



Giesecke+Devrient
Creating Confidence

Climate Transition Plan

Our pathway to Net Zero 2040



Company Introduction

G+D makes the lives of billions of people more secure. We are creating confidence, with built-in security tech in three segments: Digital Security, Financial Platforms, and Currency Technology. We serve those three segments with a diversified product and service portfolio ranging from tangible products to high-tech digital solutions. As trusted partner of the most demanding institutions since 1852, today, we shape trust in the digital age – without changing what we always did: Creating Confidence.

OUR THREE SEGMENTS

» Digital Security

G+D protects and manages confidential systems, networks, data, and identities in physical, digital, and mobile settings. With a wealth of experience from securing connectivity, G+D is the trusted partner for all challenges posed by the Internet of Things. G+D enables connections to mobile networks and the IoT through SIM cards, SIM management services, eSIM management including secure operating systems as well as connectivity for enterprise IoT. Furthermore, we provide governments worldwide with technologies that enable secure and efficient management of identities and enable digital sovereignty for governments, companies, and society with highly sophisticated cybersecurity solutions.

» Financial Platforms

In the digital age, G+D orchestrates payment and banking solutions based on human-centric security technology. We offer innovative solutions for card and digital payments as well as trusted software for the financial industry and other highly regulated environments. We create a holistic customer journey from onboarding and authentication over card issuance to a frictionless checkout in eCommerce. In addition, we provide solutions for access and identity management as well as highly secure software for the health sector, mobility, and publishing.

» Currency Technology

As a global market leader, G+D provides trusted and secure public currency solutions for both physical and digital ecosystems. G+D offers a unique portfolio for the entire cash cycle. We produce and distribute banknote paper, banknotes, and technologically advanced security features. Our currency management offering includes banknote processing machines as well as complete cash center solutions. Complementary to this portfolio for physical currencies we also provide solutions for building and running a Central Bank Digital Currency (CBDC).



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The trust our stakeholders place in G+D arises from our reliable and sustainable actions. We are aware of our responsibility towards our planet and are therefore committed to protecting the climate and environment.

Over the past years, climate action has become an integral part of our environmental strategy. We have improved transparency on greenhouse gas emissions from our own operations and value chain activities, have identified emission hotspots as well as decarbonization levers and implemented concrete reduction measures. Our focus lies on increasing energy efficiency and transitioning to renewable energy to continuously reduce emissions in our own operations. Furthermore, we are dedicated to enhancing our product portfolio by improving circularity, using sustainable materials, as well as adopting new production methods and actively engage with stakeholders and key suppliers to minimize our upstream and downstream impact. In 2022 we have stepped up our corporate climate action and decided to take a structured, ambitious, and courageous approach

to climate action by officially committing to setting reduction targets in line with the Science Based Targets initiative (SBTi). We have developed our targets and a pathway to Net Zero since then.

Our targets have been officially validated by the SBTi in July 2024. Therefore, today we are proud to share our Climate Transition Plan, guiding us towards Net Zero by 2040. This plan builds on our existing efforts while challenging us to rethink and transform our current approaches. We are aware of the many uncertainties lying ahead of us and understand that our success is dependent on numerous factors. Nevertheless, we see it as our responsibility to act now to continue creating confidence and making the lives of billions of people more secure.



Dr. Ralf Wintergerst,
Chief Executive Officer



Gabriel von Mitschke-Collande,
Chief Digital Officer &
Head of ESG Committee



Ann-Kathrin Röndigs,
Group Vice President &
Head of Sustainability



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OUR GHG EMISSION REDUCTION TARGET

Climate action is a continuous process that needs to be deeply embedded in an organization. Especially in a global organization such as G+D, a common and ambitious target helps to join forces, streamline different activities and form a strong community. As G+D takes climate action seriously, we have set ourselves ambitious climate reduction targets to limit global warming to 1.5 °C in line with the Paris Agreement.

