Konecranes' sustainability commitments and 2024 highlights

We deliver safe and secure material handling

- Providing solutions for safe, uninterrupted and secure material handling
- Ensuring uncompromised safety in our own operations and supply chain

In 2024, we continued to develop our digital ecosystem and product safety and further strengthened our information security management system as well as safety culture. Konecranes received an IEC 62443 cybersecurity certification for its product development process, covering RTGs, Process Cranes and Light Lifting products.

We enable a decarbonized and circular world

- Supporting our customers in reaching their low-carbon targets with our offering
- Maximizing lifecycle value and eliminating waste with circular solutions throughout the whole value chain
- Working towards carbon neutral own operations

In 2024, we made progress with our climate agenda: Emissions from our own operations have decreased by 56% from 2019. As the science-based target for Scope 1 & 2 was reached in 2022, we now aim for carbon neutral own operations by 2030. Value chain emissions have decreased by 12% since 2019. Several electric products were launched in 2024, enabling significant value chain emission reduction potential for the coming years. Building on the ambition and efforts made, Konecranes committed to setting long-term net-zero targets complementing the existing near-term science-based targets.

We create a fair, inclusive, diverse and engaging working environment

- Supporting human rights in our value chain
- Ensuring a fair and engaging workplace
- Representing the multicultural communities where we operate

In 2024, we paid an adequate wage to all employees, committed to meeting living wage requirements and started to close the gaps. Living wage is higher than the adequate wage in several locations. We also measured an 83 percent inclusion index in 2024, indicating a strong feeling of inclusion among our employees.

We expect high ethical standards of ourselves and our business partners

- Embedding sustainability, compliance and ethical requirements in our business processes
- Following strong governance on sustainability, compliance and ethics

In 2024, Konecranes rolled out an updated Supplier Code of Conduct to include more robust human rights management requirements as well as more emphasis on environmental responsibility. We also changed our approach in the supplier selection and onboarding by moving from a mainly spend-based know-your-supplier process to a risk-based process.

Sustainability is at the core of Konecranes' strategy and operations. It's also reflected in Konecranes' purpose: Shaping next generation material handling for a smarter, safer and better world. The company's business ambition is to become the world leader in material handling solutions, creating value for everyone. 'Advancing responsible business' is one of the identified enablers that will make this ambition a reality.

Konecranes' technologies, solutions and services constitute a key link in enabling the flow of materials. Future-proofing Konecranes' business means systematically embedding sustainability in all operations. The Global Risk Report 2024 of the World Economic Forum again underscores risks related to the environment and ecosystem resilience. The report also continues highlighting cyber risks. Konecranes takes the global risk landscape into account in the daily work – and sees advancing sustainable business as a business opportunity.

The regulatory landscape has also been evolving, which forces Konecranes and other companies to further develop their processes.

Konecranes is actively pushing forward new solutions focusing on providing safe, uninterrupted and secure material handling with advanced low-carbon technology that enables our customers to transition to a decarbonized future. In addition to tangible decarbonizing benefits, we create value through enhanced circularity by extending the lifecycle of the equipment and enabling material handling solutions that improve safety. We do not compromise on safety, whether it is in our own operations or in the value chain. We strive to create a culture based on diversity, equity and inclusion. The importance of sustainability has grown among our customers and investors. Our business purpose and sustainability commitments are also clear engagement factors for our current and future employees.

Konecranes' sustainability agenda

Konecranes' sustainability strategy is built around our four sustainability commitments to manage areas where we can make the biggest impact: We enable a decarbonized and circular world; We deliver safe and secure material handling solutions; We create a fair, inclusive, diverse and engaging working environment; and We expect the highest ethical standards of ourselves and our business partners. The fourth commitment encompasses all of the three first ones and acts as a foundation. We have set targets for each commitment as well as programs that ensure the implementation of the needed actions. We update our assessment on the materiality of different sustainability topics annually. Read more about our materiality assessment in our **Sustainability Statement**.

Aligned with central frameworks

Konecranes joined the UN Global Compact in 2010. In our daily work, we are committed to the ten principles of the UN Global Compact. This means that we are committed to aligning our strategies and operations with the universal principles on human rights, labor, environment and anti-corruption, and to taking actions that advance societal goals.

Our sustainability approach and targets are aligned with the UN Sustainable Development Goals (SDGs). Read more about our sustainability targets and how they connect to the SDGs from the next page **Key sustainability targets and our progress**.

Konecranes has set ambitious climate targets validated by the Science Based Targets initiative (SBTi). These targets are aligned with the Paris Agreement on climate change to limit global warming to 1.5 °C. More information on our climate targets is provided in the section **We enable a decarbonized and circular world**.

Konecranes respects human rights and promotes the principles set in the UN Universal Declaration of Human Rights, UN Guiding Principles on Business and Human Rights and the Declaration on Fundamental Principles and Rights at Work of the International Labour Organization (ILO). We are also committed to adhering to the OECD Guidelines for Multinational Enterprises.

Governance

To succeed in our sustainability work, we follow solid governance practices described in the **Sustainability Statement**. Our operations and ways of working are guided by Konecranes' Code of Conduct and our values and principles for economic, social and environmental responsibility. In practical terms, this means conducting business on high ethical standards and extending these principles also down the supply chain.

For each Konecranes sustainability commitment, we have reviewed the main impacts, risks and opportunities and defined necessary actions. Read about our impact, risk and opportunity management as well as governance from the **Sustainability Statement** in the **Governance and Financial Review 2024**.

Stakeholder engagement

We work and develop our business together with our stakeholders. To understand evolving needs and expectations, we engage in regular and close dialogue with our key stakeholders – including our employees, customers and distributors, business partners like suppliers and subcontractors as well as investors.

In addition to our key stakeholders, we have identified other relevant stakeholder groups that are important to Konecranes, including local communities and authorities, associations, universities and research institutes, trade unions, non-profit organizations (NGOs), rating agencies, analysts and the media.

