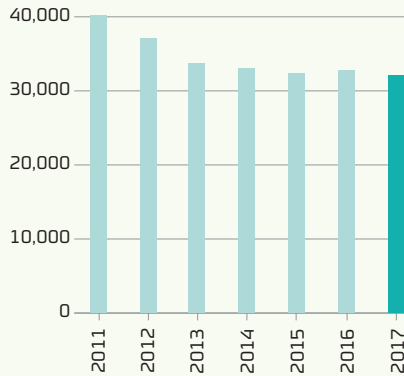
CONTENTS

FY2020 Target Area	Targets for FY2020	ENVIRONMENT	
Energy and CO ₂ reduction	One percent year on year reduction in CO ₂ intensity across glass manufacturing operations	Energy Usage	2-4
		Air Emissions	5-6
Waste	Reduce waste to landfill by 12kt (40 percent reduction vs. FY2014)	Resources & Recycling	7-8
Ethics and Compliance	<ul style="list-style-type: none"> Review, develop and enhance Ethics and Compliance educational modules, resource materials and overall culture Conduct due diligence on third parties and sanction screen all business partners Conduct an annual Conflicts of Interest assessment 	Suppliers	9-10
		STAKEHOLDERS	
		Suppliers	9-11
Responsible Sourcing	<ul style="list-style-type: none"> 10% 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 	Suppliers	9-11
Employees	<ul style="list-style-type: none"> Improve NSG Engagement score by 5 points by the end of FY2020 Train 100% of Managers in the new NSG Appraisal Model and Talent System by the end of FY2019 Increase the skills of our newly appointed or prospective plant managers by 50% of the target population attending the Plant Leadership Program by end of FY2020 Increase Inclusion & Diversity awareness by training 100% of managers in designated modules by end of FY2020 	Employees	12-13
		Health & Safety	14-15
		Communities	16-17
		Sustainable value added products	<ul style="list-style-type: none"> Increase proportion of value-added products in total sales to 1/2 in FY2020 Demonstrate the added environmental or social benefit of products

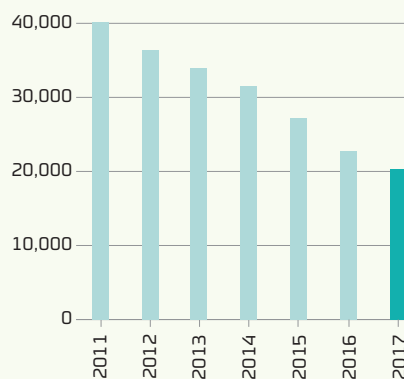
ENERGY USAGE

NSG Group Energy Usage

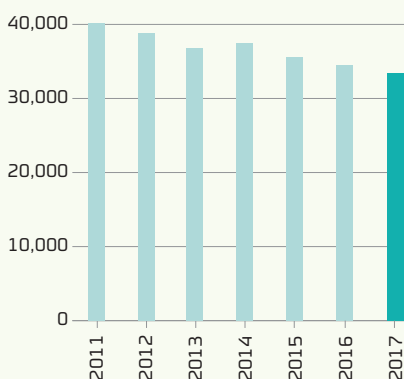
Natural Gas TJ



Heavy Fuel Oil TJ



Electricity TJ



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 use natural gas as the fuel of choice for glass melting. Furnaces are gradually being 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.

Initiatives to reduce energy usage

Energy Committee

All initiatives are monitored by the Heads of SBUs and Group functions at six monthly Energy Committee meetings, chaired by the Chief Operating Officer.

Energy management pilot plants

The concept of the energy pilot plants is to make a step change reduction in energy consumption by using energy more efficiently and effectively. Four pilot sites were launched in FY2013 as phase 1 followed by seven sites in phase 2, five in phase 3 and three sites in FY2017. Together these 22 pilot sites cover 82 percent of the NSG Group's energy spend.

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 350 projects are under evaluation or being implemented.

Operational energy-efficiency projects

The Operational Cost Saving program aims to reduce all operational costs in the area 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 of the energy projects within the OCS database is regularly completed. Multiple projects were identified for rapid dissemination in FY2018 to deliver energy consumption and cost savings. Each manufacturing site within the Group had at least one active OCS energy project in FY2018.

Led by Manufacturing Excellence and assisted by other Group functions, NSG sites identified more than 100 energy-optimization opportunities, resulting in annual CO₂ savings in excess of 17kt.

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.

Energy metering is being used to develop projects, identify energy waste & manage tariffs. Metering status surveys were completed in FY2017. New metering has been installed as part of third party funded projects and we have expanded usage of existing software to enhance basic metering capabilities.

A directory of potential novel technologies available across the glass industry has been created, including recommendations for appropriate application at Group sites.

