



# Sustainability report

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At 2G, we regard sustainability as responsible corporate action encompassing a long-term perspective. This includes the dimensions of environment and climate, the principles of good corporate governance, social responsibility, as well as taking account of the interests of the public, shareholders and customers. Our actions today are geared to unfold a lasting positive impact in the future.

We are aware that sustainable action strengthens the economic value of our company, promotes technological innovations and product developments, enhances the quality and reliability of our products, promotes the motivation of all employees and enables our customers to contribute to improved resource conservation and more climate protection.

Our ambition is to harness such an approach in order to generate growing demand for our products, with potential customers being convinced of the quality and future viability of 2G as a company and its products in relation to other suppliers' products. This can translate into market share gains and rising profit margins for 2G. Consequently, we endeavor to incorporate sustainability into all our business decisions, while weighing up the related risks and opportunities. Sustainability forms as much a part of the 2G brand as our claim to be the global technology leader for gas-operated CHP systems and (energy) solutions. Consequently, 2G aims to be an industry leader in terms of sustainability and new technologies. We will not rest on our laurels simply because the technological standard of our products and services is already very high and our power plants are highly efficient, achieving rates of 90%.

2G recognizes the need for global climate action and is committed to the 2015 Paris Agreement target of limiting temperature increases to 1.5 °C in relation to pre-industrial levels as far as possible. As a company, we have a responsibility to further develop our products by enhancing efficiency, reducing greenhouse gas emissions and lowering the total cost of ownership in such a manner that our products are able to make an increasing contribution to such ambitions. From a customer perspective, it is already true today that protecting the climate with 2G's CHP plants pays off as the systems are economically highly attractive. The higher energy prices rise, the more this holds true.

Equally, in the production process and in administration, we strive to make our contribution as a company and as a social community to reducing greenhouse gas emissions through the utilization of renewable energies and resource conservation. These endeavors are supported by our ISO certifications for quality, information, energy and environmental management that have been regularly confirmed over many years. In order to tap further potential for improvement in these areas, the Energy and Environment Team, consisting of one Management Board member and the Head of Management Systems and representatives from the Production, Sales, Procurement and Energy Technology Departments, meets once every quarter.

As a leading company for gas-fired CHP plants, 2G is working on effectively reducing its Scope 1, Scope 2 and Scope 3 emissions. We commissioned Fokus Zukunft GmbH & Co. KG to measure the carbon footprint for the major parts of the company at our headquarters in Heek. With this

survey of the status quo for 2021, we created the basis for our operating spheres of action for greater climate protection and sustainability. We have already commissioned a report on the footprint for 2022. The greenhouse gas footprint presented shows emissions directly related to 2G's own value added. Overall, 2G emitted 5,813 tons of CO<sub>2</sub>e. This equates to a value of 7.3 tons of CO<sub>2</sub>e per employee. Further details can be found on pages 24 and 25.

We have made our voluntary commitment to sustainability beyond the confines of 2G externally visible and binding by joining the United Nations Global Compact. We will make our annual progress report available on 2G's website by June 30.



As a listed company, we are in the focus of institutional investors who base their investment decisions on ESG (environment, social, governance) criteria. In many cases, the data for such ESG criteria are obtained from service providers. Institutional Shareholder Services Inc. (ISS) is one such service provider. 2G was again awarded Prime Status by ISS in the year under review, placing it among the top 20% in the relevant "Industry" peer group.

