



Sustainability at Siemens Energy

Summary of the Sustainability Report 2022



Will energy security derail the energy transition?

The transition to renewable energies will have a decidedly profound impact on the world's energy landscape and magnify already rising concerns about energy security. Christian Bruch and Jason Bordoff discuss how sustainability, reliability and affordable energy interconnect.



Jason Bordoff, one of the world's leading energy and climate policy experts, is Founding Director of the Center on Global Energy Policy at Columbia University, New York, United States, and previously served as Senior Director for Energy and Climate Change on the staff of the United States Security Council.



As President, CEO and Chief Sustainability Officer of Siemens Energy, Christian Bruch defines his purpose as energizing society. "We want to ensure all people have equal opportunities to access to sustainable, reliable and affordable energy – no matter where they are."

Jason Bordoff: It has been many decades that we have largely been failing at tackling climate change. And now we are failing at energy security too. Europe is obviously having immense difficulty making it through this winter; next winter may be even harder, and this is having ripple effects in many other parts of the world.

There is a precipitating event, which is Putin's unjustified invasion of Ukraine. But we should remember: Europe was experiencing an energy crisis even before this, and there are a set of underlying factors that I think have made it even worse, because we are in a moment of transition. And so that leads to tighter markets and potential for price spikes and market crunches and volatility, which is not just bad economically and geopolitically, but risks undermining support for the energy transition itself.

So the question is: How do we react to this moment?

Christian Bruch: Jason, I agree with much of that, but for me it still remains to be seen how energy security issues will affect the transition. We are currently not

on track with the transition – we might not even be on track with security nor on affordability – and we should not forget this third element. Because what is happening at the moment is that industrialized countries are exporting their inflation to poorer countries. Countries like Bangladesh as well as regions like Africa and other parts of Asia, for example, are heavily dependent on liquefied natural gas (LNG) imports and cannot afford it anymore.

Jason Bordoff: Right, this is having ripple effects in many other parts of the world, with rolling blackouts in Pakistan and Bangladesh. And coal is at record high levels as well.

Christian Bruch: So, we are seeing that this trilemma of energy security, affordability and sustainability is closely interlinked, and so far we have not made any deliberate choice in any direction. At the moment, it has had neither a positive nor negative impact on the energy transition, but we have now arrived at a point in time when we have to make the hard choices. Talking is no longer enough.

“Industrialized countries are exporting their inflation to poorer countries.”

Christian Bruch, President and CEO, Siemens Energy

Jason Bordoff: I think we will never forgive ourselves if we look back on this moment of crisis and feel like we missed an opportunity to now take the urgency and imperative of energy security – meeting people’s energy needs securely and affordably – and combine it with the urgency of climate action and decarbonization to make faster progress toward an energy transition.

Christian Bruch: Right, there are all the good reasons to build up renewables more quickly, to strengthen the grid and really bring energy security and sustainability closer together. But it also means we have to do certain things substantially differently going forward. At the moment, there are still measures that are driving up CO₂ emissions. We are ramping up coal in Europe. We will still have a substantial coal fleet for a long time in Asia. The current drive to build up renewables barely covers the growth in the electricity market and is not bringing CO₂ down.

Jason Bordoff: I think first there needs to be a recognition that this is almost inevitably going to be a somewhat disorderly transition. And we can try to make it as well-managed as possible, but there is reason to doubt the idea that we will get anywhere close to a goal like net zero by 2050 – which is only 27, 28 years away! The scale of the transition, the scale of the global energy system, the pace of that transition is unprecedented relative to anything we have ever seen in the history of energy. And we are going to make mistakes along the way.

I lead an organization with the word policy in its name, the Center on Global Energy Policy. I would not do that if I did not think policy were necessary, but it is certainly not sufficient. We are going to need the technologies, and Siemens Energy is one of the most important companies in the world for that.

Christian Bruch: We will need a new era of public-private partnership: good policy and strong private capital flows, both built on solid plans. Energy infrastructure needs to be comprehensively rebuilt or

extended. But we should not neglect the demand side, which we can use to counter some of the volatility from generation. Additionally, we need to deal with the massive growth in electricity volume – possibly tripling in two decades. Industrial policies like those in the U.S. are needed to trigger the required grid investments, and we need to make optimal use of the assets we already have – for example, with gas and nuclear. Every technology must play its part, and efficiency will be vital.

