ESRS E5 RESOURCE USE AND CIRCULAR ECONOMY

Steel offers the ideal prerequisites for the circular economy due to its full recyclability, its durability, and its reparability. voestalpine is committed to resource efficiency by reintroducing scrap and other metallic residues back into the production process. By 2030, the use of secondary raw materials is to be further intensified by increasing the use of scrap in crude steel production by 50%.

By-products such as slag, dust, and sludge are recycled within the company or transferred to other industries where technically feasible and legally permissible. This reduces the company's reliance on primary raw materials.

In addition, voestalpine helps its customers increase their use of secondary raw materials through closed material cycles and recycling policies. The aim is to keep raw materials in the economic cycle for as long as possible and to minimize waste.

The following table provides specific information on SBM-3:

Topic/sub-topic/ sub-sub-topic		Impact, risk, opportunity (IRO)	Description	
Circular economy	●	Metal recycling—using scrap as a resource	voestalpine contributes to metal recycling and the circular economy by recovering and reusing metals from various sources such as scrap, slag, dust, and residues. It also manufactures high quality and durable metal products that can be recycled at the end of their life cycle	
	●	Business models for recycling	Helping customers increase their recycling rate by implementing circular economy contracts (e.g., recycling contracts)	
	●	Waste recovery—use of by-products within voestalpine or selling them to other industries	Recycling of residues from the refining process (e.g., ferrous material flows), overall increase in resource utilization at voestalpine, reduction in waste at voestalpine, and primary resource requirements in other industries	

	Impact on strategy and business model	Value chain	Time horizon	Affected stakeholders
	Adaptation of processes and the value chain	>>	●●●●	Environment Internal departments (e.g., Procurement)
	Establishment of cooperation partnerships Strengthens innovative strength	>>	○●●●	Customers Suppliers Industrial associations
	Adaptation of processes and the value chain Development of new business models	>>	●●●●	Customers Industrial associations

Key

- ● Actual positive impact
- ● Actual negative impact
- ○ Potential positive impact
- ○ Potential negative impact
- \+ Opportunity
- ! Risk
- >>> Upstream
- >> Own operations
- >>> Downstream
- ●○○○ < 1 year
- ○●○○ 1–5 years
- ○○●○ 5–10 years
- ○○○● 10+ years

IMPACT, RISK, AND OPPORTUNITY MANAGEMENT

E5-1 – Policies related to resource use and circular economy

Circular economy policy

This circular economy policy takes into account the external requirements of customers, markets, regulatory frameworks, and society, as well as the challenges posed by a volatile commodity and energy market. It also sets forth internal priorities to ensure the economic and sustainable use of resources.

voestalpine's circular economy policy revolves around several strategic priorities:

- Improving the life cycle assessment through sustainable process design across the entire value chain
- Ensuring the supply of raw materials in the long term and reducing dependence on individual countries
- Increasing resource efficiency by optimizing material use and minimizing waste
- Supporting the achievement of voestalpine's sustainability targets and increasing security of supply for customers
- Exploiting economic potential and new business opportunities in relation to the circular economy

Progress is currently being made on upgrading the existing circular economy policy into a Group-wide circular economy strategy that defines strategic targets and measures for material cycles and resource efficiency. Quantitative targets such as recycling rates, zero-waste targets, and energy consumption will be set and strategic initiatives defined in the new strategy.

As an essential component of the Group-wide circular economy strategy that remains to be developed, voestalpine has already implemented activities for the recycling of material flows and has developed a comprehensive waste management policy. These initiatives will form the basis for the future strategic orientation and advancement of the Group's circular economy.

One important aspect of the circular economy policy is voestalpine's approach to recycling, which aims to return internal and external scrap (new scrap/pre-consumer and post-consumer scrap) to production. The recycling initiatives cover the whole value chain—from the sourcing of raw materials to the return of recycled materials to production. voestalpine works in close partnership with its global suppliers and customers.

A particular challenge posed by recycling post-consumer scrap lies in maintaining the quality of the metal in the recycling process. This requires careful collection, sorting, and processing to ensure the scrap can be reused as a high-quality raw material.

The further expansion of scrap circuit loops and the increasing use of internal and external scrap in steel production is expected to improve the use of secondary resources. Use of scrap in crude steel production is also to be increased by 50% by 2030. In addition, extending the product service life through closed product and service cycles and reprocessing of tools and installations helps to reduce primary raw material requirements.

voestalpine works closely with its customers to close material loops. The aim is to increase their recycling rates and to increase the share of recycling and the use of secondary raw materials in general.

