



2023



**GASUM
SUSTAINABILITY
REPORT**

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Who we are

This sustainability report presents Gasum's most significant sustainability performance topics, including impacts on climate and the environment as well as the social agenda. Reporting is annual and is prepared in accordance with the GRI (Global Reporting Initiative) Standards. Gasum is a signatory to the United Nations Global Compact initiative since 2021.

Gasum is a Nordic energy company. We are an expert in the Nordic gas sector and energy markets. We provide cleaner energy for industrial as well as road and maritime transport needs.

Gasum is the leading producer of biogas in the Nordic countries. We invest strongly in the circular economy by producing biogas and recycled nutrients from a variety of waste streams in Finland and Sweden.

We import natural gas to Finland and are the biggest liquefied natural gas (LNG) distributor in the Nordic countries. LNG can be used in transport as well as in many industrial processes to cut emissions.

We help our business customers in the energy market – we want to make operating in the energy market easy. Our experts take care of electricity sales, sourcing and production for our customers throughout the market chain.

Sustainability plays a very important role at Gasum and is an integral part of our strategy. We consider economic, social and environmental sustainability in everything we do.

The Gasum Group has around 330 employees in Finland, Norway, Sweden and Germany. Gasum is fully (100%) owned by the State of Finland.

Read more about Gasum on our website – [Gasum.com](https://www.gasum.com)

Gasum sustainability highlights 2023

BIOGAS PRODUCTION

761 Gigawatt hours (GWh) of biogas produced.



RENEWABLE VOLUMES

25% of total volumes of energy sold were renewable (biogas and power) – up from 21% in 2022. Target is 45% by 2027.

BIOGAS TRADE

1.7 TWh of biogas delivered.



RENEWABLE ELECTRICITY

5.3 TWh worth of renewable electricity Guarantees of Origin traded.

CARBON HANDPRINT

565,000 tons of CO₂eq emission savings enabled with biogas – up 27% from 2022.



CARBON FOOTPRINT

100% renewable electricity used in our own operations.

CIRCULAR ECONOMY

Almost **1,000,000** tons of different types of waste managed through biogas production.



ACTIVE SAFETY CULTURE

43% increase in safety observations by our employees and contractors, 34% increase in safety walks.



CEO's statement

We have made sustainability our business

Sustainability and emission reduction targets are at the heart of our business strategy. We offer our customers the expertise and tools to reduce their emissions continuously. The goal is common for all: a carbon neutral future.

Navigating the complex energy environment of today is a challenge – and the complexity will not be decreasing in the future. The intermittency of renewable electricity production and the fact that not every function of our society can be electrified in the first place, are both hurdles that will not be overcome overnight.

Companies that use energy need implementable actions on a roadmap towards the carbon neutral society of the future. To us, at Gasum, providing that roadmap is the core of our business.

At the same time, our own business is evolving away from fossil fuels and towards renewable energy. One of the targets of our sustainability program is that 45% of volumes sold by Gasum will comprise of renewable energy – renewable gas and power – by the year 2027.

This means investing a lot of time and resources in increasing biogas production and sourcing renewable gas, developing a market for products that lower emissions and increasing sales in renewable electricity and energy management services. There is a lot of work to be done but we at Gasum get energized by working together towards a carbon-neutral future.

Mika Wiljanen

Gasum CEO

Sustainability is the core of our strategy

Our target is to bring a growing amount of renewable gas to the market by 2027 through both increasing investment in our own production and sourcing certified biogas from trusted partners.

The world is changing rapidly, and our job is to keep the engines of change running. Despite recent market turmoil and a changed geopolitical landscape, there is an increasingly urgent need to keep an eye on the long game – the transition to a cleaner energy future.

Gasum's strategy is based on increasingly shifting the emphasis towards renewable gas and electricity in our operations. Our role is to guide our customers towards sustainable energy solutions and help them continuously reduce their greenhouse gas emissions.

Increasing biogas and renewable electricity

Gasum's goal is to bring seven terawatt hours (7 TWh) of renewable gas to the market by 2027. This will be achieved through both increasing investment in our own production but also sourcing more renewable gas from trusted partners.

In its business Gasum aims to increase the share of renewable volumes, i.e. renewable gas and power, to 45% by 2027. This

means increasing the role of renewable gas and trade in renewable electricity.

Natural gas, and its liquefied form LNG, remains an important stepping stone on the journey towards a more sustainable future. The infrastructure developed for natural gas and LNG fully serves the distribution of biogas and liquefied biogas (LBG) as well as synthetic e-methane and its liquefied form (e-LNG) which are both completely renewable and sustainable.

Looking at sustainability holistically

Sustainability is present in everything we do at Gasum: every choice, every target and every action is grounded in its sustainability in the long run. We consider it our duty to guide our customers towards sustainable energy solutions and help them continuously reduce their greenhouse gas emissions.

We look at sustainability holistically through environmental, social and economic lenses. This means enabling emission reductions for our customers, reducing the environmental impacts of our own operations, promoting a safe work environment and ensuring responsible business practices.

We reward our personnel for sustainability – we have a climate target as part of our short-term incentive plan.

Low-carbon energy products in a safe working environment

Gasum's aim is to increase the availability of low-carbon energy products to our customers and promote the circular economy – this is the most significant sustainability impact and handprint of our operations. At the same time, our target is to minimize the environmental impact of our own operations. We work to increase energy efficiency and continue to use 100% renewable electricity in all our operations.

While committed to combating climate change and promoting the circular economy, we also acknowledge our impact on people. Safety is a key element in Gasum's operations. We continue to expand our safety-first culture and promote the safe production, handling, and use of gas.

We are committed to respecting human rights and do not tolerate human rights violations in any form. The Gasum Code of Conduct further elaborates our responsible business practices and ways of working with our customers and stakeholders, and together as an organization. Economic responsibility and corporate governance are the cornerstones for our operations.

Gasum Sustainability Program guides us

Gasum's sustainability work is steered by its Sustainability Program and objectives. Transparency, openness, and diverse stakeholder cooperation are guiding principles for Gasum in both business and communication.

We have identified several environmental, social and governance related topics that are relevant for our business and support the global UN Sustainable Development Goals (SDGs). These material topics form the building blocks for our sustainability program and guide our work in all operating countries.

Objectives are set for each program theme and progress is communicated through our annual Sustainability Report. This Report is prepared in accordance with the Global Reporting Initiative (GRI) framework and has been published since 2010.

A sustainability program update is planned for the year 2024 in accordance with the results of the [CSRD compliant double materiality assessment](#). The year 2023 Sustainability program is based on the materiality assessment released in 2019.



Gasum's goal is to bring 7 TWh of renewable gas yearly to market by 2027 – saving 1.8 million tons of CO₂ emissions

Gasum launched a new strategy for the next five-year term in 2022. In practice, Gasum aims to shift the emphasis of its business and operations more towards renewable gas and electricity.

As part of this shift, Gasum has set a new ambitious goal of bringing seven terawatt hours (7 TWh) worth of renewable gas annually to the Nordic market by the year 2027. Achieving this means significant investments in increasing Gasum's own biogas production as well as sourcing more renewable gas from trusted partners.

Using 7 TWh of renewable gas instead of fossil fuels would also mean a total yearly reduction of 1.8 million tons of carbon dioxide for Gasum's customers.

[Read more on Gasum's website](#)

Value-creation

INPUTS

Comprehensive infrastructure

- 5 LNG terminals
- 3 bunkering vessels and 2 LNG carriers
- 16 Biogas plants, 1 under construction
- 4 Partner biogas plants
- About 100 gas filling stations

Human resources

- 337 employees in 4 countries
- 96% of employees permanent

Resources enabling our business Natural gas, LNG

- Biogas, LBG
- Wind power
- 987,000 t waste and residues for biogas production
- 100% renewable electricity used in all operations

Relationships with external stakeholders

- Strong customer focus
- Circular economy and industrial ecosystem partnerships
- Cooperation with suppliers and industry networks

OUR BUSINESS

Cleaner Energy

- We offer cleaner energy and services to help our customers to reduce their own carbon footprint as well as that of their customers.
- Our services and solutions are used in maritime, road transport, industry and energy production.

Energy products

- Biogas, LBG, natural gas, LNG, windpower, power

Services

- Gas filling station network
- Bunkering services
- Energy Market Services
- Portfolio Management Services
- Trading services
- Circular Economy Solutions

OUTCOMES

Value to customers through long-term, low-carbon solutions

- Reliable supply of energy products and services to customers
- Sustainable solutions and reduced GHG emissions
- Increased share of renewables in offering
- High customer satisfaction

Financial footprint

- € 1,457 million net sales
- €26 million salaries and fees
- €63 million investments
- €184 million taxes paid and collected

Wellbeing and safety of employees and contractors

- Focus on safety first-culture
- Employee and contractor safety, 4 LTI
- Absence rate 1.74%
- Continuous employee pulse survey
- Inspirational leadership

Climate change mitigation

- Increased availability of renewable energy replacing fossil fuels
- 565,000 t CO₂eq emission reduction to customers with biogas
- Reduced local air emissions in urban areas and at sea
- Continuous energy saving measures
- Scope 1, direct CO₂ emissions 29,000 t
- Scope 2, emissions from purchased energy, 6,400 t
- Scope 3, indirect emissions from up/downstream supply chain, 3,444,000 t

Supporting circular economy

- Conserving and creating value from existing resources
- Promoting nutrient recycling
- Contribution to UN Sustainable Development Goals



Sustainability



AT GASUM

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INTRODUCTION

SUSTAINABILITY

ENVIRONMENT

SOCIAL

GOVERNANCE

Managing sustainability

In day-to-day operations, all our employees are responsible for managing efforts to advance Gasum's sustainability.

We have formulated Gasum's Sustainability program to promote sustainability and guide our responsibility work. The program applies to the company in all operating countries. The program addresses the most material social, environmental, and economic aspects of Gasum's responsibility: safety and security, climate, circular economy, access to cleaner energy, people, and responsible business.

Key performance indicators and targets are set for each material focus area. We track our achievements, and regularly report on performance. This report addresses our progress towards the sustainability targets set for 2023.

Our Code of Conduct describes our overall approach to sustainability and applies to everyone at Gasum. The integrated management system further elaborates the policies and guidelines on specific sustainability topics. We have identified the most significant sustainability risks.

CSRD and double materiality

Sustainability reporting obligations are expanding with the new EU law, Corporate Sustainability Reporting Directive (CSRD), which obligates companies to publish regular standardised reports on the social and environmental risks they face, and on how their activities impact people and the environment. CSRD is a key component of the EU's Sustainable Finance Strategy, which aims to channel investments towards the transition to a climate-neutral economy in line with the EU's Green Deal.

Double materiality is the first step towards CSRD (Corporate Sustainability Reporting Directive) compliance. Double materiality assessment considers how a company's actions impact both people and the environment, but also how sustainability issues can affect the company's financial wellbeing.

During 2023, Gasum conducted its first double materiality analysis in accordance with the CSRD. The assessment identified and assessed material sustainability-related impacts of Gasum's activities, and the financial sustainability risks and opportunities. The assessment included interviews with Gasum's key internal and external stakeholders. Identified impacts were evaluated based on their scale, scope and irremediability, and identified risks and opportunities based on size of financial effects and likelihood, respectively.

Overall, the findings are strongly focused on environmental topics with climate change mitigation being the most material one. Both internal and external stakeholders see the green transition as an opportunity for Gasum, e.g. through successfully

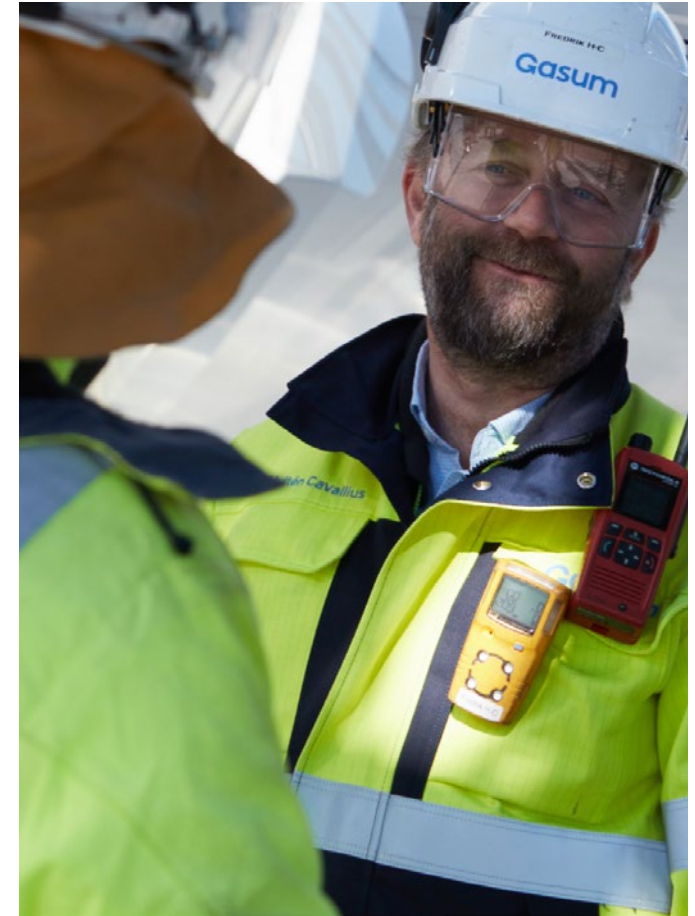
increasing the share of renewable energy. Biggest financial risks arise from climate change mitigation, e.g. related to changing regulation, client expectations and raw material and energy price volatility. In addition to climate change, other material topics included business conduct, own workforce and resource use & circular economy.

During 2024, Gasum will continue to prepare for the upcoming CSRD and build readiness towards the disclosures and datapoints that need to be reported based on the double materiality assessment. In addition, a sustainability program update is planned for the year 2024 in accordance with the results of the double materiality assessment.

Sustainability management throughout the organization

Gasum works proactively to ensure sustainability and compliance in its operations. Gasum's Board of Directors, the highest governance body, and its Committees have the ultimate oversight of Group-level corporate responsibility, covering the environmental, social and governance matters, and the related sustainability targets and management processes. Sustainability is a regular topic on the agenda of the Board of Directors. The Board approves the Code of Conduct of the Gasum Group and reviews the annual sustainability reporting.

The CEO oversees the implementation of sustainability within the Group and reports to the Board of Directors. Gasum Management Team provides the strategic policies and



management perspectives for sustainability, reviews and adopts the Sustainability program, KPIs and targets annually, and monitors their implementation and progress.

In Gasum's business units and support functions, sustainability is implemented through everyday operations and leadership. Management groups of the business units oversee implementation of sustainability. Annual planning, target-setting, and the Integrated Management System support implementation. Business units monitor progress and report monthly on their safety and environmental performance. Under the CEO, VP Communications and Sustainability oversees the Sustainability and HSEQ unit, which prepares the Sustainability Program KPIs and targets and develops and coordinates the Group-level sustainability work and communication, and manages the Health, Safety, Environment, Quality and biogas sustainability topics. Human Resources and Legal units are responsible for managing their respective focus areas.

Integrated management system

We aim at operational excellence. Certified management systems support our continuous improvement process and provide a common HSEQ system baseline. We employ an integrated management system (IMS) that covers quality (ISO 9001:2015), environmental (ISO 14001:2015), energy (ISO 50001:2018), and occupational health and safety (ISO 45001:2018) management system requirements as well as a biomethane sustainability scheme as an integrated entity. The IMS is applied



to the Gasum Group companies and operations as well as products and services sold by the Group.

The IMS consists of systematic approaches that translate decisions made by the senior management into practical operations. We have established the IMS to document, implement, maintain, and continuously improve our business regarding the quality, safety, security, sustainability, energy and environmental objectives, and to ensure safety, occupational health and quality in our daily operations. The IMS helps us improve our customer focus, agile way of working, and achieve operational excellence.

IMS conformity is evaluated annually through internal IMS audits as well as IMS audits conducted by an external organization. In 2023, altogether 27 internal IMS audit events were conducted for various sites and functions with focus on physical security, process safety and cyber security. During the year Gasum's operations were also externally audited against the requirements of all certified management systems, including the SPCR biofertilizer certification.

The status of the IMS and related performance indicators as well as progress made in development actions are presented quarterly in management reviews. Compliance with laws and regulations is tracked and managed with a compliance tool that allows us to identify and assess effects of changes in regulatory requirements.

In addition, several procedures, policies, instructions, and guidelines have been set to control operational activities, reporting, training, communication as well as review and approval processes. Other internal control frameworks include Group governance, risk management policies and business continuity.

Our guiding principles

We are committed to responsible business both in terms of what we do and how we do things.

Our aim is to maintain good business ethics and profitability and to ensure responsible business partnerships with zero unplanned disruptions in energy supply. Our framework for responsible business is an integral part of our management system and includes elements such as understanding our risks, having clear policies and procedures, providing training and communication as well as processes for raising and reviewing possible violations of our Code of Conduct.

COMPLIANCE AND BUSINESS ETHICS

Our Code of Conduct sets the core principles for how we work with our customers, stakeholders and together as a company. We expect our business partners to comply with same standards on transparent and ethical business.

- Comply with laws and regulations
- Avoid conflicts of interest, corruption and unfair competition
- Speak up in any concerns and dilemmas
- Respect the environment, human rights and trade obligations
- Protect confidential and personal information

INTEGRATED MANAGEMENT SYSTEM

The Integrated management system (IMS) enables us to improve our customer focus, continuous improvement, agile way of working and to achieve operational excellence. IMS covers our certified management systems:

- ISO 9001 Quality
- ISO 14001 Environment
- ISO 50001 Energy
- ISO 45001 Occupational health and safety
- Sustainability schemes

SUSTAINABILITY PROGRAM

The Sustainability program steers sustainability work in all our operations. It defines the sustainability priorities and sets the key performance indicators and measurable targets for each theme.

- Safety and security
- Climate
- Circular economy
- Access to cleaner energy
- Responsible business
- People

We support the UN SDGs

Gasum as a provider of cleaner energy supports the UN Sustainable Development Goals (SDGs) of the UN 2030 Agenda.

The SDGs are global goals adopted by the UN in 2015 as a universal call to action to solve by 2030 the urgent economic, social, and environmental challenges facing our world. Gasum has identified six priority SDGs towards which we can contribute the most in our operations.

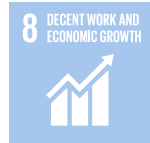
Gasum is a signatory of UN Global Compact

Gasum joined the United Nations Global Compact initiative on corporate sustainability in 2021. The UN Global Compact is a voluntary, international corporate sustainability initiative administered by the United Nations, which calls for businesses worldwide to adopt and implement ten principles relating to human rights, labor, environment and anti-corruption.



7 AFFORDABLE AND CLEAN ENERGY

We offer and develop low-carbon and renewable energy products and energy market services for our customers. Our investment outlook improves the availability of renewable energy. We increase access to cleaner fuels in the Nordics, above all in the maritime and heavy-duty road transport segments.



8 DECENT WORK AND ECONOMIC GROWTH

We respect human rights and promote the well-being, work ability and competence of our personnel. We have a strong safety culture and aim at zero harm for our employees and contractors.



9 INDUSTRY, INNOVATION, AND INFRASTRUCTURE

We develop infrastructure for cleaner energy. We advance innovations, build partnerships, and participate in the activities of various research and development networks in circular economy, cleaner energy, decarbonization and resource-efficiency.



11 SUSTAINABLE CITIES AND COMMUNITIES

We increase the availability of our low-carbon and renewable energy products for the transport and industry segments, which positively impacts the local air quality in urban areas. We help cities to be more sustainable with partnerships in circular economy and clean energy solutions.



12 RESPONSIBLE CONSUMPTION AND PRODUCTION

We treat a substantial share of society's biodegradable waste and residues and produce biogas and recycled nutrient products from it. We participate in activities promoting the further development of technologies, feedstocks, and partnerships in this field.



13 CLIMATE ACTION

We are committed to helping our customers reduce their climate emissions. We aim at a yearly 1,800,000 t CO₂ reduction for our customers with biogas by 2027 and develop to expand future decarbonisation pathways. We use 100% renewable electricity in all our operations and are committed to continuous energy-saving actions.

Sustainability program, KPIs and achievements

Our strategy provides the guidelines for our journey towards new business opportunities and sets the framework for our sustainability program.

The six [material sustainability topics](#) are based on the significance of the impacts on the company and the society.

MATERIAL THEME		OBJECTIVE	KPI	2023	2022	2021	TARGET			
ENVIRONMENT	Climate	Handprint of our products	Enabling GHG emission reductions for our customers	Cumulative GHG emission reduction for customers achieved with renewable gas (tCO ₂ e)	565,000	444,000	345,000	1,800,000 t CO ₂ e by 2027, calculated with EU RED2 methodology*		
		Footprint of our operations	Decreasing greenhouse gas emissions	Scope 1 and 2 GHG emissions of operations per delivered unit of gas (tCO ₂ e/GWh)	5.28	6.28	5.22	Decreasing trend (LNG/LBG and biogas supply chains)		
	Minimizing environmental impact		Share of renewable electricity used in own operations (%)		100%	100%	100%	Maintain 100% renewable electricity procurement		
			Energy intensity of operations (GWh/GWh)		0.039	0.044	0.035	1% decrease annually (LNG/LBG and biogas supply chains)		
			Number of energy saving actions		30	New target since 2023		At least 1 action per Gasum's terminal/plant annually (Total 21)		
			Number of environmental breaches (impact classified as considerable, severe or irreversible)		0	0	0	0 environmental breaches		
			Number of energy and environment related observations and suggested improvements		238	230	219	Increasing trend		
	Circular economy	Biogas and recycled nutrient products	Promoting circular economy	Increased availability of biogas in the Nordics (TWh)	1.7	1.7	1.2	7 TWh (HHV) by 2027*		
				Sustainable biogas production (% GHG reduction, RED 2)	91.9%	88.9%	88.5%	95% by 2027 (Avg. CO ₂ emission reduction of own production)		
SOCIAL	Safety and security	Zero harm	Ensuring safety for employees and contractors	LTI (lost-time injury), own employees and contractors	4	2	5	0 LTI		
				TRIF (total recordable injury rate), own employees and contractors	16.6	5.3	14.1	10 by 2027*		
				Number of safety walks	453	338	351	At least 2 per site annually (Total 280)		
				Participation in Gasum Safety e-learning training (%)	76%	New target since 2023		100% of active employees participate		
	People	Well-being	Promoting a healthy working environment	Absence rate (%)	1.74%	1.98%	1.6%	<2%		
				Leadership and culture	Developing Gasum culture and employee experience	Assessment and development of employee experience with continuous pulse survey	69%	63%	72%	Min 70% of employees participate in survey
				Personal development	Growing professional talent	Development discussions are held (%)	75%	73%	n/a	Total average score min 80%
	ECONOMIC	Access to cleaner energy	Sustainable products and services	Enabling sustainable solutions for traffic, maritime and industry	Share of renewable energy (incl. biogas and power reported in GWh, %)	25%	21%	New target since 2023	45% by 2027	
					Supply security	Ensuring reliable energy supply	Zero unplanned interruptions in energy supply to maritime, traffic and industry customers	99.9%	99.9%	99.9%
Responsible business		Business ethics and compliance	Ensuring compliance and accountability in own operations and in business partnerships	Availability of filling stations to traffic customers	99.5%	>99%	>99%	Availability 99% (average for filling stations)		
				Employees: Participation in Gasum Code of Conduct e-learning training (%)	93%	88%	59%	100% of active employees participate		
			Customers: Net Promoter Score (NPS), including all b-to-b customer segments	23	19	24	Increasing trend			
			Suppliers: Continuous supplier assessments and auditing based on systematic risk approach	No audits	Done	Done	Critical suppliers identified and evaluated. Suppliers with low scores audited.			

*Target updated in 2023

Reporting principles 2023

This sustainability report presents Gasum’s material sustainability performance topics, including impacts on the climate and environment as well as the social agenda. During 2023, Gasum started to prepare for the requirements of the Corporate Sustainability Reporting Directive requirements, which will apply to the company in 2025.

This report has been prepared in accordance with the GRI (Global Reporting Initiative) Standards. The reported disclosures are presented in [GRI Content Index](#). The reporting considers the guidelines issued by the Ownership Steering Department in the Prime Minister’s Office of Finland. Gasum is a signatory of the UN Global Compact and submits the Communication on Progress (CoP) through the UN Global Compact’s digital platform.

The reporting period for this report is the same as that of the Financial Statements, i.e., from January 1 to December 31, 2023. The report was published in English on the Gasum website in March 2024. The previous report was published in March 2023, and our next report will be published in 2025.

Reporting boundaries cover all functions of Gasum Group unless otherwise stated. Information from previous years is presented on the basis of the organization of each year and the impacts of ownership changes have not been updated afterwards in the figures.

Data

Gasum utilizes a sustainability management software tool to collect and manage environmental data. The sites are trained for collecting site-level data and the Group level sustainability unit is responsible for the compilation, analysis and reporting of the data. Data is reported in accordance with equity share approach. In 2023, the scope has been updated to cover 8 new filling stations, which started operating during 2023.

