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2020

**GASUM
CORPORATE
RESPONSIBILITY
REPORT**

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1 SUSTAINABILITY



Sustainability at Gasum

At Gasum, our purpose is cleaner energy. Climate change mitigation and the circular economy drive our strategy. We are committed to operating sustainably which to us means enabling emission reductions for our customers, reducing the environmental impacts of our operations, promoting a safe working environment for our personnel, and ensuring responsible business practices.



Safety and security

Our target is zero harm to people and minimizing our environmental impact.



Climate change

We enable climate change mitigation through low-carbon products and energy-efficient supply chain.



Access to energy

We develop a smart, efficient, and sustainable energy ecosystem and fulfil customer needs on land and at sea.



People

We promote a healthy working environment and develop an agile culture and employee experience.



Circular economy

We utilize feedstocks in biogas production that enable us to develop the market for recycled nutrient products.



Responsible business

We maintain good business ethics, compliance and ensure responsible business partnerships with zero unplanned disruptions in energy supply.

Our business supports our customers in their sustainability efforts. Thus, sustainability is an integral part of our strategy and business operations. We respond to the global challenges by building infrastructure and increasing the availability of low-carbon energy products which enable our customers to reduce their greenhouse gas emissions. This is the most significant impact and handprint of our operations.

We promote the circular economy, foster partnerships and innovation, and minimize the impacts of our operations on the environment. The Gasum Code of Conduct further elaborates our responsible business

practices. It defines our way of working with our customers and stakeholders, and together as an organization.

Regardless of the exceptional circumstances caused by the Covid-19 pandemic in 2020, we continued to execute our strategy and develop the Nordic gas market as planned. We were able to ensure business continuity and progress in projects, and continued to offer low-emission energy solutions in response to growing demand among industrial as well as road and maritime transport customers.

Corporate responsibility program steers our sustainability efforts

The program takes into account our social, environmental and economic responsibilities.

We have formulated Gasum's corporate responsibility program to promote sustainability and guide our responsibility work 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 energy, people, and responsible business. We have set targets and key performance indicators for each focus area, track our achievements and regularly report on progress. The corporate responsibility program is reviewed and updated annually.

The responsibility focus areas are based on our own and our stakeholder's views of the significance of the impacts of our operations on the company and the society. Materiality analysis is conducted regularly to ensure that we focus on the most important sustainability topics. The latest update was released in 2019.

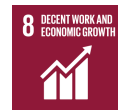
1.1 Sustainability highlights 2020



Climate target released: We aim at carbon emission reductions of 1,000,000 tonnes by increasing biogas availability to 4 TWh by 2025



We achieved energy savings of 44.5 GWh by investing in energy efficiency



Best safety performance in 10 years, 1 accident that resulted in at last one day off work



We turned 850,000 tonnes of society's waste and residues into renewable biogas and recycled nutrient products



We enhanced operational excellence 9 new certified sites in environmental, energy and occupational health and safety

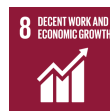


We launched more than 20 elearning trainings on safety, leadership and responsible business for our people and for externals



We continued to contribute to cleaner urban air: Our network now includes

100
filling stations in the Nordics



We act to maintain Safety during pandemic to ensure security of personnel and business critical value chain



We use 100% Renewable electricity in all operations

1.2 Managing sustainability

In day-to-day operations, we are all responsible for managing the efforts to advance Gasum's responsibility

Gasum's corporate responsibility program applies to the company as a whole and guides operations in all operating countries. The implementation of corporate responsibility is overseen by the Gasum Board of Directors as well as the Gasum Management Team (GMT) and the Management Groups of the business units. The GMT provides the strategic policies for corporate responsibility, adopts the corporate responsibility program and targets, and monitors their implementation and progress.

In Gasum's business units, sustainability is implemented through everyday operations and leadership. Annual planning, target-setting and the integrated management system support successful implementation. The business units monitor progress and report monthly on their safety and environmental performance. Gasum's Health, Safety, Environment and Quality (HSEQ) unit and Human Resources, Communications, IT, Finance and Legal organizations support the business units in their sustainability work.

We identify and assess the most [significant sustainability risks](#) and ensure the responsibility of our operations through our Code of Conduct, which applies to everyone at Gasum. The annual Corporate Responsibility Report addresses our progress towards the objectives set.

Sustainable finance



Our financing strategy promotes the transition to a low-carbon society.

The green financed loan raised under Gasum's Green Funding Framework is allocated to financing our assets in the biogas segment, which helps our customers in road and maritime transport and in industry to reduce their carbon footprint and facilitates sustainable growth in the future by contributing to the UN Sustainable Development Goals. Read more in our [Green funding impact report 2020](#).

1.3 Sustainability targets and results

Our responsibility targets

Social responsibility			Achievements 2020
 			
Safety and security	People	Zero harm to people: Zero LTI, MTI	<ul style="list-style-type: none"> 1 LTI, 1 MTI. TRIF decreased by 71%. Business continuity plan including emergency preparedness plan established. Actions to maintain safety during the pandemic. Active reporting of observations and identifying corrective and preventive safety measures. Several safety elearning trainings established.
Safety and security	Environment	Minimize impacts: Zero environmental breaches	<ul style="list-style-type: none"> 4 environmental breaches. Investments in energy efficiency, process efficiency and reducing odor nuisances from biogas plants. 9 new certified sites (ISO 9001, 14001, 45001, 50001)
People	Well-being	Promote healthy working environment: absence rate <2%	<ul style="list-style-type: none"> 1.1% absence rate of employees. Continued implementation of renewed onboarding process.
People	Leadership and competence	Develop Gasum culture: continuous assessment	<ul style="list-style-type: none"> Monthly pulse survey established to measure employee experience, response rate 76%. Mix of tools given to line managers to build agile leadership. Leadership and safety focus areas in trainings.
Environmental responsibility			Achievements 2020
    			
Climate	Our products	Enable emission cuts for customers	<ul style="list-style-type: none"> 270,000 CO₂e emissions savings enabled with our biogas. Partnerships with traffic, maritime and industry segments facilitated the switch to cleaner energy.
Climate	Our operations	Increase energy efficiency and decrease greenhouse gas emissions	<ul style="list-style-type: none"> 44.5 GWh energy savings achieved. Several projects completed to increase energy efficiency at our LNG terminals and biogas plants. 100% renewable electricity used in all operations.
Circular economy	Biogas and recycled nutrients	Increase biogas volumes and develop market for recycled nutrients	<ul style="list-style-type: none"> Increasing biogas volumes through several biogas plant projects: Lohja plant and Turku LBG plant started operations, Nymölla under construction, Skövde acquired, Götene in permit process, and several other projects in planning phase. Waste transfer station started operations. Exploring new opportunities in feedstocks for biogas production. Active R&D work in recycled nutrient & fertilizer products and increasing production efficiency.

Economic responsibility		Achievements 2020	
			
Responsible business	Supply certainty	Ensure reliable energy supply: Zero unplanned interruptions	<ul style="list-style-type: none"> Supply certainty of natural gas, LNG and biogas at a good level: no major delivery disruptions in the gas supply to customers.
Responsible business	Business ethics and compliance	Ensure compliance: Code of conduct training for personnel	<ul style="list-style-type: none"> Updated Code of Conduct: 92% of personnel participated in training. Continued supplier evaluation to ensure compliance with our principles. Whistleblowing reporting channel launched on our website.
Responsible business	Economic profitability	Create value for the society: Reach the set financial targets	<ul style="list-style-type: none"> Financial targets were met. Green funding framework continued to govern our green loans.
Access to energy	Traffic	Promote awareness and availability of gas: Nordic network of 50 filling stations for HDV	<ul style="list-style-type: none"> Gasum's network expanded to around 100 filling stations. 8 new HDV stations constructed. Remarkable growth in gas vehicle fleets enabled. Market entry into LNG/LBG HDV segment with several new customer cases.
Access to energy	Maritime	Expand LNG/LBG offering in maritime segment	<ul style="list-style-type: none"> Availability of LNG increased at sea: about 1,300 deliveries for the vessel fleet. First deliveries of renewable LBG to the maritime segment.
Access to energy	Industry	Expand offering in carbon neutral power	<ul style="list-style-type: none"> Increasing availability of Finnish wind power: long-term Power Purchase Agreement (PPA) signed. 6.2 TWh Guarantees of Origin of renewable power obtained to our customers.

1.4 Contributing to the Sustainable Development Goals

Contribution to UN SDGs

We contribute positively to the UN Sustainable Development Goals (SDGs) of the UN 2030 Agenda, that aim to meet the urgent environmental, social, and economic challenges facing our world. We have defined those goals towards which we contribute the most in our operations.



We offer and develop low-carbon and renew-able energy products and energy market services for our customers. We increase access to cleaner fuels by developing infrastructure in the Nordics, above all in maritime and heavy-duty road transport.



We impact local air quality by increasing the availability of cleaner fuels. We are investing in the construction of around 50 gas filling stations for heavy-duty vehicles in the Nordic countries and continue to develop the filling station network also for lighter transport.



We provide jobs for 380 people and promote the well-being, work ability and competence of our personnel. We promote safe and secure working environments for our employees and contractors. We generate economic added value for our shareholders and society.



We offer circular economy solutions and treat a substantial share of society's biodegradable fractions of waste and side-streams as part of making biogas available. We participate in activities promoting the further development of technologies, feedstocks and partnerships in this field.



We participate in the activities of various research and development networks advancing innovations related to the circular economy and clean energy. We build circular economy and industrial ecosystem partnerships. We consider resource-efficient and environmentally sound technologies in our investments.



We enable our customers to reduce their green-house gas emissions through our low-carbon products and energy market services. We increase the energy efficiency of our operations and use 100% renewable electricity.

2 GOVERNANCE – RESPONSIBLE BUSINESS



Responsible business

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



We implemented an updated
CODE OF CONDUCT
and related mandatory
training for our personnel



We strengthened our
BUSINESS CONTINUITY
and
EMERGENCY PREPAREDNESS
plans



We continued to evaluate our
SUPPLIERS
to ensure compliance
with our adopted principles

What we aimed for

Ensuring a reliable energy supply: zero unplanned interruptions in energy supply to customers.

Ensuring compliance and accountability in our own operations and in business partnerships.

Creating value to our owner and society. Reach the set financial targets.

What we achieved in 2020



Supply certainty of natural gas, LNG and biogas was at a good level throughout the year, and there were no major delivery disruptions in the gas supply to customers.



Business continuity plan was strengthened to avoid and mitigate risks associated with any disruption in operations.



Code of Conduct was implemented. 92% of employees completed e-training. A **whistleblowing reporting channel** was launched.



Supplier assessments were continued. Critical suppliers were categorized, and supplier audits were conducted based on a risk approach.



ISO certificates within our integrated management system were audited for compliance and scopes were extended (ISO 9001, 14001, 45001, 50001 and biomethane sustainability schemes).



Financial performance of Gasum Group met the targets set.



Green Funding framework continued to govern our green loans as part of the financing strategy. See [Green funding impact report 2020](#).

2.1 Strategy and guiding principles (102-1 General Disclosures)

CEO Johanna Lamminen comments on 2020:



Demand for cleaner gas solutions grew in exceptional circumstances

The year 2020 was in many ways exceptional for Gasum. While the uncertainty caused by the COVID-19 pandemic was being reflected in the entire operating environment, a genuine breakthrough of gas took place in Europe as well as globally, particularly in heavy-duty and maritime transport.

Demand for cleaner energy solutions continued to grow in these sectors that play key roles in our strategy.

More and more shipping companies have ordered LNG-powered vessels, and interest in gas-fueled heavy-duty road vehicles is increasing. Despite the exceptional circumstances, we succeeded in reaching our profitability targets and advancing our strategy as planned, which required hard work from us in an increasingly competitive market. [Read more about.](#)

Strategy

Step-by-step towards a cleaner tomorrow

Our growth strategy provides the guidelines for our journey towards new business opportunities and a low-carbon future. We believe that the expansion of the energy market and new innovations are prerequisites for a cleaner tomorrow. Renewal and agile leadership are key elements of our strategy.

Our purpose is 'cleaner energy'. We help our 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.

- **Circular economy: biogas from organic waste**

Gasum is a pioneer in the zero-waste approach where waste generated by companies is utilized locally as energy. At Gasum, everyone takes pride in promoting this approach.

- **Digitalization helps save the environment**

We are creating a low-carbon future for our customers and want to lead Nordic businesses and consumers to selecting an environmentally friendly and local alternative. Digitalization enables us to increase the efficiency of our own operations through actions such as optimizing logistics and facilitating data collection. This improves supply security and predictability and generates cost savings for our customers.

- **Innovations and a 10-year vision**

Growth in the use of gas is a prerequisite for the achievement of ambitious emission targets. In ten years from now, the majority of the energy used will be renewable, and biogas will already play a significant role in Finland's energy production. A full switch to clean energy will have taken place in Baltic Sea shipping as well as in delivery and heavy-duty road transport. Major progress will also have been made in hydrogen-to-gas conversion. Gasum is already an active innovator in all of these today. We stand out by investing in alternatives for the future.



Gasum's growth strategy is to promote development towards a carbon-neutral future in selected segments, industry as well as road and maritime transport together with customers and partners.



Our guiding principles

At Gasum, 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 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.

We expect our business partners to comply with the same standards on transparent and ethical business and have implemented a process for knowing who we do business with and related monitoring. Gasum Ethics and Compliance work supports and oversees the implementation of responsible business.

Compliance and business ethics	Integrated management system (IMS)	Corporate Responsibility program
<p>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.</p> <p>Integral parts of responsible business include:</p> <ul style="list-style-type: none"> • 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 	<p>IMS enables us to improve our customer focus, continuous improvement, agile way of working and to achieve operational excellence.</p> <p>The IMS covers the following certified management systems:</p> <ul style="list-style-type: none"> • ISO 9001 Quality • ISO 14001 Environment • ISO 50001 Energy • ISO 45001 Occupational health and safety • Sustainability schemes 	<p>The Corporate Responsibility Program steers our responsibility work in all operations. It considers the most material aspects of Gasum's responsibility and sets measurable goals.</p> <p>Main themes include:</p> <ul style="list-style-type: none"> • Safety and security • Climate change mitigation • Circular economy • Access to energy • Responsible business • People

2.2 Business ethics and compliance

Code of Conduct sets our responsible business practices

Gasum Code of Conduct defines our approach to ethical business practises and sets out the ways of working with our customers and stakeholders, and 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 favourable 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 labour rights, and the environment. We protect confidential and personal information.

During 2020 we implemented an updated Gasum Code of Conduct, and new training was given to the personnel. The online training is obligatory for all employees on an annual basis and is part of the 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. Training started in May 2020, and 92% of active employees had completed the training by the end of the year.



Raising concerns

A healthy speak-up culture of openness, integrity and accountability is essential in order 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 on Gasum's intranet, where employees may report their concerns confidentially. The channel is available in all company languages (English, Finnish, Swedish, and Norwegian). A [whistleblowing channel](#) is also available on our website for our 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 or a person specifically appointed by them has 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.

Compliance

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. 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 the Board Committee.

During 2020, a total of 3 incidents of suspected non-compliance with the Code of Conduct principles or other guidelines were reported. Of these cases, none were reported via the whistleblowing reporting channel. All the reported cases were investigated and led to further actions.

[Read about the compliance risks](#) related to our business.

2.3 Integrated management system

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 with regard to 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.

In 2020, we merged new terminals and plants to our existing management system. Environment, occupational health & safety and energy management system certifications were extended to 7 Finnish biogas plants. Also new standard versions of occupational health & safety and energy management were implemented. During the year, the integrated management system tool was further developed to better serve the organization's needs. We launched an e-learning training package to give an overview and help our personnel to navigate in the core areas of the IMS.

Internal control activities

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.

IMS System conformity is evaluated annually through internal audits as well as audits conducted by an external organization. In 2020, the internal audits covered altogether 13 sites with a focus on risk management and compliance.

The status of the integrated management system and related performance indicators as well as progress made in development actions are presented 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, a number of 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.

All employees and contract personnel register non-conformities

When an undesired incident occurs or improvements are observed, they are registered in our non-conformity systems. Contractors have access to the systems via a mobile app. Responsible persons ensure that the incidents and suggestions are reviewed and root causes for incidents identified and corrective actions implemented. Customer feedback is recorded in the CRM system and the customer service or relevant responsible person responds as to how the matter will be dealt with.



We comply with internationally recognized standards' requirements.

2.4 Corporate Governance and remuneration

Corporate Governance and remuneration

Corporate governance sets out principles for managing the company.

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.

Gasum Ltd's corporate governance is based on the Articles of Association, the Limited Liability Companies Act, the rules issued by the Ownership Steering Department of

the Prime Minister's Office and other legislation and regulations on the governance of limited liability companies. Gasum is fully owned by the State of Finland. Our shares are held at 73.5% by the state-owned Gasonia Oy and 26.5% directly by the State of Finland.

The highest decision-making power lies with the shareholders of the company who exercise their rights at the General Meeting. The Annual General Meeting elects the Chairman and the members of the Board of Directors. [Gasum Ltd's Board of Directors](#) has established two committees to assist the Board in its work: an Audit and Risk Committee and a HR Committee. The Board of Directors nominates the Group's CEO, who with the Gasum Management Team, manages the company's operations. The HR Committee confirms the nomination of the members of [the Gasum Management Team](#) on the CEO's proposal. The Gasum Management team consists of eight members in addition to the CEO.

Further details about our governance bodies and structures of the Board of Directors of Gasum Ltd and the Gasum Management Team are described in [Governance and Remuneration 2020](#).

The general meeting adopts the financial statements and considers our corporate responsibility report and remuneration report.

Remuneration is connected with the business performance

The remuneration of personnel within Gasum Group is based on the Group's remuneration principles and the remuneration principles laid down by the Ownership Steering Department of the Prime Minister's Office. The company aims for a target-oriented company culture in which all employees can impact results and connect the strategy with business performance and individual accountabilities.