R&D activity

Reduction in 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 minimise capital expenditure.

Project Carbon 2050 has been launched to establish a 'decarbonisation roadmap' that identifies the technologies, barriers and financial investments required to achieve significant carbon emission reductions in float manufacturing by 2050.

Management systems

We have achieved ISO 50001 certification across all operations in Germany, Italy, Finland, and most recently Automotive engineering. 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.

Renewable on-site energy generation and alternative fuels

The use of a waste-derived biofuel oil instead of heavy fuel oil in a glass-melting furnace has cut CO₂ emissions by 8kt per year.

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

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 have also been implemented to address compressor inefficiency, to make better use of waste heat generated in our glass-making processes and to reduce peaks in electricity demand.

Innovation in cullet recycling

Our Watson Street plant continues to invest in plastic boxes to travel on float liners with customer glass deliveries. The collected downstream processed cullet is diverted from landfill and, when re-melted, reduces energy consumption and raw material decomposition, saving 3,000 tonnes CO₂ emissions per year. See page 66 for more details.

Employee energy efficiency awareness



The Brazil team



The Argentina team

An energy management training program designed to help the Group deliver cost savings and reduced CO₂ emissions has been rolled out through South America.

Brazil, Argentina and Chile were involved in a 'back to school' initiative that will increase levels of energy awareness and support the on-going generation of energy management project activities.

The initiative was first held in Europe in 2016 where the delegates' post-course level of savings exceeded €300 k in energy costs and reduced CO₂ emissions by at least 1,000 tonnes.

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

The course was organised by Brazil and Argentina's Training and Development team and was led by David Cast, Manufacturing Excellence and Energy Manager. It comprised of three levels of awareness.

Building on the 2016 training initiative, level one involved 50 hours of training in all aspects of energy management. It was 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 one, delegates were encouraged, where appropriate to their role, to continue energy management training with external organisations leading to level 2 and level 3 qualifications.

2016 and 2017 project examples

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

ENERGY USAGE

NA Architectural Glass Award



Kayla Natividad of Architectural Glass North America has won the Glass Association of North America's (GANA's) Energy Division award for her 'outstanding volunteerism and promotion of sustainable and energy efficient use of glass in our industry'. Kayla joined the company two years ago as an Architectural Services engineer representing AGNA in various trade associations and standards committee deliberations. She has helped in the compilation of the Energy Applications of Glass GIB (Glass Information Bulletin) and in the development of a range of assessments and declarations used in green building codes.

New fleet

A fleet of environmentally friendly, ultralight trucks is being rolled out at Italy's Porto Marghera plant.



The use of methane gas brings a multitude of benefits including energy savings and reduced noise.

Because the trucks' cabs and trailers are lighter, we can transport more material and a truck tilt mechanism allows us to ship by rail as well as by road.

The new fleet also boasts improved safety features that include distance detectors, lane movement, sound alarms and direction indicators.

Water project in Chmielow - Poland

In order to reduce water usage, improve water treatment system and increase efficiency our Technical Department in Chmielow undertook a remarkable project.



Improvement of degasser installations

Chmielow plant replaced old equipment with new, upgraded fittings and appliances. Major changes were executed within the installation including a: degasser, steam traps, Babcock boilers and condensate control valves. Additionally, the default settings of the water control system in the water tank and boilers were upgraded. The main modification was the implementation of a completely new water treatment station that allowed the site to recover waste water and reuse it in the glass washing machines.



New water treatment station

All of these actions allowed the site to reduce water consumption from over 100L to around 40L per 1 m² of the glass, a reduction of over 60 percent! This excellent project helped the site to reduce their water consumption significantly, supporting the local community by reducing demand for water especially in periods when water is in short supply.

Electric Vehicle Charging Facilities



Our Lathom and Witten sites in the UK and Germany have recently installed electric vehicle charging points in the employee car parks. As the uptake of electric vehicles increases, it is expected that this will be rolled out at more sites around the globe.

AIR EMISSIONS



Removing Pollutant Emissions and Encouraging Biodiversity

The waste gases enter the silver structure on the right which is the scrubber to remove acid gases before entering the green electrostatic precipitator where particles are removed.

The gases then pass through a selective catalytic reduction unit to remove NOx (not shown in this image) and then exit through the chimney on the top right of the photograph.

Our chimney stacks are often over 100m tall and provide the ideal place for birds of prey to roost or nest.

For example, at our Greengate plant in the UK, once-endangered peregrine falcons are now nesting in an old crow's nest (see pictures)



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 very high temperature so the process is very energy-intensive.