Employee related data originates from human resources (HR) management system. Various systems are used to gather occupational health and safety related data. Designated individuals collect the information and deliver it to the Group’s Sustainability unit in the format recommended by the GRI Standards.

Sustainability data management system and related processes are constantly being developed to ensure efficient collection, storing and processing of data to enable robust reporting fulfilling the requirements of CSRD.



Environment

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and emissions



Cleaner energy

We offer cleaner energy and energy market expert services for industry and for combined heat and power (CHP) production as well as cleaner fuel solutions for road and maritime transport. We have a versatile infrastructure in place to produce, transmit, and liquefy gas, as well as the logistics for delivery. In addition, we serve our customers in the energy markets.



We offer and develop low-carbon and renewable energy products and energy market services for our customers. Our investment outlook improves the availability of renewable energy. We increase access to cleaner fuels in the Nordics, in the maritime and heavy-duty road transport segments, and in industry.



We develop infrastructure for cleaner energy. We advance innovations and build partnerships in the circular economy, cleaner energy, decarbonization and resource-efficiency.



We are committed to helping our customers reduce their climate emissions. We develop to expand future decarbonization pathways.

WHAT WE AIMED FOR WHAT WE ACHIEVED IN 2023

Cleaner energy

Enabling sustainable solutions for traffic, maritime and industry; 45% share of renewable energy by 2027 (including renewable gas and power, GWh)

Gasum is well positioned for future renewable gas market development.

Biogas procurement from certified partners developed positively. Due to a quiet market in H1 and taxation issues in Sweden sales of biogas did not develop as projected and were on the same level as 2022 at 1.7 TWh.

Share of renewable energy (biogas and power) volumes sold were at 25% (up from 21% in 2022).

Future decarbonization solutions based on customer needs are in focus of our work together with partners.

Green services We traded a total of 5.3 TWh GoOs for renewable electricity generated by hydro, wind or solar power or bioenergy.

Bunkering services and solutions. Supply network for the vessel fleet extended geographically as we obtained LNG distribution license in Belgium and co-operation agreement outside Europe. We made about 1,600 ship-to-ship and truck-to-ship deliveries for the vessel fleet in our operating area. Increasing interest in renewable LBG and its blends.

Expanding network of filling stations. A network of about 50 filling stations for long-haul LNG/LBG trucks has been developed together with other actors. Altogether there are around 100 Gasum filling stations. Eight new stations were opened during the year.

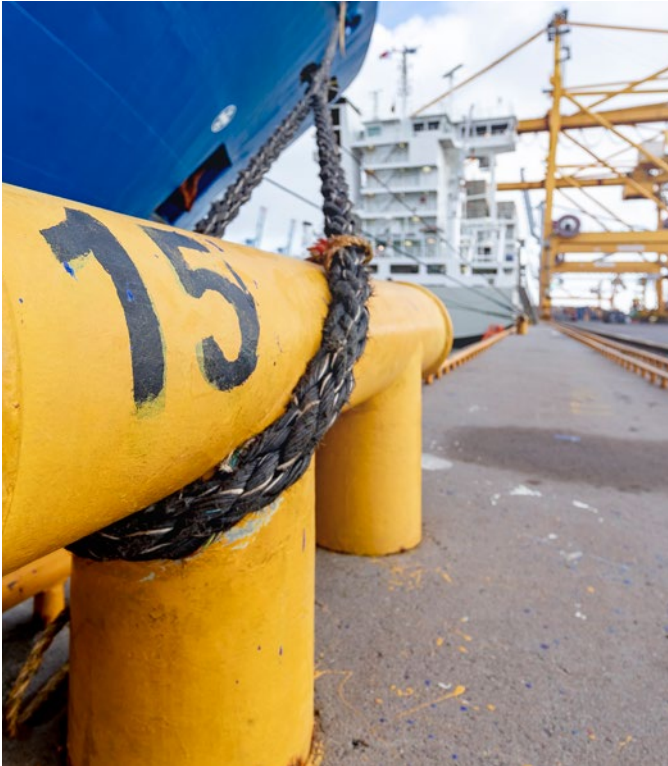
Growth in gas vehicle fleet and new partnerships with logistics companies and logistics buyers enabled emission cuts.

Gas glossary

Natural gas	Natural gas is almost pure methane, odorless, tasteless, and non-toxic, and it does not contain sulfur, fine particulate matter, or heavy metals. Natural gas is the cleanest of the fossil fuels in terms of greenhouse gas and other flue gas emissions in energy production.
Biogas	Is the same as biomethane, which has a composition equal to natural gas but is a 100% renewable energy source. Biogas is produced through the anaerobic processing of organic waste.
e-methane	Methane can be produced synthetically in the Power-to-Gas process. First, renewable energy and water are used to make synthetic hydrogen. The hydrogen can then be further processed into synthetic methane by adding biogenic carbon. E-methane produced this way is fully renewable.
LNG	Liquefied Natural Gas. Natural gas and biogas can be converted from gaseous to liquefied form by cooling the gas to -162°C. In the liquid state, the gas takes only 1/600 of the volume compared to the gaseous state. A benefit of liquefaction is that the gas can be stored, transported, and used conveniently and cost effectively outside the gas pipeline network.
LBG	Liquefied Biogas. Also referred to as Bio-LNG. LBG is made through the same cooling process as LNG. LNG and LBG are interchangeable with each other, as they both consist mainly of methane. This means that the two gases can be mixed, and they work in the same engines.
e-LNG	Liquefied e-methane. E-LNG is made through the same cooling process as LNG and LBG. E-LNG is also fully interchangeable with LNG and LBG and can be directly used by trucks and ships currently running on LNG at any ratio. There is no need for any additional investments in new equipment or modifications.



End-to-end value chain in LNG



We operate a complete value chain in LNG to serve the Nordic markets. Our job is to secure stable energy deliveries to industry, shipping, and logistics companies.

We have prepared for the growth in demand for cleaner energy by investing in the development of the Nordic gas infrastructure for several years already. Major leaps forward have been taken in the availability of gas as our network of terminals, traffic filling stations and maritime supply solutions has grown significantly.

We import natural gas to Finland and are the biggest liquefied natural gas (LNG) actor in the Nordic countries. We strengthen the position and infrastructure of LNG and supply LNG for maritime transport, industry, and heavy-duty vehicles in the Nordic countries.

Our LNG gas supply chain consists of 5 import terminals, 1 joint venture terminal, 3 bunkering vessels, 2 carrier vessels and dozens of road tankers and gas containers. The infrastructure serves the distribution of both liquefied natural gas and liquefied biogas (LBG).

The LNG we deliver to customers is sourced from different suppliers in Europe, including Russia, and the Risavika liquefaction plant in Norway. LNG from the Risavika plant is delivered to Gasum's local terminals in Norway (Øra), Sweden (Lysekil and Nynäshamn), and Finland (Pori and Tornio) by chartered vessels. From these terminals, the LNG is delivered by tanker truck to industrial premises with customers' terminals or as natural gas through the local gas grids to industrial customers. For maritime customers, we have the option to deliver LNG by truck-to-ship, terminal-to-ship or bunker by ship-to-ship. The Tornio terminal is a joint venture of the companies Outokumpu, SSAB, EPV Energy and Gasum.

Biogas gathering momentum

We are constantly increasing biogas availability by investing in our own biogas production capacity and sourcing from trusted partners.

We produce biogas in our Nordic biogas plant network and source certified biogas from European partners. Gasum is the leading provider of biogas in the Nordic countries. Besides biogas, our plants also produce recycled nutrients for agricultural and industrial uses.

We offer biogas production and biogas availability on an industrial scale. We own and operate 16 biogas plants and, in addition, have four partner plants. During 2024 we are constructing two new large-scale biogas plants in Sweden, one of which is expected to be operational at the end of the year.

Our current biogas production capacity is 800 GWh annually. Biodegradable waste and residue feedstocks for biogas production are sourced from industry, retail, municipalities, and agriculture.

The importance of biogas as a low-emission, local and secure energy source will increase further as the Nordic countries transition towards carbon-neutral energy production. EU and national level regulation support growth in the production and use of biogas. Biogas has great potential in the Nordics and just a fraction of this potential has been harnessed.

Slow start to year, long-term growth expected

During the first half of 2023 we experienced a period of low biogas volumes as the market recovered slowly from the energy crisis during 2022. Demand started to pick up during the second half of 2023. Taxation changes in Sweden reduced demand in the Swedish traffic segment with the more polluting alternative LNG being more favorably priced.

Biogas contributes to mitigating climate change both in the form of renewable energy and through recycled nutrients. Interest in recycled nutrients increased again throughout 2023 because of high nutrient prices and by security of supply concerns.

Due to the current geopolitical situation, the European Commission has proposed a rapid increase of European biomethane production to 35 billion cubic meters (bcm) (350 TWh) by 2030, up from 3 bcm (30 TWh) in 2020 as a part of REPowerEU program. A recent study shows that the potential of biogas production in the Nordic countries alone is about 2 bcm (20 TWh).

Gasum has prepared for the growth in gas demand by investing in the development of the Nordic gas infrastructure. We strive actively to increase biogas production capacity by building new biogas plants, increasing the performance of the existing ones and by procuring biogas from certified European





Five new biogas plants planned to be constructed in Sweden – existing power plants improved

Gasum is in the process of consecutively constructing five new biogas plants to southern Sweden. Construction of the first one in the municipality of Götene progressed well during 2023 and is expected to be finished during 2024. The construction of the next plant in Borlänge will start during 2024. Other planned plant sites will be Kalmar, Sjöbo, and Hörby.

Each one of the plants has received an investment subsidy from the Swedish Environmental Protection Agency's Klimatklivet investment program. In total the plants will use 1.8 million tons of different kinds of agriculture and residue streams for feedstock and produce 55,000 tons of liquefied biogas (LBG) per year, which equals 750 GWh of energy. This averages the yearly fuel consumption of 1,500 heavy-duty trucks and amounts to a yearly total of 150,000 tons less of carbon dioxide in the atmosphere when compared to using diesel.

The plants will also produce 1.5 million tons of high-grade environmentally friendly fertilizer per year as a side stream. Recycled fertilizers improve soil fertility ecologically and recycled nutrients can replace fossil sources used by industry.

During 2023 we also started expansion and improvement projects at three of our existing biogas plants in Oulu and Vehmaa, Finland, as well as Örebro, Sweden. The combined biogas production increase from all three projects will be 60 GWh per year once the projects are finished in 2024. In addition we acquired majority ownership in a biogas liquefaction plant in Helsingborg, Sweden.

partners. Our goal is to have 7 TWh of renewable gas available annually to our customers by 2027. This amount consists of developing both our own biogas production and utilizing our partners' production network.

CASE



Götene is the first of five new large plants – strategic investments into increasing biogas availability

In January 2023 Gasum started construction work on its latest biogas plant project in the Swedish community of Götene. The plant will process approximately 400 000 tons of feedstock and produce 120 gigawatt hours (GWh) of liquefied biogas or LBG per year from early 2025 onwards.

In addition to energy, the plant will produce 350 000 tons of high quality environmentally friendly fertilizers, which are returned to the farmers providing the feedstock. Compared to fossil fertilizers, recycled fertilizers contain organic matter which is important in maintaining the growing conditions and weather resistance of farmlands.

[Read more on Gasum's website](#)

Future solutions for sustainable energy

The Power-to-Gas process, biogenic carbon dioxide and energy system flexibility are being explored at Gasum as potential solutions of the future to drive decarbonization of energy further.

Gasum's renewed strategy calls for increasing emphasis on renewable energy. This means significant investment in new biogas plants in the coming years, but also increasing procurement of biogas as well as green electricity.

There is also potential in optimizing the biogas production process to make it even more climate friendly. As a side stream Gasum produces annually up to 114 000 tons of biogenic CO₂ in the biogas upgrading process, of which nearly one third is in high concentration (>95% CO₂). This biogenic CO₂ could be used in many processes, for example, in turning synthetic hydrogen into methane.

The case for methanation

Beyond biogas, renewable methane can also be produced synthetically through the Power-to-Gas process. First hydrogen is produced using renewable electricity and water. The produced hydrogen can then be further processed into synthetic methane by adding carbon dioxide.

This resulting synthetic renewable methane, or e-methane, is fully interchangeable with natural gas and biogas. When it is liquefied it is likewise interchangeable with liquified natural gas (LNG) and liquified biogas (LBG). This means that it can be transported through already existing infrastructure – trucks, ships, pipelines.

It also means that e-methane can be directly used in gas engines currently running on natural gas, biogas, LNG or LBG. There is no need for any additional investments in new equipment for our existing LNG and LBG customers.

While not yet in commercial production in the Nordics, maturity is close. In late 2023 Gasum signed the first offtake agreement on e-methane with Power-to-Gas developer Nordic Ren-Gas, for the output of their pilot plant in Tampere Finland, which is set to be ready in 2026.

Optimizing system flexibility

Production of synthetic gases can be used as a demand response mechanism for the electricity system when gases are produced at times of abundant renewable electricity supply. Optimizing demand response is important for the near future, as the share of intermittent renewable electricity such as wind power in the Nordic system is set to increase dramatically in coming years.



CASE



Gasum and Nordic Ren-Gas to bring renewable e-methane to market starting 2026

Gasum and leading Nordic Power-to-Gas developer Nordic Ren-Gas signed a long-term agreement whereby Gasum will buy all of the e-methane produced by Nordic Ren-Gas at its Tampere plant from 2026 onwards and distribute it to its customers. Nordic Ren-Gas will develop, build and operate the Tampere Power-to-Gas plant, which produces e-methane using renewable electricity from Finnish wind power and biogenic carbon dioxide captured from existing power plants. The Tampere plant will initially produce approximately 160 gigawatt hours (GWh) of renewable e-methane per year starting in 2026. The produced e-methane will meet all the requirements of the EU Renewable Energy Directive on renewable liquid and gaseous fuels of non-biological origin (RFNBO).

[Read more on Gasum's website](#)

Gasum already helps its customers achieve savings both in terms of money as well as emissions through its electricity market services, but we are constantly looking for more advanced solutions for optimizing system flexibility. As intermittent energy such as wind power increases, navigating the energy market becomes increasingly complicated.

Our target is to help customers electrify operations but at the same time increase flexibility through renewable clean gas. Future solutions will enable smart storage and switching between energy sources as well as directing consumption away from peak hours.

Looking for partners

Gasum is continuously looking at opportunities and partnerships that would enable the advancement of these types of technologies towards commercial maturity.

In the energy market Gasum is looking at optimizing the entire value chain, including sector integration between heat, electricity and gas. We are also interested in energy storage and developing our capabilities in demand response solutions. We are, for example, looking into partnerships that would enable pooling smaller consumption units into bigger entities to create innovative solutions for reserve and balancing power.

Collaborating with universities

At the beginning of 2023, Gasum started in an innovation competition in collaboration with the Jamk University of Applied Sciences. The purpose of the hackathon was to find

potential partners to develop utilization of the biogenic carbon produced at Gasum's biogas plants. The competition winners were Carbonaide and Inherit Carbon Solutions with solutions for storage and use of CO₂. Discussions with both winners have been continued.

In the maritime business we collaborated with Turku School of Economics on the Green Connect project concerning green transport chains. We have also been involved in the MERPOL project led by XAMK university, which creates methods and tools for comparing marine fuels, such as the total cost of ownership of different emission-reducing alternatives.

Gasum is also involved in the HYGCEL (Hydrogen and Carbon Value Chains in Green Electrification) research and consortium project headed by LUT University. The project seeks to study Finland's green hydrogen and carbon value chains as well as the transformation of the energy system.

Gasum supports research and development in the gas sector through the Gasum Fund which is one of the special funds run and administered by the Finnish Foundation for Technology Promotion (TES). Grants are provided for research into the value chains of renewable gases, especially in connection with fighting climate change and the energy transition, such as Power-to-Gas value chain or biogas value chains, gas logistics or regulation.

Serving the industry segment

We sell gas, power, and energy solutions as well as energy market services to industry in the Nordic countries.

We offer our customers industrial fuels comprising natural gas, liquefied natural gas (LNG), biogas, liquefied biogas (LBG) and renewable power (from hydro, wind, solar or bioenergy sources) as well as energy market services, including Guarantees of Origin for electricity, power market portfolio management and brokering services, 24/7 control room services for risk management and price optimization, expert services in emissions trading, and demand-side management services for consumption optimization.

We offer our industrial customers flexible alternatives to reach their greenhouse gas emission targets. Read about the [climate impact of our products and services](#).

Gas in industry

The diverse properties of natural gas and LNG come into their own particularly well in a variety of process applications. Gas flames and clean flue gases can be utilized in the heating, drying, or cooking of products, and as a raw material in the process industry. Gas can be used instead of electricity in many processes. Natural gases are particularly suitable for use as

a fuel for combined heat and steam production as well as in combined heat and power (CHP) production. Liquefied natural gas and biogas (LNG and LBG) bring the benefits of gas to areas outside the gas pipeline network across the Nordic countries.

Sustainable power procurement

We aim at expanding our offering in carbon-neutral power. We are a major actor in the wind power segment and strive to increase the procurement and availability of renewable Nordic wind power, enabling increasing renewable energy production by advancing the construction of new wind power capacity in the Nordics. In 2023, the demand for renewable wind power stabilized. We were active in the long-term power purchase agreements (PPAs) market for the delivery of wind power to new and existing partners. Renewable wind power helps companies reach their climate targets.

Green services in energy markets

Our Energy Market Services operates in the risk management of and trading relating to power, emission allowances, gas and electricity Guarantees of Origin (GoO). During 2023, we continued to assist our customers to operate in the energy market, providing the strategic planning of long-term sourcing and production and the risk management strategy as well as

a prompt response to changes in the market situation. Our control room monitors the energy market around the clock, which enables careful power and gas balance management, power price optimization in the intraday markets and access to the reserve markets. We provide our customers with day-ahead forecasts and carry out trading in the day-ahead market, offering their adjustable capacity in the reserve markets and taking care of communication between the transmission system operator and the customer. In addition, Gasum provides brokerage and consulting services for labeling electricity with the international EKOenergy ecolabel and offers alternatives for voluntary emission offsetting.



CASE



Gasum to supply Volvo with worry-free, renewable electricity under an 11-year agreement

Gasum will supply wind power to Volvo's truck and earthmoving machine sales and servicing operations in Finland, initially during 2024 and then under a 10-year Power Purchase Agreement (PPA) until the end of 2034. Gasum's PPA is a long-term contract which protects the buyer from fluctuations in the market price of electricity. PPAs can also enable increased production capacity of renewable energy production when, for example, a wind farm has secured customers to buy the electricity it produces already when making the investment decision. Gasum will additionally supply Volvo with the needed amount of market-price spot electricity and a balancing service to optimize supply and consumption. In practice, outsourcing all electricity procurement activities to Gasum's experts means that Volvo can focus on its core business.

[Read more on Gasum's website](#)

Serving the maritime segment

We sell fuel for maritime transport and are building a maritime gas market in Northern Europe.

We offer liquefied natural gas (LNG) and liquefied biogas (LBG) for ferries, passenger ships, tankers, bulk carriers and supply and container ships. We offer bunkering services for global maritime transport customers in the Baltic Sea and Northwest Europe. Through a global marketing alliance Gasum is able to serve customers outside Europe together with partners.

Our LNG and LBG products help our maritime customers achieve greenhouse gas emission reductions. Read about the [climate impact of our maritime solutions](#).

LNG market recovered in 2023

We deliver LNG and LBG to our customers by truck-to-ship, terminal-to-ship, or ship-to-ship at sea or in port, which increases our flexibility and responsiveness to vessels that require LNG. During 2023, we continued to supply customers operating LNG-fuelled vessels.

The difficult and turbulent situation in the global energy market in 2022 turned into a gradual recovery in the first half of 2023 with lowering LNG prices. Demand increased significantly over the second half of the year as LNG prices were favorable

compared to high-emission fuel alternatives such as marine gasoil (MGO). We also saw positive interest and trials in using liquefied biogas (bio-LNG) in the maritime segment.

During 2023 we made a total of around 1,600 ship-to-ship deliveries and truck operations to our maritime customers (1,300 in 2022). In addition, we delivered LNG to vessels directly via pipe from our terminals.

LNG-run vessels increasing

In the long run, the number of LNG-powered vessels will increase significantly as a large number of ordered dual fueled LNG-vessels will be delivered. Approximately one third of all vessels ordered today are being built to run on alternative fuels, the majority of which is LNG.

The revised Emission Trading System will also result in a price signal that incentivizes improvements in energy efficiency and low-carbon solutions and reduces the price difference between alternative fuels and traditional maritime fuels.

Expanding geographic outreach

We are continuously expanding our geographic outreach and the quality of our offering in response to the growing needs of maritime transport. Our bunkering area extends from the

Nordics to the Antwerp, Rotterdam, and Amsterdam (ARA) region and to Germany and France.

In 2023 we registered for business in the Dutch trade register as being registered as a legal entity in the Netherlands opens up new opportunities in the ARA region. We also made the first ship-to-ship bunkerings in Iceland in the port of Reykjavik as well as in the port of Hamburg, Germany.

CASE



Gasum carries out the first ever bunker operation in Iceland to supply Ponant's Le Commandant Charcot with LNG and LBG

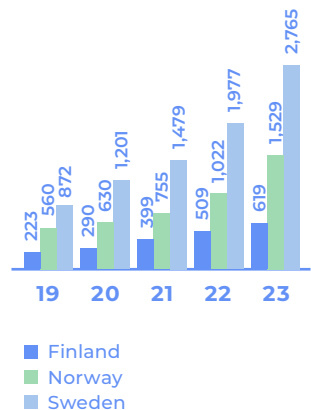
In June 2023, Gasum extended its liquefied natural gas (LNG) bunkering network by providing marine LNG to PONANT in the port of Reykjavik, Iceland. During this first LNG bunker operation ever performed in Iceland, Gasum's LNG Bunker vessel Coral Energy delivered LNG and liquefied biogas (LBG) to PONANT's ice-breaking state-of-the-art cruise vessel Le Commandant Charcot. By providing marine LNG in remote locations where such cruise vessels operate, Gasum supports the ambition of its cruise customers to continuously improve the environmental performance of their fleet and reduce the impact on visited ecosystems. In addition to the almost complete elimination of local pollutant emissions that are already achieved by using LNG, the use of LBG reduces the carbon footprint of cruising significantly.

[Read more on Gasum's website](#)



Serving road transport

GAS TRUCK FLEET SIZE



We sell fuels for road transport, build and maintain the gas filling station network and develop the road fuel gas market in the Nordic countries.

We offer our customers liquefied natural gas (LNG) and liquefied biogas (LBG) as well as compressed natural gas (CNG) and compressed biogas (CBG). The products are used in heavy-duty long-haul transport as well as in delivery and passenger vehicles, including buses, waste management vehicles and cars. In 2023 over 90% of our traffic segment customers chose biogas as an alternative.

Our traffic fuels help our customers in road transport achieve greenhouse gas emission reductions. Read about [reducing emissions in road transport](#)

Strong expansion of the gas filling station network

In response to the rapidly growing demand for gas in heavy-duty transport in the Nordics, we have succeeded, together with other actors, in our target of developing a network of about 50 filling stations for long-haul LNG/LBG gas trucks in Finland, Sweden, and Norway. Altogether Gasum has a comprehensive

network of around 100 gas filling stations serving heavy-duty vehicles as well as lighter traffic, such as passenger cars, delivery vehicles, waste collection vehicles and buses. In 2023, we opened a total of eight new filling stations in Finland, Sweden and Norway.

Growing number of heavy-duty gas vehicles

The number of gas vehicles continued to grow in the Nordics. In 2023, new registrations of gas vehicles totaled approximately 3,200 in Sweden, 1,100 in Finland, and 1,000 in Norway. In 2023, almost 1,400 heavy-duty vehicles powered by gas started operating on Finnish, Swedish and Norwegian roads. At year-end 2023, the number of gas-fueled vehicles totaled about 18,000 in Finland, 50,000 in Sweden, and 2,600 in Norway.

CASE



Gasum building the world's northernmost gas filling station in Rovaniemi, Finland

Gasum is constructing a gas filling station in Finnish Lapland's biggest city Rovaniemi. The station is expected to open in early summer 2024. On completion, the Rovaniemi station will be the world's northernmost filling station selling liquefied gas. Gasum recently opened its northernmost filling station to date in Kemi, also in Finnish Lapland.

The station in Rovaniemi is an important addition in the expansion of Gasum's gas distribution network for road transportation in Northern Finland and in particular in Lapland. Once the Rovaniemi station is completed, gas-powered heavy-duty transport will be possible across most of Finland. Gasum aims to enable transport with biogas on all long-haul routes in Finland and Sweden.

[Read more on Gasum's website](#)



Climate

In the urgency of taking action to mitigate climate change, we see our role as an enabler in the energy transition. Our climate commitments are ambitious: we will help our customers reduce their greenhouse gas emissions by 1.8 million tons through increasing use of renewable gas by 2027. At the same time, we aim at increasing the share of renewables in our offering and decreasing the climate impact of our own operations.



We increase the availability of cleaner energy for our customers.



We develop infrastructure and build partnerships in cleaner energy and decarbonization.



