

Integrated Report 2022



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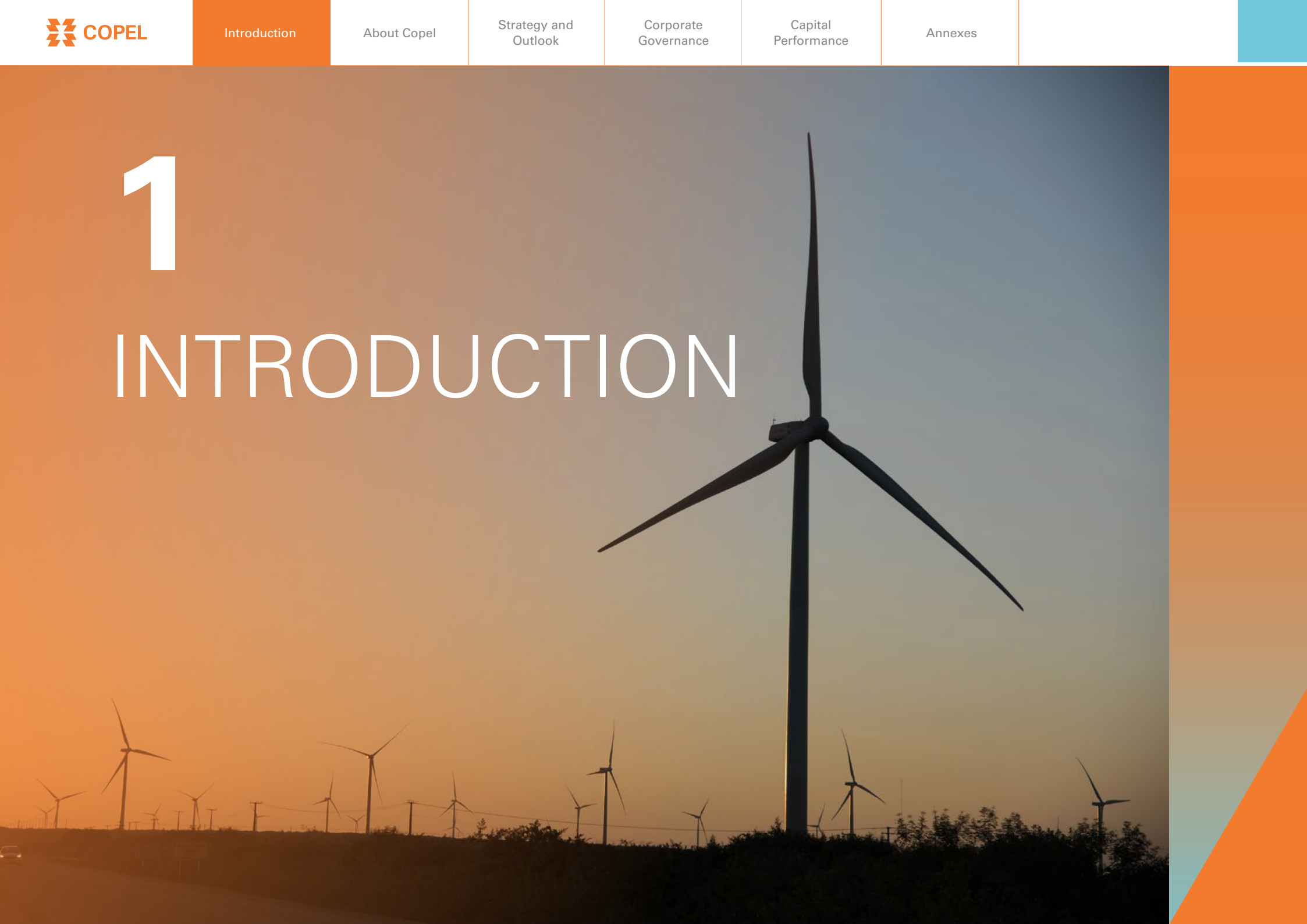
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INTRODUCTION



Message from the CEO

GRI 2-22

One of our focal points in 2022 was to reflect on what we want Copel to achieve over the next few years. This work involved the entire leadership, including the Board of Directors, the full board, and the leaders of the wholly-owned subsidiaries, and culminated in the 2030 Vision - a plan that defines our corporate ambition and underpins the Company's sustainable development grounded on three major pillars: decarbonization of the energy matrix, integration with business scale and discipline in capital allocation. The results disclosed by Copel in 2022 are starting to show how we intend to fulfill these commitments.

Despite the challenges of the year - less demand for electricity due to the slower pace of economic activity and still suffering the effects of the COVID-19 pandemic - Copel closed the year with an adjusted EBITDA including non-recurring items of BRL 5.5 billion, up 10% as compared to the result for 2021.

In distribution, the investments aim to expand the service with excellence to meet the demands of clients and consumers. The

subsidiary invested BRL 1.8 billion - of the BRL 2.8 billion total invested by the Company - in actions such as the Paraná Trifásico program (Three-Phase program), which has currently delivered 10,500 km of a renewed and upgraded network in the rural area of the state and is expected to reach 25,000 km by 2025. This adds up to more quality and security in the supply of energy for agricultural production, an important economic driver in the state. The Smart Electrical Grid (SEG), the largest smart-grid investment and the use of smart meters in Brazil, will represent an unprecedented leap in the automation of the state's power grid.

Our vision of the future includes our awareness of our role in renewable energy. A priority in the 2030 Vision is to reach 100% renewable energy generation, which is linked to an uptake in wind and solar sources. By acquiring brownfields and constructing greenfields, we have added a little more than 300 MW of wind turbine capacity in the past two years and have become the seventh largest wind power generator in Brazil. The start up of the Jandaíra Wind Farm in Rio Grande do Norte state in 2022,

two years ahead of schedule, is an example of our ongoing effort to enhance our operational efficiency and our discipline in capital allocation.

At the end of the year, we launched the divestment plan of our gas-powered thermoelectric power plant, Araucária. Concurrently, Compagas (a company in which Copel has a 51% stake) has renewed for another 30 years the concession for the supply of piped gas in the state of Paraná. This helps us to continue the process of selling our entire stake in this asset.

Copel Mercado Livre (Copel Free Market), in turn, continues as one of the leading traders in the industry and is well positioned to take advantage of the opportunities that lie in the opening and expansion of this format that enables large energy consumers.

In addition to the target of generating 100% renewable energy, we have launched internal commitments to reduce our socio-environmental footprint and boost eco-efficient management within our structure in areas such as water, waste, and air, among others,

[Introduction | Message from the CEO](#)

while maintaining a work environment that cares about the wellbeing and physical and mental health of our employees.

Copel's social development plans also include investing in the empowerment of women. We launched the Female Leadership Development Program focused on training and valuing our women managers.

Copel was the first company in the electricity sector to sign the Global Compact and was also one of the first to adopt the Sustainable Development Goals (SDGs) as a guideline for our actions. We increased our actions and our commitment to the Global Compact in 2022. We joined the Net Zero Ambition Movement, which aims to challenge and support signatory companies in setting robust, science-based targets.

In regard to open innovation, we have started structuring a Corporate Venture Capital (CVC) fund, which will earmark BRL 150 million to finance solutions in areas such as renewable energy and smart grids. We have also kicked off the second phase of the Copel Volt Program, responsible for bringing Copel closer to startups that have solutions for the energy market.

Concurrently with its strategic goals, Copel is getting ready to make its biggest structural change since its creation 68 years ago. As announced in December 2022 by its controlling shareholder, the State Government of Paraná, Copel is to become a dispersed-ownership company, without a controlling shareholder, which will enable it to make swifter decisions and continue competitive in a highly-competitive environment. We see this change, as a way to add more value to the Company, the employees, the shareholders, as well as other stakeholders that rely on Copel services.

This is an ongoing process that will require multiple steps. We continue committed to transparency and to expanding our dialogue with internal teams to maintain our flow of communication and information. We will continue to focus on establishing best practices in our industry.

Daniel Pimentel Slaviero

CEO of Copel



Highlights of the Year

2030 Vision

Copel's plan for the future includes an integrated outlook that can transform the Company into one of the largest in the country



Revision of the energy matrix: 100% from renewable sources



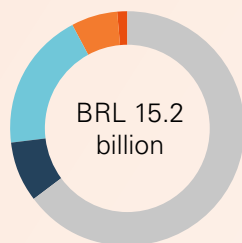
Divestiture in thermal and natural gas power plants



Expansion of wind and solar power generation

ADDED VALUE

BRL 15.2 billion generated in 2022, broken down as follows:



- Government
- Staff
- Outsourced workers
- Shareholders
- Retained

Wind energy



Start up of the Jandaíra Wind Farm two years ahead of schedule

Acquisition of wind farms Aventura and Santa Rosa and Novo Mundo

Investments



- BRL 1.8 billion in investments in the distribution network in 2022 alone

- Smart Electrical Grid - Latin America's largest smart grid program

- PR Trifásico - BRL 2.8 billion (in five years) to upgrade the rural electrical grid

Innovation



Creation of Corporate Venture Capital (CVC), which will allocate BRL 150 million to finance new energy solutions

Second edition of Copel Volt

At B3, it integrates:



Corporate Sustainability Index (ISE), for 17 years

Carbon Efficient Index (ICO2 B3)

Great Place to Work Index (GPTWI)

Became signatory of:



Net Zero Ambition Movement

100% Transparency Movement



Up to 30% of the bonuses of executives and other employees are **tied to ESG targets**



Beginning of the process to **transform Copel into a corporation** , to become a dispersed-ownership company (with no controlling shareholder)



Free access to electricity

359,000 families do not pay for their electricity (*Energia Solidária* Program)



Best Electricity Provider in Brazil

Valor 1000, *Valor Econômico* newspaper

About the Report GRI 2-2, 2-3

The 2022 Integrated Report of Companhia Paranaense de Energia - Copel discloses the Company's performance for the period between January 1 and December 31, 2022. This annual document offers a series of national and international transparency and reporting guidelines that give a proper and relevant coverage of the Company's information (*see full list at next page*).

The initial principle for defining content is the materiality process. In addition, the publication sets out Copel's management approach, business model, and performance in terms of human, intellectual, social and relationship, natural, infrastructure, and financial capitals according to the Integrated Reporting Framework.

The financial data in the Financial Statements refers to Copel Holding Company, its

wholly-owned subsidiaries and its Controlled Companies. The non-financial data encompasses Copel (Holding Company) and its wholly-owned subsidiaries - Copel Geração e Transmissão S.A., Copel Distribuição S.A., Copel Comercialização S.A. and Copel Serviços S.A. -, specifying inclusions or exclusions, when applicable. Data from the timeline (from 2021 and 2020) may also contain data from Copel Telecomunicações S.A., a unit sold in 2019 and whose transition process to the new controller was finalized in 2022. **GRI 2-4**

The 2022 Integrated Report was evaluated by the Full Board (*Diretoria Reunida - Redir*) and by the Sustainable Development Committee (SDC or *Comitê de Desenvolvimento Sustentável - CDS*), and approved by the Board of Directors (BOD or *Conselho de Administração - CAD*) prior to its publication.

GRI 2-14





Other Copel reports:

Stakeholder Capitalism Metrics - World Economic Forum

Management Report and Financial Statements

Copel Materiality Report

20F Report

Reference Form

Social-Environmental Responsibility and Economic-Financial Report of Copel Geração e Transmissão

Social-Environmental and Economic-Financial Responsibility Report of Copel Distribuição

For questions or suggestions about the report:

relato.integrado@copel.com

Premises of the report:

- Technical Instruction CPC 09 – Integrated Report, approved by CVM Resolution 14;
- Principles of the GRI Sustainability Reporting Standards and content of the electricity sector supplement 2013.
- Indicators specifically requested by the Brazilian Electricity Regulatory Agency (Aneel) in the Accounting Manual for the Electrical Sector.
- Guidelines from the International Financial Reporting Standards (IFRS) considered in the information derived from the Financial Statements.
- Integrated Reporting Framework, as per the Integrated Reporting Framework and the Sustainability Accounting Standards Board (SASB), both now part of the IFRS Foundation.
- Progress report regarding the commitments undertaken with the United Nations (UN) Global Compact.
- Law 13303 (Law for State-run Companies) of June 30, 2016, which establishes in article 8(IX), the annual disclosure of an integrated or sustainability report.
- Principles for Responsible Executive Education (PRME), a global platform of the United Nations (UN) for voluntary engagement, which have influence on the performance of UniCopel, Copel's corporate education area.
- Stakeholder Capitalism Metrics - World Economic Forum.
- Indicators linked to the Corporate Sustainability Assessment -CSA.

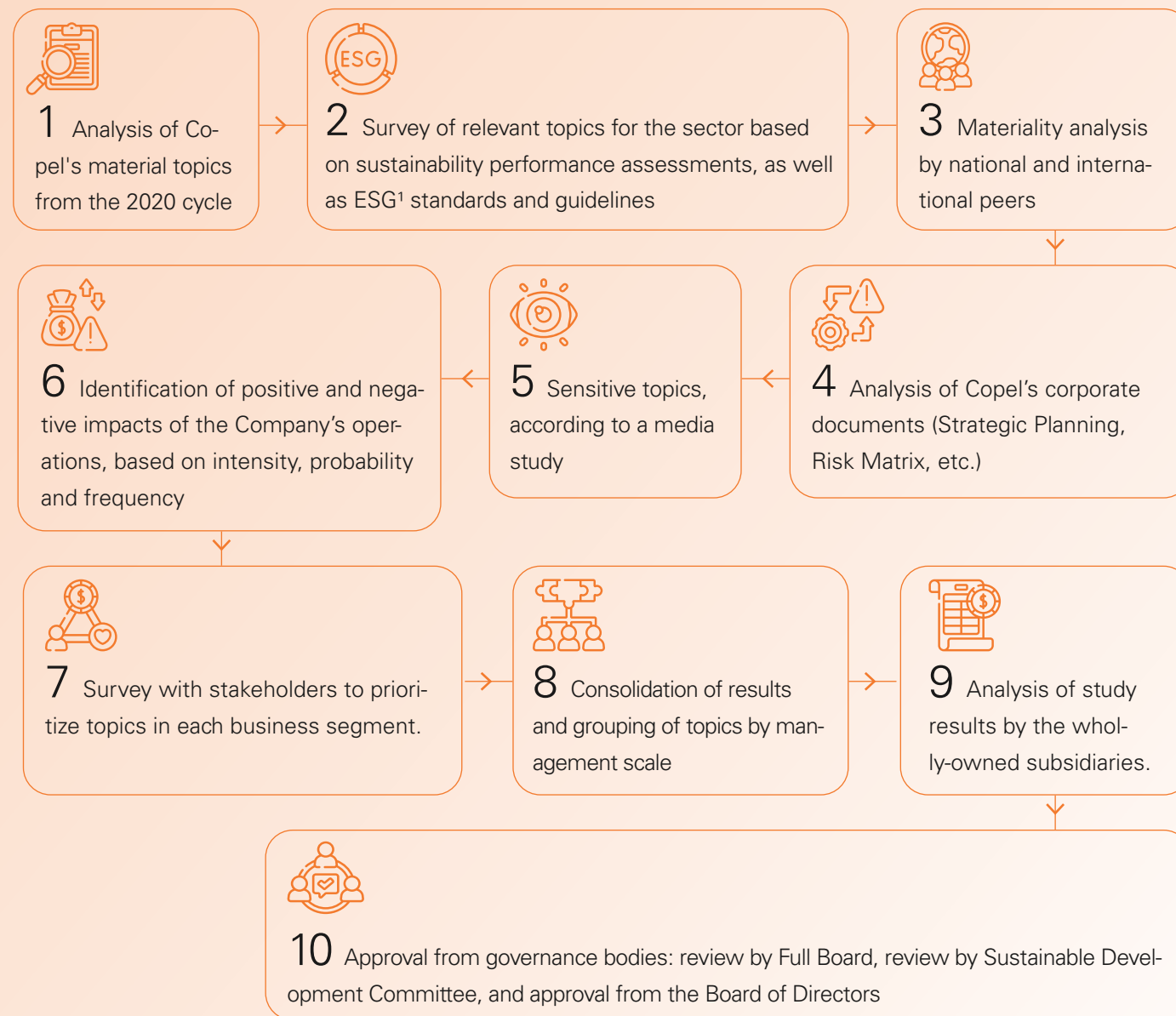
Material Topics

GRI 3-1

The 2021-2022 Copel Materiality Process considered the Company's characteristics, the commitments undertaken, the legal obligations and the context of the Brazilian electricity sector, and was carried out in well-defined stages, starting with the review of Copel's material topics in the 2020 cycle.

The material topics underpin not only the publication but are also used as support for Strategic Planning and for stakeholder engagement. The topics also consider Copel's relationship and its potential to contribute to the achievement of the Sustainable Development Goals (SDGs). This materiality proposal was submitted for review to the Company's senior management and was approved by the Full Board (*Diretoria Reunida - Redir*) and the Board of Directors (*Conselho de Administração - CAD*). **GRI 2-14**

Stages of the materiality process:



1- GRI Standards, SASB and ODS.

Key:



Financial Capital



Infrastructure Capital



Intellectual Capital



Social and Relationship Capital

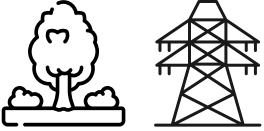



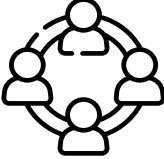


Natural Capital









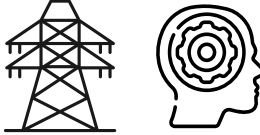

Human Capital

Material topics for Copel GRI 3-2	GRI Standards material topics	Capitals	See more	
Corporate governance, risk management and cybersecurity 7 8 9 11 13	GRI 2 - General contents			
	GRI 201: Economic performance 2016 (201-2)			
	GRI 205: Anti-corruption 2016 (205-1 to 205-3)			Pages 56-86
	GRI 206: Unfair Competition 2016 (206-1)			
	GRI 415: Public policies 2016 (415-1)			
GRI 418: Customer privacy 2016 (418-1)				
Environmental management and actions against climate change 7 8 9 11 13	GRI 301: Materials 2016 (301-1, 301-2)			
	GRI 302: Energy 2016 (302-1 to 302-5)			
	GRI 303: Water and effluents 2018 (303-1 to 303-5)			
	GRI 304: Biodiversity 2016 (304-1 to 304-4)			
	GRI 305: Emissions 2016 (305-1 to 305-7)			

Material topics for Copel GRI 3-2	GRI Standards material topics	Capitals	See more
<p>Environmental management and actions against climate change</p> <p>7 8 9 11 13</p>	<p>GRI 306: Waste 2020 (306-1 to 306-5)</p> <hr/> <p>GRI 308: Environmental assessment of suppliers 2016 (308-1, 308-2)</p> <hr/> <p>GRI 304: Biodiversity 2016 (EU13)</p>		<p>Pages 88-104</p>
<p>Social responsibility</p> <p>4 7 8 9 11</p>	<p>GRI 202: Market presence 2016 (202-1, 202-2)</p> <hr/> <p>GRI 203: Indirect economic impacts 2016 (203-1, 203-2)</p> <hr/> <p>GRI 204: Procurement practices 2016 (204-1)</p> <hr/> <p>GRI 408: Child labor 2016 (408-1)</p> <hr/> <p>GRI 409: Forced or compulsory labor 2016 (409-1)</p> <hr/> <p>GRI 411: Rights of Indigenous people 2016 (411-1)</p> <hr/> <p>GRI 413: Local communities 2016 (413-1, 413-2)</p> <hr/> <p>GRI 414: Social assessment of suppliers 2016 (414-1, 414-2)</p> <hr/> <p>GRI Energy sector supplement 2013 - Local communities (EU19, EU22)</p> <hr/> <p>GRI Energy sector supplement 2013 - Contingency plans and disaster and emergency response (EU21)</p>		<p>Pages 105-126</p>

Material topics for Copel GRI 3-2	GRI Standards material topics	Capitals	See more
Social responsibility 4 7 8 9 11	GRI Energy sector supplement 2013 - Consumer health and safety (EU25)		Pages 105-126
Customer satisfaction 7 9	GRI Energy sector supplement 2013 - Organizational profile (EU2) GRI Energy sector supplement 2013 - Access (EU23, EU26, EU27) GRI Energy sector supplement 2013 - Provision of information (EU24)		Pages 108-112
People management and health and safety at work 4 7 8 9 11	GRI 401: Employment 2016 (401-1 a 401-3) GRI 402: Work relations 2016 (402-1) GRI 403: Health and safety at work 2018 (403-1 to 403-10) GRI 404: Training and education 2016 (404-1 to 404-3) GRI 405: Diversity and equal opportunities 2016 (405-1, 405-2) GRI 406: Non-discrimination 2016 (406-1) GRI 407: Freedom of association and collective bargaining 2016 (407-1) GRI Energy sector supplement 2013 - Availability of skilled workforce (EU14)		Pages 127-145

Material topics for Copel GRI 3-2	GRI Standards material topics	Capitals	See more
<p>People management and health and safety at work</p> <p>4 7 8 9 11</p>	<p>GRI Energy sector supplement 2013 - Percentage of employees eligible for retirement in the next 5 and 10 years (EU15)</p> <hr/> <p>GRI Energy sector supplement 2013 - Employment (EU16, EU18)</p>	 	<p>Pages 127-145</p>
<p>Transformation of energy sector</p> <p>7 9</p>	<p>GRI Energy sector supplement 2013 - Consumer units EU2</p> <hr/> <p>GRI Energy sector supplement 2013 - Availability and reliability EU6</p> <hr/> <p>GRI Energy sector supplement 2013 - Research and development EU8</p> <hr/> <p>GRI Energy sector supplement 2013 - System efficiency EU11, EU12</p> <hr/> <p>GRI Energy sector supplement 2013 - Access EU30</p>	 	<p>Pages 146-165</p>
<p>Operational efficiency</p> <p>7 9 13</p>	<p>GRI Energy sector supplement 2013 - Organizational profile (EU2)</p> <hr/> <p>GRI Energy sector supplement 2013 - Availability and reliability (EU6)</p> <hr/> <p>GRI Energy sector supplement 2013 - Demand management (EU7)</p>	 	<p>Pages 146-165</p>

Material topics for Copel GRI 3-2	GRI Standards material topics	Capitals	See more
<p>Operational efficiency</p> <p>7 9 13</p>	<p>GRI Energy sector supplement 2013 - Research and development (EU8)</p> <hr/> <p>Planned capacity against projected electricity demand over the long term (EU10)</p> <hr/> <p>GRI Energy sector supplement 2013 - System efficiency (EU11)</p> <hr/> <p>Transmission and generation losses (EU12)</p> <hr/> <p>GRI Energy sector supplement 2013 - Power supply disruptions (EU28)</p> <hr/> <p>GRI Energy sector supplement 2013 - Average duration of disruptions (EU29)</p> <hr/> <p>GRI Energy sector supplement 2013 - Average plant availability factor by energy source and regulatory regime (EU30)</p>		<p>Pages 146-165</p>
<p>Economic-financial performance</p> <p>8</p>	<p>GRI 201: Economic performance 2016 (201-1-, 201-3, 201-4)</p>		<p>Pages 169-173</p>

Corporate Governance, Risk Management and Cybersecurity GRI 3-3

Corporate governance

Organized as a mixed-capital corporation, controlled by the State of Paraná, and with shares traded on the B3, NYSE and Latibex, Copel requires a robust system of governance and an efficient set of administration mechanisms.

In order to ensure that management performance is always aligned with the best interests of the Company and its stakeholders, Copel uses as a benchmark the Code of Best Governance Practices for Listed Companies of the Brazilian Corporate Governance Institute (IBGC), the rules and regulations of the stock exchanges where it is listed and Federal Laws 6404/1976 and 13303/2016, in addition to being listed on Governance Level 2 of B3.

Between 2021 and 2022, a series of developments in its governance practices were implemented, including new committees to advise the Board of Directors on topics such as sustainable development and

people, investments and innovation, and increased interest by minority shareholders. Other advances were made in the revision of the dividend policy and in the creation of a statutory guarantee for full application of the tariff reductions approved by the Brazilian electricity regulator (Aneel).

Other topics are related to corporate governance, such as ethics and integrity which defines the foundation for the proper conduct of the employees, executives and board members, handled by Copel's Integrity Program and Code of Conduct.

Risk management

Risk management is directly related to Copel's performance by pointing out threats and opportunities and providing information for decision making. The Company's Risk Management Policy sets out the integration of this management by defining strategies and performance mon-

itoring, roles and responsibilities, proper infrastructure, and to outline a common methodology for the Company as well as set the risk appetite statement.

It encompasses practices for the disclosure and control of events, monitoring the suitability and effectiveness of risk responses, the accuracy and completeness of disclosures, the timely correction of shortfalls, and periodic communication to the Statutory Audit Committee and the Board of Directors in charge of overseeing and inspecting Copel's risk management. The risk management process is tested by an independent auditor in compliance with the Sarbanes-Oxley law.

The policy's rules are applicable to corporate areas, wholly-owned subsidiaries and subsidiaries, and are recommended for the jointly controlled companies, controlled companies and other equity interests of Copel.

Cybersecurity

The subject of cybercrime and cybersecurity is one of the top ten global risks over the next two to ten years according to the World Economic Forum's Risk Report 2023. At Copel, it is classified at the highest level in relation to all corporate risk, a concern that grows in tandem with the increased digitization and automation of processes within the Company.

Cybersecurity is included in Strategic Planning and is deployed at several functional levels via the objectives and goals set for the Holding Company and all its wholly-owned subsidiaries. Copel adopts the National Institute of Standards and Technology - Cybersecurity Framework (NIST-CF) as a benchmark, conducts annual maturity measurements of its practices and monitors the corporate Cybersecurity Index (NIST).

The governance is based on specific information security policies and standards, management and performance indicators, internal controls, budgets and projects,

compiled in Copel's Cybersecurity Plan, reviewed annually and discussed every quarter at the Statutory Audit Committee and in the Fiscal and Administrative Boards.



Highlights



Level 2 of B3 Governance



Integrates the ISE portfolio for the 17th time



See more

[Corporate Governance](#)

[TCFD Communication \(on climate change\)](#)

[Sustainability Portal](#)

[Investor Relations](#)

[20F Report](#)



Goals

- Expand and disseminate best ESG practices and reinforce risk management and internal and compliance controls.
- Continually raise cybersecurity levels.



Related Risks

- Cybersecurity Breach
- Failure in Ethics, Fraud and Corruption
- ESG Practice Failure
- Political Interference



Governance

- Sustainable Development Committee (*Comitê de Desenvolvimento Sustentável* - CDS)
- Investment and Innovation Committee (*Comitê de Investimento e Inovação* - CII)
- Statutory Audit Committee (*Comitê de Auditoria Estatutário* - CAE)
- Minority Shareholders' Committee (*Comitê de Minoritários* - CDM)
- Corporate Governance Policy
- Annual Performance Assessment Policy
- Policy for Engagement of Independent Auditing Services
- Dividend Policy
- Integrated Corporate Risk Management Policy
- Integrity Policy
- Referral Policy and Standards
- Related Party Transaction Policy
- Equity Stake Policy
- Investor Relations Policy

Environmental Management and Actions Against Climate Change GRI 3-3

Copel has a generation matrix that runs on 93.8% renewable energy and a target of reaching 100% by 2030, with growth in generation from alternative renewable sources - and those with less environmental impact - such as wind and solar power sources.

However, to carry out its operations, resources such as water, energy, and materials are needed, and its production processes release waste and effluents, changes in the use and occupation of areas, and an impact on biodiversity. As such, the Company conducts studies and adopts the measures needed to avoid, reduce and offset the impacts it causes to the environment so it can become ever more sustainable.

Copel strives to achieve eco-efficiency, preserve biodiversity and reduce greenhouse gas (GHG) emissions. In addition, it transfers its principles of good environmental management to customers and suppliers.

The guidelines for this action lie in the Sustainability Policy, which is the cornerstone for other regulations, such as the Climate Change Policy, the Environmental Policy, the internal standards of Waste Management and of Climate Change Management, among others. The company and its partners follow the license conditions for every type of undertaking and the premises of the Eco-Efficiency Program for the best use of natural resources.

One of the duties of the Eco-efficiency Commission, created to oversee the program's progress, is to discuss the actions to curb water and energy consumption, reduce waste generation and GHG emissions, as well as evaluate related indicators, set targets, study the feasibility of implementing new technologies and develop actions with the value chain. Another environmental management group is the Climate Change Commission, structured to propose actions aimed at minimizing emissions, adapting Copel to climate change, and assessing financial risk.

Copel has a Carbon Neutral Plan geared towards reducing direct emissions (scope 1) and offsetting residual emissions by 2030, and has included the topic as a goal in the variable remuneration program for the entire company, among other commitments to further environmental management.



Highlights



Renewable installed capacity:
6,293 MW

Renewable energy generation:
26.588,2 GWh



By 2030

Target to decarbonize the energy matrix



Integrates the indexes
ICO2 and **ISE B3**



Joined the movement
Net Zero Ambition



Goals

- Broaden and disseminate best ESG practices
- Reduce greenhouse gas emissions
- Improve performance in sustainability assessments



Related Risks

- ESG Practice Failure
- Climate Change Impacts
- Dam Accidents



Governance

- Sustainable Development Committee (*Comitê de Desenvolvimento Sustentável* - CDS)
- Sustainability Policy
- Environmental Policy
- Climate Change Policy



See more

[Sustainability Portal](#)

Social Responsibility GRI 3-3

Besides being the largest company in Paraná, which in itself requires robust and structured social conduct by Copel, the Company also provides an essential service - that of electricity distribution, generating regional development and improving the population's wellbeing.

Copel also implements and operates large electricity generation and transmission assets in several Brazilian states that impact neighboring communities, which is why it pays special attention to the socioeconomic and cultural components of each region.

The Sustainability Policy leverages the social performance and reflects the importance of dialogue and transparency when taking into consideration the demands and expectations of the many stakeholders. The Company has established other policies that define guidelines for relevant topics such as human rights, criteria for private social investment, and the granting of sponsorships.

Copel manages mandatory social programs within the context of the licensing of ventures and operations, and develops other corporate actions within the scope of corporate sustainability, such as the EletriCidadania program for Corporate Volunteering.

The ongoing monitoring of the results of these initiatives leads to the implementation of action strategies, the identification of opportunities, the proposal of improvements, and extends communication to all stakeholders.

Copel provides an essential service of electricity distribution and generates regional development as well as increasing the population's wellbeing.



Information board in Kaingang

Highlights



1,648
hours of volunteering



Private Social Investment
(*Investimento Social Privado - ISP*):
BRL 26.4 million
in 2022.



EletriCidadania



Goals

- Broaden and disseminate best ESG practices



Related Risks

- ESG Practice Failure



Governance

- Sustainable Development Committee (*Comitê de Desenvolvimento Sustentável - CDS*)
- Sustainability Policy
- Human Rights Policy
- Private Social Investment Policy
- Donations and Voluntary Contributions Policy
- Sponsorship Policy



See more

[Sustainability Portal](#)

Customer Satisfaction GRI 3-3

As an electricity distribution utility, consumer and customer satisfaction is directly related to its business performance and reputation. The higher the customer satisfaction and the efficiency in the operational processes, the better the Company's reputation will be in the eyes of its many stakeholders.

Copel tracks customer perception of its services via different research methods. An annual survey is conducted by Aneel and Abradee for residential customers. Rural customers are consulted every four years and public authority customers in the first and last year of the mayors' term of office.

The Company also controls complaints (ECF and ECD), analyzes recidivism with the ombudsman; monitors websites such as *Reclame Aqui* (Complain Here), tracks internal indicators and sets up work groups dedicated to improving customer satisfaction.

The Customer Satisfaction Improvement Committee meets periodically to assess the results. Meetings are also held in areas dedicated to the telephone service, face-to-face services, and the Work Group for Survey Results Analysis, among others.

Copel Distribuição has an Ombudsman with ISO 9001 certification and was considered the second best in the country by the Brazilian Electricity Regulatory Agency (Aneel) in 2022.

In energy sales, customer satisfaction is directly linked to the renewal of contracts. and in 2022, an opinion poll showed that 87.9% of the customers were satisfied or very satisfied. As one of the largest energy trading companies in the free market, Copel is working on digitizing systems and processes to boost service quality for these customers.