Jason Bordoff: I think we have touched on the most important things. But maybe I will just put a spotlight on them again: sustainability, security and affordability. If you fail on any one dimension of that, I think you actually undermine the pace of the others. The potential for unrest in Sri Lanka, the iconic yellow vest protests in Paris, or if people have trouble paying their energy bills, I fear that support for strong climate action, which is what we need, may wane as a result.

So, we are going to have to pull every lever we can to deal with the immediate urgency of the crisis – finding extra supplies, maybe in the near-term ramping up a diesel facility or a coal facility here or there, building

some new LNG import terminals. But I think the opportunity now is to remember that many of the things that would give you greater energy security (more energy efficiency, conservation, more electrification of the economy, more use of clean energy) point you in the direction of decarbonization as well.

You see examples across Europe and other countries where in some cases, the energy crisis is accelerating a move toward a different kind of energy system in the future. It just takes time to get there.

Christian Bruch: And I can only say: We have to speed up. We still have it in our toolbox of possibilities to influence that. Time is running out, and we really have to move to take action. While we continue to add renewable energy, we can improve energy efficiency, strengthen electrical grids and make use of the existing infrastructure. We can also develop a clear plan as to which policymakers and industries can really make decisions.

No question, we will need to push and develop new technologies. But a lot of technologies we need to drive substantial change are already available. It is our choice whether we want to turn it around.

“The question is: How do we react to this moment?”

Jason Bordoff, Founding Director, The Center on Global Energy Policy at Columbia University, New York, United States

Company overview

At Siemens Energy, our mission is to support our customers in transitioning to a more sustainable world, based on our innovative technologies and our ability to turn ideas into reality. Our goal is to become the world's leading energy technology company with a focus on sustainability. Our portfolio, extensive energy experience and ambitious strategy to decarbonize global energy systems are all central to our efforts to be a valued partner and driver of the energy transition.

With our broad portfolio of products, solutions, and services, we cover almost the entire energy value chain – from low- or zero-emission power generation, transmission, and storage to reducing greenhouse gas emissions and optimizing energy consumption in industrial processes. Our products include conventional and renewable energy technologies, such as gas and wind turbines, hybrid power plants operated with hydrogen, high-voltage grid access solutions, and high-voltage transformers.

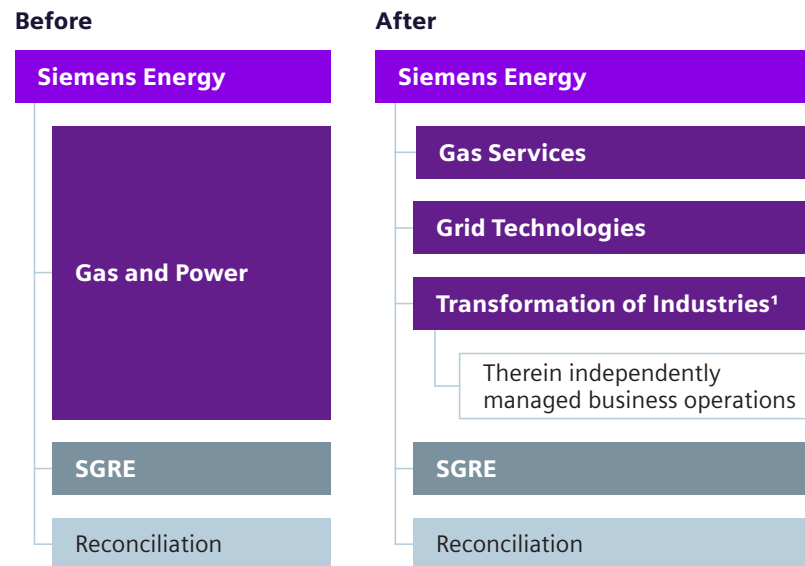
As of September 30, 2022, Siemens Energy employs about 92,000 people in more than 90 countries worldwide.

Our company structure

At our Capital Market Day in May 2022, we announced a new organizational structure to support the transformation of Siemens Energy with a clear focus on environmental, social and governance (ESG). The new organization came into effect with the start of the new fiscal year on October 1, 2022. Within the new organizational structure, the former Gas and Power segment is organized into three Business Areas: Gas Services, Grid Technologies, and Transformation of Industry.