At Gasum, remuneration is based on total remuneration which may, in addition to the base salary, include short and long-term incentive programs. We want to motivate the entire personnel to good performance, and we operate an annual performance-based bonus scheme linked to company-wide and personal targets. The remuneration system also includes other benefits and intangible incentive methods.

The HR Committee assists the Board of Directors with its duties, including preparing proposals on matters concerning the personnel and their remuneration and approving (within the scope of authority given by the Board) the nomination and remuneration of top management members other than the CEO. The HR Committee had four meetings in 2020. Further details about our remuneration principles and the company's total remuneration model are described in [Governance and Remuneration 2020](#).

Collaborative and personnel models

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

2.5 Supply chain management

Sourcing principles

We expect our business partners to comply with the same principles and rules that govern our operations.

We purchase goods and services from a large number of suppliers. Our main sourcing categories are biogas, natural gas, liquefied natural gas, power and other commodities. By selecting reliable suppliers, we secure our operations, effective supply chains, and ability to constantly deliver quality products to our customers.

Reliable and good quality deliveries, financial stability as well as social and environmental responsibility are considered in choosing suppliers. We evaluate our critical partners regularly with a set of Key Performance Indicators (KPI) regarding their performance in occupational health and safety, quality, energy efficiency and environmental aspects, and prefer suppliers who are in compliance or certified with related management systems. We prequalify potential new suppliers and control evidence of compliance with ethical behavior. By conducting supplier evaluations, we ensure cooperation with suppliers is in compliance with our adopted principles.

In 2020, we conducted 7 supplier audits. Suppliers were selected for audits based on supplier evaluations and the focus area, which was safety. Audit results showed mainly good management practises. Small amount of non-conformities did not result in termination of agreements.

Our procurement guidelines determine the procurement processes and principles that must be followed in sourcing. We comply with the principles of openness, transparency and non-discrimination regarding suppliers and other stakeholders.

Our business partners are expected to excel in quality, health, and safety, and to minimize environmental impacts within their value chain.

Code of Conduct for Business Partners

To support our work with sustainable suppliers, we created a [Code of Conduct for Business Partners](#) during 2020. This Code of Conduct clarifies our requirements for our partners in responsible business practices such as anti-corruption, respecting international trade obligations, environment and human rights and managing confidential information. We believe that the requirements are the way towards prosperous collaboration and that aligning expectations and needs ensures effectiveness, mutual value creation and positive societal development.

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.

We acknowledge the complexity of our value creation, supply chain and the risks we face together. Read more about [the supply chain risks](#) related to our business.



We carry out continuous supplier assessments based on systematic risk approach.

2.6 Risk and crisis management

Risk, governance and culture

Risk management is an integral part of management processes and good corporate governance.

We regard risk management as an integral and proactive way to manage and analyze risks and opportunities regarding our business. All employees make decisions every day that consist of many different risk elements. The decision maker carries the responsibility for risks involved in the decision. In order to help Gasum's employees and management to make conscious decisions, Gasum uses the formalized Enterprise Risk Management Policy (ERM) framework to not only identify risks but also to assess and manage possible risks involved in decision-making.

The Enterprise Risk Management Policy, together with the Gasum Code of Conduct, outlines the risk management principles and frameworks.

The goals of Gasum's risk management are:

- to improve the identification of threats and opportunities when setting business objectives and targets
- to set the risk levels for major risk classes
- to increase the likelihood of achieving Gasum's business objectives and targets
- to improve governance
- to comply with legal and regulatory requirements, relevant to Gasum's business, and international norms
- to enhance health, safety, and environmental performance
- to ensure the organization's ability to function in all situations.

Gasum's Board of Directors approves risk policies and sets risk limits. The CEO is responsible for the Gasum risk management framework. Implementation, development and monitoring of the risk management process is coordinated by the Risk Manager. Business and Support Unit heads are responsible for risk management in their respective areas of responsibility, where operational risks are identified and managed following our group level risk policies.

The significance of risks is assessed as a combination of probability and impact of the potential risk or incidence. Gasum's risk management process includes identification of risks, assessments of risks, and ensuring that there is a plan to manage and mitigate the identified risks. The effectiveness of the actions taken are evaluated and the risk is reassessed against these results. The risk identification and assessment process is executed and reported in a systematic manner. We have developed routines in various areas to identify and eliminate risks, i.e. procedures for operational risk assessment, work permits, safe job analysis, root-cause analysis, as well as HAZID and HAZOP analyses.

Business continuity and emergency preparedness

During 2020, we launched new plans for business continuity and emergency preparedness. The new business continuity plan is a proactive plan to avoid and mitigate risks associated with a disruption in operations.

The different scenario descriptions, such as pandemic, cyberattack, natural disaster or general disaster, outline how the business will continue operating during an unplanned situation to maintain financial and sustainable viability. 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 aid 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 competencies 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 was introduced in the 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 mandatory for all employees every second year.



Our business continuity and emergency and preparedness plans help us to maintain the financial and sustainable viability of our business in an unplanned situation.

Emerging risks

Strategic, operational, and financial risks

Gasum aims to expand the Nordic gas market, which will bring strategic risks relating to the operating environment, technology, and customers. The political risk mainly relates to changes in EU and national legislation, energy support and in particular, taxation. The company prepares for these risks relating to its operating environment by actively monitoring related developments. In addition, Gasum seeks to continuously draw attention to the company's viewpoints as regards the impacts of proposed amendments to legislation or taxation. Safety plays an important role in Gasum's road and maritime transport where the company is exposed to operational risks.

The strategic, political, operational and market and financial risks that Gasum's business operations are exposed to, are reported as part of the [Gasum Financial Review](#).

Main sustainability risks

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

Health, safety, and security

We transport, deliver, process and store, for example, gas, biowaste and recycled nutrients. We identify health and safety risks as a substantial part of our total risk environment. These risks include accidents, product safety, leaks and chemical hazards. Security risks include intentional 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.

- **Gasum's approach:** 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 in particular, 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 regard 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 well-being, competence and leadership are all necessary for Gasum's success. Providing a healthy and safe working environment and ensuring well-being 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 for avoiding shortages of competent and motivated personnel.

- **Gasum's approach:** 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 service support this work. We measure employee experience continuously and focus on increasing smoothness of work, maintaining work ability and reducing disability retirement due to disability.

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.

- **Gasum's approach:** 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 utilise 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 poses a threat to nature and society as extreme weather conditions will increase globally. 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. In addition, 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 low-carbon economy brings opportunities to renewable and circular economy related products and business.

- **Gasum's approach:** For Gasum, climate change is creating opportunities. Gasum is a significant low-carbon energy supplier. Solutions that reduce emissions and help adaptation to climate change create new business opportunities for Gasum during the transition to the low-carbon future. Our main tools for climate change mitigation include enabling greenhouse gas emission reductions to customers with renewable and low-carbon products, as well as offering the energy markets with green services. Our circular economy products are mainly based on recycled feedstocks and we continuously explore new opportunities to ensure business and growth. We work to develop the recycled nutrient market. We aim at reducing our own carbon footprint by increasing our energy efficiency and using renewable electricity in our operations.

Environmental impact from emissions to air and water, biodiversity

Gasum is subject to large a variety of laws, regulations and requirements set by authorities, stakeholders, and the society, that aim at reduced 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, and clean-up costs.

- **Gasum's approach:** 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 the international ISO standards (ISO 9001, ISO 14001, ISO 50001) 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 the key to managing the emissions and incidents and reduce risk of environmental permit violations. Our biodegradable feedstocks are based on waste and residues which reduces the risk on 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, risk of losing business and damage reputation.

- **Gasum's approach:** Good governance and responsible and risk-based sourcing practises mitigate risks. Our Code of Conduct for Business Partner defines how we expect our business partners to operate. We evaluate our suppliers and conduct supplier audits based on risk approach.

3 ENVIRONMENTAL AGENDA



Environmental agenda



Climate

Our purpose is cleaner energy. We support our customers in their efforts to reduce greenhouse gas emissions. We seek to increase the availability of renewable and low-carbon energy in road and maritime transport and in industry.

[Read more](#)



Circular economy

We are a major processor of biodegradable fractions of waste and residues generated in society. We boost the availability of biogas and develop market for the recycled nutrient and fertilizer products.

[Read more](#)



Environmental management

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

[Read more](#)

3.1 Climate change
(307-1)

Climate change mitigation



We enable climate change mitigation through renewable and low-carbon products, and increasing energy efficiency in our own operations.



We increase availability of renewable gas and power. We operate energy efficiently.



We develop infrastructure for cleaner energy and invest in product and service innovation.



We contribute to cleaner urban air: no particulate or SO₂ emissions in gas combustion.



We use waste and residues to produce renewable energy and nutrient products.



Our products help our customers and the society at large to reduce GHG emissions.

What we aimed for

We enable greenhouse gas emission reductions with low-carbon products.



What we achieved in 2020

Greenhouse gas emission savings from our biogas totaled 270,000 t, which equals removing about 100,000 cars from roads.



Availability of gas was increased. Our network expanded to around 100 filling stations in the Nordics. We extended our bunkering services and delivered for the first time LBG to the maritime segment.



Availability of renewable power was increased. We entered into our first long-term Power Purchase Agreement (PPA), increasing availability of Finnish wind power. Our Energy market services obtained 6.2 TWh of Guarantees of Origin of renewable energy to our customers .



Partnerships with traffic, maritime and industry segments facilitated increasingly the switch to cleaner energy.

We increase energy efficiency in our operations. We aim at 1% energy saving annually until 2025.



We achieved 44.5 GWh energy savings in 2020. Several projects were completed to increase energy efficiency at our LNG terminals and biogas plants. The 1% saving target was reached manifold.



100% renewable electricity was favored in all of our operations.

3.1.1 Cleaner energy products
(102-6)



Climate change

Our purpose is cleaner energy



We aim at carbon dioxide emission reductions of
A MILLION TON
by increasing biogas availability by 2025.



CLIMATE CHANGE
is one of the crucial drivers behind
Gasum's strategy.

Climate change poses a threat to nature and society as extreme weather conditions will increase globally

Global, EU-level, and national energy and climate policies and targets are strongly committed to a rapid decrease in greenhouse gas emissions. Ambitious actions and far-reaching transitions are required in energy systems to limit global warming, among other mitigation actions. Positive attitudes to cleaner energy are highlighted in this transition.

Climate change mitigation drives our strategy

There is a single purpose for Gasum's work: cleaner energy.

We believe that the role of gas as an energy source will increase further over the longer term as action is taken against climate change and the Nordic countries transit towards carbon neutral energy production. Gasum creates value by developing a low-carbon society and helping its customers to reduce their own carbon footprint as well as that of their customers.

Use of gas is projected to show strong growth in industry and transport in the years ahead. Gasum has prepared for the growth in demand by investing in the development of the Nordic gas infrastructure for several years already. The expanding gas infrastructure creates a good foundation for the increased production and use of biogas and facilitates growth in the future. The capacity to operate more broadly in the energy market strengthens Gasum's position comprehensively as an energy company of the future. As a low-emission fuel, gas together with renewable electricity will gain a bigger role as action against climate change requires a transition to cleaner solutions.

Promoting the production of renewable gases and strengthening their position are key to the achievement of climate targets. Natural gas plays an important role in transport, in industrial use and when phasing out coal and oil-based fuels in energy production.

Growth through innovations

In the future, biogas can help to achieve major emission reductions, and new types of innovations are emerging in fields such as the circular economy.

The expansion of the energy market and new innovations are required to reach ambitious emission targets. In ten years from now, the majority of the energy used will be renewable, and biogas will already play a significant role in Finland's energy production. A full switch to clean energy will have taken place in Baltic Sea shipping as well as in delivery and heavy-duty road transport. Major progress will also have been made in hydrogen-to-gas conversion. Gasum is already an active innovator in all these today. We stand out by investing in alternatives for the future.

Solutions that reduce emissions and help adaption to climate change create new business opportunities for us during the transition to the low-carbon future. Read about [climate related risks and opportunities](#).

We introduced an ambitious climate target

An efficient way of reducing emissions is to increase the use of renewable biogas in road and maritime transport and also increasingly in industry.

We seek to increase the availability of biogas to reduce our customers' greenhouse gas emissions by a million ton of CO₂eq by 2025. We intend to make 4 TWh of biogas available on the market from our own production and that of certified European partners within the set timeframe. Read more about [Gasum boosting biogas availability](#).

In addition, we aim at reducing greenhouse gas emissions of our liquefied natural gas (LNG) and biogas production chains by one percent annually and continue our commitment to the voluntary Energy Efficiency Agreement.

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



[See the video of Forerunners in sustainable logistics: Bring](#)







<https://www.youtube.com/embed/K12L1qMLg8>

3.1.2 Creating carbon handprint

Creating carbon handprint by decreasing the carbon footprint of a customer – Gasum creates a positive environmental impact

We offer our customers a range of competitive energy products and green services that help them reduce their carbon footprint as well as that of their customers.

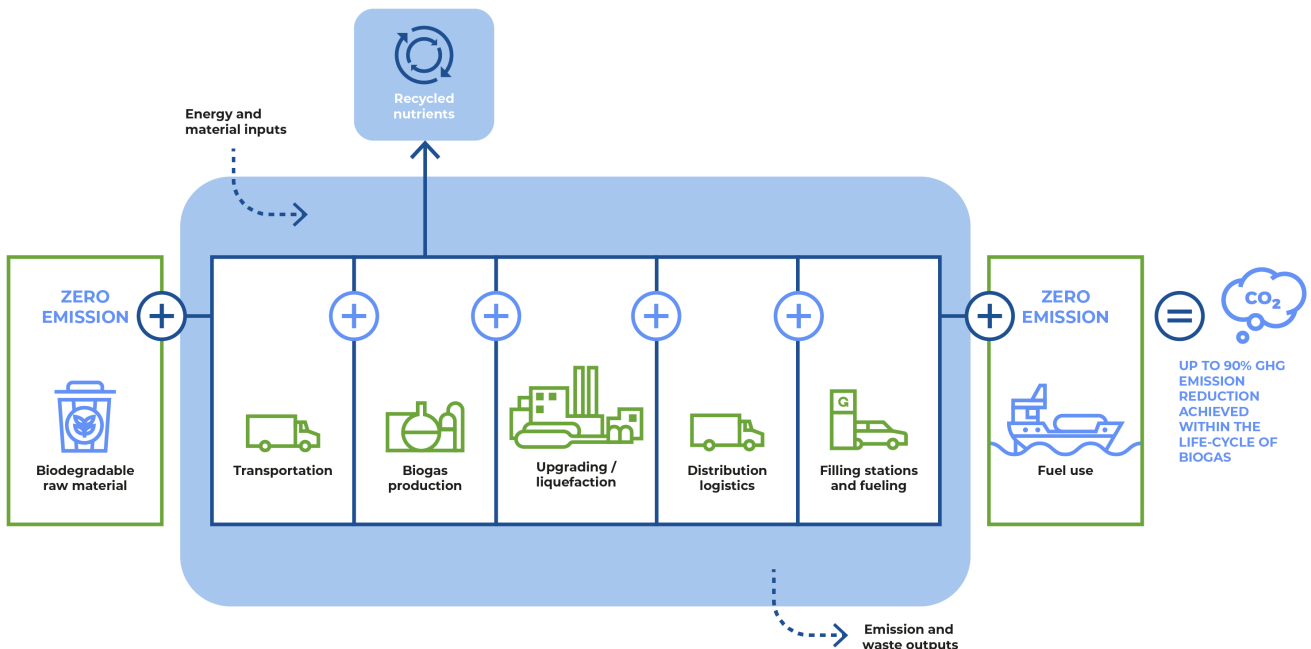
Our products and services enable CO₂ emission reductions in many segments of the society

Traffic	Maritime	Industry, energy production	Municipalities, agriculture
 Biogas and natural gas (LBG, LNG, CBG, CNG)	 Biogas and natural gas (LBG, LNG)	 Biogas and natural gas (LBG, LNG, CBG, CNG) Power Renewable energy Guarantee of Origins Biowaste management services Recycled nutrient products Emission allowance market services Voluntary emission reductions	 Biowaste management services Recycled nutrient and fertilizer products Organic matter for the soil

Decarbonizing with biogas

Biogas use can help to reduce greenhouse gas emissions over the entire life cycle by up to 90% compared with fossil fuel use.

We measure the climate impact of our products with a lifecycle approach. The calculation of the carbon dioxide emission reduction takes into account the entire biogas value chain from biowaste sourcing to biogas production, distribution and use. The greenhouse gas emissions of extraction of the raw material is considered to be zero when wastes and residues are used in biogas production. In addition, just like with other renewable fuels, the calculated level of use phase emissions from renewable biogas is regarded to be zero. Biogas combustion generates carbon dioxide, but there is no net increase in atmospheric carbon dioxide because the amount of carbon dioxide fixed in the biodegradable feedstock equals the amount released through biogas combustion.



*Calculation method is based on Energy Authority's guidelines on sustainability criteria and determination greenhouse gas emission reductions in accordance with EU Renewable Energy Directive (2009/28/EC).

There is potential to reduce emissions even further when manure is used as a feedstock in biogas production, because methane emissions from conventional manure

management are reduced. [Read more about case.](#)

In addition, emission reductions are enabled when nutrient residues arising as a by-product in biogas production are returned to the agriculture or industry as recycled nutrient products and replace mineral or fossil nutrients. Read more about [carbon handprint of our recycled nutrient products.](#)



Biogas is a 100% renewable, locally produced fuel, and meets the sustainability criteria laid down by the Renewable Energy Directive.

Biogas fulfils Nordic Swan Ecolabel criteria

The label makes it easy for consumers and professional buyers to choose the environmentally best goods and services.