Transparency is key for building trust. We consider it important that both the frequency and content of our communications are consistent. Strategic dialogue helps us ascertain that our sustainability strategy supports market demands and that the information we provide is relevant and transparent. The feedback we gather from our Voice of Customer (VoC) surveys and continuous stakeholder dialogue is essential when reviewing our sustainability strategy.

Keeping stakeholders around the globe engaged entails communicating in multiple languages, using different channels, and cultivating and maintaining ongoing discussions. We communicate with the broader external community through content delivered via different channels such as **Konecranes.com** and through social media platforms.

Community involvement and donations

Konecranes wants to advance positive change in the communities where we operate and contribute to causes we believe in. We revised our donations strategy and Donations, Sponsorships and Marketing Cooperations Policy in 2024. In our donation strategy, we focus on our impact in supporting science, the environment and humans in need. In accordance with this, we made three significant donations in 2024 to non-governmental organizations and scientific research. The recipients are the University of Helsinki, the John Nurminen Foundation and CMI Martti Ahtisaari Peace Foundation. In addition, Konecranes' local units made smaller donations to local communities. Beneficiaries of these donations included, for example, a charity supporting women subjected to domestic violence and a charity arranging events for fatally sick children and their families.

The University of Helsinki is a leading university in Finland, and Konecranes has long collaborated with it. The donation in 2024 was targeted at research on computer vision and machine learning. Breakthroughs within this field are directly relevant for Konecranes' business.

The John Nurminen Foundation protects marine nature and advocates the importance of the Baltic Sea. The Baltic Sea is one of the world's most polluted seas. Many important Konecranes sites and customers are found alongside its coast, from Germany in the west to Finland in the east.

CMI Martti Ahtisaari Peace Foundation is a globally active leader in peace mediation and conflict resolution, working to prevent and resolve conflicts through dialogue. Its work is especially important as many conflicts are active in the world, including in countries and regions directly affecting Konecranes and its employees.

The sum of donations made in 2024 in accordance with the authorization from the Konecranes Annual General Meeting was EUR 0.4 million. In addition to donations, some of our sponsorships support the communities near our sites, typically relating to sports or cultural events.

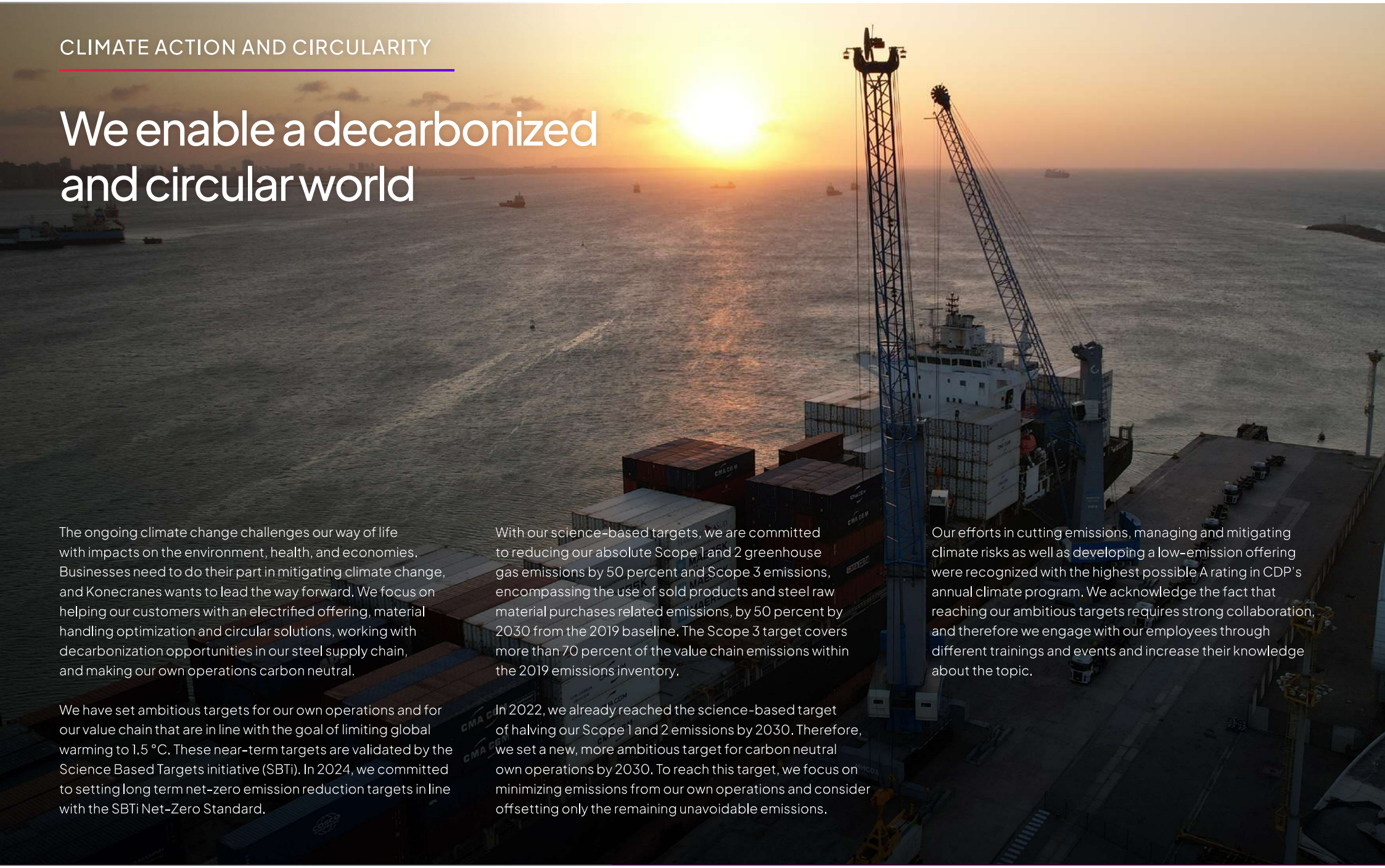
Key sustainability targets and our progress

