2016 Environmental Report

Consolidated environmental report
for the Linz and Steyrling locations

Christoph Angermayer, Deputy Head of Environment

voestalpine
ONE STEP AHEAD.

Data, facts and important information on environmental topics

The content of the consolidated 2016 environmental report comply with requirements of the EMAS III Directive and refer to the validated locations in Linz and Steyrling and the respective companies voestalpine Stahl GmbH, voestalpine Grobblech GmbH, voestalpine Giesserei Linz GmbH, voestalpine Steel & Service Center GmbH, voestalpine Standortservice GmbH, Logistik Service GmbH, Cargo Service GmbH and voestalpine Europlatinen GmbH.

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Foreword

"Future-oriented solutions cannot be developed without objective dialog and a broad consensus."

It has been a high priority at voestalpine for many years to foster transparent communications in the field of environmental management. Our openness begins in the company itself, because environmental protection is the responsibility of every employee. Many measures – seemingly small at first sight – have a large effect when taken cumulatively. Our employees' labors have led to our largest technological innovations. Unrestricted acceptance in the world of business is just as important. The basis for this is an objective and fact-based dialog that is completely free of prejudice, based on the figures and shows a clear understanding for fundamental correlations.

This is important for many reasons when viewing environmental management against the backdrop of the steelmaking industry and – more concretely – in the context of our company: Firstly, there is a lot of justified interest on the part of neighbors and the public in the activities we are currently investing in the improvement of our environmental situation with respect to water and air quality and our conservation of raw materials and energy. In addition to a series of other publications, consolidated Environmental Report for 2016 will hopefully answer many of the questions in a verifiable and standardized manner.

Secondly, political initiatives on a European level are pointing the way for energy-intensive industries in the long term. The objective in the European Union of complete decarbonization, which means an economic system entirely free of CO_2 by the middle of this century. The importance and complexity of the decisions required to take this direction have resulted in the necessity to engage in an ongoing, constructive and in-depth dialog with other stakeholders, including scientists, opinion makers such as non-government organizations (NGOs), interest groups, politicians, industry experts and other decision makers.

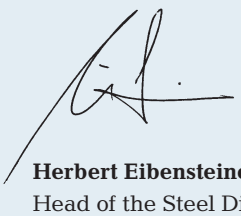
The primary goal is to create a higher level of awareness for the challenges in our industry and more particularly with respect to the special aspects in the economic efficiency, technological sophistication and ecological expertise of our company. This also means that we have to emphasize how the steelmaking industry does not pose a problem in this transition from a carbon-free economy. In reality we are an indispensable part of the solution.

As a universal material, steel plays an essential role as we move toward an emission-free society. This is in addition to the significant part it plays in the economy of a strong and sustainable European materials industry. Here steel builds the foundation for a strong value-added chain. Innovations made of steel are indispensable in our transition to renewable energy and in order to increase energy efficiency in the fields of transportation, mobility and power generation. High-tech materials make it possible to further develop advanced technologies. All of these things require complex and high-performance structures based substantially on steel as a working material. On top of all this, steel is one of the most environmentally compatible materials in the world, whether you focus on its production, fields of application, longevity or practically limitless recyclability. In and of itself, steel is a strong argument for ecological sustainability.

After all, future-oriented solutions cannot be developed without objective dialog and a broad consensus with regard to our challenges. For our transition to a zero-carbon economy, certain conditions must be created in order to make it possible for companies to make necessary changes. The political costs incurred through energy and climate regulations must be minimized, and enormous investements in "Breakthrough" technologies for decarbonization has to be economically feasible. Additional (renewable) energy required primarily in the steelmaking industry as a replacement for fossil energy and raw materials must be available in a sufficient volumes, at affordable costs and the highest level of secure supply.

Creation of comprehensive, integrated and intelligent energy and climate policies will be a core task of the European Union in the near future. The European steelmaking industry, especially voestalpine, has taken its ecological responsibility very seriously. We will continue to work consistently with others in improving our technologies and making progress with regard to environmental issues. We will also continue to report to the public on this progress.

Thank you very much for your interest in our Environmental Report, which we hope will provide you with an informative overview of our company as well as interesting facts and figures.

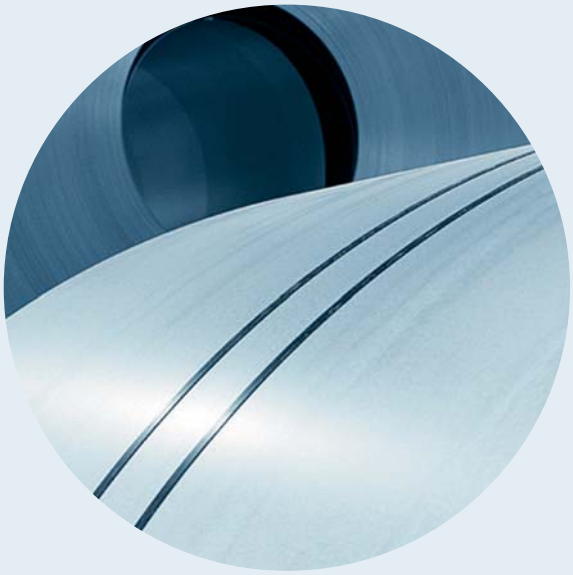


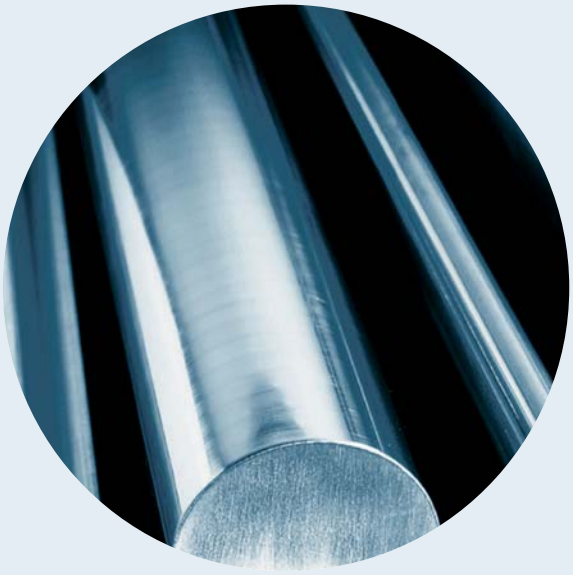
Herbert Eibensteiner
Head of the Steel Division

Overview of the voestalpine Group

voestalpine is a technology and industrial-goods enterprise whose business units boast worldwide leadership in combined material and processing expertise. The globally active enterprise owns roughly 500 Group companies and locations in more than fifty countries on all five continents.

It has been listed on the Vienna Stock Exchange since 1995. With its highest-quality products and systems made of steel and other metals, voestalpine is one of Europe's leading suppliers to the automotive, household-appliance and oil/gas industries worldwide. voestalpine is also the world market leader in switch technology and special rails, tool steel, and special sections. The voestalpine Group achieved a sales volume in the 2015/16 fiscal year of 11.1 billion euros and an operative result (EBITDA) of 1.6 billion euros. The Group employed roughly 48,500 employees. Employees hold 14.5 percent of the corporate shares. The voestalpine Group consists of four divisions, and in their core segments, these divisions are among the leading suppliers in Europe or in the world.





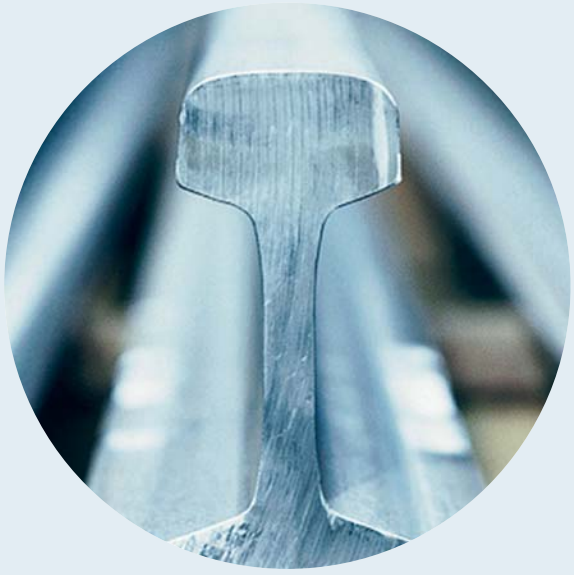
Steel Division

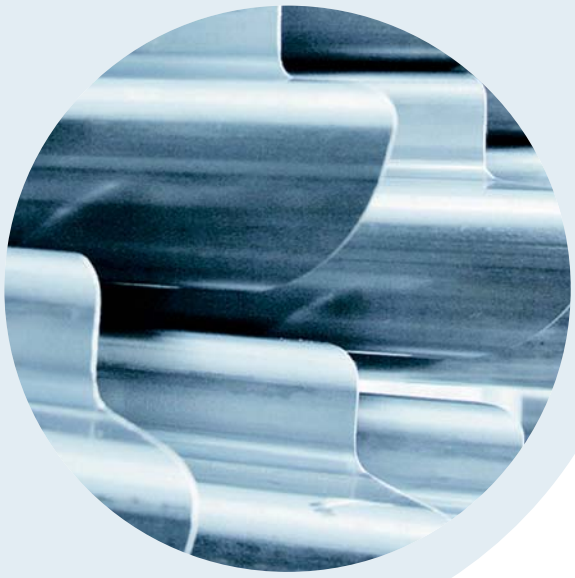
Global quality leadership in highest-quality steel strip and worldwide leadership in heavy plates for sophisticated applications and large turbine housings

Special Steel Division

Worldwide leadership in tool steel; leading position in high-speed steel and special forged parts

In their core segments, the four divisions in the voestalpine Group are among the leading suppliers in Europe or in the world.





Metal Engineering Division

World market leader in railway switch technology; European market leader in rails and processed wire; leading position in seamless tubes for special applications and high-quality filler materials

Metal Forming Division

Leading global provider of high-quality metal processing solutions in the areas of tailored and special sections, precision steel strip as well as special components in the automotive and aviation industries

Company principles

The Steel Division strives toward further expansion and long-term establishment of quality, technology and profit leadership in the European steelmaking industry and has taken the challenge to combine growth and competitiveness with ecological and social responsibility. The integrated management system for quality, safety, the environment and risk makes a valuable contribution to the achievement of these objectives, which is why the management board has adopted the following principles:

Customer orientation	Our customers, not us, define what quality is, and that is what we deliver. We orient our processes to customer needs and thus lay the foundation for sustained customer satisfaction.
Innovation and continuous improvement	We are not satisfied with a performance that is anything less than excellent. Innovation and continual improvement are the prerequisites to the success and added value of our company. Each employee has the task and the challenge to continually make improvements.
Employee development	Competent and motivated employees are the most important force in our company. This is why we require the appropriate knowledge and a keen sense of responsibility from our staff members and cooperation with each other at all levels. We create a modern and attractive place to work, a place where each of our employees can flourish.
Objectives and figures (measurable success)	Initial concrete objectives and effective communication of the same make implementation of our strategy possible. Figures show us whether we are on course or need to take corrective measures.
Risk management	The recognition of opportunities and risks that can either promote or endanger the growth of corporate value is an important management task and thus an integral part of our activities on a corporate level.

Safety and health

The company and the employees are mutually responsible for safety and health. This is why we create safe places to work for all our employees, promote self-responsibility and help employees conscientiously adopt safe and healthy practices both at work and in their leisure time.

Prevention

Accidents at work, health hazards, adverse effects to the environment, quality issues and damage to production systems are avoided through preventive measures. Errors that occur in spite of our every effort are seen as an opportunity to learn. For this reason they are documented, analyzed and corrected.

Suppliers

We foster partnerships based on mutual trust and understanding with our suppliers in order to ensure the highest levels of performance for our customers, whom we include in our development activities.

Environmental protection

Thrift in our consumption of natural resources and various forms of energy and the minimization of harmful effects are beneficial from an ecological perspective as well as in saving costs. We are well aware of our social responsibility and set standards in the field of environmental technology as far as our possibilities allow.

Company and partnerships

The entire voestalpine Group is responsible for our ultimate success. Open communications and long-term partnerships with every interest group are the basis for solutions based on sustainability. The consideration of all concerns from our customers and partners and compliance with legal regulations are an integral part of our strategy.

Striking the right balance between productivity, quality, safety and the environment is our key to remaining “one step ahead.”

Environmental protection
An integral part of corporate philosophy

Company management decided for the first time in 1971 to implement a program with environmental principles and targets and to involve the employees in this effort. The former Environmental Protection and Environmental Technologies department was established in 1985. The department worked continually to raise awareness for environmental issues and to establish a strong environmental management system.

The environmental management system at the Linz site has been certified since 2000 pursuant to ISO 14001 and EMAS. As part of the integrated management system, concrete objectives have been identified, a program has been in place to implement measures and regularly audit progress. Specialized environmental skills and expertise have been made possible only by creating a high level of environmental awareness among the employees throughout the Group.

Environmental
report

Environmental protection truly begins with every individual employee and is thus firmly anchored in the philosophy of the company.

Environmental principles

The conviction that business success, environmental awareness and socially responsible behavior are inseparable from each other has always been a core element of the company philosophy. Sustainable environmental protection and social balance can only exist, however, if they are implemented within an economically feasible framework.

The following environmental principles are understood in the context of individual voestalpine companies who have been faithful to the environmental principles of the World Steel Association.