In terms of by-products from metallurgical processes, such as blast furnace slag (metallurgical slag), the policy envisages processing and use as secondary raw materials in the company's own installations or other industrial sectors.

Another important aspect of the circular economy policy is voestalpine's zero-waste policy, which aims to minimize or prevent waste as much as possible. In concrete terms, the policy calls for:

- A reduction in waste and landfill volumes, in particular more internal recycling of recyclables
- A reduction in the use of primary materials by introducing more secondary raw materials and recycled materials into the production cycle
- Ensuring the proper treatment of waste through binding agreements with external partners in line with the state-of-the-art technology
- Electronic monitoring and accounting for waste streams to ensure transparency and legal compliance

Environmental management systems

The circular economy, sustainable sourcing, and resource-efficient products and services constitute key elements of voestalpine's sustainability strategy. Work on these topics is supported by ISO 14001 or EMAS environmental management systems (see E2-1). A corresponding environmental management system is already in place at the majority of companies that have a significant impact on the environment from a Group perspective. At present, this covers 86% of the manufacturing companies responsible for 98% of voestalpine's production volume.

Business models for recycling
The voestalpine Group strives to establish and further expand its business models to facilitate recycling. The High Performance Metals Division (HPM), for example, has developed the divisional InSPire policy. As part of this policy, customers are able to participate in sustainable initiatives, while suppliers and partners are motivated to help shape transformation processes.

In terms of the circular economy, HPM focuses on material and scrap cycles, alternative sources of raw materials, recycling by-products, and zero waste. The Climate Impact unit focuses on decarbonization, environmentally-friendly energy, and energy efficiency. The social commitment of the division is reinforced under Social Impact, while sustainability competencies of employees are systematically improved under the Sustainable Sourcing field of action. Here, the focus is on providing transparency with regard to raw materials and procurement in general as well as reducing emissions.

Sustainable procurement
Raw materials are sustainably procured on the basis of the Group's Procurement Policy, which ensures that materials, including raw materials, are obtained in an environmentally friendly, ethical, and socially responsible manner.

In concrete terms, this involves:

» Supplier assessments and on-site audits to ensure compliance with sustainability criteria
» A revised Code of Conduct for Business Partners that contains specific requirements for sustainable procurement and was adopted by the Management Board of voestalpine in 2023
» Ongoing raising of awareness among global business partners with regard to sustainability targets and requirements for transparency in the supply chain

More information on the Procurement Policy can be found in chapter S2-1 Policies related to value chain workers.

Innovation, research, and development
In order to optimize the use of resources, voestalpine continuously pursues product and process innovations to set new benchmarks in resource efficiency. Policies and action related to research, development, and innovation are described in the chapters I,R&D-1 Policies related to innovation, research, and development and I,R&D-2 Actions and resources related to innovation, research, and development.

POLICY OVERVIEW

IROs addressed	Policy	Core content	Scope of the policy	Responsibility and monitoring	Other comments
All IRO E5	Circular economy policy	Implementation of the circular economy principles (10R) in the Group Strategic priorities: improving environmental performance through a more sustainable process chain, ensuring the long-term supply of raw materials, and reducing dependency on individual countries, supporting the achievement of voestalpine's sustainability targets, and increasing the security of supply for customers, exploiting economic potential and new business opportunities in the field of the circular economy	Own operations to a partial extent Upstream and downstream value chain to a partial extent	Management boards of the divisions	» Consider external requirements of customers, markets, regulators, and society
All IRO E5	Environ-mental management system (see E2)	Environmental management system in accordance with ISO 14001, EMAS, or equivalent in place at production sites with material environmental impacts from a Group perspective and compared to Group-wide benchmarks, or production sites that make a material contribution to improving Group-wide environmental performance from a Group perspective Determination of how the organization can improve its environmental performance, fulfill its legal commitments, and achieve local environmental targets in line with the PDCA approach	Group manufacturing companies and sites	Management boards of the companies	» Regular compliance check as part of the PDCA cycle » Engage authorities and experts, if necessary direct representatives of neighboring communities
All IRO E5	InSPire policy (HPM)	Framework sustainability policy designed to integrate all sustainability pillars into daily activities to ensure lasting performance for current and future generations Key building blocks: circular economy, climate impact, sustainable sourcing, social impact, and sustainable business	High Performance Metals Division Upstream and downstream value chain to a partial extent	Managers in charge of InSPire	–
All IRO E5	Procurement policy	Provides the binding framework conditions for procurement and general regulation of the requirements and procedures in procurement Includes principles for sustainable procurement	Complete coverage of the upstream value chain Partial coverage of own operations Partial coverage of the downstream value chain (excl. use and self-pickup)	Procurement board	» Consider stakeholder analysis in policy » Communication to procurement@voestalpine.com

E5-2 – Actions and resources related to resource use and circular economy

As part of its zero-waste approach, voestalpine pursues numerous measures to promote its internal circular economy and the external recovery of residues and waste—both from its own production and processing facilities and plants as well as from the downstream value chain. For one, process management in the integrated steel mills is subject to continual improvement. For another, internally and externally generated material flows as well as residual products and waste such as scrap and plastic are re(used) in the production plants.