As part of the annual strategic planning process, we make sure that sustainability targets and strategy are aligned with corporate ambitions and other stakeholder requirements such as customers and competitors.



Targets validated by the Science Based Targets initiative (SBTi)

» SCIENCE-BASED NET ZERO TARGET

We commit to reach net-zero greenhouse gas emissions across the value chain by 2040.

» LONG-TERM TARGET

We commit to reduce absolute scope 1, 2 and 3 GHG emissions from purchased goods and services, capital goods, fuel- and energy-related activities, upstream transportation and distribution, business travel, use of sold products and end of-life treatment of sold products 90% by 2040 from a 2022 base year.

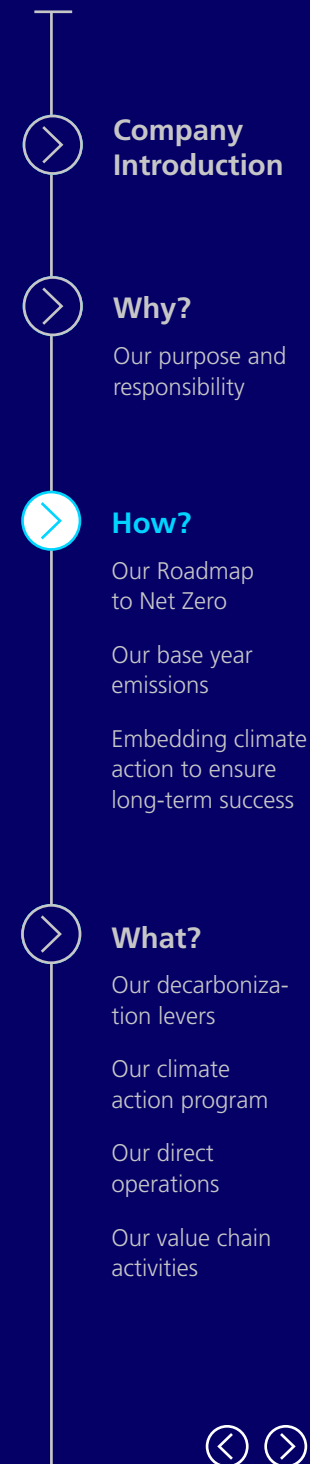
» NEAR-TERM TARGET

We commit to reduce absolute scope 1 and 2 GHG emissions 42% by 2030 from 2022 base year. We commit to reduce absolute scope 3 GHG emissions from purchased goods and services, capital goods, and upstream transportation and distribution 25% within the same period.

G+D specific target

We aim to achieve 100% green electricity across the G+D Group by 2030.

The Science Based Targets initiative (SBTi) is a global body enabling businesses to set ambitious emissions reductions targets in line with the latest climate science. It is focused on accelerating companies across the world to halve emissions before 2030 and achieve net-zero emissions before 2050.



Our Roadmap to Net Zero

2020-2030

Our 2030 near-term targets for Scope 1, 2 and 3 have been approved by the Science Based Targets initiative and our Scope 1 and 2 targets are fully in line with the 1.5-degree pathway.

To ensure that G+D reaches these targets, we developed a climate action plan that includes the following decarbonization levers:

