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T E R N A G R O U P



Sustainability Report 2023

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Reporting according to GRI

This report was prepared in accordance with the GRI standards published in 2021

(www.globalreporting.org)

Dear shareholders and stakeholders,

Welcome to our Sustainability Report for 2023. At Brugg Cables we are committed to integrating sustainability into the very fabric of our operations. This report highlights our ongoing efforts to minimize our environmental impact while driving forward production and innovation.

As we navigate the complexities of balancing increased production with reduced emissions, we remain steadfast in our commitment to sustainability. This year, we have made significant strides in three key areas:

1. **Less Emissions Despite More Production:** We have focused on optimizing our processes and incorporating advanced technologies to ensure that our growth does not come at the expense of the environment.
2. **Close Collaboration with our Shareholder:** As part of a Group that places a high priority on sustainability, we leverage continuous exchanges and the extensive expertise of the Terna Group. Our strengthened cooperation, particularly in gathering Scope 3 emission data, underscores our dedication to a comprehensive strategy for environmental stewardship.
3. **Finalization of a Calculation Tool for Environmental Footprint:** We have partnered with an external company to develop a tool for measuring and analyzing the environmental footprint of our cables and accessories from cradle to gate. In a next step, we will extend the tool's capabilities to the entire lifecycle from cradle to grave and the calculation of Environmental Product Declarations (EPDs). This tool will help us to track our progress and identify opportunities for further improvements to our product designs.

We have also taken important steps to enhance our sustainability practices, including the reactivation of our photovoltaic plant and the strategic outsourcing of material storage, streamlining logistics and reducing unnecessary movement of materials at our plant during production.

We invite you to explore the details of our achievements and challenges in this report and join us in our ongoing journey toward a more sustainable future.

Gianluca Vettese
CEO Brugg Cables



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1 Scope of Sustainability Report (GRI 2-1 to GRI 2-5)

This Sustainability Report applies to Brugg Kabel Services AG with its controlled companies Brugg Kabel Manufacturing AG and Brugg Kabel AG, hereinafter referred to simply as Brugg Cables at the address Industriestr. 19, CH-5200 Brugg. The headquarter of Brugg Cables is at this address and the countries of operation are worldwide and supported by subsidiaries of Brugg Kabel AG and Brugg Kabel Manufacturing AG in China, Germany, India, Italy, KSA, Kuwait, Middle East and USA.

The activities of the subsidiaries are not the subject of this report. They will only be included in a future sustainability report. The headquarter in Switzerland is by far the biggest site and contributes to 66% of the total number of employees and approximately 95% of the emissions of Brugg Cables. Except for China, all other subsidiaries are non-operational. In China we have both, an office in Shanghai and a production site in Suzhou.

The ownership structure is shown below:

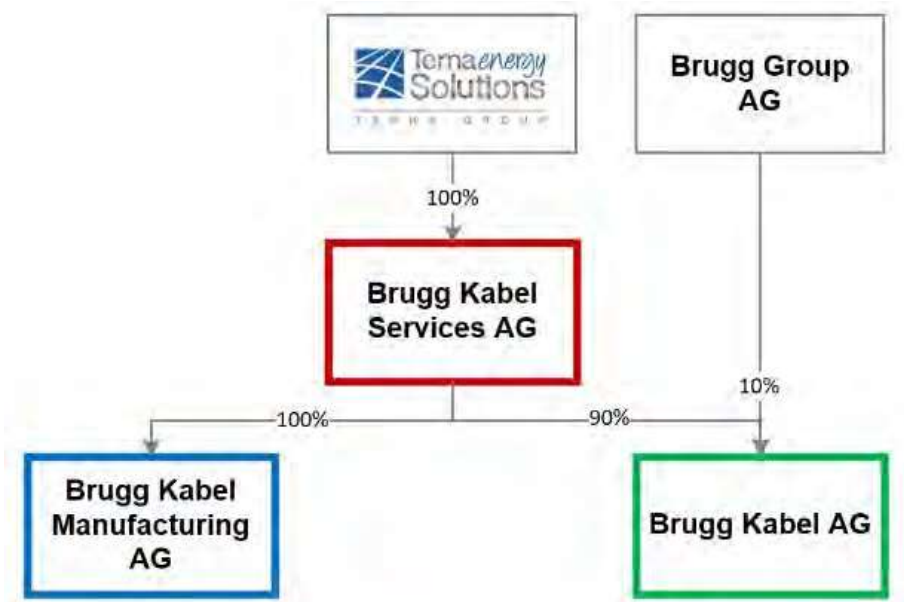


Figure 1 - Ownership structure

The consolidated financial statement is prepared by Deloitte, Switzerland, and contains all subsidiaries of Brugg Cables worldwide and has the same frequency and reporting period as the sustainability report.

Starting in the year 2020, KPIs from Brugg Cables are being publicly reported in the Terna S.p.A. integrated report¹. Since 2022, Brugg Cables is publishing an independent sustainability report. Compared with last years' report, there is no need to restate information.

The annual sustainability reporting period is 01. January – 31. December and not subject to external assurance except for the information published in the Terna S.p.A. non-financial statement (NFS) of the integrated report which is subject to a limited assurance by Deloitte & Touche S.p.A.²

As contact point for questions on the reported information please get in touch with:
Klaus Lattasch, Head of Global Quality Management, at klaus.lattasch@bruggcables.com

¹ [2023 Terna Annual Report - Integrated report](#)

² Refer to details in footnote 2 on page 4 of 2023 Terna Annual Report – Integrated report for limitations of assurance

2 Sustainability Strategy

Brugg Cables provides tailor made intelligent cable solutions, profound engineering expertise and worldwide maintenance capability through the business unit Power Cable Systems while the business unit Cable Accessories is an independent and well-proven provider of smart cable accessories supporting the clients globally with local installation services and intimate knowledge.

Brugg Cables is pursuing the ambitious goal of becoming the world's most sustainable cable and cable accessories manufacturer. In doing so, as participant of the UN Global Compact³, we are guided by the UN's 10 principles in the areas Human Rights, Labor, Environment and Anti-Corruption and the 17 Sustainable Development Goals (SDGs), considering the expectations of our customers and other stakeholders as well as national and international laws and framework conditions.



Figure 2 – Brugg Cables overall sustainability goal

³ <https://unglobalcompact.org/what-is-gc/participants/148814-Brugg-Kabel-AG>

3 Sustainability Targets

Brugg Cables' sustainability goals are in line with the 17 SDGs formulated by the United Nations.



Figure 3 - The 17 Sustainability Goals

Based on our product portfolio and business model, we have prioritized the SDGs to focus on those to which we can make the greatest contribution, and which are also relevant to our main shareholder, Terna S.p.A., in the context of its integrated report.

4 Material Topics

By applying GRI 3 Material Topics 2021 we assessed Brugg Cables material topics following the recommended workflow therein:

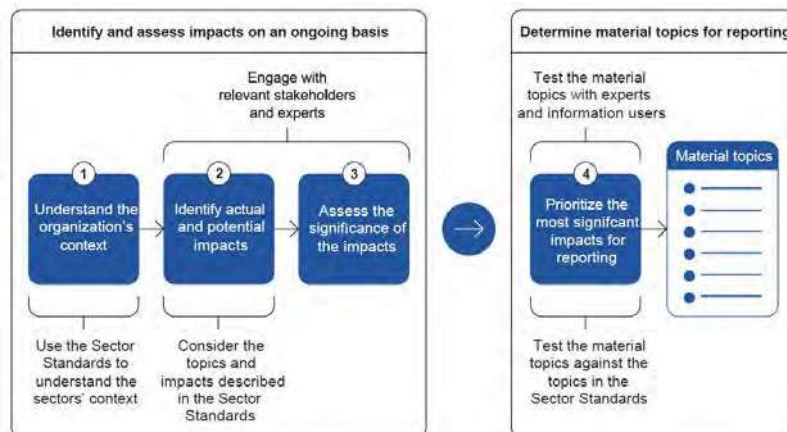


Figure 4 - Process for determining the material topics

As there is not yet a sector standard available for the cable industry, we assessed the significance of the impact of our business to the 10 principles and the 17 SDGs applying the relevant GRI topic standards.