Emissions to air

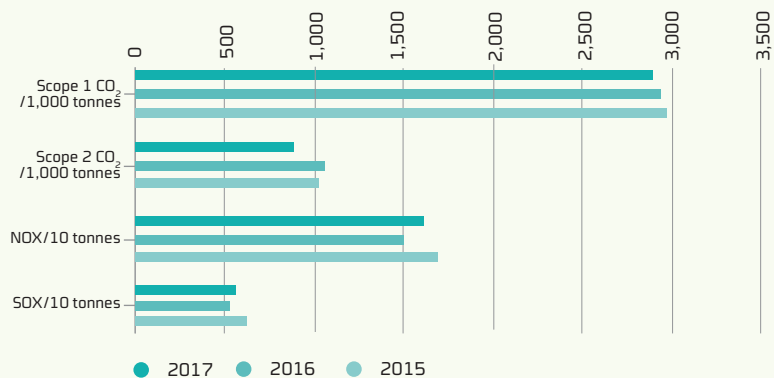
The most significant pollutants from a glass furnace are: nitrogen oxides formed from the nitrogen and oxygen in the air at high temperature; sulfur oxides from the refining agent (and from oil fuel if that is used); and particulate matter derived from compounds volatilised from the molten glass. Carbon 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. NSG has used techniques such as acid gas scrubbers, electrostatic precipitators and selective catalytic reduction units and now the Group plans to use a novel technique called a catalytic ceramic filter (CCF). Currently under construction at our furnace in Ottawa, USA, the CCF will be a single piece of equipment capable of removing all the major pollutants from the waste gas stream and will be the first of a kind for the NSG Group.

Low iron value added glasses generate more NOx during production than standard clear float. We are installing pollution controlling secondary abatement technology to control these NOx emissions.

During the reporting year, a selective catalytic reduction unit has been added to the existing dust and acid gas abatement equipment at NSG's VE1 furnace in Italy, allowing the site to also reduce NOx emissions.



AIR EMISSIONS

Monitoring and reducing carbon emissions

In 2017, the NSG Group was responsible for the emission of 4.0 million tonnes of CO₂e. This is a five percent reduction on the previous year due to storm damage to a plant in North America, increased renewable electricity and many proactive operational cost saving initiatives described in the energy use section. Our Scope 1 emissions were 2.9 million tonnes. These direct emissions occur from our furnaces and from fuel used in bending and toughening furnaces. In 2017, our measured Scope 2 indirect emissions were 0.9m tonnes of CO₂ and our estimated Scope 3 emissions were 0.9 million tonnes 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 aim to reduce CO₂ emissions per tonne of equivalent product by one percent per year until 2020. This target has been achieved year on year for the last three years.

	Tonnes CO₂e / tonne equivalent product	Percentage improvement
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 100 percent 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.

Glass Decarbonization Roadmap

NSG contributed to the production of the UK Decarbonisation and energy Efficiency roadmap Action Plan - a bold blueprint of practical measures which industry and government can take to towards the progressive net decarbonisation of the glass industry.

The action plan is the culmination of the government's Decarbonisation and Energy Efficiency Roadmap 2050 project – a three-year programme of fact-finding and collaboration with seven energy-intensive industries that set out to identify measures to help the UK meet its legally binding target of an 80% cut in CO₂ emissions by 2050 (against the 1990 baseline).

British Glass has been facilitating collaboration between glass manufacturers and government throughout this process, and in April 2017 secured the unanimous high-level commitment to the draft action plan from all ten large-scale UK glass manufacturers.

The glass sector's Decarbonisation Action Plan –sets out the sectors' priorities for improving energy efficiency and decarbonisation in areas such as research and development, technology implementation, energy infrastructure, recycling, skills and funding.

The Action Plan sets out how Government and energy intensive industries will collaborate to support the sectors to decarbonise and improve their energy efficiency while maintaining competitiveness,

Publication of the glass sector's Decarbonisation action plan signifies a renewed commitment between government and our sector to a joined-up, pragmatic approach to delivering a low-carbon economy and globally-competitive glass manufacturing.



RESOURCES AND RECYCLING



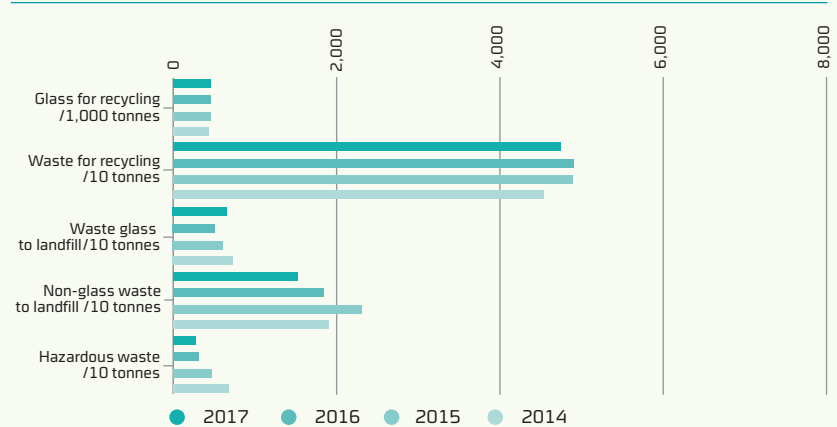
Internal collection of green automotive glass at a downstream operation.