Commitment		KPI	Target	2024	2023	Progress comment	Related UN SDG
We enable a decarbonized and circular world	**Supporting our customers in reaching their low-carbon targets with our offering**	Product launches and product development process development activities	All new products and services are more sustainable than the previous generation.	In 2024 our activities advanced sustainability.	In 2023 our activities advanced sustainability.	On track – Read more from our Sustainability Statement 2024.	3, 9, 12, 1
		Reduction of absolute Scope 3 GHG emissions from the use of sold products and purchased steel raw material (tons of CO_2e), %	Science-based target: -50% by 2030 from base year 2019.	-12%	-14%[1]	Behind – the sales of Port Solutions' diesel-powered equipment increased, impacting the value chain emissions. New electric and hybrid product launches are expected to bring emission reduction during the coming years.	7, 9, 12, 13
	Maximizing lifecycle value and eliminating waste with circular solutions throughout the value chain	Number of assessed new circular economy business opportunities	At least 3 opportunities assessed annually.	3	3	Achieved – 3 assessments were started, relating to product end-of-life services and packaging.	9, 12, 13
	Working towards carbon neutral own operations	Reduction of absolute Scope 1 and 2 GHG emissions from own operations (tons of CO_2e), %	Science-based target: -50% by 2030 from base year 2019.	-56%	-53%	Achieved – the target level was achieved in 2022.	7, 12, 13
		See above	Carbon neutral own operations by 2030.	-56%	New target as of May 2023.	On track	7, 12, 13
We deliver safe and secure material handling solutions	**Providing solutions for safe, uninterrupted and secure material handling**	ISO 27001 certification	100 percent ISO 27001 certification coverage for Information Security Management System with the targeted scope[2].	100%	100%	Achieved	3, 8, 9
		IEC 62443 certification (maturity level 1 to 4), certified product lines (coverage)	Continue product security certification and expand its coverage.	IEC 62443 4-1 with maturity level 2 received for Port Solutions rubber-tired gantry cranes and Industrial Equipment process cranes and light lifting product lines.	N/A	Achieved	3, 8, 9
	Ensuring uncompromised safety in our own operations and supply chain	Total Recordable Incident (TRI) rate, own employees[3]	<3 by the end of 2025	5.9	4.6	Behind – the number of own employee incidents increased. Several actions are being implemented to improve the occupational safety performance.	3, 8
		Annual number of safety observations	5 per employee by the end of 2025	6.83	5.81	Achieved – a high number of observations have enabled us to act on occupational safety risks.	3, 8
We create a fair, inclusive, diverse and engaging working environment	**Supporting human rights in our value chain**	Number of supplier sustainability audits	Conduct at least 30 on-site Supplier Code of Conduct audits annually	30	33	Achieved – audits proceeded as planned.	3, 7, 8, 10, 12, 13, 16
	Ensuring a fair and engaging workplace	Number of social responsibility assessments in own operations	Conduct at least 3 on-site social responsibility assessments	3	4	Achieved – assessment proceeded as planned.	3, 8
	Representing the multicultural communities where we operate	Inclusion index[4]	Maintain a strong Inclusion Index result: 71% or above	83%	81%	Achieved – inclusion index above the target level. Positive trend from 2021 to 2024. Target will be reviewed during 2025.	5, 10
		Share of women in leadership positions	Increase gender balance and all aspects of diversity.	18.7%	17.0%	Behind – still slight improvement towards gender balance.	5, 10
We expect high ethical standards of ourselves and our business partners	**Embedding sustainability, compliance and ethical requirements in our business processes**	Coverage of mandatory Code of Conduct training, all employees, %[5]	100% training coverage	98%	96%	On track – training coverage continued on a high level.	8, 16
		Employee responses on engagement survey questions related to business conduct, % positive responses[6]	100% positive responses	N/A	87% and 84%	On track – No data available for 2024. In the 2023 employee engagement survey, the average percentage of employees responding positively to questions (1) and (2) was 87% and 84%.	8, 16
		Coverage of Supplier Code of Conduct (SCoC) in supplier spend[7]	Continue to roll out SCoC based on identified supplier risk and spend	68%	58%	On track – higher share of suppliers covered by the Supplier Code of Conduct.	3, 7, 8, 10, 12, 13, 16
	Following strong governance on sustainability, compliance and ethics	ESG criteria in management incentives[8]	Include ESG criteria in management incentives	Included in short-term incentives	Included in short-term incentives	Achieved – strong governance was supported by the inclusion of ESG criteria in management incentives.	3, 8, 13

1) 2023 Scope 3 emissions recalculated for comparability with 2024: The volume of purchased steel corrected and the volume of sold products aligned with revenue recognition in financial reporting.
2) The development and operations of Konecranes business applications, IT infrastructure, customer portal, and productivity-enhancing mobile applications.
3) Number of work-related incidents resulting in medical treatment or lost time per million working hours.
4) The Inclusion Index metric is measured based on employee responses to an employee survey encompassing three questions on important aspects of inclusion: belonging, authenticity, and equity.
5) Excluding recent new hires (less than one month in the company) and people on leave of absence as well as employees in Ukraine.
6) Survey questions: 1) "Management of my unit is committed to integrity and ethical business practices" 2) "I would feel comfortable reporting unethical behavior if I saw it in Konecranes"
7) The supplier spend is monitored with a central procurement tool currently covering over 95 percent of the Group's procurement-relevant spend.
8) ESG criteria currently includes CO_2 emissions from own operations and the Total Recordable Incident (TRI) rate, with a weighting of 5 percent for each. Thus, the total weighting of ESG in the short-term incentives is 10 percent.

