2022

GASUM SUSTAINABILITY REPORT

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Introduction

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 Standards. Gasum is a signatory to the United Nations Global Compact initiative since 2021.

Who we are

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**

Gasum sustainability highlights 2022

BIOGAS PRODUCTION

775 Gigawatt hours (GWh) of biogas produced – up 17%.

BIOGAS TRADE

1.7 TWh of biogas delivered – up by more than 35%.

CARBON HANDPRINT

444,000 tons of CO_2eq emission savings enabled with biogas – up 29%.

CIRCULAR ECONOMY

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

BIOGAS IN TRAFFIC

Almost **100%** of our traffic segment customers chose to run with biogas.

RENEWABLE ELECTRICITY

7.3 TWh worth of renewable electricity Guarantees of Origin traded – up nearly 18%.

CARBON FOOTPRINT

100% renewable electricity used in our own operations.

SAFETY PERFORMANCE

5.3 total injury frequency rate (TRIF) achieved for a 62% reduction.

CEO’s statement

Guiding customers towards sustainable energy

During 2022 we developed and launched a new strategy for the Gasum Group. The strategy maps our way to increasing income from renewable and clean energy sources and accordingly reducing the role of fossil fuels for our company in the coming five years.

We see our role as being a trusted partner to our customers in the energy transition. We consider it our duty to guide our customers towards sustainable energy solutions and help them continuously reduce their greenhouse gas emissions.

Our aim is to reach a cumulative reduction of 1.8 million tons of carbon dioxide emissions through increasing biogas availability to seven terawatt hours annually by 2027. We are going to do this by investing into our own production as well as sourcing from trusted partners.

In five years’ time, we intend to have a significant portion of our profit come from green energy, which, in practice, means expanding the role of biogas and trade in renewable electricity.

At the same time, we continue to look at natural gas, and its liquefied form LNG, as an important stepping stone on the journey towards a more sustainable energy future. There is much to be done to lower emissions in maritime and heavy-duty land transportation as well as industry.

We see the coming years for Gasum as an exciting period in the company’s trajectory, as the world shifts towards cleaner energy.

Mika Wiljanen
Gasum CEO

Sustainability is at the core of our strategy

Our target is to bring a growing amount of renewable biogas 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, renewed during 2022, is based on increasingly shifting 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 aims to bring 7 TWh of renewable biogas to the market by 2027. This will be achieved though both increasing investment in our own production but also sourcing certified biogas from trusted partners.

Our goal is that by 2027 a significant portion of our profit will come from green energy sources. This means increasing the role of biogas 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 LNG fully serves the distribution of liquefied biogas (LBG) which is 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 – during 2022, we introduced a new 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 of 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.

Value-creation

INPUTS

Comprehensive infrastructure
- 5 LNG terminals
- 5 Bunkering vessels
- 17 Biogas plants, 1 under construction
- 3 Partner biogas plants
- About 100 gas filling stations

Human resources
- 321 employees in 4 countries
- 98% of employees permanent

Resources enabling our business
- Natural gas, LNG
- Biogas, LBG
- Wind power
- ~1,000,000 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

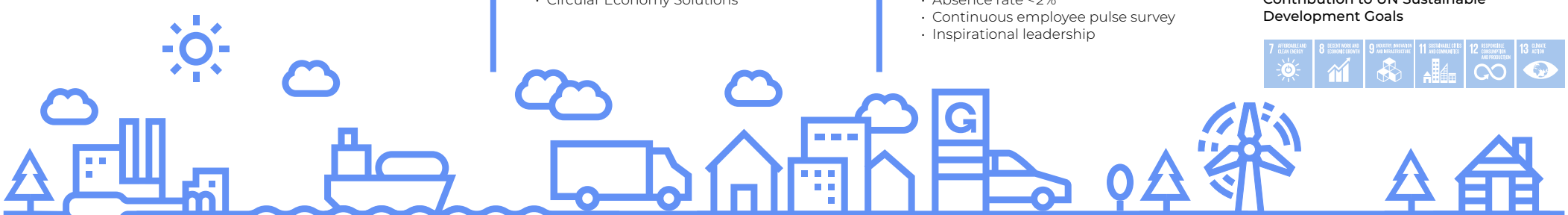
Financial footprint
- €2,722 million net sales
- €27 million salaries and fees
- €38 million investments
- €416 million taxes paid and collected

Wellbeing and safety of employees and contractors
- Focus on safety first-culture
- Employee and contractor safety, 2 LTI
- Absence rate <2%
- Continuous employee pulse survey
- Inspirational leadership

Climate change mitigation
- Increased availability of renewable energy replacing fossil fuels
- 444,000 t CO_2eq emission reduction to customers with biogas
- Reduced local air emissions in urban areas and at sea
- Continuous energy saving measures
- Scope 1, direct emissions 24,000 t CO_2eq
- Scope 2, emissions from purchased energy, 4,000 t CO_2eq
- Scope 3, indirect emissions from up/down-stream supply chain, 3,800,000 t CO_2eq

Supporting circular economy
- Conserving and creating value from existing resources
- Promoting nutrient recycling

Contribution to UN Sustainable Development Goals



Sustainability
AT GASUM

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 annual Sustainability report addresses our progress with our Sustainability program and towards the targets set.

Sustainability materiality assessment is conducted regularly to ensure that the most important sustainability topics are focused on our operations. The selected material topics are based on our own and our stakeholders' views of the significance of the impacts of our operations on the company and the society. The latest update of the materiality assessment was released in 2019. An extensive stakeholder on-line dialogue was conducted to survey the views of our customers, business partners, personnel, shareholder and other stakeholders such as the media, and authorities. As a result, an overall view of what stakeholders expect from the company was obtained, as well as the most important economic, social and environmental impacts of Gasum's operations. Six most important aspects were selected as material sustainability topics for Gasum. Materiality reassessment is planned 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**.

Sustainability management throughout the organisation

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 reviews and approves the Code of Conduct of the Gasum Group as well as 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 audits as well as audits conducted by an external independent

certification body. In 2022, altogether 29 internal audits were conducted for various sites and functions with a focus on safety.

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.

Gasum expands certification of its Finnish and Swedish biogas plants

Gasum's biogas plants and LNG terminals were externally audited in September of 2022 and certificates were issued at the end of the year. Gasum's operations are certified in accordance with quality (9001), environment (14001) occupational health and safety (45001), as well as energy management (50001) requirements. The 2022 certifications expanded the previous certification to cover all seven Gasum biogas plants in Sweden as well as the Finnish biogas plant in Lohja. For customers, certification is a guarantee that Gasum operates in accordance with strict harmonized requirements and is committed to responsibility in all operations.

Read more on **Gasum's website**

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.

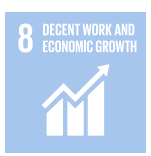
The SDGs are global goals adopted by the UN in 2015 as a universal call to action to solve by 2030 the urgent economic, social, and environmental challenges facing our world. Gasum has identified six priority SDGs towards which we can contribute the most in our operations.

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.

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.



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.

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.

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.

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.

CLIMATE ACTION

We are committed to helping our customers to reduce their climate emissions. We aim at 1,800,000 t CO_2 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 updated strategy provides the guidelines for our journey towards new business opportunities and sets the framework for our sustainability program. We have defined six material sustainability topics based on the significance of the impacts on the company and society. At the end of 2022, we reviewed our Sustainability Program and renewed some of our targets for the new strategy period (2022–2027).

	MATERIAL THEME		OBJECTIVE	KPI	2022	2021	2020	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_2e)	444,000	345,000	270,000	1,800,000 CO_2e 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_2e/GWh)	6.36	5.20	5.46	Decreasing trend (LNG/LBG and biogas supply chains)
				Share of renewable electricity used in own operations (%)	100%	100%	100%	Maintain 100% renewable electricity procurement
				Energy intensity of operations (GWh/GWh)	0.043	0.035	0.039	1% decrease annually (LNG/LBG and biogas supply chains)
				Number of energy saving actions	New target since 2023			At least 1 action per Gasum's terminal/plant annually (Total 21)
			Minimizing environmental impact	Number of environmental breaches (impact classified as considerable, severe or irreversible)	0	0	4	0 environmental breaches
				Number of energy and environment related observations	230	219	222	Increasing trend
	Circular economy	Biogas and recycled nutrient products	Promoting circular economy	Increased availability of renewable gas in the Nordics (TWh)	1.7	1.2	0.8	7 TWh (HHV) by 2027*
				Sustainable biogas production (% GHG reduction, RED 2)	88.9%	88.5%	85.1%	95% by 2027 (Avg. CO_2 emission reduction of own production)

	MATERIAL THEME		OBJECTIVE	KPI	2022	2021	2020	TARGET
SOCIAL	**Safety and security**	Zero harm	Ensuring safety for employees and contractors	LTI (lost-time injury), own employees and contractors	2	5	5	0 LTI
				TRIF (total recordable injury rate), own employees and contractors	5.3	14.1	11.3	<15
				Number of safety walks	338	351	266	At least 2 per site annually (Total 280)
				Participation in Gasum Safety e-learning training (%)	New target since 2023			100% of active employees participate
	People	Well-being	Promoting a healthy working environment	Absence rate (%)	1.98%	1.6%	1.1%	<2%*
		Leadership and culture	Developing Gasum culture and employee experience	Assessment and development of employee experience with continuous pulse survey	63% 73%	72% n/a	76% n/a	Min 70% of employees participate in survey* Total average score min 80%
		Personal development	Growing professional talent	Development discussions are held (%)	97%	94%	n/a	100% of permanent and active employees
ECONOMIC	**Access to cleaner energy**	Sustainable products and services	Enabling sustainable solutions for traffic, maritime and industry	Share of renewable volumes (incl. biogas and power) (%)	21%	New target since 2023		45% by 2027
	Responsible business	Supply security	Ensuring reliable energy supply	Zero unplanned interruptions in energy supply to maritime and industry customers	>99.9% >99%	>99.9 >99%	n/a n/a	Delivery performance 99.9% (supply and trading) Availability 99% (average for filling stations)
		Business ethics and compliance	Ensuring compliance and accountability in own operations and in business partnerships	Employees: Participation in Gasum Code of Conduct e-learning training (%)	88%	59%	92%	100% of active employees participate
				Customers: Net Promoter Score (NPS), including all b-to-b customer segments	19	24	n/a	Increasing trend
				Suppliers: Continuous supplier assessments and auditing based on systematic risk approach	Done	Done	Done	Critical suppliers identified and evaluated. Suppliers with low scores audited.

*Target updated in 2023

Reporting principles 2022

This sustainability report presents Gasum's material sustainability performance topics, including impacts on the climate and environment as well as the social agenda.

The 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, 2022. The report was published in English on the Gasum website in March 2023. The previous report was published in March 2022, and our next report will be published in 2024.

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 2022, the reporting scope has been updated to cover all new operations, nine new filling stations, started during 2022. Additionally, a more thorough scope 3 coverage has been implemented by supplementing data related to purchased goods and services.

Employee related data originates from the 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.

In addition to this Sustainability report, the Company reports on its sustainability activities in Gasum's interim reports. Information concerning many of the reported disclosures can also be found in Gasum's news feed for the year 2022 on the gasum.com website, Gasum Financial Review 2022, Gasum Governance and Remuneration Report 2022, Gasum Green Funding Impact Report 2022, and Gasum sustainability highlights 2022. All publications are available online at www.gasum.com - Key figures.