Highlights



Best Electricity Provider

Valor 1000 Award



ECD: 120.50 (hours)

ECF: 6.36 (units)



Copel Free Market

87.9% of customers were satisfied or very satisfied.



Goals

- Be a benchmark in customer satisfaction



Related Risks

- Failure to Protect Personal Data
- Cybersecurity Breach



Governance

- Quality Policy
- Copel Ombudsman Policy
- Privacy and Data Protection Policy
- Donations and Voluntary Contributions Policy
- Sponsorship Policy



See more

[Sustainability Portal](#)

[Copel Free Market](#)

[Copel Distribuição](#)

People Management and Health and Safety at Work GRI 3-3

The care taken with people management and safety is checked on a continuous basis at Copel and is a priority for the administration, which also plans to expand the efficiency and productivity of its business.

Copel has a merit-based variable compensation program for all employees with financial, operational and sustainability targets, as well as a profit sharing program and a comprehensive benefits package.

Professional development is supported by the corporate university, Unicopel, and areas dedicated to the subject at every subsidiary to meet specific needs.

Occupational health and safety management starts with accident prevention, either through technical and awareness training or through corporate programs to identify and mitigate accident risk. In operational units with a higher risk of accidents, Copel offers OHSAS certification to ensure stricter

monitoring for issues related to occupational health and safety.

The Permanent Diversity Committee studies, plans, and assists in the creation of actions aimed at upholding equal rights and a safe and respectful corporate culture for its employees and its outsourced workers.

In addition to human resources and occupational health and safety indicators, Copel uses other surveys and tools, such as the Great Place to Work (GPTW) assessment and the individual performance assessment program *Nossa Energia*. The Company holds the MEG HR Seal from the National Quality Foundation (FNQ), which evaluates the maturity of HR management.

Copel also made commitments in 2022 to advance diversity in leadership and reach zero fatal accidents involving employees and outsourced workers, to support these processes as management priorities.



Highlights



2030 Vision

Diversity and safety goals for employees and outsourced workers



Women's Leadership

Development Policy



Establishment of a hybrid work model



Integrates B3's IGPTW portfolio



Goals

- Anchor the culture of safety, health and quality of life
- Encourage people-focused management, engagement with teams and the culture of meritocracy
- Be recognized as an excellent company to work for
- Teach people the skills needed to face new challenges



Related Risks

- Health Crises (pandemics and epidemics)
- Failure in People Management
- Failure in Occupational Health and Safety Committee
- ESG Practice Failure



Governance

- Sustainable Development Committee (*Comitê de Desenvolvimento Sustentável* - CDS)
- Human Rights Policy
- Corporate Education Policy
- People Management Policy
- Occupational Health and Safety Committee
- Outsourcing Policy



See more

[Sustainability Portal](#)

Transformation of Energy Sector GRI 3-3

The electric power market is undergoing a rapid transformation with a set of changes that have the potential to shake up the industry. The scenario includes digitizing business and operational processes, decentralizing power generation operations and measures to decarbonize the economy, particularly the energy sector.

Concern with climate change, adapting to environmental demands and the requirements of society are pointing to a decrease in GHG emissions, and these issues are a priority in government decisions when it comes to energy planning. International agreements and national goals are being used as the baseline to expand the energy matrix in several countries and encourage the use of certain cleaner sources to reduce the carbon footprint. The impact of climate change is already being felt around the

world through extreme weather events or by changes in water and wind patterns and this is causing companies to make changes in their businesses and assets.

An array of emerging technologies, such as flexible demand, electric mobility, distributed generation, energy storage and advanced control devices, are bringing about new options for the generation, transmission and distribution of electricity and creating a huge challenge for the modernization and adaptation of the electricity infrastructure.

These are trends that influence the activities and businesses in which Copel operates and may generate new business opportunities or forms of performance or may lead to a loss in revenue if the Company does not achieve its strategic goals.

Vision 2030, which lays the groundwork for the Company's next decade, analyzes all these scenarios and is helping Copel anticipate the new trends, protect its business, and position itself in promising markets. Investments in new renewable generation assets and in expanding and upgrading its transmission and distribution businesses are being stepped up and the Company has created new mechanisms to approach innovative businesses through Copel Venture. The plan to transform Copel into a dispersed-ownership corporation without state control should also leverage its investment conditions and generate value. (*see more on [page 49](#)*).

Copel Mercado Livre, which is one of Brazil's three top energy traders, invests in technology and efficiency to prepare for the growth of this market in upcoming years.

Highlights



Investments

Power distribution:
BRL 1.8 billion

Transmission:
BRL 472.7 million

BRL 94.8 million applied
in R&D

BRL 150 million
Copel Venture Fund to boost
innovative businesses



Implementation of **244,000**
smart meters in 2022 -
429,000 in total



Goals

- Find profitable opportunities in new business and services in the energy sector
- Broaden and disseminate best ESG practices
- Evaluate strategic partnerships
- Apply technologies to optimize and transform business
- Continually raise cybersecurity levels
- Champion innovation to leverage results



Related Risks

- Cybersecurity Breach
- Technological Obsolescence
- Lack of Digital Transformation
- Climate Change Impacts
- Operational Failures
- ESG Practice Failure



Governance

- Sustainable Development Committee (*Comitê de Desenvolvimento Sustentável* - CDS)
- Investment and Innovation Committee (*Comitê de Investimento e Inovação* - CII)
- Sustainability Policy
- Investment Policy
- Climate Change Policy
- Information Technology Policy



See more

[Sustainability Portal](#)

Operational Efficiency GRI 3-3

Operational efficiency is directly related to the company's success in either business continuity, economic-financial performance or customer satisfaction. The commitment to efficiency, as a permanent topic in the Strategic Planning, is also addressed in the Management Agreement executed by Copel (Holding Company) and its wholly-owned subsidiaries, which have areas dedicated to managing the topic.

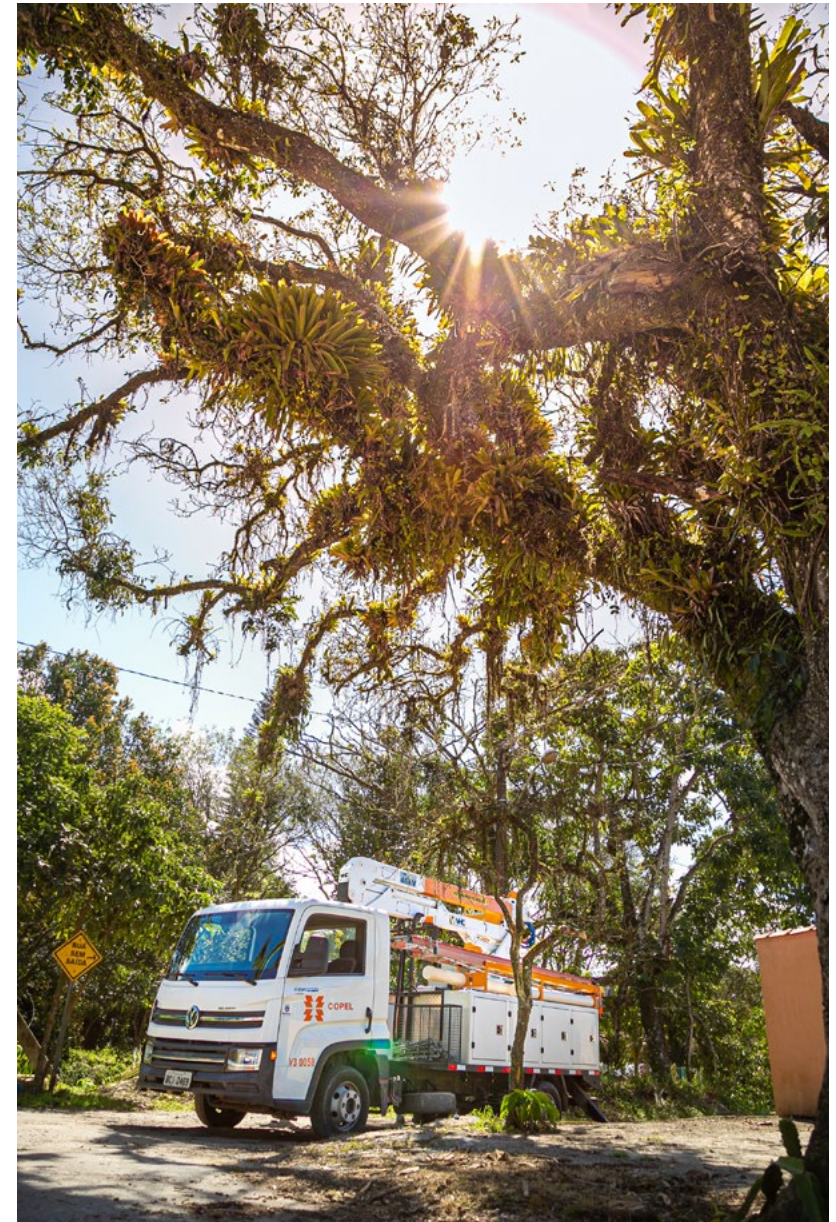
Operational excellence is also assessed in the certification processes. Copel currently has an Integrated Management System with ISO 9001, 14001 and 45001 certifications in the electricity generation infrastructure operation and maintenance processes; and ISO 9001 in the operation and maintenance processes of the electricity transmission and distribution infrastructure.

In the Company's business area, efficiency is required under the concession agreements and, if not met, leads to sanctions and even

the initiation of a forfeiture process for breach of contract. Within this context, expanding, maintaining and upgrading the assets is a central tool to ensure the efficiency of operations.

To this end, studies are conducted based on the methodologies of the Brazilian Electricity Regulatory Agency (Aneel) and other agents in the sector that project the growth of the consumer market, the existing and future generation potential, and the characteristics of the equipment that make up the electrical system. The data is used to define the need for new substations and distribution and transmission lines.

Operational efficiency is also the subject of the open innovation program (Copel Volt) and of research and development projects related to Aneel, through which Copel applies technology as a differential for optimizing and transforming businesses, such as, for example, digitizing operation and maintenance processes.



Highlights



26,792.5 GWh
Energy generated (+32%)



Transmission Losses: 2.8%
Distribution Losses: 9.0%



SAIDI: 7.98
SAIFI: 5.29



Goals

- Reach the efficiency standards adopted by the best companies in the industry
- Increase cost efficiency
- Increase the availability of the plants
- Increase the availability of transmission assets
- Reduce SAIDI and SAIFI



Related Risks

- Loss of Concession
- Cybersecurity Breach
- Technological Obsolescence
- Drop in Performance
- Climate Change Impacts



Governance

- Quality Policy
- Equity Stake Policy



See more

[Sustainability Portal](#)

Economic-financial Performance

GRI 3-3

Copel is committed to generating return for its stakeholders, sufficiently remunerating the capital invested and keeping up its financial capacity to maintain its activities and generate sustainable growth.

The economic-financial results directly impact the management and its decisions including the use of funds, the ability to maintain and grow its business, the need to continue or review its strategies for efficiency, the decision of investors and shareholders, the ability to pay debts and obligations before financial institutions, suppliers, employees, the federal government, the state, municipalities, and shareholders.

Copel's economic-financial management is conducted by the Board of Finance and Investor Relations, which periodically submits the assessment of the economic-financial status of the business and any changes in scenario to senior management.

As a publicly-traded company listed on the stock exchange, Copel discloses its results every quarter ensuring clear and accessible communication with internal and external audiences based on the principles of transparency, symmetry of information, and equal treatment, in compliance with Brazilian and US law.

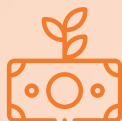
The management assessment is based on the analysis of the National Quality Foundation (*Fundação Nacional da Qualidade - FNQ*) in alignment with the Management Excellence Model adopted by Copel. The information is compared with past and expected performance. The reports of analysts, which are issued externally, are also used as a tool for analysis.



Highlights



Net operating revenue
BRL 21.9 billion
 (-8.6% as compared with 2021)



Investments of
BRL 2.3 billion (+6.9%)



Net profit of
BRL 1.1 billion (-77.2%)



Goals

- Increase net income
- Reduce PMSO costs
- Increase profitability
- Increase EBITDA



Related Risks

- Failure in capital structure and performance
- Failure in capital allocation
- Failure to cut costs



Governance

- Fiscal Council
- Investment and Innovation Committee (*Comitê de Investimento e Inovação - CII*)
- Statutory Audit Committee (*Comitê de Auditoria Estatutário - CAE*)
- Directly related policies: Financial Investment, Hiring of Independent Audit Services, Dividends, Investments, Trading of Securities of Own Issue, Investor Relations



See more

[Management Report and Financial Statements](#)



2

ABOUT COPEL





Companhia Paranaense de Energia

GRI 2-1, 2-6

Companhia Paranaense de Energia - Copel reached its 68th year of operation in 2022 and has its activities integrated with activities in the businesses of generation, transmission, distribution, and trade of energy and natural gas. The head office is based in Curitiba in the state of Paraná and its legal structure is a mixed-capital corporation controlled by the state government of Paraná.

As the largest company in Paraná and one of the country's leading energy groups, Copel champions socio-economic and regional development by providing an essential service sourced from a 94% renewable energy matrix with security, resilience and sustainable commitment.

The Company's electricity grid is made up of its own power plant generation complex and transmission lines in ten Brazilian states, and holdings in other similar assets. The en-

ergy distribution is concentrated in Paraná, accounting for 98% of the state according to the concession area contracts and it supplies energy to more than 5 million residential, industrial and business consumer units in the regulated market and consumers in the free market (industry and commerce) in accordance with the rules of the Brazilian Electricity Regulatory Agency (Aneel).

It employs almost 6,000 workers and 8,600 outsourced workers who work mostly in operation and maintenance (O&M) activities.

Copel was recognized in 2022 as the best company in the Brazilian electrical sector through the Valor 1000 Award granted by the Valor Econômico newspaper, in which, in addition to quality and performance, the company stood out in both awards for its social, environmental, and governance practices. The Company's businesses also

received recognition for excellence in their processes and management, highlighting Copel Distribuição, which has been a leading distributor in Brazil and Latin America for the past five years.

These differentials help keep Copel in the portfolios of the São Paulo stock exchange: Corporate Sustainability Index (ISE), for 17 years, in the Carbon Efficiency Index (ICO2 B3) and in the Great Place to Work Index (IGPTW). In addition to B3, Copel has shares traded on the New York and Madrid stock exchanges.



5 million
of consumer
units

Responsible for the distribution of electricity to **98% of the state of PR**

Generation and Transmission Assets in **ten states**

more than 5 million consumer units served

Largest company in Paraná and one of the main energy groups in the country

The path to energy

Copel has its activities integrated with activities in the businesses of generation, transmission, distribution, and trade of energy.

GENERATION

6,706 MW
of installed power

Renewable energy

Today
94%

2030
100%

24
hydropower plants

2
thermopower plants:
gas-powered
natural and coal

38
wind farms

TRADE

2.8 GW
energy sold in
2022

1,500
clients nationwide

TOTAL VOLUME GENERATED (in GWh)

23,682.2
hydropower plants

2,901.3
wind farms

204,26
thermopower plants

TRANSMISSION

9,685 km
of transmission lines in eight states²

51
substations³

DISTRIBUTION

Copel DIS has:
over 200,000 km
of distribution networks

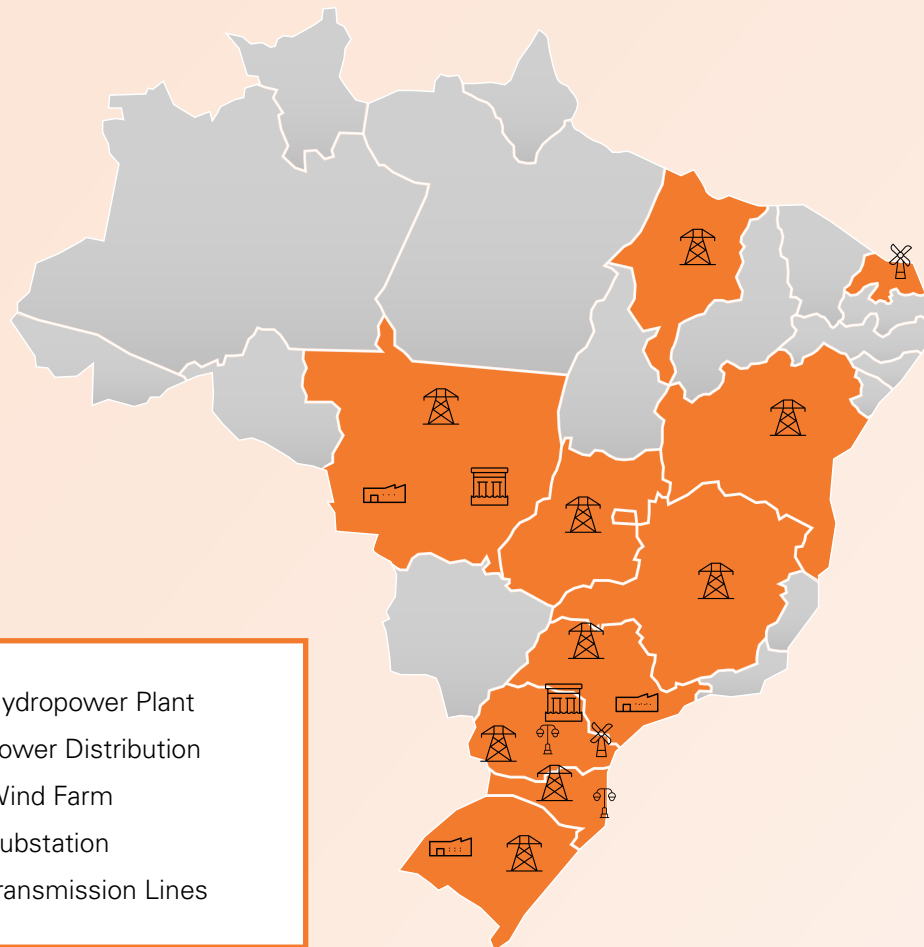
and serves:
5,020,528
consumers

1. Considered a grid market. 2. Total in proportion to GeT equity. 3. considering the equity stakes.

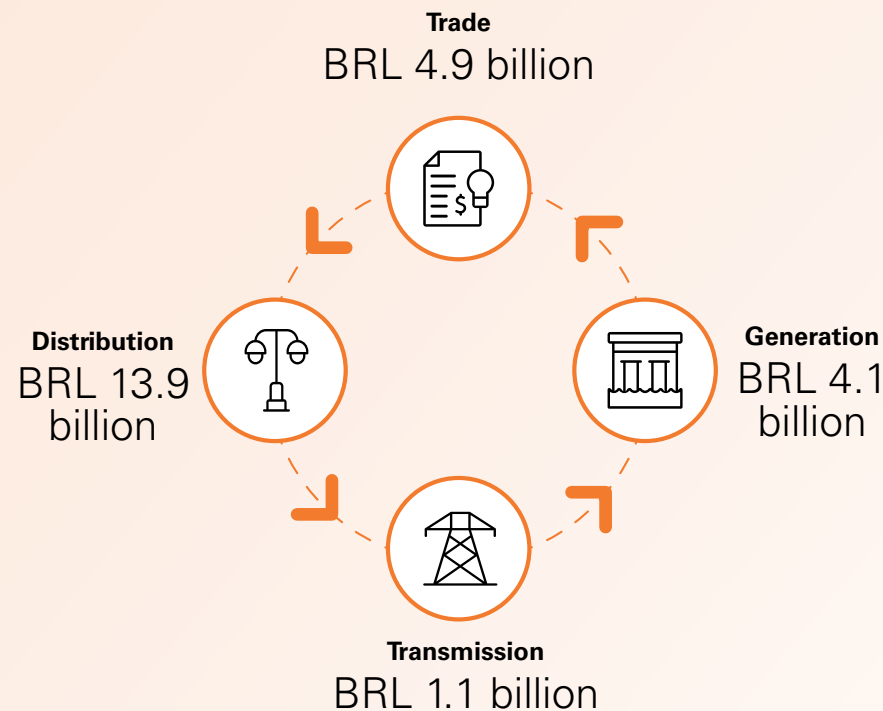
About Copel | Companhia Paranaense de Energia

Copel in Brazil

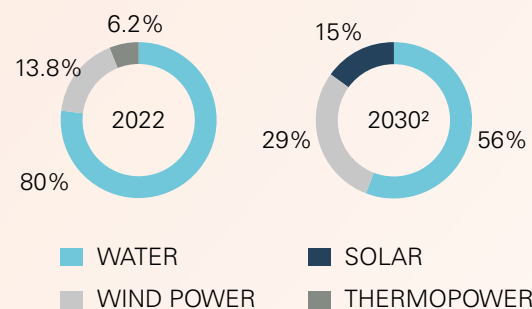
Integrated Report 2022



Net Operating Income (business share)



Energy matrix (%)¹



Employees

5,875
company employees

8,574
outsourced workers

1. Installed capacity.
2. Foreseen in the strategic planning.



Generation and Transmission Business GRI 2-1

Copel operates with state-of-the-art technology in the areas of power generation and transmission, building, operating and maintaining a diversified electricity system with its own generating complex of power plants (hydroelectric, thermoelectric, wind and solar power), transmission lines and substations, considering full and partnership-linked infrastructures, and an installed power of 6,706.4 MW (3,164.7 MW of guaranteed output). Via its holdings, it also has a solar power operation (1.1 MW).

Copel Geração e Transmissão (Copel GeT) manages a large part of the operations in these two segments, and the Holding Company has a direct stake in some plants.

In line with its 2030 Vision to generate power exclusively from renewable sources and diversify its generation complex, Copel acquired in 2022 the Santa Rosa & Mundo Novo (SRMN) and Aventura wind farms that produce 260.4 MW, both located in Rio

Grande do Norte state. It also started up the operation of the Jandaíra Wind Farm two years ahead of schedule.

With these investments, wind power generation has been growing year by year, from 2,118.8 GWh in 2020 to 2,901.3 GWh in 2022.

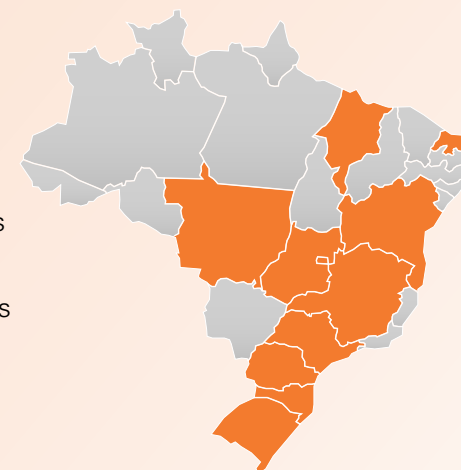
Copel operates in ten states (*see map*) and is the 10th largest hydropower generator in the country in terms of installed capacity, with a 3.7% share of national power.

In the Transmission business, Copel holds a 3.5% slice of the Brazilian market through its own network and in equity amounting to 9,685 km in transmission lines and 51 substations in the basic grid. The transmission concessions in operation currently generate a Permitted Annual Revenue (PAR) of BRL 1.39 billion in proportion to its stake in the ventures.

Key Assets

54 own plants and 11 collaborations:

- 24 hydropower plants
- 38 wind farms
- 2 thermopower plants
- 1 Solar
- 9,700 km of transmission lines
- 10 states



6.7 GW generation

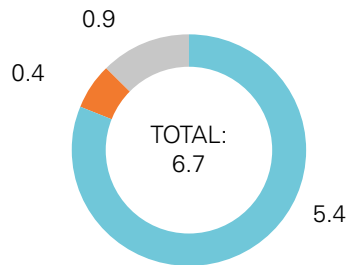
93.8% renewable

On of **10 largest** generators in Brazil

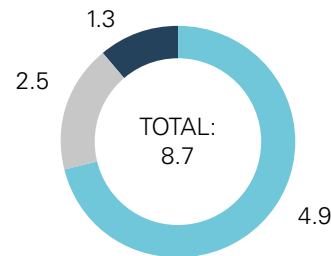
Divestment in **thermoelectric power plants** underway

Generation and Transmission Businesses GRI 2-1

Integrated Report 2022



INSTALLED CAPACITY 2022 (GW)



INSTALLED CAPACITY 2030 (GW) (FORECAST)

■ Hydropower
 ■ Wind power
 ■ Solar
 ■ Thermopower

GRI EU1, EU10

Net power generation (GWh) ¹ GRI EU2	2020	2021	2022
Hydropower plants ²	11,232.5	15,798.6	23,682.2
Thermopower plants ³	994.6	1,784.6 ⁴	204.26
Wind farms	2,307.5	2,691.4 ⁴	2,901.3
Solar power plants	-	- ⁵	4.8
Total	14,534.6	20,284.7	26,792.5

1. The indicator takes into consideration the amount generated by Copel GeT operations and by the plants that Copel Holding Company has direct equity in: Elejor, Dona Francisca, Voltalia and Solar Paraná.

2. The hydraulic power plants with installed capacity greater than 50 MW, correspond to the largest slice of the total energy generated by Copel. The power plants are coordinated centrally by the Brazilian Electricity Operator (ONS) and in accordance with the conditions of the reservoirs and system demand. The total generated also includes the Elejor, Foz do Chopim, and Dona Francisca power plants, in volumes that are proportional to Copel's share.

3. The increase in thermoelectric generation in 2020 and 2021 is associated with below average rainfall that caused ONS to require more generation from the Araucária thermoelectric power plant. The amounts informed also correspond to Copel's share.

4. The results from wind and thermoelectric power in 2021 were corrected because the values were published inverted in the previous report. GRI 2-4

5. The amount of energy generated from solar sources was wrongly reported in the previous report. In 2021, the solar plant was in the testing phase.



See more

- Details of Performance in [Infrastructure capital](#)
- Check out the total list of Copel's power plants and transmission lines and substations in [Management Report](#)



Distribution Business GRI 2-1, 2-6

In December 2022, Copel Distribuição S.A. (Copel DIS) surpassed the mark of 5 million consumers connected to its grid, supplying electricity to 396 of the 399 municipalities in Paraná and to Porto União in Santa Catarina.

The company serves all sectors of the economy (primary, secondary, and tertiary) with clients ranging from the residential, to the industrial, commercial, and rural segments covering roughly 200,000 km of distribution network. The consumers have a variety of service channels, such as apps for mobile devices, virtual agencies, call centers and social networks, including WhatsApp.

Recognized as one of the main distributors in the country, Copel DIS invests heavily to ensure the quality of its supply. Its Transformation program involves mainly two pivotal actions: one aimed at rural areas to ensure supply security and service quality to rural producers (Paraná Trifásico). It is also

investing in the largest Smart Electrical Grid (SEG) project in Brazil to upgrade and automate the power grid in Paraná based on the principle of smart cities/smart grid including concepts such as bidirectionality, flexibility, digitization, and automation.

5,020,528
consumer units

397
municipalities served

Market share¹ (%)

Brazil	6.4%
Southern region	34.5%
Paraná	97.1%

1. Distribution grid market.

Efficiency indicators¹

GRI EU28, EU29, SASB-IF-EU-550a.2

	2020	2021	2022
SAIDI Copel	7.81	7.20	7.98
SAIDI Aneel	9.78	9.28	9.19
SAIFI Copel	5.55	4.76	5.29
SAIFI Aneel	7.38	6.84	6.80

1. For the purpose of the concession agreement until 2021, the internal SAIDI and SAIFI indicators were considered as the target of the concession agreement - which encompass only the events that occurred in the distributor's assets, excluding transmission line events. As of 2022, there is no difference and the SAIDI and SAIFI cover all occurrences, regardless of origin, including losses in the basic grid that are external to the utility's distribution system and are of an imminently technical origin. The purpose of these indicators is to improve the quality of the service provided to the consumer.



See more

Details of distribution performance in [Infrastructure capital](#)

Trading Business GRI 2-1, 2-6

Copel is a pioneer in the free market (Mercado Livre) and was the first to sell energy to free Brazilian consumers in the 90s and continues as one of the leading traders in this modality.

Since it can rely on the integrated structure of one of the largest electricity providers in the country, Copel Mercado Livre offers customers easy access to services and solutions, flexible and customized energy models and management for companies in all stages of qualification and purchase of energy in the modality.

In 2022, it also started offering carbon credits and I-REC certificates for guaranteed traceability of renewable energy.

Copel Mercado Livre has more than 1,500 customers in 23 states in Brazil. It traded 2,8 average GW in the year - a growth of 6.5% as compared with 2021. Since 2020, the volume of energy traded in this modality has almost doubled.

Copel was the first to sell energy to free Brazilian consumers in the 90s and continues to hold its position as one of the top traders of the country.



2.8 GW
of energy sold



Leader
in free market sales in the country



1,500
customers in 23 states



See more

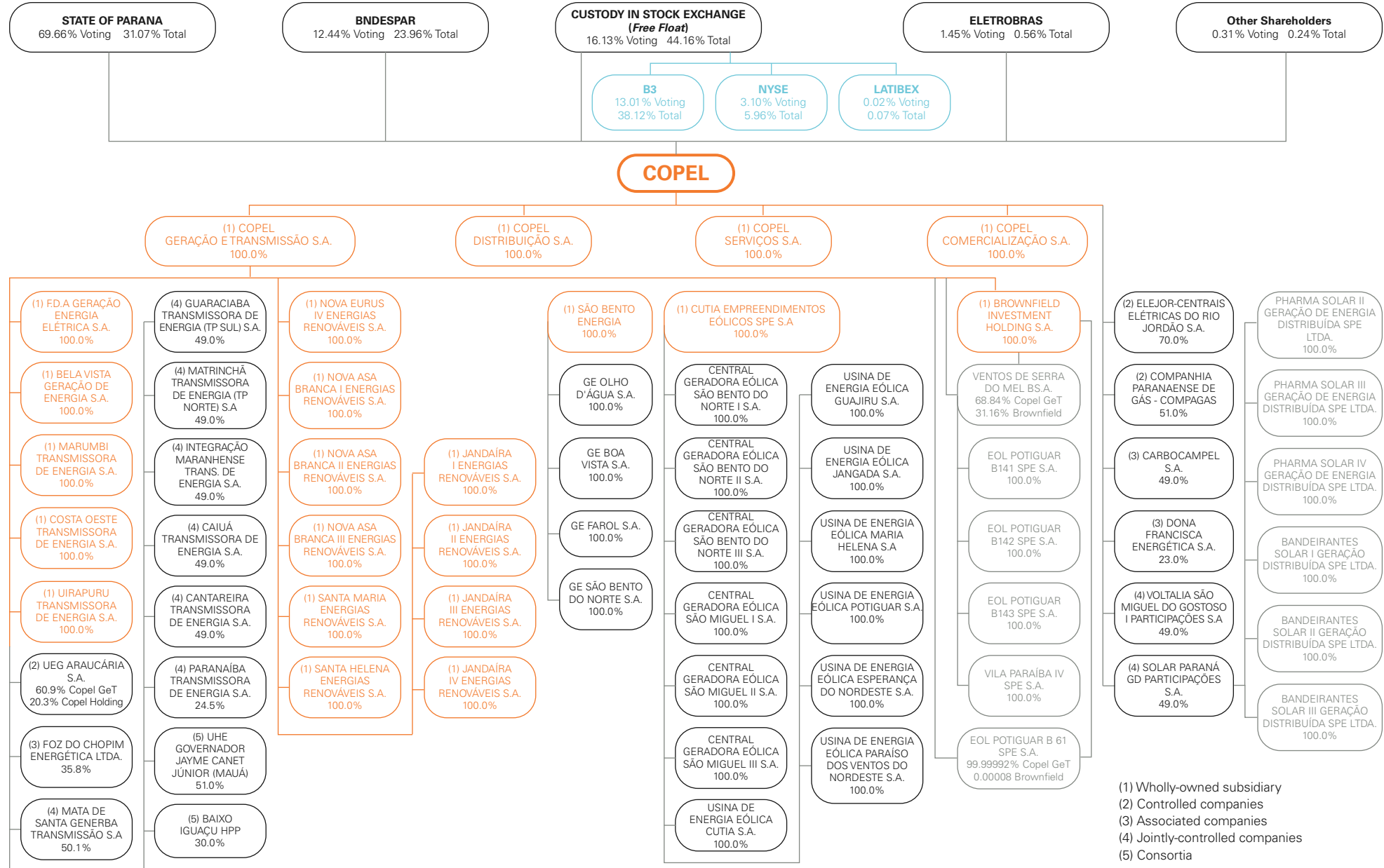
Details of Performance in [Infrastructure capital](#)



About Copel | Corporate Structure

Corporate Structure

12/31/2022



- (1) Wholly-owned subsidiary
- (2) Controlled companies
- (3) Associated companies
- (4) Jointly-controlled companies
- (5) Consortia



Acknowledgments

ISEB3

ISE B3 (Corporate Sustainability Index)

B3

ICO2B3

ICO₂ (Carbon Efficient Index)

B3

IGPTWB3

IGPTW (Great Place to Work Index)

B3



Valor 1000 Award - Best electricity provider in Brazil

Valor Econômico Newspaper

Largest Company in Paraná

Amanhã Magazine



500 Largest Company's in the Southern Region – 3rd place

Amanhã Magazine



Paraná Climate Seal - Category A - external market

Paraná State Government



Gold seal of certification of the Brazilian GHG Protocol program

GHG Protocol



National Volunteering Incentive Award 2022 - the best project of the southern region in the Corporate Volunteering category

Federal Government





Acknowledgments

Abrasca Award – 2nd place Copel Distribuição for best annual report



Brazilian Association of Publicly-Held Companies (*Associação Brasileira das Companhias Abertas - Abrasca*)

Abraconee Award – 1st place for the Best disclosure of Financial Statements 2021 for holding companies and large-scale companies - Copel and Copel Geração e Transmissão



Brazilian Association of Electric Sector Accountants (*Associação Brasileira do Contadores do Setor de Energia Elétrica - Abraconee*)

Abradee Award - Best energy distributor in southern Brazil



Brazilian Electricity Distributor Association (*Associação Brasileira de Distribuidores de Energia Elétrica - Abradee*)



Abradee Award - management quality

Brazilian Electricity Distributor Association (Abradee)

100 Largest Corporations in Paraná – 1st place for Copel Distribuição and 8th place for Copel Geração e Transmissão

Diário Indústria & Comércio e Fecomércio PR newspaper



Best of Biogas Award – 3rd place in the Best Organization category

International Renewable Energy Center (CIBiogás) - Biogás, the Brazilian agricultural research agency (Embrapa) – Swine and Poultry division – and the University of Caxias do Sul



Best in Management - Gold category for Copel Geração e Transmissão

National Quality Foundation (*Fundação Nacional de Qualidade - FNQ*)

3

STRATEGY AND OUTLOOK





Industry Context

SDG:



Capitals:



The external environment is signaling the acceleration of profound changes in the energy sector, driven by energy transition and strongly supported by two acronyms: ESG (environmental, social and governance) and DDD (decarbonization, decentralization and digitization).