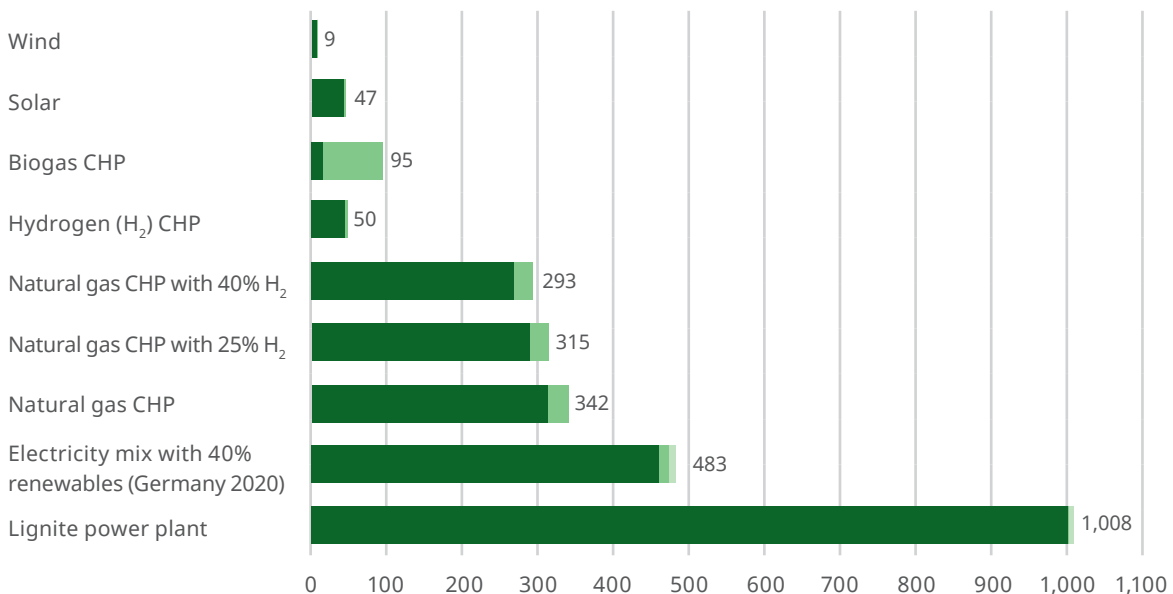
### **Sustainability embedded in CHP system development and service**

As an international manufacturer of gas-fired cogeneration systems, 2G aims to be a technology leader and thereby continuously reduce the environmental footprint of its systems and services. The cogeneration of electrical and thermal energy makes CHP technology more efficient and much more climate compatible than conventional energy production methods – achieving efficiencies of 90% and above. Compared to conventional power and heat generation, it saves at least 25% of primary energy in a resource-conserving manner. By comparison with coal-fired power stations, carbon emissions pollution is reduced by 40% to 60%. CHP units fueled by natural gas already produce around two thirds fewer greenhouse gas emissions than conventional power generation from coal, while biogas-driven CHPs save up to 90%. Ultimately, when hydrogen is harnessed, around 95% of greenhouse gas emissions will be eliminated.

### **CHP plants are the backbone of the energy turnaround**

As the backbone technology for the energy transition, natural gas-fired CHP systems are indispensable for secure supplies as complementaries to fluctuating generators depending on wind and solar energy. They provide highly flexible and demand-driven residual load under windless and clouded over conditions. In addition, decentralized CHP systems are rotating masses in the electrical system and secure grid frequency. This is particularly important for sensitive grid stability as the shutdown of nuclear and coal-fired power

### Greenhouse gas emissions of different types of electricity generation incl. upstream chain emissions

in g CO<sub>2</sub> eq/kWh<sub>el</sub>

■ CO<sub>2</sub> (carbon dioxide) | ■ CH<sub>4</sub> as CO<sub>2</sub> equivalent (methane) | ■ N<sub>2</sub>O as CO<sub>2</sub> equivalent (nitrous oxide)

Greenhouse gas emissions of different types of electricity generation incl. upstream emissions in grams of CO<sub>2</sub> equivalent per kWh of electricity (g CO<sub>2</sub> eq per kWh<sub>el</sub>); the bar "Electricity mix with 40% renewables (Germany 2020)" shows the amount of emissions released for electricity generation in Germany with a share of 40% renewables in 2020. Source: 2G Energy AG, 2021

plants progresses. Last but not least, all newly delivered 2G CHP systems in the 100 kW to 1 MW power range can be converted to operate with 100% hydrogen as part of regular maintenance. The cost of the conversion amounts to between 10 and 15% of the new purchase value. For this reason, today they already represent a secure investment in climate-neutral energy supplies.