We contribute to cleaner urban air.



Our products help our customers to reduce GHG emissions. We reduce our own carbon footprint.

WHAT WE AIMED FOR

Increasing the handprint of our products

1,800,000 t CO₂eq cumulative emission reduction for customers achieved with renewable gas by 2027.

Decreasing the footprint of our operations

Scope 1 and 2 GHG emissions:

- decreasing CO₂ intensity per delivered unit of gas
- 100% renewable electricity procurement

Energy efficiency:

- 1% decrease in energy intensity annually
- at least 1 energy saving action per terminal/plant annually

WHAT WE ACHIEVED IN 2023

565,000 t CO₂eq emission savings enabled for our customers with renewable biogas, up by 27% year on year. Further emission savings were enabled with other low-carbon fuels, renewable power, and circular economy solutions.

Growth in demand for cleaner energy. Steady increase in fleets of gas-powered maritime vessels and heavy-duty vehicles. Strong growth in wind power demand in the industry segment. We extended our gas filling station network and expanded our bunkering services geographically.

Due to a quiet market in H1 and taxation issues in Sweden sales of biogas did not develop as projected and were on the same level as 2022 at 1.7 TWh. Biogas procurement developed positively placing Gasum well for future market development.

Increased climate ambition. We updated our climate commitment and currently aim at 1,800,000 t CO₂ emission reduction for customers achieved with biogas by 2027. Our target is to achieve a 45% share in renewable energy volumes by 2027.

100% renewable electricity used in all operations.

Total energy consumption increased by 2% year on year. A total of 30 energy saving actions were recorded (target 21), including methane leakage scanings at sites.

Creating a carbon handprint

We create a carbon handprint by reducing the carbon footprint of our customers as well as that of their customers. An efficient way of mitigating climate change is to increase the availability and use of renewable and low-carbon fuels in road and maritime transport as well as in industry.

The Gasum strategy calls for increased emphasis on renewable and clean energy sources and accordingly reducing the role of fossil fuels for our company in the coming years. Our target is to achieve a 45% share in renewable energy volumes by 2027, including biogas and power.

In 2023, we updated our target to increase the availability of biogas and reduce our customers' greenhouse gas emissions by 1.8 million tons of CO₂eq by 2027. We are constantly investing in our own biogas production capacity and sourcing from trusted partners. We intend to make 7 TWh of renewable gas available on the market from our own production and that of our certified European partners within the set timeframe.

In 2023, we enabled our customers reduce their greenhouse gas emissions by a total of 565,000 t CO₂eq (444,000 in 2022) with biogas. In addition, with our portfolio of other low-carbon fuels such as LNG, renewable power and our circular economy solutions we helped our customers further reduce their climate impact in road and maritime transport, and in industry.

We measure the climate impact of our products over their entire life cycle. The calculation considers the value chain from raw material sourcing to production, distribution, and use of the product.

Biogas makes it possible for users to cut their greenhouse gas emissions on average by 90% compared to the well to wheel emissions from a 100% fossil-based fuel as defined in the EU Renewable Energy Directive (RED2 2018/2001/EU). Average greenhouse gas emission reduction of biogas produced by Gasum was 91.9% in 2023 (88.9% in 2022). We aim at an average of 95% by 2027. The emission reduction percentage varies depending on the place of production, used feedstock and the distribution logistics. Use of animal manure as a feedstock at some of our production sites leads to emission reductions even beyond 100% due to avoided emissions from traditional manure management.

Our efforts to expand the gas infrastructure provide a sound platform, where LNG already reduces CO₂ emissions effectively compared to traditional fuels. The increasing availability of LBG use will further push decarbonization. Natural gas and LNG enable a greenhouse gas emission reduction of about 20% compared with the life cycle emissions of other fossil-based fuels.

Our [recycled fertilizer products](#) utilized in agriculture and in industry provide a greenhouse gas emission reduction of over 90% compared with mineral fertilizer use.



CO₂ emissions from biogas use amount to zero

When biogas is combusted, CO₂ is generated. However, CO₂ is not counted as a greenhouse gas in the context of renewables. Why? Because an equal amount of carbon is released into the atmosphere during combustion as has earlier been adsorbed in photosynthesis by the biomass feedstock. This is the foundation of the so-called fast carbon cycle. On the contrary, in the slow carbon cycle, fossil carbon is transferred from reserves millions of years old and adds to the amount of atmospheric CO₂. Of the fossil fuels, combustion of natural gas emits the least CO₂ due to its low carbon content.

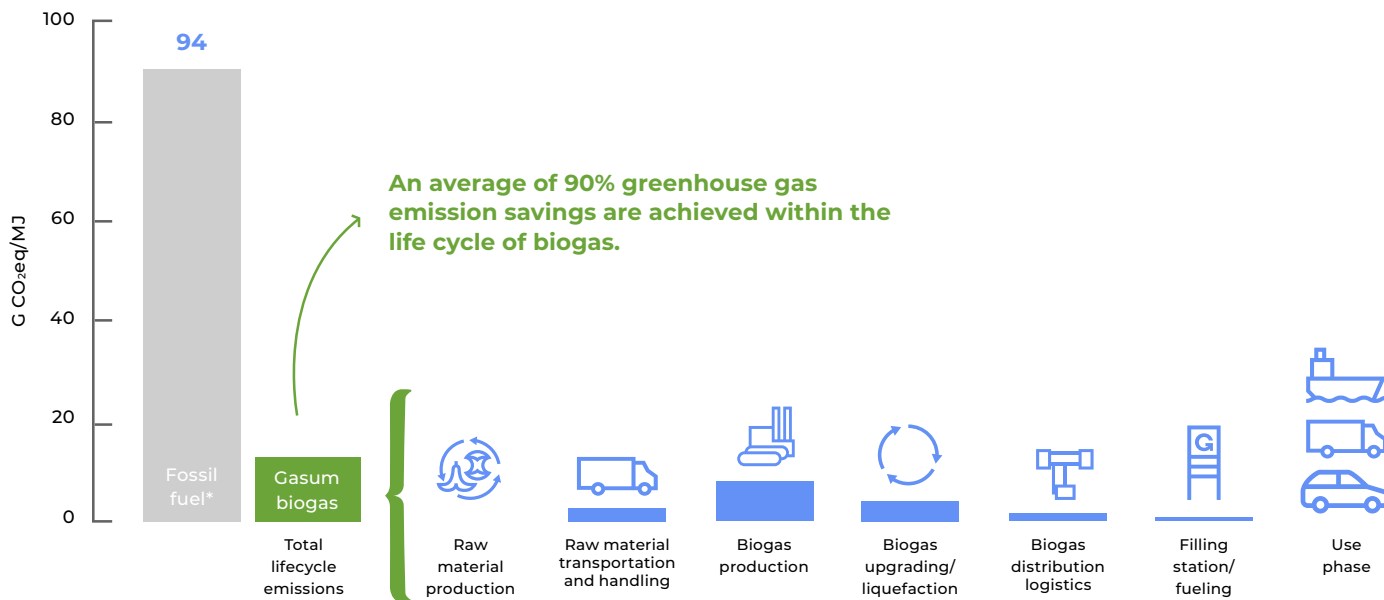


Biogas can reduce emissions by more than 100%

Biogas reduces emissions significantly by replacing fossil fuels. When animal manure is used as a feedstock for biogas, the benefit is even greater. Manure generated by livestock naturally produces a significant amount of methane during storage. When manure is taken to a biogas plant for controlled digestion, the methane released into the atmosphere from traditional manure management is avoided. In fact, the impact is so significant, that it can lead to a negative carbon footprint of biogas. This means that more greenhouse gas emissions are avoided than are emitted during the life cycle of biogas*.

*In accordance with the European regulation (RED2 2018/2001/EU), a bonus of 45 g CO₂eq/MJ manure is attributed for improved agricultural and manure management where animal manure is used as a substrate for the production of biogas and biomethane.

Greenhouse gas emission savings with biogas



*Calculation method and fossil fuel comparator are based on the guidelines on the determination of greenhouse gas emission reductions in accordance with the EU Renewable Energy Directive (RED2, 2018/2001/EU).



Cleaner urban air

Use of gas as a fuel can help reduce local air emissions in urban areas. Cleaner burning than other fossil fuels, the combustion of natural gas, as well as biogas, produces negligible amounts of sulfur and small particulates, and up to 85% lower levels of nitrogen oxides (NO_x), which are precursors to smog.

Biogas complies with sustainability criteria

In 2023, 100% of the biomethane and liquefied biomethane (LBG) we delivered to our customers fulfilled the sustainability criteria laid down in the EU Renewable Energy Directive (RED2, 2018/2001/EU). Compliance with the sustainability criteria is demonstrated with certified sustainability systems, which cover entire supply chains of CBG and LBG. The sustainability systems ensure that sustainable raw materials are used in the biogas production and that the required level of greenhouse gas emission reduction is met. Traceability is maintained by applying an appropriate chain of custody method. Compliance with the sustainability criteria is annually verified by an independent third-party certification body and reported to the energy authorities in Finland and Sweden, and to the ISCC certification system.

Cleaner energy to industry

We offer our industrial customers versatile alternatives to achieve their greenhouse gas emission targets. Natural gas and LNG enable a greenhouse gas emission reduction of about 20% compared with the lifecycle emissions of other fossil-based fuels.

The use of biogas helps reduce greenhouse gas emissions in the production of heating or cooling on average by 65–90%, based on the European regulation (RED2 2018/2001/EU) calculation method.

The role of electricity is growing in the efforts of our customers to reach environmental targets and reduce carbon dioxide emissions through actions such as process electrification and investments in energy efficiency. In 2023, demand for renewable wind power was stable. We were active in the long-term power purchase agreements (PPAs) market for the delivery of wind power to new and existing partners. We traded a total of 5.3 TWh of Guarantees of Origin for renewable electricity generated by wind, hydro or solar power or bioenergy and helped our customers to reduce their carbon footprint.

Read about [our services to the industry segment](#).

Sustainable solutions for maritime

About 3% of global greenhouse gas emissions are generated in maritime transport. In addition, ships emit nitrogen oxides (NO_x), sulfur and particulate emissions, which are harmful to the environment and human health. The International Maritime Organization (IMO) has set a target to reduce greenhouse gas emissions from vessels by at least 50% by 2050 compared to 2008. In addition, the IMO has set strict regulations for the emissions of NO_x and sulfur.

We help our customers meet the international regulation that steers shipping companies towards the use of cleaner fuels. LNG is recognized by the shipping industry as one of the most

viable alternative fuels to reduce emissions. LNG offers several benefits by reducing local and global pollution. Use of LNG reduces the climate impact by approximately 20% and generates close to zero emissions of sulfur oxides (SO_x) and particulate matter (PM), and a reduction in nitrogen oxides (NO_x) emissions of up to 85% compared with current conventional petroleum-based maritime fuels.

Fully renewable LBG or its blend is increasingly attracting interest among forerunners in shipping. Since LBG works in the same engines as LNG, it can be used directly without the need for any special investments, thereby speeding up the further decarbonization of cargo transport. [Read about our services to the maritime segment.](#)

Reducing emissions in road transport

Transport accounts for almost a quarter of Europe's greenhouse gas emissions. Within the transport sector, road transport accounts for more than 70% of all greenhouse gas emissions. The EU and national targets are driving a rapid decrease in emissions. In the EU, carbon dioxide emissions from new HDVs must be cut by 15% from the 2019 level by 2025, and the reduction target for 2030 is 30%. The Nordic countries are all committed to significantly reducing carbon dioxide emissions from road transport by 2030.

The use of biogas helps reduce greenhouse gas emissions in transport on average by 90%, based on the European regulation (RED2 2018/2001/EU) calculation method. Switching to LBG does not require any modifications to gas-fueled vehicles. Use of LNG

can help reduce carbon dioxide emissions by more than 20% compared with fossil diesel use.

Liquefied biogas (LBG) is becoming an increasingly popular fuel for heavy-duty vehicles (HDVs). Responding to the growing demand for road fuel gas, we continued expanding our network of gas filling stations with eight new stations during 2023. Gasum's expanding Nordic network currently consists of around 100 gas filling stations – including LNG/LBG stations for heavy-duty vehicles – in Finland, Sweden, and Norway.

A steady increase in the number of registered gas-fueled heavy-duty vehicles continued in Finland, Sweden and Norway in 2023. Several thousand LNG-powered trucks are already in operation in Europe, with numbers expected to increase continuously. Development of technology in heavy-duty vehicles is further driving the growing demand for gas. [Read about our services to road traffic segment.](#)

CASE



Wasaline's ferry operates one day a week on Gasum's biogas

Between October and December 2023 Wasaline's vessel M/S Aurora Botnia operated one day a week with certified biogas delivered by Gasum. Using biogas meant that all Friday departures were climate neutral. This was a pilot project to measure the interest of cargo owners and passengers in emission reductions, and whether it is financially viable to continue biogas purchases as it is more expensive than LNG. The pilot was part of Wasaline's proactive preparation for the EU emissions trading system that comes into force in 2024.

[Read more on Gasum's website](#)





CASE



Liquefied biogas wins public tenders

Gunnar Knutsen is a transport company operating in Greater Oslo within a radius of 80 to 100 kilometers. The company's trucks transport excavation materials, rocks and earth from construction sites. Today, 50 of their 81 trucks run on biogas. Their trucks make many short trips, but they also need to drive 400 to 500 kilometers a day without refueling stops. Here liquefied biogas has a major advantage compared to other fuels.

"Many public and private buyers of transport are looking to reduce their emissions, so that they can reach their sustainability goals. There are lower road tolls for biogas-powered vehicles in Norway, and this gives our customers a nicer bill", says Frank Vestveit from Gunnar Knutsen.

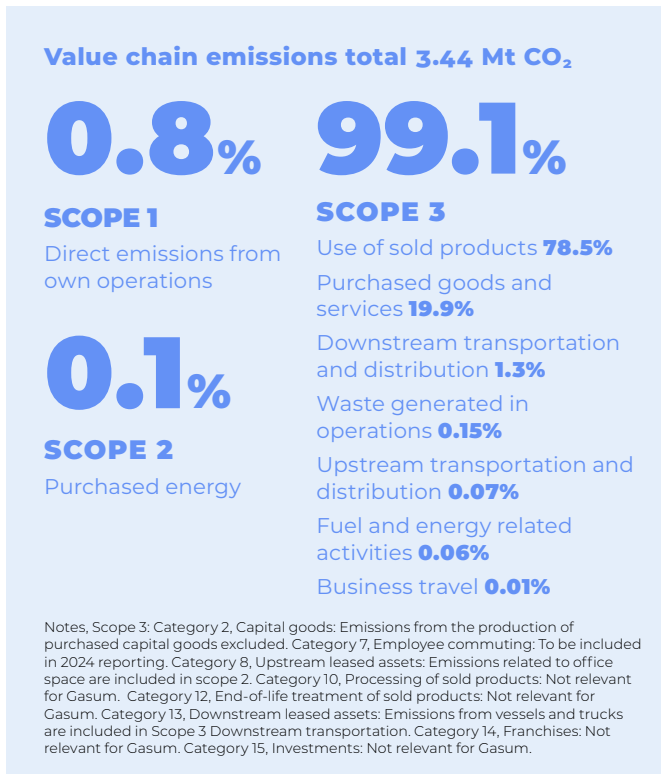
[Read more on Gasum's website](#)

Our carbon footprint

We aim to decrease the scope 1, 2 and 3 climate impact of our operations. We work systematically to optimize our supply chain and improve the energy efficiency of LNG terminals and biogas plants. We use 100% renewable electricity in all our operations. In addition, we aim at increasing the share of renewables in our offering, which plays a key role in decreasing our scope 3 emissions.

We measure our carbon footprint regularly. The climate impact of our LNG and biogas supply chains is assessed using a life cycle approach. The GHG Protocol standard and the related three scopes (scope 1, scope 2, and scope 3) set the framework in quantifying and reporting our corporate level GHG emissions. Scope 1 emissions are direct emissions from our operations and scope 2 includes emissions which are generated in the production of energy purchased by Gasum. Scope 3 emissions are a consequence of Gasum's activities but occur from sources that are not owned or controlled by us, including e.g. emissions from leased vessels transporting our products.

Our Scope 1 and 2 (market-based) greenhouse gas emissions in 2023 totaled 30,000 t CO₂eq (24,000 in 2022). Of the scope 1 and scope 2 greenhouse gas emissions, 43% originated from our operations in Sweden, 57% in Finland, and 0.3% in



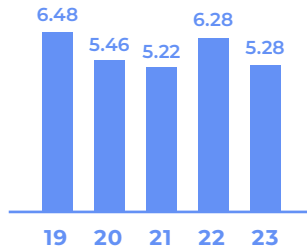
Norway. Most of our direct Scope 1 emissions were generated in biogas upgrading process and in flaring at LNG terminals. Our greenhouse gas emissions consist of carbon dioxide and methane emissions. Other greenhouse gas emissions such as ozone, nitrous oxide and chlorofluorocarbons emissions are not relevant to our operations and thus are not reported.

A significant share of our scope 3 emissions are generated in the use of sold products. The scope 3 emissions decreased by 10% year-on-year. Gasum's renewed strategy calls for increasing emphasis on renewable energy in our offering, which continued to contribute to reducing the Scope 3 emissions.

Our target is to decrease the LNG and biogas supply chain (scope 1 and 2) carbon emission intensity annually. During 2023, our carbon emission intensity decreased year-on-year due to customer demand picking-up after challenging year 2022. The specific carbon dioxide emissions of Gasum's operations is calculated by dividing scope 1 and 2 GHG emissions of our LNG and biogas supply chain operations with the energy content of the products delivered.

We aim to further develop our climate ambition and explore the oil and gas sector-specific methodology for setting science-based targets. The sector specific methodology was still under development during 2023 by the Science Based Targets initiative (SBTi).

CARBON EMISSION INTENSITY OF GASUM'S OPERATIONS 2019–2023, tCO₂e/GWh



100% renewable electricity used

In 2023, we continued to use 100% renewable electricity in all our operations. A full switch to renewable electricity was made already from the start of 2018. All electricity consumed by Gasum during 2023 was Nordic hydropower. A significant share of the electricity was utilized in biogas liquefaction.

Biogas plants use heat energy in their processes. Process heat is produced from non-upgraded biogas, natural gas, and landfill gas. Part of the process heat is purchased as district heat.

Reducing methane emissions

Management and reduction of methane emissions across the gas value chain is among the top priorities for the gas industry. Gasum has for years been actively working to reduce methane emissions by implementing effective technologies and practices through mandatory and voluntary programs. The methane emissions of our LNG terminals and biogas plants are conducted to the flare of the plant and combusted into CO₂. This means that pure methane emissions are very limited in relation to LNG terminals and biogas production and handling.

Fugitive methane emissions can arise for example through flanges, gaskets and seals. Main tool applied at all locations, is leak detection and repair. Fugitive emissions are difficult to control because they are usually very small and difficult to measure continuously. Gasum uses a range of different technologies and methods to detect the fugitive emissions. Specially designed infrared cameras together with vehicles and drones using laser technology makes detection and quantification of

Emissions into air

tons	2023	2022	2021	2020	2019
Scope 1 (Direct CO ₂ e emissions)	29,000	24,000	44,000	45,000	66,000
Scope 2, location-based (Indirect CO ₂ e emissions)	6,400	10,000	16,000	15,000	15,000
Scope 2, market-based (Indirect CO ₂ e emissions)	1,300	4,000	9,000	9,000	8,000
Scope 3 (Other indirect CO ₂ e emissions)	3,444,000	3,796,000	5,900,000	-	-
Direct CH ₄ emissions (included in Scope 1 emissions)	364	361	306	158	459
Direct biogenic CO ₂ emissions	85,000	91,000	81,000	75,000	80,000
NO _x	752	525	634	576	483

Indirect CO₂e emissions from electricity and heat procurement are determined based on the location-based and market-based methods. Location-based calculation reflects the average emission intensity of grids on which energy consumption occurs. Market-based calculation reflects emissions from electricity that organization has purposefully chosen.

Global warming potential (GWP) of methane is 28 times that of carbon dioxide based on the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC).

Direct biogenic CO₂ emissions are generated in the combustion of biogas and landfill gas for energy production, in flaring, and in the biogas upgrading process. Biogenic CO₂ emissions are not counted in the total GHG emissions of the company.

NO_x emissions are mostly generated in vessels transporting Gasum's products.

emissions efficient. During 2023, Gasum scanned the reactor tanks of all its Finnish biogas plants with a special infrared camera (Forward Looking Infra Red, FLIR) to detect emissions and fix leaks. The cameras detect emissions efficiently, allowing repair works to be started immediately.

The EU Methane Strategy aims to reduce methane emissions, which will have a positive impact on biogas production, delivery, and use. The strategy concretely highlights that biogas and biomethane production are key parts of the solution

CASE



Gasum is committed to minimizing methane emissions from its operations

Gasum uses a range of different technologies and methods to detect methane emissions in its operations. Specially designed infrared cameras together with vehicles and drones using laser technology makes detection and quantification of emissions more efficient.

"The annual methane emissions generated in Gasum's operations are equivalent to less than half a percent of what all cows in Finland produce in a year. We report our methane emissions annually in our sustainability report. Methane is the second most significant contributor to climate change after carbon dioxide, but it's also a valuable commodity to Gasum. It is our priority to frequently survey our equipment to detect leaks and improve our measurement methodologies," says Elina Saarivuori, Gasum's Head of Sustainability.

[Read more on Gasum's website](#)



to reduce methane emissions in Europe. Especially in the agriculture sector significant emissions can be avoided, when methane-emitting feedstock, such as manure, is brought to the controlled environment of a biogas plant. This enables us to capture and utilize the methane instead of it being naturally released into the atmosphere during manure storage.

Energy efficiency in a key role

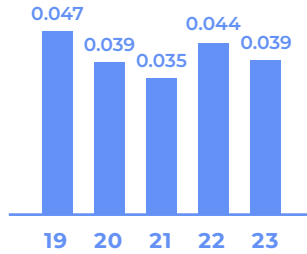
Our continuous focus in decreasing emissions from our operations is related to improving energy efficiency. We have set a company level target of increasing energy efficiency by 1% annually during 2017-2025.

In 2023, our total energy consumption was 275 GWh (268 in 2022). The energy intensity of our operations decreased compared to previous year due to customer demand picking-up after challenging 2022. The energy intensity is calculated by dividing the energy consumption of our gas supply chain operations by the energy content of the products delivered.

We participate in the voluntary Finnish Energy Efficiency Agreement for Industries under the Energy-Intensive Industry Action Plan. The Action plan is an important part of Finland's Energy and Climate Strategy and a primary tool for the promotion of efficient energy use in Finland. Our savings target for the agreement period for the Finnish operations is 8 GWh, which we have achieved ahead of time.

In 2023, we set a new target of implementing at least one energy saving action per biogas plant and LNG terminal annually (total 21). A total of 30 energy saving actions were recorded

ENERGY INTENSITY OF GASUM'S OPERATIONS
GWh/GWh



during 2023, including methane leakage scanings at biogas plants and LNG terminals, upgrading unit cooler investment at Jordberga plant, and air compressor maintenance at customer terminal in Vaasa. Systematic maintenance measures, such as regular cleaning of heat exchangers and optimizing pumps and engines, play a key role in improving our energy efficiency. Modern industrial heat pump investments in the construction project of new Götene biogas plant and the on-going Oulu biogas plant expansion project will enable the utilization of low-temperature waste-heat sources leading to significant improvements in energy efficiency.

During the past years, we have invested in several measures to optimize our operations, which have greatly improved our energy efficiency. Projects have included the commissioning of biogas upgrading units in Turku, Oulu and Huittinen and liquefaction unit in Turku.

Systematic day-to-day energy management

To develop and manage our energy efficiency measures and actions, we maintain a voluntary energy management system, which is certified in accordance with ISO 50001:2018. The energy management system comprehensively covers our supply, production, and delivery of gas products, as well as the processing of biodegradable waste, and production of recycled nutrient and fertilizer products. On a larger scale, systematic

Energy consumption within Gasum

GWh	2023	2022	2021	2020	2019
Energy consumption within Gasum					
Fossil fuel consumption	103	68	87	113	158
Renewable fuel consumption	72	89	76	88	97
Electricity consumption	88	87	182	164	154
District heat consumption	15	15	16	9	32
Steam consumption	0.6	14	31	34	32
Heat sold	2.5	3	4	4	7
Electricity sold	1.5	2	2	5	5
Total energy consumption	275	268	383	400	460
Energy consumption outside Gasum					
Electricity consumption	3	3	3	n/a	n/a
Fuel consumption	214	196	205	173	n/a

Fossil fuel consumption includes natural gas, LNG, light fuel oil and diesel. Renewable fuel consumption includes biogas used in the plants' own processes. Amount of cooling energy is negligible and is not reported separately. Energy consumption outside Gasum includes upstream transportation (vessels, trucks), customer terminals, and partner filling stations.

energy planning, maintenance, monitoring and analysis, as well as investment and targeting of actions across different operations will deliver energy savings, improve competitive advantages, and reduce CO₂ emissions.