The United Nations Organization (UNO) estimates that if nothing is done to increase decarbonization, we will reach 2100 with an average temperature 3.7 degrees Celsius above the pre-industrial revolution period. The consequences of this include extreme events, physical risks to cities and to infrastructure and production assets, and may even compromise the survival of species and businesses.

Although emissions are currently amongst the top global risks in the World Economic Forum Reports, the pressure for clearer and bolder targets for climate care has, since the onset of the pandemic, caused countries, productive sectors, and large companies to broaden their decarbonization actions.

Renewable energy is expected to replace fossil fuel in coming years, according to the International Renewable Energy Agency (Ire-na). In a report published in 2022, the agency highlighted green hydrogen as one of the drivers of change. Despite not mentioning Brazil directly, the national energy matrix, with about 85% of generation coming from

Brazil, with about 85% of its generation deriving from clean sources, may become a player in the new global energy geopolitics.

clean sources, is a differential that can make the country a player in the new global energy geopolitics.

The Ten Year Plan of the Energy Research Office (EPE) predicts that the share of wind and solar energy sources in supply should increase from 11% to 16% by 2030, while thermoelectric power should fall from 14% to 8% in Brazil.


Distributed generation is also the essence of decentralization in the Brazilian electricity sector. As such, the traditional centralized generation model is undergoing a significant change and becoming more collaborative;




By 2030

According to the Energy Research Office (EPE), wind energy supply should increase from 11% to 16%. Thermoelectric power should drop from 14% to 8%




24.8 mi
 electric cars


9.7 bi
 inhabitants in
 30 years

Source: UN.

however, this makes the structure more complex and demands new technologies to control the entire operation and store electricity when there is excess generation.

The new regulatory framework for the electrical sector is under debate in the country. According to the proposal, all consumers will be able to opt for the free market (end of the captive market), choose their energy distributor by paying the local distributor only for the use of the infrastructure, choose to favor a certain energy source or price, and their consumption profile. Accordingly, Administrative Rule 50/2022 published by the Mining & Energy Ministry will allow, as of January 2024, all high voltage consumers (Group A), to be eligible for the free market.

Electric mobility is another important element of the energy transition. The electric and hybrid car fleet is expanding rapidly worldwide. There are currently about 24.8 million electric cars, according to IEA data,

and the IEA predicts that this fleet could reach 230 million by the end of the decade.

The smart city concept is also expected to take shape. The planet will be home to 9.7 billion, according to UN data, inhabitants in 30 years, 68% of which will live in cities, according to the United Nations (UN). According to the institution, population and urban sprawl is already creating sustainability challenges that could jeopardize the fulfillment of citizens' needs and the achievement of SDGs (Sustainable Development Goals).

Smart cities translate well the concept of digitization in the electricity segment since they depend on the use of information and communication technology (ICT) to improve operational efficiency, share information with the public, and provide a better quality of government service and citizen wellbeing. Such technologies include the Internet of Things (IoT), WiFi, Big Data, Cloud Computing Mobile Apps, and AI, supported by



Strategy and Outlook | Industry Context

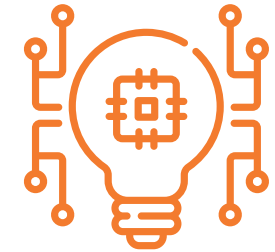
fiber-optic infrastructures, 4G/5G mobile networks, data centers, and appropriate devices suited to the challenges and transformative vision of everyday life.

This will require an upgrade in the electrical power infrastructure so “smart grids” can be introduced. Smart grids are a new distribution architecture. They are more automated, sensor-driven, secure, and integrated to enable actions for the connection of all users. Within this concept, the flow of electrical energy and information is bidirectional, i.e., from the concession operator facilities as well as from the consumer unit facilities. This creates a new entity - the so-called “prosumer”, who is a producer and a consumer at the same time, producing and supplying energy to the grid.

The consumer units will also undergo a transformation, receiving smart meters that interact with the concession operator in real time to enable them to follow closely, or through the internet, how the energy is used in the home. In addition, the homeowners will be able to charge their electric vehicles. These possibilities of more economical and conscious consumption of

electrical energy also help to reduce greenhouse gas emissions in the Brazilian electrical system.

It is within this context that Copel is getting prepared for the future, through consistent guidelines for all the Company's businesses.





Copel Vision 2030

The core of the long-term planning of the Company - **Copel Vision 2030**, is to become one of the largest integrated energy groups in Brazil and hold a relevant stake in the four segments of the industry (Generation, Transmission, Distribution and Trade).

Recent highlights underpin the Company's position as one of the benchmarks of the sector as confirmed by its recognition as the Best Company in the Electricity Sector in 2022 granted by the Valor Econômico newspaper through the Premio Valor 1000 award and the company's achievement as one of Brazil's and Latin America's best distributor for the past five years, as well as a leader in the amount of energy traded in the Mercado Livre in 2022. The Company also stands among the ten largest generators in installed capacity and in the ten top transmission companies in permitted annual revenue.

In order to continue growing, the basis of the Company's value proposal is to focus on continuously improving the customer experience. A few of the initiatives to attract, retain and build customer loyalty are to offer access through increasingly interactive digital platforms and customized flexible prod-

ucts, provide services and solutions that add value for the customer, carbon credits, the sale of certified "clean" energy, and surplus renewable energy.

In market share, Copel holds 6.2% of the distribution market, concentrated in Paraná (where it holds a 97% stake), 3.7% of the installed generation capacity, and 3.5% of the transmission networks, with assets in 10 states Expanding this share is one of Copel's top strategic drivers, supported by asset decarbonization, integration with scale among the businesses, and discipline in capital allocation.

In the pillar of business decarbonization, Copel plans to make adjustments in its projects and diversify its assets so it can become 100% renewable. The divestment of the Araucária and Figueira thermoelectric power plants is underway and is expected to be completed by 2023.



Copel Vision 2030

The generation will be expanded by wind and solar sources in order to cut dependency on water as a source. Currently, 80% of Copel's generation derives from hydroelectric power plants or small hydropower plants (SHPs). The challenge is to reduce this share of wind and solar generation to 44% by 2030, with hydro generation accounting for 56% of the total. In 2023, this share rose from 12.6% to 17% through acquisitions and the start up of a new complex two years ahead of schedule (*see more on [page 154](#)*). Besides the diversification of the matrix, the long-term plans predict an increase of 2 gigawatts in installed capacity. For such, the Company will need to increase installed capacity from around 250 MW to 300 MW per year - in 2022, it added 90.1 MW to its generation complex, all the additional volume deriving from wind farms.

Copel has been gradually improving its capital allocation process so it can grow in a balanced and consistent manner. Instruments created between 2021 and 2022 have improved governance for project development and have stepped up structured decision-making: the new Investment and Innovation Committee, an advisory body to the Board of Directors, and the approval of the Investment Policy, which establishes the selection, assessment, approval, and monitoring criteria of the investments.

As such, the merging of its brand and reputation, its asset base, and the competencies of its people are factors that, added to the prospects of the Company's transformation process into a corporation (*see more on the next page*), place Copel in a unique position to find opportunities within a scenario of transformation and modernization in the country's energy sector (*see more on [page 26](#)*).

CHALLENGES UNTIL 2030



Diversifying
the assets to become
100% renewable



Reaching
44%
in wind and solar
power generation



Increase by
2 GW
the installed
capacity



Strategic objectives 2030

- 100% renewable generation complex and 2 GW of additional installed capacity
- Expand by 2,000 km the Transmission networks, exploring synergy with Generation and Distribution
- Become one of the largest national distributors and create opportunities in new concession areas
- Distributed Generation (DG) as a strategy for defense and consolidation in the sector
- Continue among the largest in the free market, with increased profitability
- Be recognized by customers for its innovative and digital service offers

Transition to corporation

In November 2022, Copel released a material fact to the market announcing the intention of the government of Paraná, Copel's controlling shareholder, to transform the Company into a dispersed-ownership corporation without a controlling shareholder. The process of selling the controlling interest was based on a study by the Council for Control of State Companies (*Conselho de Controle das Empresas Estaduais - CCEE*) and comes in response to the government's interest to raise funds for new state investments and to value Copel. The proposal was approved by the Legislative Assembly of Paraná in 2022 and is currently undergoing the legal procedures.

The goal is to conduct a secondary public offering of common shares and/or depositary receipts (units) as early as 2023. The State of Paraná will continue to hold a relevant stake in the Company, at least 15% of the capital equity and 10% of the total voting stock. The official announcement of the decision also includes instruments to ensure the interests of the Company, the State of Paraná, and customers and consumers, such as the maintenance of Copel's headquarters in Paraná, the 10% limit for any shareholder with voting shares, and the creation of a special class of preferred share that gives the State of Paraná the right to veto some investment decisions provided for in the by-laws (golden share).

See the Material Fact 06/22 on [Copel's website](#).



ESG in Copel's strategy

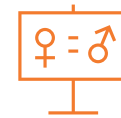
Copel is an ethical and responsible company that has consolidated itself as an organization that provides energy and solutions for society. The Company endeavors to further integrate environmental, social, and governance (ESG) concerns into its agenda of future actions and decisions over the next decade.

After building the Carbon Neutrality Plan in 2021, the topic continued to be a priority for Copel and, in Vision 2030, it became linked to the target to decarbonize its electricity generation matrix. Besides the commitment with 100% renewable sources by 2030, the strategic plan predicts a reduction in direct emissions (Scope 1) and surplus offsetting. This includes investments to purchase electric vehicles for the company fleet, adopt solar generation to supply the company's

administrative centers, which will also aim to acquire WELL certification, based on the monitoring of environmental and social impacts. **SASB-IF-EU-110a.3**

Other priorities of Vision 2030 are the commitment to ethics and governance and the furthering of diversity, including targets to increase the female presence in leadership positions. Currently, women account for 21.6% of Copel's staff and 23% of the managerial positions - the rate is 17% in top leadership (Board of Directors, Executive Board, Steering Committees and Board Assistants). The goal is to increase the share of women in top leadership positions by 40% by 2025. The empowerment of culture and its alignment to new challenges is also one of the priorities for upcoming years (*see more on [page 135](#)*).

By 2021, Copel had already announced the adoption of ESG goals as part of the variable offsetting program at all organizational levels. In this case, the following indicators were defined: i) performance in the Corporate Sustainability Assessment of S&P Global, and implementation of the neutrality plan, whose targets vary according to the functional and subsidiary level), ii) compliance of controls and, iii) zero fatal accidents involving employees and outsourced workers. The last two items are reducers, i.e., if not reached in the year, they reduce the bonus.



Increase by 40%
the share of women in leadership positions by 2025

In 2000, it was the first company in the electricity sector to join the United Nations (UN) Global Compact, and has since 2018 been committed to achieving the Sustainable Development Goals (SDGs) linked to the energy sector.



Business Model

CAPITAL INPUT



NATURAL

Use of water resources to generate **23,682.2 GWh** of electricity
93.8% of the generator complex uses renewable sources



SOCIAL AND RELATIONSHIPS

5,020,528 consumers
 Various relationship channels with stakeholders:
 *Social Programs
 *Corporate volunteering
 *Engagement with the community



HUMAN

5,875 company employees
8,574 outsourced workers



INTELLECTUAL

Investment in training and development of staff
BRL 60.4 million invested in R&D by Copel Distribuição
BRL 94.8 million invested in R&D



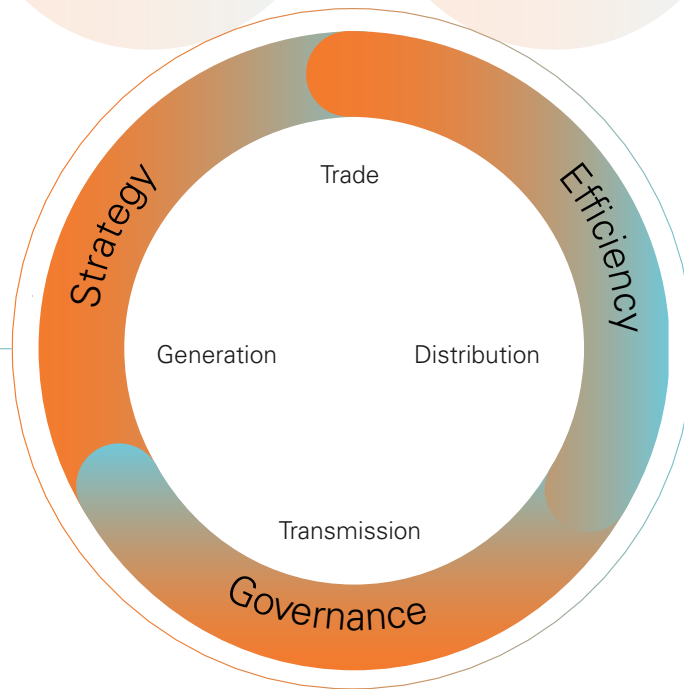
INFRASTRUCTURE

24 hydropower plants
38 wind farms
2 thermopower plants and **1** solar
9,685 km of transmission lines » Sub-stations with a transformation capacity of 20,462 MVA



FINANCIAL

BRL 2.3 billion invested



OUTCOME

NATURAL

GHG emissions:
 *Scope 1: 50,834.44 tCO₂
 *Scope 2: 163,700.83 tCO₂

SOCIAL AND RELATIONSHIPS

1,648 volunteer hours
 Abradee Satisfaction Survey - Residential Customer - 77%
 DER (Equivalent Complaint Duration) 120.50 (hours)
 FER 6.36 (unit)

HUMAN

BRL 858.7 million paid in salaries
BRL 365.1 million paid in benefits
BRL 367.4 million paid in Profit Sharing+Performance Bonus

INTELLECTUAL

Copel Volt: 6 Proofs of Concept (POC)
 Copel Venture: 150 million in investments

INFRASTRUCTURE

92% of availability of generator complex
2.8% transmission losses
9.0% distribution losses
 SAIDI 7.98
 SAIFI 5.29

FINANCIAL

BRL 1.1 billion in net profit
BRL 2.3 billion in investments
BRL 21.9 billion in net revenue

STAKEHOLDERS



EMPLOYEES
 PARTNERS AND SUPPLIERS
 SHAREHOLDERS AND INVESTORS

CUSTOMERS
 REGULATORY BODIES AND SECTOR ENTITIES
 SOCIETY



Sustainability Management GRI 2-13

Copel and SDGs GRI 2-23



SDG

In 2022, Copel prioritized SDG 4 - Quality education

The Board of Directors (CAD) is the strategic and decision-making body responsible for top corporate guidelines and a few of its duties are to approve and oversee the policies and their application in topics such as sustainability; climate change; people management and occupational health and safety, among others. The Sustainable Development Committee (*Comitê de Desenvolvimento Sustentável* - CDS) supports the CAD in the main topics of the ESG agenda (*see more on page 61*).

The Holding Company defines the corporate guidelines and disseminates them through policies and rules that apply to all company areas, including the subsidiaries.

In order to meet the unique needs of the businesses, every subsidiary has its own specialized areas for managing socio-environmental aspects. Every operation requires different types of action and monitoring, aiming at socio-environmental compliance and adherence to the best market practices.

The sustainability performance is assessed through internal management, in addition to a share in specialized market assessments, which enable a comparison with other companies. Among these assessments are the B3's Corporate Sustainability Index (ISE) and S&P Global's Corporate Sustainability Assessment (CSA). The results of these assessments are used as a basis for ongoing improvement of ESG-related processes.

In line with the importance of supplying a resource that is essential for socioeconomic development and for people's quality of life, Copel uses the Sustainable Development Goals (SDGs) as a benchmark in its actions. The Company made a commitment in 2018 to collaborate with the achievement of the targets and goals that are associated with activities in the electricity sector.

For such, Copel used for this definition the study organized by the Global Compact Network Brazil (RBPG), SDGs in the Brazilian Electrical Sector, which listed five SDGs and eight targets in which energy companies can and should engage to find solutions and respond to these challenges. The 2030 Agenda, of which the Sustainable Development Goals are a part of, depends on the cooperation of all sectors of society to increase wellbeing and reduce inequality worldwide.





In addition to SDG 7, which provides for universal access to clean energy services, SDG 8, 9, 11, and 13 are also prioritized. The sector-specific targets and actions to achieve them are included in this report. To facilitate communication, they have also been placed together in the Annex section along with Copel's full performance in each. The SDG icons in the report help correlate the topics with this global agenda.

This lesson in performance and alignment with the SDGs has enabled Copel to expand its commitment. In 2022, the company announced that it will also prioritize SDG 4, focused on education. With relevant challenges to improve the quality of education in Brazil and the access to education offers, Copel is studying initiatives it can engage with. One of the opportunities found is to approach engineering schools and universities in an attempt to broaden access to training in this professional field. Copel also sees the opportunity to encourage more girls and young women to pursue engineering as a career, eliminating barriers and biases to introduce more diversity into this field. The actions targeted at education are still under assessment and are not included in this report.

The Copel's priority SDGs are*:



4. QUALITY EDUCATION

Prioritized in 2022 exclusively by Copel. The definition of the goals and actions to be carried out are anchored on planning.



7. AFFORDABLE AND CLEAN ENERGY

- 7.1 - Ensure universal, reliable, modern, and affordable access to energy services by 2030.
- 7.2 - Substantially increase the share of renewable energy in the global energy mix by 2030.
- 7.3 - Increase the rate of improvement in energy efficiency of the Brazilian economy by 2030.



11. SUSTAINABLE CITIES AND COMMUNITIES:

- 11.1 - Ensure everyone has access to safe, suitable and affordable housing and basic services and urbanize slums by 2030.
- 11.4 - Step up efforts to protect and safeguard the world's cultural and natural heritage.



8. DECENT WORK AND ECONOMIC GROWTH

- 8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro, small and medium-sized enterprises, including through access to financial services.



13. ACTION AGAINST GLOBAL CLIMATE CHANGE:

- 13.2 - Integrate climate change measures into national policies, strategies and plans.



9. INDUSTRY, INNOVATION AND INFRASTRUCTURE

- 9.1 - Develop a quality, reliable, sustainable and robust infrastructure, including regional and cross-border infrastructure to support economic development and human wellbeing with a focus on equitable and affordable access for all.
- 9.4 - Upgrade the infrastructure and refurbish industries to make them sustainable, with increased efficiency in the use of resources and greater use of clean and environmentally sound industrial technologies and processes, by 2030; with all countries operating in accordance with their respective capabilities.



Annex - See the complete list of goals and Copel's performance in each of the SDGs.

*The goals related to each SDG are commitments from the Brazilian electricity sector, which were also undertaken by Copel.



ESG Journey at Copel



2000

- Pioneer in the electrical sector as a signatory of the Global Compact



2017

- Creation of the Governance, Risk and Compliance Office



2018

- Copel builds Brazil's first electrical railway
- Prioritizes SDGs in the Electricity Sector
- Restructuring of the whistleblowing channel



2020

- Pro-Ethics Seal
- Concept B in the CDP climate change questionnaire
- Human Rights Policy



2021

- Carbon Neutral Plan
- Migration to Level 2 of governance at B3
- Creation of committees: Sustainable Development, Minority and Investment and Innovation
- Expansion of minority shareholder representatives on the Board of Directors
- Insertion of ESG goals into the variable remuneration



2022

- Code of Conduct Review
- Vision 2030 with ESG goals
- Adherence to the Transparency Movement 100% - UN Global Compact
- Adherence to the Net Zero Ambition Movement - UN Global Compact

Prioritized SDGs



Voluntary Commitments GRI 2-23

Copel joined the Transparência 100% (Transparency 100%) Movement in 2022, the first corporate initiative to foster transparency in Brazil and which aims to encourage and enable companies to go beyond their legal obligations, supporting mechanisms for transparency and integrity in companies that stand out to make themselves more resilient and role models for other companies in the country.

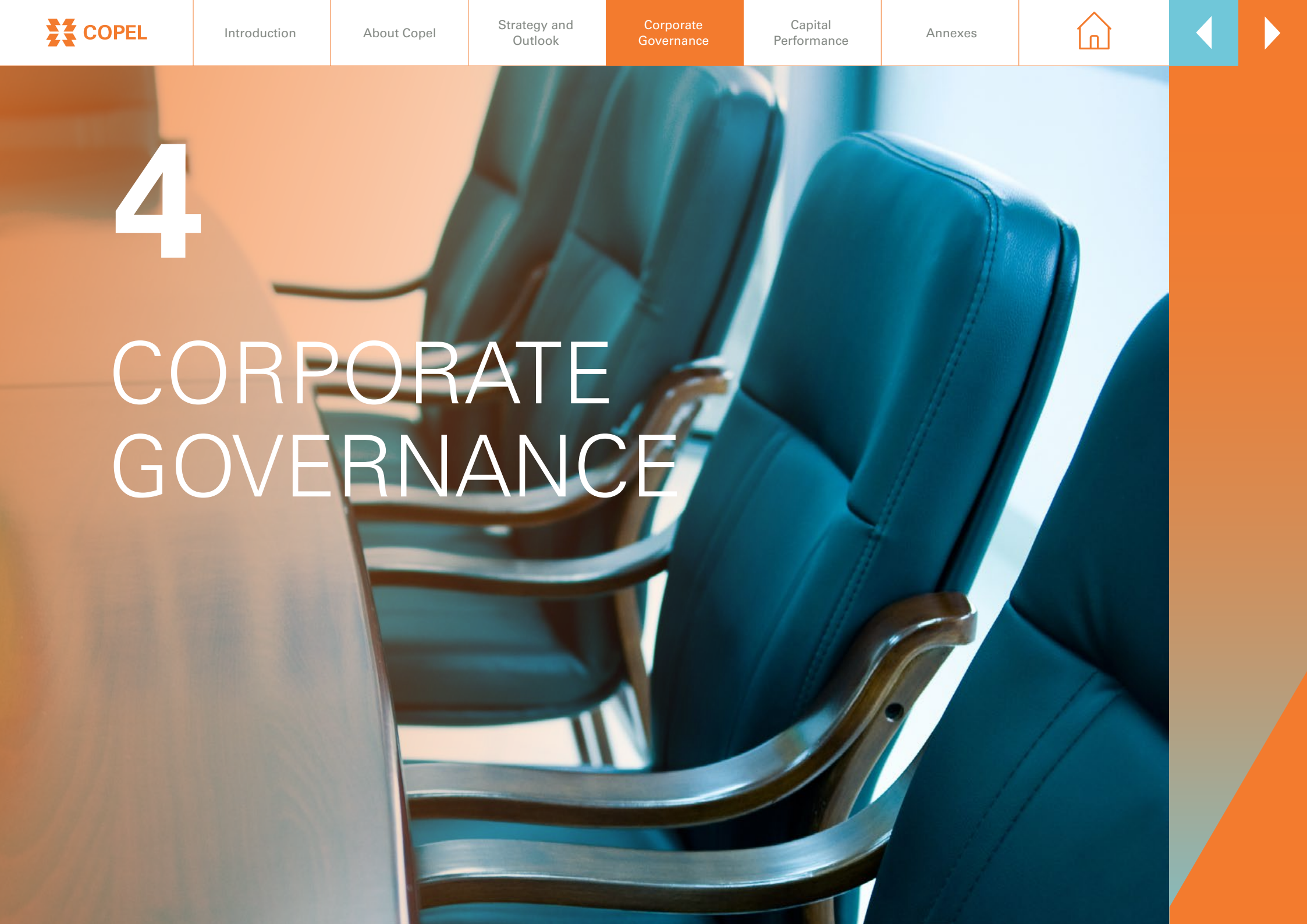
Copel is also engaged with other national and international movements that seek to find solutions for society's common challenges and expand its contribution by generating shared value.



Initiatives in which Copel is engaged	Adoption
United Nations Global Compact	12/Jul/2000
Business Pact for Integrity and Against Corruption	22/Jul/2015
Business Contribution to Foster a Green and Inclusive Economy	11/May/2012
Call to Action for Governments to Fight Corruption	02/Dec/2014
Network of Companies for Learning and Eradication of Child Labor	26/Nov/2016
National "We Can" (Nós Podemos)	08/Mar/2016
PRME - Principles for Responsible Management Education	16/Nov/2018
Business for Climate Positioning - CEBDS	31/Aug/2021
100% Transparency Movement	11/Oct/2022
Net Zero Ambition Movement	12/Apr/2022

4

CORPORATE GOVERNANCE





Corporate Governance

GRI 2-1, 2-9, 2-10, 3-3, 2-24

Governance Structure

SDG



Capitals



Copel is a mixed-capital corporation controlled by the State of Paraná, publicly traded on the stock exchanges of São Paulo (B3), New York (NYSE) and Madrid (Latibex) - which requires a robust system of governance to ensure that the performance of the managers and the strategic planning is aligned with the interests of the Company, its stakeholders and the government of Paraná.

At B3, Copel has been part of Level 2 of governance since 2021. Its system also adopts the Code of Best Governance Practices for Listed Companies, of the Brazilian Corporate Governance Institute (IBGC), and meets the criteria of the Securities & Exchange Commission (SEC), the

US stock exchange, and Brazilian legal and regulatory provisions.

Copel's governance structure is formed by the General Shareholders' Meeting and its Nomination and Assessment Committee and the Fiscal Council, followed by the Board of Directors of the Holding Company, its advisory committees and the Full Board. This system also incorporates the governance of wholly-owned subsidiaries as established in the sharing agreement.

The Full Board is a strategic deliberation board, composed of nine board members appointed initially by the controlling shareholder (State of Paraná) with the exception of three spots for minority shareholders and

one for an employee representative. In the current member breakdown of the Board, 77.8% are independent, which is higher than the minimum 25% set forth in the Company's Bylaws.

Elected at the general shareholders' meeting, the board members serve a two-year term, with up to three consecutive re-elections allowed.

The nomination process follows the Nomination Policy and the Internal Standard for the Nomination of Members of Statutory Bodies, which determine, among other topics, the nomination of professionals with notable experience and the profile required for the position. They also indicate



Governance Profile GRI 405-1

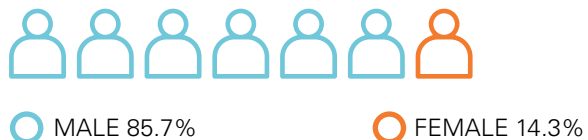


PROFILE BY GENDER

BOARD OF DIRECTORS

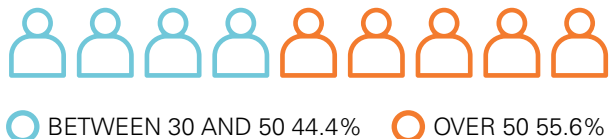


BOARD

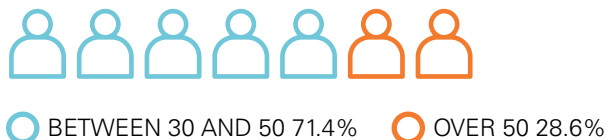


PROFILE BY AGE

BOARD OF DIRECTORS



BOARD



the complementarity of competencies, the availability of time to do the job, and diversity, including in regard to gender, religion, age and race, such as guidelines that must be followed in the election of Board and advisory committee members and the fiscal councilors. At least one member with recognized experience in corporate accounting is also a requirement for the Statutory Audit Committee. For the position of employee representative, Copel opens a candidacy and election process for all employees, via an official internal announcement.

The Nomination and Assessment Committee, an advisory body to the shareholders, verifies the compliance of the process, and every candidate is submitted to a verification of requirements and the absence of impediments defined by law. This verification is performed by the Governance, Risk, and Compliance Office.