The prioritization of the SDGs was carried out through an anonymous survey of the company's internal stakeholders on the importance for and possibilities of influence on the part of Brugg Cables Switzerland. Multiple selections were permitted, which led to the following result:

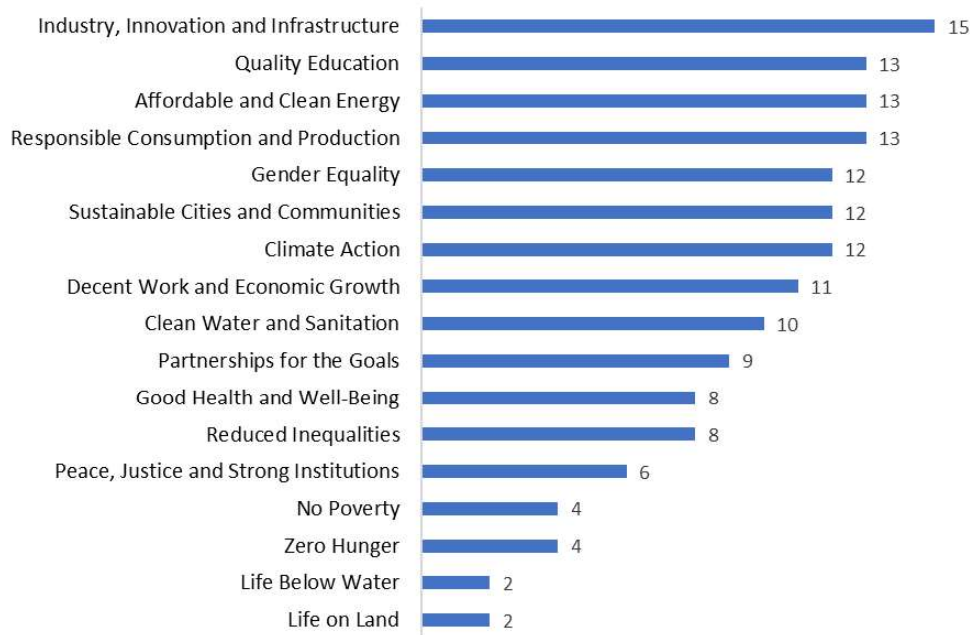


Figure 5 - Prioritized SDGs of Brugg Cables

Thus, the SDGs with the highest relevance for us in descending order are shown to the right.

For these selected SDGs, we have defined targets and adopted measures to achieve them.

The SDG 3 "Good Health and Well-Being", although rated lower, was included because KPIs relating to this are required for the integrated report of our shareholder Terna S.p.A.



Figure 6 - Material topics for Brugg Cables

Focusing on the above SDGs does not mean that we disregard the less relevant SDGs. We will also implement measures for this group of SDGs if we can make a contribution as a result. However, no targets will be set.

5 Target tracking of the measures

Brugg Cables has replaced the program G4E (Go for Excellence) and implemented a dashboard containing all relevant targets to be achieved by the various functions, including those that have an impact on the above-mentioned SDGs. The targets are reviewed on a regular basis by BoM (Board of Management).

As Brugg Cables' sustainability efforts evolve over the next years, for all material topics clear targets will be defined and tracked through the dashboard.

6 Targets and measures of the relevant SDGs



Objectives:

- Offer apprenticeships for young people
- Offering internal and external training through the Brugg Academy

Offer apprenticeships for young people

Brugg Cables has a long tradition of giving young people the opportunity to learn various trades. Currently we offer apprenticeships for commercial assistants, polymechanics and plant operators. Over the last 5 years 26 students completed an apprenticeship in these professions.

The apprenticeship lasts 2 - 3 years and ends with an examination and a practical test. Afterwards, some young people stay at Brugg Cables and gain experience in their profession. In today's fast-paced world, they need to keep their knowledge current. We therefore support employees who want to keep up to date or acquire additional knowledge and skills.

When young people start their apprenticeship, they are usually between 16 and 20 years old, but Brugg Cables starts much earlier to interest them in our company. We participate in the "[National Future Day](#)" initiative. In 2023, we were one of the 2479 Swiss companies, organizations, vocational schools and universities that took part in Future Day and gave interested 5th to 7th grade students an insight into gender-atypical professions. 25 students took the opportunity to learn where their parents or relatives work in the various functions and areas of our company.

At the other end we give older employees the opportunity to gain a professional certificate as a machine operator without having completed the corresponding basic vocational training. This is provided for in Article 32 of the Ordinance on Vocational Education and Training in Switzerland. Employees who have already gained many years of experience in their job at Brugg Cables are eligible to qualify for this program.⁴

Offering internal and external training through the Brugg Academy

In addition, we have established an [Academy](#) that offers eLearning trainings since 2022 and for more than 100 years dedicated trainings at our headquarters in Brugg or at the premises of our clients and partners worldwide (table 1). Participants learn first-hand and hands-on from our experts, who have acquired their knowledge and experience in many worldwide cable and accessories projects up to voltage levels of 550 kV (figure 7).



Picture 1 – Participants of 2023 National Future Day at Brugg Cables

⁴ <https://www.ag.ch/de/verwaltung/bks/berufsbildung-mittelschulen/bildung-fuer-erwachsene/berufsabschluss-fuer-erwachsene>

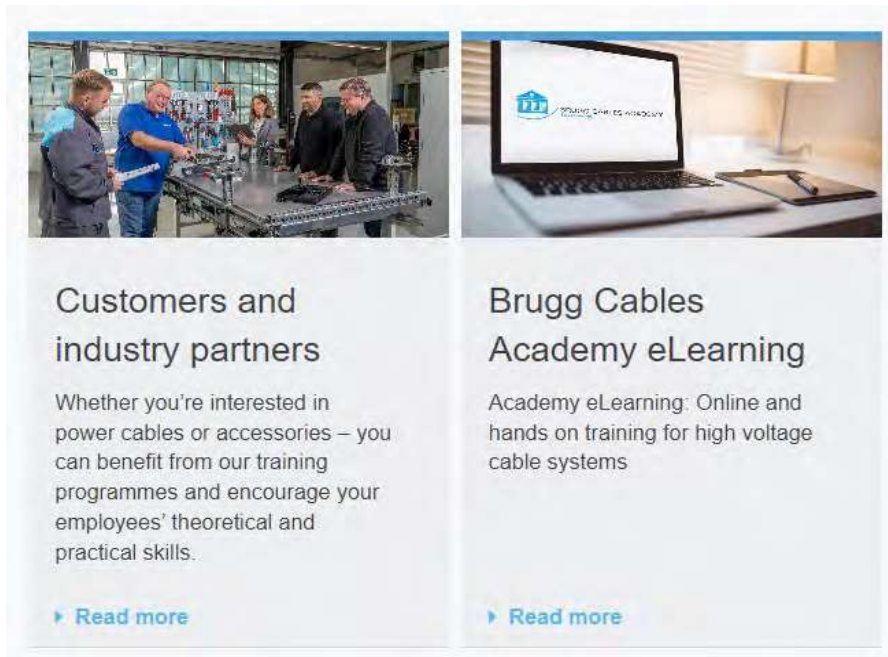


Figure 7 - Brugg Academy training on-site (left) and online (right)

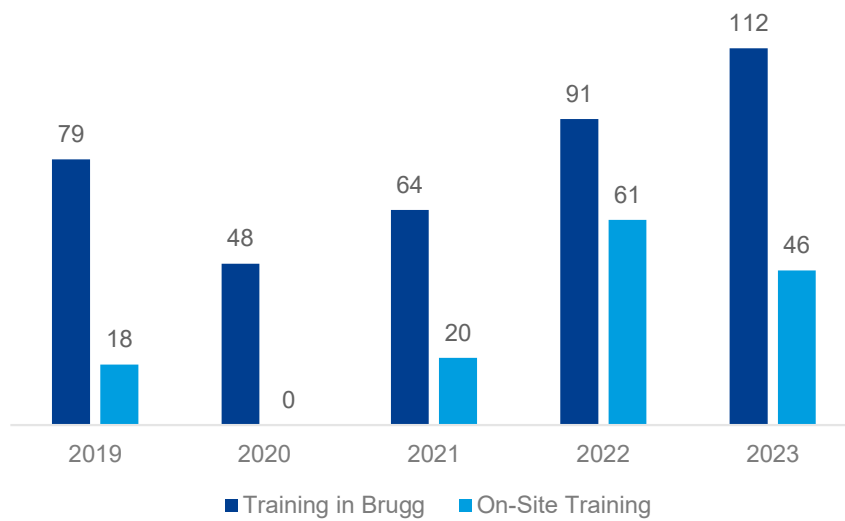


Table 1 – Number of external participants of our HV jointer trainings

Since the slump during the coronavirus phase the number of participants has recovered and will continue to rise in 2024. In addition, over the past 5 years we have trained almost 400 employees of Swiss energy suppliers in the professional installation of our low and medium-voltage cables and 189 apprentices from these energy suppliers as part of the Swiss inter-company course commission.