An important part of our energy management is to identify, implement and follow up on energy efficiency improvements at our LNG terminals and biogas plants. Day-to-day energy observations help us to identify deviations such as air or energy leakages and come up with savings ideas in electricity, fuel, or water consumption, or in heating and cooling. The observations are recorded, and actions taken accordingly. During 2023, we harmonized our energy data analysis processes. During the annual Gasum Energy Savings Week, we shared information about our actions, and increased awareness of what we can do to improve energy efficiency at Gasum.

Climate risks and opportunities

Climate change mitigation and energy transition are strongly visible in Gasum's strategy and sustainability goals. The increased emphasis on renewable energy and reducing the role of fossil fuels plays a key role in addressing the climate risks. In addition, the continuous work to increase energy efficiency of our own operations supports this work. At the same time, new opportunities arise for Gasum in the changing operating

environment and through meeting the needs of our customers in the energy transition.

Climate risks are divided into transition risks, i.e., the risks arising from the transition to a low-carbon economy and physical risks, which involve acute and chronic changes in weather, and which will arise if climate change is not mitigated.



CLIMATE RELATED RISKS AND OPPORTUNITIES

POTENTIAL IMPACTS FOR GASUM

MANAGEMENT OF RISKS AND OPPORTUNITIES

	Policy and legal				
Transition risks		<ul style="list-style-type: none"> · Mandates on and regulation of existing products and services · Pace of changes in regulatory environment 	<ul style="list-style-type: none"> · Definition of sustainable energy will determine the acceptability, taxation and framework for Gasum's products ultimately affecting demand and profitability · Energy subsidies, grants, taxation, emission allowances affecting demand and profitability 	<ul style="list-style-type: none"> · Strategy and climate related sustainability targets steer our own operations and investments · Monitor and influence regulatory developments · Build culture to embrace opportunities 	
		<ul style="list-style-type: none"> · Increased pricing of GHG emissions 	<ul style="list-style-type: none"> · Growing operating costs for customers (e.g., higher compliance costs, increased insurance premiums) lead to increased demand for cleaner solutions 		
	Technology		<ul style="list-style-type: none"> · Transition to lower emissions technology in energy supply chain 	<ul style="list-style-type: none"> · Current operations may need investments to adopt/deploy new practices and processes · Transition improves energy efficiency and lowers emissions 	<ul style="list-style-type: none"> · Guide the business through the strategy, sustainability and high operational excellence targets · Adopt energy efficiency measures
			<ul style="list-style-type: none"> · Investments in new technologies 	<ul style="list-style-type: none"> · Ability to provide relevant products and solutions in the future 	
	Market and reputation		<ul style="list-style-type: none"> · Changing customer needs 	<ul style="list-style-type: none"> · Reduced demand for LNG due to shift in customer preferences · Increased demand for renewable and low-carbon solutions 	<ul style="list-style-type: none"> · Continue to shift focus from fossil to renewable energy · Proactively, in coordination with the customers, develop product and service offering to support green transition
			<ul style="list-style-type: none"> · Availability and increased cost of raw materials and sourced renewable energy 	<ul style="list-style-type: none"> · Increased biogas production costs due to changing input prices · Increased cost or decreased revenues 	
		<ul style="list-style-type: none"> · Stakeholder perception of Gasum's image · Stigmatization of gas sector 	<ul style="list-style-type: none"> · Demand for products and services · Effects on workforce management, partnerships, capital and insurance availability · Social license to operate, climate related litigation 	<ul style="list-style-type: none"> · Improve visibility of Gasum's efforts as a green transition enabler through transparent communications and disclosures · Continue ensuring compliance with laws, regulations and Gasum's Code of Conduct 	
Physical risks	Acute and chronic changes	<ul style="list-style-type: none"> · Increased severity of extreme weather events · Permanent changes in weather patterns, rising mean temperatures and sea levels 	<ul style="list-style-type: none"> · Predictability of surrounding markets, customer needs and own operations · Negative impact on workforce, damage to property and assets · Interruptions in deliveries · Increased insurance premiums and potential for reduced availability of insurance on assets in "high-risk" locations · Increased potential for wind power 	<ul style="list-style-type: none"> · Ensure operations and assets withstand changes in acute and chronic weather patterns · Continue to improve weather forecast utilization in operations · Keep business continuity plan and safety guidelines up to date · Continue to develop renewable power solutions 	



Circular economy

We are a major processor of biodegradable fractions of waste and residues generated in society. We increase the availability of biogas and develop the market for recycled nutrient and fertilizer products. At Gasum, the circular economy is seen as a necessity in supporting climate change mitigation, resource efficiency and sustainable growth.



We develop, offer, and invest in cleaner energy products and related infrastructure.



We advance innovation and build partnerships in the circular economy, decarbonization and resource-efficiency.



Our energy products impact positively on local air quality in urban areas.



We process a substantial share of society's biodegradable waste and residues.



We help our customers reduce their climate emissions.

WHAT WE AIMED FOR WHAT WE ACHIEVED IN 2023

Increasing availability of biogas in the Nordics

In total, we brought about 1.7 TWh of biogas to market, including sourced volumes from partners.

Scale-up continues. Construction of one plant in Götene, Sweden is ongoing and we are planning to build new biogas plants in Borlänge, Kalmar and two in Skåne, Sweden as well as one in Norway.

Ensuring sustainable biogas production

Sustainability criteria fulfilled. 100% of our biomethane production fulfils EU Renewable Energy Directive sustainability criteria. The greenhouse gas emission reduction of our biogas averaged 91.9%.

Promoting circular economy

987,000 t of biodegradable feedstocks treated. We prepare for increased use of animal manure in our forthcoming large-scale biogas production.

918,000 t of recycled nutrients and fertilizers produced, offering huge emissions reduction potential, enhanced crop growth and sustainable soil improvement.

From waste to value

We consider organic waste as a truly valuable resource. Converting waste and residues into energy and recycled nutrients is an efficient way of mitigating climate change while promoting the circular economy.

Biogas production plants are bio-refineries at their best. They are excellent examples of the circular economy by turning waste into energy for industry, fuel for road and maritime transport, as well as nutrients for industry, agricultural and horticultural use.

For example, our liquefied biogas (LBG) production plant in Turku processes the region's wastewater sludges and in the end of process separates the nitrogen into ammonia water that is used as a process chemical in industry to flue gases. Recycled nutrients are recovered from the side streams of our biogas production and further refined for use as a fertilizer in the agricultural and horticultural sectors. In a more integrated biogas production such as our Nymölla LBG production plant, there are no redundant material flows since the organic mass containing effluent water is returned back to the provider or used internally after the biogas production process.

Growing biogas volumes

The potential of Nordic biogas production volumes is estimated to be around 20–40 TWh annually based on feedstock availability. We aim to have 7 TWh of biogas available per year to our customers by 2027 by developing both our own biogas production and sourcing from partners. The [expansion](#) of production capacity is proceeding as planned, where the recent key events include making headway on the construction of our newest large plant in Swedish municipality of Götene and soon starting construction on the second one in Borlänge. There are several other new biogas plants currently in the planning phase. In Sweden, we are doubling our biogas production capacity with five new plants over the coming few years.

Biogas is sustainable

A 100% renewable fuel makes it possible for users to cut their greenhouse gas emissions generated over the fuel life cycle by an average of 70-90% when compared with a fossil-based fuel as defined in the EU Renewable Energy Directive (RED2 2018/28/EC). If manure [[link to carbon handprint /manure case](#)] is used as a feedstock, there is potential to reduce emissions even beyond 100%. All biogas delivered by us fulfills the sustainability criteria laid down by the EU RED2. [Read more.](#)

CASE



The circular economy gears up with the biogas revolution

The importance of circular economy principles will continue to grow both globally and on a local level. Gasum offers its customers an opportunity to reduce greenhouse gas emissions and become more competitive by joining the biogas cycle. Through the conversion of organic waste, manure, or industrial side streams into biogas, Gasum not only generates renewable energy, but also produces valuable byproducts such as bio-fertilizers for use in sustainable agriculture. By harnessing nutrients such as nitrogen, phosphorus, and potassium from the biogas production process, we can obtain valuable resources for farming.

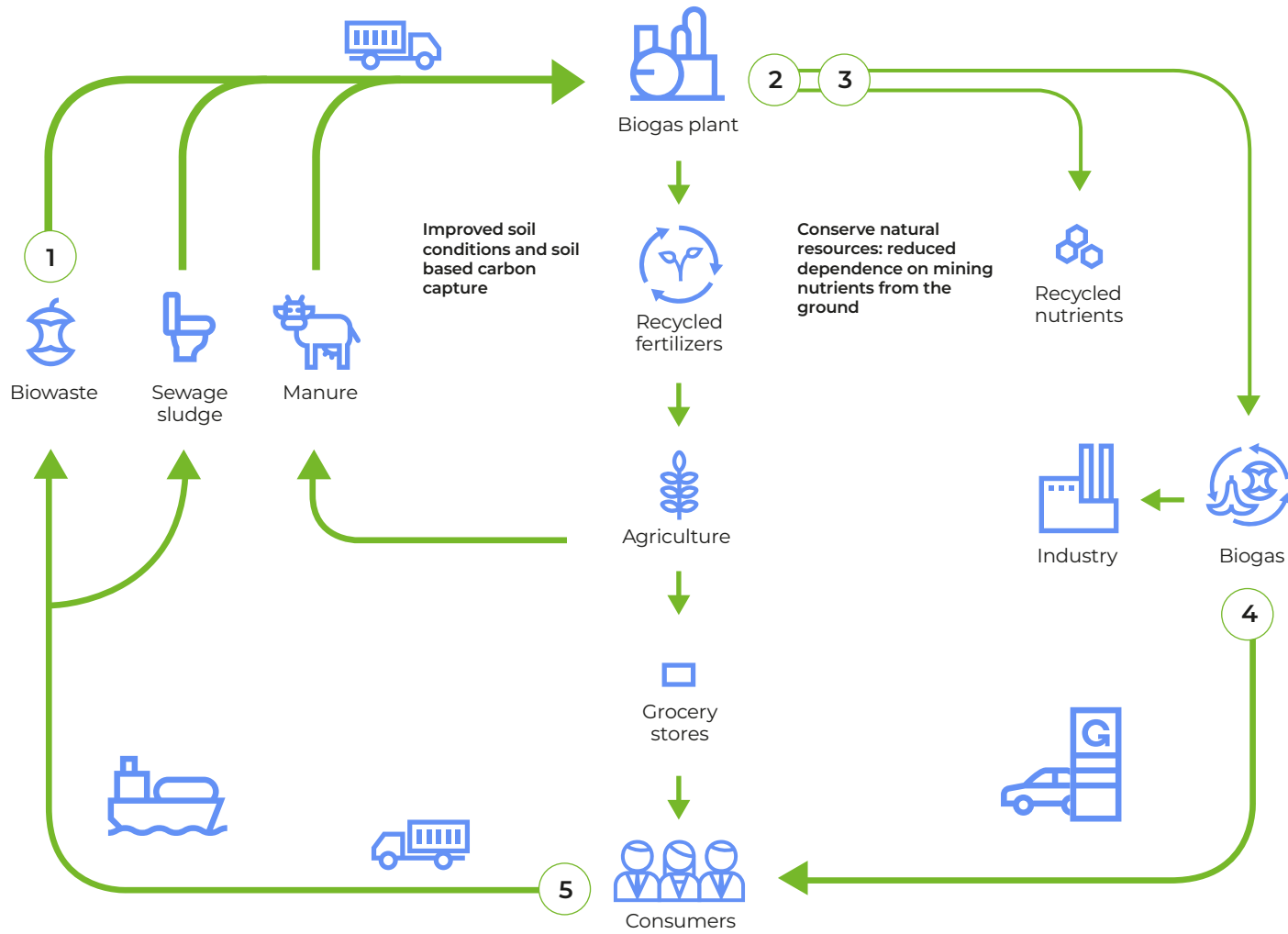
[Read more on Gasum's website](#)



Responsible management and recycling of society's waste and sidestreams



Climate change mitigation: on average 90% less CO₂ emissions



Job creation and value for municipal economy

Renewable energy: reduced dependence on fossil energy sources



Improved local air quality: no particulate or SO₂ emissions

Waste is a valuable resource

We source wastewater sludge, industrial and agricultural side streams, manure and biowaste for use as feedstocks in biogas production in Finland and Sweden. In 2023, we processed a total of 987,000 tonnes of biodegradable feedstocks in Sweden and Finland. Our network of fairly large biogas plants improves economy of scale and efficiency, and allows biomass processing to be optimized between plants depending on, for example, logistics, capacity, market conditions and different feedstock fractions.

We provide waste processing and circular economy services in Finland. Our waste processing service enables the re-use of biodegradable waste material as energy, thereby reducing the energy lost in processes such as waste combustion or composting. Nutrient residues such as nitrogen and phosphorus arising as a by-product in biogas production are returned either as recycled nutrients to industry or as recycled fertilizers to agriculture.

We are exploring new feedstock possibilities to ensure biogas availability and growth. We are preparing for the increased use of animal manure in our forthcoming large-scale biogas production. The Götene biogas plant in Sweden, which is currently under construction, will be largely based on manure and will be an excellent example of strengthening the regional circular economy with farmers by returning biofertilizer to their fields.



Producing recycled fertilizers and nutrients alongside biogas

The organic side stream of biogas production contains nutrients which can be re-utilized as recycled fertilizers and nutrient products. These products replace fossil and mineral-based inorganic nutrients in agriculture and industry. At the same time, part of the valuable organic matter and carbon compounds are circulated back into the soil.

We produce recycled fertilizers and nutrients created as by-products of biogas production for agricultural and industrial needs. In 2023, our biogas plants produced about 918,000 tons of nutrient products. The safe and sustainable use of nutrient-rich by-products is important to us.

High hygiene quality

All biodegradable fractions delivered to biogas plants in Finland, and fractions containing animal by-products in Sweden, go through a rigorous treatment process where they are turned into organic fertilizer products. Any pathogens and pests are destroyed by heating the feedstock mass to a temperature above 70°C. This process is called hygienization.

Gasum's fertilizers are produced in compliance with fertilizer product legislation, and the operations are supervised by the Finnish and Swedish authorities. The amount of heavy metals and pathogens in fertilizer products is controlled through systematic sampling. In Finland, our production complies with the Decree on Fertilizer Products and operations are overseen by the Finnish Food Authority.

In Sweden, all Gasum's fertilizers are certified through SPCR 120 and most of the volume is also certified for ecological use. The quality standard includes tests and analyses throughout the process from raw material to the final product, a certified biofertilizer.

Recycled nutrients reduce emissions and support biodiversity

The use of recycled nutrients and fertilizers reduces the use of fossil- or mineral-based nutrients such as the use of scarce phosphorus resources. Using recycled nutrients and fertilizers also cuts emissions originating in the manufacture of nutrients from fossil origin.

The use of the digestion residue from biogas production as a soil-enhancing product also improves soil health. Digestion

residue-based soil-enhancing products contain carbon compounds that make soils more fertile for food production. This can buffer the effect of climate change in agricultural soils and lower the related risks. Unlike, for example, burning biomass as an energy source and releasing the carbon it contains into the atmosphere, carbon containing soil-enhancing products help to bind carbon into the soil and support soil biodiversity. Approximately half of the carbon contained in biogas production feedstocks ends up back in the soil, which is important as it enhances soil fertility and is reflected in the ability of the soil to produce crops.

Hydrogen and carbon value chains main focus areas of our R&D

Our research and development activities are focused on the development of our biogas business. During 2023, focus was on hydrogen and carbon value chains in future energy systems.

The need for carbon neutral energy solutions is predicted to grow strongly in the coming years. A focus area of our R&D work includes hydrogen and carbon value chains in future energy systems. Methanation technologies offer an alternative to the biological biogas process in renewable methane production, and capturing CO₂ from biogas can open completely new markets, making biogas even more sustainable than it already is. [Read more about future solutions.](#)

We continued to work in “Hydrogen and carbon value chains in green electrification” (HYGCEL), a large research project launched at the end of 2021. The project, with 17 company partners and three universities as participants, takes a holistic view of future energy systems. Another project, HABA, ended in 2023. It studied decentralized biomethane production and enhancing methane production by methanation i.e. injecting hydrogen to biogas reactor. Also capturing carbon dioxide from biogas upgrading process was in project’s scope.

During 2023, we organized Gasum Hackathon innovation competition together with BioEconomy Business Accelerator BioPaavo by JAMK University of Applied Sciences and growth company consultancy Kasvu Open. The purpose of the competition was to find a partner with near commercial solutions and interest to take the lead in creating value from the biogenic CO₂ produced as a side stream at Gasum’s biogas plants in Finland and Sweden. From five final international entrants two winners were chosen: Carbonaide’s (Finland) solution is to use biogenic CO₂ in concrete manufacturing, enabling combination of carbon use and storage, while in Inherit Carbon Solutions’ (Norway) concept the CO₂ will be permanently stored in geological storage.

Nutrient recovery

During 2023, projects were continued focusing on increased biogas production. Extraction of plant proteins and their combined utilization with waste and residue feedstocks in biogas production is being studied in projects led by the Swedish University of Agricultural Sciences in Alnarp.

In Finland, the “Circular economy of industrial water” (CEIWA) project was ended in 2023. The project produced important new knowledge especially to help tackle emerging

challenges such as microplastics in different waste streams. The project also connected a large consortium of companies, research institutes and universities.

An essential element of Gasum's R&D work is collaboration and partnerships with research institutions and enterprises. Gasum actively participates in the open innovation cluster CLIC Innovation Ltd (e.g. HYGCEL and CEIWA projects). Gasum is a member of the Biogas Solutions Research Center at Linköping University in Sweden.

Other examples of research and development projects and initiatives we were involved in during 2023:

- New approved hygienization methods for biogas plants in Sweden, led by RISE
- Carbon capture and utilization, led by Linköping University

Environmental management

We aim at operational excellence, and invest in energy efficiency, maintenance, and process and emission control development to improve our environmental performance.

WHAT WE AIMED FOR

Minimizing the environmental impact of our operations.

Zero environmental breaches and increased number of energy and environment related observations.

WHAT WE ACHIEVED IN 2023

Environmental target of zero new breaches achieved.

Pro-active environmental work. Nearly 240 energy and environment related observations were made to improve our daily operations and prevent harm.

Operational excellence. All our operations are in accordance with the ISO 9001, ISO 14001, ISO 45001 and ISO 50001 requirements.



Respect the environment

In accordance with our Code of Conduct, we are committed to environmentally sound practices in our operations.

We decrease our environmental impact by employing environmentally sound and energy-efficient technologies and utilize renewable electricity in our operations. We use resources, such as energy and water, efficiently, and reuse and recycle to minimize waste. We increase our understanding of the life-cycle impact of our products and use this information to improve our performance.

In our daily work, we make systematic efforts to minimize potential local environmental impacts such as air, water and soil pollution, odor nuisances, and environmental impacts such as noise caused during project construction, and we maintain responsible chemicals management.

Our main tools for environmental and energy management are processes that ensure continuous compliance with environmental law and regulations, such as our Integrated Management System that is compliant with ISO 9001, ISO 14001, ISO 45001, ISO 50001 and the biogas sustainability schemes.

Environmental compliance

All sites systematically follow up on any deviations, pro-actively report observations, conduct safety walks, and compile risk assessments. We use reporting tools in the management and reporting of environment-related actions. In 2023, the number of energy and environment related observations totaled 238 (230 in 2022). Making energy and environmental observations helps us to prevent environmental damage and accidents, improve energy efficiency, and to continuously improve our daily operations.

No major environmental incidents occurred in our operations, nor were there environmental fines imposed on us during 2023. 5 minor environmental breaches were recorded. A total of 42 (45 in 2022) notices from the public were received during the year, mainly related to odor or noise nuisance from our biogas plants.

During 2023, actions were taken to mitigate non-conformities identified during the previous years and follow up impacts of related improvement projects. Gasum together with the City of Turku, has performed an investment project to lead runoff water from an old landfill site of the City of Turku to a wastewater treatment plant, which will prevent the contamination of the storm water of Gasum's biogas plant.

Water management

We aim to utilize recycled water in the biogas production process as much as possible. We see the internal recycling of reject water as an economical and environmentally sound solution for operating biogas plants. Internal recycling improves the plants' heat balance and reduces the amount of wastewater.

Water consumption is also reduced by utilizing site run-off waters in the biogas process, and by optimizing the production processes. In 2023, process improvements in Lohja biogas plant for example contributed to 25% decrease in process water consumption in biowaste treatment.

The plants are equipped with efficient technologies for water purification and recovery of nutrients and organic carbon. Increased recovery of nutrients helps to lower the environmental load of effluent before discharging it into a wastewater treatment plant or recycling it back to nature. Some of the nutrient-rich excess process water is utilized in the forest industry as a nitrogen source for microbes at wastewater treatment plants.

In our LNG supply chain, sea water is used as ballast water in the vessels. After use, the ballast water is released back into the sea unpolluted. Most of our freshwater consumption is as process water in biogas plants and as tap water in offices.

Water withdrawal

m ³	2023	2022	2021	2020	2019
Municipal water	90,000	172,000	189,000	183,000	180,000
Groundwater	180,000	34,000	48,000	51,000	30,000
Seawater	130,000	127,000	140,000	174,000	157,000
Rainwater	8,000	7,000	8,000	9,000	53,000

Air emissions

Management and reduction of [methane emissions](#) has for years been among the top priorities for Gasum. In our operations, fugitive methane emissions can arise for example through flanges, gaskets and seals. A range of different technologies and methods are regularly used to detect methane emissions. During 2023, we photographed the tanks of all Finnish biogas plants with a special infrared camera (Forward Looking Infra Red, FLIR) that detects emissions. In addition, the biogas reactors of Kuopio, Honkajoki and Vehmaa plants were taken into complete renovation to prevent air emissions and to remove the sedimented material. The tanks were emptied, and full inspection and service was performed before the reactors were taken into use again.

Odor gas management

Many of our biogas plants are located in centralized waste treatment centers, where many companies operate and where Gasum is one contributor to odor nuisance. In Finland, a total of 39 notices and (2 in Sweden) were received from the public related to odor. Feedback is taken seriously. During the year, we worked to improve the odor management and to reduce the harm caused in the vicinity of the plants. We cooperate with the local environmental authorities and report on our actions to them.

Waste management

Most of the waste fractions generated in Gasum's operations are recovered or reused. Sand and packaging materials removed from the raw material stream received for biogas production account for the most significant portion of our solid waste.

Waste

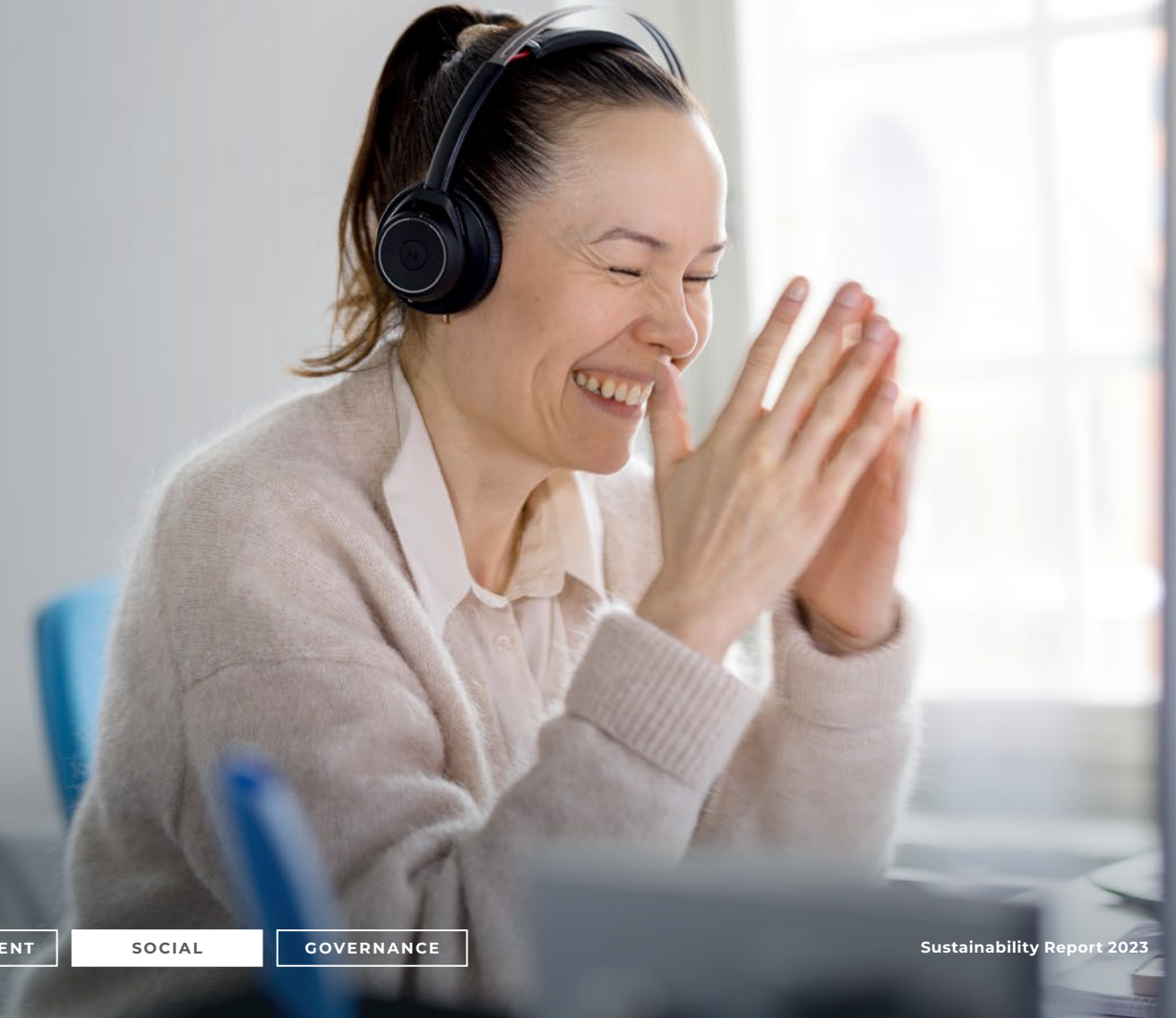
tons	2023	2022	2021	2020	2019
Non-hazardous waste, total	13,500	13,200	11,780	10,590	9,910
Reuse, recycling and recovery	3,410	3,830	1,780	3,380	3,910
Incineration	9,760	9,220	9,510	7,010	5,990
Landfill	0	80	420	200	3
Other	320	70	70	1	30
Hazardous waste, total	65	150	110	23	90
Reuse, recycling and recovery	63	80	40	20	20
Incineration	0	60	50	1	60
Other	2	10	20	2	10

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INTRODUCTION

SUSTAINABILITY

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Sustainability Report 2023

People

Our goal is that all Gasum Group employees can do their work well and be inspired in a safe and energizing work environment.