Environment

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 2022
Cleaner energy	**Demand for cleaner energy continued to grow** in industry, maritime and road transport segments. **Availability of biogas was increased.** We expanded our biogas production capacity and sourced biogas from certified partners. **Future decarbonization solutions based on customer needs** are in focus of our work together with partners.
Industry: Expanding our offering in carbon neutral power	**Gas in industry** Renewable LBG is increasingly attracting interest. **Sustainable wind power** We entered into long-term power purchase agreements (PPA's) with several new part ners, which advances increasing wind production capacity in Finland. **Green services** We traded a total of 7.3 TWh GoOs for renewable electricity generated by hydro, wind or solar power or bioenergy.
Maritime: Expanding supply solutions in maritime segment	**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 1,300 ship-to-ship and truck-to-ship deliveries for the vessel fleet in our operating area. Increasing interest in renewable LBG and its blends.
Road transport: Promoting awareness and availability of gas as a road fuel	**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. Nine new stations were built 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 and residue material.
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. Sometimes 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.
Power-to-gas **Synthetic methane** **Synthetic hydrogen**	Gases can also be produced synthetically using renewable energy and water to make synthetic hydrogen. The hydrogen can then be further processed into synthetic methane by adding carbon. This is called the Power-to-Gas process. While not yet in commercial production, this method of producing and storing energy holds great promise for the future.

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, 2 bunkering vessels, 3 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 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 though 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 industrial companies Outokumpu, SSAB Europe, 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. Our goal is to make 7 TWh of biogas available annually to our customers by 2027.

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

We offer biogas production and biogas availability on an industrial scale. We own 17 biogas plants and have currently one plant under construction. In addition, we have two partner plants. Our 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.

Interest increased due to climate and security reasons

In 2022 we saw an increased interest in the importance of utilizing more circular economy solutions to mitigate climate change. Biogas contributes to mitigating climate change both in the form of renewable energy and through recycled nutrients. Demand for biogas and recycled nutrients increased throughout 2022 because of the sharp rise in energy and 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 partners. Our goal is to have 7 TWh of biogas available annually to our customers by 2027. This amount consists of developing both our own biogas production and utilizing our partners' production network.

Five new biogas plants planned to be constructed in Sweden

Gasum is commencing the process of consecutively constructing five new biogas plants to southern Sweden. Construction of the first one in the municipality of Götene has begun during late 2022. The other planned plant sites will be Borlänge, Kalmar, Sjöbo, and Hörby.

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

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.

Production capacity of biogas is yet to reach its full potential

Demand and supply of biogas will continue to increase in the near future. The European Commission's objective is to increase bio-methane production to almost 350 TWh by 2030. There's a lot of untapped biogas potential as a lot of biodegradable waste isn't yet properly utilised in all European countries. In the future, renewable gases such as synthetic methane can also be produced with power-to-gas (P2G) technology. One of the greatest untapped feedstock potentials lies in manure and agricultural side streams. The EU is currently trying to outline ways to ensure that manure and other such agricultural side streams could be steered to biogas production more easily.

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 of the decomposition process, biogenic carbon dioxide (CO_2) is produced.

Gasum produces annually up to 114 000 tons of biogenic CO_2 in the biogas upgrading process, of which nearly one third is in high concentration (>95% CO_2). This biogenic CO_2 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.

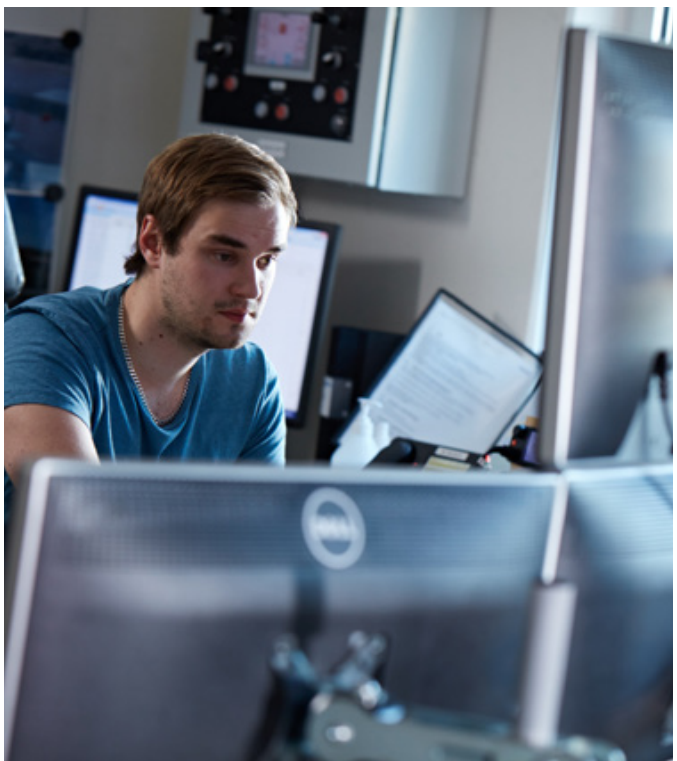
This resulting synthetic renewable methane is fully interchangeable with natural gas and biogas. When it is liquefied it is likewise interchangeable with liquified natural gas (LNG) and liquified biogas (LBG). This means that it can be transported through already existing infrastructure – trucks, ships,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

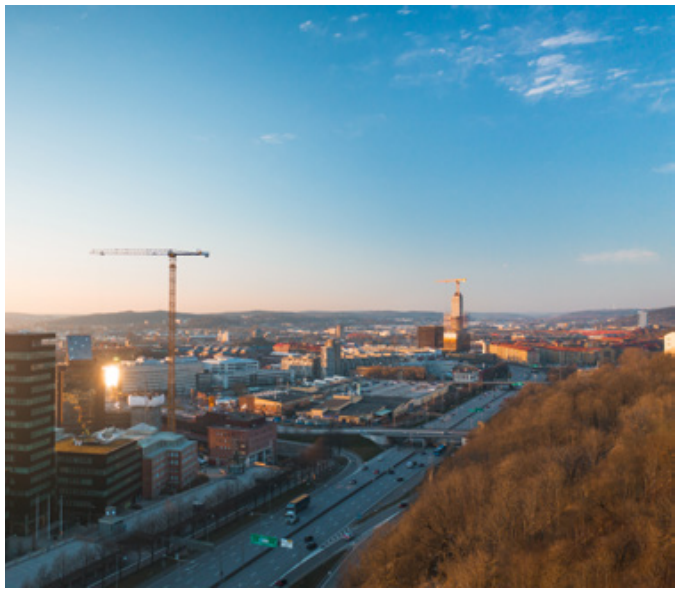
It also means that synthetic methane can be directly used in gas engines currently running on natural gas, biogas, LNG or LBG. There is no need for any additional investments in new equipment for our existing LNG and LBG customers.

While not yet in commercial production in the Nordics, maturity is close. There is great potential, for example, in the Nordic forest industry value chain in terms of biogenic carbon dioxide for methanation of hydrogen.

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.





Optimizing for demand response is important, as the share of intermittent renewable electricity such as wind power in the Nordic system is set to increase dramatically in coming years.

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.

Gasum and Finnish start-up Hycamite have agreed to explore the potential of new technology for sustainable production of hydrogen and carbon from gas. Pure carbon can be used as a raw material in e-vehicle batteries, for example, and hydrogen can be used in clean energy production and as an industrial raw material.

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 is to find potential partners to develop utilization of the biogenic carbon produced at Gasum's biogas plants.

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 LGB) bring the benefits of gas to areas outside the gas pipeline network across the Nordic countries.

CASE

Sucros replaces oil and coal with natural gas and biogas

Finnish sugar company Sucros Oy, part of Nordzucker AG, decided to switch from heavy fuel oil and coal to liquefied natural gas (LNG) and liquefied biogas (LBG) to significantly reduce emissions of their sugar beet factory in Säkylä, Finland. Gasum procured and constructed the terminal and has supplied LNG to Sucros from autumn 2022. Switching to LNG from oil and coal means a complete elimination of SO_x and particles, and a 38% reduction in CO_2 emissions. Using renewable biogas can help further reduce emissions by up to 90% compared with fossil fuels.

Read more on **Gasum's website**

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 true additionality in renewable energy production by advancing the construction of new wind power capacity in the Nordics. In 2022, the demand for renewable wind power continued to grow in the industry segment and we entered into long-term power purchase agreements (PPAs) for the delivery of wind power to new partners. Renewable wind power helps companies reach their climate targets.

Green services in gas and energy markets

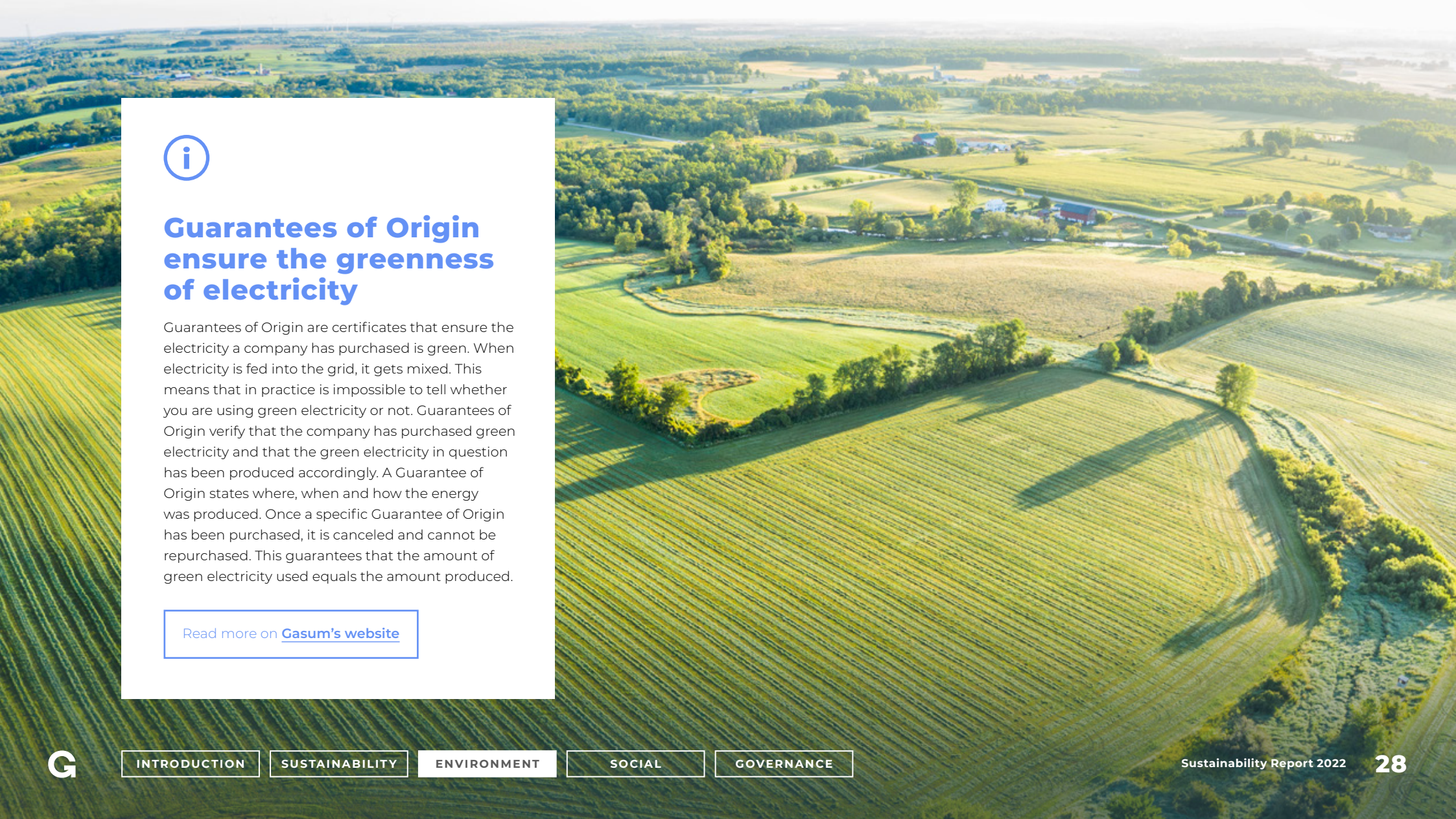
Our Energy Market Services operates in the risk management of and trading relating to emission allowances, gas trading and electricity Guarantees of Origin (GoO). During 2022, we continued to assist our customers to operate in the energy market, providing the strategic planning of long-term sourcing 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

Creating materials for clean mobility with wind power

Gasum signed an agreement to provide Belgian company Umicore with wind-power for ten years starting in 2025. The contract will power Umicore's site in Kokkola, Finland, with 45 GWh of electricity annually. Umicore is a global leader in clean mobility materials and recycling. Its Kokkola site produces precursor cathode active materials and refines cobalt used in rechargeable batteries for electric cars. Umicore's objective is to be carbon neutral by 2035 and is already purchasing portfolio management services from Gasum's Energy Market Services.