- **Gas Services (GS)** combines all business activities related to gas turbines and large steam turbines as well as the associated service business of the former Generation and Industrial Applications Divisions.

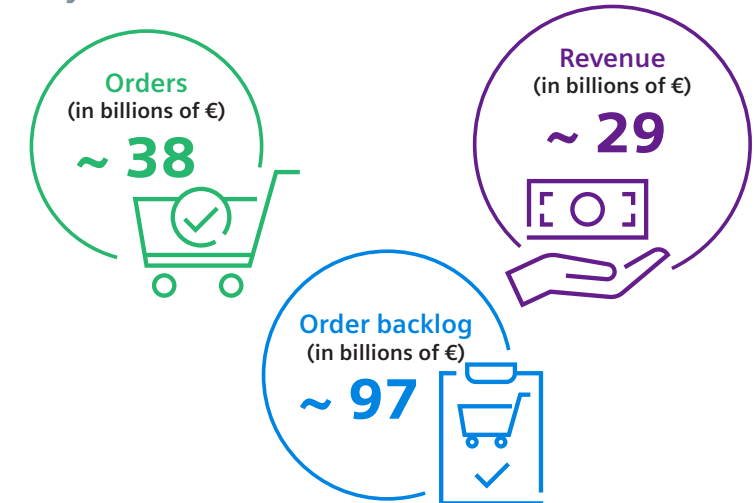
Our company structure



¹ Transformation of Industry reflecting total of four independently managed business operations (operating segments)

- **Grid Technologies (GT)** comprises the business of the former Transmission Division and, in future, the activities relating to energy storage, which were previously assigned to Generation.
- **Transformation of Industry (TI)** is primarily focusing on the reduction of energy consumption and CO₂ emissions in industrial processes and comprises the four independent business operations:
 - › Sustainable Energy Systems (SES), with the former New Energy Business and parts of Generation, deals with the topics of hydrogen, electrolyzers, power-to-X, and photovoltaics, among others.

Key financial indicators



- › Electrification, Automation, and Digitalization (EAD) was previously part of Industrial Applications and offers integrated EAD solutions, additional services, and consulting services.
- › Industrial Steam Turbines & Generators (STG) comprises parts of the Generation and Industrial Applications business portfolios, including industrial steam turbines up to 250 megawatts, as well as service, and industrial generators.
- › Compression (CP) was previously part of Industrial Applications and offers turbo and reciprocating compressors, including service, as well as compressor trains and systems.

Siemens Energy announced a voluntary cash tender offer to acquire the remaining 33% of shares that are still in free float, with the intention of delisting SGRE from the Spanish stock exchanges. The integration will also strengthen Siemens Energy's position, creating a holistic go-to-market approach and further enhancing customer focus.

Strategic focus

At Siemens Energy, we believe innovative technologies are the key to combating climate change. As one of the world's leading energy technology companies, we are uniquely positioned to drive the energy transition. Our extensive experience in the energy market makes us the partner of choice for our customers on their journey to a more sustainable future. To maintain our focus, we have established our company strategy along the three pillars of low- or zero-emission power generation, transport and storage of electricity as well as reducing greenhouse gas footprint and energy consumption in industrial processes.

We shape our existing business through a strategic program by developing our portfolio with a focus on sustainability and service while becoming a

Our strategic pillars

We focus on building our company based on three strategic pillars:



Low- or zero-emission power generation



Transport and storage of electricity



Reducing GHG footprint and energy consumption in industrial processes

Our Sustainability Program

We energize society



data-driven company that creates value through digitalization, connectivity, and automation.

Our Sustainability Program is integrated into our company strategy. The program is structured around topics that help us to contribute to the most relevant Sustainable Development Goals (SDGs) and be a sustainability leader in the industry. The SDGs and their related targets are fostering a new understanding of how economic development can be reconciled with social and environmental challenges. To ensure our efforts have the biggest impact, we focus our activities on SDG 5, 7, 8, 9 and 13.

At the core of our Sustainability Program is the goal to decarbonize energy systems along the entire value chain. With our commitment to responsible operations, we are also leveraging Siemens Energy's societal impact. Our ESG rating results show that we are continuously improving our performance. You can find more information on our ambition and program in the [Sustainability Report 2022](#).

Our businesses, regional entities, and central functions are responsible for implementing the Sustainability Program. Major achievements and examples from the businesses are highlighted on the following pages.