The Finnish biogas we supply to the traffic segment fulfils the Nordic Swan Ecolabel criteria. The Nordic Swan Ecolabel guarantees that:

- the emission reduction is at least 60% when using sewage sludge as the raw material and 70% if the raw material is biodegradable waste,
- palm oil, soybean oils and sugar cane are not used as a raw material, and
- genetically modified plants are not used as a raw material.

The biogas we produce in Finland is the only Finnish fuel for vehicles that has been awarded the Nordic Swan Ecolabel. All of Gasum's renewable biomethane production in Finland and Sweden is covered by certified sustainability systems, which ensure that biofuels released for consumption meet the sustainability criteria laid down by the Renewable Energy Directive. The sustainability criteria include requirements for the greenhouse gas emission reductions, sustainable raw materials, and traceability. Compliance with the criteria is reported to the energy authorities in Finland and Sweden annually, and verified by an external and independent auditor.

Liquefied natural gas enables emission cuts

The use of natural gas enables fuel users to reduce their greenhouse gas emissions by 20% compared with fossil diesel life-cycle emissions.

Natural gas and liquefied natural gas (LNG) play an important role in replacing the use of petroleum-based fuels in maritime and heavy-duty transport segments, and when phasing out coal in energy production. As a diverse and clean energy source and material of industry, natural gas will still be an important part of energy consumption across future decades as well. In terms of synergies between electricity and heat, the usage of natural gas will be increasingly emphasized as a reserve fuel that is used to meet extra demand for electricity during periods of peak energy consumption.

LNG infrastructure can be utilized for the distribution of renewable liquefied biogas (LBG). LBG works in the same engines as LNG, so the switch to LNG means an immediate possibility to start using LBG without any special investments.

Cleaner urban air

Use of gas as a fuel can help to 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 sulphur and small particulates, and up to 85% lower levels of nitrogen oxides (NOx), which are precursors to smog.

Renewable electricity

We are a major actor in the wind power segment and are increasing the availability of renewable Nordic wind energy.

In 2020, we entered into our first long-term Power Purchase Agreement (PPA) with ABO Wind Oy on the output of a wind farm to be built in Finland. We will begin to sell renewable wind power produced in Ostrobothnia, Finland, starting in 2023. Domestic wind power will increase Finland's self-sufficiency in electricity generation. A 9-turbine wind farm will have a total output capacity of around 40 megawatts.

In addition, we supply Guarantees of origin for renewable electricity generated by hydro, wind or solar power or bioenergy to our customers. Favouring renewable electricity is an excellent opportunity for enterprises and other actors to implement their environmental responsibility. Read more about [Green services in gas and energy markets.](#)



We enable an easy switch to renewable power for our customers.

3.1.3 Industrial solutions (102-6)

Gas offers industrial operators a good alternative to achieve emissions targets



**Natural gas is a source of
ENERGY
and
A RAW MATERIAL
for industry**



**Complete removal of
SO_x
and particles
in combustion with gas**



**We obtained a total of
6.2 TWh
of renewable energy
Guarantees of origin for our customers**

Gas in industry

The diverse properties of natural gas and LNG particularly come into their own in a variety of industrial process applications.

Gas offers a reliable alternative and multitude of uses for industries as well as power production. It is a practical choice for industries operating in the fields of processing, paper, and metal, for example. Gas flames and clean flue gases can be utilized in contexts such as heating, drying, and cooking of products as well as a raw material in the process industry. In energy production, natural gas is particularly suitable for use as a fuel for heat and steam production as well as in combined heat and power (CHP) production.

Liquefied natural gas (LNG) and liquefied biogas (LBG) bring the benefits of gas to areas outside the gas pipeline network across the Nordic countries.

As a diverse and clean energy source and material of industry, natural gas will still be an important part of energy consumption across future decades as well. In terms of synergies between electricity and heat, the usage of natural gas will be increasingly emphasized as a reserve fuel that is used to meet extra demand for electricity during periods of peak energy consumption.



The switch from using LNG to using LBG can be made without any additional investments.

Partnerships with industrial operators



During 2020, Gasum secured a contract with the Norwegian reinforced steel manufacturer Celsa Armeringsstål in Mo i Rana, to supply liquefied natural gas (LNG) from the Tornio terminal and to build a new customer terminal in Mo Industrial Park. Switching to LNG will contribute to Celsa Armeringsstål's target of lowering carbon dioxide emissions originating in its operations. The new customer terminal will enable Gasum to competitively serve also other customers in North Norway.



In 2020, we delivered liquefied biogas (LBG) to the cleantech company Forchem Oy's tall oil biorefinery in Rauma, Finland. The LBG is received at the Forchem reception terminal, vaporized, and used in the company's production processes.

Green services in gas and energy markets

We enable an easy switch to renewable electricity for our customers. Guarantees of Origin and other Green Certificates help our partners to reduce their carbon footprint.

We aim at expanding our offering in carbon neutral power and adding value to customers in the energy market. Our Energy Market Services operates in the risk management of and trading relating to emission allowances, gas trading and electricity Guarantees of Origin (GoO). We obtain GoO for electricity for renew-able electricity generated by hydro, wind or solar power or bioenergy to our customers.

In 2020, we obtained a total of 6.2 TWh of GoOs. Gasum's customers favored Nordic hydropower, bioenergy, and wind power. In addition, Gasum provided brokerage and consulting services for labeling electricity with the international EKOenergy ecolabel. It ensures a positive environmental impact for the choice of electricity and oversees that the impacts of electricity generation on the climate and biodiversity have been taken into account.

We offer alternatives for voluntary emission offsetting, which enables enterprises to, for example, support emission reduction projects in less developed countries and at the same time offset emissions from their own activities. We find projects of specific interest to our partners and take care of trading in voluntary emission reductions (VERs) on the partner's behalf. Gasum always brokers emission reduction units approved and supervised in compliance with well-known standards.

Partnering with industrial operators

Gasum's Energy Market Services has long-time partners operating in eg. mining and metals industry. Our physical power market services operate in the power market on our partner's behalf by taking care of


their daily power trading, power balance monitoring, and communicating production plants. For our partners, the role of electricity is growing in the efforts of reaching environmental targets and reducing carbon dioxide emissions through actions such as process electrification and investments in energy efficiency. Read more about [our energy market services](#).



Gasum is an expert in the compliance-based emission trading system as well as in voluntary off-setting.

3.1.4 Solutions for road transport (102-6)

The increasing awareness of low-emission alternatives among consumers helps to speed up growth of gas as a traffic fuel



Our gas filling station network expanded to around to **100 filling stations in the Nordics**



Market entry into LNG/LBG heavy-duty vehicle segment with several new customer cases



Remarkable growth IN GAS VEHICLE FLEETS in 2020

Shift to gas-powered heavy-duty vehicles

Liquefied natural gas (LNG) is becoming an increasingly popular fuel for heavy-duty vehicles (HDVs) and role of renewable biogas is growing.

In road transport, the transition to more extensive use of natural gas and biogas is advancing at a rapid rate due to the increased awareness of the cost-effectiveness and low emissions of gas vehicles. Development of the filling station infrastructure and vehicle 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 of these segments.



The gas solution is based on proven technology and is available already today.

Remarkable growth in gas vehicle fleets during 2020

The total number of gas registered vehicles exceeds now 53,000 in Sweden and 13,000 in Finland.

In 2020, new registrations of gas vehicles totalled 5,000 in Sweden, and more than 3,200 in Finland. Nearly 800 trucks and buses powered by gas started operating on Finnish and Swedish roads.

TRUCKS AND BUSES



Sweden +21%

Finland +29%

PASSENGER CARS AND VANS



Sweden +10%

Finland +32%

Regulatory framework is favorable towards gas

Transport represents 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 set for emissions drive largely this change. Carbon dioxide emissions from new HDVs must be cut in the EU by 15% from the 2019 level by 2025, and the reduction target for 2030 is 30%. LNG use can help to reduce carbon dioxide emissions by more than 20% compared with fossil diesel use. Using biogas reduces emissions up to 90% compared with diesel. Switching to LBG does not require any modifications to gas-fueled vehicles.

In the Nordics, Sweden is committed to reducing its carbon dioxide emissions from road transport by 70% from the 2010 level by 2030. Finland aims to cut the transport-related emissions by 50% by 2030 from the 2005 level and eliminate greenhouse gas emissions in transport by 2045. In Norway, the target is to cut greenhouse gas emissions by at least 40% by 2030 and to become a low-emission society by 2050, with greenhouse gas emissions 80–95% lower than in 1990.

National support measures targeted at gas-fueled transport actively promote the development of vehicle fleets and distribution infrastructure in the Nordics. In Finland, the government boosts cleaner transport by a purchase subsidy for gas-fueled LNG and CNG trucks. The process to include biogas in the national blending mandate for transport fuels is underway. The European Commission granted the Swedish Government's request to continue the existing tax exemption on biogas used in the traffic sector. The decision from the EU means the tax exemption can remain in place until 2030. Swedish Government also announced they will introduce a new subsidy for trucks, sending a clear signal to the market that gas is to be considered clean and plays a key role in reducing emissions. In Norway, the Government is proposing that trucks running on biogas should be exempted from paying road tolls when entering and exiting Oslo.

We expand the gas filling station network

Gasum's Nordic network includes around 100 gas filling stations for different gas vehicle segments.

Gas vehicle market is growing in different vehicle segments. Due to investments in new gas filling stations and acquisitions of stations, there are already around 100 gas filling stations in the Nordics owned by Gasum. Gasum's filling station network serves long-haul LNG trucks as well as the lighter traffic, such as passenger cars, delivery vehicles, refuse vehicles and buses. In 2020, we opened 8 new stations in high-traffic areas. Besides building new gas filling stations, we have development projects across the station network to increase capacity at existing filling stations.

We respond to the rapidly growing demand in heavy-duty transport in Finland, Sweden, and Norway. We are developing a network of 50 filling stations for LNG trucks in the Nordics in the next few years. Together with other actors, we already have constructed a network of around 40 stations for long-haul LNG/LBG gas trucks in Finland, Sweden, and Norway.



The expanding gas filling station network makes it easy to choose gas-fueled vehicles

More logistics companies choose LNG or LBG

During 2020, we continued to collaborate and develop new partnerships with several logistics companies and logistics buyers. See also the video below about Havi and Remeo cooperation.



Waste management company Jätekuukko with its partner Urbaser introduced six biogas-fueled vehicles in waste collection in Kuopio, Finland, contributing to the aim of City of Kuopio becoming carbon neutral by 2050. [Read more.](#)



Pizza Hut Finland started to use five biogas-fueled vehicles for home deliveries in Finland. [Read more.](#)



Orkla started to use biogas-fueled trucks in Sweden. During a trial period, Orkla achieved CO₂ emission reductions of 90%, as well as 25% lower fuel costs. [Read more.](#)



Vekka Group introduced six new biogas buses in public transport in Hämeenlinna, Finland. The new buses will help reduce the city's public transport emissions by almost 500 tonnes per year. [Read more.](#)



Posti Freight Services in Finland acquired ten new liquefied biogas trucks as part of its aim to achieve carbon-neutrality in its own operations by 2030. [Read more.](#)



Savon Kuljetus Oy ordered ten gas-powered delivery vehicles for delivering parceled goods in the Helsinki area. The company has committed to using only biogas to fuel its new delivery vehicles. [Read more.](#)



<https://www.youtube.com/embed/ANG6vI4GqP8>

3.1.5 Maritime transport solutions

Demand for cleaner energy solutions is currently growing particularly in maritime transport



190 VESSELS USE LNG
as their primary source of fuel
MORE THAN 230
LNG vessels are on order



We increased
the availability of
LNG and LBG at sea and
MADE ABOUT 1,300
deliveries for the vessel fleet



We completed the first ever
LNG-LBG blend
bunkering to a cargo vessel

Strong growth in LNG demand

LNG is recognized by the shipping industry as one of the most viable alternative fuels to reduce emissions.

Up to 80% of the volume of world trade is carried by sea. Emissions from maritime transport are high: ships account for around 2.5% of global greenhouse gas emissions. In addition to greenhouse gas

emissions, they also generate harmful local emissions, such as nitrogen oxides (NOx), sulphur and particulate emissions, which have adverse effects on the environment and human health.

International regulation steers maritime transport towards the use of cleaner fuels. 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 NOx and sulphur.

LNG offers several benefits by reducing local and global pollution in the maritime sector and is rapidly becoming more commonly used as a cost-effective alternative to traditional fuels for vessels. Increased uptake of renewable liquefied biogas (LBG) speeds up the further decarbonization of cargo transport.

Companies are investing in LNG-powered vessels to meet the stricter requirements set by IMO regulations. Today, 190 vessels use LNG as their primary source of fuel and there are more than 230 LNG vessels on order. This number is expected to rise significantly, as LNG is recognized by the shipping industry as one of the most viable alternative fuels to reduce emissions.



Role of LNG as a maritime fuel continues to grow.

Developing supply of fuels and services

We continued to focus our actions on expanding LNG supply solutions and services to make LNG more accessible at sea.

During the year we extended our bunkering area from the Nordics to include the Antwerp, Amsterdam, and Rotterdam region (ARA). In addition, we expanded our bunkering services in continental Europe by completing the first bunkering operation in Germany. To provide our shipping customers with a flexible service across an even more extensive geographical area, we entered into partnership with Pavilion Energy Singapore. The partnership enables Gasum to provide customers with liquefied natural gas (LNG) in the Singapore area.

In 2020 we made about 1,300 deliveries of low-carbon fuel to the LNG-fueled vessel fleet. We deliver LNG and LBG to our customers by truck-to-ship, terminal-to-ship, or ship-to-ship and work closely with them to develop the best bunkering solutions and services. Our bunkering capacity was strengthened as the owner-ship of [Kairos bunkering vessel](#) (7,500 cbm) was transferred to Gasum under the acquisition of [Linde AG's LNG and Biogas business and Nauticos's Marine Bunkering business in 2020](#).

Read more about our [operations in serving the maritime segment](#).



We operate one of the world's largest bunker supply vessels, Kairos with 7,500 cbm capacity.

Emission reductions with LNG and LBG

LNG use enables a switch to the fully renewable LBG or its blend.

We are continuously developing our fuel offering and services to meet the maritime sector's needs. In 2020, we made maritime history by completing our first ever ship-to-ship LNG-LBG blend bunkering to cargo vessels. Increased uptake of LBG demonstrates maritime industry's commitment of working towards cleaner solutions.

Using LNG or LBG means close to zero emissions of sulphur oxides (SOx) and particulate matter (PM), and a reduction of nitrogen oxides (NOx) emissions of up to 85% compared with current conventional petroleum-based maritime fuels. The maritime sector's use of LNG reduces the climate impact by approximately 20%. LBG is produced from biodegradable waste such as household biowaste or municipal sewage sludge and its use can help to cut greenhouse gas emissions by up to 90% compared with conventional fuels.



LNG and LBG are suitable for all vessel types, including ferries, passenger vessels, tankers, bulk carriers, supply and container vessels.

Cooperation with the maritime segment

During 2020, we continued to provide availability for the LNG-fuelled fleet at sea and cooperated with several partners in the maritime segment.

- Liquefied biogas (LBG) was tested for the first time as a fuel for ships in Finland. We worked together with SSAB and delivered liquefied biogas to ESL Shipping's vessel Viikki.
- We delivered LNG to Equinor's new crude shuttle tankers, which started operating during 2020 and conducted the first ship-to-ship bunkering operation on the River Elbe in Germany for a product tanker Ramelia, which is owned by Donsö-based shipowner Älvtank managed by the Gothia Tanker Alliance.
- In addition, we partnered up with Samskip, a Rotterdam-based shipping company. In Norway, Gasum delivered LNG to the largest semi-submersible crane vessel in the world, owned by Heerema.
- We completed the initial ship-to-ship LNG bunkering operation in the port of Bremerhaven for the newbuild cruise ship Iona and completed the truck-to-ship LNG bunkering operation in Germany for the world's first LNG-fueled research vessel ATAIR.
- We continued to support the Finnish Meyer yard and did the gasing up and first fueling of another Carnival cruise vessel.
- We completed a ship-to-ship operation at the Copenhagen Malmö Port from Coralius to car carriers operated by UECC, which mainly operate between Zeebrugge and the St. Petersburg area.
- We signed a new agreement with our long-term partner Equinor on supplying them with LNG in the ARA area.
- In addition, we expanded our bunkering services in continental Europe by completing the first bunkering operation in Emden, Germany for SIEM Confucius. The port of Emden is one of the most significant car shipping ports in Europe. The large car carrier operates trans-Atlantic and the regular route includes USA, Mexico and back to the Port of Emden every 50 days.
- We completed the first ship-to-ship LNG-LBG blend bunkering to a cargo vessel M/V Auto Energy at anchorage outside the port of Gothenburg, Sweden. A fuel blend consisted of LNG and 10% renewable liquefied biogas (LBG).
- **Renewable LBG is increasingly attracting interest among forerunners in maritime transport.**



See the video about bunkering LNG in maritime transport.



Being a LNG supplier we need to comply with our customer's needs and rules and regulations.

<https://www.youtube.com/embed/uMAoEAsUbcU>

3.1.6 Reducing emissions in own operations

We aim to reduce energy use and emissions to air



We invested
€13 million
in projects improving
ENERGY EFFICIENCY



We achieved annual energy savings of
44.5 GWh
equaling annual gas consumption of about
4,500 PASSENGER CARS



Direct CO₂ emissions
at the Pori LNG terminal
DECREASED BY 60%
due to energy efficiency
investment

Improving energy efficiency

We work systematically to improve the energy efficiency of our LNG terminals and biogas plants.

Our aim is to continuously improve energy efficiency in our operations. We have set a 1% energy saving target annually until 2025. Our tools include systematic [energy management](#), audits, and internal campaigns.