With the development of our innovative CHP series, we factor economic, environmental and social criteria into our choice of materials, service and maintenance optimization, useful life, immissions and emissions, recyclability, and

lifecycle management for our systems. This also includes the CHP systems' compact design and modular construction, repowering options, the reduction of oil consumption and of noise and exhaust emissions, as well as software-based remote operational control and integration into existing infrastructure.

We are systematically advancing system service digitalization, including our I.R.I.S. online platform (offering predictive maintenance, among other features), which we developed in-house, as well as augmented reality applications. This results in more efficient services, a

considerable extension in the intervals between maintenance work and thereby overall to a reduction in service and maintenance costs and the increased availability of the CHP systems.

Where product development and product equipment are concerned, 2G consistently relies on durable materials. The products used are then reprocessed and redeployed in the same function at the end of their application cycle. Ideally, this occurs more than once. Pursuing this “long-life” approach, 2G has established resource-conserving reconditioning for central components such as motors and generators as well as for classic wearing parts such as filters, spark plugs and electronic components. We are able to offer our customers attractive prices with such refit systems and reduce raw material consumption in the process.

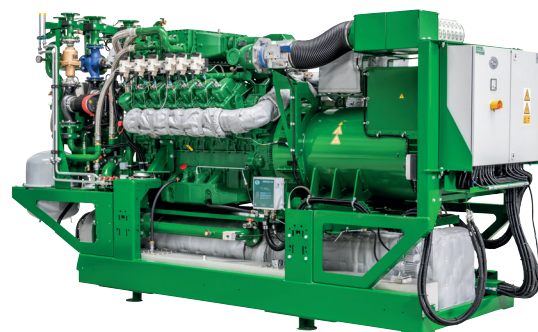
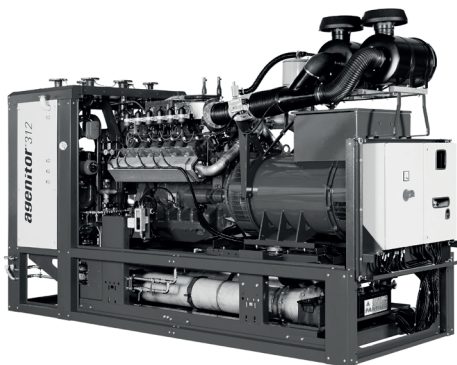
### R&D boosts system efficiency

Our in-house research and development department comprising 31 members of staff has been continuously optimizing engine technology, peripheral equipment and the integration of software and hardware into CHP systems and service operations and functions. One outstanding example is certainly the development of hydrogen-fueled CHP systems on the basis of the standard natural gas CHP system. Further salient examples are the my.2-g.com and I.R.I.S. platforms developed in-house.

The design of a new 16-cylinder unit, the avus 800plus based on a Liebherr engine, was a strong focus in the reporting year. The concept builds on the avus 1000plus with the result that we were

## 2G Repowering

- From agenitor 312 to agenitor 412
- From filius R06 to agenitor 404a
- Exchange of the engine – generator and periphery remain the same
- Modification in Heek



able to use many of the same components. The avus 800plus closes the performance gap in our product range between the avus 550plus and the avus 1000plus. We completely redeveloped the g-box 50plus as a biogas version within the space of a mere three months. This system type is primarily intended to meet the rising demand for self-sufficiency in biogas systems.

In terms of engine optimization, we focused on spark plug service life through improved control. More effective provision of ignition energy and improved knock control firstly enable the targeted increase in performance to be achieved and secondly lead to more even and lower wear on the main parts subject to wear and tear. Overall, with this development progress, we are able to deliver engines with better control and a performance increase of over 10% in connection with low emissions and the customary long component service life.