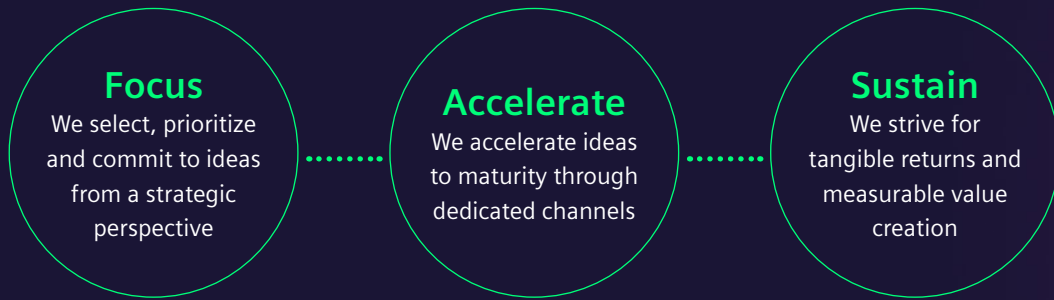
Sustainability performance highlights

Customers and innovation

Innovation is key to creating the future. We value co-creation and partner with our customers to decarbonize energy systems.

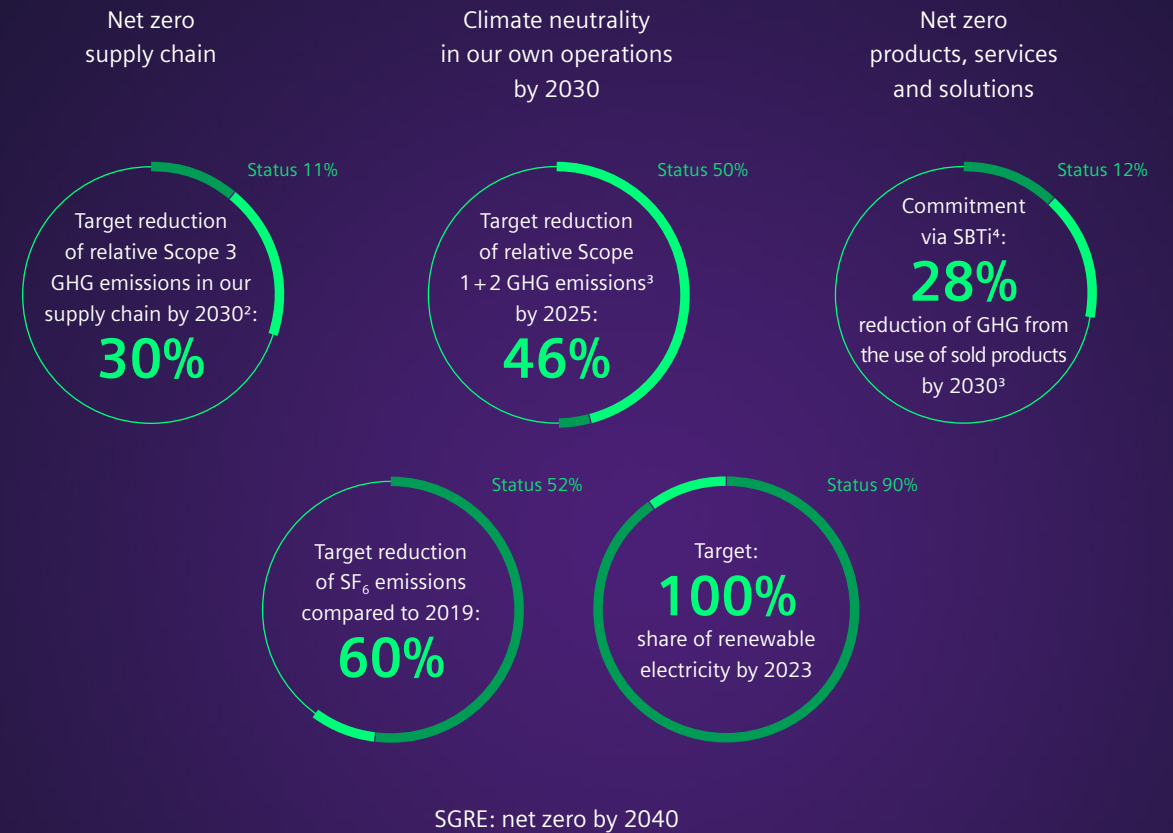


Innovation is the core of our business. Our simple, fast and unified approach to R&D has three elements:



Decarbonization

Our strategy to decarbonize global energy systems is based on our aspiration to reach net zero across the entire value chain, in line with the 1.5°C target.