Holistic responsibility for our products

voestalpine produces and develops products and system solutions in close cooperation with its customers and suppliers, fully taking ecological demands such as long-life, resource preservation and optimum recyclability into account.

Production method optimization

voestalpine runs its facilities in an economically sensible manner using the best available technology to minimize the environmental impact. Efficient use of raw materials and energy is of prime importance to voestalpine.

Establishment of environmental management systems

voestalpine facilitates the development of environmental management systems in its Group companies. The core of these management systems is the observance of environmental obligations and the maintenance of continuous improvement programs.

Employee integration

voestalpine sees environmental protection and continuous improvement as the task of each individual employee at all levels and in all areas of business. Responsible and expert employees ensure the best possible modes of operation of technical facilities and contribute through environmentally aware behavior to continuous improvement.

Open and objective dialog

As the basis for shared and sustainable solutions, voestalpine maintains open and objective dialogs with internal and external interest groups in all issues relevant to the corporate Group's environmental impact. The Group-wide exchange of knowledge between all production sites is particularly encouraged.

voestalpine Steel Division

The voestalpine Steel Division is a strategic partner to Europe's most renowned automobile manufacturers and large automotive suppliers. The Steel Division is also one of the largest suppliers to the European consumer goods and household-appliance industries as well as to the mechanical engineering industry. It also manufactures heavy plates for the energy sector with applications in the oil and gas industry under the most extreme conditions, such as deep-sea pipelines and arctic pipelines. The Steel Division is a world leader in the casting of large turbine housings.

During the 2015/16 fiscal year, the Steel Division achieved a sales volume of 3.8 billion euros, which corresponds to 33% of the Group figure. The Steel Division employs roughly 11,000 staff members.

voestalpine Stahl GmbH

The parent company of the division is voestalpine Stahl GmbH, which operates a fully integrated metallurgical plant with all the process steps, including the coking plant, sintering plant, blast furnaces, steelmaking plant, hot-rolling and cold-rolling mills as well as galvanizing and organic coating lines. Our products include high-quality hot-rolled, cold-rolled, electrogalvanized, hot-dip galvanized and organic-coated steel strip to form the foundation for a wide variety of further processing steps.

Limestone quarrying and preparation at the Steyrling location

Carbonate stone has been mined at Steyrling, Upper Austria, since 1948. Approximately 54% of the limestone is processed into burned lime using shaft furnaces. The most significant customers are the steelmaking facilities in Linz and Donawitz. A smaller share of the fine burned lime is sold to the construction industry, wastewater treatment facilities or the soil fertilizer and chemical industries.

46% of the mined limestone is used as split (unburned lime), primarily in the sintering plant in Linz.

A small portion that is also unburned leaves the works as armor stones, primarily for use in slope reinforcements along waterways.

voestalpine Grobblech GmbH

A company that provides products and solutions to demanding niche markets, voestalpine Grobblech GmbH is a fully owned subsidiary of voestalpine Stahl GmbH and has its headquarters in Linz, Austria.

The company is known throughout the world as a supplier of thermomechanically rolled structural steels for offshore rigs, sour-gas-resistant hot-rolled tube plates and high-strength deep-ocean plates for pipeline construction. As the largest manufacturer in Europe of roll-bonded clad plates and heads, the company supplies shell plates and heads for advanced vessels from a single source. An innovative solution provider in the areas of steel structures and bridge building, voestalpine Grobblech GmbH is also a premium supplier of high-strength and wear-resistant steels for vehicle, crane and mining applications.

With the startup of its new state-of-the-art rolling stand, voestalpine Grobblech GmbH can guarantee the production of high-quality heavy plates for the coming decades.

voestalpine Giesserei Linz GmbH

The parent company, voestalpine Giesserei Linz GmbH, is a fully owned subsidiary of voestalpine Stahl GmbH and employs approximately 450 staff members. The Group operates companies in Austria (Linz and Traisen) and China (Yinchuan and Shanghai)

and has established an international reputation in the production of steel castings, ductile cast iron and non-ferrous metal castings. Its two business units are represented by a steel foundry and a non-ferrous-metal foundry. The steel casting foundry is a world leader in the manufacture of high-quality castings ranging between 10 and 200 tons in unit weight. The castings find their applications predominantly in the energy sector and in mechanical engineering. They are delivered in both rough and machined condition. The non-ferrous-metal foundry delivers high-quality and maintenance-free sliding components (made of brass, copper, aluminum) and self-lubricating compact sliding elements for the automotive industry.

The voestalpine steel casting foundry is a world leader in the manufacture of high-quality castings ranging between 10 and 200 tons in unit weight.

voestalpine Steel & Service Center GmbH

The voestalpine Steel & Service Center Group processes 1.8 million tons of steel each year and is one of the largest steel service centers in Europe. In collaboration with voestalpine Steel Service Center Polska and voestalpine Steel Service Center Romania, the group of companies employs roughly 750 employees and achieves an annual sales volume of approximately one billion euros.

The product mix ranges from slit strip and cut-to-length sheets to tailor-made blanks for the automotive industry, cut shapes for the mechanical engineering industry as well as finished parts and components for the commercial vehicle industry. As part of an integrated steel works of the Steel Division, we supply products of the highest voestalpine quality.

The voestalpine Steel & Service Center Group is one of the largest steel service centers in Europe.

voestalpine Standortservice GmbH

A fully owned subsidiary of voestalpine Stahl GmbH, voestalpine Standortservice GmbH has been active since 2011 as an infrastructure service provider for the Steel Division and third-party companies at the Linz site. Company services include facility management, realty and traffic management, safety and vocational health as well as commercial processes and systems.

Works fire department

The works fire department is responsible for fire protection at the Linz site. In addition to firefighting and active prevention of hazards (technical operations), the works fire department is an expert contact for issues regarding holistic fire protection and preventive measures.

Works security

The services of works security of voestalpine Standortservice GmbH range from consultation focusing on security issues, planning, alarm systems, creation of safety and security strategies and daily activities in securing the works premises. State-of-the-art security services are guaranteed by highly qualified personnel, personal dedication, continuous education and training of our employees as well as by effective cooperation with internal and external blue-light organizations.

From building management to commercial processes to medical issues and safety, a broad range of services are managed as part of the Linz site infrastructure.

Logistik Service GmbH

Logistik Service GmbH (LogServ) was established in 2001 as an affiliated company of voestalpine Stahl GmbH. The company is a full-service provider for industrial logistics and offers innovative solutions tailored to specific needs and company processes. Customers are primarily at home in metal production and processing, construction and processing industries, mechanical engineering and plant building and the automotive and automotive supply industries.

In the railway sector, Logistik Service GmbH serves operators of plant and connecting railroads, private railway traffic companies and private freight car rental companies. At the voestalpine site in Linz, LogServ operates Austria's largest railway feeder line and its own Danube river port with efficient unloading facilities.

The range of services in the field of industrial logistics includes the following:

- Supply-chain management (execution of all processes in the entire logistics chain): logistics outsourcing, logistics consultation, contract logistics
- Customs services
- Planning, coordination and management of European inland transportation
- Fleet management services for all means of transport
- Workshop for heavy and special vehicles
- Rolling stock workshop
- Railway infrastructure (railway and safety systems, engineering department)
- In-house logistics (railway, roadway, river port)
- Company railway transports (CargoServ)
- LogServ railway academy

Excellent LED technology

Conversion of the railway track lighting systems to modern LED technology has resulted in both increased employee safety and big energy savings. Managing directors Markus Schinko (r.) and Johannes Mayrhofer (l.) accepted the "klimaaktiv" prize in December from Andrä Rupprechter, Austrian Minister of the Environment.

Cargo Service GmbH

Cargo Service GmbH was established in 2001 as a wholly owned company of Logistik Service GmbH. The company is established in the European railway network and offers as a private player alternative strategies for block train freight transportation in the public railway network.

Railway and other services are performed for customers outside the Group in the field of freight logistics. The company is also developing new process-optimized strategies for international transport as part of a comprehensive logistics network.

As a private rail transport company with a high level of expertise, CargoServ offers a comprehensive range of services.

- Planning and execution of rail freight transports (electric and diesel traction services, cross-border transports in cooperation with other partners, transports of hazardous goods, block train freight transports, transports of car groups)
- Provision of personnel for the ÖBB line network, e.g. locomotive operators, train operators, railcar technicians, shunting personnel
- Railway management and operations on secondary and feeder lines

The strategy of ecologically operating locomotives has made it possible to sustainably reduce energy consumption at CargoServ by roughly 35 MWh/year.

voestalpine Europlatinen GmbH [1)]

Laser-welded blanks allow creative solutions for more security and less weight in the automobile. As a 100% subsidiary of the Metal Forming Division, voestalpine Europlatinen has been providing innovative components in large-scale serial production since 1997 to renowned automobile manufacturers.

The services of voestalpine Europlatinen include development, optimization and quality-controlled production of laser-welded blanks with linear, semi-linear and non-linear weld seams for applications in the automotive industry.

The main product of voestalpine Europlatinen GmbH is the laser-welded blank that is produced through layer-joining two or more sheets of differing thicknesses, material strengths or with different coatings. Blanks are important preliminary products for pressed parts used in the car bodies. This range of tailor-made products, referred to in the international market as tailor-welded blanks, makes significant contributions with respect to improved cost efficiency, weight reduction, environmental stability and functional optimization in the field of automotive body parts.

[1)] Company name changed on 1 Oct. 2016 to voestalpine Automotive Components Linz GmbH

voestalpine Europlatinen is dedicated to the principles of ICC Charta for sustainable development.

Environmental policies of voestalpine Europlatinen GmbH

voestalpine Europlatinen GmbH, a company in the Metal Forming Division, is dedicated to the environmental regulations of the voestalpine Group as well as the Charta for long-term and sustainable development as set forth by the International Chamber of Commerce (ICC).

voestalpine Europlatinen GmbH has adopted the following company policies and objectives in its efforts to continually improve operations and to protect the environment in its production facilities. We use the best available and the most economically feasible technologies to reduce environmental impact. It goes without saying that the company is pleased to comply with every applicable legal environmental regulation.

- We deem environmental protection to be an important responsibility of company management.
- We operate an environmental management system for the implementation of our concrete environmental activities.
- The structure of our environmental management system complies with the specifications of ISO 14001 and EMAS.
- We promote knowledge and a keen sense of responsibility in our staff members and cooperation with each other at all levels.
- We use raw materials and energy as sparingly as possible.
- We avoid and reduce environmental impact as far as possible in our production processes and activities.
- We have an open and matter-of-fact dialog with our customers, governmental officials, neighbors and the interested public.
- Material and thermal recycling activities are given the highest priority.
- In our product development activities we reduce the environmental impact of our production phase by saving weight, reducing fuel consumption and improving material usage.

The executive management of voestalpine Europlatinen GmbH is fully dedicated to these principles.

Current environment-related issues

Energy and climate policies

The long-term establishment of a framework for environmental and energy issues, particularly in European Union, and thus the related effects on industry are at the heart of strategic environmental management systems. The far-reaching decisions on a global, and more particularly European, level are emphasized independently of further ecological improvements in process and production technologies as well as in the materials themselves.

In the interest of a zero-carbon economy by the middle of the century, the political guidelines of the EU Energy Union are to be made more concrete and legislative action taken by 2017. This package for a zero-carbon economy includes networked consideration of important energy and climate aspects and builds the foundation for the desired turnaround in energy policies and a transformational process of the manufacturing industries. Against this backdrop, the steelmaking industry is confronted with several challenges because CO_2 emissions result from the use of fossil-based raw materials and energy resources in the industry's production operations.

The first challenge is constituted by the emission trading system that only exists in this form in the European Union and has the objective of levying as high a price as possible for greenhouse gas emissions. The second challenge is decarbonization through the implementation of new production technologies that should be based exclusively on renewable energies. This will require an enormous volume of additional energy that must be reliably supplied at economically feasible prices. From the perspective of national interests, this likely poses the largest challenge of all for the Energy Union. In this light, a reform of the emission trading system is being prepared for the time period between 2021 and 2030.

The objective from an industrial perspective is primarily in order to avoid site relocations (carbon leakage) as a result of further unjust cost burdens aimed especially at the best performing production systems. It remains to be seen to which extent the clear specifications of the council in March and October 2014 will be taken into consideration.

On a worldwide scale, the Paris Climate Agreement of 2015 focuses on the next measures to be taken. In the short term we will not know whether a uniform and fair climate-protection framework that is binding for all regions can be created until we have made further developments and taken more concrete decisions.

These decisions will lay the foundation for further long-term technological investment decisions for individual locations. Energy and climate policies also have an effect on important customer sectors such as energy and mobility as well as on strategic areas such as raw materials, energy procurement, innovations and many others. These issues as seen from our Group as well as from a holistic perspective and the options and risks resulting from these issues are essentially important to voestalpine.

Overview of energy and climate policies

Lifecycle assessment (LCA)

The ecological assessment of materials along the entire process and supply chain, referred to as lifecycle assessment (LCA), is gaining significance in both customer relationships and lawmaking.

Buzz words include efficiency of resources, recycling management and eco-balance. As comprehensive a view as possible of environmental effects is quickly becoming the focus of politicians and is demanded in practical applications along the entire supply chain. The products are not evaluated as such, but rather their lifecycles are assessed, including their manufacturing processes, raw materials and prematerials used in their production, their recyclability, etc. Further specific methods of LCA are implemented to compare scenarios (consequential LCAs).