In 2020, we achieved energy savings of 44.5 GWh (target for the agreement period is 8 GWh), equaling annual gas consumption of about 4,500 passenger cars. At the Pori LNG terminal in Finland, we invested in a boil-off gas reliquefaction unit, which significantly reduced the energy consumption and direct CO₂ emissions at the terminal. Other projects contributing to energy efficiency included commissioning of a biogas liquefaction unit in Turku and upgrading units in Oulu and Huitinen, Finland. The new upgrading units enable approximately 35 GWh more gas to be delivered to the transport and industry segments. Energy efficiency was in a key role also in the odor gas boiler investment at the Riihimäki biogas plant and in choosing filling station technologies.

We participate in the voluntary Finnish Energy Efficiency Agreement for Industries under the Energy-Intensive Industry Action Plan. It is an important part of Finland's Energy and Climate Strategy and a primary tool for the promotion of efficient energy use in Finland.

100% renewable electricity

We continued to favor the use of renewable electricity in all Gasum operations.

All electricity consumed by Gasum in 2020 was generated from Nordic hydropower. A significant share of the electricity sourced is utilized in the production of liquefied natural gas (LNG) in Risavika, Norway. The 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.

Greenhouse gas emissions

Gasum's greenhouse gas emissions consist mainly of carbon dioxide and methane emissions.

Our greenhouse gas emissions in 2020 totaled 54,000 t CO₂eq (74,000 in 2019). This figure includes direct greenhouse gas emissions and the emissions from the purchased energy (market-based). The decrease in the scope 1 and 2 carbon emissions is mainly due to the unbundling of the gas transmission operations from Gasum's business in Finland in 2020. Of the scope 1 and scope 2 (market-based) greenhouse gas emissions, 49% originated from our operations in Norway, 27% in Finland and 24% in Sweden. The majority of the direct emissions were generated in our Nordic LNG supply chain.

Our reported scope 3 emissions 36,000 t CO₂eq (28,000 in 2019) were mainly generated in the transportation fuel use of the vessels and trucks operated and owned by our cooperation partners.

Reducing methane emissions

Management and reduction of methane emissions across the gas value chain is among the top priorities for the gas industry.

In 2020, the European Commission presented an EU strategy to reduce methane emissions, which will have a positive impact on biogas production, delivery and use. The strategy concretely highlights that biogas and biomethane are key parts of the solution to reduce methane emissions.

Gasum has for years been successfully working to reduce methane emissions by implementing effective technologies and practices through mandatory and voluntary programs. Especially in the agriculture sector significant emissions can be avoided, when methane-emitting feedstock, such as manure, is brought to the closed and 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.

For years, Sweden has been a true front-runner in steering manure and other agricultural feedstocks into biogas production, and the Finnish government is planning to launch a subsidy-scheme to achieve the same positive results.



We reached our energy saving target.

3.2 Circular economy

Join the cycle



The circular economy is seen as a necessity in supporting climate change mitigation, resource efficiency and sustainable growth.



We increase the availability of renewable energy.



We develop infrastructure, and partnerships and foster innovation.



We manage and recycle society's biodegradable waste and residues.



We use waste and residues to produce renewable energy and nutrient products.



We enable climate change mitigation.



WE PROCESSED 850,000 tonnes of biodegradable waste and residues into biogas and recycled nutrient products



By 2025, we will make 4 TWh of biogas available in the Nordic market



We increased biogas production capacity and opened Finland's FIRST LBG PLANT

What we aimed for

Increasing the availability of biogas in the Nordic market.



What we achieved in 2020

We built new biogas production plants and increased sourcing from partners.

Commercial use of Finland's first LBG production plant in Turku began. We built new biogas plants in Lohja, Finland and Nymölla, Sweden.



In Sweden, we acquired a biogas plant in Skövde, and have a permit process ongoing to construct a plant in Götene. We are planning to build new biogas plants in Borlänge and Kalmar in Sweden, and in Oulu, Finland.

We are planning to expand the existing Finnish plants in Kuopio, Oulu, and Kouvola, and a conversion of Huittinen plant to manure feedstock. We increased sourcing of biogas from certified partners.

Utilising feedstocks in biogas production that enable to develop the market for recycled nutrients.



We explored new opportunities in feedstocks.

We built a new biowaste transfer station in Vantaa, Finland to enable an efficient biowaste recycling chain for local actors. We advanced the use of municipal waste and the exploitation potential of animal manure in biogas production in Finland.



Our research and development work was active.

Several circular economy concepts were advanced in projects focusing on e.g. developing digestate processing into recycled nutrient and fertilizer products, and advancing biogas production efficiency.

Circular economy addresses key global challenges

The circular economy is seen as a necessity in supporting climate change mitigation, resource efficiency and sustainable growth.

A circular economy featuring a sustainable cycle of raw materials is one of the most important global megatrends of the years ahead. It is also an excellent way of reducing climate emissions. The European Green Deal provides an action plan to boost the efficient use of resources by moving to clean, circular economy.

Biogas is a concrete example of circular economy. The EU's Directive on waste and the national recycling targets laid out in it support increased production of biogas: the recycling of municipal waste must be increased to 55% by 2025, 60% by 2030, and 65% by 2035. The methane strategy presented by the EU in 2020 as well as the measures prepared for its implementation will have a positive impact on biogas production, delivery and use.

At the same time, the EU wants to promote the use of recycled nutrients and has for that purpose introduced a regulation on fertilizing products that facilitates the fertilizer use of digestate created in biogas production. The regulation makes it possible for digestate to receive end-of-waste status, derogate from REACH regulation requirements and be eligible for fertilizer status, which allows the use of the CE marking as well as EU-wide use of the product. Implemented during 2021, the EU Renewable Energy Directive (RED II) will set new targets for greenhouse gas emission reductions from renewable energy as well as for the range of feedstocks used in biogas production.

The Nordic countries have also imposed a number of national measures to support the development of the biogas sector and to create incentives for steering waste and side streams to biogas production and for a rapid increase in the use of biogas as a road fuel.



Converting waste into a resource is key to circular economy.

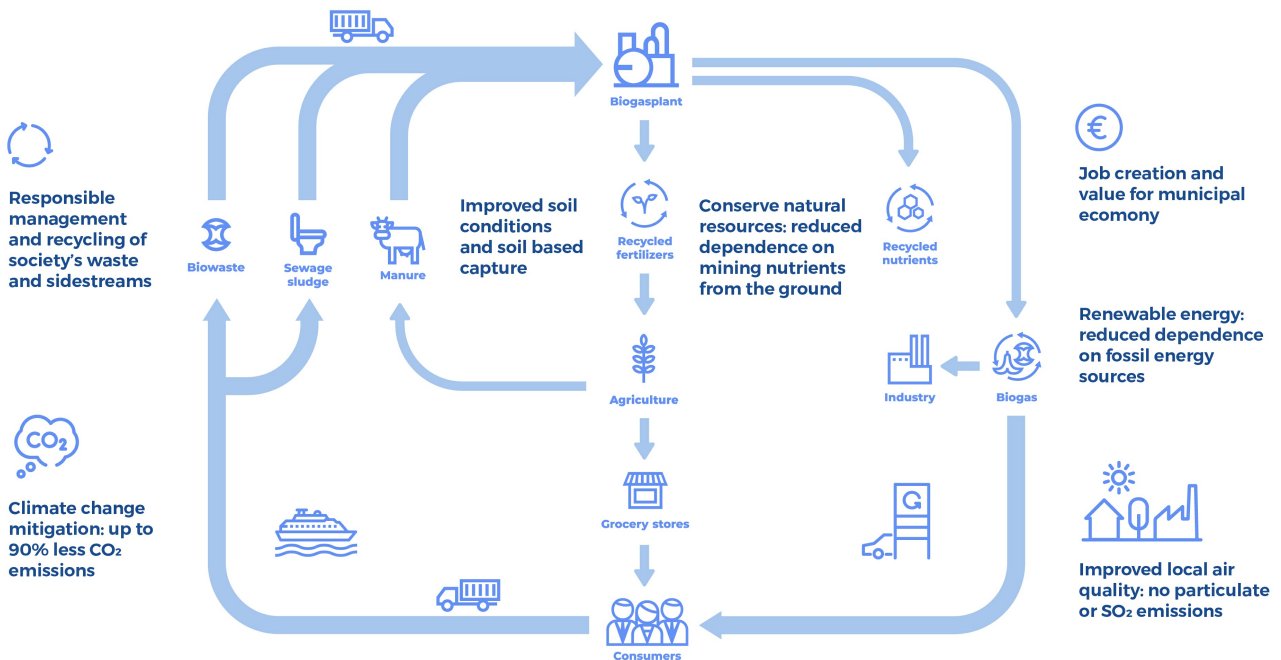
We promote circular economy together with partners

Gasum collaborates with partners across the value chain to promote the circular economy.

For example, in Finland Gasum produces biogas from feedstocks including side streams of the food company Valio – and Valio uses that biogas in its own logistics. There are similar partnerships with companies such as IKEA and Lidl. In Sweden, Gasum will start producing gas from new feedstocks including the wastewater of Stora Enso's paper mill in Nymölla.

Another excellent example of the advantages of the model can be found in Turku, Finland. The municipal sewage sludge from around 300,000 residents is used as a feedstock for renewable liquefied biogas, fulfilling the annual fuel need of 150 trucks. In addition, compost for roadside landscaping as well as recycled nutrient product (ammonia solution), are produced. The ammonia solution can be used for water purification in the paper industry and for removal of nitrogen oxides from flue gases at industrial production facilities. On top of all that, the City of Turku gains a significant cost benefit from the partnership.

In Sweden, we cooperate with Hasselfors Garden. We deliver fibres from our production plants to Hasselfors, where the fibers are used for replacing peat and manure in several of their consumer soils. Together with Hasselfors and SLU (Swedish University of Agricultural Sciences) we develop the market for recycled circular economy products to add value to Hasselfors product portfolio and our own products.



3.2.1 Boosting the availability of biogas



Circular economy

We strive actively to increase biogas production capacity

By 2025, we will make 4 TWh of biogas available through our own production and through certified European partners.

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 partners. During 2020, we advanced many development projects in this area.

In Finland, the construction of a new biogas plant in Lohja was completed, and the plant entered commercial service in January 2021. Gasum opened a new biowaste transfer station in the Helsinki region to ensure a cost-efficient biowaste recycling chain. At Turku, Finland's first biogas plant producing liquefied biogas started operations as the expansion and modernization work was completed. In addition, Gasum has several projects in planning stage such as biogas plant in conjunction with Oulun Energia's ecopower plant, expansion of Kuopio, Oulu and Kouvola biogas plants, and utilising manure as feedstock at existing plant in Huittinen.

In Sweden, the construction of a new plant continued at Stora Enso's pulp and paper mill site at Nymölla. The biogas plant will reach commercial start-up during 2021. In addition, ownership of the Skövde biogas plant in Västergötland was acquired by Gasum. A permit process is ongoing to have a new industrial scale biogas plant in Götene operational by end of 2022. We are also in the planning stage to establish new bio-gas plants in Borlänge and Kalmar with support granted under the Klimatkivet, local climate investment aid program in Sweden. Read more about [our biogas plant network](#) and [projects to boost biogas availability](#).



We are one of the few companies in the Nordic countries heavily expanding capacity to produce and distribute biogas in industrial scale to customers.

Biogas is sustainable

A 100% renewable fuel makes it possible for users to cut greenhouse gas emissions generated over the fuel life cycle by up to 90% compared with traditional fossil fuels.

Our biogas fulfils the sustainability criteria laid down by the EU Renewable Energy Directive. The biogas produced in our Finnish plants and used in the transport segment is labeled with the Nordic Swan Ecolabel. Read more [about the sustainability of biogas](#).



Biogas is a 100% renewable, locally produced fuel, and meets the sustainability criteria laid down by the Renewable Energy Directive. See the video **Cleaner tomorrow with biogas - Join the Cycle**.



<https://www.youtube.com/embed/wTd47pav9KI>

3.2.2 Biowaste and biodegradable feedstocks

We are a major processor of biodegradable fractions of waste generated in society



In 2020, we processed a total volume of
850,000 TONNES
 of biodegradable feedstocks
 in Finland and Sweden
 (2019: 758,000)



Our feedstock stream consists of
 biodegradable waste and residues,
 municipal wastewater sludge,
 agricultural by-products and crops

Our waste processing service

We process biomass from agricultural side streams, crops, manure, inedible food waste from retail outlets, food industry side streams, spoiled batches, and sewage and grease trap sludge.

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. 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.

Exploring new opportunities

We explore new feedstock possibilities to ensure availability and growth.

In 2020, we continued to plan a possibility for utilising the biodegradable material separated from municipal waste as the feedstock to produce biogas together with [Oulun Energia in Finland](#).

We are preparing for the increase of the use of animal manure in our forthcoming large scale biogas production. Göteborg biogas plant in Sweden 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.

In Finland, we work with HKScan on plans for the Huittinen biogas plant becoming Finland's first industrial scale biogas plant using manure as feedstock. The project is an important regional circular economy promoter and aims at improving the regional nutrient balance. The project will aim at enabling the valuable nutrients in pig and cow manure to be recovered and supplied to [crop farms with nutrient deficiency](#).

We advanced regional circular economy in Northern Finland by concluding a contract with the municipal waste management company Napapiirin Residuum to turn biowaste from residents in Rovaniemi, Ranua and Pello into [biogas and recycled nutrients](#). In addition, we opened a new biowaste transfer station in the Helsinki region to enable a cost-efficient recycling chain and logistics for biowaste.

In Sweden, a number of our biogas plants aim at utilizing a wider feedstock base in biogas production. Jordberga, Katrineholm, and Lidköping biogas plants have ongoing permit processes aiming at diversifying the feedstock and expand biogas production. During 2020, the Jordberga plant continued investment in raw material handling to enable utilization of more diverse fractions of by-products efficiently.



Utilizing manure as a feedstock in biogas production is an efficient way to reduce emissions, as the methane emissions from traditional manure management can be avoided. See the video about circular economy and Gasum.



<https://www.youtube.com/embed/m6Xni3tcf58>

3.2.3 Recycled nutrient and fertilizer products

Fertilizer products and nutrients are produced alongside with biogas



In 2020, our biogas plants produced
ABOUT 800,000 tonnes
of nutrient products.



In Sweden, all of Gasum's fertilizers
ARE CERTIFIED THROUGH SPCR 120
and most of the volume is
also certified for organic use.

The safe and sustainable use of nutrient-rich by-products is important to us

We produce high-quality organic fertilizer products, such as liquid and solid digestates containing recycled nutrients for agricultural and industrial use. We offer nutrient fractions also for other uses, such as forest industry wastewater treatment facilities, and compost for e.g. roadside landscaping.

We aim at further expanding opportunities for the use of nutrient-rich digestate. New advances in biogas production have the potential to change the nutrient and fertilizer market in the same way that biogas is changing the transport sector. Read more about [our research and development work](#).

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 processed into organic fertilizer products. Any pathogens and pests are destroyed by heating the feedstock mass to a temperature above 70 °C.

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

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

During 2020, we recorded an incident at our Jordberga plant where an outbreak of salmonella was prevented from spreading from the plant with effective control routines and mitigation actions.

Recycled nutrients reduce emissions

Utilisation of recycled nutrient products in agriculture and industry replace large quantities of fertilizers from mineral or fossil origin, with reduced emissions as a result. The use of recycled nutrients and fertilizers reduces the use of fossil or mineral based nutrients such as the use of scarce phosphorus resources. Using recycled nutrients and fertilizers also cuts emissions originating in the manufacture of nutrients from fossil origin.

The use of the digestion residue from biogas production as a soil-enhancing product also improves soil health. Digestion residue-based soil-enhancing products contain carbon compounds that make soils more fertile for food production. This can buffer the effect of climate change in agricultural soils and lower the related risks. Unlike, for example, burning biomass as an energy source and releasing the carbon it contains into the atmosphere, the carbon containing soil-enhancing products help to bind carbon into the soil.

Handprint of nutrient products

Handprint calculation revealed climate and nutrient resource benefits from our recycled nutrient products. We participated in a Finnish research project coordinated by VTT Technical Research Centre of Finland Ltd and LUT University that developed a science-based method for carbon handprint calculation. Handprint refers to the beneficial environmental impacts of products and services. Quantification of the carbon handprint is based on a carbon footprint calculation consisting of a life cycle assessment (LCA).

A study was conducted on Gasum's recycled nutrient product, ammonia solution, that replaces industrially produced urea in forest industry's wastewater treatment. The calculation showed a 90% lower carbon foot-print for the recycled product compared to the virgin product. The results confirmed that by replacing a virgin nutrient with recycled nutrient product, the user can expect a greenhouse gas emission reduction in its operations.



The handprint is achieved by improving the performance of another actor – for example by reducing a customer's carbon footprint with recycled nutrient products.

3.2.4 Research and development

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



Our investments into circular economy related development initiatives ADDED UP TO €1.3 million in 2020
(2019: €1.0 million).



Carbon capture and storage/utilization IS A TOPIC FOR ACTIVE RESEARCH and development on many fronts.

During 2020, the focus in Gasum's research and development activity was on the development of the biogas business, particularly in Finland and Sweden.

We continued product development relating to new digestate processing solutions and potential uses of nutrient residues in collaboration with our partners. The aim is to process nutrient residues from biogas production to meet the needs of industrial processes, for example.



Carbon capture and storage/utilization is a topic for active research and development on many fronts.

Active project work

In 2020, we were involved in several projects related to finding new feedstocks as well as processing methods to improve methane production from materials.

In Sweden, we continued work in projects under the third phase (2018-2022) of the Biogas Research Centre at Linköping University, in which Gasum participates in five research areas. In a project led by Swedish Agricultural University, we have been evaluating a production chain aiming at producing vegetable proteins and making biogas from agricultural side-streams. We continued work with RISE Research Institute of Sweden, including "Residues from cereal farming" (2018-2021) aiming at improved use of agricultural residues for biogas production. In Finland, two new projects, "Biosphere" and "Organic growth" coordinated by Natural Resources Institute Finland (Luke) were launched, aiming at improving resource recovery from manure and by-product biomasses.