¹ Index measuring willingness of customers to recommend a company's products or services to others.

² kg CO₂e/€ PVO spent, base year 2018; reporting segment GP. ³ from a 2019 base; reporting segment GP. ⁴ SBTi = Science Based Targets initiative.

Selected examples for innovation and decarbonization



Growing market: highly efficient electrolyzer stacks

Ramping up electrolyzer production for hydrogen and e-methanol

Siemens Energy is helping to accelerate renewable hydrogen production worldwide by scaling up the production of large-scale electrolyzers. In June, we announced a joint venture with Air Liquide, a world leader in gases, technologies and service for industry and health, to build a multi-gigawatt factory for our electrolysis stacks in Berlin. Based on proton exchange membrane electrolysis technology, these stacks will be highly efficient and ideally suited to harvest volatile renewable energy. The factory will supply stacks to both companies for their respective range of customers and serve the rapidly growing market.

In Denmark, Siemens Energy has secured an order from European Energy for the delivery of an electrolyzer plant. The Danish developer and operator of green energy projects is developing the world's first large-scale commercial e-methanol production facility using green hydrogen from a 50-megawatt electrolyzer plant by Siemens Energy. The plant is to be built in Kassø, in the south of Denmark. Through its proximity to European Energy's 300-megawatt solar park in Kassø, the project will have access to the low-cost renewable electricity needed to produce cost-effective e-fuel.

Floating wind farms

Floating wind farm technology is offering new opportunities to harness clean offshore wind energy further out to sea, where the winds are stronger and more consistent but the sea is too deep to build fixed turbines. Siemens Gamesa Renewable Energy is a pioneer in the floating wind farm market and is involved in several projects in the North Sea, including the Karmøy demonstration project off the coast of Norway and the Hywind Scotland commercial wind farm. Its latest project, Hywind Tampen, was installed in 2022, 140 kilometers off the coast of Norway, at a water depth of 260 to 300 meters. The 11 turbines are moored on floating cylindrical spar buoys and anchored to the seabed by chains.



Hywind Tampen, pioneering floating offshore wind technology



Premiere for China: Blue GIS zero-carbon switchgear

First zero carbon emission substation of the world's biggest power grid company

The Siemens Energy High Voltage Switchgear team in Shanghai has successfully put China's first 145kV Blue GIS into operation in Wuxi, China. The project was carried out in cooperation with the State Grid Corporation of China (SGCC), the world's largest power grid company, which serves more than 1.1 billion people and supplies 88% of China's electricity. Using SF₆-free vacuum arc extinguishing and clean air insulation technology, the zero-carbon substation is an important solution for SGCC in its mission to achieve carbon neutrality.

Sustainability performance highlights

Zero Harm Framework

We promote a strong Zero Harm culture that aims to prevent injuries and adverse effects on people and the environment.



Occupational health and safety

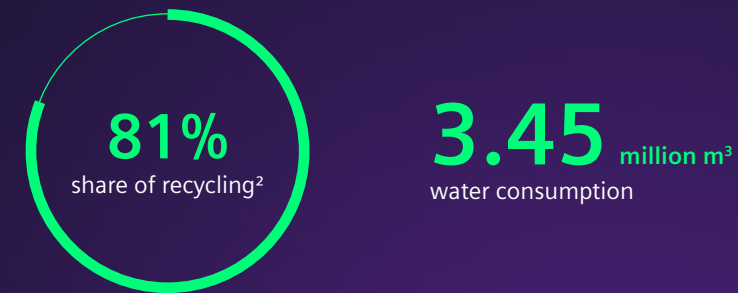
Providing a safe and healthy working environment for all employees, partners, contractors and suppliers is our utmost priority.



¹ Number of recordable injuries (TRI) x 1,000,000/work hours performed.

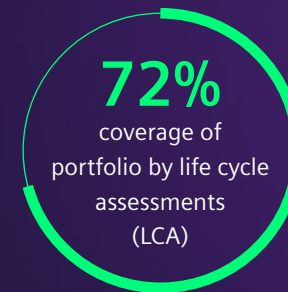
Conservation of resources

We aim to minimize our impact on the environment. Our environmental management systems are founded on the principles and elements of the international ISO 14001 and ISO 50001 standards or energy audits.