We respect human rights and promote the well-being, work ability and competence of our personnel

WHAT WE AIMED FOR

Promoting wellbeing and a healthy working environment: absence rate < 2%

Developing Gasum culture and employee experience: Assessment and development of employee experience with continuous pulse survey. Min. 70% of employees participate, and total average score is min. 80%

Growing professional talent: Development discussions are held, 100% of employees participate

WHAT WE ACHIEVED IN 2023

Employee absence rate 1.74% (2022: 1.98%)

The employee pulse survey continued to be active and had a 69% participation rate (2022: 63%). The survey helps us to assess and develop employee experience and gives every employee the possibility to give feedback regularly and develop our culture.

New values and the Gasum Compass were created as part of strategic culture development together with the whole personnel.

The Leading for impact journey was continued with surveys to all Gasum Group employees on their line managers' 'Leadership styles' and the 'Organizational Climate', with an aim to strengthen our leadership culture and help our line managers to become better leaders.

97% of employees* participated in development discussions (*Not included: temporary employees, employees who started between November and December 2022 and employees who are on a longer leave of absence)

New values created

During 2023 new values and an accompanying Gasum Compass was created together with the personnel of the company. We aim to strengthen a culture that engages, energizes and focuses on building and sharing a common understanding and purpose.

Values and Gasum Compass

The strategic culture development project continued in 2023 with work to develop a value statement and leadership principles for Gasum. The entire personnel of the Group were consulted and activated during the development process. Feedback was collected through multiple surveys as well as with an activity at the company's annual get-together Go Gasum.

A working group comprised of staff representatives from different functions and locations was assembled. The working group had several meetings throughout the year to analyze the feedback collected from the personnel to develop a proposal, which was then further fine-tuned together with the management team.

The work culminated at the end of the year with the publication and adoption of the new Gasum values: respect, sustainability and positive energy, as well as the Gasum Compass, which

Gasum values



Respect

Respect is the cornerstone of trust. We treat all human beings, the planet and the natural resources we use with respect.



Sustainability

Sustainability is at the heart of all we do. We care for the environment as well as people and we do business profitably to enable investing in a cleaner future.



Positive energy!

Positive energy is a renewable resource. We get energized by working together towards a sustainable future.

is a set of guidelines on how everyone at Gasum can live the values in their everyday work lives. Planning into the implementation of the values and Compass continues.

Leading for impact journey

We carry out an annual employee survey that primarily focuses on Leadership Styles and Climate; we have continued this journey called “Leading for Impact” from the year 2021 onward. Annually, we ask all Gasum employees to evaluate their line managers and the climate these managers create for them. Our aim is to have clear ways to measure and show the impact of leadership on the business. We want to strengthen our leadership culture at Gasum and help our line managers become better leaders who create a climate for success within their teams.

The surveys consist of 180° assessments for line managers and direct reports. Line managers receive their personal results and participate in one-on-one coaching sessions to discuss the results and review these findings. As part of the journey, line managers create individual development plans based on their assessment results.

Pulse survey – part of everyday life at Gasum

The Pulse survey has become an integral part of everyday life at Gasum. Employee experience is a critical aspect of our culture and the Pulse survey supports this by measuring employee experience elements and serving as a tool for improving it. A monthly employee pulse survey was introduced in 2020 and

continues to be an active part of our development and improvement actions at Gasum.

The survey offers every employee the opportunity to consistently provide feedback and to develop ways of working in teams and thereby contributing to shaping Gasum’s culture together. The survey currently covers the following themes: clarity, wellbeing, feedback, collaboration, information, empowerment, motivation, and actions. The theme “actions” provides a tool for monitoring and encouraging discussion about the initiatives implemented within teams.

Results from 2023 show that employees feel empowered by the freedom to choose how to best perform their jobs and they feel that collaboration with other people in the organization has been successful. On the other hand, there is room for improvement in giving and receiving feedback and sharing all the information needed for employees to perform to the best of their ability in their jobs. The survey response rate was 69% in 2023.

Remuneration is connected to financial performance, strategy and climate impact

The company aims for a target-oriented company culture where the entire personnel understands the company’s strategy and objectives. The remuneration principles have been designed to provide incentives for profitable operations in accordance with the company’s purpose and values, advance the achievement of the strategic business objectives and reward for good performance.

In Gasum’s short-term incentive program, the focus is on the Group’s financial results, climate impact and strategy implementation. In the long-term incentive programs, the earnings criterion focuses on the company’s value increases in accordance with the strategy and on creating profitable growth. The remuneration system also includes other benefits and bonuses.

The remuneration principles and the remuneration model are described in [Governance and Remuneration report 2023](#).

Collaborative and personnel models

Successful management of business is built on trust and collaboration between management and employees. Open dialogue and free flow of information are important at Gasum. Our collaborative models between personnel and management are defined according to local practices and procedures in each country.

The Gasum Compass

We learn, share and develop

By sharing information and collaborating, we improve our ways of working continuously. We explore new opportunities for improvement with open minds.

We celebrate and give praise to each other

We have fun at work together. We encourage and energize the people around us and make each other successful.

We deliver on our promises

This means promises to both customers as well as colleagues. We care for Gasum's success and the success of our customers.

We build a safe environment together

Safety means both physical and psychological safety. A safe work environment means zero injuries as well as trust and respect in each interaction we have.



Wellbeing at work

The focus areas of wellbeing at Gasum include developing inspiring and active leadership as well as an open feedback culture, supporting and increasing safety at work, maintaining work ability and reducing disability pensions.

Well-functioning community

Our wellbeing goal is that all Gasum Group employees can do their work well in a safe and energizing work environment. Work contributes to the health of employees throughout their careers. We constantly analyze and develop our toolbox and procedures to promote wellbeing. Wellbeing entails a personal experience of feeling positive about work, having a possibility to influence one's own work, having a meaningful job which matches one's skills, and interactive as well as respectful collaboration in a healthy, encouraging work environment. In a well-functioning organization information is shared, the goals are clear, and we listen to and appreciate everyone. Every Gasum employee is also responsible for their personal wellbeing.

Early support model

Early support is a key element in Gasum's wellbeing at work and we have an Early Support Model to cover the Gasum Group employees in all countries. Early support means all the support measures that are initiated to improve a person's work ability and wellbeing at work. It means raising issues of concern in an agreed manner. The Early Support Model is a common model to make workflow smooth. Our goal is to reduce sick leaves and improve the discussion culture and sharing of responsibility. Also, the goal is to make it possible for people to remain in working life as long as possible.

With the Early Support Model, we aim to support employees in coping with work and at the same time ensure the smoothness of work and the functionality of the work community. The need to support work ability may be detected and brought up by an employee, a line manager, a colleague or a member of the occupational health and safety personnel.

CASE



Employee of the year

Selecting the Gasum Employee of the Year has a long history in our company: more than 30 excellent employees, always chosen by their colleagues, have already received this award. The aim of the Gasum Employee of the Year award is to highlight successes and exemplary attitude as well as to thank and provide recognition for outstanding work by great colleagues. Each year we have selected a special theme that is emphasized when selecting that year's award winner. This year's theme was "Information sharing". Information is also part of our pulse survey questions because it is so crucial for cooperation, development and for contribution towards our common goals. In 2023, the award went to Henning Brede, who works in the Logistics Operations team as a Shipping Planner. "Henning has extensive knowledge of all aspects of Gasum and what makes him special is his ability to share the right amount of information in a timely manner to his own team, as well as outside his team. He is purposeful, engaged, always positive and solution oriented", stated one of Henning's colleagues, who nominated him for the award.

Growing talent

We focus on building the right competences and mindset

At Gasum, we believe in our people - everyone is seen as a talent. The goal is to ensure that everyone's efforts and development journey are directed towards achieving our strategic targets and that every employee has a clear sense of purpose and understanding of what is expected of them. Gasum offers challenging tasks and opportunities to grow, and employees are encouraged to take ownership of personal development. Gasum's strategy provides the framework through which this talent grows, innovates, and creates a future with a defined purpose.

Gasum Academy

The Gasum Academy is an umbrella concept for all people development activities at Gasum. The focus is on training through e-learning, which can be easily accessed by all employees and brings flexibility and standardizes training by providing the same quality of training to everyone. E-learning is a practical way of delivering training and helps the business units and support functions to disseminate information widely and efficiently. Altogether, the Gasum Academy platform offers over 80 different e-learning training packages to Gasum employees and contractors. The number of training hours in 2023 totaled 4.37 hours per employee.

We also organize an annual program called 'The Transformer,' which has been running consecutively for nine years under the Gasum Academy. This program serves as a leadership development initiative. The program is designed to support individual development and growth among Gasum employees, with a focus on boosting comprehension of Gasum's purpose and strategy, fostering leadership, and promoting cooperation for continual learning and growth. The program anchors Gasum's common culture and values and promotes a winning, energetic, customer-focused, growth mindset throughout the organization. Each year, around 25 employees participate in this program, which comprises multiple modules, engaging lectures, and a diverse range of topics.

In addition to training and learning offered as a part of the Gasum Academy, many of our employees use our flexible system of supporting studies alongside work.

Internal mobility

We encourage our employees to take active ownership of their career development and we want to offer challenges and growth opportunities to each individual - a career you can be proud of. We are highly supportive of internal career development and strongly encourage internal mobility. This is one element in retaining and developing our talents. In



SUCCESS OF HR PROCESSES SCORED BY GASUM'S NEW HIRES

Recruitment

4.6/5.0

Onboarding

4.3/5.0

HOW LIKELY WOULD A DEPARTING EMPLOYEE RECOMMEND GASUM AS AN EMPLOYER

Offboarding rate*

4.0/5.0

2023, we had the opportunity to assign new positions to many employees, as they were nominated for and transitioned into other roles within Gasum.

Ongoing dialogue

Systematic development discussions are held between line managers and employees at least once or twice a year. Our aim is that development discussions are held, and individual development plans are implemented for all our employees. In 2023, 97 % of employees participated in development discussions.

Development discussions give an opportunity to create a shared view of key issues and focus areas for the future, as well as setting goals and following up on personal development. One-to-one discussions and team meetings support the dialogue throughout the year.

Recruitment and onboarding

An important part of having the right competences for future needs is a good recruitment process and smooth onboarding. Onboarding practices provide a tool for successful talent management and help us to ensure that everyone understands how their tasks are connected to the Gasum strategy and story. Part of our onboarding process is that we measure a new hire's experience and have onboarding discussions with every new hire. From the discussions and measurements, we get valuable feedback and ideas which we utilize for developing our onboarding and recruitment process.

Efficient utilization of our recruitment tool as well as personality and ability tests were an important part of successful recruitment in 2023, as we pro-cessed most of our recruitment in-house from start to finish.

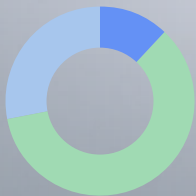
Employee turnover and offboarding

In the end of 2023, the Gasum Group had a total of 337 employees (2022: 321). Gasum's exit rate of employee turnover in 2023 was 11.1% (2022: 21.2%) and the entry rate was 13.0% (2022: 10.6%). The turnover figures reflect the development of Gasum's operations and competence. The exit and entry rates are calculated by comparing the number of permanent employees leaving (36) or joining (42) the organization during the year with the number of permanent employees at year-end (323).

We see offboarding as an important part of our processes and a part of the offboarding process is an exit-interview. Interviews are held by HR to everyone who leaves the company. These discussions give us valuable insight and feedback into areas of development. The interview gives employees the opportunity to share their thoughts, making them feel heard and valued. The offboarding rate indicates how likely the departing employee is to recommend Gasum as an employer on a scale of 1-5.*

PERSONNEL BY AGE

Dec 31, 2023



- < 30 years **12%**
- 30-50 years **60%**
- 50+ years **28%**

GENDER RATIO

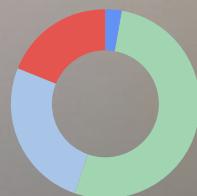
Dec 31, 2023



- Men **73%**
- Women **27%**

PERSONNEL BREAKDOWN BY PERSONNEL GROUP

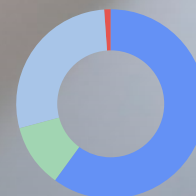
Dec 31, 2022



- Executive **3%**
- Managerial & expert **53%**
- White-collar **26%**
- Blue-collar **19%**

TOTAL WORKFORCE BY COUNTRY

Dec 31, 2022



- Finland **60%**
- Norway **11%**
- Sweden **28%**
- Germany **<1%**

EMPLOYMENT TYPE

Dec 31, 2023

96% FULL-TIME **4%** PART-TIME

96% PERMANENT **4%** TEMPORARY

Respect human rights

Gasum is committed to respecting human rights in accordance with internationally recognized human rights standards and to complying with fair employment practices and labor standards. Our policy on human rights is embedded in the Gasum Code of Conduct.

We do not accept any involvement in any human rights abuses. We are committed to the principles stated in the Universal Declaration of Human Rights, the United Nations Guiding Principles on Business and Human Rights (UNGP), the Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises, and the International Labour Organization (ILO) Core Conventions on Labour Standards.

Equality at Gasum

Gasum's Equality plan defines actions to be taken to promote equality and assesses the realization of equality at Gasum. Gasum's Human Resources plan, procedures and leadership models are based on gender and other equality. Our Human Resources principles set standards for good human resources management, harmonized managerial work and the fair treatment of employees at Gasum.



We are committed to complying with all laws concerning privacy, freedom of association, collective bargaining, working time, wages and salaries. We value diversity and ensure equality of opportunity and treatment in all our processes relating to our personnel, such as the recruitment and development of employees and their working conditions as well as employees' remuneration and promotion, without discrimination on grounds of gender, age, race, ethnicity, religion, political opinion, language, sexual orientation, family ties, disability or other similar aspects relating to individuals. We have zero tolerance for discrimination or unfair treatment.

Working culture

A key feature of Gasum's work culture is that everyone can work safely and undisturbed. All working conditions should allow for safe working practices and support the occupational health and wellbeing of employees and contractors. We have zero tolerance for harassment or any kind of inappropriate behavior. All incidents must be addressed and resolved immediately. Our ethical guidelines set the baseline for how to:

- Prevent, uncover, and stop inappropriate behavior
- Improve the way conflicts and incidents of inappropriate behavior are dealt with
- Lower the threshold for reporting inappropriate behavior
- The purpose of the Gasum Compass is to enable good leadership and collaboration, a healthy working environment, a functional work community and the fair treatment of our employees.

Business partners

We expect our business partners to commit to the same principles and to apply fundamental human rights equally to all employees, whether temporarily or permanently hired or contracted. The requirements are set out in our Code of Conduct for Business Partners.

We strive to avoid any risk of becoming linked through our business relationships to any form of modern slavery, including forced labor or human trafficking. We do not, under any circumstances, tolerate the use of forced, compulsory or child labor.

We perform risk assessments to develop our work in upholding human rights. Continuous collaboration with our different stakeholders and business partners is a crucial part of this effort. We seek to be a responsible actor in the societies where we operate and take actions to ensure that human rights are respected throughout our operations.

Management of human rights and personnel training

Compliance work, including human rights, is overseen by the Gasum Management Team and the Board of Directors, or a Board Committee. The implementation of the responsible business practices as defined in the Gasum Code of Conduct is supported and overseen by our Ethics and Compliance (E&C) work. Business management is responsible and accountable for compliance in day-to-day operations. The Gasum Group Compliance Officer ensures that adequate procedures have been designed, provides implementation support, and monitors

the implementation. The HR function is responsible for monitoring and responding to any instances where there's an attempt to apply a sanction or unfairly treat or discriminate against anyone who raises a concern.

E-learning training on Gasum's Code of Conduct covers human rights related issues. The training is continuously available and mandatory for all employees annually.

Reporting channel

Reporting channels are offered to employees and business partners to report any concerns, incidents of non-compliance or suspected misconduct relating to human rights violations. A whistleblowing channel is accessible on Gasum's external webpage and available in all company languages (English, Finnish, Swedish and Norwegian). In 2023, there were no grievances related to human rights filed through Gasum's reporting channels.

Safety and security

We believe that our safety target “zero harm to people, the environment and assets in the Gasum Group” is achievable. We promote safe and secure working environments for our employees and contractors and raise awareness to strengthen our safety commitment.

WHAT WE AIMED FOR

Zero harm to people

WHAT WE ACHIEVED IN 2023

Our safety target of zero injuries was not achieved. There were 9 occupational injuries (LTI, MTI, RWI) for own employees and contractors (3 in 2022). Our total injury frequency rate (TRIF) was 16.6 (5.3 in 2022). All incidents were thoroughly investigated to prevent similar accidents from occurring in the future. Strong focus on the safety work will be continued.

Proactive safety culture demonstrated. In 2023, the number of safety observations recorded by our employees and the contractors increased by 43% and the number of performed safety walks by 34% year-on-year, respectively. Both safety observations and safety walks are proactive approaches to identify potential hazards and prevent incidents. Safety campaigns and the internal audits highlighted the importance of safe work practices and the use of personal protective equipment.



We have a strong safety culture and aim for zero harm to our employees and contractors.

Safety is a top priority

We believe that a strong and proactive safety-first culture is a necessity to achieve our target of zero harm to people, assets and the environment. Keeping our employees and contractors safe is our top priority and we work continuously to mitigate any impacts on their health, safety and well-being.

We transport, deliver, process and store, for example, gas, biowaste and recycled nutrients. We identify occupational health and safety risks as a substantial part of our total risk environment. The mitigation of these risks in all our operations is a prerequisite for us to continue to operate safely, deliver safe products to customers and manage any hazard risks.

Strong safety culture

Our main tools for health, safety and security management are policies and guidelines that ensure continuous compliance with law and regulations. We have implemented comprehensive safety and security rules, as well as other procedures and training, and continue to systematically align work procedures to improve our safety culture.

Our integrated management system covers the health and safety management system, which is certified in accordance with ISO 45001 and the standard requirements are applied to

all Gasum Group companies and operations as well as products and services sold by the Group. Compliance is annually externally and internally audited. Safety and security were the key focus areas in Gasum's internal audits during 2023.

We report safety observations, carry out safety walks and conduct work risk assessments. When risks are identified, we set deadlines and responsibilities for corrective actions and monitor the progress. All employees are responsible for taking part in safety and security training and receive onboarding in safety. We report safety incidents, and all major incidents are investigated. With our "Safety alert" procedure, we inform our staff about near misses and accidents and share best practices to avoid similar incidents in the future.

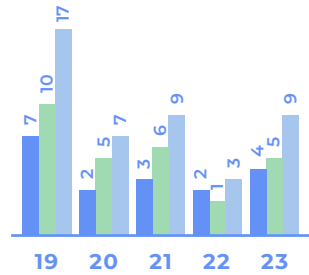
Our safety principles

Gasum has a zero-accident policy. Our safety leadership focuses on proactive risk and hazard identification. Safety work is incorporated in all daily operations and in ongoing projects. We actively develop, implement and monitor our safety performance.

- All employees and contractors are responsible for following safety guidelines and safe working methods.



OCCUPATIONAL ACCIDENTS (LTI, RWI, MTI)



■ LTI + RWI + MTI own employees
 ■ LTI + RWI + MTI contractors
 ■ LTI + RWI + MTI total

LTI = Lost time injury
 MTI = Medical treatment injury
 RWI = Restricted work injury

- We identify the risks and hazards relating to our activities and take them into consideration in planning and work performance.
- We provide training for our personnel and contractors and encourage compliance with safe working methods.
- We expect our partners to have a corresponding safety and security level.

Actions to raise awareness

Many of the health and safety risks are mitigated through raising awareness and training activities that also cover our contractors. The training programs help to create a safety-first working culture that increases risk awareness and helps to prevent major incidents. Our safety e-learning training is easily accessed by our employees, contractors and visitors. Participation in the safety training is mandatory and ensures that only qualified people access and work at our sites. During 2023, new visitor safety e-learnings were established, and new language versions were added to cover all company languages. In addition, site specific training was organized at plants and terminals, with a high focus on safety topics.

Safety campaigns, such as the 'I am safety' program, are implemented to raise awareness and strengthen the employees' safety commitment. In 2023, special focus was given to the use of personal protective equipment. Monthly safety topics are published throughout the year to constantly keep safety visible. During 2023, monthly safety topics covered

Safety figures

	2023	2022	2021	2020
Medical treatment injuries (MTI)				
Gasum	1	0	1	1
contractors	3	0	1	1
Restricted work injury (RWI)				
Gasum	1	1	1	0
contractors	0	0	1	0
Lost time injuries (LTI)				
Gasum	2	1	1	1
contractors	2	1	4	4
Occupational accidents MTI+RWI+LTI				
Gasum	4	2	3	2
Total lost working days: sick leave and injury				
Gasum + contractors	9	3	9	7
Absentee rate %	1.7	1.98	1.6	1.1
Injury rate% (Lost day IR)	0.01	0.01	0.03	0.02
Lost working days due to occupational accidents (own workforce)	7	7	35	18
Occupational disease rate	0	0	0	0
Work-related fatalities	0	0	0	0

Absentee rate % = (Number of actual absence days / Total days scheduled to be worked) x 100

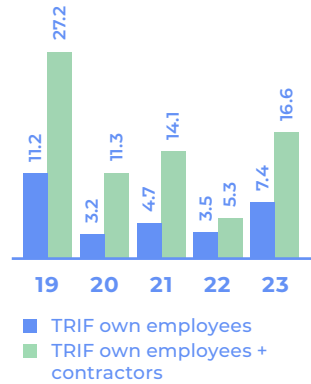
Injury rate (Lost day IR) = (Total lost working days of own workforce due to injury / Total days scheduled to be worked) x 100

Occupational disease rate = Number of occupational disease / Total hours worked in the reporting period

Lost time injury frequency (LTIF) = (Number of occupational injuries / Total hours worked) x 1,000,000. Includes only LTIs.

Total recordable injury rate (TRIF) = (Number of injuries / Total hours worked) x 1,000,000. Includes MTIs, LTIs and RWIs. Includes zero-day accidents and accidents that resulted in at least one day off work

TOTAL RECORDABLE INJURY RATE (TRIF)



physical security, work authorization and hazardous substances amongst others.

In cases of workplace incidents, it is important to ensure that relevant stakeholders learn from the incident and take the necessary safety precautions when conducting similar work activities. After an accident, serious incident or near miss has taken place, we distribute safety alerts to share lessons learned to relevant recipients, including customers and suppliers.

Safety performance in 2023

Our safety target of zero injuries for Gasum employees and contractors was not achieved in 2023. Despite our continuous efforts to prevent all occupational injuries, the total number was 9 in 2023 (3 in 2022), including LTI, MTI and RWI (Lost time injuries, Medical treatment injuries and Restricted work injuries). Gasum's occupational safety performance, measured by TRIF (Total Recordable Injury Frequency i.e., number of accidents requiring medical treatment per million hours worked, including contractors) was 16.6 in 2023 (5.3 in 2022). The LTIF (Lost Time Injury Frequency i.e. number of occupational injuries per million hours worked, including contractors) was 7.4 in 2023 (3.5 in 2022).

All major incidents in 2023 were thoroughly investigated, and key learning points were shared with all relevant parties to prevent similar accidents from occurring in the future. The increased number of incidents indicates that work for safety must be continued to ensure operational discipline and personal commitment of all employees and contractors.