While we offer in-house and on-site training for our clients and partners, eLearning training is currently only available for our employees. Here we offer a growing number of almost 50 courses that can be completed at a self-determined pace.

Next to the Brugg Academy, we provide in-house training courses aimed primarily at operators. These trainings focus on the workplace and its specific risks. Due to the poor safety performance in 2022, as detailed further below in section SDG 3, we have invested many training hours in this category. This explains why the number of training hours has more than tripled for blue collars compared to 2021, as can be seen in the table 2 below.

We have also placed emphasis on trainings in compliance, anti-bribery and our code of ethics for our managers and executives.

On top of the training needs that arise situationally (e.g., in the case of the aforementioned safety performance deficiencies), individual training needs are determined as part of the annual employee appraisal and performance review. This then leads to appropriate training measures in consultation with the supervisor and, in the case of more extensive training, with the involvement of the HR department.

In 2023 we approved CHF 81'000 for more extensive trainings (up 35% compared to 2022). In particular, we signed 38 training agreements which we supported with money and time credits (50-100%) and will continue to do so.

GRI Topic Standard 404 Training and Education	2023	2022	2021
KPI	h	h	h
Total hours of training per year per employee			
By gender			
- Men	1'509.5	1'722	879
- Women	151	124	92
By category			
- Executives	1	49	26
- Managers	120.5	292	91
White collars	316	601	499
- Blue collars	1223	904	355
Average hours of training per year per employee ⁵			
Total	5.7	6.1	3.3
Men	4.7	6.7	3.4
Women	3.2	2.8	2.2
	No.	No.	No.
Programs for upgrading employee skills and transition assistance programs	38	35	40
	%	%	%
Percentage of employees receiving regular performance and career development reviews ⁶	100	100	100

Table 2 - Information on training and education

⁵ Number shown is the total number of training hours provided to employees divided by the total number of employees

⁶ These are held annually for all employees and as needed during the year.



Objectives:

- Provision of cables and accessories to support the conversion to renewable energies
- Cables and accessories designed to transport energy as efficiently as possible
- Optimizing the design of cables and accessories to minimize the need for raw materials

Provision of cables and accessories to support the conversion to renewable energies

As a supplier of underground cables and accessories, Brugg Cables plays a key role in modern electric power transmission, which is placing more and more emphasis on protecting landscapes and the environment. Brugg Cables is one of the few cable manufacturers in the world in a position to produce cable systems and accessories that can handle the current maximum permissible voltage of 550 kV.

Our cables and accessories are at the heart of the transmission of electricity generated from renewable energy, for the connection between electricity producers and consumers, and for the planned electrification of road traffic. Especially in densely populated cities, the transport of the required electrical power for charging stations via overhead lines is impossible for various reasons. Here, underground cables offer the only practicable solution.

According to estimates by the ENTSO-E⁷, more than 43'000 km route length of additional power lines will be needed for reaching Europe's decarbonization goals over the next years.

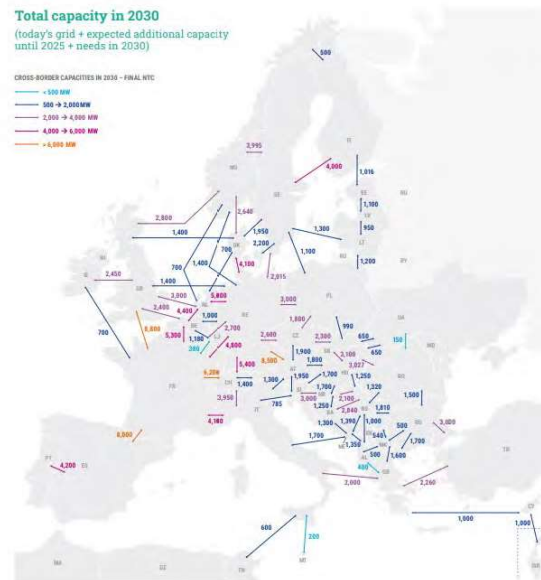


Figure 8 - Total cross-border capacities in 2030 (today's grid, capacities expected around 2025 plus capacity increases identified in the system needs study for the 2030 horizon). To not overcharge the map, only the highest value is displayed on borders where the value is not the same in both directions⁷

⁷ European Network of Transmission System Operators for Electricity <https://www.entsoe.eu/> and figure 8 from: System Needs Study <https://eepublicdownloads.blob.core.windows.net/public-cdn-container/tyndp-documents/TYNDP2022/public/system-needs-report.pdf>

Cables and accessories designed to transport energy as efficiently as possible

On top of laying additional cables due to increased energy demand, there is a need to replace old underground cables that have reached the end of their life span. Due to the longevity of underground cables, oil cables (paper impregnated with oil as an insulator) are still in use. In addition to the lower transmission capacity (see table 3) and higher line losses (5 – 15% depending on voltage level) these cables pose an environmental risk should the pressure regulating devices for the oil, which ensure a constant oil pressure inside the cable over the entire cable length, leak. Brugg Cables is able to replace these oil cables completely or provide transition joints in order to replace just defective sections with modern XLPE insulated cables.

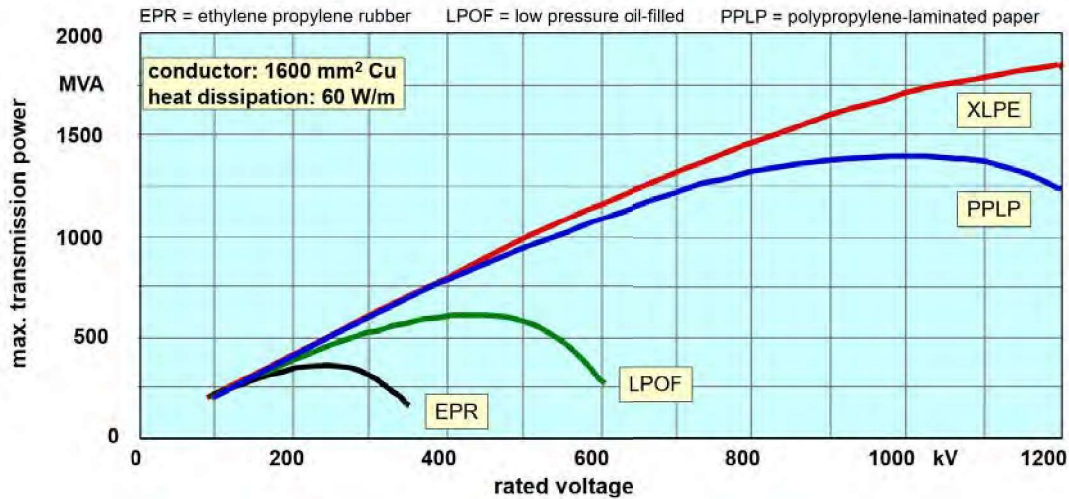


Table 3 - Transmission capacity for different cable types

Optimizing the design of cables and accessories to minimize the need for raw materials

Together with our customers we decide on the most suitable cable design and accessories for the projects. As can be seen in table 4 below, conductors of the Milliken type show a much lower skin effect at higher cross-sections compared to round stranded conductors. The skin effect raises the effective resistance leading to additional transmission losses. These losses are further reduced by stranding enameled copper wires. For the cross-section 2'500 mm², around 70% of the copper conductors are being produced with enameled wires at Brugg Cables, which have about the same ampacity (current carrying capacity) as a 3'000 mm² conductor. The use of enameled wires for the production of the conductor therefore reduces the need for even higher cross-sections and thus the demand for copper.