Outside storage of colour segregated cullet ready to be used at a float glass plant

NSG Group promotes the efficient use, reuse, recovery and recycling of glass and other materials involved in glass manufacture, processing, packaging, and delivery.

NSG Group waste



Waste sent to Landfill

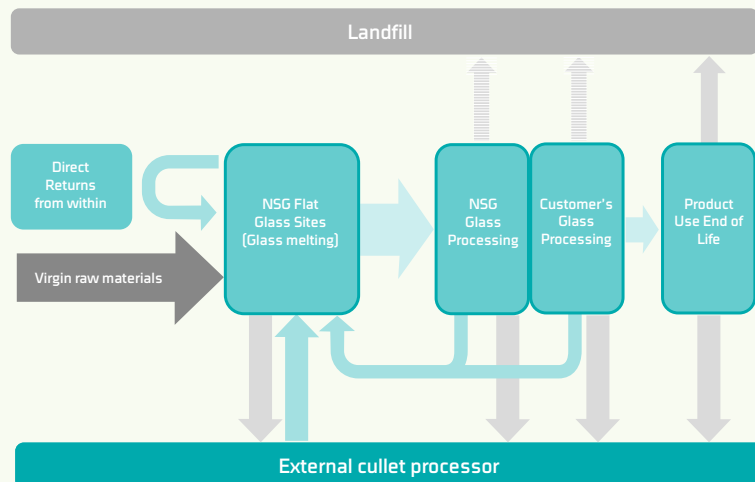
The NSG Group succeeded in reducing the waste sent to landfill by 50 percent since 2007 and additional 20 percent on 2013. The NSG Group set a new Sustainability target to reduce this environmental impact by 40 percent on 2013 by the end of FY2020.

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 recycled back into the melting process. Cullet and rejected parts from the further glass processing into Automotive or Architectural Glazing parts is recycled at the NSG glass melting process or given to external glass recycling partners.

Little glass cullet from Glass processing (6kt in 2017) is sent to landfill – which is included in our related Sustainability improvement target (see above) and activities.

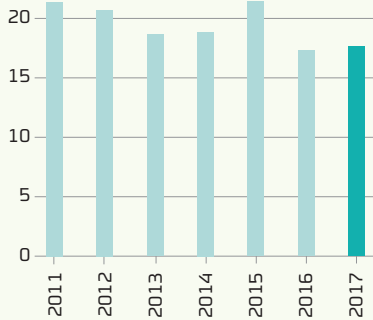
Cullet flow



RESOURCES AND RECYCLING

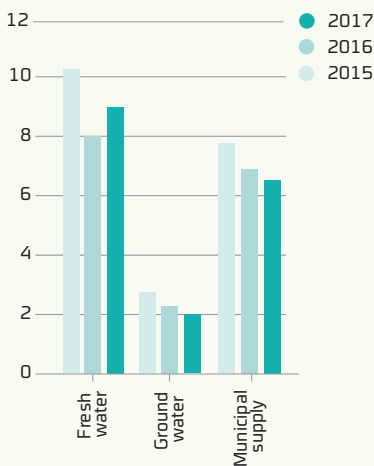
NSG Group water usage

Total water use Mm³



Source of NSG water withdrawal

Mm³



Grinding sludge

This waste stream 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 2017, we continued to seek recycling opportunities for glass dust and rejected batch – occasional off-specification raw material that often cannot be blended and dust collected by the pollution abatement equipment. Automated process monitoring and control systems are being implemented to proactively reduce the number of reject batches at our Rossford plant and our plant in Ottawa got a new batch plant to reduce batch spillage.

General waste

Focus and support has been applied to the highest volume producers to further improve general waste segregation and procurement has been actively involved in finding local recycling partners.

Automotive glazing ingredients

In Automotive, all supplied glazing parts and their materials are registered in the global IMDS (International Material Data System) to ensure we have complete visibility of ingredients, confirm material compliance and to identify opportunities for recycling. This data is shared with our Automotive customers, to support their own material compliance and recycling efforts.