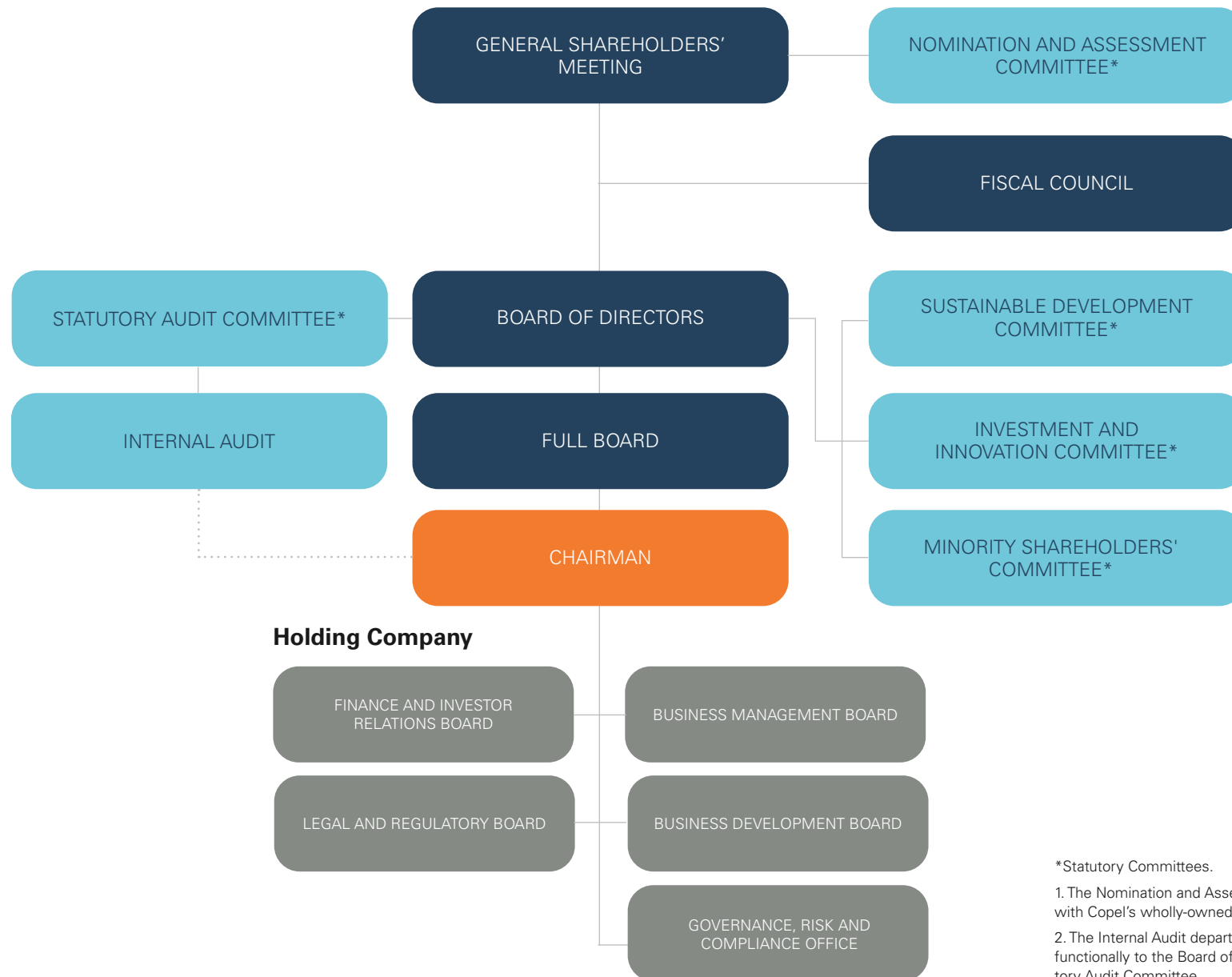
Copel's bylaws have forbidden since 1994 the possibility of the positions of Chairman of the Board of Directors and CEO or top executive of the Company to be accumulated by the same person. **GRI 2-11**

Members of the Board of Directors of Copel (Holding Company)	Participating Committees
Marcel Martins Malczewski* (chairman)	
Daniel Pimentel Slaviero	Investment and Innovation Committee Sustainable Development Committee
Marco Antônio Barbosa Cândido*	Statutory Audit Committee Investment and Innovation Committee
Carlos Biedermann*	Statutory Audit Committee
Gustavo Bonini Guedes*	
Leila Abraham Loria*	Minority Shareholders' Committee
Andriei José Beber*	Sustainable Development Committee Minority Shareholders' Committee
Marco Antônio Bologna*	Investment and Innovation Committee Minority Shareholders' Committee
Fausto Augusto de Souza (employee representative)	Sustainable Development Committee

*Independent members in compliance with Federal Law 13303/2016.



Corporate Governance | Governance Structure



*Statutory Committees.
 1. The Nomination and Assessment Committee is shared with Copel's wholly-owned subsidiaries (Holding Co.).
 2. The Internal Audit department reports to the CEO and functionally to the Board of Directors through the Statutory Audit Committee.

Best Practices

After putting in place a series of mechanisms to support its corporate governance structure in 2021, Copel continued to improve its instruments in order to maintain a robust structure that can keep pace with the evolution of market practices.

Copel's new bylaws, approved in 2021, now include significant advances in corporate governance, including:



- A 50% increase in involvement of representatives of non-controlling shareholders in the Board of Directors, from two to three directors.
- Inclusion of an independent external member in the Statutory Audit Committee.
- Creation of three committees to assist the Board of Directors.
- Creation of a statutory provision that guarantees the full pass-through of tariffs approved by Aneel.
- Adherence to Level 2 of Corporate Governance at B3, the highest level in governance practices.
- Tag along of 100% for Common and Preferred shares, in equitable treatment to shareholders.
- Voting rights for preferred shareholders in matters dealing with the transformation, incorporation, spin-off or merger of the Company.
- Creation of a UNITS Program.

In 2021, Copel's senior management revised the bylaws of the statutory bodies and set in motion the operation of the three new advisory committees of the Board of Directors, instruments that enable an expansion in qualified analysis, production of knowledge and discussion of strategic issues to support the decisions of the Board of Directors. Three new statutory advisory committees were created in 2021 and went into operation in 2022 after the approval of their bylaws and the election of their members:

Investment and Innovation Committee (*Comitê de Investimento e Inovação - CII*)

This is a governing body that supports the review and development of strategic guidelines regarding investments, creation of new products and services, and new businesses, in addition to issues such as divestments, participation in auctions, monitoring of project execution, as well as others. Formed by three board members, one of which represents minority shareholders, this Committee is aligned with Copel's commitment to efficiency and to allocate funds properly.

Sustainable Development Committee (*Comitê de Desenvolvimento Sustentável - CDS*) GRI 2-13

With the purpose of assisting the Board of Directors in creating guidelines, policies and main topics related to people management and ESG, this Committee has enabled greater interaction of the board members with the Company's sustainability agenda. In 2022, the governing body was particularly active in defining the commitments related to the ESG agenda, indicators and goals aligned to Copel's Vision 2030, and the analysis and reports related to policies with topics related to its mission.

Minority Shareholders' Committee (*Comitê de Minoritários - CDM*)

This committee is a new feature in the governance structure, and oversees transactions classified as atypical between Copel and the controlling shareholder, to enhance transparency and protect its rights. Formed by the three directors who represent the Company's minority shareholders, it is convened whenever there are transactions of this nature - which did not occur in 2022.



Like the other advisory committees to the Board, it is statutory and had its regulations approved in 2021.

Other advisory committees:

Copel also maintains the Nomination and Assessment Committee, related to the process of selecting administrators, and the Statutory Audit Committee (CAE), an independent body with responsibilities, attributions and competences that are aligned with the laws of Brazil and the United States, including the Sarbanes-Oxley Act (SOx) and best practices. Currently, the Committee consists of three independent members.

The committees are instruments that expand the spaces for qualified analysis, knowledge production, and discussion of strategic topics to support the decisions of the Board of Directors.



See more

To learn more about the full structure of the committees, the résumés of their members and the regulations of the full board entities, go to the Investor Relations page on [Copel's website](#).



Wholly-owned Subsidiaries

Copel's wholly-owned subsidiaries - Copel Distribuição, Copel Geração e Transmissão, Copel Comercialização and Copel Serviços - also have their Boards of Directors focused on guiding and planning each of the businesses. Each is made up of three members elected at the respective General Shareholders' Meeting who have a two-year term of office with the possibility of reelection. These boards are chaired by Copel's CEO, Daniel Slaviero.

Copel DIS and Copel GeT are listed as a publicly-traded company on Category B of B3 of the São Paulo stock exchange. The listing of Copel DIS was the most recent, approved in May 2022 by the Brazilian Securities & Exchange Commission (CVM). This registration is part of the Company's strategic planning and is not

aimed at the issuance of shares. These are measures that underpin transparency and governance practices, as well as the opportunity to diversify funding sources and optimize the debt profile.

Approved at the end of 2021, the Statutory Audit Committee for the subsidiaries of Copel GeT (CAE GeT Controlled Companies) had its members appointed in 2022 and its bylaws approved. The constitution of the CAE GeT Controlled Companies complies with Federal Law 13303/2016 (Law of Responsibility of State-run Companies) and its attributions include, among others, to supervise, review and monitor the activities of directly and indirectly controlled companies. This body is made up of three members from outside the Company.

Management maturity

To assess the maturity and quality level of Copel's corporate governance, the Company participates in indexes and market recognitions that allow comparison with its peers and companies in different sectors: *Índice de Sustentabilidade Empresarial* (ISE B3), *Corporate Sustainability Assessment* (CSA) and Pro-Ethics Company Seal - all voluntary initiatives.

Another instrument for comparison is the Corporate Governance Report, drawn up in accordance with CVM Instruction 80/2022, in which Copel reports its level of adherence to the practices of the Brazilian Corporate Governance Code - Publicly-traded Companies.

[See the bylaws and internal regulations of every governing body.](#)



Development of Governance Body Members

GRI 2-17, PRME 1, 2, 3

Increasingly rapid and disruptive transformations allied with new challenges in the energy sector expand the discussion agenda of the organizations and require senior management to constantly seek improvements and developments.

Copel maintains a development program for directors, fiscal advisors, committee members, and executive officers that goes beyond the legal requirements established in Law 13,303/2016 (Law for State-run Companies).

Restructured in 2022, the program contemplates three pillars: one aimed at legal training, another focused on the training and qualification of these leaders for the performance of their duties and governance dynamics, and a third pillar targeted at strategic topics. In the latter key area, the training contents cover the ESG agenda, innovation and trends, as well as concepts and developments related to the human capital agenda.

The actions were structured with the support of a specialized consulting firm and the training is done in partnership with the Brazilian Corporate Governance Institute (IBGC). Training strategies include online and/or face-to-face training, incentives for extension courses, and professional mentoring hours are also offered, primarily for members of the Board of Directors and the Sustainable Development Committee. Currently, four advisors are attending coaching processes. Two of the Company's directors are taking an extension course, one is earning an MBA in Strategic People Management, and the other an Executive MBA to increase economy-based knowledge.

The discussions and dissemination of information connected with this key area have also been broadened through the Sustainable Development Committee, created in 2021. In 2022, one of the meetings featured a talk by an ESG management expert. Integral health is also on the list of subjects that will be discussed.

The members of the full boards also undergo annual high-level training on topics such as corporate and capital market legislation, information disclosure, internal controls and risk management, Code of Conduct, anti-corruption practices and others. In these cases, participation is mandatory and the training sessions were attended by 100% of the board members, the fiscal council, the advisory committees, and the executive board.

Other initiatives that were also promoted:

The Board of Directors of Copel Holding Company and the subsidiaries attended a training session on Risk Management with a specialized consulting firm.

The cybersecurity program provided two training courses, in EAD format, exclusively for top governance.

The directors of the wholly-owned subsidiaries participated in one of the most prestigious events in the electricity sector, the National Electricity Sector Meeting (ENASE) to boost their knowledge.

Participation of a board member and a director in the First Edition of the Leadership Development Program for Women, aimed at Copel managers and supervisors.



Demystifying governance

In an event attended by board members, Copel held a meeting with employees to give special attention to the role of the G (Governance) in the ESG acronym in the Company's value creation.

Andriei José Beber, president of the Sustainable Development Committee, and Leila Abraham Loria, independent board advisor and former president of IBGC's Board of Directors, drew attention to the importance of governance policies, rites, and concepts, in addition to issues such as compliance, transparency, company valuation, and the role of ESG in market opportunities.

The event was viewed live or through later recordings by roughly 3,000 attendees, including directors, CEOs, managers, and employees in general.

Performance assessment

GRI 2-18, 3-3

As established in Article 81° of the Company's Bylaws and in the Policy for the Annual Performance Assessment of the Statutory Bodies, the statutory bodies of Copel (Holding Company) and its wholly-owned subsidiaries undergo an annual performance assessment process. The demand for this analysis is also provided for in the applicable law and is part of the best corporate governance practices.

The Board of Directors is in charge of the process, with methodological support from the Nomination and Assessment Committee, and comprises collective assessments (from peers and the entity) and self-assessments with independence ensured through the hiring of an external consulting firm.

Revised in 2021, the assessment model has strengthened integration with the development cycle of the top leadership. The feedback culture has also been given a boost through individual meetings with the chairman of the Board of Directors for feedback about the process. One of the initiatives of the assessments that resulted

from the need for improvement was an increase in training hours on the ESG agenda and more proximity to operations - in 2022, the board members visited the hydroelectric power plant of Foz da Areia and Gov. Pedro Viriato Parigot de Souza. In all, 13 improvement actions were defined for the agency.

In addition to the statutory bodies, the members of the Executive Board and the Corporate Governance Office are evaluated - 31 members were evaluated in 2022 (100% of the members of the Board of Directors, Fiscal Council, Advisory Committees, management of the wholly-owned subsidiaries, and the Holding Company's management).

Remuneration GRI 2-19, 2-20

The remuneration of the statutory bodies' members is defined by means of the Statutory Bodies' Remuneration Policy (NPC 0321) approved by the Board of Directors and is executed according to the budget forecast approved by the general shareholders' meeting, taking into consideration the costs and risks involved.



The remuneration policy adopted by the Company is in line with the market with the recommendations of the best corporate governance practices of the Brazilian Corporate Governance Institute (IBGC) and was approved by the Board of Directors at its 221st Meeting held on December 8, 2021.

The Remuneration Policy defines the guidelines, the governance required for remuneration approval and the remuneration components.

Under the terms of its internal rules, the Sustainable Development Committee (CDS) has the prerogative of analyzing, assessing and recommending to Copel's Board of Directors the strategic guidelines or improvements in the compensation practices of the Executive Board, the Councils and the Company's Statutory Committees. The annual global remuneration of the members of the statutory bodies is set by the shareholders in a General Meeting. In addition, Copel periodically contracts market salary surveys to evaluate its remuneration policies for the statutory bodies.

ESG indicators in variable remuneration

To maintain the commitment and engagement of Copel's professionals at all levels of the organization, Copel put in place ESG goals within its meritocracy program - linking up to 30% of the variable remuneration program to goals related to climate and overall sustainability performance, occupational health and safety, and internal controls. In health and safety, the agreed target is zero fatal accidents with employees and service providers, a significant commitment and which has been extended to the value chain. In the case of both safety and internal controls, the goals are reductive - i.e., if there are any material flaws pointed out in the external audit or accidents with fatalities, a penalty is applied in the variable remuneration.

Bonus tied to ESG goals:

- 10% Corporate Sustainability Assessment (CSA) and implementation of the Neutrality Plan
- 10% Internal controls indicator
- 10% Occupational health and safety indicator - zero fatal accidents with company and outsourced workforce

Ethics and Integrity GRI 2-23, PRME 1, 2

Copel's Integrity Program is aligned with the Anti-Corruption Law (12,846/2013) and the Accountability Law for State-Run Companies (13,303/2016). With a scope that encompasses all employees, managers and fiscal council members, the Integrity Program is structured to prevent, detect and remedy potential harmful acts such as conflicts of interest, fraud in bidding processes and payments, among other points.

In order to continue ensuring the application of best practices, the Company is working towards acquiring the ISO 37301 certification process and has revised a series of practices and standards, expanded the interaction between the controls and risk management processes, and put in place other improvements throughout 2022. The certification should be completed by 2023. The ISO 37301 standard on compliance systems was released in 2021 and supports organizations in the development of a positive and effective compliance culture, employee behavior and attitude.

Code of Conduct

Created in 2003, the Code of Conduct was revised and updated in 2022, with the inclusion of new topics and a more user-friendly structure and layout. The document offers guidance about the conduct expected from all those who perform activities on behalf of Copel and its equity holdings and includes references to conduct concerning contemporary matters, such as social networking, protection of personal data, working from home, and cybersecurity. It also offers guidance on issues related to transparency, participation in auctions, health and safety, social and environmental responsibility, and respect for human rights, as well as others. After the document's release, 100% of the company employees will undergo training on the Code of Conduct until the end of 2023.

The review process received the support of a specialized consulting firm and the benchmarking of companies that, like Copel, have the Pro-Ethics seal, awarded by the Office of

the Brazilian Government Accountability Office and by the Ethos Institute for Business and Social Responsibility.

The Code of Conduct establishes parameters of conduct for employees, members of the Board of Directors, Councils and Committees, interns, suppliers, service providers and contractors. In the case of contracting and purchasing, companies formally commit to the Code.



100%
of the employees
will attend Code
of Conduct
training until the
end of 2023





Conflicts of interests GRI 2-15

Copel's guidelines for dealing with conflicts of interest are described in the bylaws and internal regulations of Copel's statutory bodies and the wholly-owned subsidiaries, according to the applicable law, specific policy and the best corporate governance practices of the Brazilian Institute of Corporate Governance (IBGC).

The functions, roles, and responsibilities of governance agents are clearly described. In addition, the Company has a structure of statutory bodies that operate with different levels of responsibility and attributions.

The internal bylaws of the Boards of Copel Holding Company and the wholly-owned subsidiaries detail the procedures for the resolution of potential conflicts of interest, especially in chapter IV(26). When a conflict or particular interest of one of the administrators is identified in a certain matter and needs resolving it is the duty of the administrator to manifest himself in a timely

manner. If the administrator does not speak up, any person present who has knowledge of the fact may do so. Conflicts of interest are recorded in the minutes of the Board of Directors' meetings available on Copel's website, and the director involved must temporarily withdraw from the meeting.

Additionally, the Board of Directors approves and keeps updated the Related-Party Transaction and Conflict of Interest Policy and sets guidelines to ensure the Company's best interest and the principles of independence, competitiveness, compliance, transparency, equity, and commutativity.

Conflicts of interest are recorded in the minutes of the Board of Directors' meetings available on Copel's website.

Integrity training GRI 205-2

The disclosure and dissemination of the Integrity Program and other compliance initiatives are periodically carried out by the Governance, Risk and Compliance Office. Copel maintains the Integrity Portal for the internal audience and the [Sustainability Portal](#) for the external audience.

With the return of in-office working in early 2022, specific training on various related topics was stepped up. One such training was on internal controls for people from key areas involved in these processes and another that focuses on respect for human rights and diversity. A communication tool, dubbed Compliance Alert, is sent to all employees via email - one issue in 2022 was dedicated to questions about discrimination. Training on anti-corruption and harassment practices also underwent revision in 2022 and will be offered in early 2023 to company employees. As a result of the revision of the Code of Conduct, everyone will also undergo training on the document's topics by 2023.



Corporate Governance | Ethics and Integrity

Annually, the members of the senior management and governing bodies undergo training on economic, social, and environmental topics, including Internal Control and Risk Management; Integrity; Anti-corruption; Communication with the Market and Transparency and Accountability; the role of the Board of Directors and Fiscal Council and its compliance with the Anti-corruption Law (Law 12,846/2013).

Integrity policies and practices are also topics discussed with suppliers. Copel held an online meeting in 2022 to talk about anti-corruption measures, code of conduct, and other actions. In addition, it will provide training for this audience on the updated code of conduct in 2023.

NUMBER AND PERCENTAGE OF GOVERNING BODY MEMBERS WHO RECEIVED TRAINING ON ANTI-CORRUPTION GRI 205-2

Total members of the governing bodies	Members of governing bodies who received training	Percentage of governing body members who received training (%)
45	45	100%

NUMBER AND PERCENTAGE OF EMPLOYEES INFORMED OF ANTI-CORRUPTION POLICIES AND PROCEDURES GRI 205-2

Job category	Employee Total	Total employees informed	Percentage of employees who were informed
Operational	18	18	100%
Secondary-level technical professional	1,450	1,450	100%
Secondary-level professional	3,271	3,271	100%
University-level professional	1,136	1,136	100%
Intern	287	287	100%

NUMBER AND PERCENTAGE OF EMPLOYEES WHO RECEIVED TRAINING ON ANTI-CORRUPTION GRI 205-2

Job category	Total employees by job category	Employees who received training	Percentage of employees who received training
Operational	18	18	100%
Secondary-level technical professional	1,450	1,450	100%
Secondary-level professional	3,271	2,984	91%
University-level professional	1,136	1,083	95%
Intern	287	94	33%

BUSINESS PARTNERS INFORMED ABOUT ANTI-CORRUPTION POLICIES AND PROCEDURES

Total business partners	Business partners informed	Percentage of business partners informed
3,410	2,245	66%



Anticorruption practices

GRI 205-1, 205-3

In addition to the Integrity Program and the Code of Conduct, the most relevant guiding instruments for preventing and fighting corruption within the Company, Copel also follows corporate policies, periodically reviewed and in line with the US Foreign Corrupt Practices Act (FCPA) of 1977 and the Sarbanes-Oxley Act, 2002, and the Committee of Sponsoring Organizations of the Treadway Commission (Coso).

Copel's operational processes are submitted annually to a risk assessment to detect errors or fraud and are tested by Internal and External Auditors.

Considering Copel (Holding Company) and its wholly-owned subsidiaries, 100% of Copel's operations were submitted to a risk assessment related to corruption in 2022. No corruption-related lawsuits filed against the organization or its employees were identified.

Copel is Pró-Ética (Pro-Ethical) Company

The Pró-Ética Company seal recognizes integrity initiatives voluntarily adopted by companies with measures aimed at preventing, detecting and remediating acts of corruption and fraud. In the 2020/2021 edition, 327 companies requested access to the program and, after the assessment process, 67 companies were approved and recognized - among them Copel. The initiative is the result of a partnership between the Brazilian Government Accountability Office (CGU) and the Ethos Institute for Business and Social Responsibility.

100% of the Company's operations are submitted to risk assessments related to corruption.

Reporting channels GRI GRI 2-26, 2-25

Copel encourages its stakeholders to record any situation that signals a violation of ethical principles, policies, rules, laws and regulations or other improper conduct and keep specific records for these purposes, with guaranteed confidentiality.

The Whistleblowing Channel is managed by the Governance, Risk and Compliance Office and it receives reports about: harassment and discrimination, corruption, destruction or damage to company assets, misconduct, favoritism, fraud or theft of goods and/or money, irregularities in financial statements and/or management reports, environment, noncompliance with internal policies and/or procedures, misuse of Copel's resources, leaked or misused information, infringement of laws, violations of Law 12,846/2013 (Anti-Corruption Law) and other unlawful actions.

The channel received 330 reports in 2022, less than the previous year, when the channel was contacted 351 times. Forty-two of the total complaints received were assessed and considered unfounded by the Ethics Committee. The Ethics Guidance Committee, made up of three directors, evaluates

Corporate Governance | Ethics and Integrity

the reports making sure to keep the ethical and moral standing of Copel and its wholly-owned subsidiaries at the highest level. One of the topics with the highest number of complaints in the Whistleblowing Channel were: conduct; non-compliance with internal policies and procedures.

In order to keep moving forward and ensure the adoption of best practices, Copel plans to conduct an effectiveness test of the internal controls associated with the Whistleblowing Channel in 2023. The channel is corporate, unified for the Copel Holding Company and its wholly-owned subsidiaries, suppliers, clients and consumers, as well as others.

For reports of fraud and theft on the power grid, Copel has a specific contact available. Cases of harassment are reviewed by the Committee for the Analysis of Bullying Claims (Cadam).

The Ombudsman's Office is another service and is ISO9001 certified and recognized as one of the best ombudsman's offices in the sector by the Brazilian Electricity Regulatory Agency (Aneel). There are also other communication channels for consumers and clients to contact about their services (*see more on page 109*).



Whistleblowing Channel - Nature of the report	Amount
Other U.S. Conduct	76
No-compliance with internal policies and procedures	65
Query/doubt	60
Labor law violation	28
Favoring suppliers or consumers	21
Misuse of company of money	14
Fraud or theft of money	14
Environment	9
Sexual harassment	9
Bullying	6
Discrimination (race, color, sex, religion, etc.)	5
Violation of laws - other	5
Physical assault	4
Conflicts of interest	3
Destruction or damage of company property	3
Information leaks or misuse	2
Customer data breach or loss	2
Corruption	2
Theft, robbery or misappropriation of goods	1
Total	330

Complaints handled by Ethics Committee	Amount
Denied	78
Out of scope	69
Not enough data	44
Granted	37
SOx Testing	9
Questions answered	9
Partially founded	25
In analysis	8
Under review	43
Total	330



Risk Management GRI 2-16

The Integrated Management Policy for Corporate Risk is based on the Company's values, on its Code of Conduct and on the guidelines issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The review process is annual, when it is also approved by the Board of Directors, led by the Statutory Audit Committee and conducted by the Risk and Compliance Office.

The policy's rules apply to the corporate areas, the wholly-owned subsidiaries and the controlled companies, and are recommended for the jointly controlled companies, the associated companies and other equity interests of Copel. The senior management also undergoes annual training regarding the risk policy, while employees are trained on the risk management methodology.

Some of the main risks faced by Copel and its wholly-owned subsidiaries are described in this report, as well as the forms of mitigation adopted. Details about the management processes and the main risks to which

the Company is exposed are described in [20-F Form](#) and on Company's [website](#).

The strategic risks associated with its operations are reviewed during the Strategic Planning setup, a job carried out jointly by the senior management of Copel (Holding Company) and its subsidiaries through the identification and analysis of risk, the definition of a control and contingency plan and the establishment of oversight actions. In addition to the strategic ones, the management structure classifies the main risks into Financial, Operational, and Compliance.

In 2022, the company has intensified its assessment of climate risks. Previously rated as a socio-environmental risk, climate change-related threats and their physical and transitional challenges have been segmented and further detailed in the management framework (*see more on [page 94](#)*).

Emerging risks, including the country's political scenario and potential regulatory changes associated with the transfor-

mation of the energy sector, as well as the Company's transition scenario for a dispersed-capital corporation (*see more on [page 49](#)*) are also part of the periodic analyses in the risk map.

According to the risk policy, periodic reports of the risk portfolio and respective mitigation plans are made to Senior Management (quarterly for analysis by the Audit Committee and Fiscal Council and semi-annually for analysis by the Board of Directors). Accordingly, Copel's strategic risk management process has been consistently improved in accordance with the best market practices and in compliance with the laws in effect.

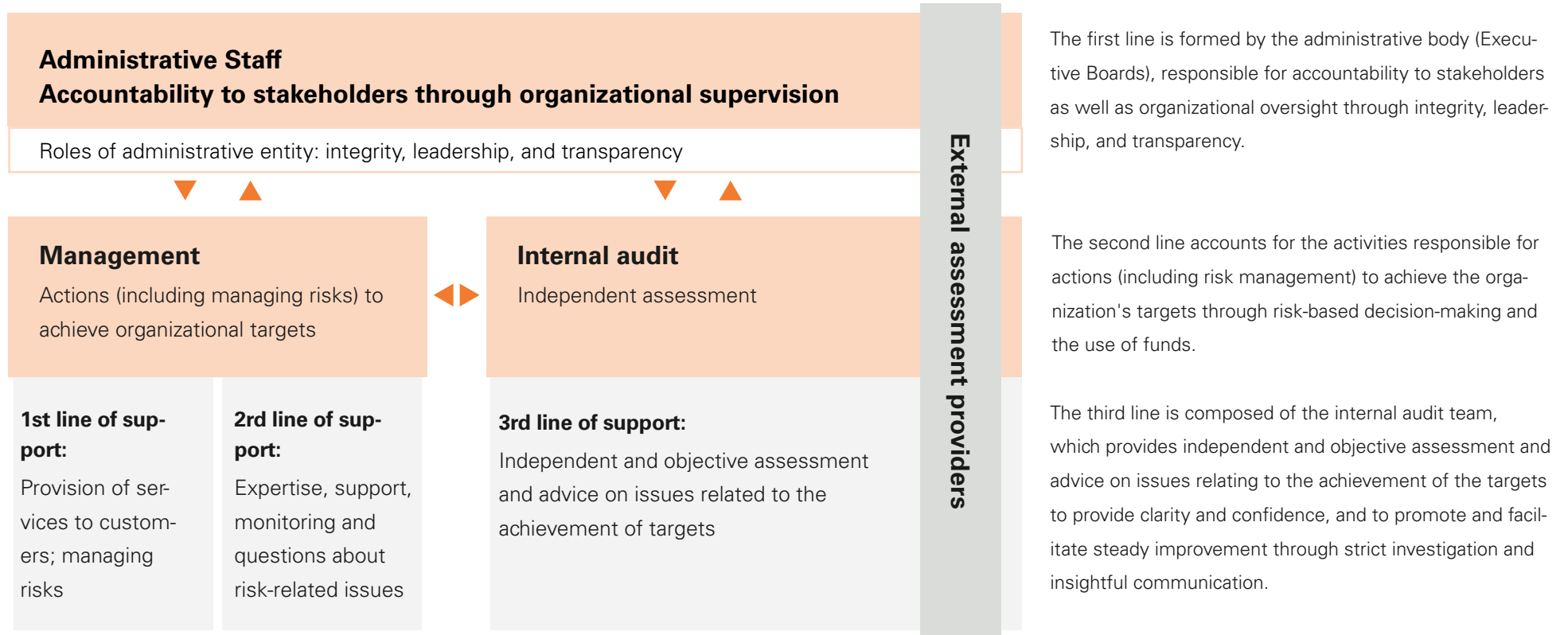
To better guide leadership and support decision-making, the periodic risk report has an ESG profile, in which the main environmental, social, and governance aspects are detailed, including a heatmap supported by the boards' analysis and the respective impact levels.



It is worth pointing out that risk management is integrated throughout the Company, including subsidiaries and controlled companies, and follows the three lines of

defense, with roles and responsibilities assigned at the different management levels of the Company.

Periodic reports of the risk portfolio and respective mitigation plans are made to Senior Management (quarterly).



KEY

▲ Accountability

▼ Delegate, guide, resources, provisions

◄► Alignment, communication, coordination, collaboration



Risk Management Process GRI 2-16

Identifying and responding proactively to events that have the potential to affect the achievement of strategy and business targets is critical to the sustainability of any

company. In Copel's corporate risk management, this procedure goes through several stages, from its identification, to its assess-

ment, analysis and review, and also the communication and disclosure of the risks and their respective mitigation plans.



Theoretical foundation and culture promotion

- ✓ COSO
- ✓ Law 13,303/2016
- ✓ Copel's Articles of Incorporation
- ✓ By-laws of the Boards

Tools

- › NPC 0104 – Integrated Corporate Risk Management Policy
- › Internal Risk Management Standard
- › Risk Management Methodology
- › Training and skill-building



Risk identification and treatment

- ✓ Strategic planning
- ✓ New Business and Divestments
- ✓ Special projects
- ✓ Value chain processes
- ✓ Change in policies and standards
- ✓ SOD (Segregation of Duties) Matrix

Tools

- › Strategic risks
- › Process Risk Map
- › New Business and Divestment Risks Report
- › Standards Risk Report
- › Action Plans



Monitoring

- ✓ Periodic context assessment
- ✓ Regular meetings with risk owners
- ✓ Assessment of KRIs and KPIs
- ✓ SOD risk monitoring

Tools

- › Strategic Risk Revision
- › Project Performance Assessment
- › Business Performance Assessment
- › Monitoring of Action Plans
- › Three-Line Model (IIA)



Periodic reporting

- ✓ Board, Committee, and Advisory Meetings
- ✓ Shareholders and markets TCE-PR
- ✓ Risk owners

Tools

- Strategic Risk Report
- › 20-F Form Reference Form
- › Integrated Report
- TCE-PR Orders
- Monthly SOD Report
- Strategic Planning



The risk identification is carried out at different times, such as when creating the strategic plan, by the business areas at any time, when reviewing internal processes, on demand by the new business area or in specific situations that arise from top management and supervisory bodies (Board of Directors, Statutory Audit Committee, and Fiscal Council). One of the ways to identify risk is by observing the achievement of targets and, based on this observation, identify what might affect this achievement. The risks identified and included in a risk portfolio are assessed to understand the severity of each risk in the achievement of the strategy and the business objectives. To understand and analyze risk, it is important to understand the structure of the risk by identifying its causes and effects.

Copel defines in the Integrated Risk Management Policy, among others, the following risk categories:

- **Socioenvironmental** – risks related to the impact of Copel's operations on society, the environment, health crises, and may generate regulatory and financial liabilities

and affect the Company's image and reputation. This risk is also related to the impact of the environment, in terms of physical, biodiversity and social issues on Copel's operations.

- **Climate** – risks related to current and future climate changes that may affect Company operations, such as the effects of severe weather, dam ruptures, shortage of natural resources, etc.:

- **Physical climate risks** – the possibility of losses caused by events associated with frequent and severe weather (acute) or long-term environmental changes (chronic), which are linked to changes in weather patterns.
- **Transition climate risks** - the possibility of losses caused by events associated with the process of transition to a low-carbon economy, in which the emission of greenhouse gases is reduced or offset and the natural mechanisms for capturing these gases is preserved.

The associated treatment risks and actions must be analyzed and reviewed by the risk manager, on a timely basis, according to their risk category and exposure level. In the reviews, the effectiveness of the risk responses is assessed and possible incidents are reported for evaluation and decision-making to decide if they need to be reported to the supervisory bodies.