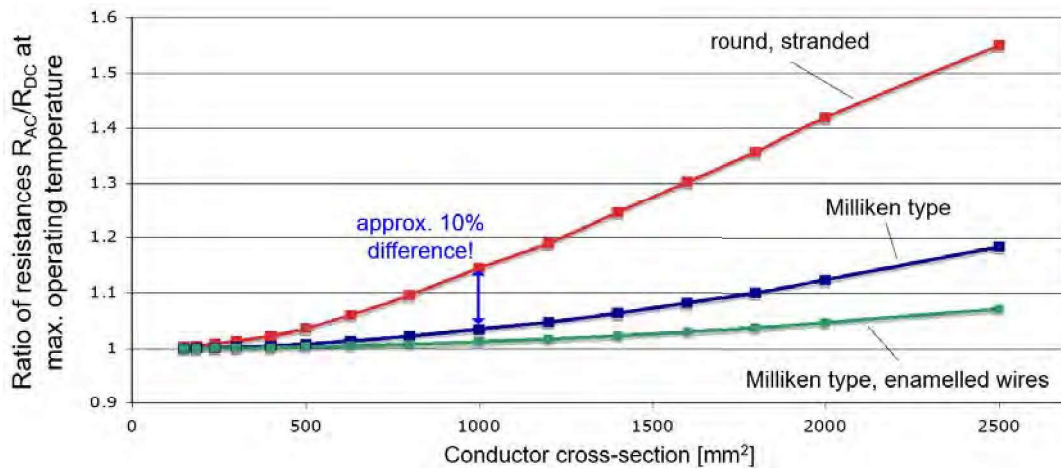


Table 4 - Ratio of resistance RAC/RDC for different conductor types and cross-sections

The conductor resistance causes the cable to heat up. The maximum allowed temperature of the cable insulation, typically 90 °C, thus limits the ampacity of the cable. This heat must be dissipated to the surrounding and hence it becomes obvious that the laying configuration, the laying depth and the thermal resistivity of the surrounding, are, amongst others, additional parameters that affect the current carrying capacity of the cable.

Other than in overhead power lines, where the heat is released into the air, the heat from underground cables eventually dissipates to the surrounding, which is typically soil. For several years, there has been controversy in Germany about whether radiated heat limits or even prevents agricultural use of the soil above the underground cable ^{8,9}.

A pioneering study in Switzerland, initiated by [Swissgrid](#) and titled “Soil is a precious resource” ¹⁰ also measures the effect of heat emissions from underground cables on the environment. As test object serves the very first extended section of a 380 kV extra high voltage underground line from Brugg Cables in the Bözberg / Riniken area in the Canton of Aargau with a total length of 1.3 kilometers. It went operative in May 2020 and since then the soil temperature is being measured at three measuring stations down to a soil depth of one meter.

In addition, the earthworm population is being monitored. Earthworms are able to escape unfavorable soil conditions, and their population is hence expected to decrease if this were the case.



Picture 2 - One of three installed temperature measuring stations

In summary, the results are as follows:

There is a weak positive relationship between intensity of current and cable temperature over the entire measurement period (table 5) and hardly any relationship between intensity of current and soil temperature at a soil depth of one meter (table 6) over the entire two-year measurement period.

It can therefore be concluded that the slightly elevated soil temperature around the cable duct block has very little or no effect on soil biology and soil quality. This assumption is supported by examining the size of the earthworm populations of the six different species found at the three measuring sites. There was no significant difference in earthworm numbers between the soil above the underground

⁸ <https://www.bundestag.de/resource/blob/496350/8349c98b16c1dd4fb7b2310ee487a9f0/wd-5-125-16-pdf-data.pdf>

⁹ <https://www.campus-halensis.de/artikel/schmale-ernte-durch-dicke-kabel/>

¹⁰ <https://www.swissgrid.ch/en/home/newsroom/blog/2022/soil-is-a-precious-resource.html>

extra high voltage cables and undisturbed control soil nearby. In addition, the population size was comparable to that found in grassland areas with similar temperatures and amount of rain fall.

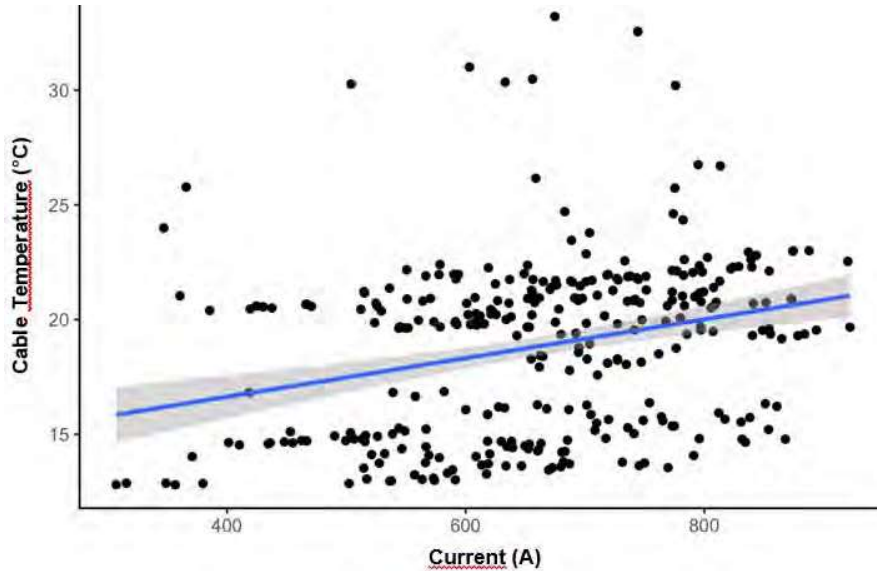


Table 5 - Cable temperature as function of current during measuring period 05.20 - 05.22 ¹¹

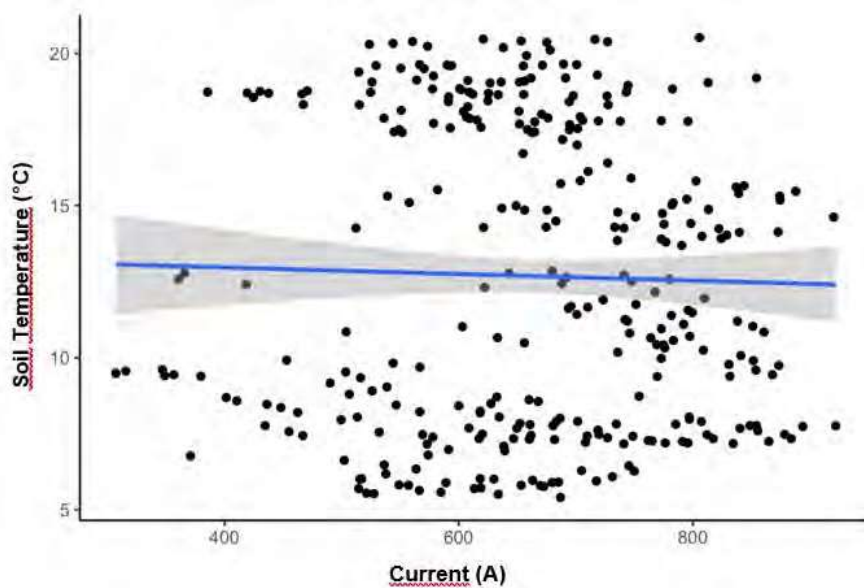


Table 6 - Soil temperature as function of current during measuring period 05.20 - 05.22 ¹¹

Swissgrid will continue this study over the next years to learn more about the long-term effects of underground cables on the environment, with a focus on soil function and biodiversity. The results to date do not indicate any environmentally harmful impact of underground cables.

¹¹ Dr. Beat Frey, Group leader, [Swiss Federal Research Institute WSL](https://www.wsl.ch/), 8903 Birmensdorf



Objectives:

- Application of the concept of circular economy in our products
- Reduction of raw material and energy requirements

Application of the concept of circular economy in our products

Brugg Cables has created the opportunity to use recycled material in the production of outer jackets. Plastic waste, also from our own production, is re-granulated by specialized suppliers. This makes it possible for us to utilize recycled material and less primary plastics.