During 2023, a proactive safety culture was demonstrated by a high level of incident and observation reporting, together with identified corrective and preventive actions in response to incidents, observations, and safety walks. In 2023, number of performed safety walks (453) increased by 34% (338 in 2022) and the number of observations was 2090 (1460 in 2022).

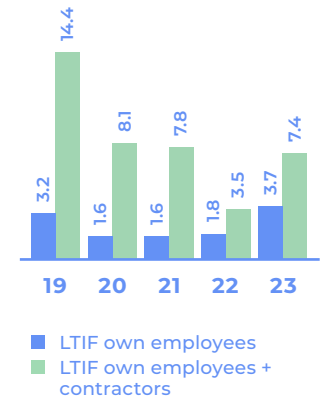
Managing safety and security

Gasum management team has the overall responsibility for safety and security. All employees are responsible for following safety guidelines and safe working methods. Unit Safety managers coordinate and implement the operational safety topics, monitor progress and report regularly on safety performance.

Each operating country has its own Working Environment Committee. The duties of the committees include consideration of occupational health and safety and healthcare action plans, reporting and follow-up on healthcare, risks, incidents, injuries, and environmental issues.

In addition, there is a common safety representative organization with one main safety representative in each operating country. The safety representatives cooperate across business units and countries. They safeguard the interests of employees in matters relating to the working environment and ensure that all employees can perform their work in a safe and secure manner.

LOST TIME INJURY FREQUENCY (LTIF)



CASE



Monitoring the use of protective equipment

During 2023 an accident occurred at one of the Gasum biogas plants, where a Gasum contractor fell from the platform of a truck onto the drawbar and was quite seriously injured. The main reason for the injury was a missing helmet.

This incident led to a campaign of enhanced monitoring, especially at biogas plants, regarding safe work practices and the use of personal protective equipment (PPE). If deficiencies in PPE or dangerous work practices were detected corrective actions were demanded immediately.

Contractors were also reminded of Gasum's mandatory e-learning on safety and security. Completion of induction training is a requirement for working in the area and must be renewed annually.

Gasum's own staff were also reminded of the obligation to react to insufficient protective equipment or work methods that seem dangerous.



Safe operations, products and logistics

Safe operations

Many of the health and safety risks related to operations are mitigated through process development in the business units. Process safety involves en-suring our plants, facilities and gas filling stations are well designed, safely operated, secure, and properly maintained.

In 2023, we continued to align the main operational risk assessment procedures, such as the Safe Job Analysis (SJA), and other safety guidelines at group level, ensuring common practices and knowledge. In addition, we improved our work permit procedure. Office safety was in focus with rescue plan updates, first-aid training and an update on occupational safety, rescue and evacuation issues for office staff and visitors. The work will be continued during 2024. Gasum's operations in Finland received the best occupational safety level rating of the Zero Accident Forum.

Safe logistics

Safety is a key concern in our road and maritime activities. All transportations, whether on land or at sea, are dealt with by our logistics service providers. We manage logistics safety through careful selection and evaluation of our logistics service providers. Our logistics operations emphasize environmental, health and safety matters with our partners. Driver skills and behavior, the

condition of the transport fleet, road, and local environment are core aspects in safe logistics.

Transports of LNG, LBG, CNG and CBG by road or sea fall under ADR and IMO regulation, but we also provide drivers with additional training, both theory and practical training, involving exercises including extinguishing LNG fires in pits. In addition, we require all drivers to conduct and pass Gasum-specific drivers' e-learning training.

Safe handling of chemicals

Safe chemicals handling and storage ensures high level of protection of health and the environment in the daily operations. Chemical safety data sheets (SDS) are available for the workers and contractors covering all Gasum's terminals and plants in Finland, Sweden and Norway. Our IT system for chemical management ensures that the latest SDSs are in use and that the sites have the right chemical lists. The system enables us to prepare labels and safety cards for chemical use sites in accordance with the regulatory requirements and includes tools for chemical risk assessment and risk register.

During 2023, we trained our personnel in chemical safety and continued systematically to conduct chemical risk assessments. Chemical legislation continues to develop, and we follow the changes closely. In 2023, we created a common procedure

for all Gasum units for the handling of chemicals to improve chemical safety. The aim is to ensure that the least hazardous chemicals are chosen upon purchase and chemicals are handled according to regulations with no harm to people and the environment.

Safe use of products

Our products - biogas, natural gas, liquefied natural and biogas, and recycled nutrients - are used in industry and energy production, maritime and road transport and in agriculture. We provide Safety Data Sheets (SDS) for our energy products and selected recycled nutrient products. Safety data sheets set out the hazards associated with products and are available at our website. Safety information is maintained, and any relevant local regulatory requirements followed to support our collaborative work to ensure safe use of products.

Preparedness for exceptional situations

We strive to work proactively with regards to managing crises, business disruptions and cyber security incidents with established plans on business continuity and emergency preparedness. Operational preparedness for emergency situations in constantly monitored. Our Business Continuity Plan (BCP) ensures a common Business Continuity strategy. In addition, we



have Emergency Preparedness Plans in place for the business units and functions, including IT. Emergency preparedness drills are conducted internally and externally in collaboration with public emergency services and customers. We also co-operate with national authorities on many levels, such as NESAs (National Emergency Supply Agency) and Tukes (Finnish Safety and Chemicals Agency) in Finland.



Keeping our employees and contractors safe is our top priority.

Information security

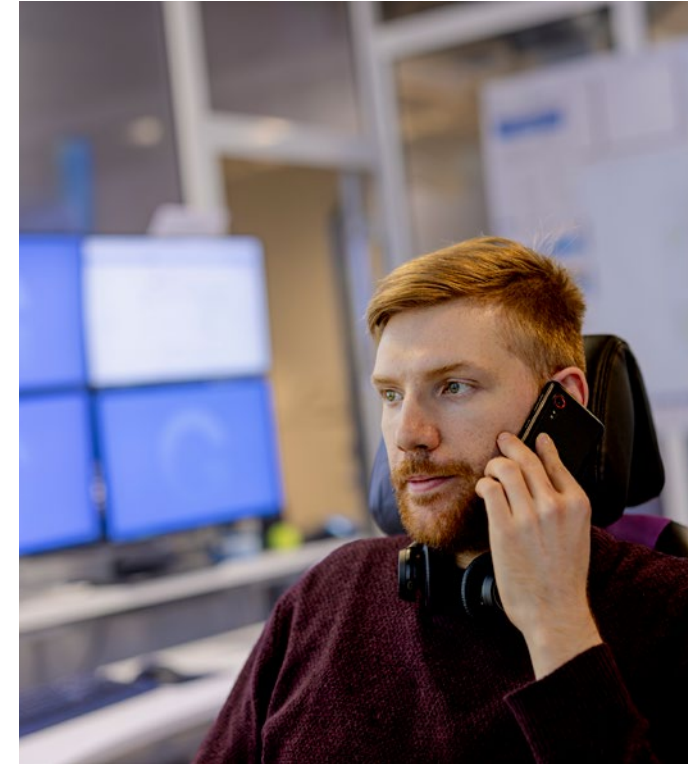
We are committed to promoting the culture of security by establishing and maintaining effective information security measures to preserve the confidentiality, integrity, and availability of all the information Gasum gathers, receives, or generates.

To achieve this, the company has implemented an Information Security Management System (ISMS) based on ISO/IEC 27001:2013 requirements. Gasum has established information security policies, the appointment of information security roles and responsibilities, and allocating appropriate resources for maintenance of the Gasum ISMS. The ISMS is subject to continuous, systematic review and improvement. The key objectives of the Gasum ISMS are the following:

- Information is made available to all authorized parties with minimum disruption to the business processes
- Risks related to confidentiality, integrity and availability of Gasum's information are mitigated to an acceptable level

- Information security is integrated into all business processes at Gasum
- Regulatory, legislative, legal and other applicable requirements related to information security are met
- All Gasum employees perceive information security as a crucial part of their daily operations
- Appropriate business continuity arrangements are in place to counteract interruptions to business activities considering information security
- Appropriate information security awareness and training is provided to staff and relevant third parties' employees
- Breaches of information security, actual or suspected, are reported, and investigated through appropriate processes

Appropriate access control is maintained, and information is protected against unauthorized access. ISMS requirements describing information security areas and the implementation of information security controls are defined in Gasum ISMS standards and other relevant ISMS documentation.



Governance

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Governance – responsible business



The Gasum Code of Conduct applies to everyone working at or on behalf of Gasum.

Our aim is to ensure compliance and accountability in our own operations and in business partnerships.

Business ethics and compliance

The Gasum Code of Conduct defines our approach to ethical business practices and sets out the ways of working with our customers and stakeholders – as well as together as a company. The Code of Conduct applies to everyone working at or on behalf of Gasum: employees, consultants, resellers and representatives, and our affiliates. Our Code of Conduct for Business Partners defines how we expect our business partners to operate.

In line with the Code of Conduct, we avoid bribery and corruption, conflict of interest and unfair competition. We do not seek to obtain favorable decisions on public policies from authorities through inappropriate or illegal means. We recognize that even customary gifts, entertainment, and donations may be inappropriate in connection with ongoing business negotiations. We comply with international laws and regulations, and respect trade obligations, human and labor rights, and the environment. We protect confidential and personal information.

Code of Conduct e-learning training is obligatory for all employees and is part of our onboarding program for new employees. The training summarizes how we work with our customers, stakeholders and together as a company, and



encourages employees to raise concerns and report suspected violations or non-compliance with the Code of Conduct principles or other company rules, guidelines, and policies. 93% (88% in 2022) of active employees had the training completed in 2023.

Compliance

The implementation of responsible business practices as defined in the Gasum Code of Conduct is supported and overseen by our Ethics and Compliance (E&C) work. Compliance with laws and regulations is an operational responsibility and business management are responsible and accountable for compliance within day-to-day operations. The Gasum Group Compliance Officer ensures that adequate procedures have been designed, provides implementation support, and monitors the implementation. The work is overseen by the Gasum Management Team and the Board of Directors, or a Board Committee.

During 2023, two incidents of suspected non-compliance with the Code of Conduct principles or other company guidelines were brought to the Group Compliance Officer's knowledge. No cases were reported via the whistleblowing reporting channel. The incidents were investigated, and actions were taken accordingly.

Gasum conducts a set of internal controls and assessments to monitor activities and compliance, to mitigate risks, to promote operational efficiency and to ensure that statutory and other binding requirements are fulfilled.

Raising concerns

A healthy speak-up culture of openness, integrity and accountability is essential to prevent, detect and react to suspected misconducts or breaches of our Code of Conduct, Corporate Governance, or related Management System. Gasum encourages and expects all employees to report concerns, incidents of non-compliance or suspected misconduct using the appropriate reporting channels.

A whistleblowing reporting channel is available in all company languages (English, Finnish, Swedish, Norwegian and German) on Gasum's intranet and website for our personnel and for business partners. All alleged incidents of misconduct communicated through the reporting channel are reviewed in accordance with the related response and review processes. Only the Group Compliance Officer and the Head of HR, or a person specifically appointed by them, have access to the report. The HR function is responsible for monitoring and reacting to any attempt to apply a sanction or to disadvantage or discriminate against any person who raises a concern. Failure to comply with our Code of Conduct may lead to disciplinary actions up to and including termination of employment or the contractual relationship.

Corporate Governance

Gasum Group's Corporate Governance sets out the legal framework and decision-making powers of the corporate bodies and determines the operational instructions for Gasum's day-to-day operations. Further details about our corporate governance,

governance bodies and structures of the Board of Directors of Gasum Ltd and the Gasum Management Team are described in our [Governance and Remuneration 2023 report](#).



Risk management and business continuity

The risk management governance and process are described in the [Governance and Remuneration report](#). The strategic, operational, market and financial risks that Gasum's business operations are exposed to, are reported as part of the Gasum Financial Review.

Business continuity and emergency preparedness

We have a proactive business continuity plan to avoid and mitigate risks associated with disruption in operations. The plan outlines different scenario descriptions of how the business will continue operating to maintain financial and sustainable viability during an unplanned situation. The business continuity plan provides lines of duty for the Gasum Crisis Management Team to ensure collaboration across the organization and helps to ensure that we continue our deliveries to customers and business partners, and that we assist personnel to react in any crisis.

Our emergency preparedness plan strengthens us in preparing to meet hazard and accident situations. Business specific plans and guidelines help our personnel to manage resources and responsibilities during emergencies. Emergency preparedness comprises all safety systems, equipment, organization, personnel, and competences that are needed to manage hazard and accident situations. All emergency preparedness planning is based on risk and emergency preparedness

analyses, company, and regulatory requirements. During 2023, business continuity and emergency preparedness plans were revised and integrated to enhance cross-unit co-operation during emergency situations.

An online training module is available on business continuity and emergency preparedness in Gasum to ensure a common understanding on how to act and collaborate within the organization and with our business partners in response to a crisis. The training is recommended to be completed by all employees every other year.

Preparedness for exceptional situations

We continuously monitor operational preparedness for emergency situations. Our Business Continuity Plan (BCP) at the group level ensures a common business continuity strategy. In addition, we have emergency preparedness plans in place for the business units and functions.

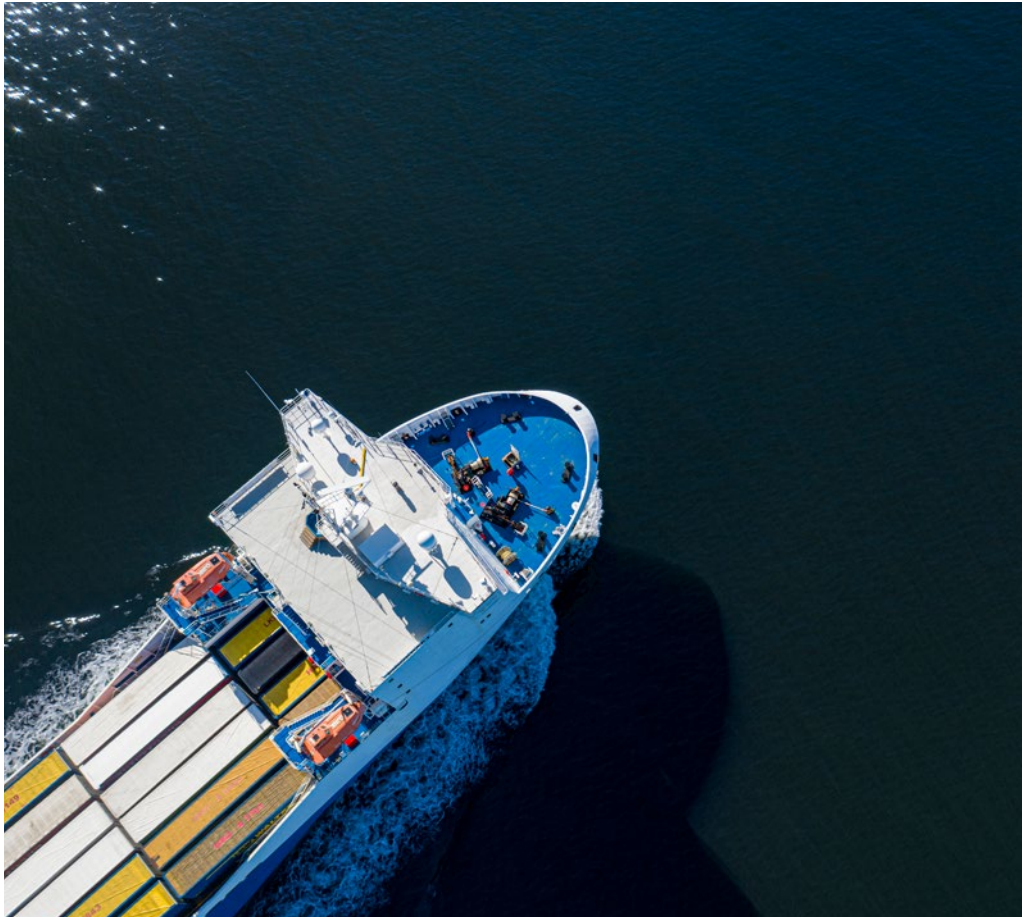
In February of 2022 Russia attacked Ukraine and the repercussions have had a profound effect on Gasum's business environment. Gasum strongly condemns Russia's continuing aggression against Ukraine. Gasum continues to actively monitor the situation and maintains an active dialogue with relevant national authorities and stakeholders to ensure compliance with EU policies as well as any legislation and regulations that may come into force, including sanctions.



Main sustainability risks

The main sustainability risk factors that can affect our business are set out below.

SUSTAINABILITY RISK FACTOR	GASUM APPROACH	SUSTAINABILITY RISK FACTOR	GASUM APPROACH
<p>Health, safety, and security</p> <p>We transport, deliver, process and store, for example, gas, biowaste and recycled nutrients. We identify occupational health and safety risks as a substantial part of our total risk environment. These risks include accidents, product safety, leaks, and chemical hazards among others. Security risks include deliberate harmful activities related to our assets and information security. Materialization of any safety or security risk may cause harm to employees or contractors, damage assets or production and damage reputation.</p>	<p>The mitigation of these risks is the top priority in all our operations and a prerequisite for us to continue to operate safely, deliver safe products to customers and manage any hazard risks. As regards health and safety risks, Gasum has a clear zero-accident policy. We have implemented comprehensive safety and security rules, procedures, and training, and continue to systematically align work procedures to maintain adequate health and safety standards and improve our safety culture. Many of the health and safety risks are mitigated through process development in the business units and training activities that also cover our contractors. Our logistics providers are responsible for all the company's transports. We maintain logistics safety by continuous assessment and monitoring. Employee, driver, and subcontractor safety are important factors in mitigating operational risks. We strive to work proactively with regards to managing crises, business disruptions and cyber security incidents with established plans on business continuity and emergency preparedness.</p>	<p>Ethics and compliance</p> <p>The compliance risks related to our business operations include the potential risk of illegal activities such as fraud, misconduct, or criminal offence. Non-compliance may result in significant legal, financial, and reputational consequences for the company.</p>	<p>We do not tolerate any form of illegal activities such as corruption and bribery. We strive to act in full compliance with legislative and regulatory provisions as well as our commitments both within Gasum and in relation to customers, public authorities, and other stakeholders.</p> <p>We utilize a Responsible Business framework to manage our ethics and compliance risks. The framework is founded upon leadership and tone from the top and is based on established standards as to what constitutes the cornerstones of an effective Ethics & Compliance program. Our legal framework and decision-making powers are set forth by the Corporate Governance, Gasum Code of Conduct and Code of Conduct for Business Partners set out our ethical principles. A whistleblowing reporting channel is available for raising concerns. We train and supervise our personnel and carry out internal control activities on our operations to ensure compliance.</p>
<p>Working environment and employee-related matters</p> <p>Employee wellbeing, competence and leadership are all necessary for Gasum's success. Providing a healthy and safe working environment and ensuring wellbeing play a key role in avoiding risks such as accidents, work-related illness, and stress. The ability to recruit and retain competent personnel and develop leadership culture are prerequisites to avoiding shortages of competent and motivated personnel.</p>	<p>Skilled and motivated personnel is a key element of Gasum's success. Our tools for successful talent management include solid onboarding practices, training, career development opportunities and remuneration policy. We continuously develop and assess our leadership culture. We promote a healthy and safe working environment, where preventive action plays a key role. Safety representatives, the Working Environment Committee and company health services support this work. We measure employee experience continuously and focus on increasing smoothness of work, maintaining work ability and reducing disability retirement due to disability.</p>	<p>Climate change</p> <p>Climate change is a global challenge which impacts the environment and people through natural disasters and the loss of ecosystems and livelihoods. The global aim is to curb the average temperature rise at a level that limits the threat. Businesses are influenced by global, EU-level, and national energy and climate policies and regulatory changes.</p> <p>Success in green transition is an opportunity for Gasum e.g. through successfully increasing the availability of renewable gas and fulfilling the customers' needs in cutting emissions. Biggest financial risks to Gasum arising from climate change mitigation are related to upcoming and changing regulation, client expectations and raw material and energy price volatility. Operations are exposed to the physical risks including extreme and chronic changes in weather patterns that could also impact Gasum's assets and value chains, as well as energy demand in the market.</p>	<p>Gasum is a significant low-carbon energy supplier. We believe that market demand for solutions that reduce emissions and help adapt to climate change will increase. Our main tools for climate change mitigation include enabling greenhouse gas emission reductions for our customers through renewable and low-carbon gas products. We are a leading biogas producer and a major actor in the wind power segment and strive to increase procurement of renewable power in the Nordics. Our circular economy products are based on waste and residue feedstocks, and we work to develop the recycled nutrient market.</p> <p>Relatively modern production assets, continuous work to improve energy efficiency and prevent methane emissions, and the use of renewable electricity in all operations provide a good basis for emission control in Gasum's operations. To manage the political and regulatory risks related to gas as a low-carbon energy source, Gasum actively monitors changes in EU and national legislation, energy support and in particular, taxation. In addition, Gasum seeks to continuously draw attention to the company's position as regards the impacts of proposed amendments to legislation or taxation.</p>



SUSTAINABILITY RISK FACTOR

Environmental impact from emissions to air and water, biodiversity

Gasum is subject to a large variety of laws, regulations and requirements set by authorities, stakeholders, and society, that aim at reducing environmental impact. We aim at zero environmental breaches. A leak or a spill due to malfunction or human error may lead to damage to reputation, sanctions, clean-up costs and/or irreversible or permanent impact to the environment.

Supply chain

We do business with a variety of suppliers, partners, and contractors. Cost-effective and responsible supply chains are crucial to Gasum. Non-compliance in the supply chain may lead to legal processes, a risk of losing business and damage our reputation.

GASUM APPROACH

Our main tools for environmental management are processes that ensure continuous compliance with environmental laws and regulations, such as our Integrated Management System that is compliant with international ISO standards (ISO 9001, ISO 14001, ISO 50001, ISO 45001) and the biogas sustainability scheme.

We employ environmentally sound and energy-efficient technologies and ensure efficient maintenance. We increase our understanding of the life cycle impact of our products and use this information to improve our performance. Adequate understanding of the environmental aspects of our business is key to managing emissions and incidents as well as reducing the risk of environmental permit violations. Our biodegradable feedstocks are based on waste and residues, which reduces the risk to biodiversity and saves virgin resources

Good governance and responsible and risk-based sourcing practices mitigate risks. Our Code of Conduct for Business Partners defines how we expect our business partners to operate. We evaluate our suppliers and conduct supplier audits based on risk approach.

Stakeholders



We collaborate with a range of international organizations and industry associations in the fields of maritime fuels, bioenergy, climate, circular economy and energy research.

Active dialogue with our stakeholders is an important part of our daily work. Understanding the views and expectations of stakeholders improves the identification of opportunities and challenges in our operating environment.

Stakeholder collaboration within our organization is primarily defined by the theme and form of collaboration as well as the stakeholder group. Stakeholder collaboration is a central element in Gasum's functions responsible for sales, marketing, communications, public affairs, sustainability as well as many of our experts. The business functions engage with customers and business partners on a daily basis.

Our stakeholders include entities that have an impact on our business, or are affected by our activities, products, and services. All stakeholder groups have an important role in the development of our operations.

We have a strong customer focus, and our most important objective is to generate added value for our customers. The development of our personnel's wellbeing and competences is crucial for the implementation of our strategy. For shareholders, we aim at generating profits.

We expect responsible business practices from our suppliers and subcontractors, conduct supplier evaluations, and give safety training to our contractors and logistics service providers.



Public authorities and policymakers at various levels, from local and national to EU institutions, are also relevant to our business. We communicate openly to the media and non-governmental organizations, our aim being to convey correct information about the sector.

Our operations in various locations around Finland, Sweden and Norway, as well as in Germany, create jobs and value for municipal economies. We engage with local communities in contexts such as investment projects.

Stakeholder surveys

SURVEY	TARGET GROUPS	COUNTRIES	FREQUENCY
Pulse survey	Personnel	Finland, Sweden, Norway, Germany	Monthly
Customer NPS-survey	B2B - Customers	Finland, Sweden, Norway Finland	Continuous
Customer pulse survey	B2C Traffic customers	Finland, Sweden, Norway	Continuous
Stakeholder survey for materiality of sustainability themes	Customers	Finland, Sweden, Norway	Previous survey published in 2019. Need for renewal reviewed annually.
	Customers		
	Personnel		
	Suppliers		
	Shareholders		
	Partners		
	Media		
	Public authorities		
Policy makers			

Stakeholder feedback

To obtain information and to improve, we conduct surveys that measure the success of our stakeholder collaboration and identify the important expectations that the various stakeholder groups have for us. We regularly survey topics such as [customer satisfaction](#) and [employee experience](#). We also survey what our stakeholders consider to be the most important sustainability aspects of our operations.

Collaboration and partnerships

We collaborate with a range of international organizations and industry associations. Through this, we are involved in developing the energy and gas sector's industry practices as well as influencing development in fields including marine fuels, bioenergy, climate change mitigation, circular economy, waste management and energy research. This work helps us deepen our understanding of global topics and their connections to our business.