CLIMATE ACTION AND CIRCULARITY

We enable a decarbonized and circular world



The ongoing climate change challenges our way of life with impacts on the environment, health, and economies. Businesses need to do their part in mitigating climate change, and Konecranes wants to lead the way forward. We focus on helping our customers with an electrified offering, material handling optimization and circular solutions, working with decarbonization opportunities in our steel supply chain, and making our own operations carbon neutral.

We have set ambitious targets for our own operations and for our value chain that are in line with the goal of limiting global warming to 1.5 °C. These near-term targets are validated by the Science Based Targets initiative (SBTi). In 2024, we committed to setting long term net-zero emission reduction targets in line with the SBTi Net-Zero Standard.

With our science-based targets, we are committed to reducing our absolute Scope 1 and 2 greenhouse gas emissions by 50 percent and Scope 3 emissions, encompassing the use of sold products and steel raw material purchases related emissions, by 50 percent by 2030 from the 2019 baseline. The Scope 3 target covers more than 70 percent of the value chain emissions within the 2019 emissions inventory.

In 2022, we already reached the science-based target of halving our Scope 1 and 2 emissions by 2030. Therefore, we set a new, more ambitious target for carbon neutral own operations by 2030. To reach this target, we focus on minimizing emissions from our own operations and consider offsetting only the remaining unavoidable emissions.

Our efforts in cutting emissions, managing and mitigating climate risks as well as developing a low-emission offering were recognized with the highest possible A rating in CDP's annual climate program. We acknowledge the fact that reaching our ambitious targets requires strong collaboration, and therefore we engage with our employees through different trainings and events and increase their knowledge about the topic.

It's a business opportunity

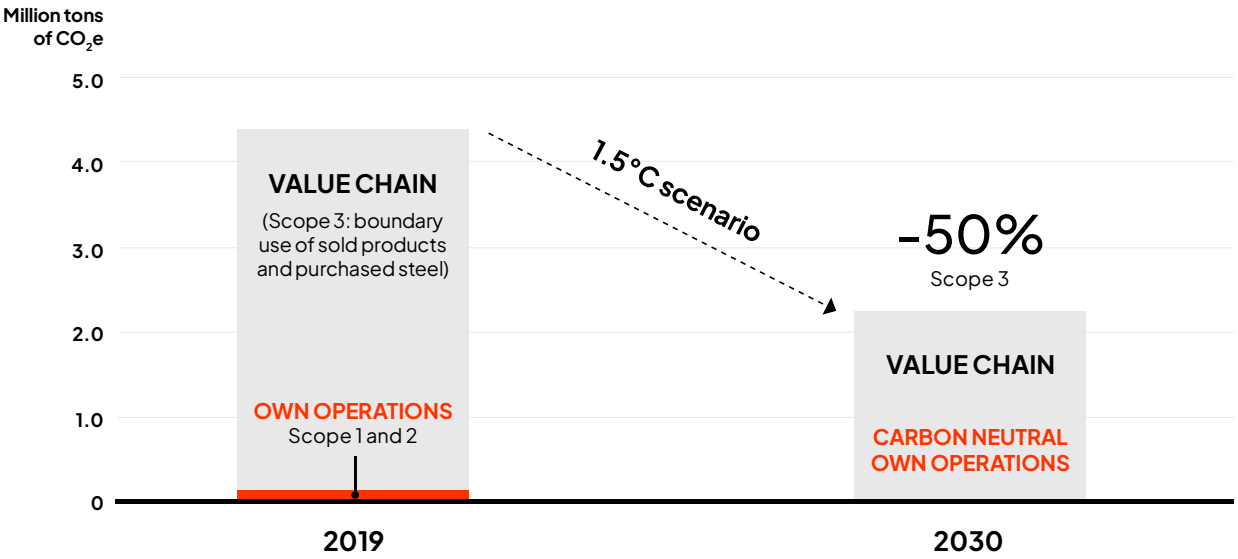
The potential impacts of climate change are far-reaching, from the natural disasters that could affect our supply chain to increased local regulation and the cost of energy and materials, which could impact production in our manufacturing sites and the servicing of equipment. We are in a unique position to provide solutions that help industries, such as ports, transition to a low-carbon future.

Circular economy is identified as one of the enablers of curbing climate change, as greenhouse gas emissions can be reduced by improving resource efficiency, designing out waste and pollution, and keeping materials and products in use longer. Konecranes' approach to circularity focuses on smart design and material efficiency, sharing and re-using resources, and service operations that extend the lifetime of equipment for our customers and optimize related resource needs.

Konecranes has done a comprehensive climate-related risk and scenario analysis. Read more about our detailed climate risks and opportunities from the Sustainability Statement in our Governance and Financial Review.

We have concluded that working towards limiting global warming to 1.5 °C compared to pre-industrial era levels is a business opportunity for Konecranes. Reaching the ambition means that we must focus on developing our product portfolio and low-carbon offering as well as leading the decarbonization of our supply chain. To meet our customers' increasing demand for low-emission products, we will focus on providing solutions that support them in reaching their decarbonization targets. We combine productivity with eco-efficiency when designing our products, and the extensive service offering lengthens the lifecycle of equipment and supports circular economy. With Konecranes' Design for Environment process, we aim to improve our products' environmental performance.

Konecranes' climate targets



KEY FOCUS AREAS

- **Electrified offering and customer industries' electrification.** The majority of our offering is already available electrically, and we are committed to offering electric variants of the last remaining diesel-fueled product lines by 2026. The electrification of ports and terminals is a necessity for realizing the emission reduction potential.
- **Steel industry decarbonization.** We aim to increase the share of low-emission steel purchases and encourage our suppliers to move to low-emission production.
- **Energy market decarbonization.** Energy decarbonization trend will support us to drive emission reductions in our operations and throughout the value chain.
- **Material handling optimization.** We optimize material handling by offering and developing automation and digital solutions for our customers.
- **Carbon neutral own operations.** We continue to increase energy efficiency and use of renewable energy in our operations and electrify our vehicle fleet.