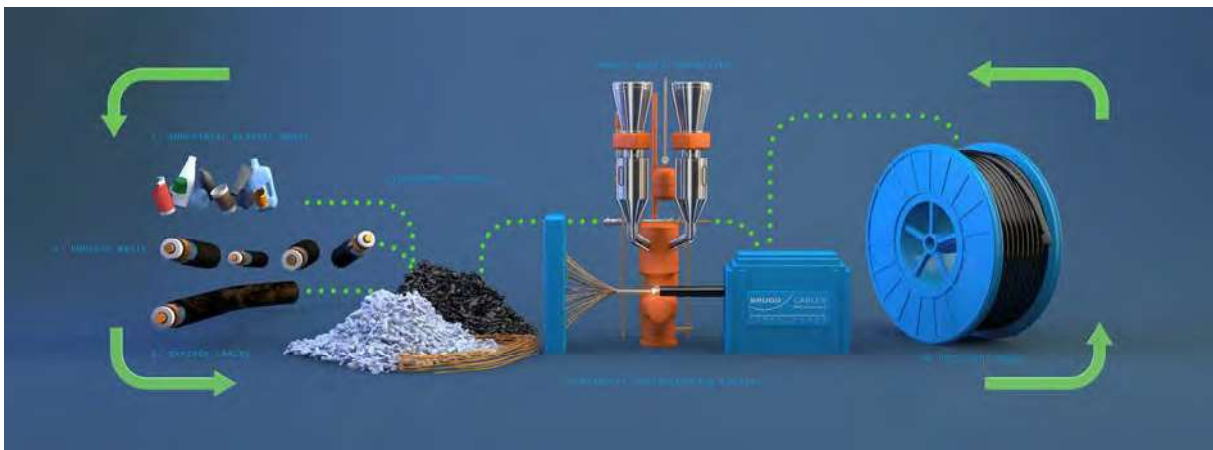


Figure 9 - Process of using recycled Polyethylene for cable sheathing

While we were able to reduce the need for primary plastic by 120 tons of LLDPE and HDPE, which is equivalent to around 240 tons of CO₂ in the year 2022, we unfortunately had to interrupt the usage of the recycled material in 2023 for technical reasons.

We have made arrangements to resume the use of this material in 2024 and have invested in silo storage for better handling.

Reduction of raw material and energy requirements



Picture 3 – Measuring devices in one of our electrical energy distribution cabinets

In addition to our efforts to decrease the quantity of raw materials required to manufacture our products, we are committed to reducing the consumption of water, compressed air and electricity in the manufacture of cables and accessories.

As a first step, we have started to install measuring devices and a monitoring system (figure 10).

This will allow us to identify the most energy-intensive production processes by visualizing consumption as real-time data and over a period of time.

Based on this data, we can now make well-founded decisions about which equipment we should focus on for replacement or technical improvement.



Figure 10 – Screenshot of monitoring system for electricity, water, compressed air



Objectives:

- Equal opportunities for men and women

Equal opportunities for men and women

At Brugg Cables, all genders have equal opportunities. Nevertheless, the total number of women in the various functions remains low and no woman serves on the Executive Board. We are willing to change this and encourage applications from women and diverse individuals. By participating in the [National Future Day](#), we hope to interest all genders in our company at an early stage.

GRI Topic Standard 401 Employment		
KPI 401-1 New employee hires and employee turnover	No.	%¹²
New employee hires during reporting year by age		
Total		
- below the age of 30	13	30.23
- between the ages of 30 and 50	22	51.16
- over the age of 50	8	18.60
New employee hires during reporting year by gender		
Total		
- Men	42	79.25
- Women	11	20.75
Employee turnover during reporting year by age		
Total		
- below the age of 30	11	22
- between the ages of 30 and 50	23	46
- over the age of 50	16	31
Employee turnover during reporting year by gender		
Total		
- Men	40	80
- Women	10	20
KPI 401-3 Parental leave¹³	No.	%
Employees that were entitled to parental leave	10	100
Employees that took parental leave		
Total	10	100
- Men	8	80
- Women	2	20
Employees that returned to work after parental leave ended		
Total	9	90
- Men	8	80
- Women	1	10

¹² Of total number of employees

¹³ In Switzerland, men are entitled to 2 weeks and women to 14 weeks paid parental leave

KPI 401-3 Parental leave continued	No.	%
Employees that returned to work after parental leave ended that were still employed after 12 months after their return to work	9	90
- Men	8	80
- Women	1	10
Return to work rate of employees that took parental leave	9	90
- Men	8	80
- Women	1	10
Retention rate of employees that took parental leave	10	
- Men	8	80
- Women	2	20
GRI General Disclosures 2-7 Employees¹⁴	No.	%
Total	293	100
- Men	251	85.69
- Women	42	14.31
Permanent employees		
Total (% is compared to all employees)	285	100
- Men	244	86.52
- Women	38	13.48
Temporary employees		
Total (% is compared to all employees)	9	10
- Men	7	81.82
- Women	2	18.18
Non-guaranteed hours employees	0	0
Full-time employees		
Total (% is compared to all employees)		
- Men	238	93.75
- Women	18	6.25
Part-time employees (% is compared to all employees)		
Total		
- Men	13	36.11
- Women	23	63.89
KPI 405-1 Diversity of governance bodies and employees	No.	%
Percentage of individuals within the organization's governance bodies by gender ¹⁵		
Total	5	
- Men	5	100
- Women	0	0

¹⁴ Numbers are all head count

¹⁵ Numbers are for the board of the holding company Brugg Kabel Services AG

Percentage of individuals within the organization's governance bodies by age group	No.	%
- under 30 years old	0	0
- 30 – 50 years old	2	40
- over 50 years old	3	60
Percentage of employees per employee category		
By gender		
- Men	251	85.69
- Women	42	14.31
By age group		
- under 30 years old (men/women)	29/12	70.73/29.37
- 30 – 50 years old (men/women)	128/18	87.67/12.33
- over 50 years old (men/women)	94/12	88.68/11.32
By category		
- Executives (men/women)	5/0	
- Middle managers (men/women)	11/2	84.62/15.38
- White collars (men/women)	104/38	73.24/26.76
- Blue collars (men/women)	131/2	98.50/1.50
By education		
- University degrees and diplomas	41	13.99
- High school diplomas	115	39.55
- Professional qualifications	137	46.76
- Elementary and secondary school diplomas	0	0
KPI 405-2 Ratio of basic salary and remuneration of women to men	2023	2022
Pay difference		
- Executives	0	0
- Managers	82.5	86.0
- Employees	75.3	78.6
Remuneration difference		
- Executives	0	0
- Managers	84.5	85.6
- Employees	71.3	72.5
Promotions		
- Manager to Executive (men/women)	0/0	0/0
- Employee to Manager (men/women)	4/0	4/0
GRI 406-1 Incidents of discrimination and corrective actions taken		
Total number of incidents of discrimination	0	0
GRI 407-1 Freedom of association and collective bargaining		
See remark below		

Table 7 - Employment at Brugg Cables

Remark on GRI 407-1:

There is freedom of association and the right to collective bargaining, but the workforce does not make use of it. We used to have an employee committee, which was discontinued in 2021 due to lack of interest from the employees. There is also no collective bargaining agreement, but each employee has an individual contract with the company.



Objectives:

- Grid development to support the ecological transition and combat climate change
- Electricity production at our facility in Brugg

Grid development to support the ecological transition and combat climate change

Brugg Cables, as part of the Terna Group, is contributing to Terna's National Transmission Grid Development plan, which – amongst others – includes

- Facilitating renewable energy sources (RES) deployment and integration
- Facilitating the spread of electric mobility and reducing emissions in the long term
- Supporting the increase in electricity penetration
- The upgrade and expansion of cross-border interconnections to boost exchange capacity with neighboring countries

In the year 2023, Brugg Cables Switzerland provided 411 km of cables for various Terna projects within Italy's national transmission grid, thus supporting above goals (see also page 12).