In addition to the biological biogas process, renewable methane can be produced by using gasification and methanation technologies. With partners, we are involved in developing synthetic methane gas (SNG) concepts, for example in a project financed by the Swedish Energy Agency named "Biological methanation of syngas from gasification of lignocellulose". In gasification, product gas containing hydrogen is produced from, for example, lignocellulosic biomass. Product gas can be upgraded using biological or synthetic methanation into renewable methane.

Another example of new possibilities in biogas production is carbon capture and storage/utilization. Upgrading biogas to biomethane releases a by-product stream of biogenic CO₂. Capturing and purifying CO₂ from upgrading was piloted in Gasum's Lahti upgrading plant within the Biosykli circular economy -project. The project will continue to explore different uses for the recovered CO₂ stream – possibly allowing even carbon storage to products. [Read more.](#)

Other examples of research and development projects and initiatives we are involved in:

- Biofibres from biogas production as littering material in dairy production, led by RISE
- Occurrence of Legionella in circular economy products and the effect of hygienization (Legisafe), led by the Finnish Food Authority
- Recovery of nutrients from reject water using microalgae (Leväsieppari -project)
- Carbon capture and utilisation, led by Linköping University
Carbon capture and storage as a part of biogas plant, led by RISE
- Digestate pyrolysis, led by HSY and Luke
- New control methods for anaerobic digestion process and novel biogas cleaning and upgrading methods (Biofegg), led by Kajaani University of Applied Sciences and part of European ERA-NET program
- Novel technology for nitrogen and phosphorus recovery from reject water (NPharvest), led by Aalto University
- Agricultural use of concentrated nitrogen products from biogas production (PlasmaN), led by Luke
- Possibility to use biogas for producing mineral fertilizer, led by RISE

Developing ecosystems and partnerships for recycled nutrients

During 2020, we continued work in a project to develop ecosystems and partnerships for recycled nutrients.

Many of our development activities were focused on the fibre fraction of biofertilizers from farm-based production plants. During 2020, together with a partner we implemented fibre separation in Jordberga, Sweden, which enabled increasing biofertilizer value and decreasing volumes. We continued our cooperation with Hasselfors Garden, leading to more biofibres with the right quality being sold by Hasselfors. We also started cooperating with another soil producer in Sweden, to further develop our products and volumes. We participated in a research project led by Hushållningssällskapet Skåne, in which field trials were performed with our liquid biofertilizer in the cultivation of cauliflower.

Apart from developing the biofibre product we also continued to produce a liquid fertilizer for potted greenhouse grown herbs. It is used in a commercial scale in several greenhouses in Sweden.



During 2020, we continued work in a project to develop ecosystems and partnerships for recycled nutrients.

3.3 Environmental management

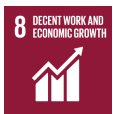
(302-1, 303-3, 305-1 Emissions, 305-2 Emissions, 305-3, 305-7 Emissions, 306-2 Effluents and Waste, 307-1)



Respect the environment

In accordance with our Code of Conduct, we commit to energy efficiency and 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.



We invest in maintenance and process development to improve our environmental performance.

By investing in energy efficiency,
we achieved energy savings of
44.5. GWh
in 2020

We extended our environment,
energy and safety management
systems

9

new certification at our biogas plants
and LNG terminals

We
RECYCLE PROCESS WATERS
efficiently
at our biogas plants

What we aimed for

Minimizing the environmental impact of our operations. Zero environmental breaches.



What we achieved in 2020

Our environmental target of zero breaches was not achieved. Number of non-conformances decreased from 7 to 4 compared to previous year.



We improved energy efficiency. We exceeded our energy efficiency agreement target and achieved 44.5 GWh energy savings in 2020.



Scope of environment, occupational health & safety and energy management system certification was extended to cover seven new biogas plants and two LNG terminals.

Environmental compliance

All sites systematically follow up on any deviations and report observations.

No major environmental incidents occurred in our operations during 2020. A total of 4 environmental non-conformances and about 50 environmental observations were recorded. In three of the non-conformances, environmental permit limits of odor from our Finnish biogas plants were exceeded. As mitigative actions, modifications in odor gas treatment technology solutions are on-going to prevent similar future occurrences. In the fourth non-conformance incident, storm water at the Turku biogas plant was contaminated with run-off water from an old landfill site. Mitigation actions with the landowner, the City of Turku, are ongoing. Gasum reported the breaches to the authorities and to local stakeholders where relevant.

In Sweden, two minor environmental fines were paid for failing to meet the requirements of environmental control activities related to prevention of leakage of refrigerants.

All sites systematically follow up on any deviations, pro-actively report observations, conduct safety walks, and compile risk assessments. We use reporting tools in the management and reporting of environment-related actions. During 2020, we developed our breach classification model, which follows Gasum's risk matrix.

Energy management

We manage and develop our energy efficiency through a certified ISO 50001 energy management system.

To improve our energy efficiency, we maintain a voluntary energy management system which is certified in accordance with ISO 50001:2018. During 2020, the scope was extended to cover seven new biogas plants and two LNG terminals. The energy management system comprehensively covers our supply, production, and delivery of gas products, as well as the processing of biodegradable waste, production of recycled nutrient and fertilizer products, and energy and portfolio management services. Read more about our [energy saving actions taken in 2020](#).



Our energy saving actions resulted in energy savings of 44.5 GWh during 2020.

Water management

We aim to utilize recycled water in the biogas production process as much as possible.

We see internal recycling of reject water as an economical and environmentally sound solution for operating the 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. 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 unpolled. Most of our freshwater consumption is as process water in biogas plants and as tap water in offices.



Efficient recycling means that many of our biogas plants produce no waste waters at all.

Odor gas management

In 2020, we continued to invest in reducing odor nuisances from our biogas plants.

In Turku, we improved odor gas treatment by conducting odor gas from the fertilizer storage hall to a more efficient treatment unit. The waste receiving hall will be fitted with new automated doors to minimize odor emissions from the building. In addition, Gasum organized odor observations performed by a consultant in the Turku plant area.

In the Riihimäki biogas plant, odor gas from the hygienization process was conducted to a new odor gas boiler and the odor scrubber unit was modified to optimize performance. These improvements can be made also in other biogas plants.

Waste management

Most of Gasum's process waste is recycled or recovered.

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

Key environmental data	2020	2019	2018
Feedstocks total, tons	850,000	757,000	744,000
Energy consumption, GWh			
Fossil fuel consumption	142.2	157.6	155
Renewable fuel consumption	87.8	96.5	64.2
Electricity consumption	164.3	154.1	156.2
District heat consumption	9.3	31.6	25.9
Steam consumption	34.3	31.5	47.5
Steam sold	0.0	0	0
Heat sold	4.0	7.1	6.6
Electricity sold	4.5	4.5	4.7
Total energy consumption	429.4	428.2	437.5
Emissions into air, tons			
Direct CO ₂ eq emissions (Scope 1)	45,000	66,000	64,000
Indirect CO ₂ eq emissions (Scope 2, location-based calculation)	15,000	15,000	24,000
Indirect CO ₂ eq emissions (Scope 2, market-based calculation)	9,000	8,000	14,000
Total CO₂eq emissions (Scopes 1 and 2, location-based calculation)	60,000	80,000	88,000
Total CO₂eq emissions (Scopes 1 and 2, market-based calculation)	54,000	74,000	78,000
Other indirect GHG emissions (Scope 3)	36,000	28,000	16,000
Direct CH ₄ emissions (included in Scope 1 emissions)	156	459	388
Direct biogenic CO ₂ emissions	75,000	80,000	13,000
Nitrogen oxides, t	12	29	35
Non-hazardous waste			
Reuse	0	592	0
Recycling	451	208	106
Composting	524	439	919
Recovery	7,626	5,864	2,249
Incineration	921	175	1,090
Landfill	201	3	10
Other	865	2,640	2,086
Hazardous waste			
Reuse	9	1.7	64.7
Recycling	0	1.7	0
Composting	0	0	0
Recovery	2	17	27
Incineration	0	472	11
Landfill	0	0	0
Other	7	24	26
Environmental Fines, €	1,000	0	0
Water withdrawal, m3			
Municipal water	183,290	179,876	195,600
Ground water	50,941	29,732	24,871
Seawater	174,296	156,503	217,188
Rainwater	8,648	53,221	39,998
Surface water	0	0	0

Principles of data calculation and descriptions of scopes:

Scopes 1, 2, 3 are in accordance with the Greenhouse Gas (GHG) Protocol and GRI Standards:

Scope 1: Includes facilities and sites which are owned by Gasum or its subsidiaries.

Scope 2: Includes facilities and sites which are owned or controlled by Gasum or its subsidiaries. Emissions from purchased energy come from the use of heat, electricity and steam. The amount of cooling energy is negligible and is not reported separately. Indirect greenhouse gas emissions from electricity and heat procurement are determined based on the location-based and market-based methods. The Finnish Energy Authority updated the location-based emission factor of Finland's electricity from 117 g CO₂e/kWh to 106 g CO₂e/kWh based on 2019 data.

Scope 3: Includes business flights and train journeys, as well as vessel and truck transports operated and owned by partners.

Changes in scope of environmental and energy data compared to the previous year:

Due to the unbundling of Gasum's gas transmission operations at the beginning of 2020, the scope has changed accordingly to exclude all the operations and sites that are not owned by Gasum. The scope has been extended to cover 58 new filling stations, two new biogas plants (Lohja, Skövde), two new terminals (Nynäshamn, Bingså), five new truck transportation companies, and two new vessels (Engie Zeebrugge, Kairos).

Biogenic carbon dioxide is emitted at the biogas plants in the combustion of biogas and landfill gas for energy production, in flaring, and in the biogas upgrading process. Biogas is a biofuel whose carbon dioxide emissions are not counted in the total emission amounts of Gasum's greenhouse gases.

The global warming potential (GWP) of methane is considered to be 28 times that of carbon dioxide based on the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). Location-based calculation of greenhouse gas emissions: A location-based method reflects the average GHG emissions intensity of grids on which energy consumption occurs, using mostly grid-average emission factor data. Market-based calculation of greenhouse gas emissions: A market-based method reflects emissions from electricity that an organization has purposefully chosen. It derives emission factors from contractual instruments, which include any type of contract between two parties for the sale and purchase of energy. The fuel consumption includes biogas, raw biogas, natural gas, light fuel oil, diesel and LNG. The renewable energy source is mainly biogas used in the plants' own processes.

4 SOCIAL AGENDA



Working together and with our stakeholders



Safety first

We believe that all accidents related to people, environment and assets can be prevented. We strive to be recognized as an industry leader in safety and security.

[Read more](#)



People

Our goal is that all Gasum Group employees are able to do their work well and be inspired in a safe and energizing work environment. We grow professional talent and develop agile culture.

[Read more](#)



Stakeholders

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

[Read more](#)

4.1 Safety and security
(403-1)

Safety and security – Highlights



We believe that all accidents related to people, environment and assets can be prevented.

We promote safe and secure working environments for our employees and contractors.



We promote safe and secure working environments for our employees and contractors.



We reduced the number of lost time injuries from 2 to 1 compared to the previous year



Total recordable injury frequency rate (TRIF) DECREASED BY 71% IN 2020



We act to maintain SAFETY DURING PANDEMIC to ensure security of personnel and business critical value chain

What we aimed for

What we achieved in 2020

Zero harm for people.



Our safety target of zero accidents was not achieved, but the rate of injuries decreased. The number of lost time injuries resulting in at least one day off work was 1 in 2020.



Business Continuity Plan including emergency preparedness was established to outline how we will continue operating during an unplanned disruption in services. We acted to maintain safety during pandemic.



"Operational Discipline" was launched as part of our safety culture. It enables predictability and a safer working environment, contributing to improving safety performance.



Reporting observations and incidents, including identifying corrective and preventive safety measures was at a high level, strengthening our proactive safety culture.



Safety & security e-learnings were established as well as monthly safety topics.

4.1.1 Safety culture

(403-1, 403-3 Occupational Health and Safety)



Safety first

We strive to be recognized as an industry leader in safety and security.

We continued to expand our safety-first culture and promote the safe production, handling and use of gas. Our target is zero injuries, zero harm to the environment and assets, and zero unplanned disruptions in gas supply. A safe and secure working environment has been, and will continue to be, a strong focus at management level in the organization and is crucial to achieve our goals.

The global Covid-19 pandemic changed our lives in 2020. As a company, Gasum's aim has been to protect the health of the employees, limit spread of coronavirus within Gasum, and secure business critical functions and functionality of supply chain.

Preventing harm pro-actively

We reduced the number of lost time injuries in 2020.

Every one of us is responsible for following safety and security instructions, making observations and eliminating hazards, and for taking part in safety and security training. Reporting and documenting observations and incidents helps to prevent damage, accidents, and injuries, and to ensure we continuously improve our daily operations.

Occupational health and safety issues are managed and monitored as regards to the number of accidents, lost time injury frequency (LTIF), total recordable injury frequency (TRIF), risk assessments and safety and security observations. Where risks are identified, we set deadlines and responsibilities for corrective actions and monitor these actions. We develop safety together with our partners to make our work safer. Our goals and occupational safety indicators encourage us to continuously improve our operations.

Our safety target of zero accidents was not achieved in 2020. However, during 2020 we reduced the number of lost time injuries resulting in at least one day off work from 2 to 1 compared with 2019. We also had a reduction in the number of medical treatment injuries, from 5 in 2019 to 1 in 2020, resulting in the TRIF decreasing by 71%.

A proactive safety culture was demonstrated by maintaining a high level of incident and observation reports, together with identified corrective and preventive actions in response to incidents, observations, and safety walks in 2020. HSEQ plans were created and preventive safety action was in focus at all biogas plants in Finland and Sweden. The LNG business continued with the excellent safety track record: Since 2010, there have been zero accidents and injuries involving our employees.

Safety has a key role also in Gasum's investment projects, where HSEQ related observations are recorded and weekly safety inspections on construction sites are carried out.

I am safety

We organized a safety campaign to raise awareness and strengthen our commitment.

We extended our "I am safety" campaign from previous years by launching "Operational Discipline". Operational discipline means complying with procedures, processes, guidelines etc., and consistently executing them correctly. This enables predictability, higher efficiency and a safer working environment with fewer mistakes and contributes to prevent fatal injuries and accidents.



Since 2010, there have been zero accidents and injuries involving our employees in our LNG business.

Safety training

In 2020, we continued to launch new elearning courses.

Our new elearning courses were targeted at both internal personnel and externals e.g. truck drivers and contractors at Gasum terminals and plants to ensure they are safe and secure while working for Gasum.



Operational discipline:

- 1. Questioning attitude | 2. Level of knowledge | 3. Forceful watch team backup | 4. Formality | 5. Integrity |
- > **Governance and policies**

4.1.2 Health and safety principles

Our health and safety principles

We comply with the following health and safety principles in our operations:

- By complying with safety and security guidelines and safe working methods, each employee is responsible for safety and wellbeing.
- We maintain and develop a management system with integrated safety and security guidelines.
- We are committed to safety and security guidelines and regulations.
- 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 personnel training and encourage compliance with safe working methods.
- We expect our partners to have a corresponding safety and security level.

Organization and responsibilities

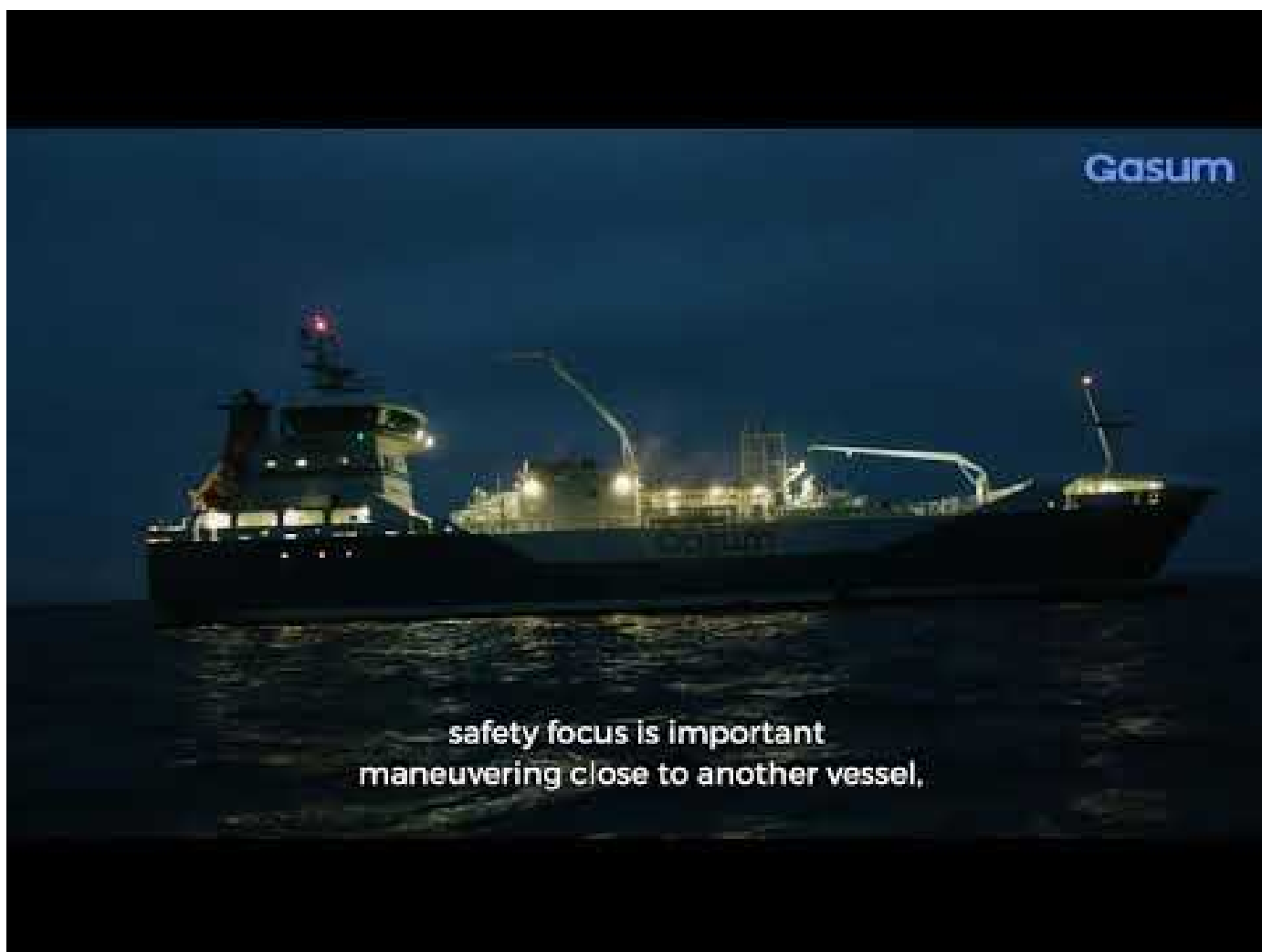
Safety and security issues are covered monthly by the Gasum Management team as well as by the Board of Directors, and regularly communicated through internal communication channels.