The progress of our emission reduction

Our own operations (Scope 1 & 2) cover less than one percent of our total emissions, while about 99 percent of our emissions originate from the value chain. Most of the value chain emissions are generated in two emission categories: Use of sold products and Purchased goods and services. In the category Use of sold products, the Port Solutions segment's diesel-powered equipment contributes the most, also dominating our consolidated total emissions. The highest contribution from the category Purchased goods and services comes from steel.

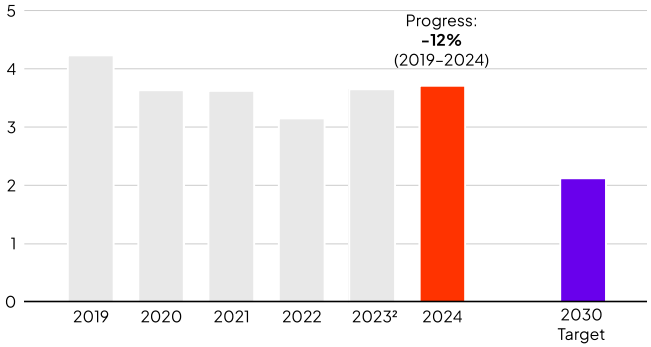
In 2024, our Scope 3 value chain emissions within the science-based target boundary, limited to the use of sold products and steel raw material purchases, were 12 percent lower compared to the 2019 baseline, but increased by 1 percent from the previous year. The Scope 3 emissions are affected by sales volume and the type of the sold products (fully electrified, hybrid or diesel).

Konecranes' Industrial Equipment offering is electric, and the Port Solutions offering of electric and hybrid products has steadily expanded with the last remaining diesel-fueled product lines within the lift truck business to be made available electrically by the end of 2026. After this, we expect the Scope 3 emission reduction to accelerate. In 2024, the share of electric and hybrid equipment was 66 percent of Port Solutions' total equipment sales.

We can only reach our climate ambition together with our customers, and the progress of the decarbonization transformation within ports and terminals is key. We also need to cooperate with our steel suppliers to find ways to support their emission reductions. We already have suppliers providing us with low-emission steel, namely steel with high recycled content combined with using renewables in production. We will challenge our suppliers to move to lower emission steel production and to improve their emission data reporting capabilities.

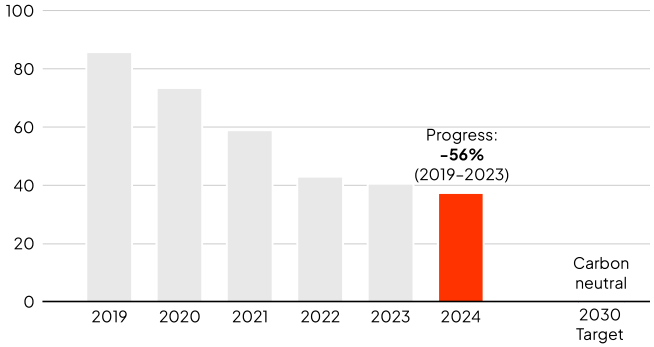
In addition, we will focus on advancing digitalization and automation to make our customers' material handling more productive while minimizing emissions. We also design our products to be maintainable, durable and optimized for overall material efficiency.

Science-based target and value chain GHG emissions[1]
Scope 3, million tons of CO_2e



1 Konecranes' Scope 3 emissions within the science-based target boundary are limited to the use of sold products and purchases of steel raw material.
2 Recalculated for comparability.

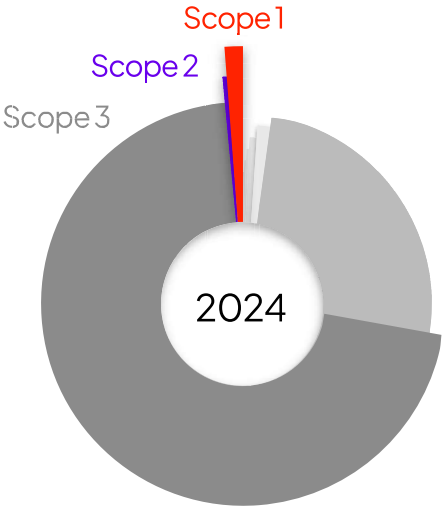
GHG emissions from own operations[1]
Scope 1 & 2, thousands of tons of CO_2e



1 Carbon neutrality means having a balance between emitting carbon and absorbing carbon from the atmosphere. For Konecranes this means minimizing emissions from its own operations, maximizing the share of renewables and offsetting the unavoidable emissions by purchasing carbon credits delivering finance to projects reducing emissions elsewhere.

In 2024, the emissions from our own operations (Scope 1 & 2) were 56 percent lower compared to 2019.

Emissions in 2024 (tons of CO_2e)



Scope 1	35,000	0.7%
Scope 2	2,400	0.0%
Total Scope 3	5,236,600	99.3%
Use of sold products	3,600,100	68.3%
Purchased goods and services	1,349,900	25.6%
Upstream transportation and distribution	196,900	3.7%
Investments	24,500	0.5%
Downstream transportation and distribution	19,700	0.4%
Employee commuting	13,500	0.3%
Business travel	13,000	0.2%
Fuel and energy related activities	12,600	0.2%
End-of-life treatment of sold products	4,000	0.1%
Capital goods	2,300	0.0%
Waste generated in own operations	200	0.0%

Supporting our customers in reaching their low-carbon targets with our offering

We want to promote and support the change towards a low-emission future and push the industry's sustainability standards further. We support our customers in achieving their climate targets by offering low-carbon solutions, extending product lifecycles, and applying smart design principles focused on energy and material efficiency, durability, and maintainability.