Grid Architecture over the 2023-2032 Plan time frame

Grid Architecture post-2032

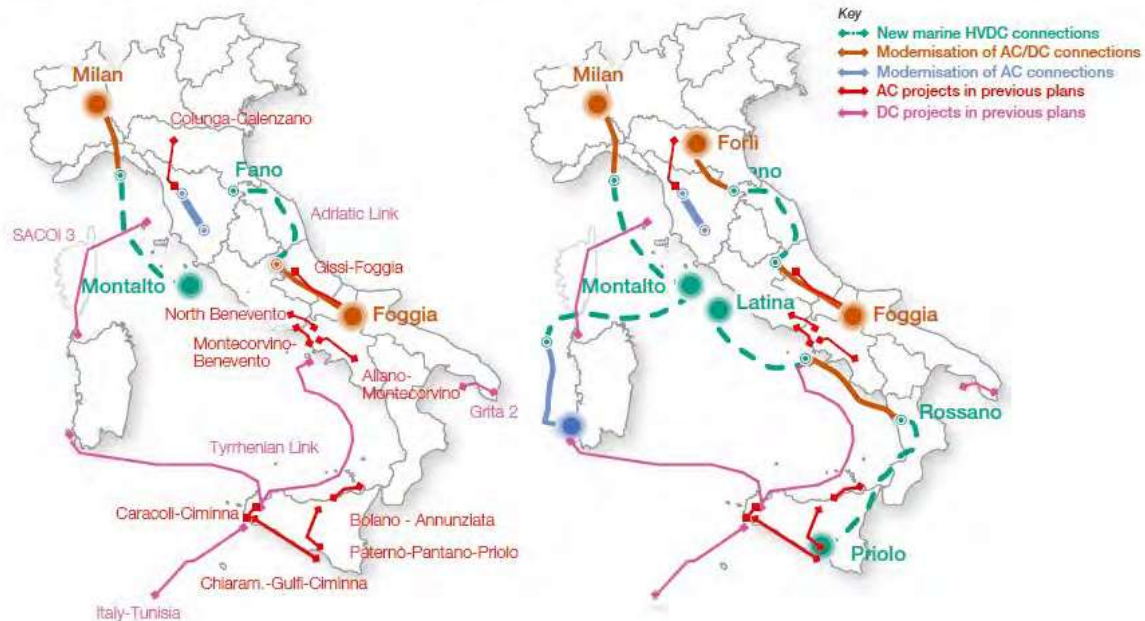


Figure 11 – Grid architecture according to Terna development plan¹⁶

¹⁶ Taken from [Terna Integrated Report 2023](#), page 118

Electricity production at our facility in Brugg



We have reactivated an existing photovoltaic system at our plant in Brugg by replacing defective inverters. The surface area of the panels reaches 420 m², which produced a total of 31'287 kWh of electricity that was fed into the local grid.

As modern panels have a higher output, we are currently investigating the possibility of replacing and enlarging the existing system.

Picture 4 –Photovoltaic plant on rooftop

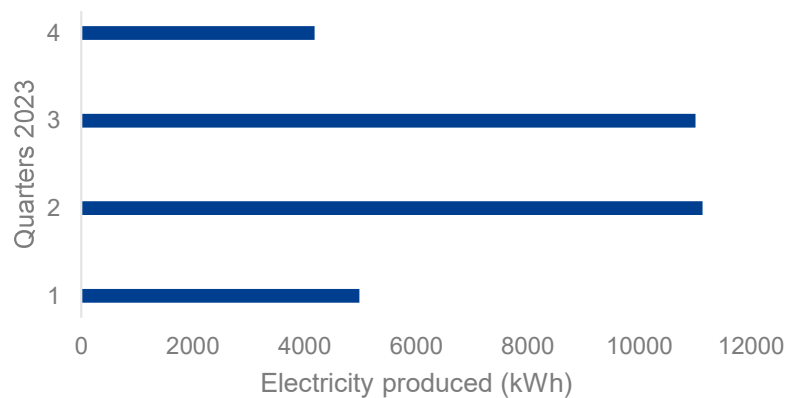


Table 8 – Electricity produced by our photovoltaic plant



Objectives:

- Preventing occupational accidents by investing in trainings
- Health care and prevention of diseases

Preventing occupational accidents by investing in trainings

Protecting employees' safety is of utmost importance to Brugg Cables. Compared to the year 2021, the number of occupational accidents and lost days increased significantly in the year 2022.

GRI Topic Standard 403	2023	2022	2021
KPI			
Lost time Injury rate ¹⁷	13.5 (2.70)	31.9 (6.38)	13.2 (2.64)
Fatality rate	0	0	0
Serious injury rate, where the initial prognosis is > 40 days	5.06 (1.01)	1.68 (0.36)	0
Number of lost time injuries	8	19	8
- of which serious, where the initial prognosis is > 40days	3	1	0
- of which fatal	0	0	0
Number of hours worked	592'902	595'698	605'631
Type of occupational injury			
Falling from height	0	0	0
Traffic accident injury	0	0	0
Electrocution	0	1	0
Impact, crushing, cut	6	7	6
Falling on level ground, slipping	0	3	1
Manual handling of loads	0	5	0
Projection of solid fragments and/or liquid substances	0	0	0
Others	2	3	1

Table 9 – Occupational Health and Safety at Brugg Cables

We therefore intensified our efforts to bring these numbers down by signing the Safety Charter¹⁸, which was launched by Suva¹⁹ in collaboration with employers' associations, planners and trade unions. It is an alliance for more occupational safety between the partners involved in the work.



¹⁷ In accordance with UNI 7249:2007 standard (no. of lost time accidents multiplied by 1'000'000 divided by the total working hours. Numbers in brackets are calculated according to ILO definitions (multiplied by 200'000)

¹⁸ <https://www.sicherheits-charta.ch/de/home/>

¹⁹ <https://www.suva.ch/>

The 2-year journey overseen by Suva under the title “Safety@work” included:

- Hazard analyses
- Preparation of standard operating procedures for hazardous substances and all machines and equipment
- Audits by Suva
- Intensified safety related trainings, especially for all our supervisors and managers aiming at raising the awareness of their responsibility for occupational safety



Picture 5 - Snapshots from Suva training for supervisors and managers



As a result, we have succeeded in reducing the number of accidents at work to the 2021 level. We will continue our efforts in the coming years and place an additional focus on reporting and investigating near misses.

Health care and prevention of diseases



Figure 12 – Certificate of participation

Another focus area related to SDG 3 is health care and prevention of diseases. Also, in the year 2023 we participated in the initiative “Bike to work²⁰”. 5 teams used the bicycle during the month of May and June to commute to work and saved 994 kg CO₂ equivalents.

We will take part again in 2024 and hope to achieve a higher number of participants through better promotion of this initiative.



²⁰ <https://www.biketowork.ch/en>

Every year, Brugg Cables offers its employees the opportunity to be vaccinated against influenza by an occupational physician during working hours. In addition, hand disinfection stations are available in all washrooms and at the entrances and exits to our facilities.

7 Sustainability key figures

Belonging to the Terna Group, Brugg Cables reports all its environmental, social and governance KPIs to its shareholder. They are consolidated in Terna's integrated report ¹ (combination of report on operations, non-financial statement and sustainability) and are provided by us via the dedicated platform IMPACT (figure 11), including a validation workflow to ensure the correctness of the uploaded data.

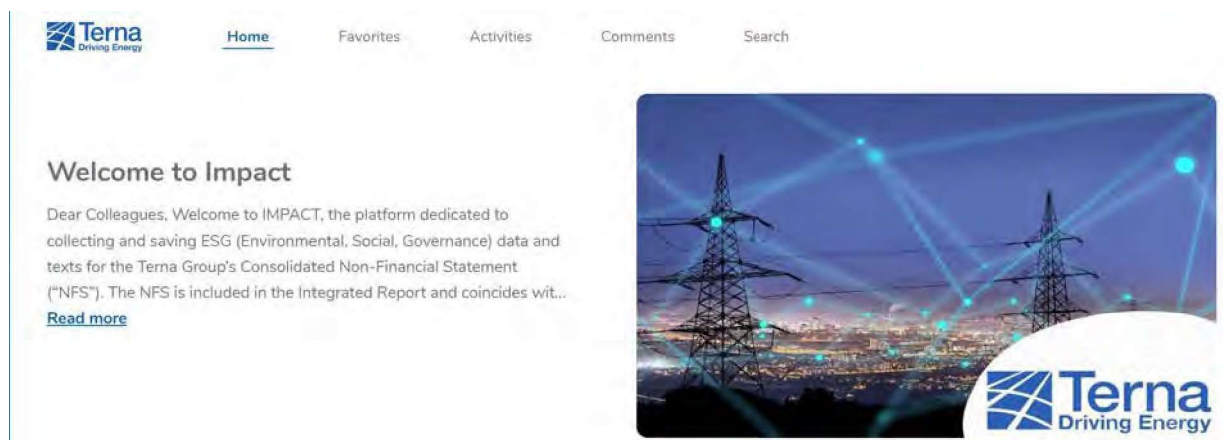


Figure 13 - Screenshot of Impact, Terna's reporting tool for ESG KPIs

IMPACT is organized according to the latest GRI standards adopted by Terna for the reporting of non-financial information. As Brugg Cables' figures are only presented as consolidated figures in Terna's integrated report, the KPIs are listed in the appropriate places in this sustainability report.