Priorities for action

voestalpine has modeled its circular economy policy on the ten principles of circular economy (10R), with three main areas of focus—narrowing the loop, slowing the loop, and closing the loop.

Loops are narrowed by minimizing the use of resources, increasing energy and material efficiency, and avoiding waste.

By contrast, loops are closed by treating and recycling raw materials and other materials in order to reduce the use of primary raw materials.

OVERVIEW OF ACTIONS

IROs addressed	Action	Core content and expected results
All IRO E5	Metal recycling—using scrap as a resource	Reprocessing and reuse of internal process scrap and external pre- and post-consumer scrap Reintroduction of scrap, including rail scrap, to production Expansion of closed scrap cycles to increase the use of secondary raw materials Increase in the use of internally generated and external scrap in steel production Expected results: » Reduction in primary raw material requirements » Increased resource efficiency and promotion of circular economy » Optimized material use and minimized waste
All IRO E5	Package of stakeholder engagement measures	Project to increase circular economy, zero-waste activities, energy recovery, and efficiency as well as the use of renewable energy and alternatives to natural gas Expected results: » Reduction in waste and increased circular economy » Reduction in energy consumption and GHG emissions

Below you can find examples of action taken by voestalpine:

- Increasing the use of scrap metal and ensuring economic supply by expanding closed loops with European automotive OEMs, suppliers, and railway operators for high-quality scrap metal and with tool manufacturers for higher-alloy steels
- Optimizing the utilization of waste generated as well as the treatment and recycling of associated streams such as scale, slag, sludge, and other metallurgical by-products
- Securing the supply of critical alloying elements by developing alternative secondary raw material sources, including battery recycling and the recovery of valuable materials from production processes (e.g., sludge and dust fractions)
- Increasing the share of secondary materials in products
- External marketing of secondary raw materials, in particular slag, in order to make the best possible use of industrial secondary raw materials
- Reducing waste treatment and disposal, e.g., landfill volumes, through recycling and reuse in production, and processing processes
- Recovering energy using waste heat from production processes, both for internal demand and for supplying to district heating
- Efficiently using process gases as energy carriers in the individual process stages, thereby reducing the need for primary energy

The measures for the scrap circular economy are mainly undertaken in the Steel Division and Metal Engineering Division as part of the transformation of production processes for decarbonization efforts, and in the Metal Forming Division. Production in the High Performance Metals Division is already largely scrap-based. Projects are in place across all divisions to promote circular economy, preventing waste, and increasing energy efficiency. The actions therefore extend across the entire voestalpine Group.

	Time horizon	Scope of the action	Responsibility and monitoring	Significant expenditure (if relevant)	Other comments
	By 2030 depending on project	Entire upstream value chain	Management boards of the divisions	The means of achieving this initiative are accounted for in the greentec steel program and are included in E1 as part of the Climate Transition Plan	- Stakeholder consideration through extensive adaptation of the business model to maximize the circular economy - Active collaboration with customers with regard to circular economy agreements
	Up to 2030	Own operations Covered by the upstream and downstream value chain to a partial extent	Managers in charge of InSPire	–	–

METRICS AND TARGETS

E5-3 – Targets related to resource use and circular economy

The voestalpine Group has set itself the voluntary target of increasing the use of scrap in crude steel production by 50% in its own operations by 2030. The aim is to increase the use of secondary raw materials and reduce the reliance on primary raw materials. This target falls under the third of the five stages of waste hierarchy under the EU Waste Framework Directive (2008/98/EC), namely recycling, as scrap is recycled as a raw material and reintroduced into the production loop.

As the increased use of secondary raw materials optimizes the efficiency of the material cycle and reduces waste generation, this target is directly linked to improving the circular material use rate. Focusing on recycling scrap is crucial when it comes to reducing the use of resources and promoting a circular economy.