From the perspective of voestalpine, this is an important methodic tool that can identify the advantages of steel as a working material as opposed to other materials on a factual basis. On a Group-wide basis, several intensive projects are being carried out in collaboration with strategic customers, e.g. in the automotive and construction industries.

A solid basis, however, must be established to ensure that the LCA concept is given the stress it needs as an objective and powerful tool of assessment. This is one of the reasons that the many laws, standards and regulations must be standardized, harmonized and improved to a great degree, not only with respect to individual applications and industries, but also with regard to cross-industry issues on both a European and international level. The creation of a legal basis in addition to concrete operative projects is essential to the voestalpine Group with respect to recycling in the European Union and industry-based implementation of lifecycle strategies.

It is very important to provide a high level of objectiveness and depth with regard to lifecycle assessment because of the potential found from an environmental perspective in our products and processes. It is essential that we support further optimization and innovation.

An overall assessment of the situation is a very complex undertaking, including from an in-house perspective. It will require the involvement of a number of different departments and a coordinated effort on the part of every expert in our individual departments, divisions and Group companies. Both from the perspective of steel as a working material and of voestalpine as an industry player, lifecylce assessment poses a great opportunity for competitive growth.

Overview of production processes

Coking plant

Mixtures of special coals with low sulfur content are superheated in the hermetically sealed coking chambers of the coking plant to temperatures above 1260°C. The remaining pure coke is pushed out of the chamber and quenched with water. The volatile constituents of the coal are cleaned and then use in the metallurgical facility as a fuel gas. Products derived from the coke-gas cleaning process are benzene, sulfuric acid and tar, all of which are used in the chemical industry.

Sintering plant

The sintering plant produces an iron-containing burdening material called sinter that is charged to the blast furnaces. Limestone split in the sintering plant serve as a basic additive to neutralize the ores. Two environmental systems have been integrated here into the process: The MEROS (maximized emission reduction of sintering) system is an innovative technology for the dry cleaning of sinter offgases that are reclaimed downstream from the DeNO$_x$ line in the interest of reducing nitrous oxide emissions.

Blast furnace

Operations in the blast furnaces (BF) create hot metal that forms the basis for steelmaking. The Linz site relies on BF A, 5 and 6 for the production of hot metal.

Steelmaking plant

Following deep desulfurization of the hot metal, it is used to make crude steel in the LD converter (basic oxygen steelmaking process). Magnesium-containing lump lime is added to bind impurities and turn the crude steel into steel. Secondary metallurgy is the step in which the steel is analyzed and the temperature adjusted for casting. Slab casting is the process in which the liquid steel formed in the continuous caster into a strand that is cut into slabs.

Hot-rolling mill

In the pusher-type furnace and the walking beam furnace, the slabs are heated to approximately 1200°C. The slabs are rolled in the so-called hot-rolling mill and wound into coils while still in warm condition.

Cold-rolling mill

The width of the steel strip is further reduced in the cold-rolling mill in two process steps, pickling and rolling. After the steel strips are pickled, they are rolled to a thickness accuracy of up to one hundredth of a millimeter. In this process, the material remains extremely compression-resistant and is characterized by high tensile strength.

Hot-dip galvanizing

Cold-rolled, non-annealed strip is first cleaned in a continuous process in the hot-dip galvanizing lines and is then annealed and immersed in a liquid zinc bath to coat it on both sides. This zinc coating protects the cold strip from corrosion and is often gauged to a thickness in a range of thousandths of a millimeter. Surface treatment and passivation are the concluding processes in the hot-dip galvanizing line. Preheating and annealing furnaces are equipped with Low-NO$_x$ burners in order to minimize emissions.

Electrogalvanizing

By employing high currents from an electrolyte solution, the zinc layer is achieved by means of a different technology as that used in hot-dip galvanizing. This electrolytic galvanizing method achieves very low coating thickness values on both sides.

Organic coating

The coating layers are applied in the strip coating lines by means of pick-up rolls that apply the paint from the paint troughs. A comprehensive spectrum of products is produced that is characterized by permanent corrosion protection, unchanged strip thickness and high levels of formability.

Materials center

The materials center is the competence center for the treatment and sale of metallurgical by-products, e.g. iron oxide and iron sulfate. After being treated in the materials center, recycled materials can be returned to the production processes in the interest of conserving resources.

Power plant/electric power supply

Process gases from the blast furnace, coking plant and converters serve as sources of energy for various heat treating furnaces in the steel works and as fuel gases in electrical power generation in the integrated metallurgical facility. The power plant supplies facilities on the works premises with steam, utility, cooling and feed water. The energy requirements at the Linz site are met autonomously for the most part, thus securing economic and ecological recycling of the process gases and heat energy.

Example of important environmental measures

Hot-rolling mill

The first part of the project for the substitution of natural gas with coke-oven gas in the pusher-type furnaces has already been successfully completed.

Surface treatment

All wastewater from the strip processing lines has been cleaned since 2016 in the wastewater cleaning facility at HDGL 5.

Blast furnace

Fugitive dust emissions have been reduced by introducing of a new conveying technology in the burdening systems of the smaller blast furnace group.

Sintering plant

The world's first continuous mercury measurement system in a sintering plant was started up in April 2014.

Overview of measures taken at the Linz site which have further improved the high ecological standards of voestalpine.

Continuous casters

The fugitive dust emitted when the tundishes in the continuous casters are tipped have been collected and cleaned in a filtering system since 2016.

Steelmaking plant

Further optimization in the collection of dust emissions in the steelmaking plant was introduced at the beginning of 2016 with Secondary Dedusting System 3.1.

Power station

The steam and wastewater reclamation system has made it possible to eliminate several water collection points with direct discharge into the Danube.

Coking plant

Remediation of the coking plant in Linz is continuing according to schedule.

Photograph: voestalpine Stahlwelt GmbH

Implemented environmental measures

Excerpt of environmental measures implemented in the 2015/16 fiscal year

Essential environmental measures that have made a significant contribution to environmental performance are integral constituents of the environmental programs of companies included in the scope. The following tables indicate measures already implemented in previous programs and document the objectives newly defined in the current 2016/17 environmental program. Further individual measures have been developed and implemented in the respective companies.

Company	Target	Measure	Figure	Deadline
voestalpine Steel & Service Center GmbH	Reduced scrap volume	Optimized half-shell offset; measurement and installation of die set cooling	Scrap volume reduced by roughly 2/3, corresponding to approx. 70 tons of scrap/year	30 Sep. 2015
voestalpine Europlatinen GmbH	Laser exchange on welding line 3A: Optimization of energy efficiency	Replacement of existing 8 kW CO_2 laser with a 6 kW direct diode-pumped solid-state laser	Reduced electricity consumption by approx. 260 MWh/year and reduction of CO_2 emissions by roughly 96 tons/year	31 Oct. 2015
voestalpine Stahl GmbH	Minimized reduction agent consumption and reduced CO_2 emissions in iron production	Optimization of burden distribution during charging of blast furnaces	Annual reduction of 24,000 tons of reducing agents and 72,000 tons of CO_2 emissions per year	31 Dec. 2015
voestalpine Grobblech GmbH	Reduction of energy consumption in soaking pits	Control optimization for soaking pits	Reduction of roughly 460 MWh/a of coke-oven gas	31 Dec. 2015
voestalpine Standortservice GmbH	Works fire department: reduced harmful emissions from equipment	Replacement procurement: power generators, abrasive cutoff machines and submersible pumps	Pollutant emissions reduced by approximately 50%	1 Feb. 2016
Steyrling location	Fuel consumption reduced in mining operations	Procurement of tippers to be used increasingly for material transport in mining operations instead of front-end loaders	Reduction of fuel consumption from 26 liters/hour (front-end loaders) to 10 liters/hour (tippers)	31 Mar. 2016
voestalpine Giesserei Linz GmbH	Plant optimization and increased resource efficiency	One of the optimizations of sand processing plant is the regular exchange of sinter plates in the two fluidized beds	Roughly 30% savings in the specific purchased volume of new chromite sand as compared to the 2015 FY	31 Mar. 2016
Logistik Service GmbH	Reduced consumption of diesel fuel on the works railway	Purchase of two new diesel locomotives with start/stop technology	Diesel consumption savings of roughly 15% amounts to a reduction of approximately 2 liters/hour, or 16,000 liters of diesel savings per locomotive and year	31 Mar. 2016
Logistik Service GmbH	Reduced diesel consumption	Equipment of the street vehicles with start-stop technology	Savings of approx. 15,000 liters diesel per year	31 Mar. 2016
Cargo Service GmbH	Reduced energy consumption	New strategy for more ecological operation of engines during railway transport Change of ÖBB timetable to accommodate 90 km/h instead of 100 km/h	Reduced power consumption by 30 MWh/year	31 Mar. 2016

2016/17 environmental program

Company	Target	Measure	Figure	Deadline	Status
voestalpine Stahl GmbH	Coking plant: SVE: Reduction of BTEX content in future excavated material	Remediation of Linz coking plant 076 in Linz, stage 1: Extraction of BTEX from the contaminated underground air phase in the unsaturated zone (soil extraction)	Reduction of BTEX in the contaminated soil to below 50 mg/m³	31 Dec. 2022	Being implemented
voestalpine Stahl GmbH	Minimization of (environmental) effects in the event of flooding	Optimization of flood protection	Flood protection increased to roughly HW 1000	31 Dec. 2020	
Logistik Service GmbH	Reduced electricity consumption	Convert lighting system to LED technology Operations-based switching and dimming of lighting	Savings of roughly 2,000 MWh/year	31 Dec. 2017	
voestalpine Stahl GmbH	Reduced sodium hydroxide consumption while maintaining the same level of coking plant emissions	Optimized parameters in stripping-column dosing	Sodium hydroxide consumption reduced by roughly 200 tons/year	31 May 2016	New measure
voestalpine Stahl GmbH	Dust reduction in burdening system of Blast Furnace 6	Installation of a new conveying system (drainage runs, weighing hoppers, conveyor belts) as well as structural measures in the area of the hoppers	Reduction of roughly 300–400 kg/year of fugitive dust emissions	30 Sep. 2016	
voestalpine Stahl GmbH	R&D project to increase recycling of steelmaking slag	Testing and creation of a strategy to identify further steps	Strategy for reclamation of metal fraction and Cr-reduced mineral fraction in metallurgical slag	31 Mar. 2017	
voestalpine Stahl GmbH	Reduction of hydrocarbon emissions in the coal pulverization and and drying system of the PCI-plant	Installation of a post-combustion system in the coal pulverization and drying system of the PCI-plant	Hydrocarbon emissions reduced to below roughly 50 mg/Nm³	31 Dec. 2017	
Steyrling location	Reduction of fines in burned lime	Installation of sifters for loading lump lime on railcars for the steelmaking plant in Linz	Reduction of roughly 4000 tons/year of burned lime fines (< 2 mm)	31 Mar. 2017	
voestalpine Grobblech GmbH	Simplification and optimization of packaging for clad plates	Replacement of packaging paper with polyethylene-coated paper, reduction of packing wood and films, supply of large orders with kraft paper covers	Reduction of packing materials by approx. 64%	30 Sep. 2016	
voestalpine Giesserei Linz GmbH	Plant optimization and increased resource efficiency	Sand treatment facility optimized by replacing magnetic cutters with magnetic drums	Further increase of cutting performance by roughly 100 kg/h (savings through purchase of chromite sand)	31 Mar. 2017	
Logistik Service GmbH	Reduced consumption of diesel fuel on the works railway	Purchase of two new diesel locomotives with start/stop technology (903.07, 903.08)	Diesel consumption savings of roughly 15% amounts to a reduction of approximately 2 liters/hour, or 16,000 liters of diesel savings per locomotive and year	31 Mar. 2017	
Cargo Service GmbH	Reduced energy consumption	New strategy for more ecological operation of engines during railway transport. The scheduled speed of trains in which change was possible was reduced from 100 to 90 km/h.	Reduced power consumption by 35 MWh/year	31 Mar. 2017	
voestalpine Steel & Service Center GmbH	Number of unscheduled truck transports reduced in pre-material supply to SSC subsidiary in Romania	Avoidance of truck transports through improvements in production logistics	Unscheduled truck transports reduced by roughly 50%	31 Mar. 2018	
voestalpine Standortservice GmbH	Works fire department: reduced harmful emissions from equipment	Procurement of spares: three chain saws	Pollutant emissions reduced by 25–30%	31 Mar. 2017	
voestalpine Europlatinen GmbH	LED lighting in production facility 1	Conversion of lighting system in the buildings from mercury vapor to LED lighting	Electricity consumption reduced by approx. 798 MWh/year	31 Dec. 2016	

Production and energy figures

Linz location

Production volume

	Unit	2014 CY	2015 CY
Crude steel (CS)	in million tons	5.63	5.40

Products

	Unit	2014 CY	2015 CY
Hot-rolled strip (non-slit)	in million tons	1.1	1.1
Cold-rolled strip and electrical steel		1.0	1.0
Galvanized strip		2.2	2.2
Organic-coated strip		0.2	0.2
Heavy plates		0.7	0.7
Blast furnace slag		1.1	1.2
Cast parts	t	7,987	8,906
Laser-welded blanks		108,300	117,890
Cut shapes and shear-cut sheets		1,739,155 [1]	1,808,480

Energy

	Unit	2014 CY	2015 CY
Natural gas	TWh	4.2 [1]	3.0
Heavy oil [2]	in million tons	0.114	0.023
Electric power (outside source)	TWh	0.49	0.40

Steyrling location

Products

	Unit	2014 CY	2015 CY
Burned lime (BL)	in million tons	0.386	0.381
Armor stones		0.009	0.006
Limestone split (non-burned)		0.482	0.508

Energy

	Unit	2014 CY	2015 CY
Natural gas	GWh	367	370
Electric power		16	17

[1] Values updated
[2] Used as reducing agent in blast furnace

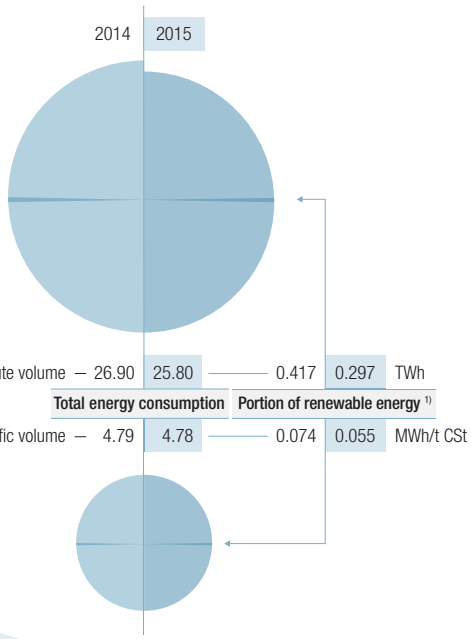
The following figures show the relevant environmental parameters for the companies included in this Environmental Report.