8 GRI 2 General Disclosures

Below table gives an overview according to GRI 1: Foundation 2021 and GRI 2: General Disclosures 2021. The column “Bookmark or URL” contains the links to the location of the disclosure within this document or on the internet.

Disclosure	Description	Bookmark or URL
2-1	Organizational details	Scope of Sustainability Report
2-2	Entities included in the organization's sustainability reporting	Scope of Sustainability Report
2-3	Reporting period, frequency and contact point	Scope of Sustainability Report
2-4	Restatement of information	Scope of Sustainability Report
2-5	External assurance	Scope of Sustainability Report
2-6	Activities and workers	Sustainability Strategy
2-7	Employees	Refer to Table 7 - Employment at Brugg Cables
2-8	Workers who are not employees	No workers who are not employees
2-9	Governance structure and composition	Shown on Brugg Cables website
2-10	Nomination and selection of the highest governance body	This is done by our main shareholder Terna S.p.A.
2-11	Chair of the highest governance body	He is not a senior executive in our organization
2-12	Role of the highest governance body in overseeing the management of impacts	See Terna Report on Corporate Governance and Ownership Structures
2-13	Delegation of responsibility for managing impacts	See Terna Report on Corporate Governance and Ownership Structures
2-14	Role of the highest governance body in sustainability reporting	Via Terna Integrated Report
2-15	Conflicts of interest	See Terna Report on Corporate Governance and Ownership Structures
2-16	Communication of critical concerns	Via the Brugg Cables Management Board to the Board of Directors of Brugg Cables ²¹
2-17	Collective knowledge of the highest governance body	Via the Terna Sustainability Committee. See Terna Report on Corporate Governance and Ownership Structures
2-18	Evaluation of the performance of the highest governance body	See Terna Report on Corporate Governance and Ownership Structures
2-19	Remuneration policies	Via the Terna Remuneration Committee. See Terna Report on Corporate Governance and Ownership Structures

²¹ As part of our risk and compliance management headed by our legal and compliance manager, we identify also negative impacts to the stakeholders concerned and evaluate these. In the reporting period, no critical concerns have been communicated to the highest governance body

2-20	Process to determine remuneration	Via the Terna Remuneration Committee. See Terna Report on Corporate Governance and Ownership Structures
2-21	Annual total compensation ratio	See table 7 above for details on employees
2-22	Statement on sustainable development strategy	See foreword on page 2 and in the letter to stakeholders on page 4 and 5 in the Terna Integrated report
2-23	Policy commitments	See Terna Code of Conduct and Terna Report on Corporate Governance and Ownership Structures
2-24	Embedding policy commitments	Policies of shareholder Terna are implemented through board decisions and training
2-25	Processes to remediate negative impacts	No negative impacts to be remediated.
2-26	Mechanism for seeking advice and raising concerns ²²	Whistleblowing process, see Terna whistleblowing website No whistleblowing cases in the reporting year
2-27	Compliance with laws and regulations	No instance of non-compliance during the reporting period
2-28	Membership associations	No significant role in any association
2-29	Approach to stakeholder engagement	Regular board meetings with shareholders. On a group level see Terna Integrated report on page 2
2-30	Collective bargaining agreements	No collective bargaining agreements - see remark on GRI 407-1 on page 19 above

Table 10 – GRI 2 General Disclosures 2021

9 GRI Topic Standards Key Indicators Table

The following table 10 is dedicated to the relevant topic standards, most of them published in 2016. Any references to later standards are shown in the table. There is currently no applicable sector standard for the cable and accessories industry to be observed.

Compared to 2022 there is a noticeable increase in the direct scope 1 emissions which is due to a leakage of 77 kg of SF₆. Without this leakage, the total scope 1 emissions would be 1'125 tons CO₂ eq. relating to a GHG emission intensity of 14.7 tons CO₂ /MM revenue.

²² In addition to following the whistleblowing process of our shareholder Terna, the general e-mail address of Brugg Cables can be used by anyone wanting to communicate with us, provided on the website at www.bruggcables.com

GRI Topic Standard	Unit ²³	2023	2022	2021
302-1 Energy consumption within the organization				
Petrol for company motor vehicles	tons	0	0	0
Diesel for company motor vehicles	tons	7.17	16.06	12.45
Natural gas for heating offices and plant	m ³	323'643	443'121	583'885
Fuel oil for heating and generators	tons	52.72	50.05	49.60
Electricity total	GWh	9.15	9.48	9.75
Electricity for plant	GWh	8.23	8.53	8.78
Electricity for offices	GWh	0.91	0.95	0.97
Petrol for company motor vehicles	GJ	0	0	0
Diesel for company motor vehicles	GJ	310.76	695.87	539.51
Natural gas for heating offices and plant	GJ	12'945.70	17'724.84	23'355.40
Fuel oil for heating and generators	GJ	2284.43	2'168.55	2'149.17
Electricity total	GJ	32938.59	34'117.20	35'100.00
Electricity for plant	GJ	29'644.73	30'704.40	31'608.00
Electricity for offices	GJ	3'293.86	3'412.80	3'492.00
303 Water and Effluents				
Water withdrawal	ML	14.906	16.556	14.222
305-1 Direct (Scope 1) GHG emissions²⁴				
Total	tons CO ₂ eq.	2'934.28	1'370.52	1'810.58
- Leakage of SF ₆ (Sulfur Hexafluoride)	tons CO ₂ eq.	1'809.50	0	164.50
- Leakage of refrigerant gases (R22, R407C, R410A)	tons CO ₂ eq.	0	0	0
- Petrol for motor vehicles	tons CO ₂ eq.	0	0	0
- Diesel for motor vehicles	tons CO ₂ eq.	23.00	51.50	39.93
- Natural gas for heating offices and plant	tons CO ₂ eq.	726.25	980.28	1'309.30
- Fuel oil for heating and generators	tons CO ₂ eq.	169.07	160.49	159.06
- CH ₄ , Methane, from XLPE cross-linking process ²⁵	tons CO ₂ eq.	206.46	178.25	137.79
305-2 Energy indirect (Scope 2) GHG emissions				
Electricity total	tons CO ₂ eq.	2'383.52	3'124.09	3'027.77
- Electricity for plant	tons CO ₂ eq.	2'648.35	2'811.58	2'726.54
- Electricity for offices	tons CO ₂ eq.	264.84	312.51	301.22
305-3 Other indirect (Scope 3) GHG emissions				
Total	tons CO ₂ eq.	86.7	227.37	134.00
Cat 6 Air travel by employees for business purposes	tons CO ₂ eq.	86.7	227.37	134.00
305-4 GHG emissions intensity				
Ratio of total emissions (direct and indirect) to revenue				
Total	tons CO ₂ eq. / CHF MM	22.4	21.7	26.2
- Intensity ratio Scope 1 emissions to revenue	tons CO ₂ eq. / CHF MM	12.4	6.6	9.8
- Intensity ratio Scope 2 emissions to revenue	tons CO ₂ eq. / CHF MM	10.0	15.1	16.4
305-5 Reduction of GHG emissions				
Total (see chapter SDG 12 for details)	tons CO ₂ eq.	0	540	0
- Recycled material for outer jackets	tons CO ₂ eq.	0	240	0
- Optimized wall thickness of outer sheaths	tons CO ₂ eq.	0	250	0
- Increased storage capacity of heat chamber	tons CO ₂ eq.	50	50	0
306 Waste 2020 (see chapter 10 and table 11 for details)				
Total waste produced	tons	1712.7	1913.5	2120.0
of which hazardous	tons	7.9	22.0	14.9
of which non-hazardous	tons	1704.8	1891.5	2105.1
Waste sent for recovery	tons	1358.7	1364.8	1557.0
of which hazardous	tons	0.0	0.2	1.3
of which non-hazardous	tons	1358.7	1364.6	1556.8
Waste sent for disposal	tons	354.0	548.7	562.5
of which hazardous	tons	7.9	21.8	13.6
of which non-hazardous	tons	346.1	526.9	548.9

Table 11 - Applicable GRI KPIs from the relevant topic standards

²³ To convert the volumes of the primary resources into gigajoules, the parameters set out in the Global Reporting Initiative (GRI) protocols were used.