A product's environmental impact is largely determined in the early design stages. Our products are designed with their entire lifecycle in mind and the lifecycle can last for decades. Investing in connected and smartly designed products allows our customers to preserve their equipment's value and reduce costs and environmental impact.

Features of low-carbon technologies

Our lifecycle assessments highlight the substantial emission savings achieved by electric equipment compared to their diesel-powered counterparts. Konecranes' product portfolio offers a variety of low-emission power options, resource and energy efficiency features, performance and safety with optimized maintenance, upgrades and modernizations. Intelligent power sources are promoted, including hybrid and full-electric options, with features such as regenerative braking. In the case of power trains, we focus on operational efficiency without compromising equipment performance.

As an example, our fully electric Generation 6 mobile harbor crane and our electric E-VER Lift Trucks reduce the energy consumption needed for material handling operation. In addition to zero tailpipe emissions, the durable design and robust construction doubles the crane's service life in container operation compared to earlier generations.

In our hybrid power systems, braking energy is recuperated to the battery, and the diesel generator is used to recharge the battery only when needed. Therefore, a significantly smaller diesel generator and fuel consumption fulfills the energy needs of the crane. Read more about the hybrid power system Hybrid Power Pack for Konecranes Rubber Tired Gantry cranes with reverse braking at **https://www.konecranes.com/en-us/port-equipment-services/container-handling-equipment/power-options-for-rtgs/hybrid-power-pack**.

For diesel equipment, we offer a variable speed diesel generator, the Konecranes "Fuel Saver", which utilizes advanced control technology, saving fuel by up to 35 percent compared to a conventional fixed speed diesel generator. Read more about our fuel-saving technology Flow Drive for Lift Trucks at **https://www.kclifttrucks.com/products/konecranes-ecolifting/flow-drive**.

Konecranes' diesel equipment is also suitable for HVO100 diesel quality. HVO100 is a renewable and fossil-free chemical copy of a regular diesel fuel, and it is mostly made of vegetable oils as well as suitable waste and residue fat. By shifting to HVO100, fossil-based CO_2 emissions can be reduced by up to 90 percent.

Diesel motor standards

Diesel motor exhaust treatment is based on European and US legislation on motors. In the US market, we comply with the Tier 4F diesel engine standards, applicable to new and remanufactured engines since 2014. In the European region, we adhere to the Stage V diesel engine standards. This technology is accessible to customers worldwide, provided they can source the right quality of fuel with near-zero sulfur content.

Emission regulations for non-road diesel engines vary worldwide. The most stringent standards, the US EPA Tier 4 final and the EU Stage V, are effective in specific market areas and adopted by certain countries. Compliance with these regulations involves employing an advanced exhaust gas aftertreatment system (EATS), featuring catalytic particulate filters and NOx reducers. This system is sensitive to sulfur content in diesel fuel, necessitating high-quality fuel. Market areas with lower quality fuel and Tier 3 or lower emission regulations employ alternative emissions control technologies, such as exhaust gas recirculation. While EATS-equipped power units can be used outside Tier 4 final and Stage V areas, this requires ultra-low sulfur diesel fuel and consideration of the practical maintenance aspects.

New solutions to be more sustainable than the previous generation

We aim for all new solutions to be more sustainable than the previous generation. During 2024, we continued promoting our Design for Environment concept and strengthened our teams' knowledge about environmentally conscious design that enables minimizing climate impact throughout the whole product lifecycle. Our Design for Environment concept guides tangible design actions taken by our experts from material selection to energy efficiency, durability and maintainability of the product. We also continued to conduct lifecycle assessments to support the product development work.

In Port Solutions, the focus has been on developing and strengthening our capabilities in introducing new electrified models. As the Industrial Equipment product offering is already electric, one of the focus areas is to continuously improve the energy efficiency of the solutions as well as harmonize the technology platforms. Our customers benefit, for example, from standby power reduction possibilities and offering related to regenerative power, as well as motor development with optimized material use and efficiency.

To support customers' decision-making, we provide accurate environmental impact data, including our products' energy consumption and GHG emissions, with our Lifecycle assessments (LCA) and Environmental Product Declarations (EPDs).

Lifecycle assessments

Lifecycle assessment (LCA) is a method that supports product development and provides fact-based information on the product's environmental impact during its different lifecycle phases from cradle to grave. LCAs guide product development by identifying high-impact processes and components, facilitating informed choices on materials, designs, technologies, and logistics. By doing this, we can implement measures to reduce our CO_2 emissions. Our commitment to minimizing environmental impacts is underscored by the extensive application of LCAs, conducted at corporate, product, and component levels. Adhering primarily to ISO 14040-44 standards, we leverage professional LCA tools and emission databases to ensure the accuracy and reliability of our assessments. We have invested in in-house expertise dedicated to LCA activities.

INCREASING THE USE OF LOW-EMISSION STEEL IN PRODUCTS

One of Konecranes' key focus areas to reduce greenhouse gas (GHG) emissions in our value chain is to reduce emissions from purchased steel raw material. We are working to better understand the impact these emissions have on our products by discussing with our suppliers and encouraging them to measure, report, and decrease emissions. Currently, we are challenging our steel distributors and suppliers to offer us steel products with lower GHG emissions. We see that increased use of recycled raw materials and electric arc furnaces with renewable energy in the steel production are practical ways of reducing steel carbon footprint at the moment.

Our cranes are built around Core of Lifting. This is the package of key components that we design and manufacture in-house: the Konecranes gears, motors and controls. During 2024, we focused on our gear manufacturing and started to investigate how to decrease steel related emissions. Today, we already use low-emission steel in some of our gears and we are actively searching solutions to accelerate this activity.