Core indicators

Linz location

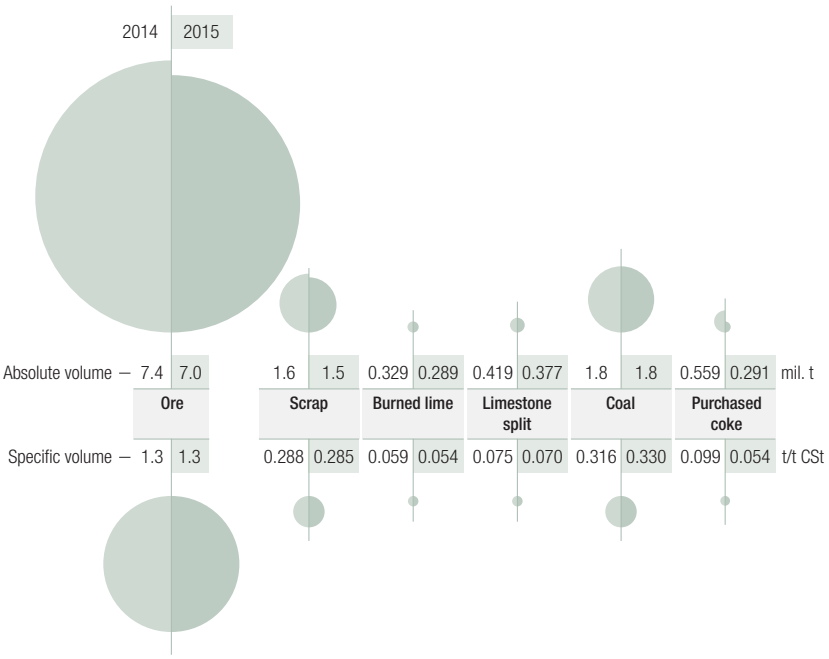
Energy efficiency

t CSt = ton of crude steel



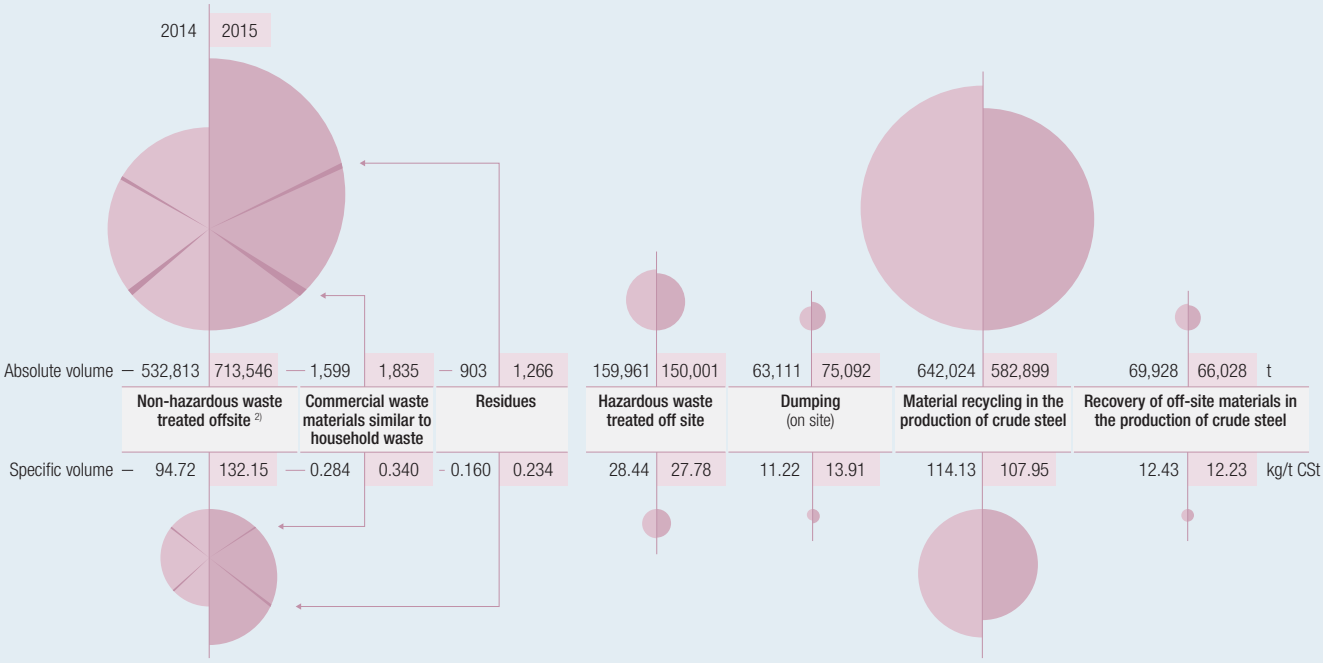
	2014	2015		2014	2015	
Absolute volume	26.90	25.80	Total energy consumption	0.417	0.297	TWh
Specific volume	4.79	4.78	Portion of renewable energy [1]	0.074	0.055	MWh/t CSt

Material efficiency



	2014	2015		2014	2015	
Absolute volume	7.4	7.0	Ore	1.6	1.5	Scrap
Specific volume	1.3	1.3		0.288	0.285	
	0.329	0.289	Burned lime	0.059	0.054	
	0.419	0.377	Limestone split	0.075	0.070	
	1.8	1.8	Coal	0.316	0.330	
	0.559	0.291	Purchased coke	0.099	0.054	mil. t / t/t CSt

Waste management



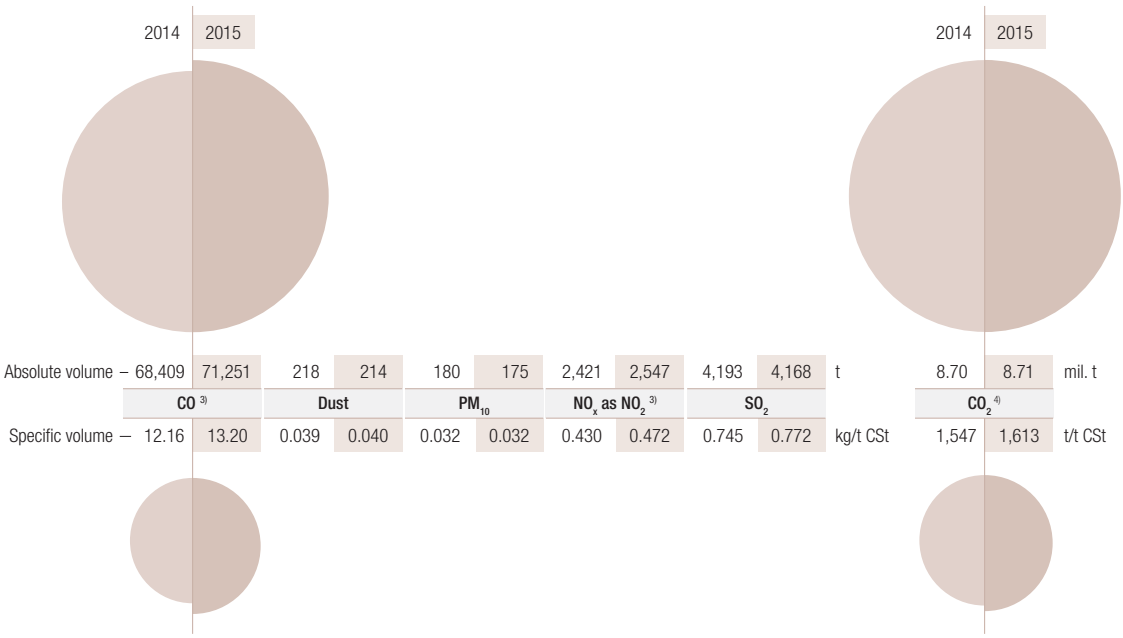
	2014	2015		2014	2015		2014	2015		2014	2015		2014	2015	
Absolute volume	532,813	713,546	Non-hazardous waste treated offsite [2]	1,599	1,835	Commercial waste materials similar to household waste	903	1,266	Residues	159,961	150,001	Hazardous waste treated off site	63,111	75,092	Dumping (on site)	642,024	582,899	Material recycling in the production of crude steel	69,928	66,028	t
Specific volume	94.72	132.15		0.284	0.340		0.160	0.234		28.44	27.78		11.22	13.91		114.13	107.95		12.43	12.23	kg/t CSt

[1] Increased proportion of renewable energies with respect to electricity labeling from purchased third-party electricity This reflects the following for the 2015 calendar year: water power (57.12%), solid biomass (3.68%), liquid biomass (0.01%), biogas (1.06%), wind energy (9.12%), photovoltaic power (1.23%), waste containing a high percentage of biogenic materials (1.00%), landfill gas (0.03%), sewage gas (0.01%) and geothermal energy (< 0.01%).

[2] Increase because the LD slag accumulated in crude steel production has been classified as non-hazardous waste.

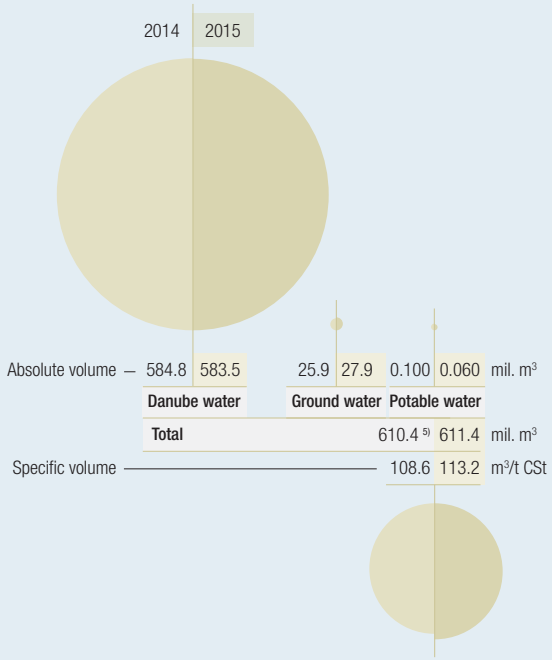
The core indicators refer to total annual crude steel production. In the 2015 calendar year, the value was 5.4 million tons. In 2014 it was 5.63 million tons.

Emissions



		CO [3]		Dust		PM_{10}		NO_x as NO_2 [3]		SO_2			CO_2 [4]		
Absolute volume	–	68,409	71,251	218	214	180	175	2,421	2,547	4,193	4,168	t	8.70	8.71	mil. t
Specific volume	–	12.16	13.20	0.039	0.040	0.032	0.032	0.430	0.472	0.745	0.772	kg/t CSt	1,547	1,613	t/t CSt

Water systems



		Danube water		Ground water		Potable water		
Absolute volume	–	584.8	583.5	25.9	27.9	0.100	0.060	mil. m^3
Total						610.4 [5]	611.4	mil. m^3
Specific volume						108.6	113.2	m^3/t CSt

Biological diversity [6]

Total site surface area: 5,040,019 m^2

Other greenhouse gases such as methane and fluorochlorohydrocarbons (FCHC) are emitted in only small amounts (roughly 75 tons of methane and 72 kg of FCHC).