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 reused. We seek to minimize our water consumption by working with suppliers to recycle water and to install advanced water treatment facilities. This not only reduces the consumption 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 m³ are required to manufacture one tonne of float glass and approximately 90 liters are required to process each square meter of automotive product. We withdrew a total of 17.6 million cubic meters of water in 2017. Our Group risk assessment shows that our largest water consuming sites are located in countries that do not have water supply issues.

Timber

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 wooden packaging in our operations and work with our suppliers to design reusable wooden packaging. Much of the timber we use comes from sustainable forestry.



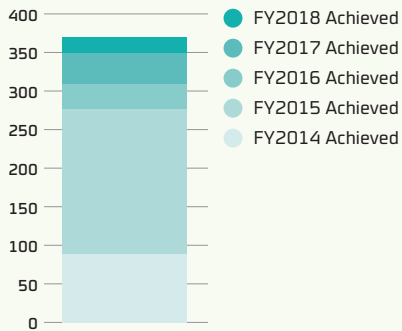
Automotive Glass crate
– reduced timber and polymer packaging materials

Our San Salvo team successfully re-designed an automotive glass crate to carry 2 extra windshields and be capable of being used five times before being sold for recycling.

SUPPLIERS

Supplier Sustainability Evaluation

Year-on-year progress



We continue to make good progress in evaluating more of our suppliers using a combination of internal resource and an external service provider.

We purchase materials, goods and services from over 20,000 suppliers worldwide. Our Supplier Code of Conduct and related evaluations help ensure that our suppliers understand and comply with our standards.

Our Supplier Code of Conduct

As part of our Sustainable Procurement Program, we operate a Supplier Code of Conduct. It outlines behaviours, processes and procedures — in short, the standards we expect from our suppliers. Engagement with suppliers may be via appropriate category account managers and the Procurement function has the responsibility to ensure that suitable engagement arrangements are in place and communicated. Our manufacturing processes use materials, products and services procured from a wide range of regional and global suppliers. Our suppliers are therefore crucial to the achievement of our sustainability objectives. To manufacture and supply superior quality glass products to our customers, we aim to build strong relationships with suppliers that are based on a framework of trust, co-operation and sustainability.

The wide range of issues addressed in the Code reflect the many and diverse activities in which our suppliers are involved. Wherever possible, the Code defines a fair and common sense approach to doing business, while incorporating all relevant legal requirements. The content of the Code also takes into account our values and principles, particularly the emphasis on safety, taking personal ownership for our actions and communicating with openness and involvement. It is the responsibility of all of our suppliers to follow the principles of this Code to ensure compliance with our requirements.

Insisting that our suppliers agree to adhere to our Code has influenced who we develop longer-term relationships with as part of our category strategies and who we do not. It has also prioritized which suppliers we need to develop and improve further to ensure full compliance.

In 2017 we revised our Code in respect of:

- Local legislation to cover fiscal compliance regarding tax evasion and money laundering
- Compliance with modern slavery and human trafficking legislation
- Conflict minerals to bring wording in line with NSG due diligence strategy

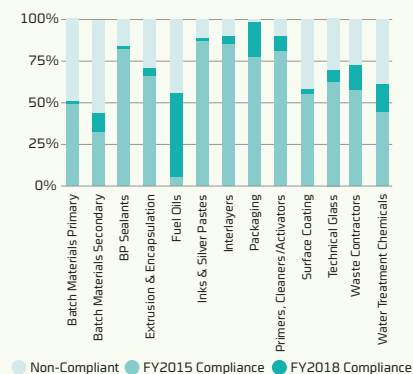
Modern Slavery and Trafficking - Due Diligence Processes for Suppliers

- Our Supplier Code of Conduct specifically covers this area. It is communicated to all current and new suppliers and we have already obtained agreement to its provisions from the majority of our key contracted suppliers. We operate a supplier sustainability programme, which has detailed questions on compliance with labor laws.
- Our supplier audits include coverage of this area.
- We have a hotline available to all NSG Group employees and third parties which can be used to report suspected violations of human rights. Reporters may be anonymous in most countries and all reporters are protected from retaliation in any form.

SUPPLIERS

Ranking supplier risk on the environment

HEI Compliance FY2015-FY2018



In recent years we have implemented a program of identifying suppliers that have a potentially high impact on the environment (categorized as HEI). Our aim is to ensure that our suppliers minimize their potentially negative impacts and work positively on environmental initiatives. The scope covers 13 of our material categories which we now categorize as being of 'High Environmental Impact', including wooden packaging, batch materials, waste-management contractors and chemicals. We expect that all suppliers in these categories have a recognized environmental certification such as ISO 14001 or equivalent. 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.

Conflict Minerals

The 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 now a very important part of our procedures and due diligence continues to be completed via an online questionnaire. During 2017 we once again updated data from these suppliers.