The business functions report on their respective safety and environmental performance on a monthly basis. Gasum has a Working Environment Committee in each operating country. The duties of the committees include consideration of occupational health and safety and health care action plans, reporting and follow-up on health care, risks, incidents, injuries, and environmental issues.

We have 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.



Reporting observations and incidents, including identifying corrective and preventive safety measures was at a high level, strengthening our proactive safety culture. See the video about safety bunkering a vessel with LNG.



<https://www.youtube.com/embed/hpcCK10FIDA>

4.1.3 Safe operations, products and logistics

Safe operations

Process safety involves ensuring our plants and 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.

Keeping our employees and contractors safe and secure is our top priority, and they are required to follow [Gasum's Lifesaving Rules](#). Our safety and security training programs help to create a safety-first working culture that increases risk awareness and prevents major incidents.

We have all our chemical safety data sheets (SDS) available in Ecobio Manager. The system covers all of Gasum's terminals and plants in Finland, Sweden and Norway. The system improves chemical safety within Gasum by ensuring that the latest safety data sheets are in use and that the sites have the right chemicals lists.



We continued to promote safety awareness among our employees and contractors.

Safe products

We maintain information to support our collaborative work to make our products safer.

Our products biogas, natural gas, liquefied natural- and liquefied biogas, and recycled nutrients are used in industry and energy production, maritime and road transport and in agriculture. We ensure that these products are safe from production to use.

We maintain information to support our collaborative work to make our products safer. This information includes Safety data sheets, which set out clearly the hazards associated with specific products and any relevant local regulatory requirements. Safety data sheets are [available on our website](#).



Safety data sheets maintain information to support our collaborative work to make our products safer.

Safe logistics

Safety is a key concern in our road and maritime activities. We transport, deliver, process, and store gas, biowaste and recycled nutrients.

All transportations, whether on land or at sea, are dealt with by our logistics service providers. Whether delivering fuel to customers, equipment for projects or traveling to meetings, we work hard to keep all our drivers and travelers safe.

Our road safety approach focuses on driver skills and behavior, the condition of the transport fleet, road, and local environment. Our employees, drivers and suppliers are required to comply with Gasum's safety rules. All safety incidents are reported, and all major incidents are investigated. We manage logistics safety through careful selection and evaluation of our logistics service providers.

We manage logistics safety through careful selection and evaluation of our logistics service providers. Our logistics operations emphasize on environmental, health and safety matters with our partners.

Transports of LNG and LBG by road or sea fall under ADR and IMO regulation, but we also provide drivers with additional training, both theoretically and in practice involving exercises including extinguishing LNG fires in pits. In addition, we require all drivers to conduct and pass Gasum specific drivers e-learning training. Due to Covid-19 restrictions in 2020, these practical exercises were postponed.



Our logistics operations emphasize environmental, health and safety matters with our partners.

Preparedness for exceptional situations

We continuously monitor operational preparedness for emergency situations.

In 2020, Gasum Business Continuity Plan (BCP) was established and implemented at group level to ensure a common Business Continuity strategy. The BCP project also included establishing Emergency Preparedness Plans for the business units where these were insufficient.

Emergency preparedness is practiced also in annual collaborative exercises together with public emergency services and customers.

Safety during the global pandemic

Gasum acts to maintain safety during the Covid-19 pandemic.

The year 2020 was marked by the Covid-19 pandemic and its effects. We have closely monitored the situation and taken action to safeguard the health of our employees. This work has been steered by an internal task force, which was established immediately the pandemic started in March to coordinate group level actions and restrictions. The task force reports to the CEO and consists of representatives from HR, HSEQ, Communications and Risk management teams from all operating countries.

Our objective is to protect the health of our employees, limit the potential spread of the virus within Gasum, secure business critical functions and the functionality of the supply chain. During 2020, we restricted access to the terminals, plants, and offices, imposed travel restrictions, and recommended remote working whenever feasible. We have advised our employees to follow the recommendations of national and local authorities.

Agile ways of working, active cooperation and communication, and feedback have been the tools used throughout the company to respond to the challenges caused by the Covid-19 pandemic.



Business Continuity Plan was established to outline how we will continue operating during an unplanned situation.

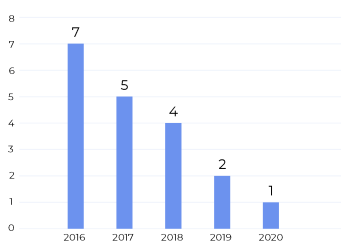
4.1.4 Safety in figures 2020
(403-1, 403-3 Occupational Health and Safety)



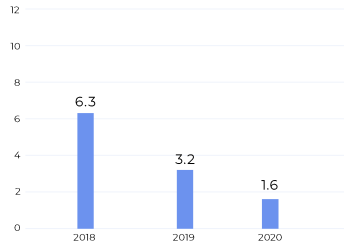
Downward trend in the number of accidents that resulted in at least one day off work.

FEWER INJURIES		LESS SEVERE INJURIES		FEWER CONTRACTOR INJURIES	
2020:	Total 2	2020:	Total 18	2020:	Total 5
(2019):	Total 7	(2019):	Total 133	(2019):	Total 10
LTI+MTI		Days away from work due LTI		LTI+MTI	

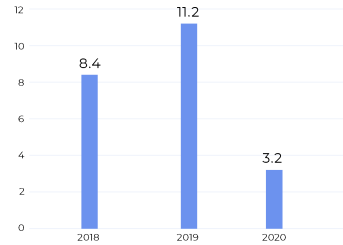
ACCIDENTS AT LEAST ONE DAY OFF WORK



LOST TIME INJURY FREQUENCY RATE LTIF



TOTAL RECORDABLE INJURY RATE TRIF



HSEQ figures			
	2020	2019	2018
Accidents that resulted in at least one day off work (own personnel)	1	2	4
Occupational accidents (own personnel)	2	7	6
Accidents that resulted in at least one day off work (contractors)	4	7	1
Occupational accidents (contractors)	5	10	1
Absentee working days due to accident/disease	1,070	1,359	2,589
Lost working days due to occupational accidents	18	133	84
Absentee rate	1.1	1.5	2.6
Injury rate (Lost day IR)	0.02	0.15	0.08
Occupational disease rate	0	0	0
Work-related fatalities	0	0	0

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

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

Occupational accidents = Zero-day accidents and accidents that resulted in at least on day off work

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

Total recordable injury frequency (TRIF) = Number of injuries/Total hours worked x 1000000. Includes both MTIs and LTIs.

Includes zero-day accidents and accidents that resulted in at least on day off work

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

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

4.2 Our people

Our People – Highlights



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



We provide jobs for 380 people in four different countries. We develop employee wellbeing, competence, good leadership, and agile working culture.

We launched a monthly **PULSE SURVEY** to measure employee experience

1.1% Absence rate of employees

5 New elearning training packages were launched for our personnel

What we aimed for

What we achieved in 2020

Promoting a healthy working environment: absence rate <2%.



Employee absence rate 1.1%

Developing the Gasum culture. We continuously assess our working culture and leadership.



Employee pulse survey

We started to use a new real-time tool which gives every Gasum employee a possibility to give feed-back regularly, improve team's success, and take part together in developing our culture.



Leadership principles

We strengthened the utilization of our leadership principles for every Gasum employee. We believe that each individual living by these principles brings good leadership alive and develops our company culture.



Agile leadership

We anchored our targets and gave a mix of tools to Gasum line managers for them to use in their daily work in order to build agile approaches.

4.2.1 Wellbeing

Wellbeing at work is the key to succeed together

The main focus areas of wellbeing include developing inspirational leadership, an open feedback culture, increasing the smoothness of work, maintaining work ability and reducing disability pensions. In addition to internal collaboration between all Gasum's different stakeholders such as management, HR-team and line managers, we have developed different cooperation models with external partners like occupational health care and insurance companies to anticipate and respond to potential work-related problems together.

An important part of wellbeing is how people experience working at Gasum. Wellbeing entails a personal experience of feeling positive about work and looking forward to coming to work, having a meaningful job where everyone can do their best and interactive collaboration. Our wellbeing goal is that all Gasum Group employees are able to do their work well in a safe and energizing work environment. We invest in knowing our people. Everyone is an individual. Every Gasum employee is also responsible for taking care of their personal wellbeing.

The crucial part of employee wellbeing is how well employees are integrated into Gasum and its culture. A good onboarding process is a critical part of that. In 2020, we continued to implement the renewed onboarding process including all pre-, on- and offboarding activities. Onboarding practices provide a tool for successful talent management and helps us to ensure that everyone understands how their tasks are connected to the Gasum strategy and story.



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

4.2.2 Culture and leadership

We boost agile culture and develop employee experience

We aim to strengthen the culture that engages, energises and focuses on building and sharing a common understanding and purpose. Two of our strategic initiatives include boosting agile culture and developing our [employee experience](#).

Agile leadership and ways of working are a fundamental building block in the development of our culture. It means constant learning and a growth mindset. A strong customer focus is our guiding principle also in internal collaboration. We have defined targets for agile leadership and given a practical mix of tools to Gasum line managers for them to use in their daily work to help to build agile approaches with their teams as well as cross-functionally.

In 2020, Covid-19 put us through an unanticipated period. Agile ways of working, active collaboration and feedback gathering are some of the shared tools used to tackle challenges together.

Gasum employee pulse survey

We launched a continuous pulse survey to develop our feedback culture.

In September 2020, we launched a new employee pulse survey to give all employees the possibility to give feedback regularly and take part in developing the Gasum culture together.

The pulse survey explores our employee experience which is the sum of everything that employee sees, hears, feels, and believes during her/his employment lifecycle. The survey covers some of the most important aspects of the employee experience: clarity, wellbeing, feedback, development, collaboration, in-formation, empowerment, motivation, and meaningful work.

An active start was made on using the new survey tool. Results from 2020 show that the employees find their work meaningful and feel empowered by the freedom to choose how to best perform their jobs. The survey shows that focus area for development is the availability of information necessary to perform to the best of one's ability. Response rate to the survey was 76% in 2020.



Feedback is the life blood for agile leadership. The monthly pulse survey is a continuous development process: see – feel – act. Response rate was 76% in 2020.

4.2.3 Competence

We focus on growing professional talent in a target-oriented manner

At Gasum we believe in our people - everyone is seen as a talent. Gasum's strategy provides the frame-work through which this talent grows,

innovates, and creates a future with a defined purpose. We grow people and business together.

We focus on competence development and talent management. 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. We need to learn daily from our own actions, successes, and mistakes.

On-going dialogue

We promote an ongoing dialogue. Systematic development discussions are part of that culture and are held between line managers and employees at least once or twice a year. The discussions give an opportunity to create a shared view of key issues and focus areas for the future, as well as setting targets and following up on personal development. Our Leadership Principles are part of the discussions as well and also have a crucial role in other HR processes. Each individual living by these principles makes inspirational leadership a reality.



Gasum offers challenging tasks and opportunities to grow, and employees are encouraged to take ownership of personal development.

Gasum Academy

The Gasum Academy is the umbrella concept for all people development activities at Gasum. The basic principle of the Gasum Academy is to offer training to all Gasum personnel. In order to guarantee this, the focus in the Gasum Academy is more and more on providing elearning training. The offering and methodology used are based on Gasum's strategy, values, leadership principles, feedback and learning methods.

In 2020, we continued to utilize elearning, which brings flexibility and standardizes training by providing the same quality of training to everyone. Elearning is a useful way of delivering courses and helps the business units and support functions in spreading information widely and efficiently.

During the year, we launched over 20 new elearning courses for our customers and stakeholders, and 5 for our personnel, such as a renewed Code of Conduct training and Business Continuity & Emergency Preparedness training. Both are mandatory for every Gasum employee.

In 2020, the focus areas in trainings in Gasum Academy were leadership and safety. Leadership trainings concentrated on the Gasum purpose, strategy, and agile leadership. Safety trainings were aimed at increasing awareness, trust and engagement in improving Gasum's safety culture and operational discipline. Due to Covid-19 most of the trainings were in e-learning or virtual form. The number of training days in 2020 totaled 1.4 per employee.



We continued to utilize elearning trainings, which bring flexibility and provides the same level of training to everyone.

4.2.4 Respect human rights

Committed to respecting human rights

Gasum is committed to respecting human rights in accordance with the internationally recognized human rights standards.

We strive to avoid involvement in any human rights abuses. We support the principles stated in the Universal Declaration of Human Rights, the United Nations Guiding Principles on Business and Human Rights (UNGP), the Organisation for Economic Cooperation and Development (OECD) Guidelines for Multinational Enterprises, and the International Labour Organisation (ILO) Core Conventions on Labour Standards. Our policy on human rights is embedded in Gasum Code of Conduct.

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 imposed in our Code of Conduct for Business Partners.

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. We expect a similar commitment from our business partners as specified in [our Business Partner Code of Conduct](#).

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

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 processes relating to our personnel, such as the recruitment and development of employees and their working conditions as well as employees' 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.

We encourage and expect all employees, as well as business partners to report concerns, incidents of non-compliance or suspected misconduct using the appropriate reporting channels. Our whistleblowing channel is available in all company languages (English, Finnish, Swedish and Norwegian). [Read more about raising concerns](#) at Gasum.



We encourage and expect all employees, as well as business partners to report concerns, incidents of non-compliance or suspected misconduct using the appropriate reporting channels.

4.2.5 Our people in figures 2020



The share of women of the total workforce increased from the previous year.

Men	73%	Full-time	98%	Permanent	96%
Women	27%	Part-time	2%	Temporary	4%

In the end of 2020, the Gasum Group had a total of 384 employees (2019: 373). The share of women of the total workforce, 27%, increased from the previous year (24%). The highest number of employees was in Finland, 56% (2019: 65%). Full-time employees accounted for 98% (2019: 97%) and permanent employees 96% (2019: 96%) of the personnel.

Gasum's exit rate of employee turnover in 2020 was 7.0% (2019: 10.5%) and the entry rate was 9.6% (2019: 19.8%). The turnover figures reflect Gasum's, development of operations and approaches as well as competence development through several recruitments. The exit rate is calculated by taking the number of permanent employees leaving the organization during the year (27) and comparing it with the number of permanent employees at year-end (384). The entry rate is calculated by taking the number of permanent employees joining the organization during the year (37) and comparing it with the number of permanent employees at year-end (384).

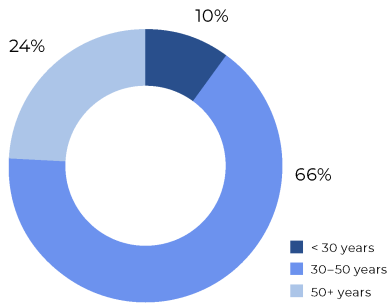
In 2020 Gasum had four business units - Gas & Power Sales, Biogas, Traffic and Portfolio Management & Trading. The support functions comprised Finance, Legal & IT, Communications and HR & HSEQ. A total of 316 employees worked in the business units and 68 in support functions.



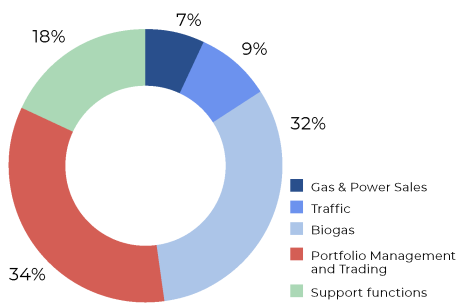
People working in:

Business Functions **82%**
Support Functions **18%**

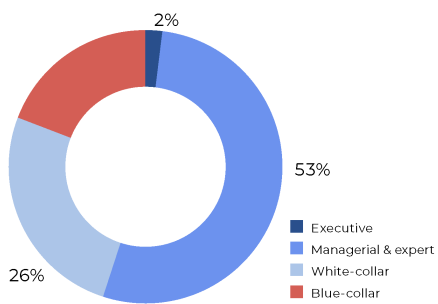
GASUM PERSONNEL BY AGE, DEC 31 2020



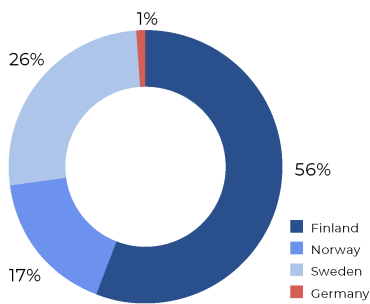
GASUM EMPLOYEES BY BUSINESS, DEC 31 2020



GASUM PERSONNEL BREAKDOWN BY PERSONNEL GROUP, DEC 31 2020



GASUM TOTAL WORKFORCE BY COUNTRY, DEC 31 2020



4.3 Stakeholders

Understanding the views and expectations of stakeholders

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



Our stakeholders play an important role in the development of our operations

We engage in an open dialogue with the stakeholders associated with our operations, and cooperate and interact in the context of events, meetings and working groups. Due to the COVID-19 pandemic, most of the interactions were conducted virtually during 2020.