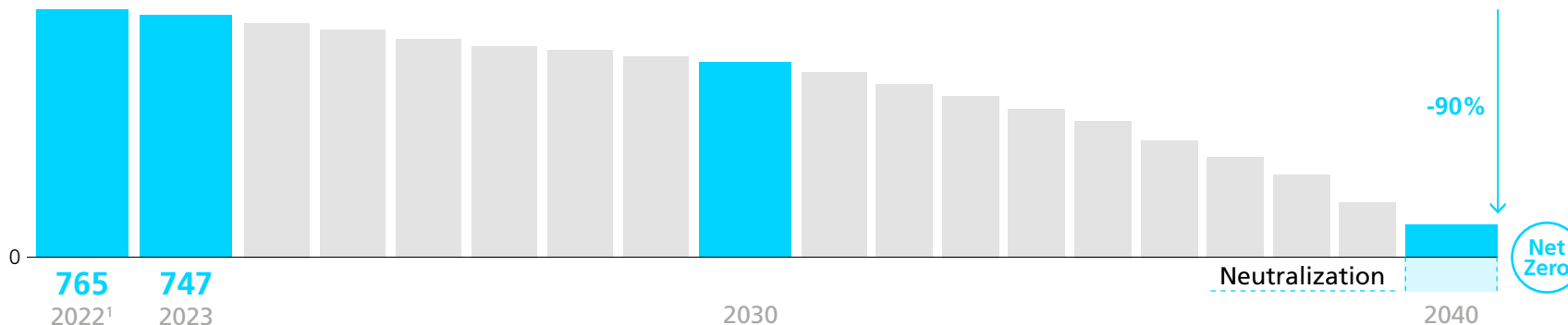
1. Increase energy efficiency
2. Replace fossil fuels
3. Transition to renewable electricity
4. Rethink product design & material input
5. Engage suppliers
6. Innovate end-of-life solutions

» This plan is the core of our strategy to reduce GHG emissions from our business activities.

Net Zero in 2040

Despite extensive efforts to reduce emissions, some residual emissions will persist. We will neutralize those residual emissions based on the SBTi Net Zero Standard by taking measures to remove carbon from the atmosphere and permanently store it. With this, we are counterbalancing the impact of emissions that remain unabated after the long-term science-based target is achieved.

Total GHG emissions in thousand tonnes CO₂e



¹ Detailed chart for 2022 on the next page.

2030-2040

We have also a Net Zero target, validated by the Science Based Targets initiative. To achieve this ambitious target, we are required to make deep cuts in our emissions beyond 2030. This will be a major challenge as there are many insecurities on the way for which we do not have an answer yet.

We will focus to:

1. Further intensify our efforts to switch from fossil to renewable energy and electricity
2. Extend our supplier engagement efforts and strengthen our collaboration with key suppliers
3. Accelerate the development of low carbon products
4. Further support and invest in innovations and technological advancements that facilitate emission reduction



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Our base year emissions

The baseline for the development of the emission reduction targets is G+D's GHG inventory. We are measuring and monitoring our Scope 1 and 2 GHG emissions quarterly to ensure high quality of data and our Scope 3 GHG emissions annually across our entire value chain. Our emissions are calculated in accordance with the methodology set out by the Greenhouse Gas Protocol. For several years, we have been calculating our group wide GHG emissions and have established a systematic process for data collection and validation. We continuously enhance this process and improve the quality and detail of our data, as reliable data is crucial for tracking our progress and setting future reduction plans.

G+D's base year emissions are from the reporting year 2022.

In total, across our 123 subsidiaries and joint ventures in 40 countries G+D has caused more than 700,000 tCO₂e emissions in 2022. Those emissions are differentiated in three scopes, depending on where they occur in the value chain.

- **Scope 1 emissions:**
activities occurring from sources that are controlled or owned by G+D
- **Scope 2 emissions:**
associated with the purchase of electricity, steam, heat, or cooling
- **Scope 3 emissions:**
activities occurring in our upstream and downstream value chain

The majority of G+D's GHG emissions are caused by our upstream and downstream activities. Our Scope 3 emissions are contributing to more than 88% of the total GHG emissions in 2022. Most emissions occur in the areas 3.1 Purchased Goods and Services, 3.2 Capital Goods, 3.4 Upstream transportation and 3.12 End-of-life treatment for sold products. Reason for this is our diverse portfolio of hardware products such as banknotes, payment cards and SIM cards.