In the reporting year, we participated in the Federal Ministry for Economic Affairs and Climate Action's CH2P research project to develop technology solutions for hydrogen CHP plants which is being funded to the tune of EUR 1.5 million. The aim of our work is to enhance the power density by means of three approaches: turbo charging with wastegate control, new combustion chamber and piston design, valve timings and camshaft design. The project is being prepared together with nine partners from research and academia with the aim of providing next generation combined heat and power systems in order to produce electricity and heat highly efficiently and affordably from hydrogen.

The fact that our research and development work has been successful and we have been able to translate the fruits of our labor into our CHP series within a very short space of time is reflected in the awards which we once again garnered in the reporting year. 2G carried off two prizes in the COGEN Europe Recognition Awards: winner in the "Technology and Innovation" category and winner in the "Best individual Contribution to the European Market Development of CHP Systems" category. At regional level, the Münsterland Innovation Prize is awarded to companies that enrich the region with groundbreaking ideas, smart developments and sustainable progress. 2G received the coveted prize in the "Industry" category for its hydrogen CHP systems.

#### **Certified in accordance with IT, quality, environmental and energy management standards**

We continuously review and improve our processes as part of the integrated management system (IMS). The central companies are therefore certified to the ISO 9001 (quality), ISO 14001 (environment), ISO 27001 (IT security) and ISO 50001 (energy) standards. The focus is on identifying and implementing measures to reduce environmental impacts, complying with legal obligations and increasing employees' environmental awareness. With its energy management, 2G is committing to continually improving its energy-related performance and to more efficient use of the energy sources used. In addition, 2G successfully carried out the certification of its information security with the ISO 27001 standard in the year under review. This is the leading international standard for information security management systems. In

this way, 2G is meeting the growing challenges of a digitized world. The standard has three basic objectives at its core: confidentiality, availability and integrity. On this basis, we are prioritizing the further optimization of our processes and structures.

### 2G's CO<sub>2</sub> footprint drawn up for the first time

2G commissioned a report on its carbon footprint for the first time. The Heek-based companies,

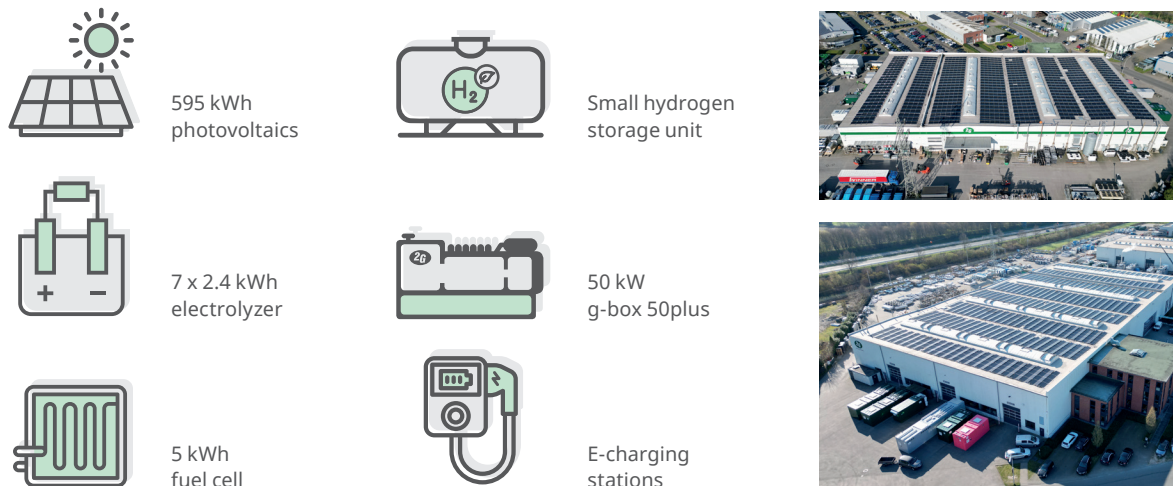
2G Energy AG, 2G Energietechnik GmbH and 2G International GmbH, which are responsible for about two thirds of group sales, were all included. The greenhouse gas footprint shows emissions directly related to the company's own value added (Scope 1 to 3). The aim was to present the emissions by their origin and create a foundation for strategic spheres of action for climate protection and sustainability. As shown in the table below, 2G emitted 5,813 tons of CO<sub>2</sub>e in 2021, equating to 7.3 tons of CO<sub>2</sub>e per employee.