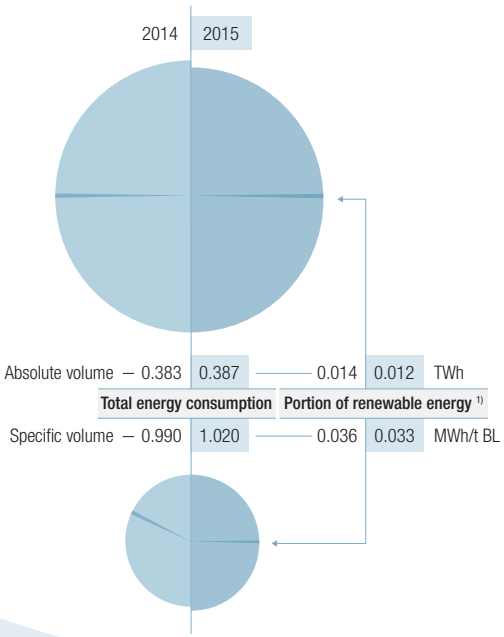
[3] Process-related measure of variation
[4] From Emission Certificate Act (ECA) monitoring (ETS-monitoring)
[5] Values have been updated.
[6] The core biological diversity indicator refers to the surface of the works premises at the Linz location as registered in the land registry in December 2015.

Core indicators

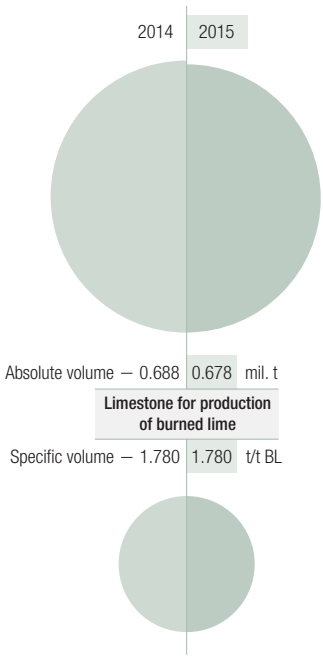
Steyrling location

Energy efficiency

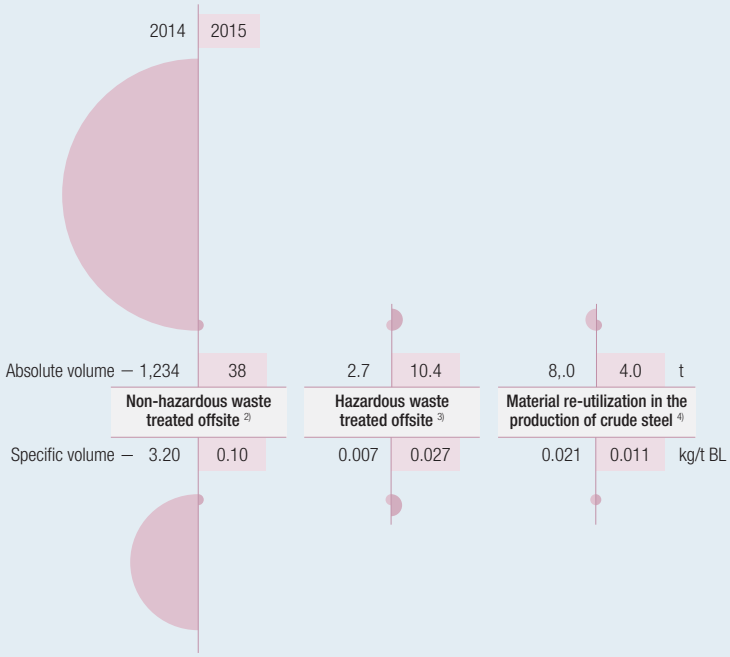
t BL = ton of burned lime



Material efficiency



Waste management



1) Increased proportion of renewable energies with respect to electricity labeling from purchased third-party electricity This reflects the following for the 2015 calendar year: water power (57.12%), solid biomass (3.68%), liquid biomass (0.01%), biogas (1.06%), wind energy (9.12%), photovoltaic power (1.23%), waste containing a high percentage of biogenic materials (1.00%), landfill gas (0.03%), sewage gas (0.01%) and geothermal energy (< 0.01%).

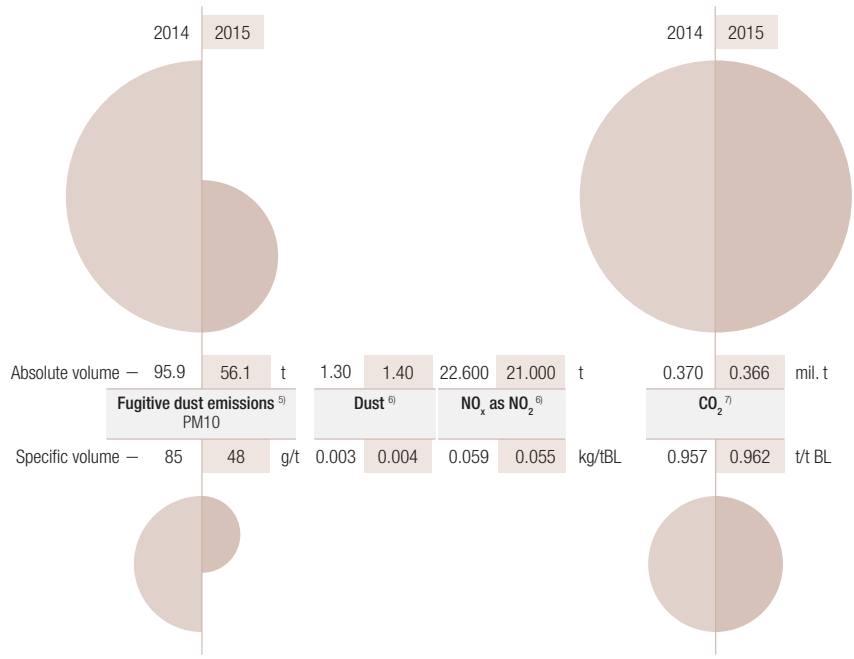
2) Exceptional volume resulting from concrete demolition in the 2014 calendar year (new construction)

3) Process-related measure of variation

4) Materials recycling at the Linz site

The core indicators refer to total annual burned lime production. In the 2015 calendar year, the value was 0.38 million tons. In 2014 it was 0.39 million tons.

Emissions



Biological diversity [8]

Total site surface area: 1,503,837 m²

[5] Savings achieved by switching from a wall mining system to a disc mining system with new shaft conveying system
[6] Emissions from lime furnaces
[7] From Emission Certificate Act (ECA) monitoring (ETS-monitoring)
[8] The core biological diversity indicator refers to the surface of the works premises at the Steyrling location as registered in the land registry in December 2015.

Environmental highlights

Clean air

Implementing state-of-the-art technologies takes a high priority at the Linz location in order to avoid or reduce emissions.

More than 70% of the emissions are continuously measured and are transmitted online to the local environmental authorities. The remaining emissions are assessed in compliance with official requirements in prescribed intervals.

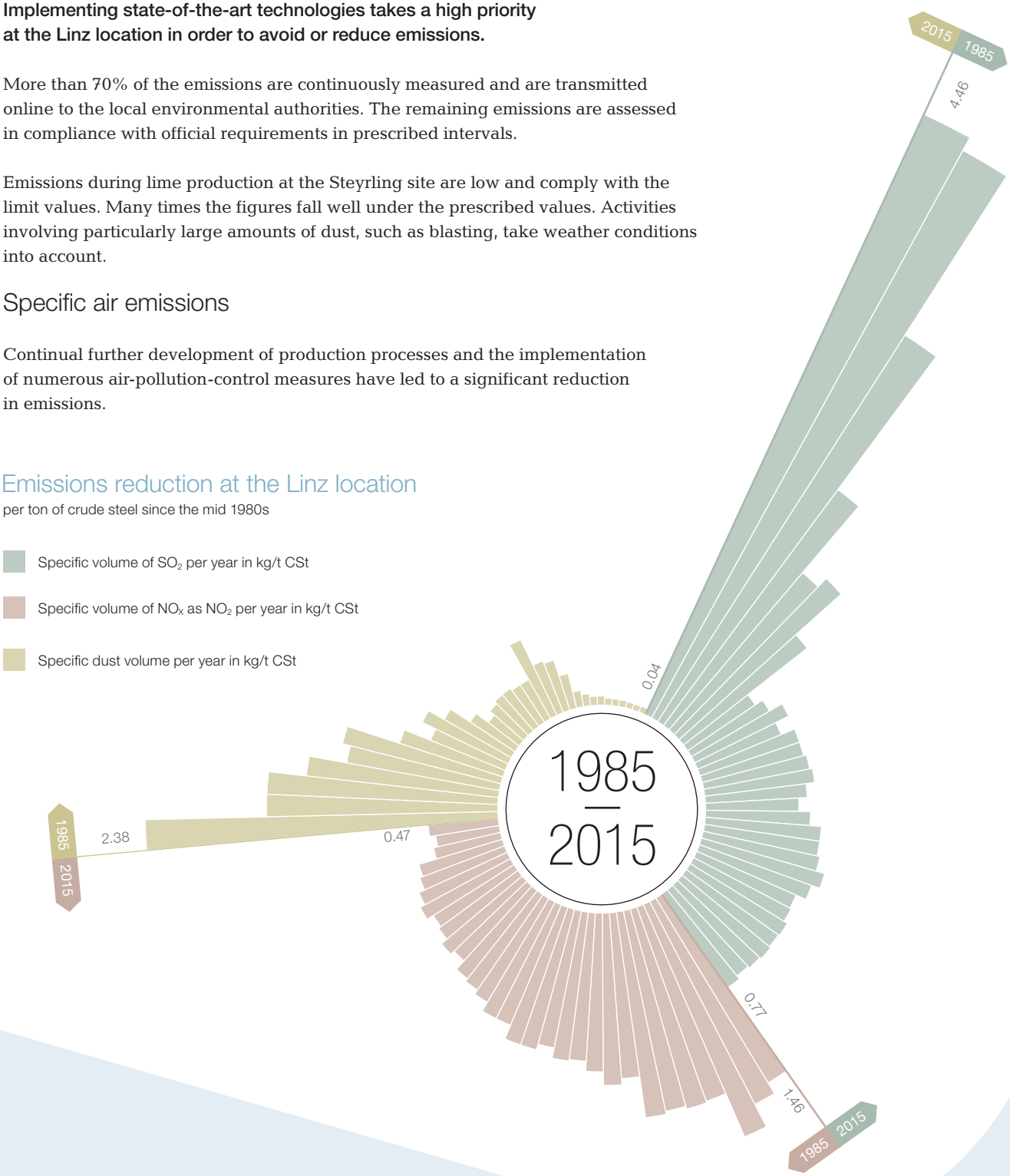
Emissions during lime production at the Steyrling site are low and comply with the limit values. Many times the figures fall well under the prescribed values. Activities involving particularly large amounts of dust, such as blasting, take weather conditions into account.

Specific air emissions

Continual further development of production processes and the implementation of numerous air-pollution-control measures have led to a significant reduction in emissions.

Emissions reduction at the Linz location

per ton of crude steel since the mid 1980s



NO_x as NO_2

Plant		Half-hour-average value (mg/m_n^3)	Measured annual average value (mg/m_n^3)	
		Limit value	2014 CY	2015 CY
Power station	Block 06	100	85	75
	Block 03	100	52	66
	Block 04	100	31	46
	Block 05	100	46	60
	Block 07	100	41	40
	Gas and steam turbine	33	25	25
Blast furnace blower station	Central blower station 2, boiler 1	100	6	6
	Central blower station 2, boiler 2	100	8	14
Hot-rolling mill	Pusher-type furnace 06	430	176	170
	Pusher-type furnace 07	430	189	190
	Walking-beam furnace 1	[1]	126	116
Sintering plant	Sinter belt 5	150	97	96
Cold-rolling mill	Hot-dip galvanizing line III	250	130	129
	Hot-dip galvanizing line IV	250	118	113
	Hot-dip galvanizing line V	250	90	77
Heavy plates	Pusher-type furnace 1	500	398	346
	Pusher-type furnace 2	[1]	193	188

SO_2

Plant		Half-hour-average value (mg/m_n^3)	Measured annual average value (mg/m_n^3)	
		Limit value	2014 CY	2015 CY
Power station	Block 06	200	90	83
	Block 03	200	121	113
	Block 04	200	127	125
	Block 05	200	117	115
	Block 07	200	119	118
	Gas and steam turbine	67	35	35
Blast furnace	Casting bay dedusting (BF A)	350	109	119
LD steelmaking plant	Secondary dedusting 1	101.5 [2]	30	26
Hot-rolling mill	Pusher-type furnace 06	200	48	52
	Pusher-type furnace 07	200	51	56
Coking plant	Sulfuric acid and gas cleaning system	1000 [3]	319	380
Sintering plant	Sinter belt 5	350	309	298
Heavy plates	Pusher-type furnace 1	200	101	115

All emission sources are continuously monitored. The data are referenced each individual calendar year.

[1] The limit value is defined in the course of the acceptance test.

[2] SO_2 limit values in kg/h.

[3] There is also a fraction limit value of 150 kg SO_2/day under normal operating conditions.