Communication is a large part of Copel's governance activities and the company strives to improve the quality of its dialogue with stakeholders and to support top management and the supervisory bodies (Board of Directors, Statutory Audit Committee and Fiscal Council) in their duties. Copel prepares a Corporate Risk Portfolio segmented by subsidiary with the purpose of presenting a consolidated view of the risks. The Portfolio is presented quarterly to the Statutory Audit Committee, semi-annually to the Board of Directors, and upon request to the Fiscal Council.



SDG risks

The major corporate risks are identified with basis on the strategic benchmarks and the internal and external environments included in the strategic planning cycle. The table below shows a few tracked ESG risks that are monitored and managed periodically by the Risk, Compliance and Governance Board and by the Statutory Audit Committee.

Risks	Description	Impact model	Mitigation actions model
<p>Dam safety</p> <p>Directly related policies:</p>	<p>Dams are fundamental components of hydroelectric power plants, responsible for 80% of Copel's energy generation.</p>	<p>Economic, social, regulatory, and environmental damage.</p> <p>Potential loss of life in nearby communities.</p> <p>Material adverse effect on the Company's image, business and operating results and financial condition.</p>	<p>Preventive action, according to criteria and procedures aligned with the best engineering practices and the law in force.</p> <p>The hydropower plants have a Dam Safety Plan (<i>Plano de Segurança de Barragem - PSB</i>) and an Emergency Action Plan (<i>Plano de Ação de Emergência - PAE</i>).</p>
<p>Hydrological risk</p> <p>Directly related policies:</p>	<p>Uncertainties about the amount of rainfall and, consequently, the effluent flow to the reservoirs, have impacts not only on hydroelectric generation capacity but also on the energy prices in the entire system.</p>	<p>Financial losses.</p> <p>Adverse and materially-affected income from operations.</p>	<p>Reservoir Oversight System (<i>Sistema de Monitoramento de Reservatórios - SMR</i>), which tracks in real-time the amount of water available for hydropower generation.</p>
<p>Cybersecurity</p> <p>Directly related policies:</p>	<p>Data center security breaches due to cyber attacks can disrupt operations and/or cause leaks of confidential corporate information of that of its customers or other stakeholders.</p>	<p>Financial losses, loss of productivity of the teams.</p> <p>Legal exposures.</p> <p>Reputational damage.</p>	<p>Copel adopts the National Institute of Standards and Technology Cybersecurity Framework (NIST-CSF) as a benchmark for cybersecurity actions.</p>

Key:



Financial Capital



Infrastructure capital



Intellectual Capital



Social and Relationship Capital



Natural Capital



Human Capital

Dam safety EU21

The dams are important structures to the company because they concentrate most of the energy generation capacity. The structures built for hydroelectric power plant dams have well-established construction standards and safety criteria and that safety verification is carried out at all stages – design, construction and operation. However, as in any engineering project of this scale, they pose an intrinsic risk of failure linked to different internal and external factors.

In order to mitigate this risk and ensure the integrity of the dams under its responsibility, Copel acts preventively by using criteria and procedures that are in alignment with the best engineering practices and current laws. The hydroelectric power plants have a Dam Safety Plan (*Plano de Segurança de Barragem* - PSB) and an Emergency Action Plan (*Plano de Ação de Emergência* - PAE), in compliance with legal parameters. The company also maintains an area dedicated to dam safety engineering, whose employees are responsible for the execution of maintenance procedures and the ongoing monitoring of these structures.

Operation and Maintenance areas control the indicator "Number of PAE drills in Plants", established in the Management Contract and whose targets have been fully met in the last three years. To assess and validate the procedures provided for in these plans, two internal tabletop exercises were carried out in 2021.

The Emergency Action Plans (PAE) are disclosed and delivered for representatives of city governments and Civil Defense coordinators of the municipalities potentially affected in the event of a dam failure, as well as for state Civil Defense coordinators, in addition to being subject to inspection by the Brazilian Electricity Regulatory Agency (Aneel).

The goals set out in the Management Contract between Copel and its wholly-owned subsidiaries have been 100% achieved in the past three years.

Copel's actions are anchored on the National Policy for Dam Safety (PNSB) and on Resolution 696 issued by Aneel, which establishes standards, regulations, monitoring procedures, among other guidelines, for dams that require water accumulation for any use, the final or temporary disposal of waste, and the storage of industrial waste.



Hydrological risk

SASB-IF-EU-140a.3 GRI 303-1, 303-2

About 80% of Copel's generation is hydraulic, most of which is derived from the Iguaçu River basin located in the states of Paraná and Santa Catarina in southern Brazil. As such, it is easy to see how strategic it is for Copel to properly manage the resource and the risks posed by changes in rainfall patterns.

Hydroelectric power generation is characterized by the non-consumptive use of water in the process, with the water being returned immediately downstream in the same quantity and with the same quality. Copel's developments are not located in permanent water stress zones but from 2020 to 2021 the region faced one of the most severe droughts according to the Water Resources Management Unit. The greatest water management risks are associated with extreme hydrological events (floods and water shortage situations).

The Iguaçu river regained its volume in 2022, however, the actions created in 2021 to deal with the situation were kept in place for preventive purposes. One of which is the

Managing Group for the Revitalization of the Iguaçu River (GGRI), which Copel has joined as a guest and collaborates with by offering data from its hydrological monitoring network for the purpose of decision-making.

Copel maintains a Reservoir Oversight System (*Sistema de Monitoramento de Reservatórios - SMR*), which tracks in real-time the amount of water available for hydroelectric generation. It also maintains a hydrological monitoring network in the watersheds by

collecting data on river and reservoir water levels and rainfall data. This information helps and guides the operation of the plants. The data is available on Copel's Hydrological Monitoring website and on the Brazilian Water and Basic Sanitation Agency (ANA) website.

Additionally, the hydrological situation, the meteorological conditions, and the results of meteorological models that simulate future conditions of water availability are monitored in real time.





The reservoir operation rules are also registered with the Brazilian Electricity Operator (*Operador Nacional do Sistema - ONS*), the entity responsible for managing the operation of the National Grid (*Sistema Interligado Nacional - SIN*).

Copel analyzes cyclical water availability scenarios (historical variations) for energy planning purposes, revenue estimates (generation from the Energy Reallocation Mechanism, short-term prices) and associated risks.

In the enterprise risk management methodology, the possibility of changes in local regulations is taken into consideration. As such, Copel actively participates in discussion forums, such as the Crisis Rooms of the Southern Region and Paranapanema and, especially, in the National and State Councils for Water Resources and the River Basin Committees, where regional matters concerning water resources are discussed. This ensures that issues related to changes in water availability are always in discussion and being duly tracked and included by Copel.

The impact on Copel's pricing structure and business are minimized because the

National Grid relies on hydroelectric, wind, thermal and solar power plants as well as interconnected transmission lines to meet the energy demand in all Brazilian regions.

The risk analyses do not show that there could be any significant change in the short term that could impact the Company. Despite this, Copel takes part in discussions within the scope of the Technical Water Resource and Operation Groups of the Brazilian Electricity Generation Company Association (ABRAGE).

Copel also has an internal standard that sets rules and responsibilities to regulate multi-disciplinary activities (environmental, assets, social, etc.) in the geographic area that houses the reservoirs, waters and areas surrounding the enterprise. Management is the responsibility of the Institutional Reservoir Management Committee, together with the local committees of each production unit.

The hydraulic potential of the power plants maintained and operated by Copel is also preceded by a Grant for the Right to Use Water Resources, an instrument of the Brazilian Water Resources Policy (Federal Law 9433/97)

that aims to ensure the quantitative and qualitative control of water use and the effective exercise of the right to access water. The projects are also subject to environmental licensing for their effective operation.

Since the project uses surface water, despite not being for consumption, the hydroelectric power generation is subject to risks related to changes in average monthly rainfall, which may increase the average inflow of the power plants operated by Copel. This type of phenomenon may cause structural changes and require the structure design and possible operation and maintenance costs to be reviewed, and, in regard to environmental impacts such as diffuse pollution, it may lead to the silting of the reservoirs and possible impacts on the surrounding communities.



Tracks the flow of water available for hydroelectric power generation in **real-time**

On the other hand, the scarcity of rainfall may compromise the storage of the reservoirs of Copel's hydroelectric power plants, causing a temporary drop in the company's generation capacity. Considering the priorities for the use of water resources established in Federal Law 9,433/1997, in the event of water shortage, priority is given to the supply of water for human consumption and animal feeding.

Copel also periodically monitors the water quality in the region where its reservoirs are located (upstream and downstream), analyzing physical, chemical and biological parameters. It also periodically inspects its reservoirs and takes measures to remedy irregularities such as constructions in the concession area, the discharge of effluents, use and occupation of Permanent Protection Areas (PPA), illegal hunting and fishing, among other actions. To solve conflicts, the National Water Resources Law - Law 9433/97, defines that they must be treated at first at the local level by the River Basin Committees, in which Copel is a member.

In the project and enterprise scaling stage, the physical characteristics of the installations and equipment are established, as well as the limits for the use of water resources (engulfment capacity of the generating units, productivity, spillage capacity). The goal is to optimize power generation to avoid wasting water resources (unnecessary spillage).

The availability targets for the generating units are intensity-based and reviewed annually.

When sizing the spillway structures, energy dissipation conditions are defined to minimize impacts on the downstream region of the undertakings. In addition, periodic hydrosedimentological monitoring is conducted in the region of coverage and, occasionally, bathymetric surveys in reservoirs.

The investment in monitoring and forecasting actions averages BRL 6.5 million a year.



See more

about water management and impacts in [Natural capital](#).



Cybersecurity

Pointed out as one of the main contemporary risks in the business environment – and classified in the same way by Copel, cybersecurity is treated systemically. A cyber attack to Copel could lead to serious consequences affecting the main information technology systems with direct reflection on the business.

To protect the integrity of information and reestablish the environment when necessary, the Company follows the strictest security protocols, adopting the National Institute of Standards and Technology Cybersecurity Framework (NIST - CSF) as a benchmark for the planning and deployment of actions. The maturity of the technology environment is checked annually by external consultants to measure the evolution and to create complementary actions that can be incorporated to the Continuous Information Security Program.

With emphasis on the use of advanced controls and tools, external offensive security tests (such as penetration tests), the combined actions of its own professional team with outsourced managed services, and recurrent reports about the matter to the board

of directors and boards, the Company's action is structured into five functions (NIST model): Identify, Protect, Detect, Respond, and Recover, as detailed below:

- **Identify** – asset management and critical asset identification, risk and business impact management, and vulnerability management.
- **Protect** – control of access (MFA) and identities, training and awareness program in cybersecurity involving employees, managers, directors and board members, increase of protection technologies (based also on advanced technologies for recognition of behavior patterns) and reviews of the parameterization of the technologies that are already in place at the complex and continuous review of processes and procedures.
- **Detect** – specialized security operation center (SOC) and external threat tracking services.
- **Respond** - incident response plan and communication plan with deployment of assessment routines and effectiveness testing.

- **Recover** – new backup policies with recovery tests, hiring an external consulting firm, and a business continuity plan.

No relevant security breaches were detected in Copel's information technology system in 2022. Likewise, there is no record of any leaks or loss of data for the Company. Lastly, no fines or penalties were enforced in this regard. **GRI 418-1, SASB-IF-EU-550a.1**

Copel has an Information and Cybersecurity Policy that establishes the strategic guidelines that must be abided by and applied in order to safeguard corporate information and other information assets through appropriate risk management and support for company business.

Copel also has a Data Protection and Privacy Policy that sets down guidelines for the acquisition, use and disclosure of information collected on Copel's websites. The document is aligned with the Brazilian General Personal Data Protection Law (LGPD).



Emerging risks

Copel seeks to identify among its main corporate risks the possible emerging risks within a medium and long-term outlook that may influence the Company's business. The following emerging risks were discussed in the last corporate risk portfolio review:

Key:



Financial Capital



Infrastructure capital



Intellectual Capital



Social and Relationship Capital



Natural Capital



Human Capital

Emerging risks	Description	Impact model	Mitigation actions model
<p>Climate change</p> <p>Directly affected capitals:</p>	<p>Our operations are subject to uncertainties related to climate factors, notably severe weather events that may cause damage to infrastructure making it unusable. This reduces revenue and raises the cost of reimbursement to consumers due to power cuts in addition to the cost repair the damaged networks.</p>	<p>Financial loss due to system downtime; reestablishing infrastructure in the event of weather disasters; loss of credibility in the relationships with customers and shareholders.</p>	<p>Real-time monitoring of weather conditions; Contingency Plan regarding adverse weather events that includes actions and measures that can ensure readiness and response capacity in the event of severe weather events.</p>
<p>Cybersecurity</p> <p>Directly affected capitals:</p>	<p>Security breaches at our data center due to cyber attacks could result in disruption to our operations or leakage of confidential information of the Company, our customers, third parties or stakeholders, which could lead to financial loss, legal exposure and may harm our reputation..</p>	<p>Financial loss, lower staff productivity, legal exposure, harm to our reputation, and temporary unavailability of essential services or systems.</p>	<p>IT Cybersecurity Program that presents risk mitigation actions in the IT area. Ongoing Cybersecurity Program with a plan deployed to increase the robustness of cybersecurity in technology operation (TO). Copel adopts the National Institute of Standards and Technology Cybersecurity Framework (NIST - CSF) as a model for cybersecurity actions. .</p>
<p>Digital Transformation</p> <p>Directly affected capitals:</p>	<p>This scenario is linked to the change of control at Copel. The State of Paraná will sell part of its equity interest in Copel's capital stock and cease to be the controlling shareholder, as per the terms of the secondary public offering of Copel's common shares or units.</p>	<p>Lost productivity; rework; increased effort to perform tasks; increased technology-related costs; low digital customer engagement; harm to company reputation/image.</p>	<p>Investments in research and development can help mitigate the risks related to transformations in the energy sector and can create new opportunities. The Company has a budget for IT infrastructure improvements that is tracked monthly. In addition, the online customer service now accounts for 77.4% of the total amount of tickets.</p>



Action Plan for Socio-environmental Emergencies GRI 2-25

As an instrument to contain and mitigate risks of impact on the environment and the community, Copel GeT has put in place the Action Plan for Socio-Environmental Emergencies (PAMA). This plan defines the actions of the environmental areas in planning and responding to emergencies involving oil spills, chemical products, floods, traffic accidents, and others, that affect the projects and areas under the Company's responsibility and that may directly affect people, the environment and/or the operation.

As a part of Copel GeT's contingency plans, PAMA is structured on planning and preparation actions, and post-emergency procedures. All of Copel GeT's ventures, including hydropower plants, substations, power lines and wind farms, are covered by the Plan, with the definition of the flowchart and organization chart, simulations and periodic training, as well as other points.

PAMA aims to meet the requirements of stakeholders through the availability of materials for first emergency response at the largest plants and periodically conducts simulations, maintains emergency response contracts, conducts training, and responds to occurrences, such as those resulting from excessive rainfall and hydrological alerts at the Chopim Small Hydroelectric Plant (PCH Chopim) and at the Governador Pedro Viriato Parigot de Souza Hydroelectric Plant (UHE GPS), in 2022.

Environmental emergency drills were planned and carried out in 2022 at SHP Pitangui at the transmission substation, at the Governador Bento Munhoz da Rocha Hydroelectric Power Plant (UHE GBM), training sessions with the operation team on environmental response and IMO (International Maritime Organization) standards for oil spill response in soil and water.

Also noteworthy is the new salvage contract with Ambipar Response S.A. in 2022 to serve all Copel GeT's undertakings nationwide, in addition to planning and carrying out IMO standard training to annually train 80 workers as First Responders and On Scene Commander activities.

In both drills and services, all opportunities for improvement are mapped and action plans are drawn up so that actions can be implemented, keeping PAMA and Copel GeT in a process of ongoing improvement for socio-environmental emergency services.

In regard to post-emergency measures, registration and assessment actions are defined, such as a final report, a critical analysis meeting, the definition of improvement opportunities, and the recording of occurrence in internal systems.



Regulatory Environment

The year of 2022 was marked by a debate about improvements in the electrical power sector, the recovery of water levels after Brazil went through one of the worst droughts in over 91 years, and the absence of generation flow margin in the National Grid (*Sistema Interligado Nacional - SIN*), based on the significant number of requests for the issue of permits for wind and solar projects.

In regard to the progress of legislative proposals in the National Congress, the suggestions to improve the regulatory and legal framework of the electricity sector, Bills of Law - PL 414/2021 and 1,917/2015 did not move forward in 2022.

Check out some of the main regulatory issues that were under discussion in 2022:

Regulatory Ordinance 050/2022: establishes that as of January 2024, within the scope of the Implementation Committee for the Modernization of the Electricity Sector, Group A consumers may exercise the option to purchase electricity from any concession operator, license holder or authorized power supplier of the SIN. This is an important step towards opening up the free market.

Public Inquiry draft of Ordinance

137/2022: of the Mining & Energy Ministry regarding the promotion of the opening of the free electricity market to consumers connected at low voltage.

Public Inquiry 146: made available three reports regarding the separation of surplus and energy, presenting methodological proposals regarding the quantification of requirements and supply related to production and capacity surplus.

Draft of Ordinance with guidelines and systematics for contracting the generation flow margin: includes the participation of solar, wind, biomass generation or qualified cogeneration projects, which requested the granting of authorization without presenting access information, and for other projects that do not have a contract for the use of the transmission and distribution system. The process aims to meet the need to increase the capacity of the transmission system to distribute the electricity generated by these projects over the next years. The significant rise in authorization permits was motivated by the end of the period that entitled ventures with subsidized sources to a tariff discount for the use of the transmission systems (TUST) and distribution systems (TUSD).



This law also established a deadline for the Federal Government to define guidelines for the implementation of mechanisms to consider environmental benefits, in line with mechanisms to ensure security of supply and competitiveness. The Mining & Energy Ministry, in turn, provided the Report "Proposed Guidelines for the Consideration of Environmental Benefits of the Electricity Sector" to suggest proposals and parameters to integrate the environmental benefits of the sector.

PL 1,280/2022: approved by National Congress, regulated the return to consumers of overpaid tax amounts by public service providers of electricity distribution, converted into Federal Law 14385/2022. The aforementioned law addressed the solution to the liability related to the overpayment of PIS and Cofins tax by distributors, determining that the refund should occur through the tariff review processes. Congress also approved the limitation of ICMS collection on fuel, electricity, communications, and public transportation, through Complementary Bill

of Law 18/2022, turned into Complementary Law 194/2022, which considered essential and indispensable goods and services.

Generation

In 2022, the Mining & Energy Ministry carried out the second review for the guaranteed output of the hydroelectric plants centrally dispatched in the National Grid, in accordance with Decree 2,655/1998. This process covered 120 of the 150 hydropower plants in the reference configuration and culminated in the publication of Ordinance 709/2022, which reduced about 3.5% of the local guaranteed output in relation to the first review process.

Transmission

On 14/Jul/2022, Aneel, through Resolution 3067 of 12/Jul/2022, established the adjustment of the Permitted Annual Revenue (PAR) for the electricity transmission assets for the 2022-2023 cycle, effective from 01/Jul/2022

to 30/Jun/2023. The PAR of the transmission assets of Copel GeT for the 2022/2023 cycle is now BRL 849.2 million, of which BRL 824.2 million corresponds to the PAR of the assets in operation. Considering the approved PAR for the Special Purpose Companies in which Copel GeT has equity, the total consolidated value of the assets is now BRL 1,415.2 million, of which BRL 1,387.9 million corresponds to the assets in operation.

As established in Ordinance 33 of 17/Dec/2021, two Transmission Auctions were held in 2022. Aneel's Transmission Auction no. 001/2022 took place on 30/Jun/2022 and all 13 lots were auctioned off, with a discount of nearly 60% in one of the lots, an average discount of 46.15%, and expected investments of BRL 15.3 billion in transmission. Aneel's Transmission Auction no. 002/2022 took place on 16/Dec/2022, with 6 lots on offer. All were auctioned off and in most lots the discount stood close to 50%. The average discount was 38.19% and the projected investment is BRL 3.5 billion in transmission.

Energy Trading

According to the schedule established by Ordinance 514/2018, the year of 2023 began with a drop in the consumer load limit for contracting electricity from any supplier from 1.0 MW to 500 kW to promote the expansion of the Free Market.

Distribution

Federal Decree 10,939/2022: regulates measures aimed at facing the financial impacts resulting from the 2021 water shortage situation. Authorization was given to contract a loan for the creation and management of the Water Shortage Account by the CCEE, aimed at totally or partially covering the costs of the balance of the centralizing account for the funds of the tariff bands for the period of April 2022 and the import of energy referring to July and August 2021. Copel DIS received BRL 145.8 million, fully reverted as a negative financial component, reducing the consumer tariff, in the tariff process of 24/Jun/2022. The payment will be diluted in the consumers' tariffs, in 54 installments, starting in the 2023 tariff adjustment process.

The tariff adjustment of Copel DIS on 24/Jun/2022 considered the solution introduced by Law 14,385/2022, which regulates the exclusion of the ICMS goods and services tax from the calculation basis of PIS and Cofins contributions amounting to BRL 1.6 billion, which reduced the tariff for the period from July 2022 to June 2023.

Another factor affecting the tariff was a reduction in Paraná from 29% (31/Dec/2021) to 18% (31/Dec/2022), as of June 2022 arising from the approval of the limitation on the collection of ICMS on fuel, electricity, communications, and public transport, through Supplementary Law 194/2022.



See more

The details of the regulatory environment are presented in [Copel's 2022 Management Report](#)

Participation in associations **GRI 2-28**

Copel is involved in the main organizations linked to the sectors of generation, transmission, distribution, and trade of electricity to discuss trends and challenges of the sector, as well as take part in decisions about regulations and bills associated with the energy sector.

This representation makes the company an active participant that can exercise its political influence to uphold the interests of its stakeholders and of society in general.

Its involvement in the energy sector associations also occurs at the subsidiary level through representatives who have expertise in their respective areas.

See here the energy sector associations that Copel Geração e Transmissão and Copel Distribuição participate in and at what level in the [Social-Environmental and Economic-Financial Reports](#) of these subsidiaries.

Energy sector associations GRI 2-28	Annual value of contributions (in BRL)
Brazilian Association of Electrical Power Companies (ABCDE)	BRL 906,662.25
Brazilian Wind Power Association (ABEEÓLICA)	BRL 302,269.85
Brazilian Association of Electrical Power Distributors (ABRADEE)	BRL 232,292.92
Brazilian Association of Electrical Power Generation Companies (ABRAGE)	BRL 223,950.45
Brazilian Association of Clean Energy Generation (ABRACEL)	BRL 156,599.08
Brazilian Association of Electrical Power Transmission Companies (ABRATE)	BRL 129,500.00
Brazilian Association of Independent Electricity Producers (APINE)	BRL 51,765.27
Brazilian Mineral Coal Association	BRL 49,749.00
Brazilian Maintenance and Asset Management Association (ABRAMAN)	BRL 32,410.00
Brazilian Photovoltaic Solar Power Association (ABSOLAR)	No contribution in 2022



5

CAPITAL PERFORMANCE



Natural Capital

SDG:



Capitals:



Copel's commitment to sustainable development is intrinsically related to its daily activities. So much so that the company has established corporate guidelines that have been drawn up and disseminated through policies and rules that cover all its areas, including its wholly-owned subsidiaries and which encompass actions in favor of the environment.

The Ecoefficiency Program systematizes its actions to fight energy, water, fuel, and paper waste, in addition to reducing waste.

Therefore, the management of natural resources is essential for the sustainability of Copel's business, whose main guidelines are:

- Promote ecoefficiency in all processes, aiming at reducing consumption and encouraging the sustainable use of natural resources and ecosystem services.
- Mitigate the negative impacts and enhance the positive ones in its activities and business.
- Make a difference minimizing climate change impacts within the operation and when increasing assets.

The next pages will show the main actions adopted in the areas of energy, climate change, biodiversity, water, and waste.



See more

All the details regarding environmental management can be found at Copel's [Sustainability Portal](#)



Ecoefficiency

Energy and fuel consumption

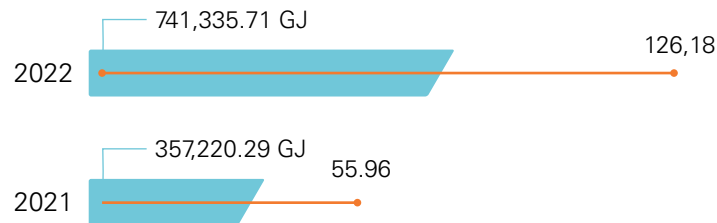
Copel established the Ecoefficiency Program to systematize its actions to reduce energy, water, fuel, and paper waste. Created in 2014, it is composed of a set of possible and accessible actions aimed at preserving the environment with the goal of reducing consumption of natural resources, raising awareness among employees and cutting costs.

Through a series of targeted actions, the program also aims at disseminating education for sustainability, respect for the environment, and concern for future generations. The replacement of reflective equipment and conventional lamps for LED resulted in a drop of 792 GJ in 2022. **GRI 302-4**

ECOEFFICIENCY GOALS

Topic	Objective	Status 2022
Electricity GRI 302-4	Reduce 5% of electricity consumption by the end of 2022 (base year 2017). The target was fractioned to 1.25% per year from 2019 to 2022. Base-value = 33,136.87 MWh	-26.9% Target achieved ✓
Fleet emissions	Reduce emissions by 2% (base year 2017). The target was fractioned to 0.5% per year from 2019 to 2022. Base-value = 13,172.00 tCO ₂	-39.2% Target achieved ✓
DIS Reuse and recycling	Allocate 90% of the waste generated by DIS operations to reuse and recycling.	90% Target achieved ✓
GeT Reuse and recycling	Allocate 70% of the industrial waste (class I) generated by GET operations to reuse and recycling.	83% Target achieved ✓

ENERGY INTENSITY RATE¹ **GRI 302-3**



- ENERGY CONSUMPTION WITHIN THE COMPANYY
- ENERGY INTENSITY (GJ/EMPLOYEES)

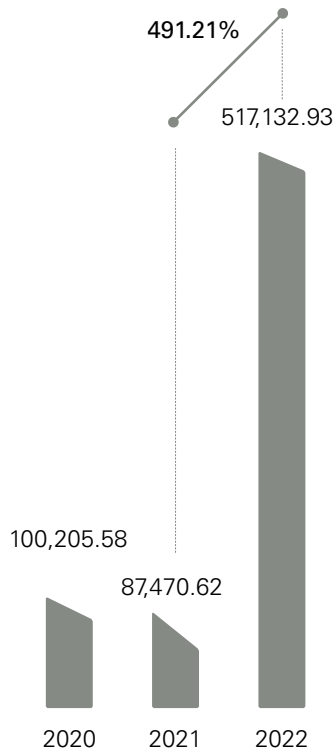
1. The metric used to calculate the energetic intensity was the total energy consumption within the organization divided by the amount of employees at the end of the reporting period.



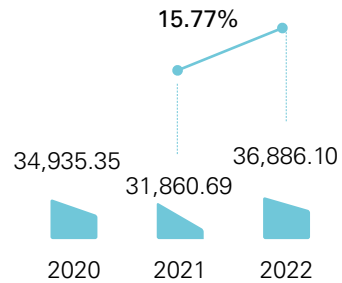


TOTAL ENERGY CONSUMPTION GRI 302-1

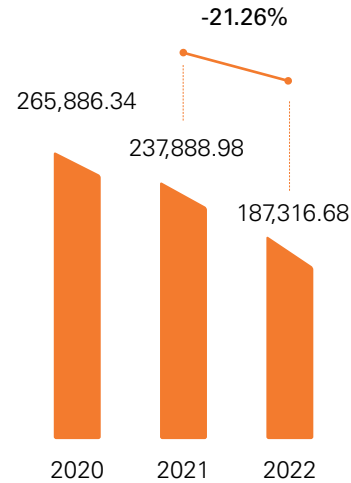
FUELS FROM NON-RENEWABLE SOURCES (GJ)



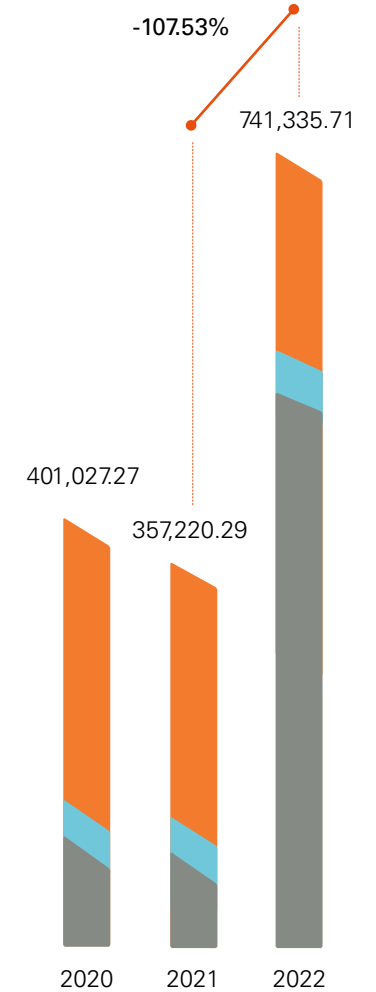
FUELS FROM RENEWABLE SOURCES (GJ)



ELETRIC ENERGY CONSUMED (GJ)



TOTAL (GJ)



KEY:

●—● 2021 X 2022 VARIATION (%)

Note: The values of the GHG emissions of Copel may change after the third-party audit is completed and when the inventory check is concluded, the results and the verification certificate will be published in the Public Emissions Registry of the Brazilian GHG Protocol Program. (GRI 302-2).

Climate Change

Copel discloses its climate change practices aligned with the recommendations of the Task Force on Climate-Related Financial Disclosure (TCFD) and the data and information used to answer CDP's climate questionnaire.

Task Force on Climate-related Financial Disclosures (TCFD)

Governance

Recent adjustments to the Company's governance model have bolstered the mechanisms for monitoring and supporting decision-making on climate change, monitored periodically by the Sustainable Development Committee, which advises the Board of Directors of the Company.

CDS is a permanent, statutory body, composed of five members, of which three are Copel directors, one of them the CEO, and two other members, one of them external. The appointment has as criteria proof of education compatible with the full board's

attributions, which include monitoring and anticipating trends in global sustainability issues, such as those related to climate change issues.

Strategic decisions such as approval of policy updates, commitments, and targets are part of the duties of the Board of Directors – advised by the Sustainable Development Committee, which is actively involved in defining the targets as well as periodically monitoring performance, and also the Investment and Innovation committee, which sets the criteria for selection, assessment, approval and follow-up of the investments aligned with the strategic planning.

The Board of Directors approved in 2021 the Neutrality Plan for GHG emissions of the Company with the purpose of neutralizing emissions in Scope 1 by 2030. The plan led to targets that are linked to the Company's variable remuneration program, so that all levels are assessed according to the progress of the Neutrality Plan and involve, depending on the sector or subsidiary, a cut in fossil fuel consumption, electric power

consumption, an improvement of the Smart Grid service offer and a boost in the search for new technologies.

The company's Governance, Risk, and Compliance Office is responsible for reporting on the disclosure of guidelines, results, and proposals for management improvements to the governing bodies. It is also the responsibility of this board to implement the decisions approved by the Board of Directors, which is made operational by the Climate Change Committee, which has representatives from all the wholly-owned subsidiaries and boards.





Strategy and financial planning

Strategy

In the deployment of the Neutrality Plan approved by the Board of Directors, the Company's strategic planning, which covers corporate decisions over a five-year horizon based on Vision 2030, decided that Copel should have one hundred percent of its energy matrix deriving from renewable sources, which implies a divestment of high-emission assets. By potentiating the renewable aspect, the planning predicts an increase in the trade of renewable energy certificates.

The strategic planning reviews and definitions were based on the study conducted by the Mining & Energy Ministry, which contains future climate scenarios for the Brazilian electricity system (forecast up to 2100), possible carbon pricing and the development of climate change adaptation studies.

The study revealed that extreme weather situations may become more frequent in upcoming years in Brazil so this was considered in the risk analysis of the Company's businesses

since they are located in different geographic regions of Brazil. In practical terms, the study signals that the increased occurrence of extreme weather events, such as heavy rainfall, heat waves, and prolonged droughts, may impact the generation of electricity from hydropower. The study also shows that there may be an increase in wind speed in many areas around Brazil in practically every season of the year, requiring special care to be taken with transmission and distribution assets.