Management of stakeholder collaboration within our organization is primarily defined by the stakeholder group and the form and theme of collaboration. Functions responsible for our stakeholder collaboration include Gasum's business units, communications and public affairs, and sustainability. All of the stakeholder groups have an important role in the development of our operations.

Our stakeholders include entities that have an impact on our business, or are affected by our activities, products, and services. We have a strong **customer** focus, and our most important objective is to generate added value for our customers. The development of our **personnel** wellbeing and competencies is crucial for the implementation of our strategy. We aim at growth and generating profits for the **shareholders**. We require responsibility from our **suppliers and subcontractors**, conduct supplier evaluations, and give safety training to our **contractors** and logistics service providers.

We collaborate with a range of **international organizations and industry associations** to develop the energy industry practices as well as influencing development in fields including marine fuels, bioenergy, climate change mitigation, circular economy, waste management and energy research. An essential element of [Gasum's R&D](#) work is partnerships with **research institutions and enterprises**.

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

Gasum's production plants and terminals in various locations around Finland, Sweden and Norway create jobs and value for the municipal economies and we engage with the **local communities** in contexts such as investment projects.

The Gasum Code of Conduct describes how we work with our stakeholders, covering topics relating to themes such legal compliance, conflicts of interest, bribery, corruption, principles of fair operations, transparency, and non-discrimination, and managing personal data and privacy. We have a whistleblowing channel available for our stakeholders on the Gasum website should they notice breaches of the Code of Conduct or have related concerns.

Stakeholder feedback

We identify important expectations.

In order 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 on us. We survey regularly 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. Read more about [customer surveys](#), [employee pulse surveys](#), and [materiality](#)



The Gasum Code of Conduct sets standards for how we work with our stakeholders.

4.3.1 Customer collaboration

Our main customer segments include maritime transport, road transport and industry

Gasum is a gas sector and energy market expert, and our renewable and low-carbon products and services help our customers to lower emissions, ensure predictability in operations, and enhance sustainability towards their own customers. Our Gasum Code of Conduct describes our responsible business practices and ways of working with the customers.

We have a strong customer focus in offering a wide range of energy solutions. Our business units' product portfolios include 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 provide our customers with biowaste management services and offer recycled nutrient and fertilizer products and organic matter for the soil.

In 2020, we collaborated with our customers in joint projects on land and maritime logistics, and industrial applications. Read more about our partnerships in traffic, maritime and industry segments.

Customer satisfaction

Customer surveys help to find ways to improve the customer experience and quality of our services.

In 2020, we measured the satisfaction of our B2B customers in the Nordic countries. We received group level net promoter score (NPS) of 31 (good). The customers appreciated our flexibility, commitment, and easy cooperation. Respondents hoped to see development in offering new solutions and services, and further expansion of the Nordic gas filling station network. The response rate in the survey was 51%.



Satisfaction survey resulted in an excellent NPS SCORE 77

We also conducted a survey for traffic consumer customers and smaller business customers. The survey resulted in NPS of 77 (excellent). The respondents saw the future of gas cars bright and the main motivations for buying a gas car were the cost of fuel (67%) and environmental performance (40%). Respondents hoped to see developments in the gas filling station network and digital services. The response rate for the survey was 51%.

In addition to customer surveys, we monitor customer satisfaction daily through customer feedback. Feedback is important in finding concrete and practical ways to improve the customer experience and quality of our service. Feedback is obtained through our account managers who meet and 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.

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.



We have a strong customer focus and want to be a reliable partner to our customers.

4.3.2 Open communications and public affairs work

Open communications to our stakeholders

We communicate about our operations, goals, strategies, and financial position to our stakeholders.

We seek to increase the attractiveness of and, awareness about, the gas sector and the energy company Gasum as a reliable and modern employer. The key principles of our communications are reliability, openness and consistency. We communicate both positive and negative information consistently, clearly and comprehensively, taking all identified stakeholders into consideration.

The use of diverse communication channels ensures access for all of Gasum's stakeholders, customers and personnel to enough information about issues that are current and interesting to them.

Active public affairs work

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

In our public affairs work, we emphasized promoting the use of versatile and low-emission gas and ensuring the competitiveness of circular economy solutions and low-carbon energy. In 2020 the total value of this advocacy cooperation in Brussels was around €55,000. 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.

We seek to increase the attractiveness of and, awareness about, the gas sector and the energy company Gasum as a reliable and modern and forerunner employer.

4.3.3 Partnerships and commitments

Partnerships and commitments

We collaborate with a range of international organizations and industry associations.

Through this cooperation, 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 to deepen our understanding of global topics and their connections to our business.

We are a participant in **programs, projects, networks, and commitments** promoting sustainability such as

- the Baltic Sea Action Group (BSAG),
- Carbon Neutral Municipalities project (HINKU),
- Climate Partners network of the City of Helsinki and business life,
- Climate Leadership Coalition (CLC),
- Finnish Business and Society (FiBS) corporate responsibility network,
- Helsinki Metropolitan Smart & Clean Foundation,
- Society's Commitment to Sustainable Development (Finland) and
- 2030 secretariat (Sweden).

An essential element of Gasum's R&D work is partnerships with research institutions and enterprises. Gasum is a member of Linköping University's Biogas Research Centre and a shareholder of CLIC Innovation Ltd. Gasum is actively involved in the development of joint research projects with other enterprises and research institutions in areas such as biogas production and recycled nutrients. Read more about [our active research and development collaboration](#).

Donations and funding

We are involved in creating capacities and experiences.

Through our sponsorship and cooperation projects, we want to promote physical activity among children and young people as well as Finnish and international capacities in the fields of sports and culture alike.

[Gasum supports programs](#) of the Finnish Olympic Committee nationally via the Star Club activities, the joint operating model of the Olympic Committee and sport-specific associations. Cooperation between Gasum and the Finnish Olympic Committee aims to promote the wellbeing of children and young people by enabling them to take part in physical activity. In 2020, Gasum and the Olympic Committee granted 14 regional Star Club incentive awards amounting to €1,000 and one Star Club of the Year award amounting to €5,000.

Gasum supports UNICEF, which works across the globe to save children's lives and defend their rights. In 2020, Gasum's Christmas gift funds were donated to UNICEF and its work in emergencies and humanitarian context across the globe.

Gasum participates in the Savonlinna Opera Festival's Young Opera Stars cooperation program. The program supports aspects including the internationalization of young opera stars' talent and competencies.

Gasum Gas Fund

Gasum provides grants to researchers every year through [the Gas 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 2020, the Gasum Gas Fund gave out eight grants totalling €75,000 (2019: €62,200). Grants are given to doctoral students who are pursuing their studies in the following thematic areas: gas-related circular economy and bioeconomy, gas transport and logistics, distributed energy solutions promoting gas use, and gas-based energy storage technologies (such as power-to-gas). Gasum Gas Fund grants have been provided since 2005.



In 2020, the Gasum Gas Fund gave out eight grants totalling €75,000.

5 ACCESS TO ENERGY



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 increased access to cleaner fuels by developing the energy infrastructure in the Nordics.



We partnered in various activities advancing innovations related to the circular economy and clean energy.



We use waste and residues to produce renewable energy and nutrient products.



We enabled greenhouse gas reductions for our customers with our low-carbon products and energy market services.



6 Terminals



5 Bunkering vessels



17 Biogas plants



1 biogas plant project
3 biogas partner plants



100 Gas filling stations

What we aimed for

What we achieved in 2020

Promoting awareness and availability of gas as a road fuel.



Filling station network was expanded to around 100 gas filling stations in the Nordics.

Expanding our offering in the maritime segment.



Bunkering operations were extended geographically. Availability of LNG and LBG at sea was increased, and we made about 1,300 deliveries for the vessel fleet.

Expanding our offering in carbon-neutral power.



Increasing availability of wind power. We entered into a long-term Power Purchase Agreement (PPA) to purchase wind power produced in a wind farm in North Ostrobothnia starting in 2023.

5.1 About gas

Natural gas and biogas

Gas is an affordable and low-emission source of energy.

Natural gas is almost pure methane, odorless, tasteless and non-toxic, and it does not contain sulphur, fine particulate matter or heavy metals. Natural gas is the cleanest of the fossil fuels in terms of greenhouse gases and other flue-gas emissions with relation to energy production.

Biogas is made of 100% local feedstocks and is a renewable energy source. It is produced through an an-aerobic processing of various types of organic waste. The raw biogas, that is non-upgraded biogas, is either used locally as an energy source or upgraded into biomethane containing approximately 97% methane. When we talk about biogas, we actually refer to biomethane, which has a composition equal to natural gas but is 100% renewable.

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 gas pipeline network.

The production of renewable synthetic natural gas (SNG) is also under development and will be an option in the future. Renewable SNG can be produced by gasifying biomass such as wood (bio-SNG) or through electrolysis from renewable electricity (e-SNG).



Natural gas and biogas can be used for many purposes.

- industry
- road transport for heavy-duty and light duty-vehicles
- maritime
- combined heat and steam production
- combined heat and power (CHP) production
- instead of electricity in many processes
- a variety of process applications
- heating, drying and cooking of products

5.2 Production



OUR LNG PRODUCTION PLANT
has a production capacity
of 300,000 tonnes
of LNG a year



We have 17 BIOGAS PLANTS,
1 under construction and
3 partner plants

Production of liquefied natural gas (LNG)

Gasum's LNG production facility is located in Risavika, Norway.

Our Risavika LNG production plant has a production capacity of 300,000 tonnes of LNG a year. Gasum sources natural gas from off-shore Norway via a subsea pipeline system. LNG is produced by removing CO_2 and water from natural gas, and by liquefying the product by cooling it down to -162°C . LNG is stored at atmospheric pressure in a large containment tank. LNG is also imported to the Nordic countries via terminals in north-western Europe.

Production of biogas

We boost our biogas production capacity by building new plants and procure biogas from other operators.

We own [17 biogas plants and have 1 plant under construction in Sweden](#). In addition, we have 3 partner plants. Biodegradable feedstocks for biogas production are sourced from industry, retail, municipalities, and agriculture. In 2020, we continued to invest in increasing our biogas production capacity and improving the efficiency our biogas plants through several projects.

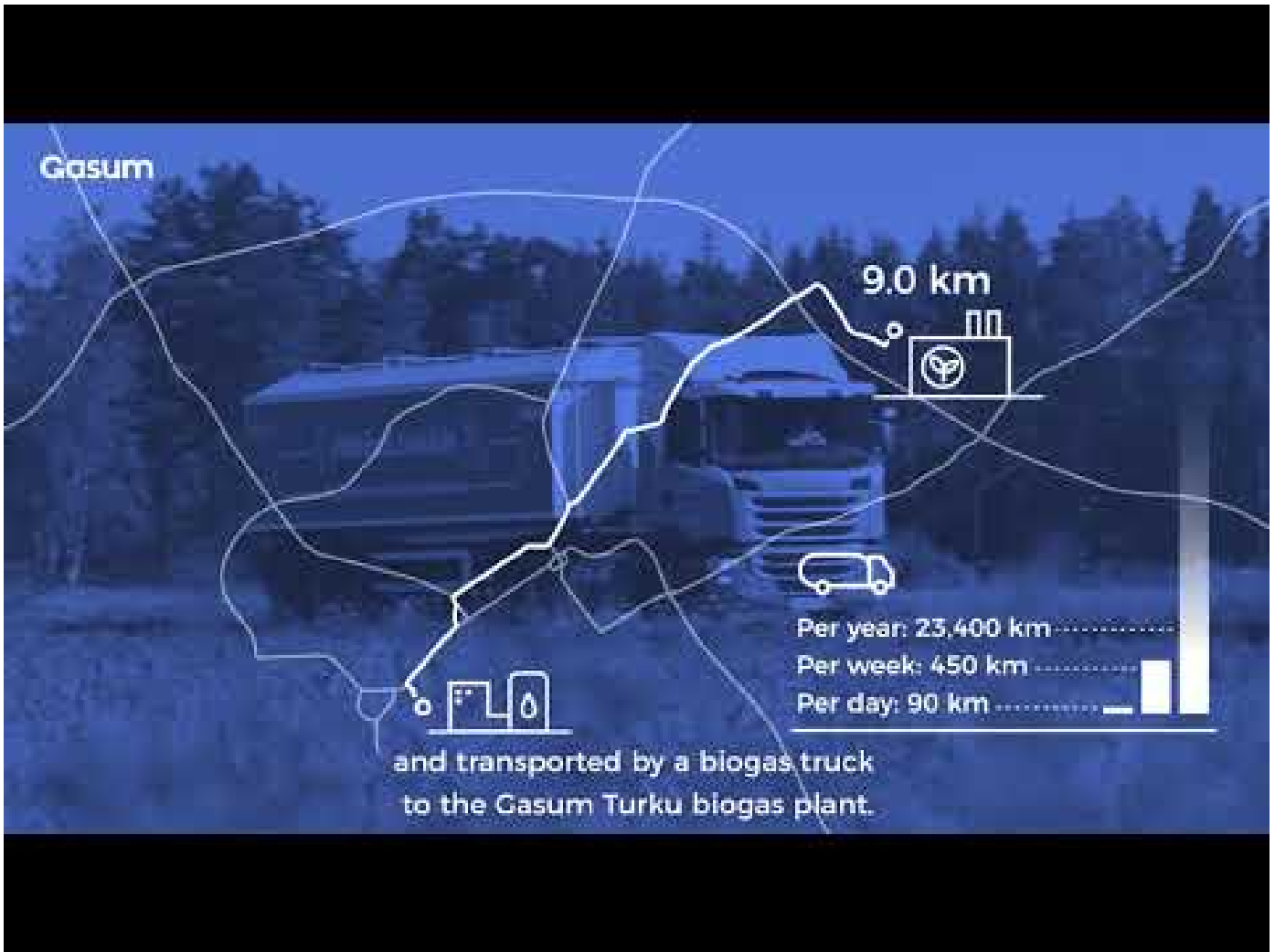
Our biogas production development projects in Finland

- **Lohja**
In December 2020, Gasum's biogas plant on the site of Munkkaa waste center in Lohja was completed and the plant entered commercial service in January 2021. The plant turns biowaste from the Helsinki region into renewable biogas for transport and industry as well as into organic fertilizers for agriculture. The plant will process around 60,000 tonnes of biodegradable feedstocks into 40 GWh of biogas and 50,000 tonnes of organic fertilizers a year. The biogas will be injected from the plant straight into the gas network. The Finnish Government has granted the Lohja biogas plant project €7.83 million under the "Bioeconomy and clean solutions" key project. [Read more.](#)
- **Vantaa**
At the same time, the Gasum's biowaste transfer station in Vantaa was completed and entered commercial service. The biowaste transfer station has the capacity to receive 34,000 tonnes of solid and sludge biowaste a year. Gasum's biogas plants will process the biowaste into enough biogas for the tanks of around 2,000 gas vehicles and into recycled fertilizers for the use of farmers. The biowaste transfer station will help Gasum, in partnership with other operators, to promote the implementation of the circular economy in the Helsinki region. Encore Ympäristöpalvelut environmental services operates the transfer station together with Gasum. All operators in the Helsinki region can utilize the biowaste transfer station. [Read more.](#)
- **Huittinen**
Gasum and HKScan are together planning to convert Gasum's existing biogas plant in Huittinen to an industrial-scale manure plant. The proposed plant would be Finland's first industrial scale biogas plant using manure as its main feedstock. The plant would utilize 60,000 tonnes of various feed-stock of which 50,000 tonnes would consist of various manures and agricultural side streams. As one of HKScan's contract partners, contract pig meat producer Emomylly Oy has also committed to the project. [Read more.](#)
- **Oulu**
Gasum and Oulun Energia are together planning to build a biogas plant in conjunction with Oulun Energia's Laanila eco power plant. The biogas plant would use the biodegradable material in municipal waste as the feedstock to produce biogas for use as a road fuel. Gasum's plans to build not only a biogas plant but also a gas liquefaction unit to process the biogas into a fuel for heavy-duty vehicles. The Laanila plant would be the second liquefied biogas (LBG) production plant in Finland. In the joint Laanila biogas plant project, Oulun Energia plans to invest in a waste processing unit to separate around 45,000 tonnes of biodegradable material from around 130,000 tonnes of annual household general waste. Gasum would be responsible for processing biodegradable waste into biogas and refining it into a road fuel. When completed, Gasum's new Laanila biogas plant will produce around 40 GWh of biogas a year. [Read more.](#)
- **Oulu**
Gasum is planning to enlarge the Rusko biogas plant in Oulu. The Rusko biogas plant uses separately collected biowaste and local sewage sludge as feedstock from which recycled nutrients are also produced. Following enlargement, annual biogas production at the Rusko plant would increase by 20 GWh. This additional production would be sent to Laanila for liquefaction and would bring the total annual amount of liquefied biogas production in Oulu to 60 GWh. [Read more.](#)
- **Turku**
The expansion and modernization of Gasum's biogas plant in Topinoja, Turku was completed, and commercial use of the plant started in November 2020. The plant will process around 130,000 tonnes of biomass a year, to produce around 60 GWh of liquefied biogas (LBG) a year, which corresponds to the annual fuel consumption of 125 heavy-duty vehicles or 5,000 cars. The plant will also produce around 4,000 tonnes of ammonia water for use as a recycled nutrient. The Turku biogas plant promotes the realization of the circular economy and the development of the gas market in the Turku region. The biogas plant is the first in Finland to produce liquefied biogas for transport, industrial and maritime needs. The Finnish Government has granted the Turku plant €7.97 million under the "Bioeconomy and clean solutions" key project. [Read more.](#)

Our biogas production development projects in Sweden

- **Skövde**
Gasum acquired the entire share capital in Skövde Biogas AB from Torran Gas Holding AB on October 31. The acquired biogas plant in Skövde has the potential to produce up to 40 GWh with the right feedstock. The acquisition will also enable Gasum to optimize raw material sourcing and distribution between other Gasum biogas plants in the area. [Read more.](#)
- **Götene**
In June, Gasum made a decision to invest in building a new biogas plant in Götene to produce 120 GWh, which is expected to complete by 2023. The plant is expected to produce 100 GWh of biogas a year, mostly from manure.
- **Nymölla**
The Gasum's biogas plant in Sweden at Nymölla at Stora Enso's pulp and paper mill will be completed in 2021 to produce 75–80 GWh of liquefied biogas (LBG). The plant will convert the organic material in the mill wastewater to renewable energy. The plant's production volume is equivalent to the amount of fuel needed for up to 200 long-haul trucks annually. The Swedish Environmental Protection Agency has granted an investment subsidy of €12.7 million to the Nymölla biogas plant project. [Read more.](#)
- **Borlänge and Kalmar**
Gasum is also planning to build biogas plants in Borlänge and Kalmar in Sweden. The plant planned in Borlänge will produce 120 GWh of liquefied biogas (LBG) mainly from manure and food waste slurry. The plant's location is convenient as Gasum is also constructing a new LBG filling station for heavy-duty vehicles in Borlänge. The plant also allows Gasum to use local feedstock for biogas production. The municipal energy and waste management company Aktiebolaget Borlänge Energi has operated a pre-treatment plant for food waste since 2017. The slurry currently produced by the company is transported out of Borlänge. Establishing a biogas plant near Borlänge Energi's pre-treatment plant at Fågelmäyra landfill and recycling centre will allow around 47,000 tonnes of slurry to be pumped directly to the biogas plant.
- **Kalmar County**
The 70 GWh biogas plant project in Kalmar County was established in cooperation with Mörbylånga Biogas AB, a company started by a group of local farmers. Through local co-operation, the plant has earned strong support from local authorities. As the project began from an initiative by local farmers, it is natural that the feedstock for the plant will consist mainly of manure and other agricultural residue products. Klimatklivet has granted Gasum €30 million for establishing these new biogas plants. [Read more.](#)

→ **We are one of the few companies in the Nordic countries heavily expanding our capability to produce and distribute biogas (both CBG and LBG) in industrial scale to our customers. See the video about biogas as part of circular economy in Turku.**



<https://www.youtube.com/embed/hEFqcqOWSWw>

5.3 Logistics and distribution

We are the biggest distributor of LNG in the Nordics

The LNG infrastructure can also be utilized in the distribution of LBG.