Another contribution to the achievement of this target is the planned technological transformation over the course of decarbonization, which requires a fundamental adaptation of the materials and circular economy, in particular through the increased use of secondary raw materials.

Specific methodologies and assumptions based on internal analyses and scientific evidence related to the voestalpine greentec steel program were used to define the objectives. Along with other factors, these include the interaction between the circular economy and GHG emissions, and the availability and quality of scrap as a secondary raw material. Significant assumptions have also been made with regard to technological advancements and the market availability of scrap, which are accounted for in the set targets. A stakeholder process was taken into account as part of the target setting process.

The plan to increase the use of scrap will be reviewed at specified intervals to ensure that progress is being made in line with the envisaged targets. Progress monitoring includes the identification and reporting of the scrap used in crude steel production on a regular basis.

Circular systems were rolled out at the sites with integrated steel mills in Linz and Donawitz. These systems make it possible to recover, treat, and reuse valuable materials so that the material streams can be returned to the processes.

The planned technological transformation over the course of decarbonization requires a fundamental adaptation of the materials and circular economy. One of the important aspects of this transition lies in increasing the use of secondary raw materials.

The divisions have also set divisional targets for resource use and circular economy, for example within the framework of the InSPire policy.

TARGET: USE OF SCRAP IN CRUDE STEEL PRODUCTION

KPI	Scrap use
UNIT	% in scrap use

BASE VALUE	STATUS	TARGET VALUE
2.25 million t Calendar year 2023	**+0.3%** Business year 2024/25	**+50%** Business year 2029/30

Responsibility and monitoring	Management boards of the divisions
Scope	Own operations; Upstream and downstream value chain to a partial extent
Stakeholders	Customers, state, authorities, shareholders, society
IROs addressed	All IROs from E5
Reference to policy	All policies from E5

E5-4 – Resource inflows

As a producer of iron and steel products, voestalpine's main resource inflows are iron carriers such as ore, pellets, scrap, as well as the reducing agents coal, and coke. The following sections describe the main materials used in more detail.

Raw material:

Iron ore

Iron ore is the key raw material for the production of crude steel through the blast furnace route and also plays a role in combined production involving direct reduction processes and an electric arc furnace (EAF).

Coking coal

Coking coal forms the basis for the production of metallurgical coke and is therefore an important reducing agent. A reducing agent is a substance that removes oxygen from an ore and thereby converts the oxide into a metal. As part of the blast furnace route, coke, among other elements, reduces the iron oxide in the iron ore to produce pig iron. In addition, metallurgical coke provides the energy required for the blast furnace process.

Steel scrap
Steel scrap is highly important for both the oxygen converter (BOF) and electric arc furnaces (EAF). While the use of scrap in the BOF is limited by the metallurgical process conditions, an EAF can be operated with higher scrap use (up to 100% scrap) depending on the required product quality. Some of the scrap used is internally generated circular scrap from our own production, which is reintroduced to the process. Scrap is also produced during steel processing, for example during stamping processes in the automotive or white goods industry, and is then reintroduced into the materials loop as pre-consumer scrap.

Alloys
Different alloys make it possible to achieve specific steel properties. Important alloying elements include chromium, nickel, manganese, molybdenum, and vanadium, which give steel strength, hardness, corrosion resistance, and heat resistance, among other properties.

Water
Water is an important operating and auxiliary resource in the entire production and manufacturing process at voestalpine. It is used to cool the units, as process water, and to generate steam used for energy. For more information on water, please refer to chapter E3 Water and marine resources.

voestalpine's RESOURCE INFLOWS

	2024/25
Overall total weight of products and technical and biological materials used (t)	10,370,906
Percentage of biological materials (%)	0
Overall total weight of secondary reused or recycled components, secondary intermediary products, and secondary materials used to manufacture the company's products and services (t)	1,162,539
Percentage of materials reused for manufacturing (%)	11

Resource inflows are quantitatively analyzed on the basis of a database, which is also used to analyze other environmental metrics and to calculate greenhouse gas balance. The majority of the metrics reported for this database are obtained from direct measurements taken by the companies or verifiable data on quantities provided by the suppliers. In individual cases, quantities are extrapolated from previous years' figures.

The predefined query structure for data collection helps to prevent double counting.