Scope 1 and 2 emissions

		2022
Scope 1: Direct GHG emissions	tCO ₂ e	31,309
Scope 2: Indirect energy-related GHG emissions (market-based)	tCO ₂ e	57,920
Total	tCO₂e	89,229

Relevant scope 3 emissions

		2022
3.1 Purchased goods & services+capital goods	tCO ₂ e	410,948
3.3 Fuel and energy related	tCO ₂ e	21,448
3.4 Upstream transportation and distribution	tCO ₂ e	74,888
3.5 Waste	tCO ₂ e	4,265
3.6 Business travel	tCO ₂ e	6,278
3.7 Employee commuting	tCO ₂ e	17,307
3.9 Downstream transportation and distribution	tCO ₂ e	6,740
3.10 Processing of sold products	tCO ₂ e	38,319
3.11 Use of sold products	tCO ₂ e	34,115
3.12 End-of-life treatment for sold products	tCO ₂ e	61,476
3.15 Investments	tCO ₂ e	126
Total Scope 3	tCO₂e	675,914
Total Scope 1,2,3	tCO₂e	765,139



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CLIMATE GOVERNANCE

We can reach our ambitious climate targets only by embedding the climate agenda in the G+D organization. Therefore, we have integrated ESG (Environment incl. climate, Social & Governance) in our company governance at all levels, functions, and segments. With this we make it an integral part of our company and ensure that the climate-related aspects are considered in strategic decisions. Responsibilities, actions, and controls are divided amongst different bodies and departments:

Management Board

- The Chief Digital Officer (CDO) is accountable for the sustainability strategy
- Sets out climate strategy and targets
- Approves the Climate Transition Plan

ESG Committee

» Permanent committee consisting of CEO, CDO, divisional management representatives, relevant function leads and the Head of Corporate Sustainability

- Defines climate action strategy
- Updates Climate Transition Plan
- Monitors and tracks progress towards GHG emission reduction targets
- Decides on investments for reduction measures and initiatives

Corporate Sustainability team

- Coordinates and controls group-wide climate action strategy
- Reports regularly to the CDO and the ESG Committee
- Acts as link between the executive board and the divisions
- Develops the Climate Transition Plan with the help of the divisional sustainability teams

Divisional Sustainability teams

- Develop divisional climate action program
- Identify and implement ESG measures
- Monitor progress of implementation
- Collect data on divisional level and from local sites
- Collect customer and market feedback



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Incentives



Furthermore, we have integrated incentives linked to ESG indicators for our Management Board. In 2023, our group and divisional board members had a short-term incentive tied to climate performance, specifically related to reducing our GHG emissions (scopes 1 and 2) between 2022 and 2023. This incentive structure is subject to regular review and adaptation to align with evolving contexts, ensuring that our Management Board remains incentivized to drive climate action. The breakdown of incentive relevant goals to the next management levels is already planned.

Investment and funding of climate action



In most cases, climate action requires a financial investment at the beginning but leads to savings in the long run. Therefore, we need to ensure that there is sufficient investment budget available for the necessary GHG emission reduction measures now and in the future. For major reduction measures to be planned, an investment case has to be presented to the ESG Committee.

Climate Transition Plan Governance



The Climate Transition Plan is embedded within our overall climate governance. It is approved by G+D's Management Board, reviewed on a regular basis by G+D's ESG Committee and updated by the Corporate Sustainability Team. A systematic process with relevant stakeholders is in place to collect and incorporate feedback. With this process in place, we ensure that the Climate Transition Plan always reflects the current status and latest developments.

Policy engagement and industry collaboration



Climate action is a collaborative effort, and we can only reach our emission reduction targets by partnering up. Therefore, we closely engage with stakeholders, lead the dialogue with policy makers, collaborate with key suppliers and support various global and local initiatives, networks, and peer groups. Open and transparent dialog with actors outside the company helps us to continuously develop our climate transition plan and reach our commitment. We support the UN Global Compact, are a member of econsense and a founding member of the Munich Business Climate Pact. Furthermore, we report our progress in the Carbon Disclosure Project (CDP) and EcoVadis.



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OUR ACTION PLAN

What is needed to reach our GHG emission reduction target?

We have developed an action plan based on identified decarbonization levers in our own operations and our value chain. This action plan consists of concrete climate change mitigation measures that have been identified using bottom-up and top-down procedures.