Anti-Bribery Anti-Corruption (ABAC)

NSG 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"). NSG sometimes engages Third Parties to represent its interests or to interact on its behalf with Public Officials such as customs brokers, lawyers, lobbyists, standards committees, or other intermediary activities. Acting on behalf of NSG is not limited to those situations where the third party represents NSG as an attorney-in-fact. It also applies to those situations where they represent NSG's interests whether or not they are interacting with public officials or other entities in the private sector.

We continually review our suppliers in order to identify those suppliers considered to be high ABAC risk. The NSG Group Ethics and Compliance function carry 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.

Communication and co-operation

In line with our Sustainability Policy, we communicate with and work constructively with our suppliers and governments, regulatory agencies, the scientific community and other relevant stakeholders to develop and encourage business and community practices that make progress towards the common aim of sustainable development.

Working with suppliers to save energy

We continue to work with key suppliers to develop projects to reduce energy and water consumption in our manufacturing sites, utilizing their expertise in various technologies to develop solutions to specific energy management challenges.

Energy Efficiency and CO₂ reduction

For more than five years NSG Group has been implementing a globally co-ordinated and supported energy efficiency programme across its operations. The programme combines central resources from Research and Development, Procurement and our Manufacturing Excellence function together with local teams in a cross functional effort focused on reducing our energy consumption and costs across the entire NSG Group.

Each major site in the Group has undergone a structured process involving several days at the site working on all aspects of the site's consumption of natural gas, oil, electricity, diesel, water and other utilities. No stone is left unturned in the search for opportunities to reduce consumption and cost. The initial workshops to identify the areas of opportunity are only the beginning. The projects identified at the workshop are scoped in detail and evaluated and prioritised for implementation. Some ideas are quick to put in place and require little or no investment. Other projects require much longer to implement, and in some cases they require many thousands or even millions of dollars to realise.

Whilst we have a long experience in energy efficiency in our Group we recognize that we do not know everything about this area and we often engage with expert partners who bring knowledge and expertise to evaluate opportunities to reduce energy consumption and also the capability to implement complex projects in our plants. This can range from relatively simple lighting projects through to major water system refurbishments, cogeneration plants, waste heat recovery facilities or solar installations to give but a few examples. In some of these areas the partner will not only engineer, implement and run the operation but may also provide funding for the project under strict governance rules to ensure benefits for both NSG and the partner.

NSG and our supplier partners create new perspectives in sustainability

- Efficiency measures to minimize energy consumption, costs and CO₂ emissions
- Digital solutions for the continuous optimization of our locations
- Projects fully financed through energy savings

Renewable electricity



We are working to ensure that the electricity we consume comes from more sustainable sources. During 2017, we have implemented renewable energy guarantee of origin (REGO) contracts across the majority of our European electricity consumption reducing our CO₂ emissions by almost 200,000 tonnes. In 2018 we will be seeking to extend this concept across Europe and into other regions.

Improved lighting in our facilities

NSG has, over the past number of years, been implementing LED lighting in its operations. Currently, most of our locations have implemented or are implementing LED lights across the site. We work with a small number of key lighting providers to ensure that the products we install are of the highest quality and durability, and we are pushing our suppliers to provide products with even longer life cycles. Lighting products which last longer cause less disruption to our operations when replacements are required and very importantly the longer replacement cycles also improves safety through reduced requirements for maintenance teams to work at height, sometimes at 10 metres or more.

In addition to safety and quality, LED lighting also helps NSG reduce its carbon footprint and costs. LED lights use significantly lower energy for the same or better level of light output or lumens. For example, replacing standard lights with LED lights in one of our factories saved several hundred tonnes of CO₂ emissions per annum – replicating this across all sites will increase the CO₂ saving to thousands of tonnes. It is not only the fact that the LED light itself uses less energy, we also aim to install smart control systems in conjunction with the lamps. These allow us to turn lights off when not required, or to dim them automatically when natural light is available to supplement the light from the lamps. In our more advanced systems, each light within the factory can be controlled individually or in groups at a central control panel, giving our teams tailored lighting requirements according to their needs.



EMPLOYEES



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.

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

Inclusion & Diversity

Our Code of Ethics reflects our Values and Principles and defines for all employees what is expected of them. 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.

The Code acknowledges internationally proclaimed human rights and these are also reflected in our overall employment policies and standards and provide our employees with reassurance on how they will be treated. Our equal opportunity and diversity policy aims to prohibit discrimination based on race, colour, creed, 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 companies, being widely recognized as enhancing both corporate value and the working lives of employees. NSG is firmly committed to celebrating and further improving its own I&D and recently published a Statement of Intent.