Additionally, we also investigate the use of low-emission steel in the industrial cranes' main girders, which are the biggest single steel components of the crane. Raw material contributes the most significant share of cradle-to-gate climate impact for industrial equipment. Based on a lifecycle assessment case study for a configured-to-order crane delivery with capacity 10T-15M span, a significant reduction potential for the climate impact was identified: The preliminary analysis results show that the raw material's climate impact using recycled steel plate produced with renewable energy was approximately 43 percent smaller compared to using steel with global average steel plate.

Maximizing lifecycle value and eliminating waste with circular solutions throughout the whole value chain

Our service operations extend the lifecycle of equipment through preventive and predictive maintenance, repair and remanufacturing of parts, and modernization and retrofitting. Our commitment to accelerating circularity spans from business models to waste management in our own operations.

By utilizing circular economy principles like improving resource efficiency, designing out waste and pollution, and keeping materials and products in use longer, we can reduce our environmental impacts. Additionally, circular business models can generate business opportunities and value for our customers, for example, through extending the equipment lifespan or offering products as a service. Konecranes' approach to circularity focuses on services for equipment lifetime extensions, smart design and material efficiency as well as sharing and re-using resources.

Service and spare parts offerings

We have one of the largest service networks in the industry and use modern technical solutions to enable unique circular economy opportunities and provide benefits for our customers.

Modernizations can provide a complete transformation of an existing crane as an alternative to replacing it. High-maintenance or obsolete components can be replaced with newer technology and new functionalities can be added to help customers meet regulatory, maintenance and production requirements. These updates can help extend the service life of the equipment, improve energy efficiency and productivity, and reduce material usage and emissions. Moreover, modernizing an old crane can significantly reduce CO_2 emissions when compared to a full crane and steel structure replacement.

In addition to improving equipment safety and productivity, rebuilding components or overhauling hoists can also extend equipment lifetime and help reduce emissions. Our repair centers in Finland, Germany and the US provide component and hoist repair services allowing for the continued use of the equipment instead of replacing it. All repaired equipment is tested to ensure performance according to customer needs and industry standards.

Our Lift Trucks can be restored and sold as used machines. For example, Konecranes Lift Trucks in Markaryd, Sweden, as well as certain dealers and third-party workshops offer thiskind of restoration service.

Our battery as a service concept enables customers to purchase an E-VER electric heavy forklift without the battery, which is instead subscribed to as a monthly fee, based on its usage. This reduces the initial capital investment by the customer and keeps the machine resale value independent from the battery. Batteries can be replaced when the rental agreement comes to an end or if needed by the renter during the hire period.

REMANUFACTURING

One example of a service concept integral to Konecranes' sustainability agenda is remanufacturing. It combines efforts to apply circular economy principles, promoting efficient raw material use, energy savings, and emissions reduction. Remanufacturing involves repairing products or components in Konecranes service centers to be as good as new, extending their lifetime and minimizing downtime for customers.

An illustrative case involves remanufacturing a rope drum used in heavy-duty cranes. Instead of replacing the entire component, Konecranes service centers repair it to function as good as new, saving customers weeks of downtime. The remanufacturing process involves precision pre-machining and filler welding, ensuring a comparable lifetime and durability for new components. Beyond the immediate customer benefits of reduced downtime, remanufacturing significantly decreases the carbon footprint, with calculations indicating nearly a one-third reduction in the case of the rope drum.

Smart design

Konecranes' products are designed to be modular, repairable, upgradable and recyclable, and built to last. This enables our customers to get long-term value for their investment. Modularity ensures the possibility for performance upgrades during the product's lifetime. The Design for Environment concept supports advancing circularity, as it prioritizes selecting repairable and recyclable materials, and designing our equipment for durability, material efficiency and maintainability.

Most of the materials we use are recyclable. Our products consist primarily of different types of metals (e.g. steel, aluminum, cast iron), plastics, elastomers and concrete. In a typical rubber-tired gantry (RTG) crane, about 95 percent of the material weight are metals, whereas the rubber tires form approximately 4 percent of the material weight. The remaining 1 percent includes, for example, electrical and electromechanical components, plastic, glass, lubricants and chipboards. We advise our customers on how to recycle our products correctly after use. We also encourage our customers to reuse their equipment, for example, through modernization or retrofitting.

Other solutions supporting circularity

We believe that digitalization is a key enabler in the low-carbon and circular economy transformation. Digital solutions help optimize the movement of goods (e.g., parts) and people (e.g., service personnel). Our digital services enable data-driven maintenance using real-time data, historical records and analytics to optimize maintenance schedules, improve spare parts management and extend equipment lifespan. Real-time condition monitoring means maintenance can be carried out based on actual usage rather than fixed intervals and can also signal the need for upgrades.

Our recently launched Predictive Maintenance Engine continuously follows customer crane lifecycle data to predict the need for service before a breakdown occurs and more extensive repairs are needed. The engine automatically creates a case for our sales team so they can quickly initiate service for the customer.

An example of sharing resources is our automated storage system Agilon, which can be taken into use on a rental basis. Agilon is a modular system that helps optimize inventory management. As Agilon provides exact information on the stock levels and minimizes unnecessary handling time in warehouse storage and handling, it reduces the risk of undesired extra stocking. This, in turn, can support reaching targets related to circular economy as materials and resources are being utilized more effectively.

MEASURING CIRCULARITY

As we want to measure our innovativeness and progress on accelerating circularity, we follow our progress with the following Key Performance Indicators.

Share of recycled steel used in our products, %
We have estimated that the share of recycled steel in our annual steel purchases is approximately 40 percent, based on the respective average shares in our sourcing regions. Going forward, we aim to collect supplier-specific information to learn together with our suppliers and improve the accuracy of the share of recycled steel.

Recycling rate of waste generated in manufacturing operations
In 2024, the recycling rate for the waste generated in our own manufacturing operations was 86 percent, including waste directed to recycling or reuse (87 percent in 2023).