In addition, critical climate events have occurred in the past few years, encouraging the company to step up research into future climate scenarios arising from global warming in its hydraulic generation (until 2100) and distribution assets (until 2050).

Financial planning

Given that the guidelines of Copel's Investment Policy state that climate issues should be considered in the analysis of opportunities and that the strategic planning points to a growth of renewable sources, the Company prioritized investments in technological development and innovation in its financial planning, as well as an increase in renewable energy generation ventures, such as wind, solar and hydroelectric plants.

The trend to use energy from renewable sources is also observed in customers, who are looking for solutions that can reduce Greenhouse Gas (GHG) emissions through the use of renewable energy or the acquisition of I-REC to reduce Scope 2 emissions.



Climate risks and opportunities

GRI 201-2

The major corporate risks are identified on the basis of the strategic benchmarks and the internal and external environments in a detailed Risk Management process (see more on [page 75 of this report](#)). Risk management incorporates climate change in its analyses and, in 2022, improved its analysis mechanisms by separating this topic from socio-environmental risks.

A few of the climate change-related risks are shown below.



See more

See [page 75](#) for more details about the risk management process.

RISKS

The risks were identified for the operation and can be divided into short, medium and long term.

In the **short term**, acute physical risk has been identified in regard to the possibility of cyclones and hurricanes, which may cause damage in both transmission and distribution. This type of phenomenon was observed in 2019 by Copel Distribuição when 3 lines were interrupted due to damage to structures caused by winds of over 70 km/h in the western region of the state of Paraná. In transmission, a similar phenomenon occurred in 2015 when the company struggled to reconnect two transmission lines in the north of the state. The last major event occurred in 2020 when winds knocked down high voltage lines causing a blackout. These events are deemed probable in upcoming years and their magnitude is medium-low making them able to impact indirect - operational costs. To minimize the impacts, Copel has been using contingency support structures and meteorological monitoring and is placing employees on call so the system can be promptly reestablished.

In the **medium term**, chronic physical risk may arise from hydrological variability, given that the volume of rainfall in hydrographic basins where the company has hydraulic projects may drop and shrink the volume of water stored in the reservoirs. In financial terms the risk is diminished because the Company participates in the Energy Allocation Mechanism aimed at the sharing of hydrological risks. In addition, the company has invested in hydro-climatological monitoring to provide reliable data in its area of operation so it can collect the maximum amount of information to subsidize project reviews and interventions that may be needed. The risk of such a phenomenon occurring is considered likely but the drop in revenue is minor.

In the **long-term**, acute physical risk has been identified as possible on the basis of flooding, which may impact some of the Company's assets. In 2014, Copel was impacted by an extreme rainfall event in the Iguazu River basin requiring additional costs for recovery of the small hydroelectric plant on the Cavernoso River and in 2016 the small hydroelectric plant located on the Apucarantina River incurred a loss of BRL 2 million due to damage to its facilities. In order to mitigate the risk, Copel maintains a hydro-climatological monitoring network with an uninterrupted weather forecast service for regions where it has hydroelectric generation and this helps predict actions and keeps the team ready to ensure the safety of the operation. The investment involved in monitoring accounts for around BRL 6.5 million/year. The decline in asset values as a result of flooding is seen as very unlikely but if it does happen, it will be of medium-high magnitude.



OPPORTUNITIES

Opportunities may be present in the operation as well as in customer service.

In the **short term**, with regard to customers, it is very likely that the demand for renewable energy and renewable energy certificates will increase causing a medium impact on revenue. Copel Mercado Livre believes that companies that have sustainability goals and that report their emissions are more likely to offer this product.

In the **short term**, it is very probable that operations will expand with an average possibility of increasing revenues from new ventures targeted at wind power generation, as can be seen with the implementation of the Wind Farms Jandaíra I, II, III and IV, totaling 90 MW installed in the State of Rio Grande do Norte and in the Company's strategic planning. In addition to wind farms, the Company is gradually stepping up its investments in solar power generation, not so much in the sense that it currently represents a significant portion of the Company's revenues but in the diversification of financial assets. During the development of wind power projects, studies were conducted for the use of the other areas of the complexes, which indicated the potential for the implementation of solar power plants.

In the **medium term**, there are two fronts, one for the development of climate adaptation solutions, as is the case of the Paraná Trifásico program, which will allow greater energy efficiency for the customer and a decrease in energy loss during distribution, with the construction of 25,000 km of lines by 2025. From the standpoint of improving the efficiency of energy distribution, smart meters are planned to be installed in the homes of up to 30% of the 5 million customers by 2024, enabling greater control for customers to manage their consumption. In addition, automation reduces the need for workers to venture in field to identify faults during blackouts, enabling a drop in GHG emissions and indirect operational costs due to the modernization of the system.

Targets and actions

To make it possible to reach the commitment established in 2021 by the Carbon Neutral Plan, the Board of Directors approved indicators and targets to be met by the company by 2030. The goals were defined considering the core businesses, as well as their process interconnection, besides being guided by the precepts of SBTi (Science-Based Targets), which define the practices to be adopted for companies engaged with Net Zero commitments. The indicators were defined considering short, medium and long term goals and are related to:

- Stationary Combustion - divestment of thermal power plants
- Mobile Combustion - gradual replacement of the fleet with light electric vehicles
- Fugitive emissions - study to improve equipment efficiency
- Land use change - assessment of offsetting formats
- Electricity Consumption Study and Implementation of energy efficiency in facilities and use of renewable energy certificate
- Analysis of offsetting alternatives
- Suppliers - monitoring of emissions of critical suppliers and motivation for the creation of a GHG inventory and emission reduction

Indicator	Unit	Year base	2023	2025	2030
Installed capacity from renewable sources	%	-	95	100	100
Scope reduction 1	%	2017: 213,947 tCO2	20	50	---
Electrical fleets	%	-	15	30	50



GREENHOUSE GAS EMISSIONS IN 2022 (tCO₂e)

GRI 305-1, 305-2, 305-3, SASB-IF-EU-110a.2

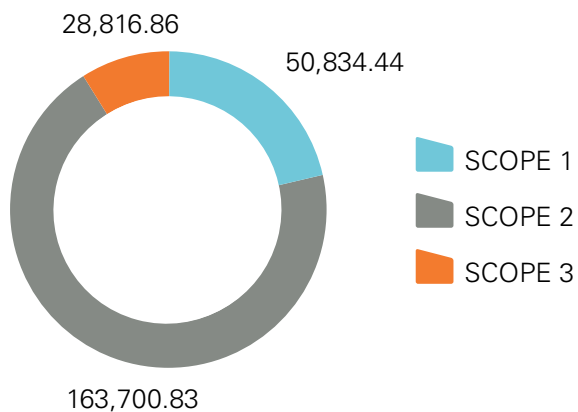
Greenhouse gas emissions	Scope 1 ¹	Scope 2 ²	Scope 3 ³
Total emissions	50,083.44	163,700.83	28,816.86
Biogenic emissions	8,143.41	-	2,931.19

1. The gases included in the calculation are CO₂, CH₄, N₂O, HFCs, SF₆.

2. The gases included in the calculation are CO₂.

3. The gases included in the calculation are CO₂, CH₄, N₂O

PROFILE OF EMISSIONS (tCO₂e)

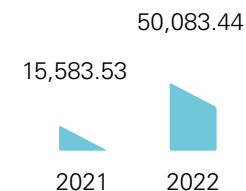


Emissions intensity GRI 305-4

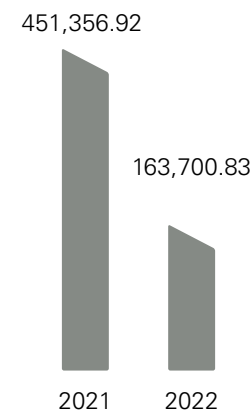
Emission Scope 1/employee (tCO ₂ e/employee)	8.65
Emission Scope 1/revenue (tCO ₂ e/million BRL)	2.32

COMPARISON OF EMISSIONS (tCO₂e) GRI 305-1, 305-2, 305-3

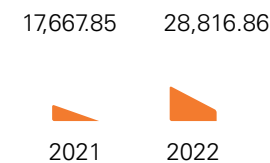
SCOPE 1



SCOPE 2



SCOPE 3



Note: Copel's greenhouse gas emission figures may change after the end of the audit, and will be registered and published in the Public Emissions Record of the GHG Protocol Program.



Biodiversity GRI 304-2

Copel's assets are located in different regions of the country within various Brazilian biomes, such as the Atlantic Forest, the Cerrado region, the Amazon and the Caatinga region. The Company, therefore, puts in place actions to minimize and offset the impacts caused by its activities in the various ecosystems where it is located.

The most significant impacts on biodiversity are seen in changes to the environments where the implementation and operation of power generation, transmission and distribution projects take place, and these may include vegetation suppression with the potential for a reduction or migration of plant and animal species, changes in connectivity between remnants of native vegetation or alterations in the breakdown and dynamics of aquatic communities in the case of hydroelectric installations, as well as other risks.

To map these impacts, environmental studies are carried out in the various stages of environmental licensing and they include specifying and monitoring changes in the fauna

and flora in the area where the project will be located, which is often very little scientifically explored. For this reason, these studies have in many cases been an important source of data for the academic and scientific community and are used to track the occurrence of new species and share information about the distribution of little-studied species. Based on the reports, environmental programs and measures are deployed to prevent impacts, reduce their intensity or offset them.

Technological advances and investments in transmission and distribution networks also mitigate the risks to biodiversity. In the Paraná Trifásico Program aimed at modernizing rural networks, substations are being modified, transferred to the borders of roads and highways, and drones are being used for maintenance activities, among other

actions, minimizing the need to suppress vegetation.

It is important to point out that power generation, transmission, and distribution projects also have a positive impact on biodiversity and are generally permanent and ensure greater protection to natural environments. An example of this is to work being done for [reproduction in the captivity of the Surubim-do-Iguaçu](#) (*Steindachneridion melanodermatum*), an endemic and endangered fish species, and the monitoring of the sagui-da-serra-escuro marmoset (*Callithrix aurita*) and the Muriqui-do-sul spider monkey (*Brachyteles arachnoides*), primate species that are both included in the National Action Plans for Conservation of ICMBio (see more [here](#)).



assets located in **various** Brazilian **biomes**, such as Mata Atlântica, Cerrado, Amazon and Caatinga regions



impact **mapping** has contributed with data for academic and scientific studies



Copel's actions on behalf of biodiversity include:

- Protection and/or recovery of the areas earmarked to offset the plant suppressions needed to implement the projects
- Restoration of Permanent Preservation Areas
- Special care with plant and animal species considered rare and endangered, carrying out rescues and relocating animals when necessary
- Collection and allocation of seeds for research and seedling production to ensure the maintenance of regional biodiversity and the genetic variability of endemic species in the vegetation;
- Monitoring the animal and plant communities to check for any possible impacts and offset them whenever necessary.

NUMBER OF SPECIES BY THREAT LEVEL¹ GRI 304-4 GRI 304-4

Threat status (level of endangerment)	Total number of species
Critically endangered	14
Endangered	63
Vulnerable	115
Almost endangered	82
Not concerning	901
Total	1,175

1. The UCN Red List 2022 and the 2022 lists of the Environment Ministry and of the state, by level of extinction risk.

Protected or restored areas

Forest offsetting projects: **292ha**

Permanent preservation areas: **9,753.72ha**

Own areas intended for environmental conservation: **10,382.66ha**

Areas constituted as (or in the process of becoming) Conservation Units: **3,976.11ha**



See more

Go to the [Sustainability Portal](#) to learn more about the activities and actions on behalf of Biodiversity undertaken by Copel



Annex

See more details about natural biodiversity indicators

Practices in the generation business GRI 304-2

All Copel projects undergo environmental licensing, during which Environmental Impact Studies and their respective Environmental Impact Reports (EIA/RIMA) or Simplified Environmental Reports (RAS) are drawn up, depending on their size. These studies identify if the impacts are positive or negative and take into consideration: spatialization (affected areas); the phase of occurrence in regard to the work; the incidence, if direct or indirect; the permanence (immediate, medium or long term); durability (temporary or permanent) and reversibility.

Monitoring of Ichthyofauna – the program aims at continuously monitoring the fish species in bodies of water linked to projects under Copel's concession, generating scientific information and guidance for management actions and meeting environmental conditions. From the scientific point of view, the main benefit lies in recording the biology and ecology of Paraná's fish species. New, endemic and threatened fish species have been recorded in the Iguazu river basin, such as fish *Trichomicterus igoby*,

based on a study conducted by the Center for Research in Limnology, Ichthyology and Aquaculture (*Nupelia*) of State University of Maringá (UEM), described in 2008. Today it is an endemic species of Iguazu river basin restricted to the Jordão river sub-basin and is threatened with extinction. It is the target of the National Action Plan for the Conservation of Aquatic and Semi-aquatic Fauna of the Lower Iguazu River Basin (PAN Baixo Iguazu). Fish communities from 18 reservoirs under Copel GeT's concession are monitored and subsidies have been provided to ensure conservation actions are implemented, such as the reproduction and repopulation activities carried out at the Experimental Studies in Ichthyology Station (EEEI). Learn more about the monitoring at [Sustainability Portal](#)

Fish Transposition System of the Colider HPP – the plant, located in Mato Grosso, has a Fish Transposition System (FTS) in the form of a Vertical Slot ladder– the largest of its kind in Brazil that extends about 693 meters. The FTS is designed to allow a wide

variety of fish to traverse it, ensuring a gene flow between populations downstream and upstream of the dam. To date, 84 fish species (50 of them migratory) have been recorded in the system through daily monitoring of the ladder display, in addition to periodic scientific collection and telemetry monitoring. This practice records the movement of the fish through the ladder. The flow is significant: during periods of lower river flow, about 428 fish access the structure per day. In the flood season, the average is ten times higher: about 4,280 fish use the FTS daily. The FTS has been very efficient in attracting and relocating fish.





Distribution business practices GRI

304-2

In the operation stage of the projects, two actions by Copel Distribuição stand out:

- Integrated Vegetation Management (IVM) in electrical systems** – the maintenance of the security strip in the operation of distribution lines is carried out by means of manual or mechanical clearing. However, these techniques cause habitat fragmentation, soil erosion and favor invasive exotic species. As a replacement, actions are underway to implement Integrated Vegetation Management. IVM is a set of practices that aims to establish, in the long term, a plant community whose growth characteristics do not interfere with the operational performance of electrical installations or that require minimal intervention while also providing soil protection, shelter and food for the animals, as well as other benefits. The Research and Development (R&D Aneel) project “Integrated management of vegetation in the opening of a passage lane in high and medium voltage distribution lines” is under development and its primary focus is

to understand how the use of integrated vegetation management in the opening of passage lanes affects the recovery of vegetation in these areas, as well as evaluate how this change will affect the number of interventions and cost for opening and maintenance. The environmental and external impacts of this methodology in comparison with the one used currently is under analysis.

- Urban Forests program** – Copel DIS has traditionally supported city governments in plans to plant trees on public roads in order to improve city environments and reduce power disruptions caused by tree branches tripping the electrical system. One of the actions of this program is the production of seedlings, through a partnership with Copel GeT, currently carried out at the Horto Florestal das Cabreúvas (Governor Ney Aminthas de Barros Braga Hydroelectric Power Plant, Iguaçu Reserve - PR).

In addition to helping out interested municipalities, it enables compliance with

environmental licensing conditions. Around 80,000 seedlings have been planted in urban afforestation projects since this program was implemented. In 2022, 5,750 seedlings were supplied to 17 municipalities.

Another important action is that Copel DIS has joined the Inter-institutional Work Committee for the assessment of Municipal Urban Afforestation Plans coordinated by the Public Prosecutor's Office for the State of Paraná (MP-PR).



80,000
seedlings planted for
urban afforestation



Restored biodiversity

GRI 2-25, EU13

The sites that home the offsetting plants are submitted to the environmental agency in charge of the environmental licensing for approval. In all cases, the recovery actions are tracked by Copel professionals and the monitoring confirms the restoration of the area.

Indicators such as ground cover with native vegetation, density of regenerating native plants and number of regenerating native species are tracked. When the restoration indicators are reached, the areas are then simply monitored or their management may be transferred to the environmental agencies or entities.

The management plans to oversee restoration, forest offsetting, riparian forests and biodiversity are management instruments that help anchor the improvement actions that need to be put in place as well as the creation of efficiency indicators for the management processes of protected or restored areas, as well as their existing biodiversity.

Copel GeT currently has 13 ventures with offsetting projects under development, of which two were kicked off in 2022. The projects are related to the following enterprises:

- TL 500 kV Araraquara II - Taubaté
- SS Taubaté
- LT 230 kV Andirá Leste Seccionamentos 1 and 2;
- TL 500 kV Assis - Londrina
- TL 230 kV Assis - Paraguaçu Paulista 2
- TL 230 kV Baixo Iguaçu - Realeza Sul
- TL 230 kV SECC Cascavel Oeste - Foz do Iguaçu Norte
- TL 500 kV Blumenau - Curitiba Leste
- TL 525 kV Substation Foz do Iguaçu Furnas - Cascavel Oeste
- Wind Farms Cutia and Bento Miguel
- SHP Bela Vista and HVDL 138 kV Bela Vista do Chopim - Dois Vizinhos
- Jandaíra Wind Farm Complex
- LT 230 kV SE Jandaíra - SE João Câmara 3.

The monitoring and mapping activities carried out on the Paraná-based Perma-

nent Preservation Areas of Copel GeT's projects ensure the data of the recovered or revitalized areas is up to date.

In the PPA of the HPP Colíder reservoir located in the State of Mato Grosso (MT), several actions were deployed to implement the PPA during the implementation of the project. One such action was the planting of approximately 290,000 seedlings of native tree species in 172 hectares and direct sowing in about 50 hectares. A few restoration centers were also set up.

The implementation also included the placement of more than 97,000 meters of fences around the APP, providing isolation for the cattle and the consequent start of the natural regeneration process.

Copel DIS, in turn, opened a public tender in 2022 and acquired 117.4723 hectares of land in Mallet (PR) to carry out reforestation projects and meet the conditions for Mandatory Forest Replacement and Atlantic Forest Offsetting.



One of the requirements for the definition of the area was its location in the Iguaçú River Basin Unit and the fact that it had native Atlantic Forest coverage. The land will be used as a seedling bank, aggregating the many conditioning factors of the enterprises installed in the region into a single location.

The forecast for 2023 is to hire a team to analyze the land use zoning and the creation of forest offsetting projects to be submitted to the *Instituto Água e Terra* (IAT), selecting areas within the land to be linked to the conditions of each project.

Water

Water withdrawal

GRI 303-1, SASB-IF-EU-140a.1

The greater volume of water used by Copel is used for generating energy. It is important to point out that the generation process does not consume water because the resource used returns with the same quality and quantity to the body of water, in accordance with the local laws.

The company operates 26 hydropower plants located in the basins of the Iguaçú, Tibagi, Alto Ribeira, and Atlântico Sudeste and Teles rivers. For the water to pass through the turbines, dams are built to dam the river, forming water reservoirs. The most significant impacts of water use are related to the transformation of the lotic environment (river) into a lentic environment (reservoir), such as increased transparency and sedimentation of solid particles due to the decrease in water velocity. Currently, 80% of the energy generated by Copel is hydraulic, and its power plants are located in Paraná (20) and Mato Grosso (1).

The management of the resource is, therefore, fundamental to the management of the Company's business, especially within the context of water shortage. The representation of different interests on water uses is important to prevent conflicts and ensure water availability for multiple uses for present and future generations. According to the National Water Resources Policy, the management of water resources must be decentralized with the participation of the government,

users, and communities and in situations of drought, the priority use of water resources is for human and animal consumption.

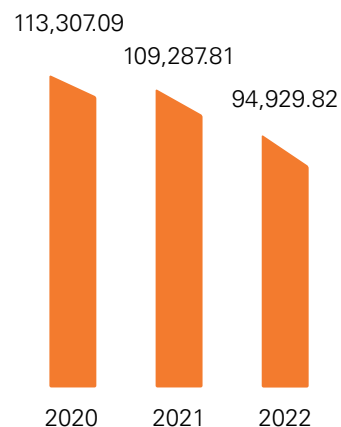
Copel actively participates in the management of water resources in its different environments, such as the national and state councils and the basin committees. The internal management is carried out by Copel GeT's division and the help of a network of more than 60 hydrometric stations that measure the water level (in rivers and reservoirs) and more than 100 that measure rainfall, in addition to monitoring the water stored in the reservoirs. Copel also has emergency action plans in place for the dams with preventive and remedial procedures, strategy and channels to warn the communities affected.

The hydroelectric projects have a license, which indicates the volume of water to be used for power generation, the water level to be maintained in the reservoir, the flows to be withdrawn by other users upstream of the reservoir and other conditions.

In distribution, most of the water consumed is used for administrative activities and derives from public water supplies. In its administrative activities in general, Copel uses water from the public supply network and, in some places, from underground collection. This data is monitored monthly and tracked by the EcoEfficiency Program.



TOTAL WATER COLLECTED (ML)¹



1. Metric in megaliters (ML).

Water collection (ML) ¹ GRI 303-3	2020	2021	2022
Surface water	113,167.91	109,152.10	94,805.31
Underground water ²	21.73	40.42	39.85
Outsourced water ²	117.46	95.29	84.66
Total water collected	113,307.09	109,287.81	94,929.82

1. None of the collections mentioned derive from water-stressed areas.

2. The collection of groundwater and outsourced water is measured by hydrometers.

In real time

The results of the hydraulic operation of every enterprise can be found [in the website](#). After the monitoring has been carried out, Copel offers relevant information to the community surrounding its hydroelectric power projects.

Water consumption (ML) ¹ GRI 303-5	2022
Total water collected	94,929.82
Total water discarded	94,904.92
Total water consumption	24.90

1. Metric in megaliters (ML).



See more

Go to the [Sustainability Portal](#) to learn about Copel's activities and actions for the efficient use of water resources and the protection of springs



Water disposal GRI 303-2, 303-4

In Copel's processes, the effluents arising from production or administrative processes are sent to the sewage collecting system, when such is available in the location, or septic tanks, drains, and infiltration ditches. In all cases, they undergo the necessary treatments in compliance with the technical, legal, and environmental licensing requirements of the assets.

Specifically in large hydroelectric power plants and in some SHPs (Small Hydropower Plants) and HGCs (Hydropower Generation Center), where the installation of drains and/or infiltration ditches is not feasible, the sanitary effluents are disposed of in the water body downstream from the project after being treated. These flows are very low compared to the river flow, so the polluting potential of these discharges is practically null, considering the dissolution that takes place after their release.

The generation projects also have their effluents continuously monitored through the Management Plan of the Subprogram to Monitor Sanitary and Industrial Effluents,

which follows the guidelines of the Standard Methods for the Examination of Water and Wastewater - 23rd edition 2017 and in compliance with the requirements of the Operation Licenses of the projects and as defined in CONAMA Resolution 430/2011.

The effluents from the Thermoelectric Power Plants come exclusively from the Figueira plant, which is being upgraded and has been out of operation since 2018. The plant testing started up in 2022.

In distribution, the operation of substations, high-voltage lines, and power grids do not have activities that periodically generate effluents. The water and oil separator boxes in substations are inspected to check for oil spills from equipment.



The effluents undergo the necessary treatments in compliance with the technical, legal, and environmental licensing requirements of the assets.

Water discharge (ML) ¹ GRI 303-4	2021	2022
Surface water	109,152.10	94,805.31
Underground water	33.02	31.88
Outsourced water	76.95	67.73
Total	109,262.07	94,904.92

1. Metric in megaliters (ML).
2. Refers to sanitary effluents (equivalent to residential effluents) arising from the administrative process of the company. Their disposal is in accordance with the parameters recommended in CONAMA 430/2011.





Waste Management

GRI 306-1, 306-2

Distribution, generation, and transmission activities do not depend directly on the consumption of inputs, however, the operation and maintenance of the equipment generates waste in a secondary way. The management is done to avoid that this waste causes adverse impacts, such as soil and groundwater contamination.

The maintenance activities of plants and substations generate class I waste - hazardous, most of which are intended for co-processing in clinker production furnaces in the cement industry. However, some waste from construction maintenance activities or from the demobilization and maintenance of electrical equipment (with specific characteristics) do not allow for any alternative other than final disposal through industrial landfills or incineration.

The company has a Solid Waste Management Subprogram and several in-house instruments aligned to the National Solid Waste Policy. Part of this scope is minimiz-

ing risk involved in transporting the waste to the final destinations, such as traffic accidents, cargo leakage and/or contamination. To this end, the company has a Manual for the Transport of Hazardous Substances, and the work safety area is active in providing guidance and requirements to contractors. When transporting hazardous waste, the contractor must present its Emergency Action Plan (EAP) and comply with other requirements.

Copel donates recyclable waste generated in administrative activities to co-ops and associations of recyclable material collectors, as per State Decree 8,426/2017. It also has a process for allocating waste that can still be used and has an added economic value, via auctions, and that can return to the productive chains through recycling.

In the case of construction work, the contractor must prepare a Construction Waste Management Plan that is submitted to Copel for approval. At the end of the

project, the contractor must present the final management report and the supporting documentation for the Plan.

The volume of waste generated in 2022 was 8,321.72 tons, of which 1,194.55 t of Class I materials (hazardous) and 7,127.18 t of Class II (non-hazardous). This represents a drop of 86% in relation to the waste generated in 2021. **GRI 306-3**



Annex

See more details about waste indicators

Copel donates recyclable waste generated in administrative activities to co-ops and associations of recyclable material collectors.



Social and Relationship Capital



The guidelines set forth in the Sustainability and Corporate Governance Policies underscore the importance of dialogue and transparency, uphold Human Rights, respect for people, and others.

SDG



Capitals



Responsibility to Stakeholders GRI 2-29, EU19

Copel is committed to its stakeholders and implements actions that ensure the balance of environmental, economic and social relations. The company defines its actions through the guidelines set forth in the Sustainability and Corporate Governance Policies, which underscore the importance of dialogue and transparency, uphold Human Rights, respect for people, accessibility and inclusion, as well as sustainable development.

The company has mapped the audiences, based on the AA1000 methodology, to identify its stakeholders. This survey resulted in the following priority audiences: shareholders, customers, communities, competitors, employees and suppliers - and includes the environment topic, considering the level of

impact and influence - impacted, strongly impacted, impacting, and value-focused (see the illustration on the next page).

Moreover, stakeholders are called upon to take part and share their opinions at different stages of the implementation or operation process of energy projects. In the case of the construction of new power plants or other structures, the community involved is consulted directly in public hearings and, indirectly, throughout the environmental licensing process. Several agencies and entities participate in the processes, such as the Brazilian Institute of Environment and Natural Resources (Ibama), the Chico Mendes Institute for Biodiversity Conservation (ICMbio), the Institute of National Artistic and Historical Heritage (Iphan), the National Indigenous People Foundation (Funai), regulatory agencies, city governments, environmental departments,

sector agents, etc. The participants may also include trade unions, community associations, social movements, NGOs, among other organized civil society movements. The participants may also include trade unions, community associations, social movements, NGOs, among other organized civil society movements.

Copel has developed a specific approach for every stakeholder (see box below), as well as offers Dialogue Channels and has made available an independent whistleblowing channel.



More Transparency

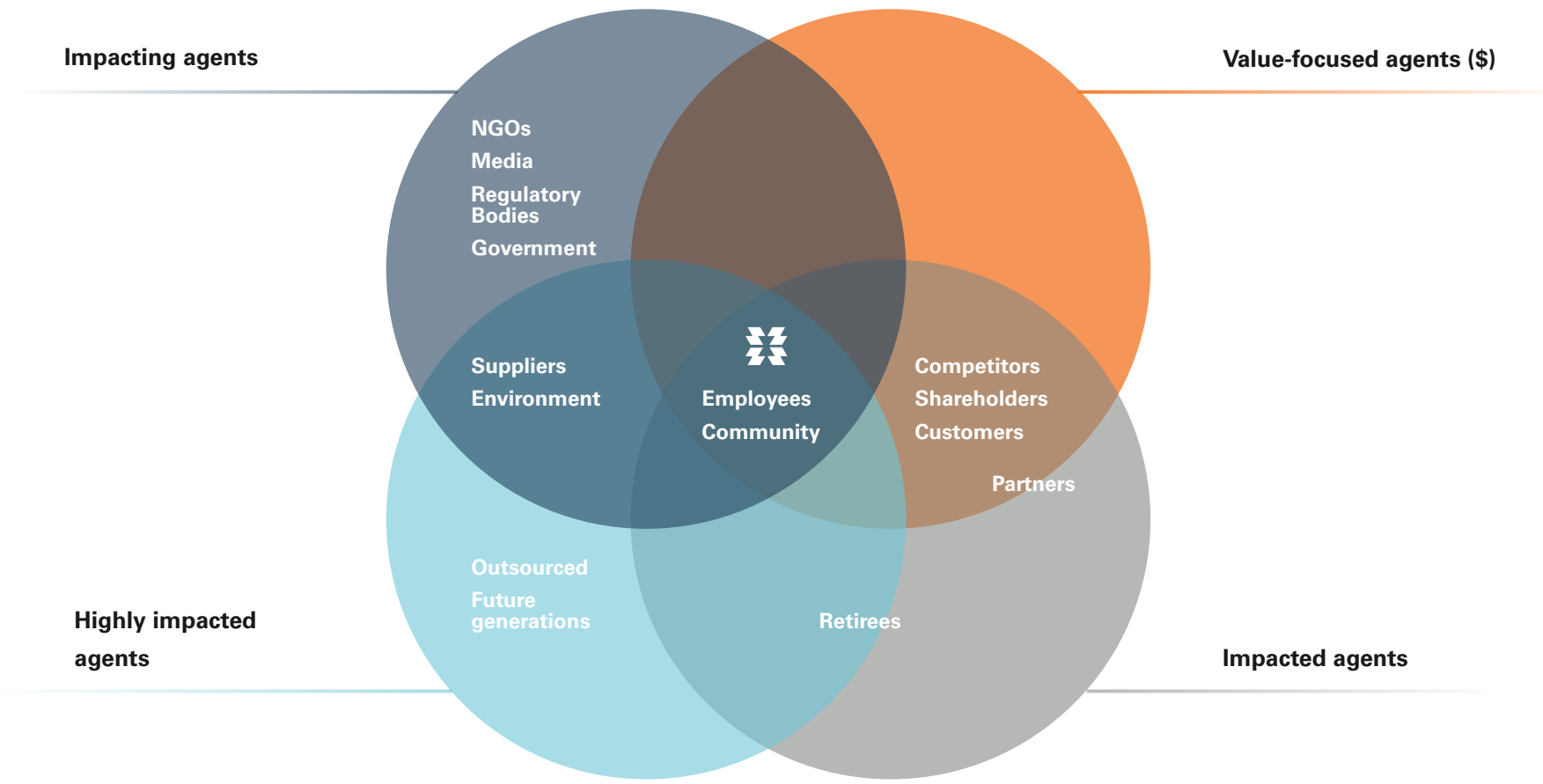
Copel's [Sustainability Portal](#) describes in detail the practices adopted by Copel for sustainable development



Mapping our stakeholders*

All those who influence and/or are influenced by the Company

Integrated Report 2022



*The audiences were represented in the shaded areas according to their level of relationship with Copel.