E5-5 – Resource outflows

Products and materials

As a steel and technology group, voestalpine offers a wide range of products and system solutions for various industries. These products are produced in four divisions with different focuses:

Division	Business Unit	Products	Circular properties
Steel	Strip	High-quality steel strips	High durability; up to 100% recyclable; recycled through scrap cycles
	Heavy Plate	Heavy plates	Durable; repairable; recyclable
	Foundry	Cast products	High recyclability through recycling in steel production
High Performance Metals	Production/ Value Added Services	Tool steels, high-speed steels, copper and aluminum alloys, nickel-based alloys, valve steels, machine steels, special steels, titanium products, services	Reprocessing to extend service life; complete recycling possible
Metal Engineering	Railway Systems	Rails, switches, signaling	Durable; repairable; reprocessable; long life; interchangeable thanks to modular design; recyclable
	Welding	Complete welding solutions	Recyclable base materials
	Wire Technology	Quality wires	Reusable; recyclable; durable
	Tubulars	Seamless tubes	Durable; repairable; up to 100% recyclable
Metal Forming	Tubes & Sections	Profile and tube products	Reusable; recyclable; long life
	Automotive Components	Ready-to-install system components made of pressed, stamped, and roll-formed parts	Designed for disassembly and recycling; modular design
	Precision Strip	Precision strip steel	High durability; recyclable
	Warehouse & Rack Solutions	Warehousing technology	Modular expandability and reusability

As voestalpine predominantly manufactures intermediate products that are further processed by its customers, a direct assessment of the final quality and associated statements on durability, reusability, and recyclability are only possible to a limited extent. For example, the same material, such as a heavy plate, can be installed in a ship's hull, a bridge, or a wind turbine, resulting in vastly different service lives. In general, however, steel products are long-lasting, highly repairable, and fully recyclable and can be reintroduced into the steel production process as scrap.

Depending on their application, steel products can have a service life of a few years to several decades. Regardless of the service life, steel products can theoretically be fully recycled time and again. Due to material losses in the closed circuit, it is currently assumed that substitution potential stands at 95%.

Compared to the products themselves, their packaging is of negligible relevance to voestalpine: packaging is assumed to make up less than 1% of the overall product weight.

Waste
Steel production and the further processing of steel products generate various waste and recyclable materials, most of which can be reused in voestalpine's operations or recycled in other industries. If recycling is not possible for quality reasons or due to legal regulations, waste is treated and disposed of in line with the pertinent legal requirements.

Typical waste streams in the iron and steel sector:

- **Slag** is primarily a mineral phase composition produced in iron and steel production that can be used or disposed of in other industrial sectors, depending on the legal requirements for the material stream. For particular use cases, slag can also be classified as a by-product
- **Dusts** may contain metallic and non-metallic particles and are produced during exhaust gas purification, e.g., in dedusting plants
- **Sludge** produced by the wet scrubbing of exhaust gases and in the treatment of process and waste water, for example, and consisting of various mineral phases and/or metallic components
- **Scrap and ferrous materials,** such as metal residues, scale (oxidized metal particles) and other ferrous waste, which are largely reused

At Group level, a survey of all metrics relevant to the environment takes place on an annual basis on an online reporting system. Waste-specific data is collected by local experts, and entries are made in accordance with national requirements and definitions of waste types. The majority of the reported waste generation is based on direct volume measurements, which are also required by local regulations.

RESOURCE OUTFLOWS 2024/25

In tons	Hazardous waste	Non-hazardous waste
Waste diverted from disposal (re-use)		
Treated for re-use	5,019	15,237
Recycling	7,027	106,661
Other recovery processes	88,341	639,967
Total	100,387	761,865
Waste disposed of		
Incinerated	2,804	4,552
Landfill	12,153	100,146
Other form of disposal	78,526	350,511
Total	93,483	455,209
Total amount of waste generated	193,870	1,217,074
Share of non-recycled waste (in %)	48	37
Of which radioactive waste	0	–

OVERVIEW OF METRICS

ESRS disclosure requirement	Paragraph	Datapoint/metric	Basis for the preparation and description of the metrics used; description of the assumptions and methodology	
E5-4 Resource inflows	31c	Weight of reused or recycled secondary components, intermediary products, and materials (including packaging)	The parameters are based on data collected internally and have been converted to the BY for reference factors	
E5-5 Resource outflows	37a	Total amount of waste generated		
E5-4 Resource inflows	31b–c	Biogenic and recycling content of resource inflows		
E5-4 Resource inflows	31a	Material input		
E5-5 Resource outflows	36a	Product longevity		
E5-5 Resource outflows	36c	Recyclable content		

	Where applicable: description of the sources of measurement uncertainty	Resulting level of accuracy	External validation	Where applicable: measures planned to improve accuracy
	Measurement uncertainty of internal data collection systems and estimate for quarters	High (+/–3%)	None	Ongoing development and expansion of data collection and evaluation