We track and monitor the progress and review the implementation status of the identified reduction measures on a quarterly basis. Furthermore, we make our performance transparent and measurable - the most important KPIs are recorded quarterly.

Looking ahead, we have set up a process to ensure that we identify, assess, and evaluate new reduction measures on a regular basis. This allows us to detect future investment needs and costs.



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Our decarbonization levers

TRANSFORMING OUR OWN OPERATIONS:

Energy consumption plays a major part in G+D's own operations as we have business segments with a high degree of production intensity e.g., the production of security paper, features, and banknote printing. We believe that the need for banknotes and currency management solutions will remain strong in the future. Therefore, we invest heavily in decreasing our GHG emissions in our core production-intensive business divisions by reducing energy consumption, electrifying fossil fuel intense processes and using green electricity at our sites.

1. Increase energy efficiency

2. Replace fossil fuels

3. Transition to renewable electricity

TACKLING OUR VALUE CHAIN ACTIVITIES:

Due to our diverse product portfolio, our value chains are complex. Therefore, activities to reduce our emissions are difficult to identify, measure and manage. A major focus lies on product development but as we are highly dependent on our upstream and downstream partners, collaboration along the value chain is key for us.

1. Product design & material input

2. Supplier engagement

3. End-of-life treatment



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Increase energy efficiency

Our energy efficiency program is dedicated to reducing energy consumption by rethinking existing processes and integrating innovative technologies.



Replace fossil fuels

We plan to electrify our production sites, replace fossil fuels with renewable energy sources and transition our infrastructure to increase the generation of renewable energy.



Transition to renewable electricity

We focus on transitioning to renewable electricity at our locations through our own generation and the purchase of high-quality renewable electricity certificates.



Rethink product design & material input

We integrate environmental aspects into our product design process and are committed to decreasing our product emissions by reducing and substituting material input.



Engage suppliers

Our supplier engagement program emphasizes on enhancing data transparency, selecting key suppliers, and forming strategic collaborations to reduce GHG emissions in our supply chain.



Innovate end-of-life solutions

We focus on co-developing innovative end-of-life solutions for our products and services in collaboration with our customers.



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Increase energy efficiency

To reduce our direct GHG emissions, we are increasingly focusing on energy-saving measures. By conducting hotspot analyses, we identify major energy drivers and implement targeted, effective efficiency measures at the relevant locations.

MAJOR MILESTONES REACHED



- » Extension of the heat network
- » Use of river water for cooling purposes
- » Improvement of the heating and air conditioning effectiveness

NEXT STEPS UNTIL 2040



- » Improvement of our Heating, Ventilating and Air Conditioning systems (HVAC)
- » Cooling supply optimization and **further expansion of the heat network**
- » Implementation of **waste heat recovery systems**
- » Further investment in the **modernization of our energy related infrastructure** at our strategic relevant sites



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Replace fossil fuels

In some of our most important production locations we still are highly dependent on fossil fuels, causing high GHG emissions. Accordingly, alongside reducing consumption, we are systematically replacing fossil fuels in our production where possible. Furthermore, we support the electrification of our leasing cars and strive to switch from combustion vehicles to e-vehicles where possible.

MAJOR MILESTONES REACHED



- » Change of leasing conditions to e-vehicles in Germany
- » Installation of electric charging stations at our headquarters



NEXT STEPS UNTIL 2040



- » Full electrification of two production sites
- » Installation of **electric steam boiler and electric dryer** at production sites
- » Implementation of a **new energy concept at our headquarters**



Estimated annual saving potential for energy concept and electrification project: **25,500 tCO₂e per year**



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Transition to renewable electricity

We aim to use 100% green electricity by 2030. Therefore, a specific focus lies on transitioning to renewable electricity. We switch our infrastructure to produce renewable electricity ourselves where possible and purchase renewable electricity from external suppliers. Here, we rely on Guarantees of Origin and adhere to strict quality criteria (e.g., age of the plant <15 years, solar or wind or micro-scale hydro <20 MW). We are currently exploring using long-term energy supply contracts that are agreed upon directly with energy producers (power purchase agreements) to further increase our positive impact on the energy transition.