Revenue linked to modernizations or retrofits
In 2024, our revenue related to modernizations and retrofits was EUR 336 million (EUR 300 million in 2023) or 8 percent of Konecranes Group's total revenue (8 percent in 2023).

Number of circular economy innovations
We are committed to assessing at least three new circular economy business opportunities each year. In 2024, we continued to study three new business opportunities related to the circular economy: a reuse concept for transport packaging, end-of-life services for cranes, and end-of-life opportunities for the batteries we use in our products.

Working towards carbon neutral own operations

We continuously aim to improve energy efficiency further in our operations. All electricity used in our factories has been renewable since 2022, and we are increasing the use of renewables as well as continue to develop the efficiency and electrification of our vehicle fleet. Konecranes targets carbon neutral own operations by 2030.

Energy efficiency in our manufacturing operations is improved though measures such as factory modernizations and machinery renewals, improving ventilation and insulation, using heat recovery technologies, and training employees on energy-saving behavior.

While all electricity used in our manufacturing operations is renewable, we aim to further increase the share of renewables in our other energy needs. In 2024, our Markaryd factory in Sweden replaced its oil-based heating with geothermal heating, and our factories in Hämeenlinna and Hyvinkää, Finland, have switched to renewable district heating. The Hyvinkää factory also uses an advanced heat pump technology by which excess heat of the factory is recovered to the district heating system of the local energy company.

In 2024, approximately 70 percent of our own operations' emissions (Scope 1 & 2) came from the fuel consumption of the company's vehicle fleet, which mostly consists of our service vehicles. We aim to reduce the associated emissions by optimizing vehicle sizes and routes, electrifying where feasible, and continuing to train economical driving practices. The pace of the electrification of our service vehicles varies from country to country as the maturity of the local infrastructure, offering and other circumstances also vary.

The goal is to minimize emissions so that there would be nothing left to offset. If any emissions are left after the implementation of all these activities, they will be offset. As a result, Konecranes' own operations will be carbon neutral.

Environmental management driven by HSE Excellence

The environmental management in Konecranes' operations is driven by the Health, Safety and Environment (HSE) Excellence program. Within the program, we define our minimum requirements for environmental management, implement rules for environmental behavior and certify our operations with a third-party audited ISO 14001 Environmental Management System.

At the end of 2024, the share of the company's factories holding an ISO 14001 certificate was 97 percent (2023: 86 percent and 2022: 83 percent). As part of the ISO 14001 certificate, each factory is responsible for evaluating, prioritizing, and mitigating their environmental risks at a local level and for ensuring continuous improvements.

Our Global HSE standards set the minimum requirements and standardize our ways of working by defining common rules for all operations regarding energy, chemical handling, and waste management. Environmental incidents are reported through our global HSE reporting tool, and investigations of the root causes and corrective actions are conducted accordingly. The HSE standards also give clear instructions to ensure residual waste and hazardous waste are disposed according to local requirements and through licensed waste management companies. We follow our progress against waste data on a quarterly basis, including the treatment method.

Waste generated in own operations, tons

	2022	2023	2024
Total non-hazardous waste	15,700	19,400	17,500
Metal scrap	12,000	15,200	13,100
Cardboard, paper and wood	2,400	2,700	2,800
Other waste[1]	1,300	1,500	1,600
Hazardous waste, including e-waste	1,300	1,300	1,300
Total waste	17,000	20,700	18,700
Recovered for recycling or reuse, %	78%	87%	86%

[1] Other waste includes plastic, organic, mixed and energy waste.

Energy consumption in our own operations, MWh

	2022	2023	2024
Total energy consumption	286,200	236,000	232,400
Fuels	133,500	123,900	120,700
Natural gas and LPG[1]	45,900	43,900	42,700
Electricity	60,900	57,500	58,500
District heating	45,900	10,600	10,400
Share of renewable energy, %	22%	23%	27%
Share of renewable electricity[2], %	100%	100%	100%

[1] Liquified petroleum gas
[2] Manufacturing operations

Our impacts on nature

Our manufacturing sites do not reserve large areas of land or have a significant effect on biodiversity in the surrounding natural environment, based on our impact analysis using the ENCORE tool and WWF Biodiversity Risk Filter. After comparing the results to our own operations' environmental inputs and outputs, we concluded that our biggest impact on biodiversity is related to climate change through emissions.

In the coming years, we will continue to strengthen our understanding of our biodiversity impacts in the value chain.

In 2024, we participated in the training program by the UN Global Compact Finland network guiding companies to measure biodiversity impacts and set science-based targets for nature. We plan to use the learnings of this training to further improve our understanding of our nature impacts especially in the value chain.

Mitigating risks related to water use

Based on our analysis, water consumption in our manufacturing is not significant since our processes use very little or no water at all. However, we acknowledge water stress as a global problem, further intensified by climate change in certain regions. In the coming years, we will continue strengthening our understanding of the water impacts in our supply chain. We collect water consumption data quarterly from our manufacturing units. In addition to the actions at our manufacturing sites, we have provided guidelines for our factory workers to reduce water consumption.

We have investigated whether our factories are in areas of water stress using the WWF's Water Risk Filter tool for assessing basin and operational water risks. According to this assessment, Konecranes has no manufacturing sites in "Extremely High" water stress areas. Our analysis covered 35 units, out of which four are in "High" and the rest in "Medium" or "Low" risk areas. The assessment also provided scenarios on water risks based on climate and socioeconomic changes by 2030 and 2050, giving an insight into the future water risks.

Two of the four units in high-risk water stress areas (Jejuri in India and Surabaya in Indonesia) use water in their production processes, however only limited amounts. Both sites have paid specific attention to water use. For example, our site in Jejuri has implemented a closed-loop system for the water used in the production process and installed a sewage treatment plant, reusing the water for gardening.

Water consumption in our own operations, m³

	2022	2023	2024
Water consumption in our own operations, m³	152,300	144,000	123,900