Product stewardship

Our approach to product stewardship includes all environmental aspects, with a strong focus on climate change adaptation and resource efficiency.



² Excluding construction and other waste.

Selected examples of responsible operations



Waste-free: blade components are reusable at end of life

RecyclableBlade

In 2021, SGRE launched RecyclableBlade, the first comprehensive recyclable rotor blade solution that is ready for commercial offshore projects. The RecyclableBlade is produced the same way as a standard blade. The only difference is the use of a new type of resin that allows the blade components to be efficiently and gently separated from one another at the end of the blade's working life. This allows the individual materials to be recycled for new applications across various industries – a major step toward creating a waste-free wind industry.

Pollution protection – EPA awards Richland facility

Two projects at the Siemens Energy Richland (Mississippi, U.S.) facility to improve process efficiency and reduce electricity use received a Pollution Prevention Recognition Award by the U.S. Environmental Protection Agency (EPA) Region 4. The EPA recognized the measures at the facility that saw automation and air flow improvements related to compressed air systems implemented and traditional roll-up doors replaced with high-speed doors to reduce loss of air-conditioned air. The improvements resulted in over 260,000 kWh of annual electricity savings and 239,000 pounds of CO₂e avoidance.



Richland Facility: Award winning environmental improvements



New from old: recycling waste in Brazil

Zero landfill in Brazil

At Siemens Energy in Brazil, all sites have now achieved zero landfill waste generation, which means less than 1% of waste being directly or indirectly disposed in landfill¹. This was done through increasing waste segregation, recycling and developing new solutions for waste disposal besides landfill. The sites achieved 90.5% recycling in their operations and in fiscal year 2022, only 4 metric tons of waste were sent to landfill (without debris/construction waste), down from 295 metric tons in 2021 – a reduction of 99%.

Middle East Legal Awards – Compliance Innovator of the Year

Siemens Energy took the award for Compliance Innovator of the Year at the 2022 Middle East Legal Awards. Held in Dubai in May, the award honored Siemens Energy's work in conducting anti-corruption training with officials from the Ministry of Electricity in Iraq in June 2021 (see Siemens Energy Sustainability Report 2021). The training was part of Siemens Energy's Roadmap for the Electrification of the New Iraq, a series of projects launched to revamp the country's ailing electricity sector and provide Iraqis with the reliable and efficient energy necessary for economic growth.

¹ Excluding construction waste.

Sustainability performance highlights

Sustainable supply chain management

We apply stringent environmental and social standards to contribute to a sustainable supply chain.



Working at Siemens Energy

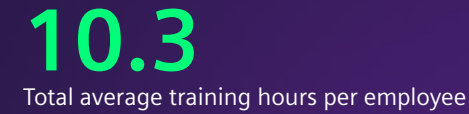
Our People Agenda promotes a thriving environment, game-changing leaders and a vibrant workforce.

Share of females



¹ At reporting segment GP.

Training hours



Human rights

We are committed to ensuring respect for human rights along the value chain within our sphere of influence.



We conduct human rights due diligence for our customer projects

Compliance & integrity

Our company-wide zero-tolerance approach aims to ensure a strong culture of business ethics and compliance.



Our Business Conduct Guidelines are binding for all executives and employees worldwide



Societal engagement

Our global engagement addresses needs in the countries in which we operate.



Selected examples of responsible operations



Speaking up against discrimination in the workplace

Allyship at Siemens Energy

Many people in society still experience discrimination due to their ethnic origin, gender, religion, disability, age, sexual orientation, gender identity and/or gender expression – and it is often in the workplace. At GP, we are determined for this change. To support employees at GP to feel safe to speak up honestly when mistreated, we have launched the Allyship campaign. It is a result of discussions from the diversity networks where some members came forward with stories of disrespect or racism. The campaign aims to change the internal culture and transform Siemens Energy into a truly inclusive and diverse company. It seeks to encourage kindness, respect, valuing differences and mutual support.

Training and education in Egypt

The Siemens Energy Egyptian-German Technical Academy is committed to providing vocational skills in Egypt. Since its launch in 2020, the academy has trained over 2,500 technical students, engineering students, industry technicians, and engineers.