Read more on **Gasum's website**



Guarantees of Origin ensure the greenness of electricity

Guarantees of Origin are certificates that ensure the electricity a company has purchased is green. When electricity is fed into the grid, it gets mixed. This means that in practice is impossible to tell whether you are using green electricity or not. Guarantees of Origin verify that the company has purchased green electricity and that the green electricity in question has been produced accordingly. A Guarantee of Origin states where, when and how the energy was produced. Once a specific Guarantee of Origin has been purchased, it is canceled and cannot be repurchased. This guarantees that the amount of green electricity used equals the amount produced.

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.

Challenging year for LNG

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 2022, we continued to supply customers operating LNG-fuelled vessels.

The difficult and turbulent situation in the global energy market in 2022, however, resulted in ship operators often choosing high-emission fuel alternatives such as marine gasoil (MGO) because of the lower market price. This meant that the positive trend towards increasing LNG uptake did not continue in 2022.

During 2022 we made a total of around 1,300 ship-to-ship deliveries and truck operations to our maritime customers. 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 EU Emissions 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 2022 we signed a strategic collaboration agreement with Pavilion Energy and CNOOC Gas and Power Group to strengthen the global LNG bunker supply network for customers in the world's top three bunkering regions: Singapore, North-West Europe and China coastal areas. We also obtained a distribution license for LNG on the Belgian market.

CASE

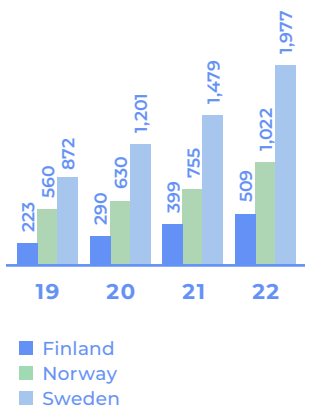
Gasum bunkers and advises first LNG cruise vessel built by Chantiers de l'Atlantique

French shipyard Chantiers de l'Atlantique chose Gasum as expert supplier of LNG bunker fuel and technical adviser to perform the initial bunkering of its first LNG fueled cruise vessel. In addition to delivering LNG, Gasum supported the technical preparation of the delivery, including obtaining the relevant permits and authorisations. Both Gasum and Chantiers de l'Atlantique share an ambition to improve the environmental performance of the shipping industry by demonstrating the technical and commercial availability and reliability of alternative fuels, of which LNG is the most mature. Maritime traffic contributes up to 3% of the world's total greenhouse gas emissions.

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 2022 almost 100% 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 2022, we opened a total of nine 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 2022, new registrations of gas vehicles totaled approximately 2,600 in Sweden, 1,700 in Finland, and 300 in Norway. Almost 900 heavy-duty vehicles powered by gas started operating on Finnish, Swedish and Norwegian roads. At year-end 2022, the number of gas-fueled vehicles totaled about 17,000 in Finland, more than 49,000 in Sweden, and 1,600 in Norway.

CASE

Largest order for biogas trucks in Sweden

Swedish logistics company Sandahls Logistik aims to phase out fossil-fueled transport in its operations by 2025 and has chosen to invest in biogas-powered vehicles for road transport. During 2022 Gasum and Sandahls Logistik signed a multi-year biogas fuel supply agreement which includes building two new public filling stations next to the logistics company's terminals. At the same time, Sandahls Logistik is investing in 120 new biogas-powered heavy-duty vehicles from Volvo Trucks. The cooperation agreement is one of the biggest in the Nordic biogas sector.

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 biogas 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	WHAT WE ACHIEVED IN 2022
Increasing the handprint of our products 1,000,000 tCO_2eq cumulative emission reduction for customers achieved with biogas by 2025.	**444,000 t CO_2eq emission savings** enabled for our customers with renewable biogas, up by 29% year on year. Further emission savings were enabled with other low-carbon fuels, renewable power, and circular economy solutions. **Availability of gas increased.** We brought 1.7 TWh of biogas to market , up by more than 35% year on year. We extended our gas filling station network and expanded our bunkering services geographically. **Increased climate ambition.** Gasum's renewed strategy calls for increasing emphasis on renewable energy. We updated our climate commitment and aim at 1,800,000 t CO_2 emission reduction for customers achieved with biogas by 2027.
Decreasing the footprint of our operations 1% energy savings annually during 2017-2025. Decreasing trend in LNG and biogas supply chain emission intensity (scope 1 and 2). 100% share of renewable electricity in own operations.	**100% renewable electricity used in all operations.** **Total energy consumption decreased by 30% year on year**. We set a new target to carry out at least one energy saving action per biogas plant and LNG terminal annually.

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.

During 2022 we developed and launched a new revised strategy for the Gasum Group. The 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 five years. Our target is to achieve a 45% share in renewable energy volumes by 2027, including biogas and power.

We have updated our target to increase the availability of biogas and reduce our customers' greenhouse gas emissions by 1.8 million tons of CO_2eq by 2027. We are constantly investing in our own biogas production capacity and sourcing from trusted partners. We intend to make 7 TWh of biogas available on the market from our own production and that of our certified European partners within the set timeframe.

In 2022, we helped our customers reduce their greenhouse gas emissions by a total of 444,000 t CO_2eq (345,000 in 2021) 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 88.9% in 2022 (88.5% in 2021). 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 CO_2 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.

CO_2 emissions from biogas use amount to zero

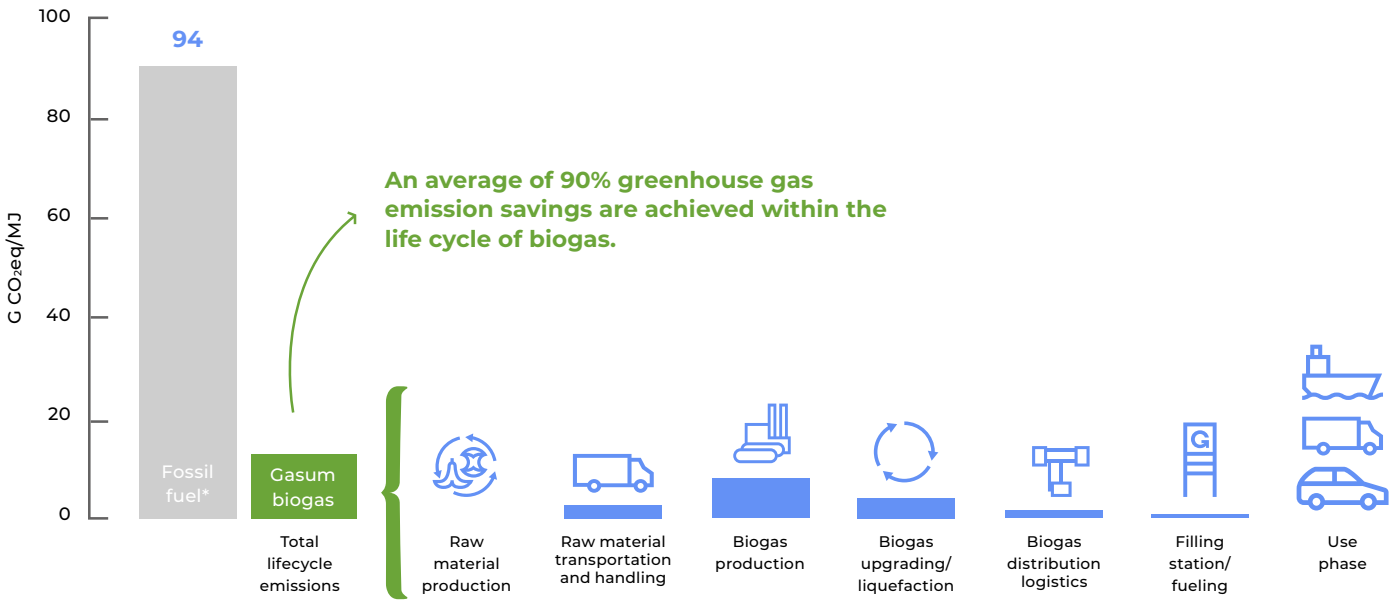
When biogas is combusted, CO_2 is generated. However, CO_2 is not counted as a greenhouse gas in the context of renewables. Why? Because an equal amount of carbon is released into the atmosphere during combustion as has earlier been adsorbed in photosynthesis by the biomass feedstock. This is the foundation 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 CO_2. Of the fossil fuels, combustion of natural gas emits the least CO_2 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 green-house 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 CO_2eq/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 2022, 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.

Biogas fulfils the Nordic Swan Ecolabel criteria

Gasum biogas has been awarded the Nordic Swan Ecolabel. The label covers most of the Finnish biogas production used as a transport fuel. The ecolabel makes it easy for consumers and professional buyers to choose the most environmentally friendly goods and services. To get awarded, biogas must fulfill strict environmental requirements throughout the life cycle, such as

- 70% GHG emission reduction (60% for sewage sludge-based biogas)
- No palm oil, soybean oil, sugar cane used as feedstock
- No genetically modified plants used as feedstock

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 70-90%, 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 2022, demand for renewable wind power continued to grow in industry. We entered long-term supply contracts on wind power with several partners. We traded a total of 7.3 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.