A Global I&D Steering Group has been established to support Group senior executives to boost business and increase employee engagement by identifying existing barriers to I&D and propose action plans to address these in line with the Company's Statement of Intent.

NSG Talent Management System

We are working on a project to move our Talent Management Processes and employee records to a new Talent Management system. The project is not simply a system transfer, but has also given us an opportunity to review our Talent Management Vision, Strategy and Processes, which help to support the Medium Term Plan Measure – Enhance Global Management.

This change management project will include a new performance Appraisal Model and a review of our succession planning, talent management and career development process. We would like this to be the start of a process which drives a cultural change within the NSG Group, which will focus on how we can support every individual to achieve their potential and be the best that they can be through appropriate development, continuous feedback and coaching.

We will be carrying out training and awareness initiatives throughout the coming months to promote the new system and to provide our manager and employees with the right training and support.

Focus on the NSG Group:

Business / Area / Location	Group
Permanent Male FTEs	22,139
Permanent Female FTEs (15%)	3,956
Total Permanent FTEs	26,095
Temporary male FTEs	2,224
Temporary female FTEs (22%)	611
Total Temporary FTEs	2,835
Total Male FTEs	24,363
Total Female FTEs (16%)	4,567
Total FTEs	28,930
Full time Male employees	24,548
Full Time Female Employees (16%)	4,535
Part time Male employees	111
Part time Female employees (1%)	118
Total	29,311
Male Managers	2,283
Female Managers (13%)	345
Total Managers	2,628

Data collected end December 2017

Employee Engagement

We continue to use our Employee “pulse” survey model to measure sustainable engagement within the Group. In 2017, the survey covered all four regions, 14 countries and involved 10,465 employees and achieved a response rate of 87%.

	The Pulse Employee Survey was accessible to 10,465 NSG Group employees		160+ online results reports generated in English, Chinese, Dutch, German, Italian, Japanese, Portuguese, Spanish and Vietnamese
	The questionnaire consisted of 24 ‘core’ questions (4 new this year) and then 44 tailored ‘supplementary’ questions (between 1 and 6 additional per country)		The open question generated more than 4,200+ comments
	The survey was open to completion for 3 weeks between 25 September – 16 October 2017		Overall response rate continues to improve at 87%, with 9,108 people taking part in the survey
	14 Countries included in the survey this year across 4 regions.		Online survey was available in 12 languages this year

The Group’s 2017 Pulse Results show we are going in the right direction! We have improved scores for leadership, retention, engagement, employee motivation and satisfaction.

NSG Group overall engagement score



In total, all of the seven categories recorded improvements – particularly in the areas of leadership, retention and in the general results category. Engagement scored 76, up 4 points on 2016, while employee motivation and satisfaction scores also increased in comparison to the previous year.

We are pleased with these latest results, many of which show a marked increase over 2016, however the survey also identified opportunities for further improvements. We need to continue to place high emphasis on safety as this impacts significantly on our employee engagement.

Managers discuss the results with participating employees to agree one/two key focus areas with actions to be completed by the end of July this year. We ask people to focus on just one or two key areas to decide what we can do differently over the coming year to further strengthen Engagement and Commitment.

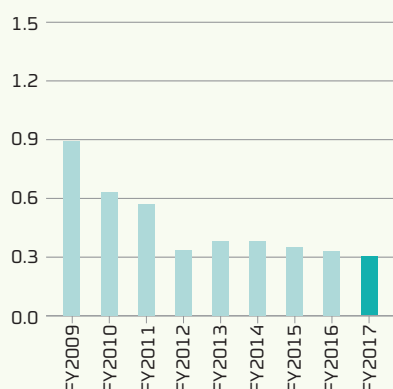
Particularly high scoring questions were:

Strengths	% Favourable	% Point Historical
If I come across a quality problem in my job, I know what actions to take to try to solve it	91%	3*
I have a good understanding of how my job contributes to achieving our goals	92%	n/a
I feel safe voicing a concern in this company*	76%	22*

* This was particularly pleasing as it represented a 22 percentage point increase on the 2016 result.

HEALTH AND SAFETY

Significant Injury rate (SIR)



Percentage Significant Injuries

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

Our safety programs emphasize the importance of individuals taking personal responsibility for appropriate safe behavior, with managers taking the lead through their commitment to key safety leadership behaviors.

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 in Germany in March 2017, Malaysia in September 2017 and Tokyo in March 2018.

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 focus site approach which provides additional support and more regular reviews for sites that have more than a defined number of significant injuries.

Safety performance

Safety improvement begins with a focused approach to the prevention of conditions and behaviors which lead to injuries. NSG drives proactive safety by 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 31 March 2018 of 0.30 represents a 6 percent improvement in safety performance compared to FY2017 on a like-for-like basis. This is in line with the Group's Medium-term-Plan, focusing on a year on year improvement.