ENGAGEMENT CHANNELS GRI 2-29

	Stakeholder	Activity
generating value and returns	Shareholders and Investors 	Shareholders and investors are responsible for providing Copel with part of the funds it needs to carry out its activities with excellence and stability. In return, it must dedicate itself to generating value and returns for this audience. The relationship takes place mostly through the Investor Relations area, which has its own corporate policy. IR Website
provide energy at affordable prices, error-free billing, and swift and quality service, in addition to minimizing impacts on the communities	Customers 	Copel seeks to meet the main expectations of this audience: to provide energy with low prices, error-free billing, and swift, quality service, as well as favorable conditions for engagement. A series of online and in-person channels have been set up for this purpose. The manifestations, complaints, and grievances registered are essential for mapping opportunities to improve services. Customer Website
partnerships and involvement in sector associations for mutual strengthening	Society 	For each new enterprise, studies of the socioeconomic environment are conducted as part of the licensing process, with a frequency that varies according to the complexity of the project. The results are the basis for socio-environmental programs, which aim to mitigate and offset possible adverse impacts, as well as raise awareness in the surrounding communities. The businesses have areas dedicated to the relationship with the impacted communities. email rsustentabilidade@copel.com
development, remuneration in accordance with the market and equity in shares	Regulatory Bodies and Sector Entities 	The Company has areas dedicated to the relationship with regulatory agencies and sector entities with the purpose of always being in regulatory compliance and, also, to defend its position in relation to the changes in the electric sector.
communication channel and confidential channel for reporting	Employees 	The company uses different communication channels to strengthen its relationship with its employees, such as the People Portal on intranet and periodic emails. In addition, it annually conducts the organizational climate survey Great Place to Work (GPTW) and takes part in the negotiations of the Collective Bargaining Agreement (CBA) coordinated by the company's human resources area.
	Partners and Suppliers 	Copel maintains a constant relationship with its suppliers (including potential suppliers) through supply management areas, as well as with the managers of each contract. In addition to direct channels with buyers and managers, Copel provides dedicated channels such as: <i>Website for suppliers and partners Confidential Communication Channel: 0800 643 5665; and the Sustainability Portal (link: https://copelsustentabilidade.com/governanca/cadeia-de-valor/gestao-da-cadeia-de-suprimentos/).</i>



Customers

As a provider of an essential service for communities and the economy, Copel strives to continuously improve its services to meet the needs of its consumers and customers.

This quality assurance is systematically monitored and assessed by a series of indicators, both proprietary and regulatory. Copel conducts surveys with residential, industrial, rural, and government customers to gauge customer satisfaction and perception. Specifically for residential customers, there are two annual editions - one coordinated by Abradee, applied in the first half of the year, and another by Aneel, in the second half. The results of these surveys are handled by the Permanent Customer Satisfaction Committee.

Through Copel Distribuição, more than 50 million consumers were served by Copel Distribuição, most of them virtually, after the company created a free app, an online agency, and a WhatsApp number that receives the most recurring requests, such as debt checks, a second copy of the electricity bill, reconnections, and the sending of meter readings.

As for complaints, the company maintains a rate of 0.01 % per service performed, solving all of them (*see charts on next pages*).

Copel also oversees the complaint handling indicators required by Aneel, the Equivalent

Complaint Duration (*Duração Equivalente de Reclamação - DER*) and Equivalent Complaint Frequency (*Frequência Equivalente de Reclamação - FER*) for every thousand consumer units. The performance of these indicators has remained stable in recent years.

DISTRIBUTION CUSTOMER PROFILE

Consumer units GRI EU3, SASB-IF-EU-000.A	2022
Residential	4,131,039
Industrial	69,811
Institutional (power and public service)	45,978
Commercial	431,818
Other classes (rural, its own consumption, etc.)	341,882
Total number of consumer units	5,020,528

Assessment of consumer perception	2020	2021	2022
Abradee Satisfaction Survey - Residential Customer	84.4%	78.7%	77.0%
Abradee Satisfaction Survey - Group A Customer	80.9%	82.0%	81.3%
Cier Customer Satisfaction Survey	Silver	Bronze	Silver



Consumer services

The COVID-19 pandemic period caused many changes in consumer habits and consolidated new services and more agile and virtual customer care.

With the introduction of new online services, such as the totally remodeled WhatsApp service, new services in the Copel app, and automations for various digital forms, 2022 closed with 85.35% of services provided through digital channels. Even so, face-to-face contact was fully reestablished in 2022, available for the most varied demands of the more than 5 million consumers.

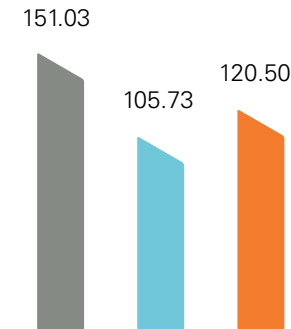
WhatsApp offers the most common services, such as debt checks, a second copy of the electricity bill, reconnection, and the sending of meter readings. There is also a virtual branch on the site, the Call Center (0800-51 00 116), and 400 face-to-face service stations. 288 of the total are units of the *Copel com Você* (Copel and You) program, created in partnership with local commercial establishments to provide support in small cities.

CUSTOMER COMPLAINTS SENT IN 2022

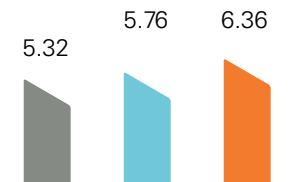
	To the company	31,875
	To Aneel	1,614
	To Procon	2,298
	To Justice	7,399

COMPLAINT HANDLING

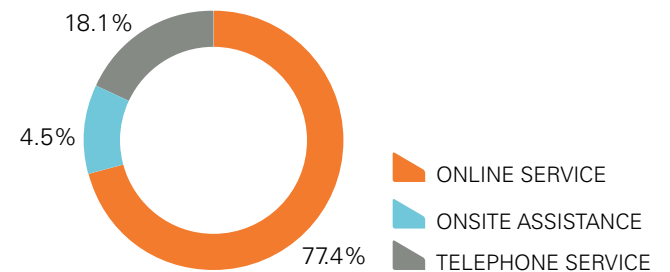
EDC (EQUIVALENT DURATION OF COMPLAINT) (HOURS)



EFC (EQUIVALENT FREQUENCY OF COMPLAINT) (UNITS)



CUSTOMER SERVICE BY TYPE



Resolved complaints

	2022
Received complaints	91,145
Complaints deemed to have merit in relation to the total number of complaints received	31,875
Complaints solved in relation to the number of valid complaints	31,875

Note: All complaints are solved within 30 days.



Communication actions

Copel DIS permanently maintains publicity campaigns for customers and the community about the safe and efficient use of electricity and the content also includes information about citizenship and care for the environment.

Radio stations, the company website and YouTube videos were the most used modes of communication used by the company in 2022. Copel DIS also maintains a corporate profile on LinkedIn, Twitter, Facebook, and Instagram.

Copel has an agreement with the Association of Broadcasters of Paraná, made up of 300 affiliates, that includes the broadcast of daily information. Each station broadcasts 11 30-second corporate messages a day, except on Sundays, which totals about one million messages aired per year, mainly

regarding the safe and efficient use of electricity. Such topics represent almost 60% of the airtime provided by the agreement. These channels also broadcast information on access to services, in addition to consumer rights. The year of 2022 marked many important partnerships between Copel DIS and universities and social and educational institutions for the creation of workshops, training, support actions, and guidance for the different stakeholders.

Numerous actions were also implemented in the communities, such as workshops and training sessions held both for company employees (own workforce and outsourced workers) and for the external audience (communities, social and educational institutions), covering topics such as human rights, diversity, environment, child labor, health, and Sustainable Development Goals (SDGs).



RADIO AND TV

More than 1 million messages aired. 59.6% of the content includes the responsible use of energy and topics related to sustainability

*Via an agreement with the Paraná Broadcasting Association



SOCIAL NETWORKS

[YouTube](#)

[LinkedIn](#)



PODCASTS

[Sustainability Energy](#)

presents each of the SDGs prioritized by the Brazilian electricity sector



GDCast

focused on innovation and distributed generation. All the content is available on the most accessed audio providers in Brazil as well as on Copel channels.

Residential disconnections

GRI EU27, SASB-IF-EU-240a.3

Shut-off services for lack of payment increased in 2022 compared to 2021, when disconnections were held off due to the COVID-19 pandemic. The suspension process is carried out automatically by the commercial management system of the consumer units and refer to invoices that are past due and have been given a period of 15 days to settle the payment to avoid disconnection. After the suspension, if the invoice is paid and there is no other outstanding invoice that prevents the reconnection, the system automatically generates a reconnection service. The reconnection services are performed as a priority and in compliance with the established technical standards.

RESIDENTIAL DISCONNECTIONS GRI EU27

Residential disconnections due to default	2021	2022
Less than 48 hours	354,423	469,590
From 48 hours to a week	39,457	55,920
From a week to a month	58,257	79,186
From a month to a year	47,881	65,849
More than a year	0	0

Power reconnections after payment, per term	2021	2022
Less than 24 hours	333,520	420,547
From 24 hours to 48 hours	18,708	23,595
From 49 hours to 72 hours	11,906	14,903
From 73 hours to 96 hours	5,648	5,867
From 97 hours to a week	9,079	10,299
More than a week	53,740	64,179



the services are rendered **automatically** for faster service



more than 420.500 power reconnections in less than 24 hrs



reconnection services are given priority



Customer accessibility GRI EU24

Copel provides several service channels to ensure contact with consumers and the population in general, among which include the website, 0800, Ombudsman and face-to-face service at agencies and owned and/or outsourced service stations (*Copel com Você*) located in all municipalities in its concession area. For visually-impaired consumers, energy bills are offered in Braille. Copel's website is adapted for people with visual and hearing impairments.

In 2022, the Migration and Refuge Project received two new volunteer training groups (*see more on page 118*). Available in five languages, booklets for migrants and refugees offer information about social programs and basic energy services. In addition to the digital version, the printed version of this material was also offered in 2022 and is handed out in actions with this audience and at Copel's agencies since this group does not always have access to digital resources.

audience on sustainability, safe and efficient use of energy, in addition to on-site commercial service to the population, aiming to facilitate access to services and assist in clarifying doubts.

Refugees and immigrants

Primers in different languages provide guidance on social programs and basic energy services:

Portuguese

Spanish

French

Haitian Creole

English

Ukrainian

[Click here](#)

The *Iluminando Gerações* (Enlightening Generations) Program offers guidance concerning the safe and efficient use of energy and natural resources in a playful and educational way for students from the municipal school system, companies, non-governmental social institutions and the community in general.

Copel also participates in integrated actions developed by the state and city governments, such as the *Mutirões da Cidadania* (Citizenship Groups) and *Paraná Cidadão* (Paraná Citizen), to offer guidance to the

Copel Free Market

Approximately 1.500 clients are present in the Copel Mercado Livre (Free Market) portfolio, located in 23 states. These are large energy consumers, mostly industries (Group A). **EU3**

Customer satisfaction is measured every year by a hired research institute. After-sales service is a strategic point in this relationship.

With the expectation of a greater opening of this market, the company invests in systems and new service solutions. The relationship channels include the website, which was improved in 2022, and also a WhatsApp service.



Safe use of electricity EU25

The number of individuals involved in accidents increased from 24 in 2021 to 35 in 2022. In regard to the communities where Copel offers services, actions aimed primarily at guidance and awareness are developed in connection with its products, ventures and administrative activities.

To prevent accidents in the community, Copel has the Permanent Committee for Risk Detection, made up of employees from all of the steering committees of Copel DIS. The purpose of this committee is to set up procedures and actions to handle situations registered in the Risk Detection program, inherent to the distribution network of the Company. The amount of accidents with the community is also monitored through specific indicators included in the Management Commitments.

Copel periodically conducts Safety Campaigns with the Community to instruct the population on the safe use of electricity through lectures for public school students, guidance for city and rural construction

workers, visits to private construction sites, placement of information material to farm equipment stores, unions, construction, hardware and paint stores, and for small informal service providers. The company also conveys information by leafleting in public places and disseminating the news through communication media and safety campaigns about electricity broadcast over radios, TVs and social networks.

Booklets and brochures in virtual and printed format are also available via the website, and at the branches. This material is also handed out at fairs and events in the communities, in commerce, industry, and construction, in the rural area.

Energy accidents GRI EU25	2021	2022
Individuals involved in accidents	24	35
Deaths	15	17
Pending health and safety lawsuits	104	17
Resolved health and safety lawsuits	6	3

Social Responsibility

GRI 413-1, 413-2, 203-1, 203-2

In awareness of its prominent role in society, Copel develops programs, projects and actions to benefit the community, taking into consideration the expectations of its stakeholders in its decisions, as well as finding alternatives that promote social welfare in line with laws, international norms of behavior and global development agendas, such as the United Nations Agenda 2030, which establishes 17 objectives and 169 goals to achieve sustainable development.

The implementation of new enterprises, besides generating jobs and income for the municipalities, may also involve having to mitigate or offset possible impacts caused by the activities. These impacts are assessed in the environmental licensing processes with public presentations and disseminated through different communication channels.

Copel puts in motion the social programs described in the Basic Environmental Plans

by creating simplified environmental reports and detailed reports of each enterprise's environmental programs.

One of the recent examples was the release of the results of the studies of the Environmental Plan for Conservation and Use of the Surroundings of the Manmade Reservoir (Pacuera) of the Bela Vista hydropower plant. Public meetings were held in the municipalities of Verê and São João, both in Paraná, in the vicinity of the project, to show the population the results of the zoning and the activities that are allowed or limited in the area surrounding the project. The meeting was streamed on YouTube and the recording of the meeting, as well as the information, is available on the [website](#).

In addition to the mandatory social programs within the environmental licensing context, Copel develops other actions aimed at communities within the corporate sustainability scope and in a corporate manner, such as the EducaODS Program.

See more about the initiative in the [Sustainability Portal](#).

The *Cultivar Energia* program for the planting and growing of vegetables under the transmission lines arose from a demand uncovered in studies and the ongoing monitoring of the impacts (see more about the project below).



The Social Investment Policy broadens the parameters established in the Donations Policy, defining guidelines for the allocation of company funds or through incentive laws.

The management of the social action indicators, mandatory or not, is based on the Sustainability and Corporate Citizenship Policy. The setting of goals is carried out by meeting the scope and deadline of the conditions, according to the laws in force, the good practices of the electricity sector, and the guidelines of internal policies. The deployment of the socio-environmental programs is tracked and assessed to follow the process of maintaining the environmental licenses for the implementation and operation of the projects.

By 2022, the impact assessments carried out by Copel covered 100% of the operations with significant impact (generation and transmission). **GRI 413-1**

Support in social investment guidelines

In 2022, Copel structured and approved the Social Investment Policy, which broadens the parameters established in the Donations Policy, defining guidelines for the allocation of company funds or through incentive laws, regardless if the contributions are voluntary or mandatory. The policy also supports the principle of connection with the SDGs prioritized by Copel as a criterion for defining social investments.

The subsidiaries must report voluntary and non-voluntary donations and contributions to the Holding Company's Governance, Risk and Compliance Office on a quarterly basis. The Executive Board, in turn, periodically informs the amounts earmarked for Private Social Investment to the Company's Sustainable Development Committee.

Private Social Investment (Investimento Social Privado - ISP)

BRL 26.4 million in social investments in 2022 via incentive laws





Promoting human rights GRI 2-12

Released in 2020 and revised at the end of 2021, Copel's Human Rights Policy formalizes guidelines to prevent, mitigate and remedy violations that may occur in the Company, in its production chain or in impacted communities, providing decent, inclusive work environments and eliminating inequalities.

To consolidate its application, Copel is standardizing oversight and assessment parameters, including the provision for due diligence for suppliers, and putting in place processes. This work, which began in 2022, involves a survey of priority topics related to human rights through consultation with various areas of the company and its subsidiaries and analysis of indicators of occupational health and safety, complaints received in the Whistleblowing Channel and other information. The purpose is to map all the practices already in place at Copel to prevent human rights violations and pinpoint the most critical areas and weaknesses.

In the case of suppliers, the goal is to start a pilot due diligence project targeted at human rights matters with field inspections to check practices. The regulations for this work, with the creation of standards and criteria to be checked in the visits to suppliers, are in the final stages of validation at Copel's compliance and legal area.

Copel also conducted in 2022 the first training course on due diligence in human rights for key areas, including procurement managers and socio-environmental management of subsidiaries, as well as the corporate legal and regulatory areas. One of the topics discussed was the assessment of impacts on human rights in the value chain, oversight and prevention actions and reporting and advancements in the due diligence process in companies. Six meetings, totaling 18 hours of training, were held and attended by 38 employees.



The agenda to promote human rights and due diligence to ensure that the principles and policy are adhered to by the Company and its suppliers is gaining more and more relevance and is a topic of special interest to stakeholders.

It is important to point out that the process of updating the Human Rights Policy carried out in 2021 was monitored by the Sustainable Development Committee, responsible for ensuring the application of the Board of Directors' guidelines. The policy, as well as Copel's Human Rights Program, are grounded on the same documents and initiatives, of which the basic premises are:



Review, setup and fine-tuning of Copel's policies and regulations for the prevention, inspection and mitigation of violations.

Production and dissemination of teaching material, with information on Copel's whistleblowing channels if violations are detected.

Courses, lectures and awareness-raising actions aimed at company employees, outsourced workers, the production chain and the local community.

Referential

The Human Rights Policy is based on the Universal Declaration of Human Rights established in 1948 by the UN. It is also anchored on the international standard of the UN Guiding Principles on Business and Human Rights, the Global Compact Principles, the Declaration of Fundamental Principles and Labor Rights of the International Labor Organization (ILO), and ISO 26,000:2010 - Social Responsibility.

Copel is represented in the Human Rights Work Group of the Global Compact Network Brazil, which enables the sharing of experiences with other companies and ensures it is up to date with the best sustainability practices.

Engagement with the Community GRI 413-1

EletriCidadania – volunteering

Created 18 years ago, Copel's corporate volunteer program is one of the most recognized business initiatives in Paraná. Employees can voluntarily and spontaneously dedicate up to four business hours a month on social actions. In 2022 alone, volunteers dedicated 1,648 hours to the projects.

A total of 261 volunteers took part in the program, covering topics such as human rights, education, inclusion, health, environment, citizenship, sustainability, and others, aligned with commitments voluntarily assumed by Copel, such as the Global Compact and the United Nations Agenda 2030 for sustainable development, summarized in 17 Sustainable Development Goals (SDGs).

One of the projects developed by the volunteers was recognized as the best in the southern region in the Federal Government's National Volunteer Incentive Award 2022, and was also a finalist in the Aplaude

Award - Voluntary Actions that Transform, promoted by the Centro Integrado de Estudos e Programas de Desenvolvimento Sustentável (CIEDS), curated by the Global Compact and supported by the United Nations Volunteers (UNV). The action, in partnership with the

Instituto de Tecnologia do Paraná (Tecpar) helps public high school students plan their careers. With editions in 2021 and 2022, the project benefited 144 teenagers and involved 190 volunteers, adding up to 852 hours dedicated to the activities.





Cultivar Energia (Cultivate Energy) program

This project encourages the creation of community gardens in urban empty lots located underneath Copel's power lines. In partnership with city governments, the *Cultivar Energia* program currently accounts for more than 40,000 m2 of land allocated for the planting of vegetables and legumes.

The initiative, which is growing rapidly, involves 445 families distributed in 12 gardens and was born from a partnership with the city governments of Curitiba, Ponta Grossa, Cascavel, Francisco Beltrão, Londrina, Umuarama, and Maringá.

The amount of production is noteworthy since each garden produces an average of 3 to 3.5 tons of food a month, which adds up to 33 tons of organic vegetables, fruits, and legumes produced monthly that benefit thousands of people. It is estimated that respectively around 1,700 people and 3,400 directly and indirectly benefit from this initiative, considering that the average interactions of direct beneficiaries are with third parties, who access the food produced in the vegetable patches via donations or sales.

This program works in tandem with municipal public policies for urban agriculture and social inclusion, and strengthens a set of actions to support the Sustainable Development Goals. Internally, it is consolidated as an auxiliary strategy to prevent squatters from occupying the land and increasing risks to the population. For the community, the main benefits are the environmental improvement of the urban space, an increase in food security, and the possibility of income generation.

Another initiative arising from the *Cultivar Energia* program is the *Compra Solidária* (Joint Purchase). It consists of periodic purchases made by Copel employees of the produce grown in the gardens. The purchases are made weekly by pre-organized groups of around 40 people and help complement the farmers' income, reducing uncertainties regarding the sale of their products. This is a movement that brings the company's workforce closer to the gardens and the farmers themselves since the farmers deliver the products directly to the employees, creating social awareness about the work done since both sides benefit from the healthy products.

Migration and Refuge project

With the aim of facilitating access to energy services and social programs for migrants and refugees arriving in Brazil, Copel provides translated primers in five languages - Portuguese, English, Spanish, Haitian Creole, Ukrainian and French - following the logic of linguistic interaction. This means not only translating the content but also teaching the terms in Portuguese so that the reader becomes familiar with the words and identifies them when using the Company's website and other channels (*see more on [page 69](#)*).

The second stage of the project initiated in 2020 offered training for employees engaged in volunteer actions with this audience. The training was held in partnership with Copel's Diversity Committee and was attended by more than 100 people. The training was conducted by Cáritas Brasileira Regional Paraná - an organization that develops national and international solidarity actions to assist communities affected by socio-environmental disasters or that are in vulnerable situations.

For over seven years the Empowering Refugee Women project, an initiative of the UN Refugee Agency (UNHCR), UN Global Compact in Brazil, and UN Women, has been working on the inclusion of refugee women in the Brazilian labor market.

Around 40 Copel's employees participated in the Empowering Refugee Women Program in 2022, held by the UN Refugee Agency (UNHCR) for migrants and refugees in Brazil - in partnership with Cáritas Paraná and Cáritas Curitiba. This was the first edition held in the south of Brazil and with the participation of volunteers, who were divided into 3 areas: Portuguese language assistance activities, children's recreation with the migrants' children, and workshops on relevant topics. Workshops were given on topics such as Brazilian Culture; Financial Education; CVs and job interviews; Work documentation in Brazil; Socio-emotional skills; Self-care and Health; Labor laws, rights and duties in Brazil, ECA, Maria da Penha Law; Copel's basic services and social programs.





Main initiatives

Campanha Energia Segura (rural area) - in a concentrated and joint effort, this campaign provided information statewide between November 21 and 25 and handed out material to workers in the rural area directly through Farming, Co-ops, and Hardware stores.

Campanha Energia Segura (civil construction) – from August 22 to 26, this campaign provided information and handed out materials to civil construction workers directly through construction sites and construction and hardware material stores.

"Se Liga" and "Click Esperto" games – launched in October, 2022, these games were designed for children between seven and ten years of age, as a complement to the content of the *Iluminando Gerações*

program. Through digital games, children have another way to put into practice, in a playful way, what they have already learned about responsible consumption and electric shock prevention.

Iluminando Gerações (Enlightening Generations) – Developed in partnership with teachers and the Municipal Education Departments, the Enlightening Generations Program develops educational actions for the safe and responsible use of electricity through lectures in schools, events, and generation of content to prevent accidental shocks and waste in energy consumption, besides encouraging habits aligned with the SDGs.

The target audience of the program are 4th and 5th graders in Elementary school but the program is in the process of being expanded to Middle School students through a partnership with the State Education Department of Paraná and the Municipal Education Department of Curitiba. More than 1.5 million students have already taken part in the project in 15 years of operation.

New projects – In new projects carried out by Copel, guidelines on health, safety and on the positive and negative impacts generated by Copel's presence in the region are addressed through the Awareness Program with the construction workers and the Community Relations Program.

To prevent accidents in the community, Copel has the Permanent Risk Detection Committee, made up of employees from all of the steering committees of Copel Distribuição, who come together to devise procedures and actions.



See more

Learn more about communication and awareness actions on [page 110](#)



Public policy



575,000
consumer units
benefited by the
Social Electricity
Tariff

Social Electricity Tariff (*Tarifa Social de Energia Elétrica*)

GRI 203-2, SASB-IF-EU-240a.4

This consists of granting discounts on the electricity tariff of low-income families enrolled in the Single Registry of Social Programs of the Federal Government with monthly family income per capita of less than or equal to ½ national minimum wage. Others that may benefit from the Continued

Provision of Social Care (BPC) are elderly people aged 65 or over or people with disabilities families registered in the *Cadastro Único* (Single Registration) with a monthly income of up to three minimum wages, people who have a disease or disability whose treatment, medical or therapeutic procedure requires the continued use of electricity-reliant equipment or instruments. The discounts apply to energy consumption up to a limit of 220 kWh. A total of 575,000 consumer units were benefited by the TSEE in 2022, through an Aneel disbursement of BRL 151.6 million for the program.

Casa Fácil Paraná (Easy Home) housing program

Copel Distribuição participates in the construction work of electricity distribution networks and in implementing service startups in ventures aimed at families with a monthly income of up to six minimum salaries. The costs incurred by Copel DIS in deploying the Program are reimbursed by the State of Paraná at every financial year. A total of 1,570 housing units benefited from this pro-

gram in 2022, which required an investment of BRL 3.81 million in distribution networks and service startups. GRI EU23

Night Irrigation and Aquaculture Tariff (*Tarifa de Irrigação/Aquicultura Noturna - TIN/TAN*)

The Rural Night Tariff Program, ended on 01/Jan/2023 under Law 20435/2020, was a state program that granted a 60% to 70% discount on electricity used for production in the period between 9:30pm and 6am as a way to encourage agricultural productivity. This program benefited 12,528 consumer units of rural producers in 2022, representing BRL 44.4 million in discounts granted in their electricity bills.

The Night Irrigation/Aquaculture Tariff is a federal program that granted a 60% to 70% discount on electricity tariff used exclusively for irrigation and aquaculture activities, in the period between 9:30pm and 6am. In 2022, 3,900 consumer units were benefited, totaling subsidies amounting to BRL 16.6 million.





Management of displacement impacts

GRI EU20, EU22

Populations that need to be relocated due to the implementation of energy projects can count on Copel's monitoring and full support. The process has as its cornerstone respect for people and human dignity.

In hydropower generation ventures, Copel GeT complies with the environmental laws and applies the socio-economic registration of the population. In transmission projects, the social, land and engineering areas work together to find a way, even during the stage of outlining the roadmap, to avoid relocation as much as possible. In the planning phase of the projects, a communication telephone channel (0800) and an email is made available to all those directly affected so they can ask questions about the process. Once the project has been established and the families that are likely to be relocated have been identified, the families are approached at home and

the contact details of the land and social experts overseeing the process are made available. Conversations with those affected are encouraged at this stage.

In the case of involuntary displacement, Copel acts on two fronts, according to the characteristics and conditions of ownership of the area (whether an owner or squatters, sharecroppers, and occupants). The search for amicable solutions is the basic assumption with fair financial compensation or social support in cases of families in vulnerable conditions.

The company's operations do not require the displacement of families. The routes of the lines are studied so as to cause the least possible impact on the environment and on the routine of the communities. Copel DIS also adopts substitutive technologies for bare networks as a way to mitigate the im-

act on vegetation besides ensuring greater protection in relation to risks in contact with electricity, both for people and animals.

There was no need to displace people in 2022, however, the Company paid indemnifications to properties during the year for the installation of new lines and substations. In the past three years, BRL 54.2 million was spent on cases of this type.

Number of people displaced and compensations GRI EU22

Displaced people	0
Indemnified people	1,179
Compensation for people displaced in the past three years (BRL thousand)	54,269



Relationship with indigenous people GRI 411-1, EU23, EU24

Traditional communities, such as quilombolas and indigenous people, are included among the populations surrounding the enterprises that Copel Geração and Transmissão operate. The relationship with this audience is focused primarily on initiatives to promote socio-economic sustainability and cultural appreciation of these communities. The actions are developed in two indigenous communities where the company has facilities: the Apucarana Indigenous Territory in the municipality of Tamarana, where the 10 MW Apucarantina hydropower plant is installed, and the Barão de Antonina Indigenous Territory in São Jerônimo da Serra, intercepted by the 230 kV Figueira - Apucarana Transmission Line.

The performance of the activities was made possible through the creation of specific funds owned by the respective communities with the objective of funding programs inside the Indigenous territories. The innovation that this financing model brings is its hybrid management since the funds are managed by joint management committees made up of representatives of Copel and representatives of the indigenous communities with oversight by Fundação Nacional do Índio -

(FUNAI)¹ and the Public Prosecutor's Office. The investments are established in discussions with the communities and their representatives, taking into consideration their forms of organization and tradition.

In order to meet the demand for electricity by the Indigenous communities located in environmental protection areas or other areas where it is not possible to implement a grid, Copel Distribuição develops projects for new power connections with the installation of photovoltaic panels, guidelines on the efficient use of electricity, as well as also registers the Indigenous communities in the Social Electricity Tariff.

Copel Distribuição also participates in the meetings of the State Council for Indigenous People and Traditional Communities of Paraná to listen to their demands and offer explanations to all participants. Several agencies attend these meetings, such as Water and Earth Institute (*Instituto Água e Terra - IAT*), National Indigenous Peoples' Foundation (*Fundação Nacional dos Povos Indígenas - Funai*), Palmares Foundation, Brazilian Institute of the Environment and Renewable Natural

Resources (Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis - Ibama), National Institute for Settlement and Agrarian Reform (*Instituto Nacional de Colonização e Reforma Agrária - Incra*), National Transport Infrastructure Department (*Departamento Nacional de Infraestrutura de Transportes - DNIT*) e the Chico Mendes Institute for Biodiversity Conservation (*Instituto Chico Mendes de Conservação da Biodiversidade - ICMBio*), as well as representatives from traditional communities (quilombolas, river-side communities, collective animal breeding groups, Indigenous people, and traditional fishermen). Since 2018, Copel GeT has accompanied, together with Copel DIS, the actions to update the registration of consumer units in the Apucarana Indigenous Territory, resulting in a 44% increase in the inclusion of indigenous families in social energy programs (*Tarifa Social de Energia Elétrica* and *Programa Luz Fraternal*), in addition to carrying out network extension works and the individualization of consumer units.

There was no record of violations of indigenous peoples' rights in any of Copel's operations in 2022.

¹ Funai is the national institute for the protection of the indigenous



Relationship with Suppliers GRI 2-6, 204-1,

308-1, 308-2, 407-1, 408-1, 409-1, 414-1, 414-2

Copel has strengthened its relationship with suppliers by implementing sustainable development initiatives through improvements in the management of the production chain and the optimization of resources that can benefit the community.

The company's supply chain is diversified to meet the needs of its business of generation, transmission, trade and distribution of electricity, including manufacturers of materials, heavy machinery, and service providers, among others. The Holding Company's main suppliers, for example, are service providers, such as for cleaning and maintenance, surveillance, reception, real estate rentals, maintenance and renovation of facilities, consultants, travel agencies, etc. or they supply materials for common business needs. The Company had a total of 7,200 in 2022.

Also in 2022, Copel started to assess suppliers through a survey at the corporate level

that will further support the risk management process in the supply chain. The process as yet under way, includes information related to integrity, among other issues, and will subsidize more objective parameters for the classification of the criticality of suppliers.

Another priority in supplier management is the human rights due diligence process (*see more on page 116*).

In order to classify, hire suppliers and make acquisitions, Copel opens a tender and follows the rules of the Internal Regulation for Tenders and Contracts, and the current laws, which includes Federal Law 10520/2002 (which establishes the bidding modality in the trading session format) and Complementary Law 123/2006 (which establishes the Brazilian Law for Micro and Small Enterprises).

As a mixed-capital corporation, Copel is subject to Federal Law 13,303/16 and its In-

ternal Regulations for Bidding and Contracts, which restrict supplier selection actions. However, the company uses as criteria in the selection of suppliers, compliance with labor, human rights, tax, and environmental legislation. When selecting services or products that may cause an impact on the environment, Copel requires environmental certificates and qualifications from the company and the professionals.

In the qualification stage, all suppliers are required to submit a "Statement of Social and Environmental Responsibility", which includes the prevention of child labor, degrading conditions or slave-like conditions; respect for human rights, freedom of association and collective bargaining and the environment. The contractual demands also include incorporating the Global Compact Principles, prioritizing the hiring of local and small and medium suppliers, hiring and training professionals with disabilities, elimi-

nating bullying and sexual harassment in the workplace and others. To further support all these points, Copel sends its Sustainability Policy, Code of Conduct and Supplier Manual to its suppliers.

Inspections may be carried out at any time at the contracted party's headquarters or at the activity site to verify compliance with contractual clauses. Copel also organizes awareness meetings and offers informative material on topics such as forced or slave-like labor.