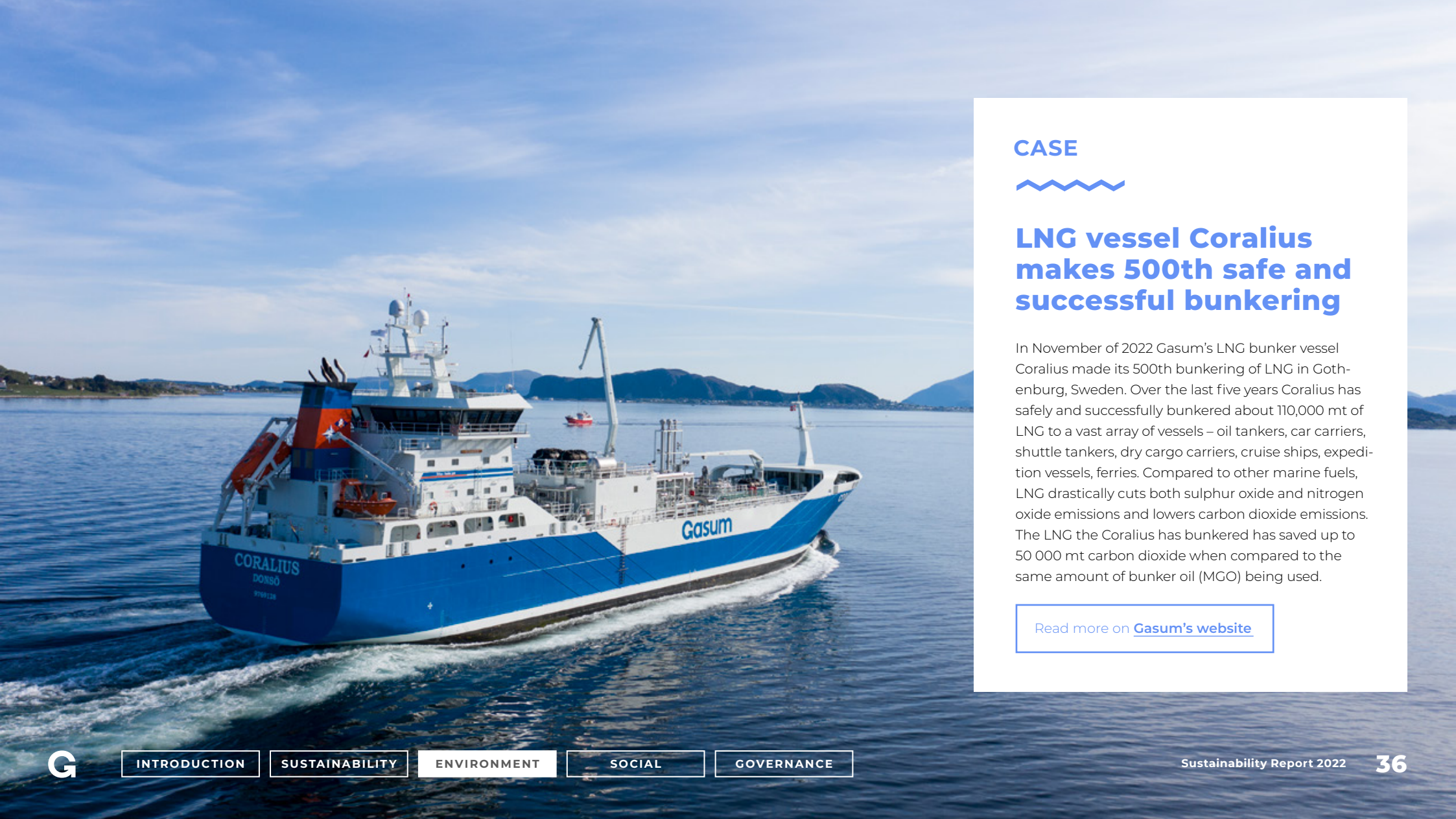
CASE

Long-term wind power agreements with Gasum help Outokumpu reach climate goals

“Outokumpu is Finland’s biggest individual consumer of electricity. We are responsible for about 4% of the whole country’s electricity consumption. For this reason, it is important that this electricity is generated sustainably and by using renewable energy sources. The emission factor of electricity has a direct effect on the total carbon footprint of our end products.”

Juha Erkkilä, VP of Group Sustainability, Excellence & Reliability, Outokumpu

Watch the video on Gasum’s Youtube-channel



CASE

LNG vessel Coralius makes 500th safe and successful bunkering

In November of 2022 Gasum's LNG bunker vessel Coralius made its 500th bunkering of LNG in Gothenburg, Sweden. Over the last five years Coralius has safely and successfully bunkered about 110,000 mt of LNG to a vast array of vessels – oil tankers, car carriers, shuttle tankers, dry cargo carriers, cruise ships, expedition vessels, ferries. Compared to other marine fuels, LNG drastically cuts both sulphur oxide and nitrogen oxide emissions and lowers carbon dioxide emissions. The LNG the Coralius has bunkered has saved up to 50 000 mt carbon dioxide when compared to the same amount of bunker oil (MGO) being used.

Read more on **Gasum's website**

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 nine new stations during 2022. 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 and Sweden in 2022. Already, several thousand LNG-powered trucks are in operation in Europe, with numbers expected to increase steadily. Development of technology in heavy-duty vehicles is further driving the growing demand for gas. In addition to the HDV segment, we see promising growth potential in local distribution and transportation, and in passenger cars. Gasum is investing in all these segments. **Read about our services to road traffic segment.**

CASE

Orkla's chocolate and chips go on biogas

Orkla, a Nordic leading brand consumer goods company, has invested in low-emission transports using biogas from Gasum. Since 2014, Orkla Group has reduced greenhouse gas emissions in its own operations by 65%. Renewable energy sources account for 47% of the energy used. Orkla is one of the first companies worldwide to have its target of net-zero greenhouse gas emissions across the value chain by 2045 approved by the Science Based Targets initiative. Using Gasum's locally produced, fully renewable biogas means a reduction in transport emissions of as much as 90 per cent compared to fossil fuels.

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 have extended our climate ambition to cover Scope 3 emissions and set a target to increase the share of renewables in our offering.

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.

Our Scope 1 and 2 (market-based) greenhouse gas emissions in 2022 totaled 28,000 t CO_2eq (53,000 in 2021). The decrease is mainly due to divestment of Risavika liquefaction plant in Norway at the end of 2021.

Value chain emissions, total 3.82 Mt CO_2e

0.6%

SCOPE 1

Direct emissions from own operations

0.1%

SCOPE 2

Purchased energy

99.3%

SCOPE 3

- Use of sold products **76.9%**
- Purchased goods and services **21.7%**
- Fuel and energy related activities **0.1%**
- Upstream transportation and distribution **0.1%**
- Downstream transportation and disribution **1.1%**
- Business travel **0.004%**
- Waste generated in operations **0.1%**

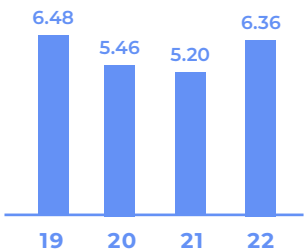
Of the scope 1 and scope 2 greenhouse gas emissions, 59% originated from our operations in Sweden, 41% in Finland, and 0.5% in Norway. Most of our direct Scope 1 emissions were generated in biogas upgrading process and in flaring at LNG terminals. Our greenhouse gas emissions consist of carbon dioxide and methane emissions.

Most of our scope 3 emissions are generated in the use of sold products. The scope 3 emissions decreased by 35% year-on-year. The significant reduction is mainly due the extremely challenging operational environment which led to a decrease in our gas sales volumes, but it is also due to the increased share of sold renewable biogas. Gasum's renewed strategy calls for increasing emphasis on renewable energy in our offering, which will continue to contribute to reducing our Scope 3 emissions in the long run.

Our target is to decrease the LNG and biogas supply chain (scope 1 and 2) carbon emission intensity annually. During 2022, we did not reach this target due to the decrease in the product deliveries. 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

SPECIFIC CARBON DIOXIDE EMISSIONS OF GASUM'S OPERATIONS 2019–2022, tCO_2e/GWh



under development during 2022 by the Science Based Targets initiative (SBTi).

100% renewable electricity used

In 2022, 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 2022 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 emissions of our LNG terminals and biogas plants are conducted to the flare of the plant and the methane is measured before being combusted into CO_2. This means that pure methane emissions are very limited in relation to LNG terminals and biogas production and handling.

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 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.

Emissions into air

tons	2022	2021	2020	2019
Scope 1 (Direct CO_2e emissions)	24,000	44,000	45,000	66,000
Scope 2, location-based (Indirect CO_2e emissions)	10,000	16,000	15,000	15,000
Scope 2, market-based (Indirect CO_2e emissions)	4,000	9,000	9,000	8,000
Scope 3 (Other indirect CO_2e emissions)	3,796,000	5,900,000	36,000	28,000
Direct CH_4 emissions (included in Scope 1 emissions)	361	306	158	459
Direct biogenic CO_2 emissions	91,000	81,000	75,000	80,000
NO_x	525	634	576	483

Indirect CO_2e 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 CO_2 emissions are generated in the combustion of biogas and landfill gas for energy production, in flaring, and in the biogas upgrading process. Biogenic CO_2 emissions are not counted in the total GHG emissions of the company.
NO_x emissions are mostly generated in vessels transporting Gasum's products.

In the agriculture sector significant emissions can be avoided, when manure is brought to a biogas plant to capture and utilize the methane instead of it being 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 2022, our total energy consumption decreased by 30% year on year. This was mainly due to the divestment of Risavika LNG liquefaction plant in Norway at the end of 2021. From the year 2023 onwards, we have set a new target to implement at least one energy saving action per biogas plant and LNG terminal annually.

Despite the reduced total energy consumption, we did not reach our target of reducing the energy intensity of our operations due to decreased volume of product deliveries during 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.

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 a biogas upgrading and liquefaction unit in Turku and biogas upgrading units in Oulu and Huittinen, Finland. Recent investments made in Finland decreased flaring by 33%. Energy efficiency has been in a key role also in choosing filling station technologies.

During 2022, energy prices stayed at a high level, which largely impacted the cost of operations of energy intensive industry and highlighted the importance of energy efficiency. In 2022, we focused on ensuring that our recent investments enable production improvements and energy savings also going forward.

Systematic day-to-day energy management

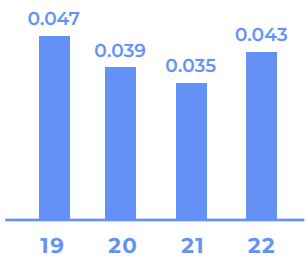
To develop and manage our energy efficiency measures and actions, we maintain a voluntary energy management system, which is certified in accordance with ISO 50001:2018. The energy management system covers our supply, production, and delivery of gas products, as well as the processing of biodegradable waste, and production of recycled nutrient and fertilizer products. During 2022 we expanded the energy management system certification to seven Swedish biogas plants and the new Lohja plant in Finland. The system now comprehensively covers our Nordic LNG terminals and biogas plants.

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 2022, we continued developing an energy data analysis process, which is crucial in improving the energy efficiency of our operations. 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.

We participate in the voluntary Finnish Energy Efficiency Agreement for Industries under the Energy-Intensive Industry

ENERGY INTENSITY OF GASUM'S OPERATIONS
GWh/GWh



Climate change mitigation and the energy transition are strongly visible in Gasum's strategy and sustainability goals.

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.

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 and clean energy sources and accordingly reducing the role of fossil fuels for our company in the coming five years 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. New opportunities arise for Gasum in the changing operating environment and through meeting the needs of our customers in the energy transition.

Gasum's reporting on climate risks and opportunities is in line with TCFD recommendations. 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.

Energy consumption

GWh	2022	2021	2020	2019
Energy consumption within Gasum				
Fossil fuel consumption	68	87	113	158
Renewable fuel consumption	89	76	88	97
Electricity consumption	87	179	164	154
District heat consumption	15	16	9	32
Steam consumption	14	31	34	32
Heat sold	3	4	4	7
Electricity sold	2	2	5	5
Total energy consumption	268	383	400	460
Energy consumption outside Gasum				
Electricity consumption	3	3	n/a	n/a
Fuel consumption	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.

CLIMATE RELATED RISKS AND OPPORTUNITIES			POTENTIAL IMPACTS FOR GASUM	MANAGEMENT OF RISKS AND OPPORTUNITIES
Transition risks	**Policy and legal**	· Mandates on and regulation of existing products and services · Pace of changes in regulatory environment	· 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	· Strategy and climate related sustainability targets steer our own operations and investments · Monitor and influence regulatory developments · Build culture to embrace opportunities
		· Increased pricing of GHG emissions	· Growing operating costs for customers (e.g., higher compliance costs, increased insurance premiums) lead to increased demand for cleaner solutions	
	Technology	· Transition to lower emissions technology in energy supply chain	· Current operations may need investments to adopt/deploy new practices and processes · Transition improves energy efficiency and lowers emissions	· Guide the business through the strategy, sustainability and high operational excellence targets · Adopt energy efficiency measures
		· Investments in new technologies	· Ability to provide relevant products and solutions in the future	· Utilize partnerships in exploring potential of new technologies
	Market and reputation	· Changing customer needs	· Reduced demand for LNG due to shift in customer preferences · Increased demand for renewable and low-carbon solutions	· Continue to shift focus from fossil to renewable energy · Proactively, in coordination with the customers, develop product and service offering to support green transition
		· Availability and increased cost of raw materials and sourced renewable energy	· Increased biogas production costs due to changing input prices · Increased cost or decreased revenues	· Explore opportunities to expand feedstock mix · Secure long-term supply contracts including partnerships
		· Stakeholder perception of Gasum's image · Stigmatization of gas sector	· Demand for products and services · Effects on workforce management, partnerships, capital and insurance availability · Social license to operate, climate related litigation	· 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**	· Increased severity of extreme weather events · Permanent changes in weather patterns, rising mean temperatures and sea levels	· 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	· 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 2022
Increasing availability of biogas in the Nordics	**Increased biogas production capacity**. Our biogas production volume increased by 17% year on year. 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 89%.
Promoting circular economy	**1,000,000 t of biodegradable feedstocks and 12,000,000 t of wastewater treated.** We prepare for increased use of animal manure in our forthcoming large-scale biogas production. **940,000 t of recycled nutrients and fertilizers produced,** offering huge emissions reduction potential, enhanced crop growth and sustainable soil improvement. **Building partnerships in the circular economy**. In 2022 we established a joint venture called Kiertoravinne Oy to process and sell recycled nutrients in Finland. We committed to treat sewage from cargo ships, decreasing nutrient loading in the Baltic Sea. **Innovation in circular economy concepts**. We advanced projects focusing on synthetic hydrogen and methane and carbon value chains in future energy systems, as well as nutrient recycling.