CO

Plant		Half-hour-average value (mg/m_n^3)	Measured annual average value (mg/m_n^3)	
		Limit value	2014 CY	2015 CY
Power station	Block 03	100	0.1	0.5
	Block 04	80	5	0.8
	Block 05	80	5	0.7
	Block 07	80	1	0.6
	Gas and steam turbine	33	1.1	1.0
Blast furnace	Central blower station 2, boiler 1	80	0.2	0.2
	Central blower station 2, boiler 2	80	0	0
Coil coating line	Strip coating line 1	100	6	3
	Coil Coating Line 2	100	12	8

Total C

Plant		Half-hour-average value (mg/m_n^3)	Measured annual average value (mg/m_n^3)	
		Limit value	2014 CY	2015 CY
Coil coating line	Strip coating line 1	30	5	3
	Coil Coating Line 2	30	4	4

H_2S

Plant		Half-hour-average value (mg/m_n^3)	Measured annual average value (mg/m_n^3)	
		Limit value	2014 CY	2015 CY
Coking plant		500 [1]	220	257

HF

Plant		Half-hour-average value (mg/m_n^3)	Measured annual average value (mg/m_n^3)	
		Limit value	2014 CY	2015 CY
Sintering plant	Sinter belt 5	3	0.9	0.8

Hg

Plant		Half-hour-average value (mg/m_n^3)	Measured annual average value (mg/m_n^3)	
		Limit value	2014 CY	2015 CY
Sintering plant	Sinter belt 5	0.05	0.037 [2]	0.043

Dust

Plant		Half-hour-average value (mg/m_n^3)	Measured annual average value (mg/m_n^3)	
		Limit value	2014 CY	2015 CY
Blast furnace	Casting bay dedusting (BF A)	20	6	7
	Casting bay dedusting system (BF 5 and 6)	10	1	1
Sintering plant	Sinter belt 5	10	1.6	1.6
	Sinter plant dedusting	24	10	13
	Sinter crusher and screening unit	10	0.5 [3]	1
LD steelmaking plant	Secondary dedusting 1	20	1	2
	Secondary dedusting 2.1	10	2	2
	Secondary dedusting 2.2	10	0.3	0.4

The emission concentrations listed in this table refer to the legally prescribed oxygen content, e.g. emission protection law on boiler plant systems, directive on iron and steel.

All emission sources are continuously monitored. The data are referenced each individual calendar year.

[1] H_2S is contained in the coke gas that is energetically utilized in other process steps. Emissions only occur in the form of SO_2.

[2] Hg emissions data from sintering belt 5 have been measured continuously since April 2014.

[3] Sinter crusher and screening unit were put into operation in April 2014.

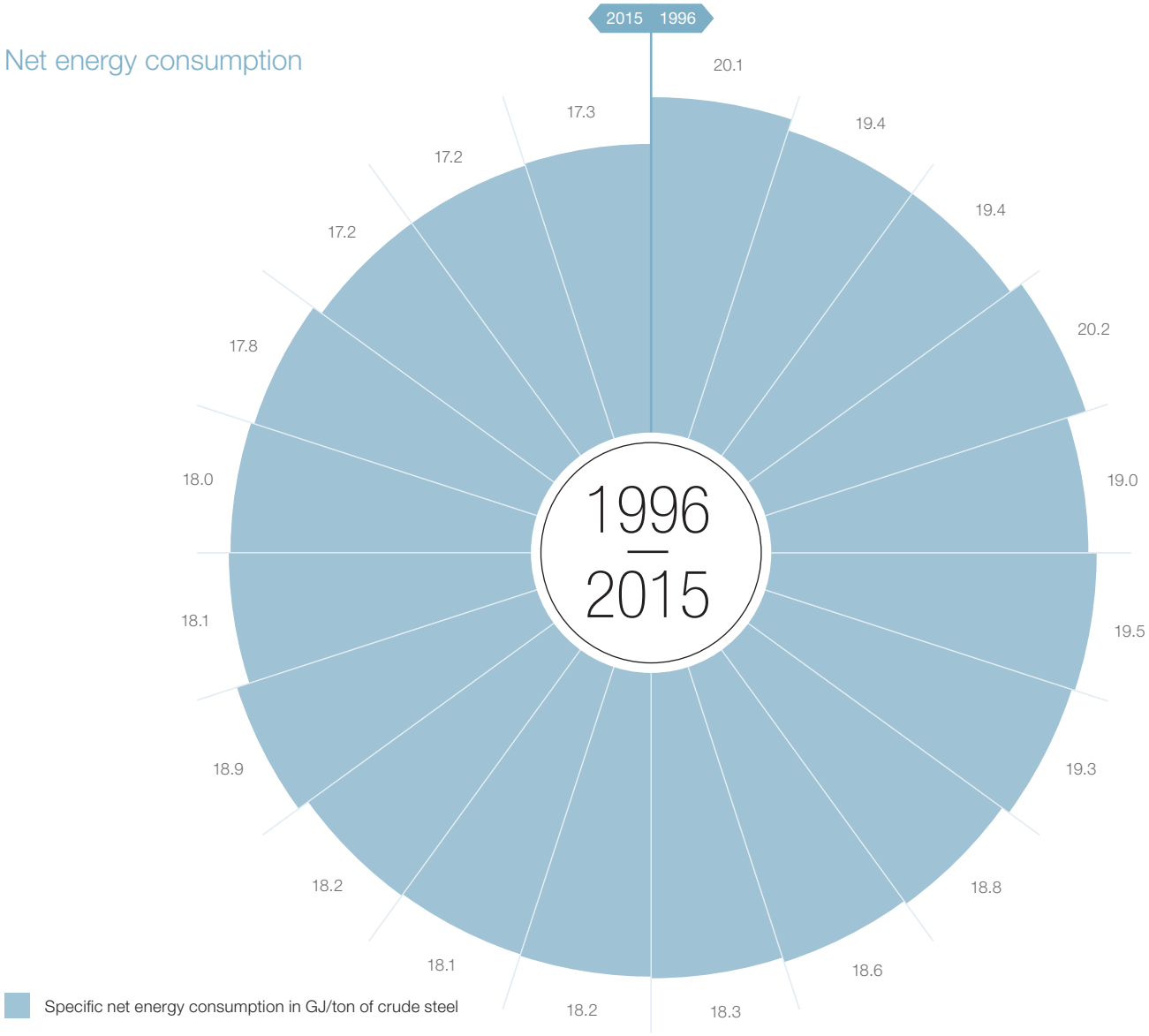
Air project

The larry cars that transported charging materials such as sinter, ore, coke, etc., to Blast Furnace 5, were replaced by a new conveyor technique with dust-tight weighing hoppers and conveyor belts. Fugitive dust emissions are avoided by using conveyor belts, additional covers and water spray systems.

Energy

In our efficient use of energy, we focus on optimization of process gas utilization and energy recovery. Consistent energy monitoring and continuous plant optimization help us to increase overall energy efficiency.

Net energy consumption



More than 15% of the specific energy consumption were saved in the past twenty years. The Linz site is nearly energy-independent (with respect to electricity).

The energy required in steelmaking is derived primarily from coal, coke, natural gas and electricity.

Process gases (coke-oven gas, blast-furnace gas and converter gas) generated in the making of steel are used as energy-transfer media either directly or by efficiently converting the gases into heat or electrical energy in individual process steps.

The Energy Efficiency and Organizational Consciousness Project focused on the environmental contribution that can be made by every employee, and staff members actively worked on energy savings. Project activities ranged from smaller to larger, cross-departmental measures such as optimization of steam generation, room temperature, lighting, etc. A total savings of 20 MWh per employee was reached.

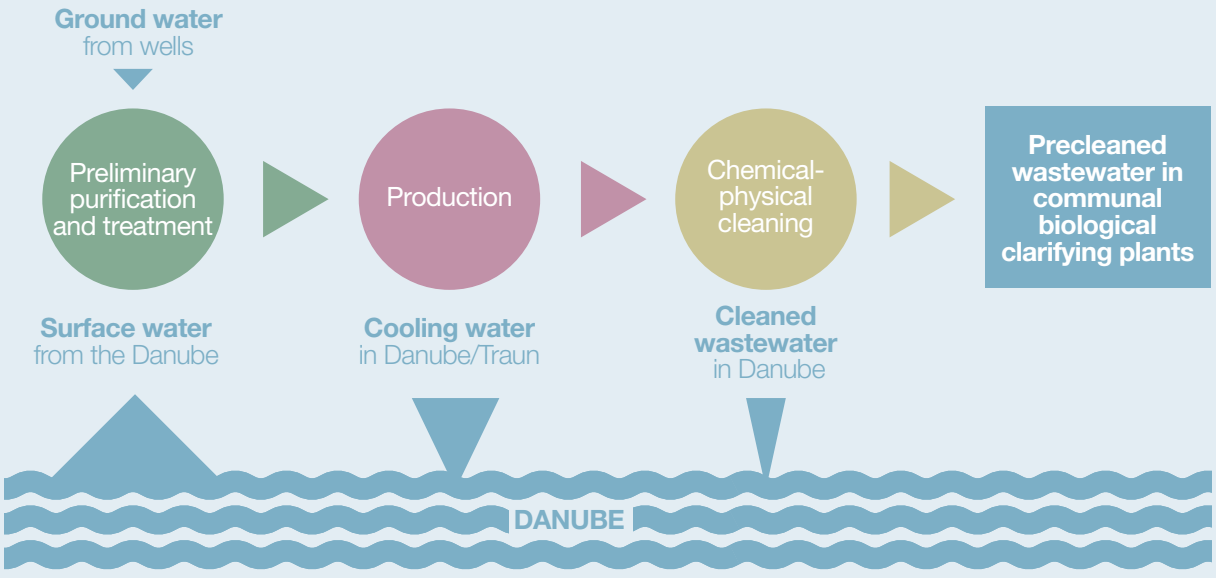
Sustainable management of water resources is an essential principle for voestalpine.

Water management

Water is one of the most important operating supplies. It is needed to cool plant systems and to create steam in iron and steel production.

A total of 583 million cubic meters of water were taken from the Danube in 2015 and, depending on the wastewater constituents, was either cleaned before returning it to the Danube or was piped to the communal clarifying plant in Asten for biological treatment.

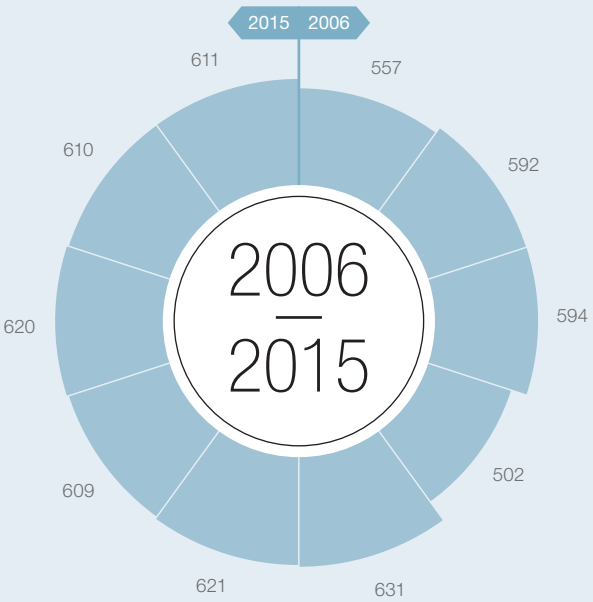
The cooling water is channeled back into the Danube in compliance with the defined temperature limit values. The sustainable management of water resources, particularly in compliance with local conditions, is an essential priority of voestalpine.



Trends in discharged waste water volumes

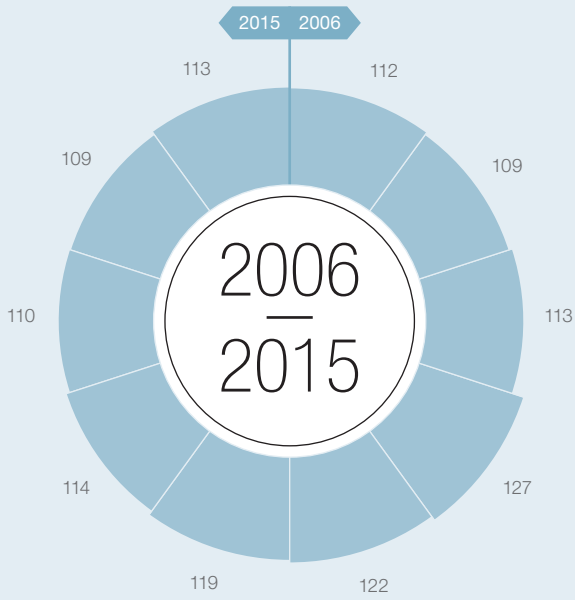
In the 2015 calendar year, the amount of discharged water amounted to 113 m^3 per ton of crude steel.