### Overall result CO<sub>2</sub> balances 2021

	Tons of CO <sub>2</sub> e	in %
<b>Scope 1</b>		
Heat consumption	1,002.8	17.6
Fuel consumption	1,984.1	34.1
Direct emissions from industrial processes	0.0	0.0
<b>Scope 2</b>		
Electricity consumption	264.3	4.2
<b>Partial result Scope 1 and 2</b>	<b>3,253.2</b>	<b>55.9</b>
Per million euros of sales	12.2	
<b>Scope 3</b>		
Upstream energy-related emissions	611.0	10.5
Business travel, overnight hotel stays	523.6	9.0
Travel to work, home office	751.3	12.9
Water, waste generated in the company	468.7	8.1
Consumables, production	157.0	2.7
Other	48.0	8.0
<b>Partial result Scope 3</b>	<b>2,559.6</b>	<b>44.0</b>
<b>Emissions company</b>	<b>2,812.8</b>	
<b>Emissions per employee</b>	<b>7.3</b>	

Source: 2G Energy AG CO<sub>2</sub> footprint 2021, Fokus Zukunft GmbH & Co. KG, January 25, 2023

### 2G energy supply at the Heek site 2022/2023



The largest energy sources in the company are fuels with around 50%, followed by natural gas with 35% and electricity with a 15% share. These are the largest levers for 2G to save GHG emissions. 2G's Scope 1 and Scope 2 emissions account for around 56% of the company's contribution to the greenhouse effect. The remaining contribution comes from Scope 3 emissions in the company's upstream and downstream value chain.

From 2G's perspective, major improvements were achieved, primarily in the consumption of heat and electricity. For example, in 2018 the purchase of fuel for generating heat was converted from natural gas to eco-friendly gas and buffer storage fed from the CHP pilot operation was installed. Following the installation of a 595 kWp photovoltaic system on the company's buildings in 2022/23, 30% of its electricity is now covered by renewable energy. In addition, 2G has invested in energy efficiency measures such as new lighting concepts in its production

buildings. Spoiler alert: in-house production from renewable energies will be supplemented in the current financial year by the use of green hydrogen. The pilot plant will generate hydrogen via the PV system by means of an electrolyzer (16.8 kW) and transfer it into interim storage. If necessary, a fuel cell (5 kW) can be used to generate electricity and heat (CHP) to meet needs. The fuel consumption of our vehicle fleet will tend to decline due to the use of more electric vehicles. At the same time, 2G expanded its range of charging stations at its facility from 12 to 18 in the reporting year.

The reduction target for Scope 1 and 2 emissions of 2,570 tons of CO<sub>2</sub>e recommended by Fokus Energie for a 5-year time horizon by 2026 – in the course of achieving the 1.5 degree target – will be met by 2G ahead of time by implementing the above-mentioned measures, on its own estimates. That would correspond to a reduction of 21% within one year.



In terms of Scope 3 emissions, we will be able to show lower emissions through better data registration for business travel/hotel overnights and commutes to work/home office. In addition, we are using various initiatives to make employees aware of the need to design their business travel to be climate-friendly such as Jobrad leasing offers (bicycles). As part of environmental management, our aim is to constantly reduce the occurrence of wastewater and waste as well as consumables with the result that here too, measurable reductions in emissions are to be expected. All waste and residual materials are naturally disposed of in accordance with strict statutory requirements or sent to a regulated recycling facility. To date, however, no specific reduction target has been set for Scope 3 emissions.