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 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.

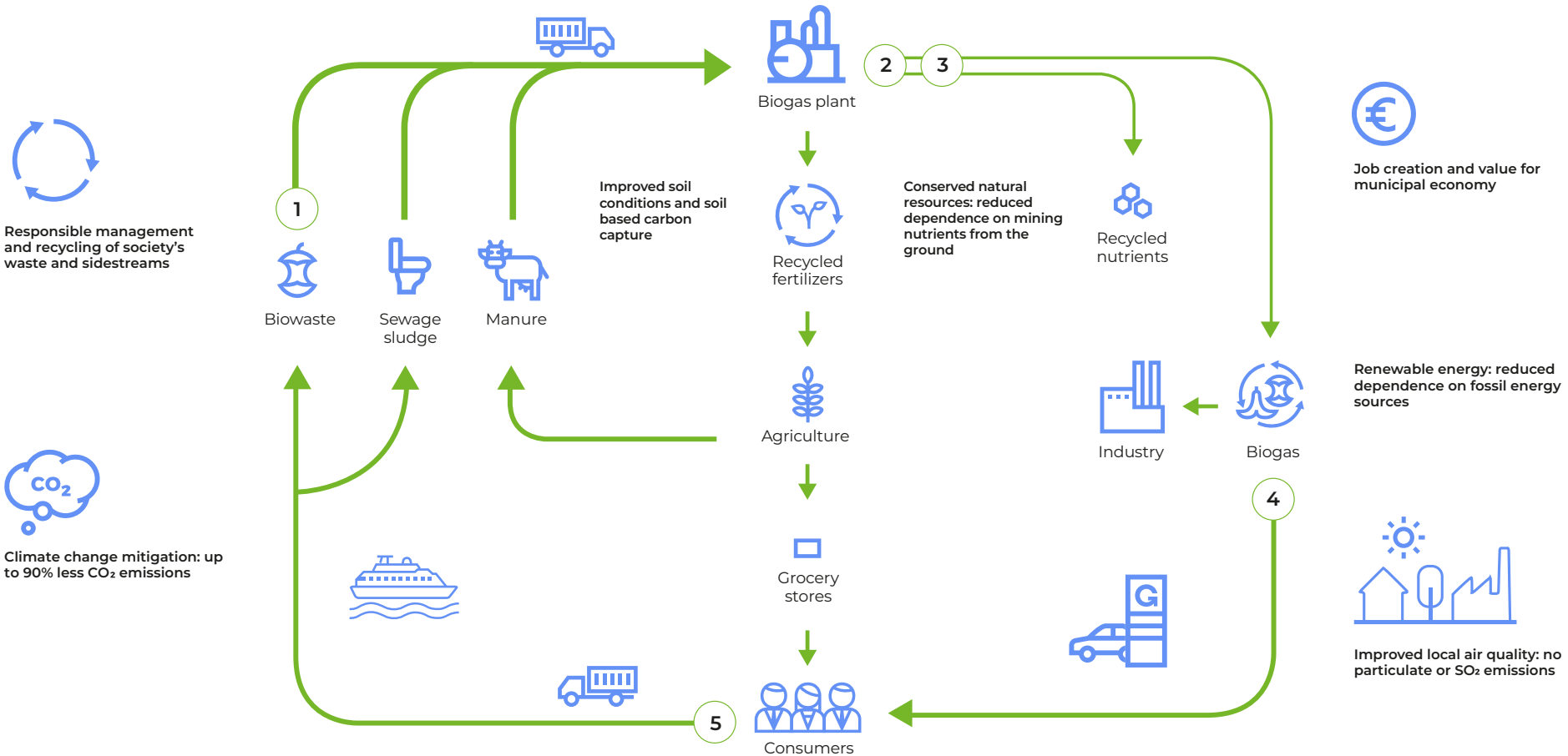
Growing biogas volumes

The potential of Nordic biogas production volumes is estimated to be around 20–40 TWh annually based on feedstock availability. We aim to offer 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 starting the construction of our newest large plant in Götene, Sweden. There are several other new biogas plants currently in the planning phase. In Sweden, we are doubling our biogas production capacity with a total of five new plants over the coming few years.

Transforming waste into energy in the circular economy

The circular economy is a model of production and consumption that is based on recycling and reusing materials for as long as possible. In other words, it enables turning waste into a resource. The circular economy allows companies and people to transform their waste into a resource that can be used to produce, for example, biogas. Biogas is a 100% renewable fuel produced entirely from organic waste such as foodwaste, sludge, agricultural and industry side streams. A company can run its production with biogas produced from its own waste, and many of Gasum's customers do just that.

Read more on **Gasum's website**


Responsible management and recycling of society's waste and sidestreams
Climate change mitigation: up to 90% less CO_2 emissions
1
Biowaste
Sewage sludge
Manure
Biogas plant
2
3
Improved soil conditions and soil based carbon capture
Recycled fertilizers
Conserved natural resources: reduced dependence on mining nutrients from the ground
Recycled nutrients
Job creation and value for municipal economy
Agriculture
Industry
Biogas
Renewable energy: reduced dependence on fossil energy sources
4
Grocery stores
Improved local air quality: no particulate or SO_2 emissions
5
Consumers

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 90% when compared with a fossil-based fuel as defined in the EU Renewable Energy Directive (RED2 2018/28/EC). If manure 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. Biogas has also been awarded the Nordic Swan ecolabel. The label covers most of Finnish biogas production used as a transport fuel. Read more

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 2022, we processed a total of 1,000,000 tonnes of biodegradable feedstocks, and 12,000,000 tonnes of wastewater 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.

CASE

Gasum commits to turning cargo ship waste into biogas

The Baltic Sea is one of the most heavily trafficked seas in the world. The greywater and sewage generated on the approximately 2,000 cargo ships sailing it can be legally discharged into the Baltic Sea. In 2022 Gasum made a Baltic Sea Commitment to receive ship-generated wastewater and biowaste as a feedstock for biogas in a pilot programme. The aim is to examine and determine the volume of wastewater discharged into the selected ports and its potential for biogas production. Gasum's commitment is part of the The Baltic Sea Action Group's (BSAG) Ship Waste Action initiative.

Read more on Gasum's website

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 2022, our biogas plants produced about 940,000 tons of nutrient products. The safe and sustainable use of nutrient-rich by-products is important.

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 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.

CASE

Bringing recycled fertilizers and nutrients to the market

Gasum, Biolan and Pöytyän Maanparannus joined forces at the beginning of August 2022 to form a joint venture called Kiertoravinne. Kiertoravinne continues Gasum's work by developing nutrients, fertilizers, additives and soil conditioners suitable for agricultural and industrial use from biogas plant side streams. After a transition period, all the nutrient production from Gasum's biogas plants in Finland will be processed by Kiertoravinne. Demand for recycled nutrients has shown clear growth over the past few years. This is attributable to their secure availability and price level compared to the other most widely used mineral fertilizers. Recycled nutrients are a competitive and eco-friendly alternative to traditional fertilizers.

Read more on **Gasum's website**

The circular economy and recycled nutrients are at the core of our R&D

Our research and development activities are focused on the development of our biogas business. During 2022, several large R&D projects were on-going with a focus on hydrogen and carbon value chains in future energy systems, as well as nutrient recycling.

The demand 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. Read more about future solutions

We are involved in developing synthetic methane gas concepts, for example in the "Biological methanation of syngas from gasification of lignocellulose" project financed by the Swedish Energy Agency. In gasification, product gas containing hydrogen is made from lignocellulosic biomass, for example. Biological or synthetic methanation can be used to upgrade the gas into renewable methane.

We continued to be a part of "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.

Focus on nutrient recovery

During 2022, 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. Another project coordinated by RISE studies the utilization of hydro-thermic liquefication in a combined energy system.

In Finland, we developed advanced nutrient and resource recovery from municipal wastewater sludge at centralized treatment facilities in a two-year "Järkki" project (2021-2022), funded by the Ministry of the Environment in Finland. The "Circular economy of industrial water" (CEIWA) project focuses on new water treatment and nutrient recovery technologies, as well as challenges such as microplastics. The project brings together a large consortium of companies, research institutes and universities and continues until 2023.

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, which received continued funding for 5 years with a total budget of around EUR 18 million.

Other examples of research and development projects and initiatives we were involved in during 2022:

- New approved hygienization methods for biogas plants in Sweden, led by RISE
- TYPKI – aims to prevent nutrient emissions into the environment and to simultaneously produce new circular economy products
- Biosfääri and Orvo projects coordinated by the Natural Resources Institute Finland (Luke), which aims at improving resource recovery from manure and by-product biomasses and to measure soil carbon sequestration when organic fertilizers are used
- HABA – decentralized biomethane production in Central Finland includes biological in-situ methanation of CO_2 and H_2
- 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 2022

Environmental target of zero new breaches achieved. New investments were made to mitigate non-conformities identified in 2021.

Proactive environmental work. More than 260 energy and environment related observations were made to improve our daily operations and prevent harm.

Building operational excellence. Certification of the Finnish and Swedish biogas plants were extended with ISO 9001, ISO 14001, ISO 45001, and ISO 50001 requirements.

Respect the environment

In accordance with our Code of Conduct, we commit to the prevention of environmental degradation.

In our daily work, we make systematic efforts to minimize the most significant environmental impacts of our operations: air emissions, energy consumption, odor nuisances, and environmental impacts caused during project construction.

We employ environmentally sound and energy-efficient technologies and ensure efficient maintenance. We continuously improve our operations and comply with environmental and energy system requirements as well as a biogas sustainability scheme. We increase our understanding of the life-cycle impact of our products and use this information to improve our performance.

Environmental compliance

All sites systematically follow up on any deviations, proactively report observations, conduct safety walks, and compile risk assessments. We use reporting tools in the management and reporting of environment-related actions. In 2022, the number of energy and environment related observations totaled 230 (219 in 2021). 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 2022. New environmental non-conformities were not identified. A total of 45 (89 in 2021) notices from the public were received during the year, mainly related to odor nuisance from our biogas plants.

In 2022, the nitrogen load of purified process water at the Vehmaa biogas plant slightly exceeded the environmental permit limit during the second quarter of the year. The problem was solved by installing new membranes to the reverse osmosis (RO) system which is used to treat the process water before releasing it into a ditch.

During 2022, actions were taken to mitigate non-conformities identified during the previous year (2021). At our Turku biogas plant we invested in higher exhaust air pipes for the odor treatment systems. In addition, Gasum together with the City of Turku, 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. The project also included renovation of the dry fertilizer storage field. The impact of the improvement will be followed up in 2023.