Discharged wastewater volumes



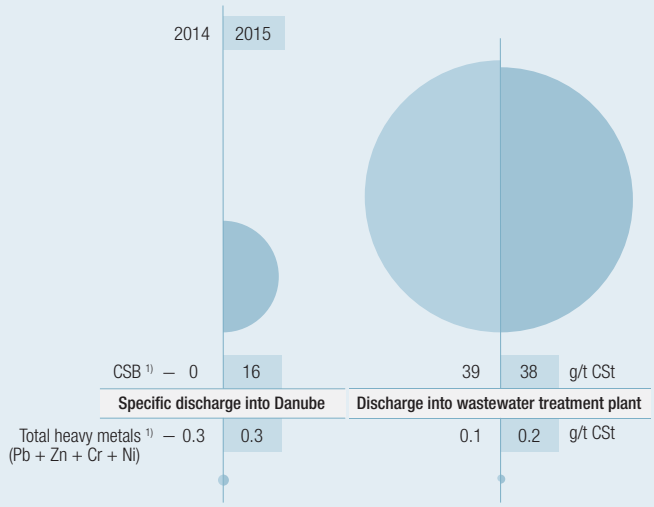
Discharged wastewater volume per year in millions of m^3

Specific discharged wastewater volumes



Discharged wastewater volume per year in millions of m^3

Wastewater load



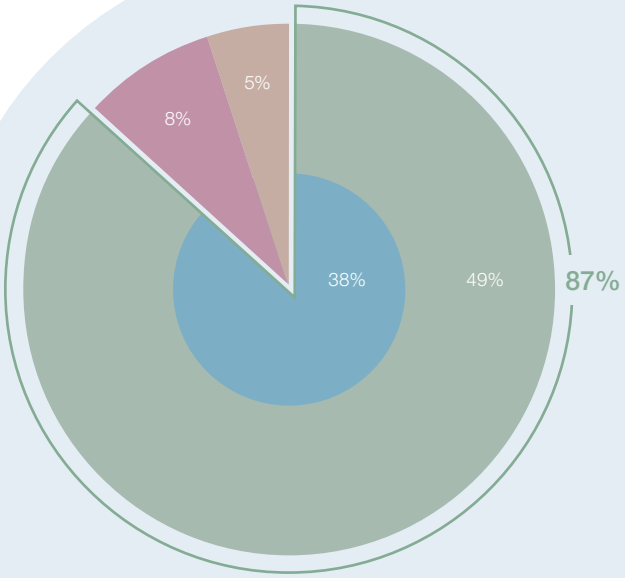
[1] minus initial load from Danube

Water project

The water management system was expanded at LD Steelmaking Plant 3, including the cooling tower. This has made it possible to efficiently use and optimize the existing closed-circuit system.

Waste management

Numerous waste and circulating materials are incurred during steelmaking and can be returned to the production process, thus reducing the volume of required raw materials. Waste and secondary raw materials are utilized in both in-house and external production process. Examples of this are scrap, end-of-life oils and waste greases. The following graphic provides an overview of utilized resources in the form of waste and recycled materials at the Linz site (not including scrap).

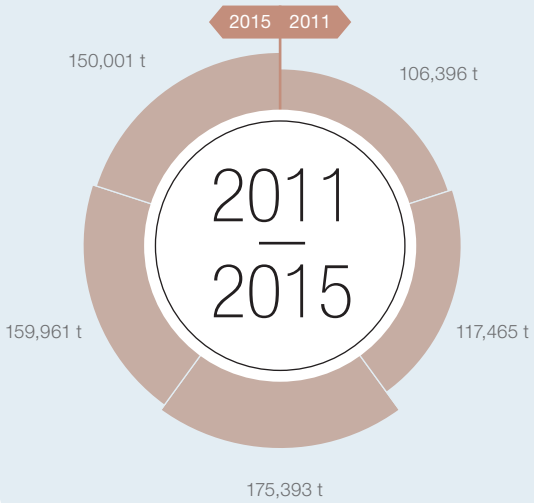


In the 2015 calendar year, 38% of the recycled materials and waste incurred at the Linz location were re-utilized, thus increasing resource efficiency in production processes. (This value is increased to 55% when the in-house scrap recycling is taken into account.)

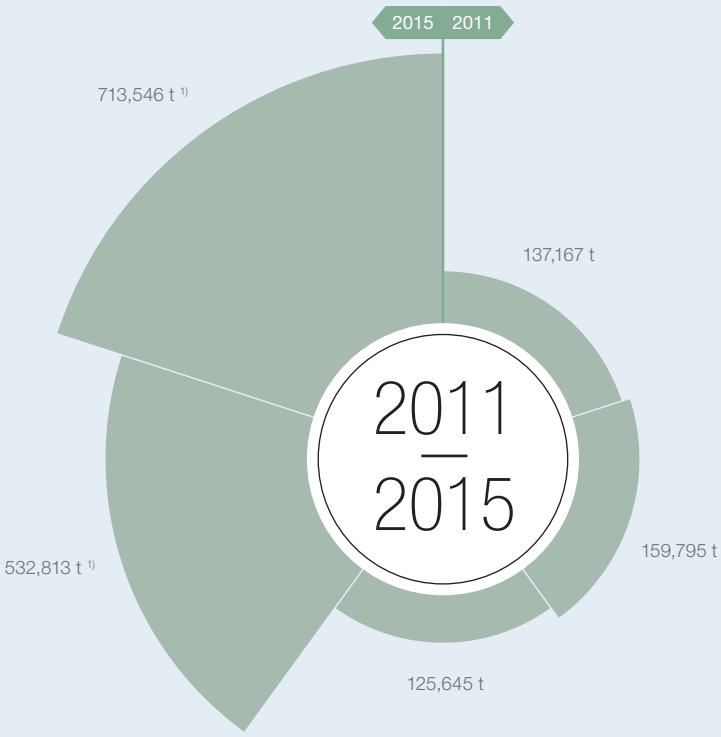
Materials recycling and the portion of re-used waste materials in total amount to a resource reutilization of 87%.

- Recirculation and material reutilization in the production of crude steel
- Dumping (on site)
- Offsite recovery
- Offsite disposal
- Resource reutilization

Hazardous externally treated waste



Non-hazardous externally treated waste



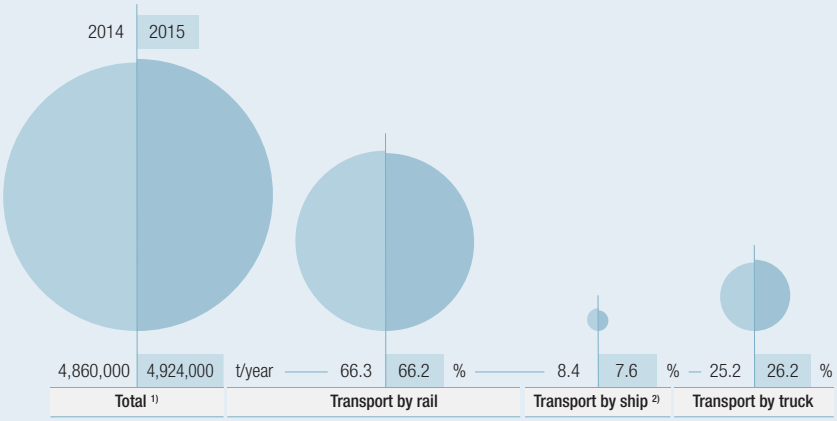
1) Increase because the LD slag accumulated in crude steel production has been classified as non-hazardous waste.

Transport

Material supply and product delivery are by railway, waterway or truck. It is important to us that our transports are as ecological as possible. Logistik Service GmbH and Cargo Service GmbH combine their transport possibilities, e.g. mobile systems, in order to avoid empty hauls and rely heavily on continual improvements in logistics systems, in technologies, implementation, methods, environmentally compatible driving techniques. Where possible, as many transports as possible are transferred from the roadway to the more environmentally compatible railway.

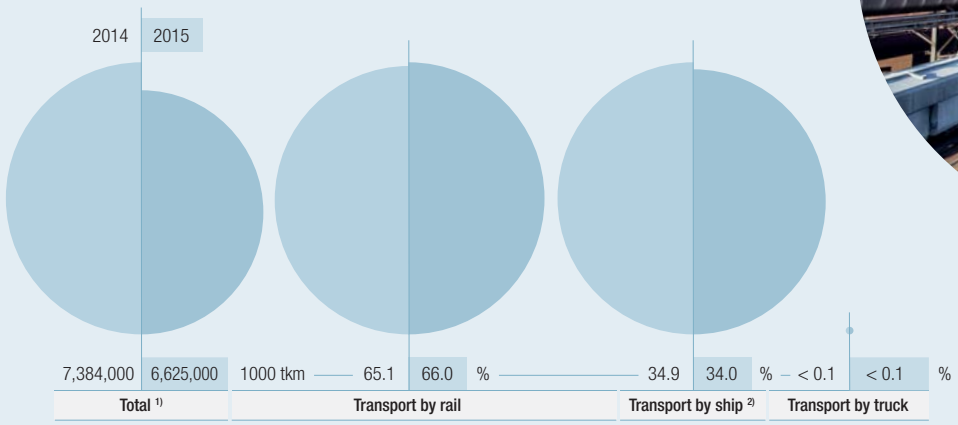
The figures for distribution of raw materials transported within Europe and distribution of product deliveries to the individual means of transport are as follows in the 2015 calendar year:

Product dispatch



1) Products delivered from the Linz site by Logistik Service GmbH and Cargo Service GmbH

Raw material transports



1) Raw material deliveries in ton kilometers of ore, coal, scrap, lime, coke and coke breeze
2) Raw material transport by inland waterway

The definition of emissions is difficult to impossible because of the large number of transport routes in use by the various means of transport (railway, ship, truck) with a wide variety of engine and vehicle technologies.

For this reason, no direct emission assessment is made for the transport of raw materials and for the delivery of products to voestalpine at the Linz location. Only the modal split is used as evaluation criteria for the assessment according to the respective transport routes.

Safety takes highest priority

External emergency plan

Detailed information on the alarms and measures outside the works premises can be found in the external emergency plan issued by the fire department of the city of Linz. Required measures in the event of Danger Level III are contained in the internal emergency plan. The safety report complies with Section 84f of the Trade and Industrial Code dated 1994 and is available for review in the Environment Department of voestalpine Stahl GmbH.

Information to the public on safety measures and correct behavior in the event of industrial accidents pursuant to Section 14 of the Industrial Accident Act.

At the Linz production site, voestalpine Stahl GmbH operates plant systems that are subject to Section 8a of the Trade and Industrial Code of 1994 and the Industrial Accident Act and provides the following information on safety measures and proper behavior in the event of industrial accidents. Not every plant system failure is an industrial accident, which is defined as an event in which certain hazardous substances are released that pose a danger to humans or to the environment.

The precautions to be taken to prevent and limit industrial accidents are set forth in the Industrial Accident Act. Because of the comprehensive safety measures that have been taken for many years in production, the probability of you as a neighbor being affected by an industrial accident is very low. An industrial accident can only occur in the event that all the precautionary technical and organizational measures simultaneously fail. In the unlikely event that an industrial accident occurs in spite of all the safety measures that have been implemented, the following information advises you of steps to take.

There are six relevant plant areas in the integrated metallurgical facility that could have an effect beyond the works premises in the unlikely event of an industrial accident:

- Coke oven batteries, including coking gas recovery, conveyor system and gasometer
- Tar extraction and crude benzene plant, including storage tank
- Blast furnaces, including gas cleaning, conveyor system and gasometer
- Converter operations, including converter gas cleaning, conveyor system and gasometer
- Unloading of fuel oil and distribution into piping and storage tanks
- Storage and distribution lines for calcium carbide in the steelmaking plant

Steam reformers A and B and air separation units 8 through 10 are operated by Linde Gas GmbH according to the Linde low-pressure technology and are safety-relevant systems installed on the works premises in Linz.

The substances contained in the systems of voestalpine Stahl GmbH and Linde Gas GmbH are subject to the provisions set forth in Section 8a of the Trade and Industrial Code dated 1994.

Comprehensive safety measures are in place ensure that the risk of an industrial accident is extremely low.

The authorities have been notified pursuant to Section 84d, of the Trade and Industrial Code. The corresponding safety reports have been submitted to the authorities (Municipal Offices of the Provincial Capital City of Linz, Office of the Upper Austrian Provincial Government). These reports are regularly updated and are available for review.

The following safety aspects are taken into account in the safety report submitted:

- Processes and reactions occur in closed systems.
- Hazardous substances are replaced where possible and remaining amounts are reduced to the specifically required volumes.
- The avoidance of waste takes a high priority in the planning and operation of plants.
- Safety systems generally consist of multiple stages.
- The plants are operated, maintained and tested by qualified and regularly re-trained personnel.

The plants are regularly tested in accordance with legal regulations by in-house and external experts, e.g. TÜV. Stringent safety regulations are assessed by the authorities for all designated plant systems. As a result of these regulations and precautions taken by the operators, there has never been an accident at the works since it has existed that would have posed any hazard to the population. In spite of the high safety standards, then risk of accidents can never be completely eliminated. Even though the probability of an accident with effects beyond the works premises is very low, voestalpine Stahl GmbH nevertheless takes this opportunity to inform the public in a precautionary manner of possible effects and measures to take in the event of an accident.

Information on possibly hazardous plant systems and production activities

Coke oven batteries, including coking gas recovery, conveyor system and gasometer

The coke required in the blast furnace is produced in the coking plant. For this purpose, finely ground coal is heated in coking ovens that are arranged in batteries each containing a total of 40 ovens. The coal is heated for approximately 18 hours to a temperature of roughly 1260°C. The coal is converted into coke, which means that it is baked until it has released all its gaseous constituents. These gaseous constituents make up the coke gas that is cleaned to a high degree in the coking plant and is then used as a fuel gas in the power plant and other furnace systems throughout the steel works. A gasometer and a network of gas lines store the gas until it is used. The system of course is closed. Coke gas contains approximately 7% carbon monoxide and is, as are all flammable gases, combustible with certain amounts of air.