We participate in programs, projects, networks, and commitments such as

- Avfall Sverige - the Swedish Waste Management
- Baltic Sea Action Group (BSAG)
- Bioenergy Association of Finland
- Biogas Research Solutions Center at Linköping University, Sweden
- Biogas Öst, Sweden
- Cleantech Östergötland, Sweden
- CLIC Innovation Ltd
- Climate Leadership Coalition (CLC), Finland
- Eurogas
- European Biogas Association (member since 01/2023)
- FIBS (Finnish Business and Society corporate responsibility network)
- Finnish Gas Association
- Finnish Energy
- Grønt Landtransportprogram – partnerbedrift, Norway
- Partnership Alnarp, Sweden

- SEA-LNG
- Society's Commitment to Sustainable Development, Finland
- The Norwegian Gas Association
- The Society for Gas as a Marine Fuel
- The Swedish Gas Association
- UN Global Compact
- World Energy Council WEC Finland

Public affairs work

We engage in active dialogue with national legislators, authorities and other decision-makers in Finland, Sweden and Norway, and with relevant EU bodies.

In our public affairs work, we emphasize promoting the use of versatile and low-emission gas and ensuring the competitiveness of circular economy solutions and low-carbon energy. In 2023, the total value of this advocacy cooperation in Brussels was around €35,000. The amount is based on figures reported to the EU Transparency Register. We do not provide support to political parties or contribute to election campaigns of individual candidates. In 2024, Gasum joined the Finnish Transparency Register.

Stakeholder communication

We communicate about our operations, goals, strategies, and financial position to our stakeholders. We seek to increase the attractiveness of and, awareness about, the gas sector and the energy company Gasum as a reliable and modern and forerunner employer.

The key principles of our communications are reliability, openness, and consistency. We communicate both positive and negative information consistently and comprehensively. The use of diverse communication channels ensures access for Gasum's stakeholder groups to enough information about issues that are current and interesting to them.

During 2023 we communicated openly about gas purchases from Russia and the dispute in the arbitral tribunal between Gasum and Russian Gazprom Export, for example, by answering all questions from the media.

Donations and funding

Gasum's sponsorships are mainly concentrated on supporting children and youth. Gasum supports UNICEF, which works across the globe to save children's lives and defend their rights. In 2022, Gasum's Christmas gift funds were donated to UNICEF and its work in emergencies and humanitarian context across the globe.

In 2023 we supported kids' and youths' sports activities through donations to the Finnish Olympic Committee's Tähtiseura clubs with a total sum of approximately 20,000 euros. We support sports clubs through 15 incentive awards, the biggest one of which is the Tähtiseura of the Year award worth EUR 5,000.

Supporting research through the Gasum Fund

Gasum provides grants to researchers every year through the Gasum Fund, one of the special funds run and administered by

the Finnish Foundation for Technology Promotion (TES). The fund aims to respond to society's transformational challenges by developing energy solutions based on gas and producing information supporting the development of the gas sector.

In 2023, the Gasum Fund awarded five grants totaling EUR 75,000 (2022: EUR 74,960). Grants are provided to doctoral students for research into the value chains of renewable gases, especially in connection with fighting climate change and the energy transition. Gasum Fund grants have been provided since 2005.

Customers

We have a strong customer focus and want to be a reliable partner to our customers. Sustainability and carbon neutrality targets, high quality products and services, and supply security as well as availability of biofuels are key topics of common interest.

Our business supports our customers in their sustainability efforts. We help our b-to-b customers in the maritime and road transport as well as industry segments to reduce their carbon footprint as well as that of their customers. We also provide gas to b-to-c customers at our filling stations in the Nordic countries.

Our product portfolio includes biogas and liquefied biogas (LBG), natural gas and liquefied natural gas (LNG), and power. In addition, we offer our customers energy market portfolio management and expert services, including market analyses and the selection of risk management models, guarantees of origin for electricity, voluntary emission offsetting and expert services in emission trading. We also provide our customers with biowaste management services and offer recycled nutrient and fertilizer products and organic matter for their soil.

Customer feedback

Customer surveys help to find ways of improving customer experience and the quality of our services. Both customer satisfaction and sales performance are measured continuously through



a digital platform and results are always available in real time. The b-to-b customer satisfaction survey measures the performance through various metrics, providing also a real-time NPS score. Additionally, our Sales Pulse measurement is a situation-based measurement that is carried out after customer meetings. Results from both surveys are presented and analyzed every month. We also measure our b-to-c customers' satisfaction to follow-up on the opinions of our consumer customers. In 2023 Gasum developed the Customer NPS Survey by creating customer segment specific questionnaires, which will help to pinpoint possible development areas in the future. In addition, we monitor customer satisfaction daily through customer feedback, obtained through account managers who keep in touch with our customers around the year. Consumer customer feedback is received primarily through our customer service, but also through websites and social media. Feedback is important in finding concrete and practical ways to improve the customer experience and quality of our service.

Customer relationship management (CRM) is part of the daily routines and processes employed to document customer interaction and feedback received to ensure professional and complete follow up. From 2024 onwards, both the Customer NPS and Customer Pulse Surveys will be created and maintained in Gasum's Dynamics CRM system, which allows for better integration of the response data into our other systems and wider visibility of response data within our organization."

Suppliers

Suppliers are an essential part of our value chain. We purchase products, materials, and services from many suppliers. By selecting reliable suppliers, we secure our operations, effective supply chains, and the ability to constantly deliver quality products to our customers.

Our purchasing guidelines determine the processes and principles that must be followed. We comply with the principles of openness, transparency, and non-discrimination, and we expect our business partners to comply with the same principles and rules that govern our own operations. Our business partners are expected to excel in quality, health, and safety, and to minimize environmental impacts within their value chains. Reliable and good quality deliveries, financial stability as well as social and environmental responsibility are considered in selecting suppliers.

Supplier qualification and assessments

We carry out continuous supplier assessments based on a systematic risk approach. Our critical partners are evaluated regularly with a set of Key Performance Indicators (KPI) regarding their performance in occupational health and safety, quality, energy efficiency and environmental aspects. We prefer suppliers who comply or are certified with related management

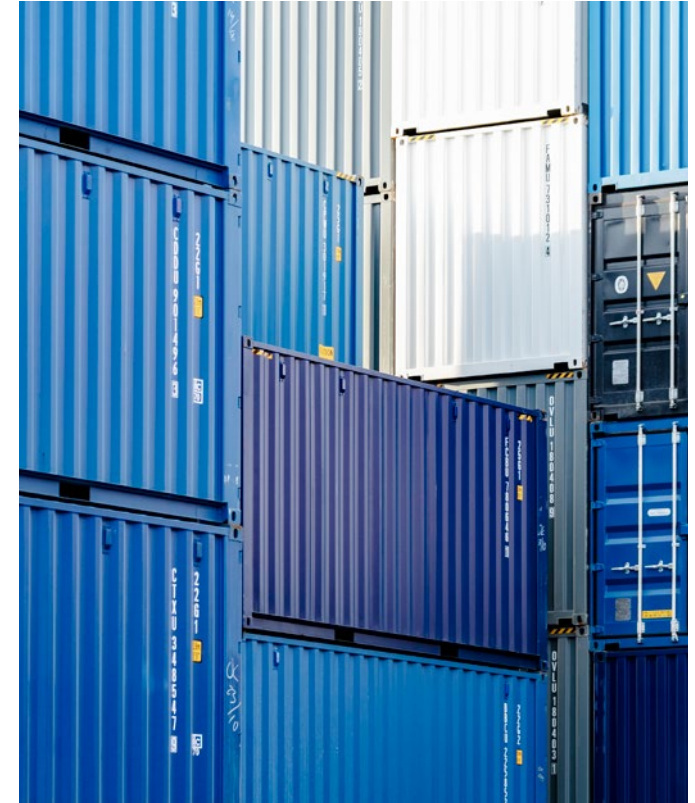
systems. We prequalify potential new suppliers. By conducting supplier evaluations, we ensure cooperation with suppliers who are following our adopted principles.

We conduct supplier audits based on systematic risk approach. Suppliers are selected for audits based on supplier evaluations and needs from our business units with a focus on operational excellence.

Our Code of Conduct for Business Partners clarifies our requirements for practices such as respecting international trade obligations, environment and human rights, anti-corruption and managing confidential information. We are determined to ensure our critical suppliers are approved according to our requirements. Contractors working at our sites must comply with our safety rules.

Raising concerns

We encourage and expect our business partners to raise and address concerns on suspected breaches of the Code of Conduct with a Gasum contact person, Gasum's Compliance Officer or via the whistleblowing channel available on the Gasum website where the submitter may remain anonymous.



CASE



Gasum terminated its pipeline natural gas supply contract with Gazprom Export

Gasum had a long-term pipeline natural gas supply contract with Russian Gazprom Export. In April 2022, Gazprom Export presented Gasum with a demand that the payments agreed in the supply contract should be paid in rubles instead of euros. Gasum did not accept this demand and referred the matter to arbitration in accordance with the supply contract. All pipeline gas deliveries from Russia were discontinued in May 2022.

In November 2022, the arbitral tribunal issued an award in the matter. According to the award, Gasum was not obligated to pay in rubles nor through the proposed payment procedure. Furthermore, the arbitral tribunal ordered Gasum and Gazprom Export to continue their bilateral contract negotiations to resolve the situation.

The situation was not resolved in negotiations within the period defined by the arbitral tribunal. Gasum terminated the long-term natural gas supply contract with Gazprom Export in May 2023.



Tax footprint

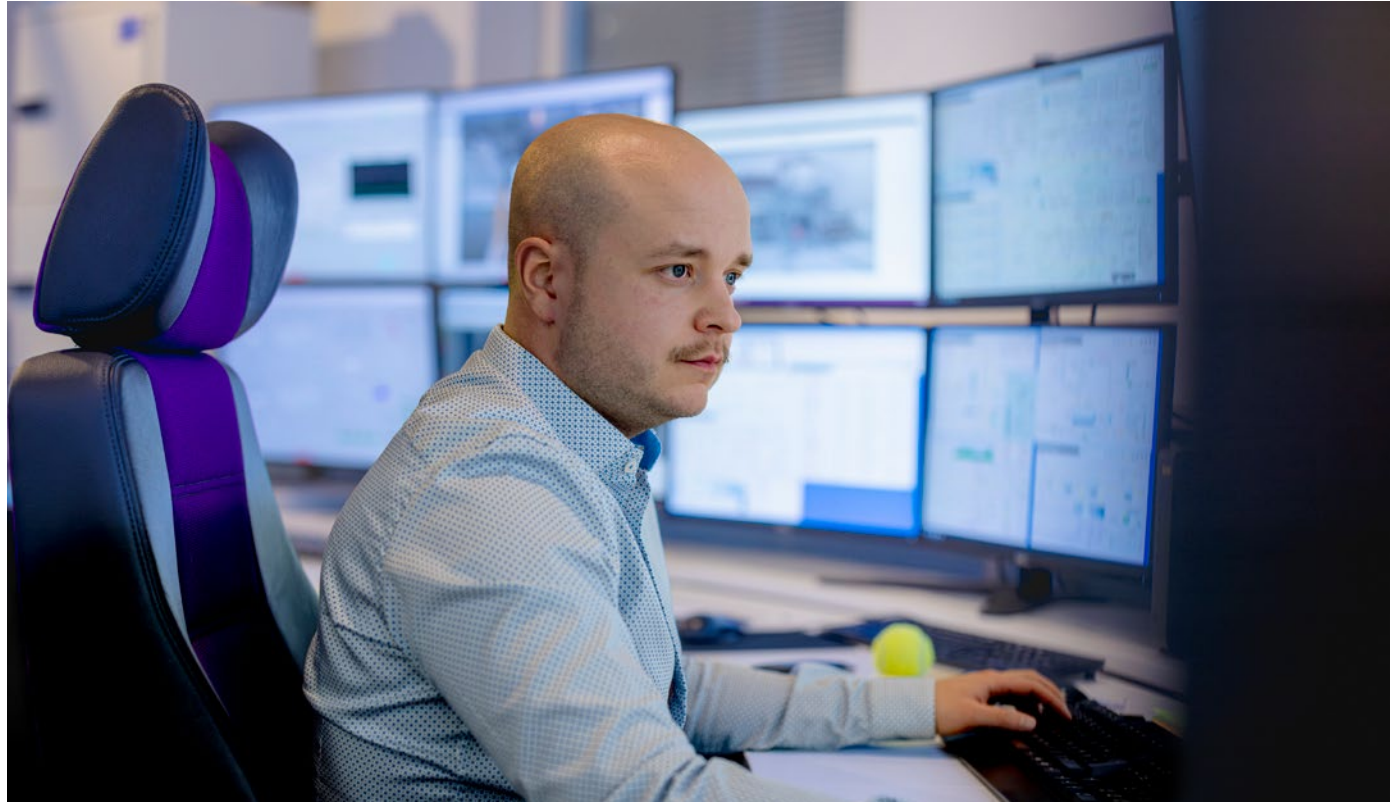
Gasum complies with country-specific legislation and regulations in tax payment, collection, remitting and reporting.

Gasum as a taxpayer

Gasum complies with country-specific legislation and regulations in tax payment, collection, remitting and reporting. Taxation is always a consequence of business activity and taxes are paid in compliance with legal provisions in the country where the activity is located. Gasum's tax strategy aims to ensure the realization of investments, flexibility of operations and capability to pay dividends to shareholders.

Gasum makes efforts to manage and reduce any taxation-related uncertainties, and the aim is to manage tax issues in a manner enabling a timely response to future challenges. Taxation-related matters are evaluated continuously whenever changes take place in external regulation and operations expand to new areas.

The company participates continuously in the development of tax legislation and policies and wants to be involved in the development of a fair, clear and consistent tax system. As part of tax issues management, in spring 2018 Gasum entered into an enhanced customer relationship with the Large Taxpayers' Office in Finland. The enhanced customer relationship between Gasum and the tax authority is an ongoing operating model.



The collaboration supports Gasum's tax strategy and intent to be a responsible taxpayer and promote smooth and interactive collaboration with the authorities. In its tax reporting, the company also complies with the guidelines concerning state-owned companies issued by the Ownership Steering Department in the Prime Minister's Office.

Tax environment 2023

In the beginning of 2022, the scope of the Finnish national transport fuel blending mandate expanded to also include biogas and other renewable liquid and gaseous fuels of non-biological origin. The inclusion of biogas in the blending mandate meant that the transport use of biogas had to be included within the scope of excise taxation and, in transport use, the energy content tax rate on biogas was set at EUR 10.33/MWh. Starting in January 2023, waste-based sustainable biogas used in heating was also subjected to an EU minimum tax level (EUR 1.20/MWh). There were no changes in the taxation of natural gas in 2023.

In Sweden, the national tax system incentivizes a transition from oil and coal to gas. Natural gas is subject to full carbon dioxide tax but exempt from the transport sector energy tax, which provides an incentive for switching from diesel-fueled to gas-fueled vehicles. Biogas is by law exempt from both the carbon dioxide and the energy tax in all sectors, and in 2021 the European Commission approved the prolongation of a tax

exemption for biogas until 2030. Since March 2023 the exemption is not in effect due to a ruling in the EU tribunal.

In Norway, the use of natural gas was reduced by a steep increase in the national CO₂-based tax. Following price reviews, the CO₂ tax increased by 21 % to NOK 952 per ton of CO₂ equivalent. The tax is also expected to increase gradually until 2030, with the increases applying to all fossil fuels. Chemical reduction and electrolytic, metallurgical and mineralogical processes in the non-ETS sector will, however, remain exempt from paying the CO₂ tax. In road transport, the tax increases did not apply to gas-fueled road transport, as the Norwegian transport market uses biogas, which still remains a tax-free fuel as regards both the CO₂ tax and the road tax.

What is the tax footprint?

The tax footprint illustrates the taxes and tax-like payments, by country, received by society from the company's operations. In its tax reporting, the company seeks transparency as well as a good understanding of and good reporting on its tax footprint. In its communication, Gasum wishes to report transparently, consistently and reliably on taxes as well. All companies are included in the figures reported for the periods during which they have been part of the Gasum Group. Tax information on Gasum AB German Branch is included in the Swedish figures. Collected and paid tax data is presented in the following table.

The periods are not comparable with each other:

- In November 2021, Gasum sold the Risavika LNG liquefaction plant to North Sea Midstream Partners (NSMP).
- In April 2020, Gasum acquired AGA's Clean Energy and Nauticor Marine Bunkering businesses from Linde AG, and in October 2021 Gasum acquired all the shares of Skövde Biogas AB.
- In February 2020, Gasum Ltd sold its subsidiary Gasum Tekniikka Oy to the industrial maintenance partner Viafin Service Oyj.

EUR thousand	Finland			Norway			Sweden			Other countries			Total		
	2023	2022	2021	2023	2022	2021	2023	2022	2021	2023	2022	2021	2023	2022	2021
Taxes paid															
Corporation taxes	25	6	57	0	0	-266	1 324	12 713	3 270	0	0	0	1 348	12 719	3 061
Asset-related taxes*	113	110	64	40	46	32	115	115	120	0	0	0	268	272	215
Employer contributions	4 514	4 224	3 780	1 034	1 014	1 375	3 832	3 274	3 849	0	0	25	9 381	8 512	9 029
Other taxes and charges**	0	0	0	45	137	1 214	0	0	0	0	0	0	45	137	1 214
Total taxes paid	4 652	4 340	3 901	1 118	1 198	2 355	5 270	16 103	7 238	0	0	25	11 041	21 641	13 519
Taxes collected															
Value-added tax, sales	295 309	514 108	228 854	33 503	70 830	38 049	113 689	140 027	79 339	44	0	0	442 545	724 966	346 242
Value-added tax, purchases	219 746	285 262	80 018	36 772	35 631	21 544	47 686	47 435	23 218	44	0	0	304 248	368 328	124 780
Value-added tax, net	75 563	228 846	148 835	-3 269	35 199	16 505	66 003	92 592	56 121	0	0	0	138 298	356 638	221 462
PAYE deductions from salaries	5 325	5 166	5 587	1 421	5 078	2 289	2 510	0	0	54	0	0	9 310	10 244	7 876
Employee's social security contributions	1 506	1 443	265	705	2 352	1 005	2 708	2 112	2 550	61	0	0	4 981	5 908	3 820
Energy taxes, sales**	3 555	2 968	3 599	18 666	20 258	18 320	2 786	2 368	688	0	0	0	25 008	25 594	22 607
Energy taxes, purchases**	4 822	1 953	3 206	0	1 838	8 644	48	0	0	0	0	0	4 871	3 791	11 850
Energy taxes, net	-1 267	1 014	393	18 666	18 421	9 676	2 738	2 368	688	0	0	0	20 137	21 804	10 757
Taxes at source	16	29	37	0	0	0	0	0	0	0	0	0	16	29	37
Total taxes collected	81 143	236 499	155 117	17 524	61 050	29 474	73 959	97 073	59 359	115	0	0	172 741	394 622	243 950
Total taxes paid and collected	85 795	240 839	159 018	18 642	62 248	31 829	79 229	113 176	66 597	115	0	25	183 782	416 263	257 469
Revenue by country	824 418	1 749 894	1 022 172	217 185	377 655	175 902	414 282	544 536	353 826	1 039	50 403	19 131	1 456 925	2 722 488	1 571 031
Profit before tax	-9 278	47 075	-267 172	4 879	7 833	-8 612	25 144	86 296	18 887	-972	14	1 092	19 773	141 218	-255 805
Personnel on average	197	212	219	37	42	65	94	90	99	0	3	3	328	347	386

* Real estate tax and asset transfer tax

** Includes energy tax, strategic stockpile fee and carbon dioxide tax

The Group companies by country are as follows: Finland: : Gasum Oy, Gasum LNG Oy, Gasum Portfolio Services Oy, Norja: Gasum AS, Ruotsi: Gasum AB, Gasum Clean Gas Solutions AB, Gasum Clean Gas Solutions Holding AB, Gasum Västerås AB, Vadsbo Biogas AB, Skävde Biogas AB, LBG AB, Germany: Gasum AB German Branch, Estonia: Gasum Oü



Green Funding Impact

Gasum's Green funding impact report highlights our investments into renewable energy and our contribution to the circular economy and climate change mitigation. The green financed loan raised under Gasum's Green Funding Framework is allocated to financing our assets in the biogas segment, which facilitates sustainable growth in the future and contributes to the UN Sustainable Development Goals.

Green funding framework

Gasum's Green Funding Framework governs bond issuances as well as green loans as part of the Company's financing strategy.

During 2023 Gasum issued a new Green Finance Framework, which is the company's second one. The first was issued in 2019. The Green Finance Framework is a document that defines the eligibility of certain projects and investments for green loans that Gasum uses for investing in its biogas operations.

Gasum's Green Finance Framework allows financing granted under the framework to be invested in research, production, and distribution of biogas and biofertilizers, energy efficiency measures and pollution prevention and control measures. Funds under Gasum's Green Finance Framework will exclusively be used for infrastructure related to biogas production and distribution.

Gasum's Green Finance Framework holds the top rating of Dark Green from independent ratings issuer Shades of Green. The rankings are graded Light Green, Medium Green and Dark Green. Dark green is the highest rating and is allocated to projects and solutions that correspond to the long-term vision of a low-carbon and climate resilient future.

Gasum's strengths in the Shades of Green assessment were, in particular, that Gasum's biogas is based on waste and circularity, thus avoiding potential issues related to competing land use for energy crops. Shades of Green was impressed by Gasum's use of certification schemes on both sourcing and production aspects, its active research agenda, as well as efforts to minimize fugitive emissions – all of which are intended to lower emissions further.

Shades of Green also gives a score for governance and has given Gasum a governance score of Excellent. In its reasoning Shades of Green states that sustainability is solidly rooted in Gasum's corporate governance: Gasum has a long history of sustainability reporting and robust processes for emissions reporting and other environmental, social and governance aspects in line with legislation and standards.





Funds are exclusively used for infrastructure related to biogas production and distribution.

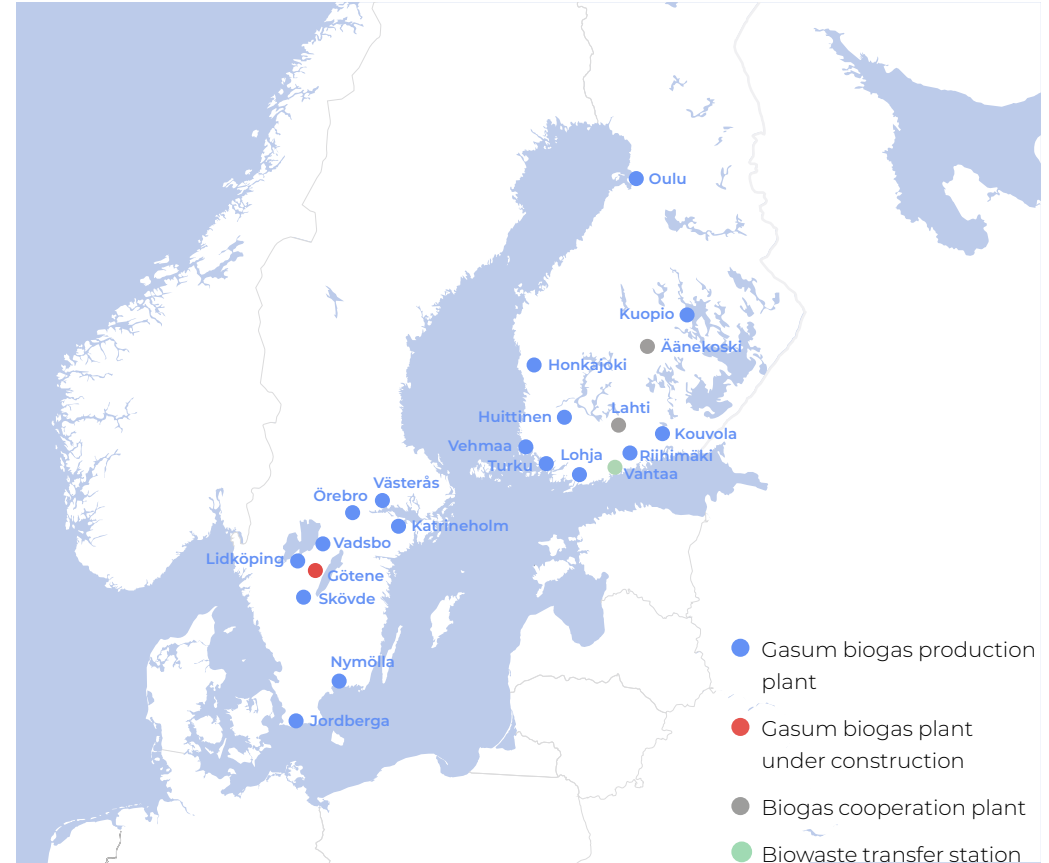
Assets financed with green loans in 2023

During 2023 no new loans were raised under the Green Funding Framework and thus the amount equal to the net proceeds of Gasum's green funding remained at EUR 152 million. This is allocated to financing Gasum's assets in the biogas segment. This equals 44 % of the total amount of loans taken out from the credit facility at end of 2023.

Gasum continued investments in the green biogas assets, which within Gasum's Green Funding Framework are eligible with the criteria of verified asset category 'Renewable or circular economy adapted products'.

Operations during 2023 spread across 20 locations in both Finland and Sweden. In 2023, 10 projects were ongoing with an aim to further increase the production capacity of biogas while simultaneously improving the efficiency of the plants.