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. 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

m³	2022	2021	2020	2019
Municipal water	172,000	189,000	183,000	180,000
Groundwater	34,000	48,000	51,000	30,000
Seawater	127,000	140,000	174,000	157,000
Rainwater	7,000	8,000	9,000	53,000

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. A total of 33 notifications in Finland and 9 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.

In 2022, regular odor observation performed by an external consultant was continued in the vicinity of the Turku plant, in co-operation with other companies at the waste treatment center.

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

Social

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	WHAT WE ACHIEVED IN 2022
Promoting wellbeing and a healthy working environment: absence rate < 1.5%	**Employee absence rate 1.98%**
Developing an agile culture and employee experience: Continuous assessment of the employee experience through the pulse survey, min. employee participation rate of 75%	**The employee pulse survey** continued to be active and had a 63% participation rate. The survey helps us to assess and develop employee experience and gives every employee the possibility to give feedback regularly and develop our culture. **The Leading for impact journey** was continued with surveys to all Gasum Group employees on 'Leadership styles' and 'Organizational Climate' to strengthen our leadership culture and help our line managers to become better leaders.
Growing Gasum's professional talent: Development discussions are held and agreed development plans implemented, 100% of employees participate	**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)

Inspirational leadership

Inspirational leadership continues to be one of the key drivers in implementing Gasum's strategy and developing our common culture. It is an enabler for achieving strategic goals and great performance, developing, wellbeing at work, good collaboration and commitment and motivation. We aim to strengthen the culture that engages, energizes and focuses on building and sharing a common understanding and purpose.

Strategy work – people and culture

Gasum's new strategy was launched in October 2022 and one of the streams in the strategy is People & Culture. A successful strategy requires that we know how to support our employees in its execution by ensuring we have the right competencies and by creating a culture that supports our people in their work. To be sure we have the right competencies now and for the future we will create competence mapping and identify competence gaps to have a better understanding of personnel competencies and development needs.

It is important to understand what our target culture is and also what our employees think about Gasum's culture currently. Therefore, we conducted a survey where we asked our employees to share their views about Gasum's culture and how we should develop it in the future. We found out what we should maintain, what we need to remove and what are the most important elements or an organization's culture for employees personally. Our personnel stated, that our strengths are Gasum's people, co-operation and teamwork, and the energy and passion we share for our common purpose. This is a fantastic cultural foundation and our work for developing our culture as part of the implementation process of our strategy continues.

Change negotiations

In order to secure the profitability of the company, Gasum decided to start a cost saving program in May of 2022 which included restructuring of the organization. The restructuring and its effects on personnel was addressed in consultation processes under local laws covering the whole Gasum Group and all countries. Weekly info sessions were organized for the personnel who also posed good questions and comments. There was also good cooperation with employee representatives and unions as well as occupational health care during the change negotiation process.

A new organizational structure was implemented on of 1 July 2022. The total number of reduced positions was 44, including 20 redundancies. During the fall we had a possibility to offer new temporary and permanent positions to some employees whose employment was terminated after the change negotiations.

Leading for impact journey

We launched surveys into Leadership Styles and Organizational Climate in 2021. We wanted to find new clear ways to measure and show the impact of leadership to the business. We wanted to strengthen our leadership culture at Gasum and to help our line managers become better leaders, who create a climate for success within their teams. The surveys consisted of 180° assessments for line managers and direct reports. Line managers received their personal results and participated in coaching sessions to discuss the results during 2022. As part of the journey line mangers made individual development plans based on their results.

In November 2022, we continued the Leading for impact Journey with repeating the survey and asking all Gasum employees to evaluate their line managers and the climate their line managers are creating for them. In January 2023 we continued with workshops and one-to-one personal coaching sessions for line managers. Based on the survey results, targeted development actions and specific insights were created for each line manager.

Pulse survey – part of everyday life at Gasum

The employee experience is an important element in Gasum's strategy. It is supported by the Pulse survey that measures employee experience and works as a tool for improving it. A monthly employee pulse survey was introduced in 2020 and continues to be an active part of our everyday life at Gasum.

The survey gives all employees the possibility to give feedback regularly and to develop ways of working in teams and take part in developing Gasum's culture together. The survey currently covers the following themes: clarity, wellbeing, feedback, collaboration, information, empowerment, motivation and actions. The theme actions was added in the survey at the beginning of 2022 in order to better follow up and discuss actions that have been made within teams.

Most of the work is done in teams, however, it has also been used for developing activities of the entire organisation and utilised in choosing topics for and planning of internal trainings.

Results from 2022 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 needed information for employees to perform to the best of their ability in their jobs. The survey response rate was 63% in 2022.

Remuneration is connected to financial performance, strategy and climate impact

The company aims for a target-oriented company culture where the entire personnel understand 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 criteria focus on the company's value increases in accordance with the strategy and on creating profitable growth in the new businesses. The remuneration system also includes other benefits and bonuses.

The remuneration principles and the remuneration model are described in the Governance and Remuneration report 2022

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.

Wellbeing at work

The focus areas of wellbeing at Gasum include developing inspirational 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 analyse 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 themselves also responsible for their personal wellbeing.

Early support model

Early support is a key element in Gasum's wellbeing at work program and during spring 2022 we developed and implemented our Early Support Model to cover the whole of Gasum Group in all countries. We collaborated with our pension and occupational healthcare partners and organized three training sessions with the same content for all employees. 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 work flow smoothly. 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.

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 and for great colleagues. In 2022, the award went to Sebastian Kolehmainen, who works in the Finance team as a Risk Management Analyst. "Sebastian is a very approachable and open-minded person who wants to develop the work community", stated one of Sebastian'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. The trainings also support Gasum's strategy, values, leadership principles, feedback and learning methods.

Altogether, the Gasum Academy platform offers over 80 different e-learning training packages to Gasum employees and contractors. The number of training days in 2022 totaled 4.14 days per employee.

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.

Developing leadership and employee perceptions – thesis work at Gasum

During 2022 two students carried out research projects at Gasum looking at human resources topics. The themes of the projects were related to leadership and internal employer brand, respectively. These projects created valuable knowledge and insight for developing the internal working culture at Gasum.

Leadership Development

The purpose of the thesis was to identify ways to develop leadership and to propose actions for implementing issues rising from the "Leading for impact" development process of line managers at Gasum. The study consisted of interviews as well as a survey which identified e.g. self-leadership, increasing interaction, follow-up of goals, sparring for line managers and feedback culture as themes for development.

From the thesis work, Gasum received useful information for leadership development, as well as concrete suggestions, out of which the sparring sessions for line managers has already been utilized.

Identification of internal employer brand and employees' perceptions

The purpose of the thesis was to study the status of Gasum's internal employer brand and current employees' perceptions of and expectations for their employer and of work and employment in general. The study consisted of a survey for the entire personnel and other data collecting methods.

According to the study, Gasum is seen as an employer with great cultural characteristics and modern ways of working. Gasum provides interesting tasks, significance and meaning to its employees. Development targets relate to, for example, career development opportunities, structure and organization, stability, a more unified culture, increasing appreciation and the ability to manage one's own workload.

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 2022, 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 and Gasum's Leadership Principles. One-to-one discussions and team meetings support the dialogue.

Recruitments 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 new hires' 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.

At Gasum we have a very positive attitude towards internal career development, and we promote internal mobility. We were able to offer several new opportunities internally in 2022 through job rotation and new positions. Efficient utilization of our recruitment tool as well as personality and ability tests was an important part of successful recruitment in 2022, as we processed most of our recruitments in-house from start to finish.

Employee turnover and offboarding

In the end of 2022, the Gasum Group had a total of 321 employees (2021: 356). Gasum's exit rate of employee turnover in 2022 was 21.2%* (2021: 12.1%) and the entry rate was 10,6% (2021: 10.4%). 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 (68) or joining (34) the organization during the year with the number of permanent employees at year-end (321).

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 every-one who leaves the company. These discussions give us valuable insight and feedback into areas of development. The interview gives the employee the opportunity to share his or her thoughts and they feel heard and valued.

*2022 figure includes 22 redundancies that were the result of a cost savings programme.

SUCCESS OF HR PROCESSES SCORED BY GASUM'S NEW HIRES

RECRUITMENT

4.3/5.0

ONBOARDING

3.9/5.0

OFFBOARDING, NPS

3.7/5.0

PERSONNEL BY AGE
Dec 31, 2022

- < 30 years **10%**
- 30–50 years **65%**
- 50+ years **24%**

GENDER RATIO
Dec 31, 2022

- Men **74%**
- Women **26%**

TOTAL WORKFORCE BY COUNTRY
Dec 31, 2022

- Finland **61%**
- Norway **12%**
- Sweden **26%**
- Germany **1%**

PERSONNEL BREAKDOWN BY PERSONNEL GROUP
Dec 31, 2022

- Executive **3%**
- Managerial & expert **54%**
- White-collar **24%**
- Blue-collar **19%**

31.12.2022

	FEMALE	MALE	OTHER	TOTAL
Number of employees	84	237		321
Number of permanent employees	82	231		313
Number of temporary employees	2	6		8
Number of non-guaranteed hours employees	1	3		4
Number of full-time employees	83	230		313
Number of part-time employees	6	1		7

Gasum employees by country

31.12.2022	FINLAND	SWEDEN	NORWAY	GERMANY	TOTAL
Number of employees	196	85	38	2	321
Number of permanent employees	189	84	38	2	313
Number of temporary employees	7	1	0	0	8
Number of non-guaranteed hours employees	4	0	0	0	4
Number of full-time employees	192	81	38	2	313
Number of part-time employees	4	3	0	0	7

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 strive to avoid involvement in any human rights abuses. We support the principles enshrined 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 emphasize fair treatment and equal opportunity in all our personnel processes, such as the recruitment and development of employees and their working conditions as well as employee remuneration and promotion, regardless of gender, age, race, ethnicity, religion, political opinion, language, sexual orientation, family ties, disability or other similar aspects relating to individuals. Discrimination or unfair treatment is not tolerated.

Working culture

A key feature of Gasum's working 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. No-one should experience bullying or inappropriate behavior. Untoward events must be addressed and resolved immediately. Our ethical guidelines set the baseline for how to:

- Prevent, uncover, and stop inappropriate behavior and bullying
- Improve the way conflicts and incidents of inappropriate behavior and bullying are dealt with
- Lower the threshold for reporting inappropriate behavior and bullying

The purpose of our six Leadership Principles is to enable good leadership and collaboration, healthy working environments, 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 the 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 attempt to apply a sanction or to disadvantage or discriminate against any person who raises a concern.

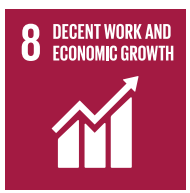
E-learning training on Gasum's Code of Conduct covers human rights related issues. The training is continuously available and mandatory for all employees annually.

Reporting channel

Reporting channels are offered to employees, as well as business partners, to report any concerns, incidents of non-compliance or suspected misconducts 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 2022, 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.



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

WHAT WE AIMED FOR	WHAT WE ACHIEVED IN 2022
Zero harm to people	**Our safety target of zero injuries was not achieved.** However, our safety results improved from previous years. There were 3 occupational injuries (LTI, MTI, RWI) for own employees and contractors (9 in 2021). Our total injury frequency rate (TRIF) was 5.3 (62% reduction year-on-year). **Proactive safety continued to be well integrated in company practices.** The number of reported observations increased by 7% year-on-year. We launched a business partner safety walk procedure and new safety e-learnings. **Certification of operations against ISO 45001 was expanded.** All seven Gasum biogas plants in Sweden as well as the newest Finnish biogas plant in Lohja obtained certification in accordance with the occupational health and safety standard.

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.

Our integrated management system covers the health and safety management system, which is certified in accordance with ISO 45001:2018 and is applied to all Gasum Group companies and operations as well as products and services sold by the Group.