### **2G documents good corporate governance**

Good corporate governance forms the basis of 2G's business activities. In the year under review, the Supervisory and Management boards issued, on a voluntary basis, a declaration of compliance with the German Corporate Governance Code (DCGK) pursuant to Section 161 of the German Stock Corporation Act (AktG). With this declaration, the Management and Supervisory boards underscore their commitment to securing the company as a going concern and to its sustainable value creation in the interests of the company, its shareholders and the public, in accordance with the principles of the social market economy. The Corporate Governance Report, together with several accompanying documents, is published on our website at [www.2-g.com](http://www.2-g.com) in the Investor Relations area.

### **Social commitment**

2G perceives itself as a responsible member of society. Consequently, we play an active role regionally, and promote cultural and social projects. We support local sports associations and social facilities within the Münsterland region, for example. In the reporting year, 2G sent three direct truckloads with its own truck with donations from the employees for Ukraine. 2G also supports employees in their social engagement, such as through flexible working time regulations. We also promote knowledge exchange in the academic and scientific community. For example, we offer students the opportunity to write their seminar papers, bachelor's or master's theses within the framework of 2G topics.

Our social commitment also includes lobbying on the political stage for the design of a decentralized, renewable energy supply. We constantly highlight the vital and essential role that CHP plants are set to play, presenting convincing arguments to sway political decision-makers and industry associations on local, national and EU levels. In pursuing this course, 2G is making a constructive contribution to educating people about the technology and possibilities of cogeneration. The aim is for CHP systems to be recognized in a climate-neutral heat and power system as secure, decentralized power plants and acknowledged by the wider public. Company representatives are involved in various initiatives promoting the use of hydrogen, in initiatives advancing CHP systems, and in political work to decarbonize the energy supply. For example, 2G is represented in the State Association for Renewable Energy NRW

(LEE), in the Federal Association for Renewable Energy (BEE), in COGEN Europe and in the Federal Association for Combined Heat and Power. One visible expression of this commitment is the annual policymaker cycle ride under the heading of “Energiewende erFAHREN” (Experiencing/ Riding the Energy Turnaround). In 2022, the route led into the state capital of Düsseldorf prior to the state parliament elections for North Rhine Westphalia.

### Compliance culture reinforced by whistleblower system

A uniform corporate culture with shared values is crucially important in unleashing teams’ potential to generate and add value within the company. 2G

promotes precisely such a culture. The 2G Group has had a Code of Conduct in place since 2015. In this Code, 2G makes a clear commitment to comply with all laws and regulations in place. The Code of Conduct defines the values and principles for our business activities as well as the way in which we treat each other and our customers. The Code’s contents include a ban on discrimination, protection against corruption, fair competition, the rights of all employees to fair treatment, and the handling of insider information. The Code of Conduct and the corporate guidelines contain binding compliance regulations that are valid across the entire Group. Within this regulatory framework, reinforcing the compliance culture is an important element of our corporate culture. 2G strives to detect potential misconduct in the company quickly, to investigate it and to take the necessary remedial action. 2G employees and external parties such as contractors, service providers or business partners can contact a whistleblower system introduced in the reporting



“Energiewende erFAHREN” in Düsseldorf’s state parliament in the run-up to the state elections in North Rhine-Westphalia.

year – also anonymously. It corresponds to the EU Whistleblower Directive EU 2019/1937. It is run by our external Data Protection Officer and can be accessed via 2G's website. A compliance officer supports the Group-wide implementation of the Code of Conduct and refines it.

In 2020, the 2G Code of Conduct was expanded to include a separate Code for suppliers, which defines 2G's principles and requirements for its suppliers of goods and services regarding their responsibility for people and the environment. These include, among other issues and topics, the respect for the fundamental rights of employees, the prohibition of child labor, the freedom of association, as well as the prohibition of corruption and bribery, and the resource-conserving use of water and energy and the avoidance of waste.