Investing strongly in biogas production is part of Gasum's strategy to help our customers move towards a carbon neutral energy future. In the coming years Gasum is, for example, planning to construct five new large biogas plants in Sweden. During 2024 the first one in Götene will be finished and construction on the second one in Borlänge will be started.



CASE



Two new biogas plants under construction in 2024

In 2023 Gasum started construction on a large-scale green field biogas plant in the municipality of Götene in Sweden. Construction work proceeded as planned during the year and continues in 2024. Production start is planned for late 2024.

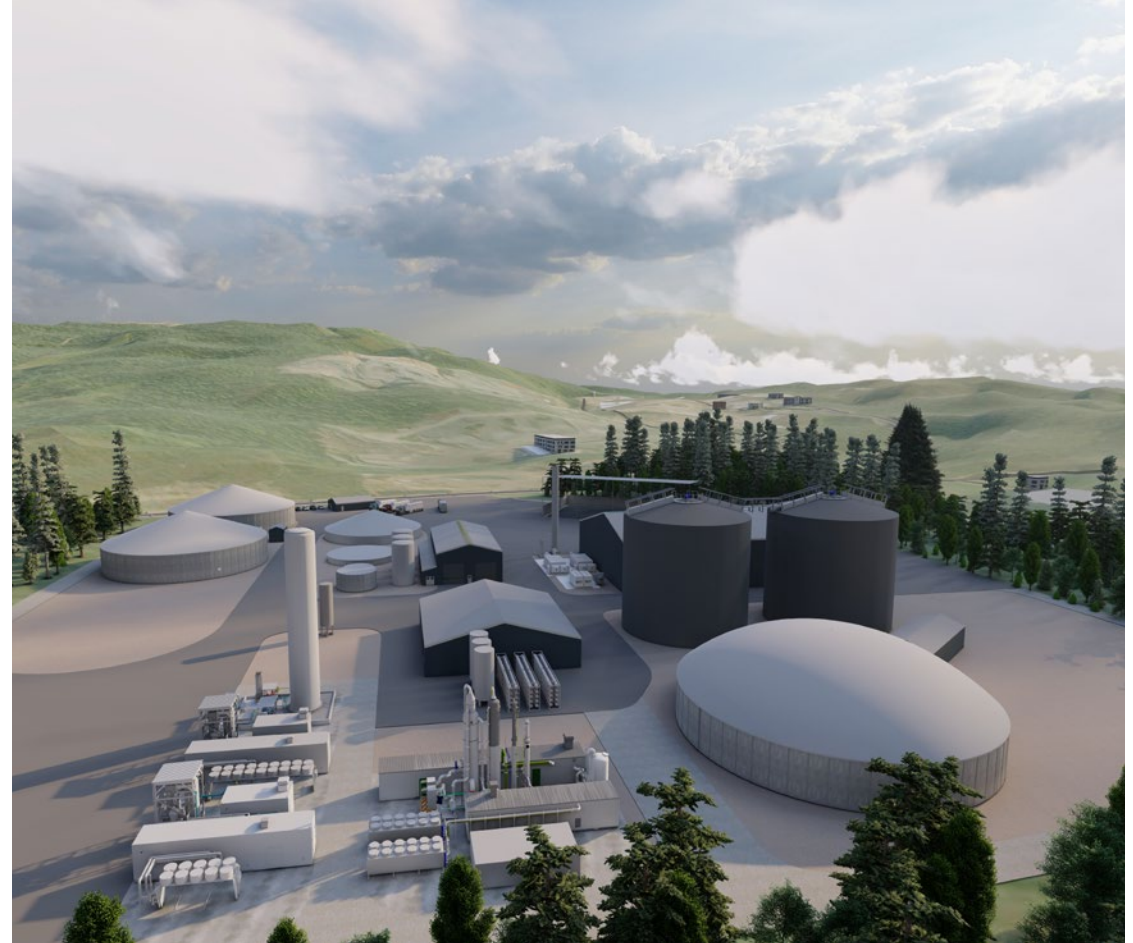
Construction work on a second similar plant in Borlänge is set to start during 2024. The project received a final investment decision in January 2024.

Both the Götene and Borlänge plants are part of a series of five large-scale biogas plants Gasum is planning on constructing in Sweden in the next few years. Other planned plant sites will be Kalmar, Sjöbo, and Tomelilla.

Each one of the plants has received an investment from the Swedish Environmental Protection Agency's Klimatklivet investment program.

Once finished, all the plants combined will use 1.8 million tons of different kinds of waste streams, such as manure and biowaste, for feedstock and produce 55,000 tons of liquefied biogas (LBG) per year, which equals 750 GWh of energy. This averages the yearly fuel consumption of 1,500 heavy-duty trucks and amounts to a yearly total of 150,000 tons less of carbon dioxide in the atmosphere when compared to using diesel.

The plants will also produce 1.5 million tons of high-grade environmentally friendly fertilizer per year as a side stream. Recycled fertilizers improve soil fertility ecologically and recycled nutrients can replace fossil sources used by industry.



Expected environmental impact

Renewable energy production financed with green loans promotes positive climate impacts of the company's business. In 2023, the biogas production financed with green loans totaled about 741 GWh. The corresponding estimated annual greenhouse gas emissions reduction was 172,000 tons of CO₂ equivalent.

Biogas produced by Gasum is 100% renewable. During the reporting year, biogas production met fully with the sustainability criteria laid down by the Renewable Energy Directive.

In 2023, the biogas plants utilized a wide base of biomass in biogas production. A total of 987,000 tons of biodegradable feedstocks were sourced from the food industry, retail outlets, municipalities, and agriculture, consisting of biodegradable waste and residues, municipal wastewater sludge, and agricultural byproducts and crops. Biogas production enabled the reuse of biodegradable waste material as energy, thereby reducing the energy lost in processes such as waste combustion or composting.

In addition, around 918,000 tons of nutrient residues were generated as a byproduct in the biogas production process. These are returned either as recycled nutrients for industry, or as recycled fertilizers for agriculture.

Our network of biogas plants improves economy of scale and efficiency and allows biomass processing to be optimized between plants depending on, for example, logistics, capacity, market conditions and different feedstocks. Relatively modern production assets, continuous work to improve energy effi-

ciency and use of renewable electricity in all operations provide a good basis for emission control in Gasum's operations.

Impact calculation principle

Gasum follows the reporting standards published by the Global Reporting Initiative (GRI) and discloses more detailed sustainability targets, key indicators and related achievements in this Sustainability report 2023.

Climate impact

The estimated tons of CO₂eq emissions avoided because of assets to which green funding proceeds have been allocated, have been calculated according to methodologies and assumptions described below.

The evaluation is carried out based on portfolio-based specific emission calculations, based on an annual level analysis for 2023. The determination of emissions is based on the sustainability criteria guidelines provided by the Finnish Energy Authority and Swedish Energy Agency and is in accordance with the Renewable Energy Directive, RED2 (2018/2001/EU), which governed the climate impact calculation rules during the reporting year.

Emission calculations have been carried out in the context of Gasum's certified sustainability systems in Finland and Sweden. The sustainability systems and the emission calculations are verified annually by an independent certification body.

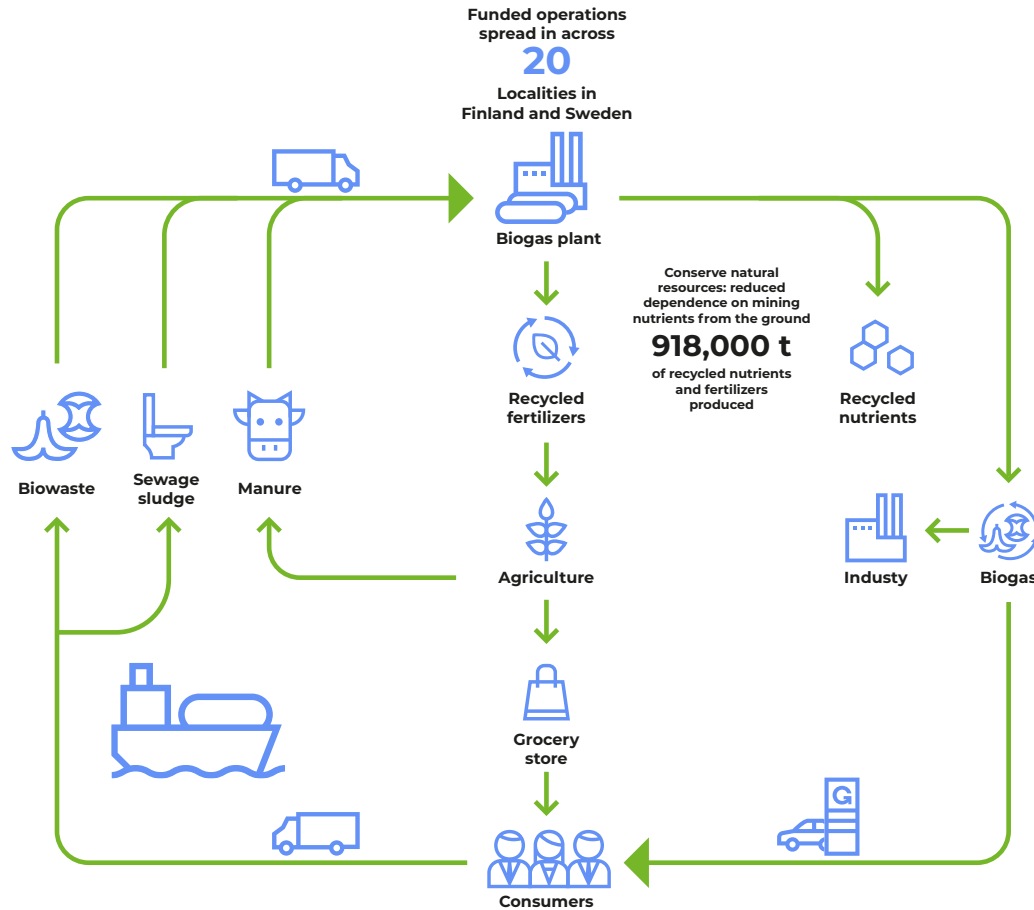
In calculating the greenhouse gas emissions generated by the usage of electricity, grid factors of 91 g CO₂eq/kWh for Finland and 26 g CO₂eq/ kWh for Sweden have been applied. In deter-

mining emissions reductions, the applied fossil fuel comparators are 94 g CO₂ eq/MJ for transport use, 80 g CO₂eq/MJ for production of useful heat, heating and/or cooling, and 183 g CO₂ eq/MJ for electricity production. Carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O) emissions are considered in the total climate impact with GWP100 values defined in the RED2 (25 for CH₄ and 298 for N₂O).

Gasum's Green Funding 2023 in figures

Responsible management and recycling of society's waste and sidestreams
987,000 t
 of biomass
 4,000,000 t of waste water treated in biogas production

Climate change mitigation:
 Emissions reduced by
172,000 t
CO₂ eq



Job and value for economy
152 million EUR
 Allocated to finance Gasum's biogas portfolio assets with a green loan

Renewable energy reduce dependence on fossil energy sources
741 GWh
 of renewable energy generated

Improved local air quality:
 no particulate or SO₂ emissions



The energy company Gasum is a Nordic gas sector and energy market expert.

Gasum offers cleaner energy and energy market expert services for industry and for combined heat and power production as well as cleaner fuel solutions for road and maritime transport. The company helps its customers to reduce their own carbon footprint as well as that of their customers. Together with its partners, Gasum promotes development towards a carbon-neutral future on land and at sea.

Read more about sustainability at Gasum

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GRI content index

Gasum has reported in accordance with the GRI Standards for the period 1.1.2022-31.1.2022.

GRI Standards disclosure

Location / comments

GRI 2: GENERAL DISCLOSURES (2021)

Organizational profile

Organizational profile

2-1	Organizational details	Introduction - Who we are, page 3
2-2	Entities included in the organization's sustainability reporting	Reporting Principles, page 16 Gasum Financial Review 2023
2-3	Reporting period, frequency and contact point	Reporting Principles, page 16 Contact information, page 91

2-4	Restatements of information	No restatements in 2023 Sustainability Report
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2-5	External assurance	The Financial statements of the company are externally assured. The Gasum Board of directors reviews the Governance and Remuneration Report and the Sustainability Report. Gasum maintains certified ISO 9001, 14001, 45001 and 50001 management systems and certified biogas sustainability systems. These certified operations are annually externally audited. In addition, Gasum conducts internal audits in accordance with its internal audit plan. Internal audits are carried out by an external party and the Gasum Board of Directors and Gasum Management Team review the results.
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Activities and workers

2-6	Activities, value chain and other business relationships	Introduction, page 3
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2-7	Employees	People, page 53
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2-8	Workers who are not employees	Total number of workers who are not employees, 33. They are typically consultants working in the finance and IT.
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Governance

2-9	Governance structure and composition	Governance and Remuneration report 2023 www.gasum.com/en/About-gasum/Information-about-Gasum/management/
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2-10	Nomination and selection of the highest governance body	Governance and Remuneration report 2023 The General Meeting of Shareholders elects the Gasum Board of Directors in accordance with the ownership steering principles of the State of Finland, https://vnk.fi/en/government-ownership-steering/ownership-policy
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2-11	Chair of the highest governance body	The chair of the highest governance body is not a senior executive in Gasum.
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GRI Standards disclosure			Location / comments
2-12	Role of the highest governance body in overseeing the management of impacts		Compliance, page 73 Managing Sustainability, page 10
2-13	Delegation of responsibility for managing impacts		Managing Sustainability, page 10
2-14	Role of the highest governance body in sustainability reporting		Managing Sustainability, page 10
2-15	Conflicts of interest		Gasum Financial Review 2023
2-16	Communication of critical concerns		Gasum considers the following types of occurrences to be critical concerns: - Litigations and claims above 5 MEUR, or - Incidents and accidents with significant impact to health (death or permanent harm) or environment, or - Any other business incident with a financial impact above 10 MEUR. In 2023, three occurrences were reported (see Gasum Financial Review 2023) In addition, all accidents, incidents, policy and other breaches, litigations and notable claims are reported to the Board of Directors in a transparent manner.
2-17	Collective knowledge of the highest governance body		The members of the Board of Directors complete Gasum's Code of Conduct e-learning. E-learning on Code of Conduct is offered to the Board of Directors. In addition to regular sustainability reviews, discussions of relevant sustainability topics are arranged on demand.
2-18	Evaluation of the performance of the highest governance body		The Board of Directors makes annually a self-evaluation with the intent to assess how the Board has succeeded in its work during the year and what challenges will be emphasized in the coming year's work.
2-19	Remuneration policies		Governance and Remuneration report 2023
2-20	Process to determine remuneration		Governance and Remuneration report 2023
2-21	Annual total compensation ratio		The organization's highest-paid individual is the CEO. - Ratio of the annual total compensation for the organization's highest-paid individual to the median annual total compensation for all employees: 7.8 - Ratio of change in annual total compensation for the organization's highest-paid individual to the median percentage increase in annual total compensation for all employees: 7.4
Strategy, policies and practices			
2-22	Statement on sustainable development strategy		Introduction - Sustainability is at the core of our strategy, page 6
2-23	Policy commitments		Gasum's policy commitments for responsible business conduct are described in Gasum Code of Conduct
2-24	Embedding policy commitments		Governance - Business ethics and compliance, page 72
2-25	Processes to remediate negative impacts		Governance - Business ethics and compliance, page 72
2-26	Mechanisms for seeking advice and raising concerns		Governance - Raising concerns, page 73

GRI Standards disclosure		Location / comments
	2-27	Compliance with laws and regulations Governance - Business ethics and compliance, page 72
	2-28	Membership associations Governance - Collaboration and partnerships, page 78
Stakeholder engagement		
	2-29	Approach to stakeholder engagement Governance - Stakeholders, page 77
	2-30	Collective bargaining agreements Percentage of employees covered by collective bargaining agreements, 76% (Finland 100%, Sweden 98%, Norway 30%). We comply with national legislation of each country.
GRI 3: MATERIAL TOPICS (2021)		
GRI 3: Material topics	3-1	Process to determine material topics Managing sustainability, page 11
GRI 3: Material topics	3-2	List of material topics Safety and security, climate, circular economy, access to cleaner energy, people, and responsible business
Climate. Oil and Gas 11.1-11.2		
GRI 3: Material topics	3-3	Management of material topics Climate - Creating a carbon handprint, Our carbon footprint, pages 32-42 Cleaner energy - Future solutions, page 23
Economic performance	201-2	Financial implications and other risks and opportunities due to climate change Climate - Climate risks and opportunities, page 42
Energy	302-1	Energy consumption within the organization Climate - Our carbon footprint, page 37
Energy	302-2	Energy consumption outside of the organization Climate - Our carbon footprint, page 37
Energy	302-3	Energy intensity Climate - Our carbon footprint, page 37
Energy	302-4	Reduction of energy consumption Climate - Our carbon footprint, page 37
Energy	302-5	Reductions in energy requirements of products and services Not relevant for energy products
Emissions	305-1	Direct (Scope 1) GHG emissions Climate - Our carbon footprint, page 37
Emissions	305-2	Energy indirect (Scope 2) GHG emissions Climate - Our carbon footprint, page 37
Emissions	305-3	Other indirect (Scope 3) GHG emissions Climate - Our carbon footprint, page 37
Emissions	305-4	GHG emissions intensity Climate - Our carbon footprint, page 37
Emissions	305-5	Reduction of GHG emissions Climate - Our carbon footprint, page 37

GRI Standards disclosure

Location / comments

Occupational health and safety. Oil and Gas 11.9

GRI 3: Material topics	3-3	Management of material topics	Safety is a top priority, page 66 Main sustainability risks / Health, safety and security, page 75
Occupational Health and Safety	403-1	Occupational health and safety management system	Safety and security, page 63
Occupational Health and Safety	403-2	Hazard identification, risk assessment, and incident investigation	Safety and security, page 63
Occupational Health and Safety	403-3	Occupational health services	Safety and security, page 63
Occupational Health and Safety	403-4	Worker participation, consultation, and communication on occupational health and safety	Health and safety representatives represent the company's employees in occupational safety and health care matters. The representatives are expected to develop and supervise safety and intervene if needed. They cooperate within the company and with third parties and take actively part in the occupational health and safety committee.
Occupational Health and Safety	403-5	Worker training on occupational health and safety	Safety and security, page 63
Occupational Health and Safety	403-6	Promotion of worker health	People - Wellbeing at work, page 57
Occupational Health and Safety	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	People - Safety is a top priority, page 64
Occupational Health and Safety	403-8	Workers covered by an occupational health and safety management system	All workers and workers who are not employees are covered by health and safety management system which is internally audited. 86% of all workers are covered by externally audited health and safety management system.
Occupational Health and Safety	403-9	Work-related injuries	Safety - Safety performance 2023, page 66
Occupational Health and Safety	403-10	Work-related ill health	Safety - Safety performance 2023, page 66

People (wellbeing, leadership, personal development). Oil and Gas 11.10, 11.11

GRI 3: Material topics	3-3	Management of material topics	People, page 53 Main sustainability risks / Working environment and employee-related matters, page 75
Employment	401-1	New employee hires and employee turnover	People - Growing talent, page 58
Employment	401-2	Benefits provided to full-time employees that are not provided to temporary or parttime employees	Company car
Labor/management relations	402-1	Minimum notice periods regarding operational changes	Notice periods and provisions for consultations and negotiations are specified in collective agreements and the Act on Co-operations, and in legislation. Sweden: Notice time for negotiation is 14 days. Norway: Information shall be provided at an appropriate time. Information and consultation shall take place as early as possible.
Training and education	404-1	Average hours of training per year per employee	4.37
Training and education	404-2	Programs for upgrading employee skills and transition assistance programs	People - Growing talent, page 58

GRI Standards disclosure

Location / comments

Training and education	404-3	Percentage of employees receiving regular performance and career development reviews	97 %
Diversity and Equal Opportunity	405-1	Diversity of governance bodies and employees	Governance bodies: see 2-9 Governance structure and composition. Empoyees: Male 73%, Female 27%; < 30 years 12%, 30-50 years 60%, 50+ years 28%; Executive 3%, Managerial and expert 53%, White-collar 26%, Blue-collar 19%.

Responsible business (ethics, compliance, stakeholders). Oil and Gas 11.22

GRI 3: Material topics	3-3	Management of material topics	Governance, page 72
Economic performance	201-1	Direct economic value generated and distributed	Financial report 2023
Economic performance	201-4	Financial assistance received from government	Cleaner energy - Biogas gathering momentum, page 21
Indirect economic impacts	203-1	Infrastructure investments and services supported	Cleaner energy, page 18 Our investment outlook improves the availability of renewable energy.
Anti-corruption	205-1	Operations assessed for risks related to corruption	Before entering into a business relationship, we perform risk-based due diligence and screen our business partners to ensure that we know who we are doing business with. We focus in particular on managing risks related to trade compliance, bribery and corruption, human rights, money laundering, fraud and possible financial issues
Non-discrimination	406-1	Incidents of discrimination and corrective actions taken	No incidents during 2023
Public Policy	415-1	Political contributions	Stakeholders - Public affairs work, page 79
Marketing and Labeling	417-1	Requirements for product and service information and labeling	Climate - Creating a carbon handprint, page 32

Circular economy

GRI 3: Material topics	3-3	Management of material topics	Climate - Circular economy, page 43
Materials	301-2	Recycled input materials used	Gasum's biogas is produced from 100% biodegradable waste and residue materials
Water and effluents	303-3	Water withdrawal	Environmental management - Water management, page 50
Biodiversity	304-2	Significant impacts of activities, products, and services on biodiversity	Our biodegradable feedstocks are based on waste and residues, which reduces the risk to biodiversity. Our carbon containing soil-enhancing recycled fertilizer products help to bind carbon into the soil and support soil biodiversity.
Waste	306-3	Waste generated	Environmental management - Waste management, page 51
Waste	306-4	Waste diverted from disposal	Gasum diverts waste and residues from disposal offsite from industry, households, and agriculture. In 2023, nearly 1,000,000 t of waste and residues were anaerobically digested into biogas and recycled nutrient products.



TOPICS IN THE APPLICABLE GRI SECTOR STANDARDS DETERMINED AS NOT MATERIAL

	TOPIC	EXPLANATION
Oil and Gas Sector 11.3	Air emissions	Gasum reports Scope 1 and Scope 3 NO _x emissions. SO _x , PM, VOC, HAP emissions are not relevant for Gasum's operations.
Oil and Gas Sector 11.4	Biodiversity	Our biodegradable feedstocks are based on waste and residues, which reduces the risk to biodiversity. Our carbon containing soil-enhancing recycled fertilizer products help to bind carbon into the soil and support soil biodiversity.
Oil and Gas Sector 11.5	Waste	Environmental management, page 51 No significant amounts of waste is generated in our operations. Sand and packaging materials removed from the raw material stream received for biogas production account for our most significant proportion of our solid waste.
Oil and Gas Sector 11.6	Water and effluents	Environmental management, page 50 Most of our freshwater consumption is as process water in biogas plants and as tap water in offices. Process water is efficiently recycled.
Oil and Gas Sector 11.7	Closure and rehabilitation	No closure of facilities
Oil and Gas 11.8	Asset integrity and critical incident management	Safe operations, products and logistics, page 68 Risk management and business continuity, page 74 No significant spills.
Oil and Gas 11.12	Forced labor and modern slavery	We strive to avoid any risk of becoming linked, through our business relationships, to any form of modern slavery, including forced labor or human trafficking. We do not, under any conditions, tolerate the use of forced, compulsory or child labor.
Oil and Gas 11.13	Freedom of association and collective bargaining	We are committed to complying with all laws concerning privacy, freedom of association, collective bargaining, working time, wages and salaries.
Oil and Gas 11.14	Economic impacts	Financial report 2023
Oil and Gas 11.15	Local communities	We aim to reduce our impact on the environment and local communities. We cooperate with the local environmental authorities and report to them in e.g. odor gas management actions. Whistleblowing channel is available for raising concerns also for external stakeholders.
Oil and Gas 11.16	Land and resource rights	Gasum's operations does not have significant impact on the use of land and natural resources.
Oil and Gas 11.17	Rights of indigenous peoples	Gasum's operations are not in proximity to indigenous communities.
Oil and Gas 11.18	Conflict and security	Gasum's operations are located in countries characterized by political and social stability.
Oil and Gas 11.19	Anti-competitive behavior	Mandatory Code of conduct training for personnel. We are committed to competing freely in the marketplace with no concealed or unfair advantages, while considering our position in the market. Antitrust laws regulate the rules concerning our co-operation with our competitors at a horizontal level, and with our resellers at a vertical level.
Oil and Gas 11.20	Anti-corruption	Mandatory Code of conduct training for personnel. We take action to ensure that all our business relationships are based on trust and transparency. Before entering into a business relationship, we perform risk-based due diligence and screen our business partners to ensure that we know who we are doing business with. We focus in particular on managing risks related to trade compliance, bribery and corruption, human rights, money laundering, fraud and possible financial issues.
Oil and Gas 11.21	Payments to governments	Tax footprint, page 83

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