Zero-accident approach

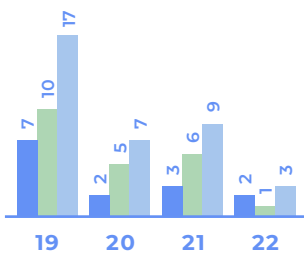
As regards health and safety risks, Gasum has a zero-accident policy. We have implemented comprehensive safety and security rules, such as the Life-saving rules, as well as other procedures and training, and continue to systematically align work procedures to improve our safety culture. All safety incidents are reported, and all major incidents are investigated. Our employees, drivers and suppliers are required to comply with Gasum's safety rules.

When risks are identified, we set deadlines and responsibilities for corrective actions and monitor these actions. During 2022, safety guidelines & instructions were developed and harmonized within the company.

We follow the below health and safety principles in our operations:

- We are committed to safety and security guidelines and regulations and maintain and develop a safety management system.
- Each employee is responsible for complying with safety guidelines and safe working methods.
- We identify the risks and hazards relating to our activities, make improvements and take corrective actions to remove or prevent hazards and reduce risks, and take them into consideration in planning and work performance.
- We provide training to our personnel and encourage compliance with safe working methods.
- We expect our partners to have a corresponding safety and security level.

OCCUPATIONAL ACCIDENTS
(LTI, RWI, MTI)



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

Organization and responsibilities

A safe and secure working environment is in a strong focus at management level in the organization. Safety issues are covered monthly by the Gasum Management Team as well as by the Board of Directors, and regularly communicated through internal communication channels. The business functions report on their respective safety and environmental performance monthly.

Each operating country has their 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.

All employees and contractors are responsible for following safety and security instructions, making observations, and eliminating hazards, and for taking part in safety and security training.

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

Safety figures

	2022	2021	2020	2019
Medical treatment injuries (MTI)				
Gasum	0	1	1	5
Contractors	0	1	1	3
Restricted work injury (RWI)				
Gasum	1	1	0	0
Contractors	0	1	0	0
Lost time injuries (LTI)				
Gasum	1	1	1	2
Contractors	1	4	4	7
Occupational accidents MTI+RWI+LTI	2	3	2	7
Gasum	3	9	7	17
Gasum + contractors				
Lost working days due to occupational accidents		35	18	133
Absentee rate %	1.98	1.6	1.1	1.5
Absentee working days due to accident or disease	1,692	1,850	1,070	1,359
Injury rate (Lost day IR)		0.03	0.02	0.15
Occupational disease rate		0	0	0
Work-related fatalities	0	0	0	0

Lost working days due to occupational accidents = Number of total days lost due to occupational accident

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

Absentee days due to accident or disease = Number of total lost days due to occupational accident or disease in the reporting period

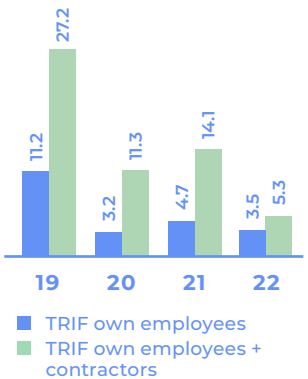
Injury rate (Lost day IR) = (Total lost working days due to injury / Total days scheduled to be worked) x 100

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)



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 persons access and work at our sites.

Safety campaigns, such as the 'I am safety' program, are implemented to raise awareness and strengthen the employees' safety commitment. Monthly safety topics are published throughout the year to constantly keep safety visible. During 2022, monthly safety topics covered physical security, working at heights, work authorization, line of fire and confined spaces amongst others.

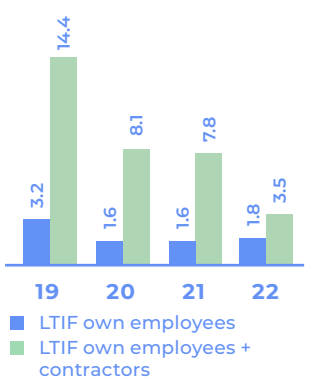
In cases of workplace incidents, it is important to ensure that relevant stakeholders learn from the incident and take the necessary safety precautions when conducting similar work activities. After an accident, serious incident or near miss has taken place, we distribute safety alerts to share lessons learned to relevant recipients, including customers and suppliers. In 2022, all major incidents and accidents were investigated, and relevant safety alerts or lessons learned were established. In addition, other major incidents and near misses were subject to safety alerts.

Safety performance in 2022

Our safety target of zero injuries for Gasum employees and contractors was not achieved in 2022. The total number of occupational injuries was 3 in 2022, including LTI, MTI and RWI (Lost time injuries, Medical treatment injuries and Restricted work injuries), which was better than in 2021 (9). 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 5.3 in 2022, which was an improvement to 2021 frequency (14.1). The LTIF (Lost Time Injury Fre-quency i.e. number of occupational injuries per million hours worked, including contractors) was 3.6 in 2022, which also was better than in 2021 (7.8).

During 2022, 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 2022, number of safety walks performed was 338 (351 in 2021) and the number of observations was 1460 (1367 in 2021).

LOST TIME INJURY FREQUENCY
(LTIF)



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 ensuring our plants, facilities and gas filling stations are well designed, safely operated, secure, and properly maintained. Process safety starts with the design phase of building facilities and extends throughout their lifecycle, ensuring they are operated safely, well maintained and inspected regularly to identify and deal with any potential process safety hazards.

In 2022, we continued to align the main operational risk assessment procedures and other safety guidelines at group level, ensuring common practices and knowledge. In addition, we launched our HSEQ requirements for contractors and suppliers. We were awarded the Safety level II 'Approaching world's forefront of occupational safety' by 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. In 2022, we launched a swap body safety training for truck drivers.

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 SDSs and labels in accordance with the regulatory requirements and includes tools for chemical risk assessment and risk register.

During 2022, we trained our personnel in chemical safety and continued to conduct chemical risk assessments. Chemical legislation continues to develop, and we follow the changes closely. In 2022, chemical lists of Gasum's Finnish facilities were submitted to chemical products register, KemiDigi, maintained by Tukes (Finnish Safety and Chemicals Agency).

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.

During 2022, we experienced a very serious accident at a Gasum partner filling station in Älvsjö, Sweden. One person lost their life and another was injured. The accident was investigated both by the police and internally by Gasum and it was determined that there was no fault to be found on Gasum's side.

Preparedness for exceptional situations

We strive to work proactively with regards to managing crises, business disruptions and cyber security incidents with estab-

lished 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 NESA (National Emergency Supply Agency) and Tukes (Finnish Safety and Chemicals Agency) in Finland.

We conduct emergency preparedness drills internally as well as externally in collaboration with public emergency services and customers.

Information security

We are committed to promoting a 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

RESPONSIBLE BUSINESS

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 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. 88% of active employees completed the training during 2022.

Compliance

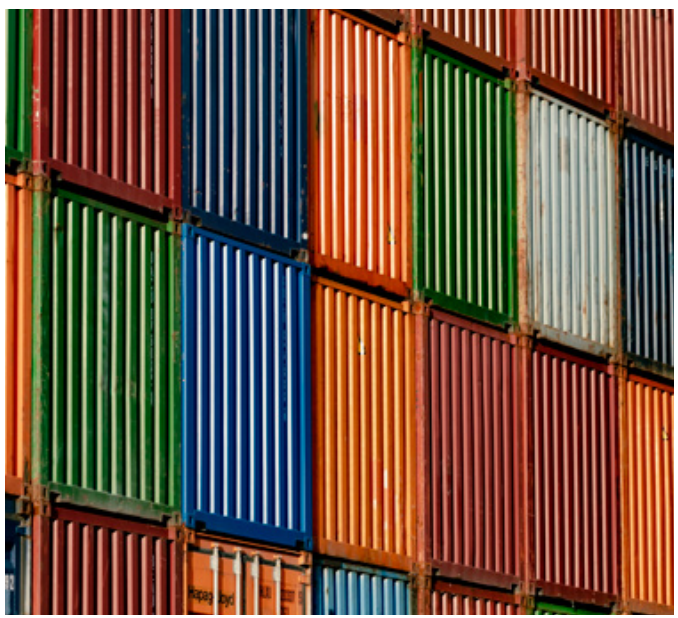
The implementation of responsible business practices as defined in the Gasum Code of Conduct is supported and overseen by our Ethics and Compliance (E&C) work. Compliance with laws and regulations is an operational responsibility and business management are responsible and accountable for compliance 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 2022, five incidents of suspected non-compliance with the Code of Conduct principles or other company guidelines were brought to the Group Compliance Officer's knowledge. Of these cases, three were reported via the whistleblowing reporting channel. All the reported cases 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, and Norwegian) 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 2022 report

Risk management and business continuity

The risk management governance and process are described in the Gasum 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.

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. From the start of the war, an internal crisis group has coordinated work at Gasum to ensure security of supply to all our customers and assess the implications to our business. We have been monitoring the situation actively and maintaining 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.

In April Russian gas supplier Gazprom Export presented Gasum with a demand that payments for gas should be paid in rubles instead of euros. Gasum refused the demand and took the matter forward to be resolved by an arbitral tribunal in accordance with its agreement with Gazprom. In mid-November the arbitral tribunal gave the decision that Gasum is not obligated to pay in rubles and further ordered Gasum and Gazprom Export to continue contract negotiations to resolve the situation.

Natural gas pipeline deliveries from Russia have been discontinued since May 2022. Because of the situation, we have had to arrange for an entirely new supply and logistics chain to secure natural gas deliveries for our customers. We have managed to do this without any interruptions in the deliveries during 2022.

While Gasum procures liquefied natural gas from a number of different sources, unfortunately we have been obligated to continue LNG purchases also from Russia since the war began. The LNG supply contract with Gazprom Export is a so-called take-or-pay agreement, which means that Gasum has to pay for a certain amount of LNG per year, even if we didn't collect it. Natural gas or LNG deliveries from Russia have, until March 2023, not been sanctioned by the EU or any country Gasum operates in, which means there are no legal grounds to stop the purchases.

Main sustainability risks

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

SUSTAINABILITY RISK FACTOR	GASUM APPROACH
Health, safety, and security 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.	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 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 an important factor 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.
Working environment and employee-related matters 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.	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 retirement due to disability. During the COVID-19 pandemic, Gasum has formed a working group to monitor regulation and guidance from the authorities and the effects on Gasum employees.

SUSTAINABILITY RISK FACTOR	GASUM APPROACH
Ethics and compliance 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.	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. 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.
Climate change 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 the level that limits the threat. Businesses are influenced by global, EU-level, and national energy and climate policies and regulatory changes. 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. On the other hand, transition to a low-carbon economy brings opportunities for renewable and circular economy related products and business.	Gasum is a significant low-carbon energy supplier. We believe that market demand for solutions that reduce emissions and help adaption 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 major actor in the wind power segment and strive to increase procurement of renewable wind power in the Nordics. Our circular economy products are mainly based on recycled feedstocks, and we work to develop the recycled nutrient market. Relatively modern production assets, continuous work to improve energy efficiency and 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.

SUSTAINABILITY RISK FACTOR	GASUM APPROACH
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.	Our main tools for environmental management are processes that ensure continuous compliance with environmental law 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, and reducing the risk of environmental permit violations. Our biodegradable feedstocks are based on waste and residues, which reduces the risk to biodiversity.
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.	Good governance and responsible and risk-based sourcing practises 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 a 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 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.

Stakeholder surveys

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

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 Center at Linköping University, Sweden
- Biogas Research Center (BRS)
- Biogas Öst, Sweden
- Cleantech Östergötland, Sweden
- CLIC Innovation Ltd
- Climate Leadership Coalition (CLC), Finland
- Energy Committee of the Confederation of Finnish Industries (EK)
- European Biogas Association (member since 01/2023)
- FIBS (Finnish Business and Society corporate responsibility network
- Finnish Energy
- Grønt Landtransportprogram – partnerbedrift, Norway

- Grønt Skipsfartsprogram, Norway
- Partnership Alnarp, Sweden
- Smart & Clean Foundation, Finland
- 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 2022, 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.