### **2G is an attractive employer**

2G's employees are the driving force behind the company's success. Nearly 900 employees at home and abroad are united behind the new slogan "2G. Better together". This togetherness brand stimulates their readiness to work together across all levels and facilities. It promotes new approaches to teamwork, permeating the organization internally but also exerting its influence externally on customers and partners. Motivated, successful employees are crucial to the company's long-term success and performance. The Group Human Resources department reports directly to the Chief Financial Officer and coordinates all human resources issues. These include a sustainable staffing policy, attractive, flexible and fair working conditions, the training of young technical staff, and internal and external

further training for staff as well as intercultural and technical communication within the Group and with the network of partners.



Our success as a global company is founded on a corporate culture that advocates and champions self-motivation, satisfaction, continuing professional development, health and diversity of our workforce. The aim is to achieve a high level of employee identification with our products, after-sales services and corporate culture. We strive to create an appreciative working atmosphere with meaningful work content and a diverse, stimulating and safe work environment. We are confident that 2G is an attractive employer with good prospects.

2G provides its employees with various voluntary social benefits and assistance such as special payments and days off for the birth of children, followed by subsidies of up to 50% for childcare costs. The company also promotes health and fitness among its employees. For example, all employees at the German sites have the option of obtaining company bicycles through 2G via a salary conversion scheme, with 2G paying the related insurance installments. If employees wish to join a fitness studio forming part of the qualitrain association, 2G contributes part of the membership fee. 2G also contributes to the cost of visual display unit (VDU) spectacles as well as prescription personal protective equipment (PPE) safety glasses.

Flexible working time models and part-time options are given high priority in order to offer attractive structuring options to employees. In the year under review, 131 employees made use of such options (2021: 80). This corresponded to a share of 15% of all employees (2021: 10%). The compatibility of work and family life is becoming increasingly important for many employees and is a key factor in employer attractiveness. We are confident that the fundamentally positive experience with working from home office workplaces, as practiced during the coronavirus pandemic, will lead to further flexible work-life balance models for employees in the future. Already before the first pandemic-induced lockdown, 2G had created opportunities for almost all non-production employees to work from home with the respective technical equipment, software and IT support.

The training of young people in different production areas as well as in administration is of great importance to 2G. We participate regularly in various vocational training fairs and events to inform interested parties about our range of training places, career opportunities and product world. This is one way to secure qualified, motivated employees. In 2022, 15 adolescents (2021: 10) began their training at 2G, and overall 43 young people (2021: 43) were in vocational training. From the graduating class of 2022, we have taken on 10 trainees on the basis of an employment contract (2021: 10). We offer all employees attractive career prospects with further education programs or managerial qualifications. On the 2G campus, we are providing a broad range of internal training courses and opportunities to promote personal and professional growth. This also includes

online and face-to-face training for employees of foreign subsidiaries and network partners. We extended our range of training courses in the reporting year by a further 55 programs. They are offered in German and English.

**Key employee figures (as of December 31, 2022)**

	2022	2021
Employees	868	796
of which female	143	125
Use of part-time offers	131	80
Employees at foreign subsidiaries	160	151
Share of female senior executives in %	12.5	10.0
Age structure of employees in Germany in years	37.5	37.2
Fluctuation ratio in %	5.5	6.5
Health ratio in %	96.0	96.8
Accidents per 100 employees	2.2	1.5
Participants in the job bike agreement (total)	250	197
Participants in the "qualitrain" fitness studio association	40	33
New trainees	15	10
of which female	5	4
Trainees/dual university system	43	43
of which female	13	10

**Number of employees per business division**

	31/12/2022	31/12/2021
	Number of employees (of which part-time)	Number of employees (of which part-time)
Service	327 (28)	302 (3)
Purchasing, warehouse, production	216 (21)	193 (14)
Administration	110 (50)	106 (43)
Project management	82 (6)	72 (3)
Sales & marketing	77 (16)	74 (12)
Research & development	31 (2)	30 (3)
Quality management	25 (8)	19 (2)
<b>Total</b>	<b>868 (131)</b>	<b>796 (80)</b>