MAJOR MILESTONES REACHED


- » Generation of more than 1,400 megawatt hours of solar power at one of our production sites
- » Generation of hydropower at one of our production sites, covering around 10% of the local electricity demand
- » Purchase of green electricity in 2023 to meet 98% of our remaining energy requirements




Total achieved savings in scope 2:
54.563 tCO₂e between 2022 and 2023


NEXT STEPS UNTIL 2040


- » Regular review of locations to **identify** where **renewable electricity** can be **generated**
- » Further extension of **green electricity** to reach target of **100% green electricity**



Estimated annual emission savings for using 100% green electricity:
60,000 tCO₂e


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Rethink product design & material input

G+D offers a variety of different physical and digital products with each product type having a different value chain, production requirements and emission hotspots. Therefore, we already consider GHG emissions in the initial stages of the product development process to continuously reduce emissions in our product portfolio and have identified four overarching initiatives across product groups, which are operationalized by each division differently:

MAJOR MILESTONES REACHED



- » Implementation of a corporate product design guideline incorporating environmental aspects into the product development process
- » Redesigning process models
- » Continuous calculation of product carbon footprints and life cycle assessments
- » Reducing material use in existing products
- » Development of new products with less material use and digital twins with little material use
- » Replacement of non-recycled with recycled material and materials with fully renewable biomass
- » Increase share of natural fibers where possible

- **Reducing the volume of materials**
- **Increasing the share of recycled materials**
- **Increasing the share of renewable materials**
- **Substitution of materials with lower emission material**

NEXT STEPS UNTIL 2040



- » Ongoing integration of **environmental aspects in product development process**
- » Extension of **product carbon footprint calculations** of our physical and digital products with the use of supplier data
- » Continuous investigation into the **use of alternative materials with lower emissions**
- » Further development of “digital twin” products



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Engaging our suppliers

Across G+D's footprint, most of the impact is associated with activities at our suppliers – either via the purchase of materials and products or via services such as transportation. Therefore, collaborating jointly with partners to support the overall decarbonization of our value chain will continue to be key.

MAJOR MILESTONES REACHED



- » Collaboration with our key suppliers to collect primary data and continuously reduce emissions
- » Implementation of our Supplier Code of Conduct requesting environmental information and targets
- » Collaboration with selected key production supplier on the purchase of green electricity

NEXT STEPS UNTIL 2040



- » Raise awareness of purchasing teams and **implement environmental aspects in procurement process**
- » Improvement of **group-wide Scope 3 transparency via primary supplier data**
- » Forming **strategic supplier collaboration** to reduce GHG emissions from purchased goods and services and transportation



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Innovating end-of-life treatment

End-of-life emissions of our products account for a significant portion of our GHG emission. However, our influence is limited since we do not directly supply end users, resulting in a lack of knowledge about product disposal. Despite this, we view end-of-life treatment as our responsibility. Therefore, in collaboration with our customers, we have developed measures to reduce our GHG footprint in this area.

MAJOR MILESTONES REACHED



- » Co-development of waste prevention measures with our customers to reduce waste for end users
- » Development of end-of-life solutions for the banknote industry via fiber extraction to reuse cotton fibers after banknotes have been destroyed
- » Implementation of take-back programs for payment cards with our customers
- » Facilitation of a certification and recycling program

NEXT STEPS UNTIL 2040



- » Continuous development of innovative solutions to **improve circularity aspects in our products**
- » Increase of **recycling initiatives jointly with customers**
- » Improvement of communication to end users to further educate and increase awareness on recycling



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**With this climate
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have started our
decarbonization
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KONTAKT:

Website: <https://www.gi-de.com/en/group/sustainability>

G+D's Climate Transition Plan is group-wide applicable and approved by G+Ds Management board. This is Version 1.