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, 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 2022 we communicated openly e.g. through media requests about gas purchases from Russia and the ongoing dispute in the arbitral tribunal between Gasum and Russian Gazprom Export. We also replied to Greenpeace's inquiry about gas purchase agreements with Russian entities with an open letter published on our website.

Donations and funding

Gasum's sponsorships and donations 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 2022 we kids' and youths' sports activities though 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.

During 2022 Gasum also sposored the Savonlinna Opera Festival and participated in its Young Opera Stars cooperation program. The program supports aspects including the internationalization of young opera stars' talent and competences.

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 2022, the Gasum Fund awarded seven grants totaling EUR 74,960 (2021: EUR 63,000). 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 Gas 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 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. 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 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.

Developing services for customers

In 2022, we launched a new digital industry customer portal to provide business customers with flexible customer relationship management. The customers benefit from the portal's features such as billing history and consumption data.

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. In 2022, audit focus was on logistics service providers and the audit results showed good management practices.

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.

Tax footprint

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 2022

At the beginning of 2022, the scope of application of the Finnish national transport fuel distribution obligation expanded to also include biogas and other renewable liquid and gaseous fuels of non-biological origin. Including biogas in the distribution obligation meant that the transport use of biogas was 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.

In October 2022, a government proposal for amendments to legislation on energy taxation was adopted, under which also biogas used for heating is to be transferred under excise taxation. Starting from the beginning of 2023, the level of taxation for sustainable biogas in heating use is the minimum level of EUR 1.20/MWh under the EU Energy Taxation Directive.

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 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.

In Norway, the use of natural gas was reduced by a steep increase in the national CO_2-based tax. Following price reviews, the CO_2 tax increased by 28% to NOK 766 per ton of CO_2 equivalent. The tax is also anticipated 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 CO_2 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 CO_2 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		
Taxes paid	**2022**	**2021**	**2020**	**2022**	**2021**	**2020**	**2022**	**2021**	**2020**	**2022**	**2021**	**2020**	**2022**	**2021**	**2020**
Corporation taxes	6	57	1,662	0	-266	770	12,713	3,270	739	0	0	0	12,719	3,061	3,171
Asset-related taxes*	110	64	89	46	32	48	115	120	91	0	0	0	272	215	228
Employer contributions	4,224	3,780	3,292	1,014	1,375	-119	3,274	3,849	2,672	0	25	-47	8,512	9,029	5,798
Other taxes and charges**	0	0	3,287	137	1,214	1,652	0	0	0	0	0	0	137	1,214	4,939
Total taxes paid	**4,340**	**3,901**	**8,330**	**1,198**	**2,355**	**2,352**	**16,103**	**7,238**	**3,502**	**0**	**25**	**-47**	**21,641**	**13,519**	**14,137**
Taxes collected															
Value-added tax, sales	514,108	228,854	121,621	70,830	38,049	13,256	140,027	79,339	34,204	0	0	14	724,966	346,242	169,095
Value-added tax, purchases	285,262	80,018	66,014	35,631	21,544	16,246	47,435	23,218	12,713	0	0	385	368,328	124,780	95,359
Value-added tax, net	228,846	148,835	55,607	35,199	16,505	-2,990	92,592	56,121	21,491	0	0	-371	356,638	221,462	73,737
PAYE deductions from salaries	5,166	5,587	5,713	5,078	2,289	1,834	0	0	0	0	0	0	10,244	7,876	7,547
Employee's social security contributions	1,443	265	1,523	2,352	1,005	0	2,112	2,550	2,092	0	0	62	5,908	3,820	3,677
Energy taxes, sales**	2,968	3,599	1,695	20,258	18,320	12,780	2,368	688	742	0	0	0	25,594	22,607	15,216
Energy taxes, purchases**	1,953	3,206	5,358	1,838	8,644	-4,065	0	0	0	0	0	0	3,791	11,850	1,293
Energy taxes, net	1,014	393	-3,664	18,421	9,676	16,845	2,368	688	742	0	0	0	21,804	10,757	13,923
Taxes at source	29	37	0	0	0	0	0	0	0	0	0	0	29	37	0
Total taxes collected	**236,499**	**155,117**	**59,179**	**61,050**	**29,474**	**15,688**	**97,073**	**59,359**	**24,325**	**0**	**0**	**-309**	**394,622**	**243,950**	**98,884**
Total taxes paid and collected	**240,839**	**159,018**	**67,510**	**62,248**	**31,829**	**18,040**	**113,176**	**66,597**	**27,828**	**0**	**25**	**-356**	**416,263**	**257,469**	**113,021**
Revenue by country	1,749,894	1,022,172	459,245	377,655	175,902	64,896	544,536	353,826	139,127	50,403	19,131	710	2,722,488	1,571,031	663,977
Profit before tax	47,075	-267,172	16,696	7,833	-8,612	-10,069	86,296	18,887	-17,014	14	1,092	-1,358	141,218	-255,804	-11,744
Personnel on average	212	219	216	42	65	66	90	99	99	3	3	3	347	386	384

* 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, Gasum Clean Gas Solutions AS, Ruotsi: Gasum AB, Gasum Clean Gas Solutions AB, Gasum Clean Gas Solutions Holding AB, Gasum Västerås AB, Vadsbo Biogas AB, Germany: Gasum AB German Branch, Estonia: Gasum Oü

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			
	2-1	Organizational details	Introduction - Who we are, page 3
	2-2	Entities included in the organization's sustainability reporting	Reporting Principles, page 17 Gasum Financial Review 2022
	2-3	Reporting period, frequency and contact point	Reporting Principles, page 17 Contact point, page 86
	2-4	Restatements of information	No restatements in 2022 Sustainability Report
	2-5	External assurance	The Financial statements of the company are externally assured. The Gasum Board of directors reviews and approves the Governance and Remuneration Report and the Sustainability Report. Gasum maintains certified ISO 9001, 14001, 45001 and 50001 management systems and certified sustainability systems for biogas. These certified operations are annually externally audited. In addition, annual internal audits are conducted, and the Gasum Management Team reviews compliance quarterly.
Activities and workers			
	2-6	Activities, value chain and other business relationships	Introduction, page 3
	2-7	Employees	People, page 55
	2-8	Workers who are not employees	Total number of workers who are not employees, 35. They are typically consultants working in finance and IT.
Governance			
	2-9	Governance structure and composition	Governance and Remuneration report 2022 www.gasum.com/en/About-gasum/Information-about-Gasum/management/
	2-10	Nomination and selection of the highest governance body	Governance and Remuneration report 2022 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
	2-11	Chair of the highest governance body	The chair of the highest governance body is not a senior executive in Gasum.
	2-12	Role of the highest governance body in overseeing the management of impacts	Compliance, page 74 Managing Sustainability, page 10

GRI Standards disclosure			Location / comments
	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 2022
	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 the environment, or - Any other business incident with a financial impact above 10 MEUR. In 2022, three occurences were reported (see Gasum Financial Review 2022, Claims and litigations, and https://www.gasum.com/en/About-gasum/for-the-media/News/2022/accident-at-a-gasum-partner-filling-station-in-sweden/) 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	E-learning on Code of Conduct is offered to the Board of Directors. In addition to regular 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 2022
	2-20	Process to determine remuneration	Governance and Remuneration report 2022
	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: 5.7 - Ratio of change /decrease in annual total compensation for the organization's highest-paid individual to the median percentage increase in annual total compensation for all employees: 36.2
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 73
	2-25	Processes to remediate negative impacts	Governance - Business ethics and compliance, page 73
	2-26	Mechanisms for seeking advice and raising concerns	Governance - Raising concerns, page 74
	2-27	Compliance with laws and regulations	Governance - Business ethics and compliance, page 73

GRI Standards disclosure			Location / comments
	2-28	Membership associations	Governance - Collaboration and partnerships, page 79
Stakeholder engagement			
	2-29	Approach to stakeholder engagement	Governance - Stakeholders, page 78
	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 in each country.
GRI 3: MATERIAL TOPICS (2021)			
GRI 3: Material topics	3-1	Process to determine material topics	Managing sustainability, page 10
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 33-39 Cleaner energy - Future solutions, page 24
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 39
Energy	302-2	Energy consumption outside of the organization	Climate - Our carbon footprint, page 39
Energy	302-3	Energy intensity	Climate - Our carbon footprint, page 39
Energy	302-4	Reduction of energy consumption	Climate - Our carbon footprint, page 39
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 39
Emissions	305-2	Energy indirect (Scope 2) GHG emissions	Climate - Our carbon footprint, page 39
Emissions	305-3	Other indirect (Scope 3) GHG emissions	Climate - Our carbon footprint, page 39
Emissions	305-4	GHG emissions intensity	Climate - Our carbon footprint, page 39
Emissions	305-5	Reduction of GHG emissions	Climate - Our carbon footprint, page 39
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 76
Occupational Health and Safety	403-1	Occupational health and safety management system	Safety and security, page 65

GRI Standards disclosure			Location / comments
Occupational Health and Safety	403-2	Hazard identification, risk assessment, and incident investigation	Safety and security, page 65
Occupational Health and Safety	403-3	Occupational health services	Safety and security, page 65
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 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 65
Occupational Health and Safety	403-6	Promotion of worker health	People - Wellbeing at work, page 58
Occupational Health and Safety	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	People - Zero accident approach, page 66
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 2022, page 68
Occupational Health and Safety	403-10	Work-related ill health	Safety - Safety performance 2022, page 68
People (wellbeing, leadership, personal development). Oil and Gas 11.10, 11.11			
GRI 3: Material topics	3-3	Management of material topics	People, page 55 Main sustainability risks / Working environment and employee-related matters, page 76
Employment	401-1	New employee hires and employee turnover	People - Growing talent, page 59
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	Minimum number of days provided to employees and their representatives prior to the implementation of significant operational changes: negotiation time 14 days if concerning under 10 employees. Notice periods and provisions for consultations and negotiations are specified in collective agreements and the Act on Co-operations.
Training and education	404-1	Average hours of training per year per employee	4.14
Training and education	404-2	Programs for upgrading employee skills and transition assistance programs	People - Growing talent, page 59
Training and education	404-3	Percentage of employees receiving regular performance and career development reviews	97 %

GRI Standards disclosure			Location / comments
Diversity and Equal Opportunity	405-1	Diversity of governance bodies and employees	Governance bodies: see 2-9 Governance structure and composition. Empoyees: Male 74%, Female 26%; < 30 years 10%, 30-50 years 65%, 50+ years 24%; Executive 3%, Managerial and expert 54%, White-collar 24%, 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 2022
Economic performance	201-4	Financial assistance received from government	Cleaner energy - Biogas gathering momentum, page 22
Indirect economic impacts	203-1	Infrastructure investments and services supported	Cleaner energy, page 19 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	One incident during 2022. Incident no longer subject to action.
Public Policy	415-1	Political contributions	Stakeholders - Public affairs work, page 80
Marketing and Labeling	417-1	Requirements for product and service information and labeling	Climate - Creating a carbon handprint, page 33
Circular economy			
GRI 3: Material topics	3-3	Management of material topics	Climate - Circular economy, page 44
Materials	301-2	Recycled input materials used	Gasum's biogas is produced from 100% biodegaradable waste and reside materials
Water and effluents	303-3	Water withdrawal	Environmental management - Water management, page 55
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 55
Waste	306-4	Waste diverted from disposal	Gasum diverts waste and residues from disposal offsite from industry, households, and agriculture. In 2022, 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 NO_x emissions. SOx, 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 the most significant proportion of our solid waste.
Oil and Gas Sector 11.6	Water and effluents	Environmental management, page 51 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 69 Risk management and emergency preparedness, page 75 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 2022
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

Gasum

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