The academy's ongoing Training for Employment program aims to increase the youth employability rate and train technicians for the local market. In 2022, 130 students have graduated after passing 12 weeks of training in mechanics, electrics and welding and have been hired by local companies.

In the Technical Master Trainer program in cooperation with IHK Ostbrandenburg, the academy has trained and certified 16 technical master trainers. The aim of the certificate course is to empower suitable candidates to generate and deliver market-relevant courses in line with Siemens Energy and IHK requirements within the Egyptian training ecosystem.



Powering the future: vocational skills for students, engineers and technicians



Brainstorming for South Africa's net zero future

Just Energy Transition (JET) hackathon

In South Africa, the inaugural Siemens Energy Just Energy Transition (JET) hackathon gave a group of secondary school students the opportunity to brainstorm ideas for the country's transition to a net zero future. Given that 77% of South Africa's energy needs are provided by coal, this was no easy task. The winning school team suggested a clever mix of technologies including solar, wind, biomass and biogas and considered the costs of their proposal.

Our sustainability performance

Decarbonizing our business

| Performance indicator | Unit | 2022 | 2021 |
|---|--|-----------|--------------------|
| Greenhouse gas emissions | | | |
| Scope 1+2 emissions | | | |
| absolute | 1,000 metric tons CO ₂ e | 215 | 273 |
| thereof SF ₆ | 1,000 metric tons CO ₂ e | 35 | 41 |
| thereof fleet | 1,000 metric tons CO ₂ e | 32 | 29 |
| Scope 3 downstream emissions¹ | | | |
| absolute | 1,000 metric tons CO ₂ e | 1,323,012 | 1,369,163 |
| intensity | metric tons CO ₂ e/ € order intake | 0.035 | 0.041 |
| Scope 3 upstream emissions² | | | |
| absolute | 1,000 metric tons CO ₂ e | 5,081 | 4,433 ³ |
| intensity | kg CO ₂ e/€ PVO spent | 0.424 | 0.440 ³ |
| Energy | | | |
| Energy consumption | million gigajoule | 5.80 | 6.33 |
| Share of green electricity | % | 90 | 76 |

¹ Includes category "use of sold products" only.

² Includes categories "purchased goods and services" and "transportation and distribution" only. Without SGRE.

³ Due to the further development and optimization of the CO₂ calculation tool, the CO₂ emissions for fiscal year 2021 and fiscal year 2018 (baseline) were recalculated.

⁴ Without SGRE.

⁵ Total Recordable Injury Rate: Number of recordable injuries (TRI) x 1,000,000/work hours performed. Recordable injuries are accidents that result in lost time, restricted work, or medical treatment.

Responsible operations

| Performance indicator | Unit | 2022 | 2021 |
|---|----------------------|-------|-------|
| Research & development | | | |
| Research & development expenses | million € | 1,078 | 1,155 |
| Sustainable supply chain management | | | |
| External sustainability audits at suppliers | no. | 167 | 157 |
| Waste | | | |
| Waste recycling and recovery rate | % | 81 | 82 |
| Water | | | |
| Water consumption | million cubic meters | 3.45 | 4.10 |
| Product stewardship | | | |
| Portfolio coverage by Life Cycle Assessments (LCAs) | % | 72 | 71 |
| Employees | | | |
| Share of women in overall workforce | % | 20 | 19 |
| Share of women in top leadership positions ⁴ | % | 22 | 21 |
| Training hours per employee | no. | 10.3 | 8.6 |
| Occupational health and safety | | | |
| Total Recordable Injury Rate (TRIR) of employees ⁵ | no. | 2.17 | 2.47 |
| Societal engagement | | | |
| Donations | million € | 3.62 | 4.71 |



[siemens-energy.com](https://www.siemens-energy.com)



twitter.com/siemens_energy



[linkedin.com/siemens-energy](https://www.linkedin.com/company/siemens-energy)

For the full sustainability report see:

➤ www.siemens-energy.com/sustainability-report-2022

Published by

Siemens Energy AG
Otto-Hahn-Ring 6
81739 Munich
Germany

Sustainability: sustainability@siemens-energy.com
Media Relations: press@siemens-energy.com
Investor Relations: investorrelations@siemens-energy.com

[siemens-energy.com/sustainability](https://www.siemens-energy.com/sustainability)

© Siemens Energy, 2022

Siemens Energy is a trademark licensed by Siemens AG.