Tar extraction and crude benzene plant, including storage tank

Crude tar and crude benzene occur as co-products during the high-grade cleaning of the coke gas. Crude benzene is cleaned out of the coke gas by means of wash oil in two scrubbers. It is then removed by means of distillation from the circulating wash oil and stored intermediately in a 2000 m^3 tank before it is delivered to purchasers. The crude benzene storage tank is suctioned out. The filling process is by means of a gas displacement device to ensure that no emissions can be released. Crude benzene contains up to 85% benzene. The fumes are, as with all other flammable liquids, combustible when mixed with certain amount of air. The crude tar condenses with condensation from the crude coke gas and is separated in tar separators from the condensate. Crude tar is pumped through the intermediate tar containers into the crude tar tanks. The individual parts of the tar separator units are equipped with a liquid-tight bucket system to prevent any emission to the environment. The crude tar and crude benzene are contained in tank railcars until they are used in the closed systems of production lines.

Blast furnaces, including gas cleaning, conveyor system and gasometer

Blast furnace gas is a by-product and co-product that occurs during the production of hot metal in the blast furnace. This blast furnace gas is cleaned to a high degree, removing all the dusts, and is used as a fuel gas in the blast furnace itself, the power plant, in the coking plant and other furnace systems throughout the steel works. A gasometer and a network of gas lines store the gas until it is used. The entire network is a closed system. Blast furnace gas contains approximately 25% carbon monoxide and is, as are all flammable gases, combustible with certain amounts of air.

Converter operations, including converter gas cleaning, conveyor system and gasometer

Steel chemically differs from iron primarily in its lower carbon content. The carbon contained in the crude iron produced in the blast furnace is removed from the steel melt by means of the oxygen top-blowing process during steelmaking in the LD steel plant. This process yields the so-called converter gas that is subjected to a high-grade cleaning process in electric filters and then added in a controlled manner to the top gas in order to increase its calorific value. A gasometer and a network of gas lines store the gas until it is used. The system of course is closed. Converter gas contains approximately 60% carbon monoxide and is, as are all flammable gases, combustible with certain amounts of air.

A high standard of safety is guaranteed in all plant systems.

Air separation unit

Air is divided in air separation units (8 through 10) belonging to Linde Gas GmbH by means of rectification into nitrogen, oxygen and argon constituents. The generated gases are either piped in gaseous form to consumers in the works of voestalpine Stahl GmbH or to the Chemiepark or they are liquefied, stored at super-cooled temperatures and filled into tank cars. In addition to the air as a raw material and different energies, hydrogen is also required in argon fine cleaning system (8) of the air separation unit. This hydrogen is supplied by the hydrogen production facility at voestalpine.

Hydrogen production facility

Natural gas is converted through chemical reactions into hydrogen in the steam reformers (STR A and B) of Linde Gas GmbH. The gaseous hydrogen is used in-house and is supplied to voestalpine Stahl GmbH and Chemiepark in Linz. External customer supply is provided on trailer units.

Unloading of fuel oil and distribution into piping and storage tanks

Heavy fuel oil is delivered in tankers via the river port to voestalpine Stahl GmbH and is there pumped directly through a closed-pipe system into the storage tanks. From the storage tanks, the heavy oil is pumped as it is required through piping to the blast furnaces, where it is utilized as an ore reduction agent in minimizing required volumes of coke. Light fuel oil is delivered in tank trucks and pumped into the storage tanks at the power station of voestalpine Stahl GmbH. The light fuel oil is pumped through piping from the storage tank to block 7 of the power plant of voestalpine Stahl GmbH. The light fuel oil is used in the event that other fuels, such as the usually used metallurgical gases and natural gas, are temporarily not available. In order to ensure that the light fuel oil is ready for use, it is continuously circulated in piping between the storage tank and the power station in order to maintain the required temperature and pressure.

Storage and distribution lines for calcium carbide in the steelmaking plant

The hot metal is combined with scrap and additives in three converters in the LD steelmaking plant. The mixture is converted in an oxygen blowing process at approximately 1650°C to crude steel. Further treatment takes place in the ladle furnace and in the vacuum degassing unit The molten steel is cast in the continuous caster into slabs.

Calcium carbide is used in the steelmaking plant to remove sulfur (desulfurization) and oxygen (deoxidation) from the hot metal.

A high standard of safety is guaranteed by continuous monitoring by plant personnel, regular tests and the safety precautions described above. Should an industrial accident occur, however, in spite of all the technical and organizational preparation made to prevent such an incident, the emission of poisonous substances still poses a possible danger in addition to explosion and fire. In such an instance, affects to human health and the natural environment outside the works premises, especially caused by gas or fumes that may be carried over distances, cannot be excluded.

Information on the types of dangers and their possible consequences

The following substances when emitted into the atmosphere pose a potential danger beyond the premises of the steel works.

Carbon monoxide

Carbon monoxide is contained in

- Coking plant gas (approx. 7 volume percent CO)
- Blast furnace gas (approx. 25 volume percent CO)
- Converter gas (approx. 60 volume percent CO)

The listed process gases are easily combustible and are poisonous because of their CO content. When emitted to the atmosphere, these gases are diluted with atmospheric air to differing degrees that lead to various symptoms depending on the respective concentrations. These symptoms may include headache, dizziness, sickness, sleepiness, asphyxiation, unconsciousness and respiratory paralysis. Patients must be exposed to fresh air, must rest comfortably and tight clothing must be loosened. In the event of apnea, resuscitation is required to introduce oxygen to the brain. Call a doctor. Keep patients warm. In the event of threatening unconsciousness, place the patient on his or her side and transport in stable position.

Benzene

Patients must be exposed to fresh air, must rest comfortably and tight clothing must be loosened. Resuscitate immediately in the event of apnea. Remove contaminated clothing immediately. Rinse contaminated skin sufficiently with water. Rinse contaminated eyes adequately with water for ten to fifteen minutes. Call a doctor. Keep patients warm. In the event of threatening unconsciousness, place the patient on his or her side and transport in stable position.

Atmospheric gases and hydrogen

Because of their volumes and properties (both not poisonous) and distances to other substances, the hazardous substances (oxygen, nitrogen, argon and hydrogen) contained in the air separation and hydrogen production units are not potentially hazardous outside the premises of voestalpine Stahl GmbH.

Calcium carbide

The carbide mixture in the hopper contains essential constituents as follows:

Calcium carbide (CaC_2):	63.1%–72.3%
Coal, including volatile constituents:	5.5%
C content:	32.59%–19.14%
Additional fluxes:	3.0%

Calcium carbide is not a flammable substance. Ethyne develops in the presence of moisture and mixes with air to form an explosive gas atmosphere and calcium hydroxide. The humidity from the air is enough to begin the reaction. Under atmospheric conditions, one ton of calcium carbide of technical quality (approx. 68% CaC_2) in reaction with water yields roughly 258 Nm^3 ethyne (= acetylene gas).

Overview of potential hazards and comprehensive emergency plans for the factory premises.

Measures

The measures taken to eliminate accidents and limit the consequences of an accident are regulated in the emergency plan of voestalpine Stahl GmbH. This plan is regularly updated in collaboration with the Municipal Offices of the Provincial Capital City of Linz and the fire department of Linz pursuant to the pertinent official regulations of the provincial capital of Linz.

The measures to be taken in the event of an incident are obligatory. The safety report of voestalpine Stahl GmbH is submitted on a regular basis to the authorities. The report is an integral part of the tests carried out by the responsible authorities that also serve to meet requirements and adaptations pursuant to Section 8a of the Trade and Industrial Code dated 1994.

With respect to the air separation unit, a safety report has also be submitted by Linde Gas GmbH.

External emergency plan

Detailed information on the alarms and measures outside the works premises can be found in the external emergency plan issued by the fire department of the city of Linz. Required measures in the event of Danger Level III are contained in the internal emergency plan. Notification procedures (excerpt from the emergency plan of voestalpine Stahl GmbH). The following measures have been determined in accordance with the emergency plan of voestalpine Stahl GmbH:

- Works fire department responds to the scene with all fire trucks and breathing apparatus vehicle
- Fire department of the City of Linz responds to the scene
- Establishment of a command center on site managed by City of Linz fire department
- Measurements taken to eliminate dangers such as cordoning off area by gas search troop, evacuation of the cordoned off area, radio announcements, etc.

Warning

The public is warned by means of sirens in the event of an extraordinary incident. Industrial accidents on the premises of are voestalpine Stahl GmbH and steps to take by the public are announced on public radio and television stations. This procedure and the type of reports required by the authorities are defined in the in-house emergency plan submitted to the authorities.

Attention

Please do not call emergency telephone numbers without any important reason.
This will ensure that the lines remain open for actual emergencies.

Contact numbers for inquiries and further information

Works fire department: T. +43/50304/15-5077
Environmental Department: T. +43/50304/15-5783
Occupational Safety Department: T. +43/50304/15-6190
Linde Gas GmbH: T. +43/50/4273-1616

Link to Environmental Report on the internet

www.voestalpine.com/group/en/group/environment/environmental-statements.html

Radiation, noise and odor

Radiation All raw materials at the site are inspected thoroughly for radiation by highly sensitive devices before they delivered to production facilities. Radioactive tests are conducted on all heats of the intermediate hot-metal product to exclude any risk.

Noise The works premises has been divided into 16 contingency sections according to the environmental impact assessment (L6). Higher noise loads of individual surface areas can be balanced by surface areas that do not reach permissible noise levels. From the perspective of neighborhood protection, limitation of noise emissions is important with respect to on-site expansion. We have taken seriously the rare complaints that have come from neighbors and have taken measures accordingly.

Odor Based on measures taken in the past to prevent and minimize emissions, a favorable level has now been achieved to the effect that no adverse odors are produced.

Vibrations Lime-containing rock at the Steyrling site is mined from the walls of an open pit by means of conventional blasting. This can cause ground vibration. Shooting and blasting activities are announced to neighboring parties ahead of time.

Protecting our neighbors from noise and obnoxious odors is an important priority for us.

Glossary

EMAS Regulation
Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 establishing a program for the volunteer participation of organizations in a community system dedicated to environmental management and company environmental impact assessment: EMAS = Eco Management and Audit Scheme.

LD process
Linz-Donawitz process – Top-blowing of hot metal with technical-grade oxygen.

IMS policies
Guidelines and overall objectives set forth by executive management for the areas of quality, safety and environmental issues at the production site.

Environmental audit
Systematic, documented, regular and objective evaluation of environmental performance.

Environmental management system
Part of a company-wide management system that includes organizational structures, planning activities, responsibilities, methods, processes, procedures and resources for the development, implementation, fulfillment, evaluation and maintenance of environmental policies.

Environmental program
Description of the measures required to achieve environmental objectives and individual environmental goals or planned measures (responsibilities, means and deadlines).

Soil vapor extraction (SVE)
Soil vapor extraction in the course of a coking plant remediation project in Linz.

BTEX
Abbreviation for benzene, toluene, ethyl-benzene and xylene-volatile aromatic compounds.

DeNO$_x$
Offgas denitrification system for the prevention of nitrous oxides as offgas, such as in power plants.

Information, contact and about us

Environmental statement

The next consolidated Environmental Report will be submitted for review in October 2019 and published thereafter. In addition, an updated version is created, externally reviewed and published on an annual basis.

Certified environmental experts

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www.voestalpine.com/group/en/group/environment

EMAS
Geprüftes Umweltmanagement
REG.NO. AT- 000216

Lloyd's Register LRQA

ENVIRONMENTAL VERIFIER'S DECLARATION ON VERIFICATION AND VALIDATION ACTIVITIES

Lloyd's Register Quality Assurance Ltd., with EMAS environmental verifier registration number AT-V-0022 and accredited for the scope:

Integrated mill of voestalpine Stahl GmbH and their subsidiaries at site Linz as well as extraction and production of lime at site Steyrling (separate scopes see appendix)
NACE Code: see appendix

declares to have verified:

voestalpine Stahl GmbH, voestalpine Giesserei Linz GmbH, Cargo Service GmbH, Logistik Service GmbH, voestalpine Grobblech GmbH, voestalpine Automotive Components Linz GmbH, voestalpine Standortservice GmbH, voestalpine Steel & Service Center GmbH Linz, Steyrling Austria

registration number AT-000216
meets all requirements of Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community Eco-Management and Audit Scheme (EMAS).

By signing this declaration, LRQA declares that:

- the verification and validation has been carried out in full compliance with the requirements of Regulation (EC) No 1221/2009,
- the outcome of the verification and validation confirms that there is no evidence of non-compliance with applicable legal requirements relating to the environment,
- the data and information presented in the Environmental Statement of the organisation reflect a reliable, credible and correct image of all the organisation's activities within the scope mentioned in the environmental statement

This document is not equivalent to EMAS registration. EMAS registration can only be granted by a Competent Body under Regulation (EC) No 1221/2009. This document shall not be used as a stand-alone piece of public communication.

LRQA Ref No: VNA0005063/D

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Date of validation:	21st October 2016
Validation Expiry:	19th October 2017

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Accreditationnumber: AT-V-0022

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Die Gültigkeitserklärung gilt zusammen mit der Validierung als Nachweis über die Verifizierung und Validierung. Sie werden bei der Beantragung auf Eintrag bei der zuständigen Stelle nach Artikel 3 der Verordnung benötigt. Der Text dieser Erklärung muss vollständig in der Umwelterklärung der Firma abgedruckt werden.

The Linz and Steyrling locations have established independent environmental management systems. The public is informed of the environmental measures taken at these locations in compliance with the community systems for environmental management and environmental impact assessment.

Registry number: AT-000216

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ONE STEP AHEAD.