²⁴ The conversion of direct energy consumption and leakages of SF₆ and refrigerant gases into CO₂ equivalent emissions has been carried out using the parameters indicated in the [IPCC Fifth Assessment Report \(AR5\)](#) and the Greenhouse Gas Protocol (GHG) Initiative

²⁵ Calculated using the theoretical reaction mechanism

10 GRI 306 Waste 2020

10.1 306-1 Waste generation and significant waste-related impacts

The manufacturing of our products requires only a limited number of raw materials with no or low hazardous characteristics. Apart from production errors, waste is mainly generated by start-up lengths in the cable production and process-related residual quantities of silicone materials in the manufacture of silicone sleeves and semiconductive silicone field control elements.

Water, needed for cooling down the cables after extrusion, is circulated and kept at ambient temperature by running it through cooling units. When there is the need to replace or replenish circulated water, the lost volumes are normal wastewater without contamination and do not require any treatment before discharging into the urban drainage system.

Waste from start-up lengths consists of either aluminum or copper and various plastics. Metals and plastics are separated in-house and sent to specialized and approved recycling companies.

The insulation material of the cables consists of cross-linked polyethylene (XLPE). During the cross-linking process, methane (CH₄) is released to the air. The amount of methane estimated to have been released in the reporting period is shown in table 10. Since CH₄ is a potent greenhouse gas with a GWP²⁷ of 28, it would be desirable to replace XLPE by other plastics which don't release greenhouse gases and also don't need a lengthy, energy consuming curing process (see also actions assigned to [SDG 12](#) above).

Unfortunately, due to the material properties required for high-voltage cables up to 550 kV and the fact that all changes to cable materials require time-consuming type testing and acceptance by our customers, a replacement is not expected in the near future.

10.2 306-2 Management of significant waste related impacts

All our waste (except for cooling water, which can be discharged into the urban drainage system) are collected according to specific waste categories (such as paper, cardboard, wood, plastics, metals) in-house and collected by dedicated and approved recycling companies which adhere to the respective Swiss laws^{26,27} Only rubbish (urban waste), plastics and wood at the end of its circular economy are being thermally recycled, all other waste types are being re- or downcycled.

The chances for circularity measures of our products (cables and accessories) are limited to the metal content. The nature of our products is to enable reliable electricity transmission for time periods up to 50 years or longer. There are no serviceable or replaceable parts as far as the cables are concerned and only silicone oils or SF₆ in the accessories.

Since silicone oil can cause serious harm to the environment in case of leakages and can't be recycled at the end of the product lifetime, our aim is to replace wet type terminations with dry type terminations, backfilled, if necessary, with solid gel which does not leak and can be properly disposed of at the end of life. Dry type terminations are favorable, since SF₆ is by far the most potent greenhouse gas²⁴.

Our products are delivered to worldwide customers on metal drums (for cables) and in wooden boxes (accessories). The metal drums weigh up to 3 tons net and apart from the DACH region are sold to the customer with the product. Returning them from all over the world to Switzerland would be very costly for us and administratively very difficult to handle. It is safe to assume that, given the value of the steel used, the drums will be recycled or upcycled in the country of destination. In the DACH region 95% of the required drums are rented to customers.

²⁶ 814.01 Federal Act on the Protection of the Environment of 07.10.1983 (Status as of 01.01.2022)

²⁷ 814.600 Ordinance on the Avoidance and the Disposal of Waste of 04.12.2015 (Status as of 01.01.2023)

The procedure is similar for accessories. The wooden boxes are not returned but stay with the customer for recycling or further usage. The carbon footprint caused by returning them would by far exceed the benefit of a possible reuse. Within Switzerland and for deliveries not exceeding a volume of 58 liters and a weight of 30 kg, we use the Dispobox²⁸ of the Swiss Post.

The content of the box is emptied at the customers' premises and the box is returned to the pool. In addition, the CO₂ emissions caused during transport are offset by the Swiss Post by investing in high-quality climate protection projects and are further reduced by the use of electric vehicles for transportation of the Dispobox.

Also in 2023, about 85% of all accessories sold within Switzerland were delivered via Dispobox. All other goods were transported in recyclable cardboard boxes or above-mentioned wooden boxes due to higher product weight or larger volume.



Figure 14 - Dispobox types of the Swiss Post and pro clima label indicating carbon emissions offset



The wooden boxes and cardboard boxes for the Swiss market are placed on euro-pallets, which are part of the pallet return system (PRS²⁹).

All the wood to produce the boxes and the wood for the cladding of the cable drums is purchased in Switzerland. It is not FSC³⁰ or PEFC³¹ certified. In Switzerland, these certificates are dispensable. Switzerland has the oldest forest law³² in the world, dating back to 1876, where it is written that for every tree cut down, a new one must be planted. Since 1876, Switzerland has seen a 40% increase in forest.

²⁸ <https://www.post.ch/en/sending-parcels/packaging-and-addressing/dispobox>

²⁹ <https://www.prs-pooling.com/en>

³⁰ <https://fsc-schweiz.ch/>

³¹ <https://www.pefc.ch/>

³² Link zur Medienmitteilung: [125 Jahre Waldgesetz: eine nachhaltige Erfolgsgeschichte](#)

10.3 306-3, 306-4, 306-5 topic disclosures

Below tables give a breakdown of waste generated (table 11, 306-3), waste diverted from disposal (table 12, 306-4) and waste directed to disposal (table 13, 306-5) in metric tons (t).

Disclosures 306-3 a, 306-4 a, 306-5 a	Waste generated	Waste diverted from disposal	Waste directed to disposal
Waste composition			
Metals (Cu and Al)	1'172	1'172	0
Mixtures of metals	42.9	42.9	0
Cardboards and paper	116.2	116.2	0
Miscellaneous ³³	3.9	3.9	0
Plastics	78.6	23.7	54.9
Rubbish	69.4	0	69.4
Wood ³⁴	221.8	0	221.8
Hazardous waste ³⁵	7.9	0	7.9
Total waste	1'712.7	1'358.7	354.0

Table 12 - Waste by composition

³³ PET, Electric waste, etc.

³⁴ Defective pallets and boxes, facing boards, packaging remains

³⁵ Solvents, condensates, oils, cooling fluid, lubricants

Disclosure 306-4 b and c	Onsite	Offsite	Total
Hazardous waste			
Preparation for reuse	0	0	0
Recycling	0	0	0
Other recovery operations	0	0	0
Total	0	0	0
Non-hazardous waste			
Preparation for reuse ³⁶	1'172	0	1'172
Recycling	0	187	187
Other recovery operations	0	0	0
Total	1'172	187	1'359

Table 13 - Waste diverted from disposal by recovery operation

Disclosure 306-5 b and c	Onsite	Offsite	Total
Hazardous waste			
Incineration (with energy recovery)	0	7.9	7.9
Incineration (without energy recovery)	0	0	0
Landfilling	0	0	0
Other disposal operations	0	0	0
Total		7.9	7.9
Non-hazardous waste			
Incineration (with energy recovery)	0	276.7	276.7
Incineration (without energy recovery)	0	0	0
Landfilling	0	0	0
Other disposal operations ³⁷	0	42.9	42.9
Total	0	327.5	327.5

Table 14 - Waste directed to disposal by disposal operation

³⁶ In order to achieve the best results, copper and aluminum are separated from attached plastics at Brugg Cables before sending them to specialized contractors for the actual recycling

³⁷ This refers to mixtures of metals which will be used as scrap metal by specialized companies after separating the metal from attached plastics