High-risk activities

We are committed to our high-risk reduction program and the safety tools we have in place. Following a fatal accident in FY2015, all SBUs have implemented improvement plans which include assessing where employees work where there is a risk of falling; identifying areas where the tasks can be eliminated; and completing actions where working at height is required to prevent employees from falling. Finally, we have improved the type of PPE employees wear in particular the requirement to wear helmets with a four-point harness.

We continue to focus on the following high-risk activities, tracking projects related to:

- Vehicle and pedestrian safety
- Machinery safety: guarding, frequent access and isolation
- Contractor control, including permits
- Materials handling: moving glass, load security, grabs, trolleys and pallets
- Driving

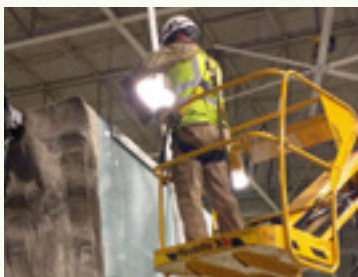
Laurinburg aims to lead the industry in fall protection

Laurinburg has set a new industry safety standard with an innovative fall protection system. The system of safety nets and man-lifts was implemented following a tragic fatality in 2015 when an employee from a trailer deck and struck his head on the concrete floor.

Laurinburg works alongside logistics contractors to brace, secure and tarp up to 300 loads a week to customers. Traditionally, securement was carried out from ladders placed on the trailer decks and employees could work from three to fifteen feet above the floor.

Phase One of the project attached nylon safety nets directly to a flat bed trailer deck, suspended by support posts. Competitors and customers have visited the site to evaluate this revolutionary system for use in their own facilities and the nets have saved five employees in fall incidents since their installation.

Phase Two of the project introduced an articulated man lift and the roll out of appropriate training to further reduce the risk of falling. This has led to a significant reduction in related accidents and has reduced the overall load time by 25 percent.



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 supervisors 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 cross regions and cross 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.

Putting Safety First with NABIS

Following on from the 'Safety Four Ways' Program, it was decided that the safety agenda needed to be elevated to the next level.

NABIS is a plain, simple and bold way of installing a culture of employee safety throughout the Company, with NABIS standing for NSG Anzen Bunka Improvement Scheme (Anzen Bunka is Japanese for safety culture).

NABIS's objective is to improve management's performance in boosting safety issues throughout the Group.

This new program involves making a gap analysis to identify weak areas that need to improve. By doing this, we expect a change in safety culture that will bring about higher compliance to safety rules and a lower injury rate.

NABIS has most recently been rolled out in Poland, Malaysia, Vietnam and India where discussions, workshops and assessments have involved architectural, automotive and EHS managers.

NABIS is due to be implemented throughout the Group's larger plants by **March 18**. The smaller sites and larger functions will work on implementation by the end of FY2020.



NSG Safety Day

The NSG Safety Day took place on 12 October 2017 and continued to be a successful global event. All sites organized health-related activities and employees were given the opportunity to improve their first aid, firefighting and emergency response skills.

Senior managers attended sites to demonstrate their personal commitment and the opportunity was taken to celebrate safety success.

COMMUNITIES

We aim to be a good neighbor, wherever we operate. We have around 27,000 permanent employees, with principal operations in 27 countries throughout Europe, Japan, North and South America, China and South and South East Asia.

We do this in over 200 separate facilities worldwide — some large and some small. Each has an impact on the community in which it is based, by providing employment, investment and other benefits, but also having an impact on the environment.

The local communities throughout the world in which the 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.

Cebrace's Sustainability Activities



As part of its social responsibility Good Deeds, our Cebrace site in Brazil sponsors a baseball project for local children. Cebrace employees have also donated adult and children's clothes to various city projects and sand has been donated for Corpus Christi's community holiday celebration.

VASA plant's family day



Each year, our VASA site in Argentina hosts a Family Day when relatives of employees are invited on site to tour the plant and learn about the glass making process.

The main objective is for the families is to allow the children to experience their parents' place of work.

Girl power event



The fourth annual Girl Power event was held at Toledo's Imagination Station science center and for the fourth year running, NSG's R&D female scientists were there to introduce girls to the wonders and possibilities of glass technology. Girl Power is sponsored by STEMInists, a group dedicated to supporting women in science, technology, engineering and mathematics.



Tree planting at Vizag in India



Vizag is passionate about the environment and proactive in its approach in ensuring a greener tomorrow and cleaner environment for future generations. The team has planted more than 200 trees on its premises and the mission will continue with future generations of employees.