We deliver LNG from our terminals located in Norway (Risavika, Øra), Sweden (Lysekil and Nynäshamn) and Finland (Pori and Tornio). The Tornio terminal is a joint venture of the industrial companies Outokumpu, SSAB Europe, the energy company EPV Energy and Gasum.

Our LNG terminal network also serves deliveries of LBG originating from our sourcing partners in Europe. In addition, we deliver LBG from [our Turku biogas plant](#).

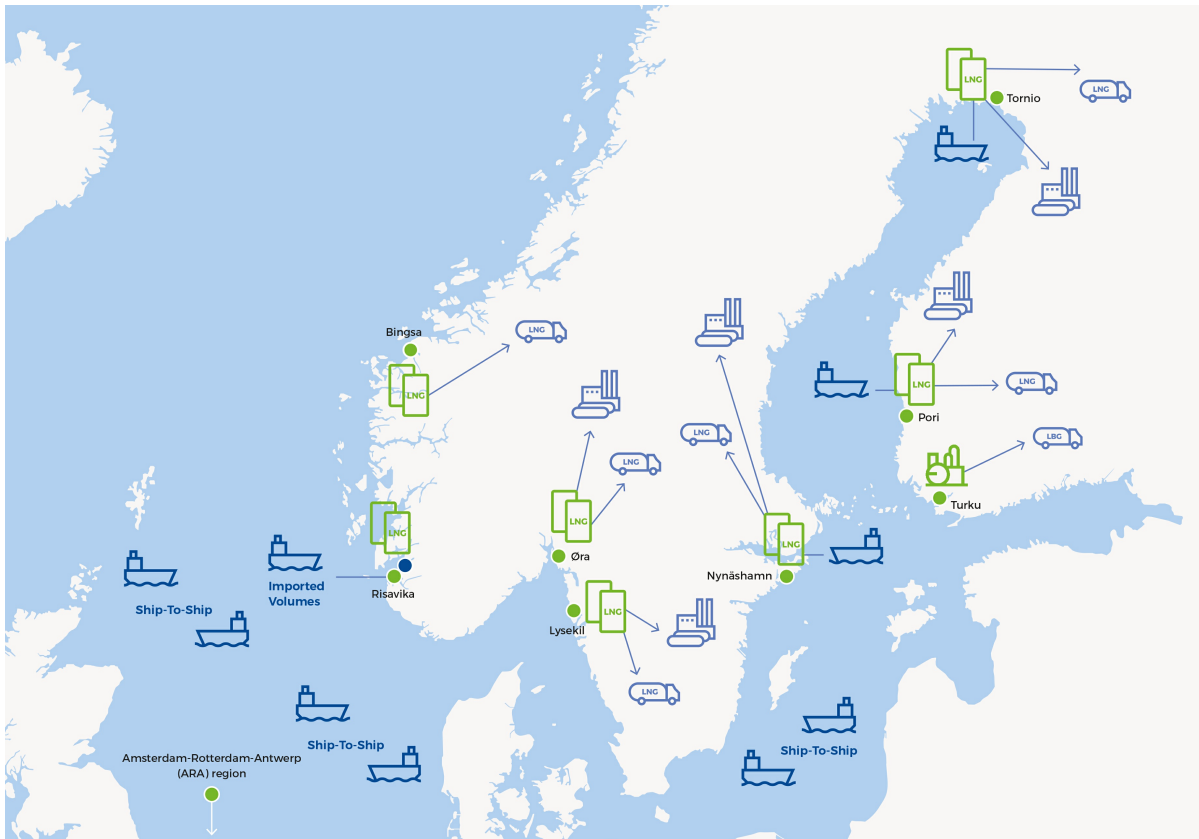
Our ways of delivering gas to customers



Read more about [our terminals](#) and [shipping portfolio](#)

In April 2020, Gasum acquired Linde AG's LNG and Biogas business in Sweden and Norway and Nauticor's Marine Bunkering business in Germany. The LNG terminals in Nynäshamn in Sweden and the bunkering vessels Seagas and Kairos, were transferred to Gasum. The acquisition was an integral part of Gasum's strategy execution to strengthen Gasum's capacity to offer a broad range of gas solutions for various customer segments in multiple locations.

LNG supply chain the in the Nordics



Read more about [our terminals and shipping portfolio](#)

Serving the maritime segment

We are building the maritime infrastructure in Northern Europe.

Gasum is continuously developing the supply of fuels and services 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 also to Germany. In 2020, we entered into partnership with Pavilion Energy Singapore. The partnership enables Gasum to provide customers with liquefied natural gas (LNG) in the Singapore area.

We deliver LNG and LBG to our customers by truck-to-ship, terminal-to-ship, or ship-to-ship and work to develop the best bunkering solutions and services for our customers. Ship-to-ship bunkering at sea or at port increase our flexibility and responsiveness to vessels that require LNG. During 2020, ownership of Kairos, one of the world's largest bunker supply vessels with a capacity of 7,500 cbm³ transferred to Gasum under the Linde AGA transaction.

During the year, we opened a new bunkering station for liquefied gas at Port of Nynäshamn, in Sweden. The new station includes new bunkering solutions enabling ships to bunker fuel faster than before. The Port of Malmö has joined the steadily growing Gasum network of European ports qualified for LNG deliveries, either ship-to-ship or by truck.

Gas filling station network

Gasum's Nordic network includes around 100 gas filling stations serving different gas vehicle segments.

Gasum has a comprehensive network of gas filling stations to serve heavy-duty transport and lighter transport segments in the Nordics. Due to investments in new gas filling stations and acquisitions of stations there are already around 100 gas filling stations in the Nordics owned by Gasum. Besides building new gas filling stations, we have development projects across the station network to increase capacity at existing filling stations.

We are developing a network of 50 filling stations for LNG/LBG trucks in the Nordics in the next few years. In 2020, we opened 8 new stations in high-traffic areas. Together with other actors, we already have constructed a network of around 40 stations for long-haul LNG/LBG gas trucks in Finland, Sweden, and Norway.



in 2020

- 48 filling stations were transferred to Gasum
- 8 new filling stations
- over 100 filling stations in Nordics

Biogas in the natural gas pipeline network

Biogas certificate system ensures that the amount of biogas produced equals the amount sold.

In Finland, upgraded, compressed biogas (CBG) is distributed to users via the natural gas pipeline network or transported in separate container tanks to destinations such as gas filling stations located in areas that are not served by the pipeline network. The amount of biogas in the gas pipeline network is managed using the Biogas Certificate system, for which one Biogas Certificate is created for each megawatt hour. When biogas is sold, a corresponding number of certificates is cancelled in the system. This ensures that the amount of biogas sold equals the amount of biogas produced and that biogas cannot be sold multiple times for different uses.

Supply certainty at excellent level

Supply certainty is maintained in a systematic and preventive manner and disruptions are extremely rare. The supply certainty of natural gas, LNG and biogas was at a good level throughout the year, and there were no major delivery disturbances in gas supply to customers.



Supply certainty at excellent level. We strive to ensure there are no unplanned disruptions in the supply of natural gas or biogas. See the video about cleaner maritime transport – Navigate forward.



<https://www.youtube.com/embed/WCtFODyZxOQ>

5.4 About power

Energy market services to customers



We strive to increase the procurement of renewable wind power in the Nordic countries.



We enable easy operations and add value to energy market customers.

Gasum enables easy operations and with partners adds value to energy market customers.

As part of the Gasum strategy to develop the Nordic gas market, we offer energy wholesale users and producers comprehensive services, the latest market information and flexible software solutions. Our services include portfolio management and brokering services, taking care of energy sales, sourcing, and production for our customers throughout the market chain.

Gasum's Energy Market Services assist 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 speedy response to changes in the market situation. We take care of energy sourcing and optimization of energy production.

We also help our customers to operate responsibly by obtaining Guarantees of Origin for electricity for renewable electricity generated by hydro, wind or solar power or bioenergy to our customers. In addition, we act as an expert in emission allowances trading, and offer alternatives for voluntary emission offsetting.

In 2020, we signed a portfolio management agreement with Keravan Energia. Cooperation ensures the predictability of managing electricity price risks in respect of electricity sales portfolios. [Read more.](#)



We help our customers to operate responsibly by obtaining Guarantees of Origin for renewable electricity.

We are a major actor in the wind power segment

We strive to increase the procurement and availability of renewable wind power in the Nordic countries.

During 2020, we entered into a long-term agreement with ABO Wind Oy to purchase its wind power produced in a wind farm in North Ostrobothnia starting in 2023. The Power Purchase Agreement (PPA) will allow us to increase the availability of renewable domestic energy and self-sufficiency in power generation in Finland. We will acquire around 100 GWh of renewable wind power a year. [Read more.](#)

During the year, we studied how much weather-dependent variable wind power the Finnish power system could take in 2030. The study was commissioned by the Finnish Wind Power Association and showed that the Finnish power system could take as much as 25-30 terawatt hours (TWh). The study findings support the Finnish Wind Power Association's aim of wind power meeting 30% of Finland's electricity consumption at the turn of the next decade. [Read more.](#)

Our control room monitors the energy market around the clock

In the Gasum Control Room, the energy market is monitored 24/7.

This real-time monitoring 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.



We strive to increase the procurement of renewable wind power in the Nordic countries.

6 REPORTING PRINCIPLES



Sustainability reporting 2020

Gasum's Corporate Responsibility Report 2020 presents the most significant sustainability performance topics of the Company, including impacts on the climate and environment as well as the social agenda. Our investments into renewable energy and contribution to climate change mitigation and circular economy are highlighted also in our Green funding impact report.

The report has been prepared in accordance with the GRI (Global Reporting Initiative) Standards, core option.

The most relevant disclosures related to the Company's operations, products and stakeholders have been selected based on the assessment of the most significant sustainability topics for Gasum and its stakeholders, according to the materiality assessment released in 2019. The reporting takes place under Finnish law and the guidelines issued by the Ownership Steering Department in the Prime Minister's Office.

The report was published in English on the Gasum website on March 29, 2021. The reporting period for this report is the same as that of the Financial Statements, i.e. the financial year from January 1 to December 31, 2020. Reporting boundaries include the entire Gasum Group. Each GRI disclosure is stated in the GRI Content Index and covers all functions of Gasum Group unless otherwise stated.

HSEQ together with the Communications is responsible for compilation of the Corporate Responsibility Report. During 2020, the HSEQ unit was responsible for sustainability, safety and security, and environmental indicator monitoring. The HR organization was responsible for the monitoring and compilation of indicators relating to social responsibility.

Environmental and safety related data was collected from the CRM system, CSM environmental database, and the Quentic accident and incident reporting system. Human resources data was collected from the Personec W payroll system and Sympa system. There are no significant changes in disclosure calculations compared to previous year.

Information concerning many of the reported disclosures can also be found in Gasum's Year 2020 news feed, Gasum Financial Review 2020, Gasum Governance and Remuneration 2020, and Gasum Green Funding Impact Report 2020, available online at www.gasum.com - Key figures.

7 CONTACT INFORMATION

**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 responsibility](#) >

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GASUM CORPORATE RESPONSIBILITY 2020 – CLEANER ENERGY

In Accordance - Core

Gri Indicator	Topic	Page	Comments	Assurance	Location
GRI 102: GENERAL DISCLOSURES					
Organizational Profile					
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102-2	Activities, brands, products, and services	ACCESS TO ENERGY	p. 63-64		
102-3	Location of headquarters	CONTACT INFORMATION	p. 72		
102-4	Location of operations	Strategy and guiding principles	p. 10		
102-5	Ownership and legal form	Strategy and guiding principles GOVERNANCE – RESPONSIBLE BUSINESS	p. 10 p. 7-9		
102-6	Markets served	Industrial solutions Climate change Solutions for road transport Maritime transport solutions Recycled nutrient and fertilizer products	p. 23-24 p. 17 p. 25-26 p. 27-30 p. 38		
102-7	Scale of the organization	Strategy and guiding principles	p. 10		
102-8	Information on employees and other workers	Our people	p. 55		
102-9	Supply Chain	ACCESS TO ENERGY	p. 63-64		
102-10	Significant changes to the organization and its supply chain	REPORTING PRINCIPLES	p. 71		
102-11	Precautionary principle or approach			In line with the precautionary principle, Gasum acts with care and diligence to prevent environmental degradation and takes into account the probability or the risk of degradation, accident risk and opportunities to prevent accidents and mitigate their impacts.	
102-12	External initiatives	Stakeholders	p. 60		
102-13	Membership of associations	Stakeholders	p. 60		
Strategy					
102-14	Statement from senior decision maker				
102-15	Key impacts, risks, and opportunities	Risk and crisis management	p. 14		
Ethics and integrity					
102-16	Values, principles, standards, and norms of behavior	Business ethics and compliance	p. 11		

GASUM CORPORATE RESPONSIBILITY 2020 – CLEANER ENERGY

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Governance				
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102-26	Role of highest governance body in setting purpose, values, and strategy	GOVERNANCE – RESPONSIBLE BUSINESS	p. 7-9	
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102-50	Reporting period	REPORTING PRINCIPLES	p. 71	January 1 to December 31, 2020
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GRI 200: ECONOMIC TOPICS				
GRI 201: Economic Performance				
GRI 103: Management Approach				
103-2	The management approach and its components	GOVERNANCE – RESPONSIBLE BUSINESS	p. 7-9	
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GASUM CORPORATE RESPONSIBILITY 2020 – CLEANER ENERGY

201-4	Financial assistance received from government	ACCESS TO ENERGY	p. 63-64
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GRI 203: Indirect Economic Impacts

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103-1	Explanation of the material topics and its boundaries	Business ethics and compliance	p. 11
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			Code of Conduct

GRI 300: ENVIRONMENTAL TOPICS

GRI 301: Materials

GRI 103: Management Approach

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GRI 303: Water

GRI 103: Management Approach

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GRI 305: Emissions

GRI 103: Management Approach

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305-3	Other indirect (Scope 3) GHG emissions	Environmental management	p. 41-44

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305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	Environmental management	p. 41-44	SOx, VOC and PM emissions are not significant in our operations.
GRI 306: Effluents and Waste				
GRI 103: Management Approach				
306-2	Waste by type and disposal method	Environmental management	p. 41-44	
GRI 307: Environmental Compliance				
GRI 103: Management Approach				
307-1	Non-compliance with environmental laws and regulations	Environmental management	p. 41-44	GRI Index
103-1	Explanation of the material topics and its boundaries	Supply chain management	p. 13	
GRI 400: SOCIAL TOPICS				
GRI 401: Employment				
GRI 103: Management Approach				
103-2	The management approach and its components	GOVERNANCE – RESPONSIBLE BUSINESS Our people	p. 7-9 p. 55	
401-1	New employee hires and employee turnover	Our people in figures 2020	p. 58-59	Performance in figures 2018
GRI 403: Occupational Health and Safety				
GRI 103: Management Approach				
103-2	The management approach and its components	GOVERNANCE – RESPONSIBLE BUSINESS Safety and security	p. 7-9 p. 46	
403-1	Workers representation in formal joint management-worker health and safety committees	Health and safety principles	p. 49	People
403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	Safety in figures 2020	p. 53-54	
GRI 404: Training and Education				
404-1	Average hours of training per year per employee	Competence	p. 56	
404-2	Programs for upgrading employee skills and transition assistance programs	Competence	p. 56	
GRI 405: Diversity and Inclusion				
405-1	Diversity of governance bodies and employees	Our people in figures 2020	p. 58-59	
GRI 415: Public Policy				
415-1	Political contributions	Stakeholders	p. 60	