7,200 suppliers
are part of Copel's base

The criteria used to select and hire suppliers are based on internal policies and standards, such as:

Internal Regulations for Tenders and Contracts, in compliance with Federal Law 13,303/2016, NAC 030904 - Contract Management

NPC 0201 - Supply Policy, NAC 030406 - Supplier Assessment

Company Code of Conduct, Supplier Manual, and Solid Waste Management Manual

NPC 0322 – Privacy and Personal Data Protection Policy, in accordance with the General Personal Data Protection Law (LGPD, 13,709/2018 of August 14, 2018).





Micro and small companies and micro-entrepreneurs receive differentiated treatment in accordance with Federal Law 13,303/2016, which ensures benefits for these companies. Tenders that are exclusive or that give preference to micro and small companies and micro-entrepreneurs in tie-breaking criteria are also held. There are no specific procedures, however, for the hiring of local suppliers.

Non-compliance with contractual clauses regarding the environment or social responsibility leads to sanctions based on the seriousness of the case, including warnings, fines, suspension from participating in tenders, contractual termination and notices sent to relevant legal agencies informing of a possible infringement.

Labor aspects GRI 414-2

The suppliers attend integration meetings and must offer information, such as their list of employees, documentation such as work cards and occupational health certificates, and employee registration forms to the Regional Labor Steering Committee, among other requirements.

Copel Distribuição holds the Copel DIS Supplier Award, in which it evaluates social impacts in the supplier network. In 2022, the process assessed 125 suppliers, nine of which were identified as causing significant negative social impacts, such as the involvement of employees in serious accidents involving leaves or fatalities.

Percentage of expenses with local suppliers ¹ GRI 204-1	2022
Copel Holding Company	34.64%
Copel Distribuição	18.61%
Copel Geração e Transmissão ²	71.28%

1. Copel considers local suppliers those that are headquartered in Paraná.

2. In the case of Geração e Transmissão, besides Paraná, the states of Mato Grosso, Rio Grande do Norte, Santa Catarina, and São Paulo are also considered.



See more

To see more about the management of suppliers of Copel DIS and Copel GeT, see [Sustainability Portal](#) or [Social-Environmental Reports](#)



Human Capital

SDG



Capitals



Copel's People Management Policy - Human Resources has established principles and guidelines to direct management with a view to developing and maintaining people's health, safety and quality of life. It is also designed to add value to the processes and serves as a basis for decision making and for the implementation of current and innovative programs and practices.

In alignment with the market, Copel adopts the concept of "State-run company with a private mindset" in its operations aiming to create similarity in its conduct with other private companies in the sector.

In 2022, the Policy, valid for the Holding Company, its wholly-owned subsidiaries and controlled companies, was revised and was re-approved by the Board of Directors to ensure that the content is in sync with the strategic planning and the new challenges.

The company culture is assessed by Cameron and Quinn's (1999) diagnostic instrument, the Organizational Culture Assessment Instrument (OCAI), which pinpoints the predominant cultural characteristics of the company for the development of culture when necessary, organizational aspect improvement and to respond to demands, in accordance with Copel's health and safety programs (*see more on [page 140](#)*).



Staff structure GRI 2-7, 2-8, 404-2

Since it is a government-controlled company, in which the majority shareholder is the government of the State of Paraná, the employees are selected through a public exam guided by the principle of equality and equal opportunity. Therefore, there are no commissioned positions in the organization. In 2022, the total number of employees was 5,875, 8% less than in 2021.

In its search for business efficiency, Copel has put in place a Voluntary Dismissal Program (VDP), which creates a balance between the need to streamline the business and generate gains from digitization with the best possible conditions for those wishing to make a career transition. The VDP process has been accelerated in the past two years because of the divestment of the telecom business (with the sale taking place in 2020 and the control transfer in 2022).

Copel chose to reposition the employees

who continued in the company into new jobs, which shows its concern for people. They were also given the option to resign by joining a VDP, considered to be the company's largest.

With the help of consulting firm FIA Business School, Copel also revised its corporate structure in a process that reduced management positions by 20% and optimized economic performance.

In 2022, 440 of the 511 employees who left the company joined the Voluntary Dismissal Program. 93 of this total chose to use the consulting and/or course benefit to help with career transition, totaling BRL 375,200 in addition to the indemnities received.

To support operational areas and specific jobs, Copel adopts the provision of services (hiring outsourced employees). The management of these contracts is managed by the hiring area and is not linked to the Company's People Management Policy. The

third-party hiring program follows all legal and labor safety requirements, with provisions on the subject in the Supplier Manual and in the Hiring Manual. It is up to the contract manager to monitor and supervise the entire process, from hiring to performance and delivery of the contracted work.

Most of the outsourced workers are allocated to the operational areas of Copel DIS and Copel GeT, in addition to the Shared Services Center (Centro de Serviços Compartilhados - CSC) of Copel (Holding Company), and are concentrated in activities such as conservation and safety of facilities, engineering work, administrative services, auxiliary, commercial and support services, and technical and operational services. The company had 8,574 outsourced workers in 2022.



5,875
was the number of Copel employees at the end of 2022

In search of **business efficiency**, Copel has not hired new employees for five years and offers the **Voluntary Dismissal Program (VDP)**.



Certified management maturity

Copel received from the National Quality Foundation (Fundação Nacional de Qualidade - FNQ) the first assessment certificate dedicated to the maturity of the human resource management of the company. The MEG HR Seal is the result of an extensive analysis of the organization's processes and their adherence to the reference practices observed in top tier companies.

A few of the strong points pointed out were the strategic performance of the HR area, performance management, the meritocracy policy, and the care taken with job security and the employees' quality of life.

online and on-site meetings, access to the system, generation of overtime, etc. Such data enables the manager to better manage and make decisions so the processes can run smoothly.

The conditions for adhering to the hybrid work regime are set forth in the Collective Bargaining Agreement.

Employee satisfaction

In 2022, the Corporate Environment Survey Diagnosis, Great Place to Work For All heard 73% of the employees, which equals to more than 4,000 employees who answered questions related to the corporate environment. The survey, carried out independently by GPTW, resulted in an average assessment of 65 for Copel, compared to 70 in the 2021 survey.

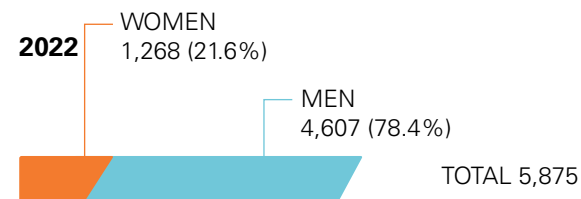
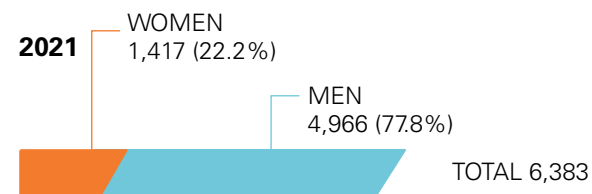
remote and face-to-face work. The guidelines are comprehensive and start from the top down until it reaches the manager, who is in charge of assessing the request, considering the type of activity the employee performs and his/her productivity, among other points. After this study, the decision was made to allow hybrid work - the new rule allows from one to four days a week worked from home.

Establishment of hybrid work

From the lesson learned during the pandemic, Copel launched the guidelines for its hybrid work program, which combines both

It is important to point out that not all areas are eligible in this process because of the characteristics of each job, such as the operational ones. To ensure the efficiency and good performance of the model for the employee and for the business, Copel monitors indicators such as participation in

COMPANY EMPLOYEES, BY GENDER GRI 2-7



1. Copel does not have any employees on zero-hour contracts.



People Development GRI EU14

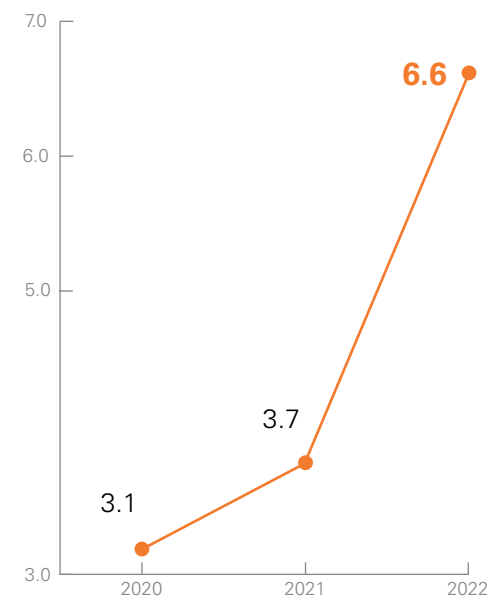
The Corporate Education Policy lays out the conduct for the promotion of training and development actions for people, which must be structured according to Copel's mission, vision and values. The guidelines range from basic training to extension courses and the development of research.

Copel also offers courses with content related to quality management, languages, processes and projects, and auxiliary management tools. Funds are also invested in non-degree graduate programs and non-masters or doctorate postgraduate courses aimed at professionals who wish to acquire more knowledge in their business area. Partner educational institutions also offer benefits to employees, some of which extend to their dependents.

Mainly the employees in the technical area significantly increased their skills in 2022 after a boost in on-site training. The corporate education model offered by the Corporate COPEL University (UniCopel) was also revisited during the year. In addition, it offered content on diversity, internal controls, cybersecurity, and code of conduct, among others.

The average number of training hours per employee was 35.95 in the period, as compared to 22.61 the previous year. The financial investments with development have also been ramped up, reaching BRL 6,584,716.

INVESTMENT IN TRAINING AND DEVELOPMENT (BRL MILLION)



Total and average hours of training by gender <small>GRI 404-1</small>	Employee total	Hours of training	Average training hours
Men	4,607	174,146.93	37.80
Women	1,268	37,033.15	29.20
Total	5,875	211,180.08	35.95



Performance assessment GRI 404-3

The performance management model, dubbed *Nossa Energia* (Our Energy), is an important management tool to foster the development and appreciation of employees based on their performance, as well as to align and link employee performance to the achievement of the Company's strategic goals.

The Company hired FIA Business School to carry out an assessment and redesign the program in 2021. The first edition of the new model was launched in 2022 and it focuses on performance management and competency assessment consistent with the Company's strategic planning. As a good market practice, the governing boards now participate in the assessments to support the consolidation of the reviews carried out by the managers and support the assessments of their teams' performance. The assessment program for the 2022 period is underway and should be completed in the first half of 2023. The goal is to keep 100% of the skilled employees evaluated, as in the last three years.

Remuneration and benefits

GRI 2-20 , 401-2

The Career and Remuneration Structure document describes careers and their respective remuneration based on market practices, job, and level of education and qualification. The benefits and short-term variable remuneration are established in the Collective Bargaining Agreement, held annually by the unions and Copel. The entire process is managed by the corporate human resources area (valid for the Holding Company, subsidiaries, and controlled companies).

The review of the process is carried out periodically with the support of remuneration consultants, alignments with the boards and market comparisons. The employees can share their opinion regarding the remuneration policy in annual work environment surveys (GPTW). In addition, the employees' expectations are expressed and considered in the periodic meetings held between Copel and the unions that represent the employees.

In order to reinforce the meritocracy culture at Copel, the Performance Bonus (Prêmio por Desempenho - PPD) is a variable and periodic remuneration to recognize

employees with outstanding performances based on the achievement of different levels of financial, operational and sustainability goals. The benefit, which recognizes results at different corporate levels (board, steering committee, department, division), is an opportunity for the goals set to be discussed by managers and employees and monitored with greater frequency and attention by all, encouraging the prioritization of activities and the definition of work methods.

In 2022, the total annual remuneration of the highest paid individual (not considering the CEO) was 4.6 times higher than the average annual remuneration of the other Copel employees - in 2021 this difference was 5.43. If considering the CEO's compensation, the ratio becomes 11.79 times, considering the median of employees with 12 salaries in 2022. If, instead of the median, the average remuneration of the employees is considered, and still including the CEO, this ratio becomes 10.08 times. GRI 2-21



Annex

See the details of the Human Capital indicators



Copel offers all its employees a benefits package that exceeds legal requirements and is compatible with that of benchmark companies in people management. To make information more transparent, the Balance of Benefits of Copel (Balanço de Benefícios da Copel - BBC) annually discloses the salaries, bonuses, profit sharing, pension plan, food allowance, day care allowance, performance award and health plan, among others. The health plan is based on the co-participation model.

Regarding maternity leave, the Constitution provides for 120 days of leave but Copel offers an extra 60 days in addition to reducing the daily work day from 8 to 6 hours, with no impact on salary, for 60 days after the return from maternity leave to encourage and promote breastfeeding. This benefit extends to mothers who adopt, even for late adoptions. Paternity leave is also extended, totaling 20 working days.

GRI 401-2

Collective Bargaining Agreement (CBA) GRI 2-30

At Copel, 100% of the employees are covered by collective bargaining agreements. With a base date in October, the negotiations of the 22/24 stage were not concluded until December 2022. After three deliberations, the Company's proposal, which defines the adjustment of salaries and allowances, bank of hours and working hours, vacations, funding by the Copel Foundation, and the Voluntary Dismissal Policy (VDP), was approved in January 2023.

The complexity of the negotiations involving 18 unions that represent Copel's employees was due to the disclosure of news about the Paraná State Government's decision to change the Company's legal structure to a corporation without state control (*see more on [page 49](#)*). Copel, recognizing that this fact has changed the expectations and trajectories of its employees since the matter became public, has stepped up its communication about the process, which is still under way, and strives to conduct all the negotiations about the subject in the CBA discussion environment with the utmost respect. During the negotiations, Copel presented an extended VRP to regulate the possibility of downsizing the workforce until 2027.

It is important to point out that for all significant changes in the corporate structure, a formal change management plan is carried out with a plan to disclose the change to all parties affected, defining what, when, how and in what way those affected need to be informed and/or involved. However, Copel maintains a close relationship with employee representatives and usually informs them in advance when significant operational changes will take place in the organization. **GRI 402-1**



Bem Gestar (Good Pregnancy) Program

In order to offer special care during pregnancy, Copel introduced the *Bem Gestar* program, which offers a series of actions that include an online group for pregnant women and support rooms for breastfeeding and responsible fatherhood. The program also extends to pregnant women of children of parents who are Copel employees.

The Copel Foundation continuously offers training for future parents with post-natal care guidance. It also encourages parents to perform prenatal exams.

Copel's employees are also entitled to:

Women: the benefit extends to six months. In addition, the workday for women, who have returned from leave, is reduced to 6 hours for 60 days so they can carry on breastfeeding.

Men: The paternity leave is 20 days.

Pension plan and retirement plan

GRI 201-3, 404-2

Copel offers, through the Copel Foundation, a supplementary pension plan, in which the employees are given the option to set up a financial reserve fund during their careers. With contributions from the employees and Copel, it is eligible for all employees. Membership is voluntary and also makes the participant a beneficiary of the health plan.

The Pre-Retirement Program (*Programa Pré-Aposentadoria - PPA*) has been offered

since 1979 and, among other things, offers financial and pension education, which discusses the importance of retirement planning and a series of activities involving topics, such as consumer habits and savings, entrepreneurship, quality of life, and health.

A new learning track was introduced in 2022 to help employees create a life plan and it involved integral health and personal strategic planning content.

EMPLOYEES WHO MAY RETIRE IN THE NEXT 5 OR 10 YEARS BY JOB CATEGORY

GRI EU15

Line and connection workers	21.18%	34,73%
Power plant operators	13.64%	22,73%
Engineers	15.74%	29,07%
Maintenance mechanics	17.42%	32,75%
Other	24.18%	37,59%
All employees	22.03%	36,00%



Diversity

GRI 405-1, PRME 3, 6

Copel has a Permanent Committee for the Promotion of Diversity to foster equity and compliance with human rights in the Company with priority given to vulnerable groups and those subject to discrimination, especially those based on gender, race, color, disability, and sexual orientation.

Identifying weaknesses and improving the way the Company handles issues related to diversity is an essential part of its position as a company that abides by the commitments undertaken with the UN Global Compact and the Sustainable Development Goals, particularly SDG 5 - Gender Equality, SDG 10 - Reduce inequalities and SDG 8 - Decent Work and Economic Growth.

With basis on these principles, Copel undertook a commitment in 2022 to increase the involvement of women in top leadership. The goal is to increase the number of women in these positions by 40% by 2025 - currently, they make up 17% of the senior

leadership. If all jobs are considered, women make up 21.6% of the staff.

To strive for greater diversity in its leadership, Copel has designed a Female Leadership Development Program with action fronts that involve profile, self-knowledge, incentive actions to encourage diversity, and support network and tools. In addition to the review on the profile of the management positions, Copel formed the first group to take part in a series of meetings and training sessions. It was attended by 90 women and the first meeting, which was held online, took place as recently as 2022.

Specific projects are also in place in the subsidiaries. At Copel DIS, DISversidade (DISiversity) was reinforced with a plan to find and eliminate possible gaps that hinder the access of minority groups to leadership roles, whether related to technical, psychological or social capital issues, as well as others. The action also seeks to map and

Women at Copel

Gender equality is one of Copel's commitments, underpinned in Vision 2030 with the goal of increasing the share of women in leadership positions by 40% by 2025. The current representation of women in these positions is as follows:

89 women in management positions, representing a total of **23% of all managers**.

53 women in starting management positions, representing **23.9% of all starting managers**.

6 women in top management positions, representing **17.6% of the total top management**.

1 woman director, which represents **14.3% of all boards**.

1 woman on the Board of Directors, which represents **11.1% of the total**.

10 women in management areas that generate income, representing **21.3% of all managers**.

350 women in STEM* fields, which represent **17.8% of the total number of professionals in the fields**.

300 women in administrative positions, which represents **45.6% of the total number of professionals in these positions**.

**Science, Technology, Engineering and Mathematics*



develop women for the succession bank. Twenty-two female managers are taking part in actions aimed at furthering their careers, such as coaching and mentoring sessions, outside training, and other activities.

At Copel GeT, a program focused on managerial positions was kicked off in the Operations and Maintenance Board - the department is formed mostly by engineering professionals, the study area with the lowest participation by women at Copel - 13%. A survey with more than 60 professionals from the board of directors described their perception of their activities, professional fulfillment, and their aspirations. The results have been used to support actions to encourage self-development, competence mapping for professional guidance, mentoring with current managers (godmothers), and events with inspiring female leaders.

The importance of upholding respect for and protection of human rights and the elimination of discrimination in employment is formalized in the [Human Rights Policy](#) and in the [Sustainability Policy](#) of Copel. The

promotion of diversity in the company also reflects Copel's connection with the UN Women Empowerment Principles (WEP).

The company maintains a specific committee (Committee for the Analysis of Bullying Claims - Cadam) to look into issues involving harassment. One case of discrimination was registered in 2022. It was duly analyzed and the necessary remedial measures were applied without the need to implement a remediation plan. **GRI 406-1**



22 managers participate in actions to accelerate their careers

TOTAL EMPLOYEES, BY JOBTYP AND GENDER GRI 405-1

Job category	Total	Women		Men	
		Number	%	Number	%
Operational	18	0	0%	18	100.0%
Secondary-level technical professional	1,450	102	7.0%	1,348	93.0%
Secondary-level professional	3,271	866	26.5%	2,405	73.5%
University-level professional	1,136	300	26.4%	836	73.6%
Total	5,875	1,268	21.58%	4,607	78.42%



Capital Development | Human Capital | Diversity

DIVERSITY IN GOVERNANCE, BY GENDER GRI 405-1

Governing Bodies	Board	Board of Directors	Fiscal Council	Statutory Audit Committee	Other entities
Percentage of members, by gender					
Male	85.7%	88.9%	100.0%	100.0%	92.9%
Female	14.3%	11.1%	0%	0%	7.1%
Percentage of members, by age group					
Under 30 years old	0.0%	0%	0%	0%	0%
From 30 to 50	71.4%	44.4%	20.0%	0%	42.9%
Over 50	28.6%	55.6%	80.0%	100.0%	57.1%
Percentage of members, by color/race					
Asian	0%	0%	0%	0%	0%
White	100%	88.9%	100%	100%	92.9%
Indigenous people	0%	0%	0%	0%	0%
Mixed race	0%	0%	0%	0%	0%
Black	0%	11.1%	0%	0%	7.1%
Percentage of members, by vulnerable group					
Women	14.3%	11.1%	0%	0%	7.1%
Blacks	0%	11.1%	0%	0%	7.1%
People with disabilities	0%	0%	0%	0%	0%
LGBTQIA+	0%	0%	0%	0%	0%
Indigenous people	0%	0%	0%	0%	0%
Over 50	28.6%	55.6%	80%	100.0%	57.1%



Actions

Initiatives to promote diversity in gender, race and color, age, religion, and sexual orientation, as well as to include people with disabilities, migrants, and refugees, go beyond the internal teams. Copel seeks to exercise its leadership within the value chain and raise awareness and support actions in the supply chain and in society in general. The following are some of these actions:

Unconscious biases: new challenges in the world of work

The lecture given by Mirian Goldenberg, professor of the Cultural Anthropology Department and of the Graduate Program in Sociology and Anthropology of the Philosophy and Social Sciences Institute (IFCS) at the Federal University of Rio de Janeiro (UFRJ), was attended by over 500 people. At the event, the importance of all people identifying unconscious gender issues was highlighted, taking into consideration three levels of understanding: discourse, behavior, and values. Several aspects about the cultural image of men and women were addressed on the occasion.

Black Awareness Month

The program included a series of informative talks about structural racism and how to adopt an anti-racist stance. There was also the launch of an episode on racial diversity in the podcast *Energia da Sustentabilidade* (Sustainability Energy), a cultural event to honor black artists and remind the listeners of the company's whistleblowing channels.

In 2022, 47 hours of training and diversity events were held, with 2,918 participants from 38 municipalities in Paraná, Mato Grosso and Rio Grande do Norte - states when Copel has operations.

The educational quizzes on Indigenous Diversity Day, LGBTQIA+ rights, and Black Awareness month were attended by 1,447 participants from 78 municipalities in Paraná, Mato Grosso and Rio Grande do Norte.

In all, the trainings, events and quizzes brought together participants from 84 municipalities in Brazil in 2022.



Copel seeks to exercise its leadership within the value chain and raise awareness and support actions.

Diversity - Results 2022

Total training hours	40.20 hrs
Total hours of events and training	47 hrs
Total participants in training	2,256
Total participants in events and training	2,918
Total participants in quizzes	1,447



LGBTI+ Rights

In 2022, a page about LGBTI+ Rights was created in the internal network, with topics such as: what is discrimination and homophobia, how to act and how not to act in order to be an ally; legislation; social name; Whistleblowing Channel; suggestions for sites about the topic; research data. In addition, awareness-raising actions and the launch of an episode about the LGBTI+ issue and labor relations aired in the Sustainability Energy podcast. In addition, awareness-raising actions and ad episode about the LGBTI+ issue and labor relations were aired in the Sustainability Energy podcast.

Campaign to Fight Gender Violence

A series of four videos produced by Copel's Diversity Committee on gender violence was available on YouTube in 2021 and 2022. The production was staged by the theater group formed by the employees themselves and addresses issues such as the role of men, signs of violence against women and hot to identify and give guidance in the case of an abusive relationship.

Diversity newsletter

This newsletter, issued every quarter in corporate notices, includes a summary of the actions of the Permanent Commission for Diversity Promotion and encourages discussions about this topic in the Company to keep the subject current and included in the conversation and corporate culture. Communication and marketing professionals undergo mandatory diversity training every year.

Diversity focus group

These groups aim to improve contact with the in-house staff of different municipalities and listen to them in order to broaden the engagement and the accuracy of the Commission's actions. With voluntary participation, it addresses issues such as gender, race/color, accessibility, age, religion and people with disabilities.

More Inclusion

A comprehensive project for attitudinal accessibility was implemented in partnership with the Social Action for Equality of Differences (Ação Social para Igualdade das Diferenças - ASID). The training was attended by 1,293 employees, representing 22% of the staff. Specific workshops for managers were attended by 59.2% of the managers and for HR, 75% of this group attended. The communication and marketing team also received training. The final stage comprised corporate volunteer actions held in five cities in Paraná, offering help to prepare résumés for the market and the delivery of a guide-book on accessible communication.

Social name

Copel respects everyone's identity and understands that adopting a social name helps people feel comfortable in their work environment. The employee may choose to use the social name on a badge, email and corporate telephone guide in accordance with internal regulations.



Annex

See the details of the Human Capital indicators



Health and Safety

GRI 3-3, 403-1, 403-2, 403-3, 403-4, 403-5, 403-7, 403-8, EU16, EU18, PRME 1, 2, 3

In order for the health and safety management to act cohesively, it is conducted by a multi-professional team with professionals from the areas of Engineering, Occupational Medicine, and Social Care. The Occupational Health Medical Control Program (Programa de Controle Médico de Saúde Ocupacional - PCMSO) is linked to the Risk Management Program (Programa de Gerenciamento de Riscos - PGR) and oversees aspects related to the different regulatory standards, activities, dangers and environmental risks in every, role or activity, focusing on identifying possible injuries and problems caused by these risks.

A few of the processes included in the management are: monitoring of absenteeism indicators (absence); performance of periodic and preventive exams, and accident frequency and severity rates with company and outsourced workers.

All workers, activities, and workplaces are covered by the risk management program and the process is conducted by the work

safety area (SESMT) along with the employees and the Internal Accident Prevention Committee (Comissão Interna de Prevenção de Acidentes - CIPA). All professionals involved in the activity are technically qualified to analyze hazards and risks and instruct employees in the methodology before the assessment process begins.

The Balanced Scorecard methodology serves as a basis for defining health and safety indicators - and consequently for the strategic planning of relevant actions -, which are included in the Management Contract with the subsidiaries and broken down into the indicators of the Management Commitments of the steering committees and departments.

The attention to health and safety is a non-negotiable guideline and whose initiatives continue to be improved and expanded in the search for excellence. To further reinforce this assumption, the topic began to impact the variable remuneration of the Company's leaders and other employees in 2022. It was established that 10% of this

remuneration is linked to the goal of zero fatal accidents involving Copel employees and outsourced workers.

Three deaths of outsourced workers were registered in 2022 and no deaths of company employees in the same period.

A non-negotiable premise of the company, care for health and safety, continues to be improved and expanded. The topic began to impact the variable remuneration of the Company's leaders and other employees in 2022.

Risk identification and prevention

In the work routine of Copel employees, several activities are conducted at the addresses of the concession area (situated in urban, rural and maritime areas) that have significant accident risk. The main situations that generate serious events are related to traffic, the appearance of living creatures, falls from height, crashes (impact of people against and by objects and, above all, electricity.

The occupational safety area, the Internal Accident Prevention Committees (CIPAs) and other Company areas are in charge of identifying occupational risks and defining preventive actions.

The Occupational Health and Safety Policy ensures that all employees have the right to postpone any task in which they feel at risk. Copel's Conduct Code determines that no employee may perform activities without safety conditions and without complying with the current laws or technical standards and instructions. Complaints of non-compliance with these guidelines can be made through the Whistleblowing Channel.



The Labor Health and Safety Policy ensures that employees and contractors have the necessary technical and safety training needed to handle risk in the workplace and in complex activities.



Learn more about the initiatives adopted by Copel to promote a culture of occupational health and safety:

Internal Accident Prevention Commissions (Comissões Internas de Prevenção de Acidentes - CIPAs)

Internal Accident Prevention Commissions (Comissões Internas de Prevenção de Acidentes - CIPAs): distributed by Copel establishments with the purpose of identifying work-related risks and drawing up risk maps and a plan to put in place preventive actions. During their participation in these committees, the employees discuss issues related to health and safety and, when necessary, refer a situation for analysis. The requests resulting from these discussions are communicated to the work safety areas, which forwards the issue to the appropriate area. The CIPAs set up annual Internal Accident Prevention Weeks (Semanas Internas de Prevenção de Acidentes - SIPATs), when lectures on topics related to health and safety are offered by both employees and outsourced professionals.

CIPAs in Action: this app enables registration of Near-Misuses, CIPA minutes, miscellaneous records, flow of submission and consultations, accident control, forms and regulations, sector scoring and meeting schedule.

Safety Minute: weekly meetings held by the workforce to discuss information relevant to occupational safety.

Risk Detection: facilitates the registration of accident risks inside and outside and helps those involved in work safety to plan, execute, and monitor the mitigation measures that have been planned and adopted.

Occupational Safety Health Management (Gestão de Segurança e Saúde no Trabalho - GSST): its purpose is to define the procedures and detect the risks and preventive actions involved in operational tasks with the help of the workforce in the improvement of processes.

Preservando a Vida (Preserv-ing Life) (PPV) Program: in-field monitoring of technical and safety procedures during the performance of activities of employees and contracted parties. In 2022, the actions based on the observation and behavior of the teams was enhanced with PP+V.

Golden Rules: underline the importance of safe behavior in the development of operational activities. The rules are inviolable and show absolute respect for life.

Copel Video Monitoring (Vídeo Monitoramento Copel - VMC): operational teams from Distribution use images from cameras installed in the fleet vehicles to expand safety inspections and improve accident prevention mechanisms.

Electricians' Rodeo: to foster the culture of work safety and the job performance development of electricians, Copel encourages them to get involved in the Electricians' Rodeo, a nationwide contest for professionals of the electricity concession operator to reinforce safety rules and showcase their skills and talents.

Safety Months: meetings held with each steering committee, in which everyone focuses on putting in place preventive actions.



Risk Management Program - RMP

Every year, an evaluation of the risks, identification of possible dangers, and the application of the control hierarchy to eliminate or mitigate them is carried out according to the Risk Management Program - RMP. The process covers all areas of the company, whether administrative or in field.

In outside activities, the inspections are conducted by employees with full knowledge of the safety norms and procedures, in line with specific parameters. The workers themselves can report hazards or hazardous situations related to work through Risk Detection (*Caça ao Risco*), a process in which the accident analysis group and the responsible CIPA president will take the necessary measures to block it or improve the procedure standards for field activities.

Safety training

GRI EU 16

The Labor Health and Safety Policy ensures that employees and contractors have the necessary technical and safety training needed to handle risk in the workplace and in complex activities. The Training area pinpoints the needs and then the employee's management identifies, analyzes and tracks them.

The SG3 system controls and audits all documentation related to contracted parties, including health and safety training, offering a complete document-based audit of the Labor, Social Security, Land, Safety, and Occupational Medicine obligations. The contracted parties undergo training at the start of the activities, at which time the risks and precautions related to health and safety for the performance of the tasks are addressed.

Additionally, for risky activities, mandatory training completion certificates are required, as provided for in the regulatory standards of the Labor and Employment Ministry, in addition to the presentation of a valid Occupational Health Certificate (*Atestado de Saúde Ocupacional - ASO*). For company

employees, training is provided within the company by company employees or by a company contracted for this purpose or external training at the premises of the contracted company. For contracted employees, the training is external, except for Safety Integration, which is held by Copel, preferably on the company's premises.

Personal Protective Equipment (PPE)

This risk-appropriate equipment is provided to company employees in accordance with the Company's Technical Specifications by means of registration through the PPE and Uniform Receipt and Responsibility Term, and are replaced whenever necessary due to wear, damage or other need, according to the internal standard for safety equipment and uniforms. The PPE must follow the same technical specifications for outsourced workers.



Whenever necessary, the work safety areas of the operations, together with Copel (Holding Company), change the technical specifications of their PPE to make them more effective. According to Regulatory Standard-10, the federal employment regulation, employees have the right to refuse work situations that may lead to illness, injury or accidents. At Copel, all employees are protected from reprisals by the Occupational Health and Safety Policy and the Code of Conduct.

Legal exams and assessments

GRI 403-3, 403-6

Employees undergo not only the legal exams but also special exams in cases of suspected illnesses caused by (or with the potential to interfere in) their work activities. Whenever a restriction is found, an action is taken in combination with local management to minimize the exposure to a certain risk (either through its elimination or other forms of control).

Combined actions are also created on a continuous basis with occupational safety and risk analysis professionals and are recorded

in an e-management system and association with complementary exams to monitor and control exposure and aptitude. The company employees have access to services either through calls, as in the case of absenteeism tracking or external legal exams, or through personal requests made to management or through doctor's statements and other medical certificates. All Copel employees are covered by a health and safety system.

A campaign to encourage and raise awareness of the importance of periodic exams was conducted in 2022 to increase engagement and commitment to health. Through a health dashboard, the managers keep track of the health of their team. The health information of employees is handled only by health professionals, with no sharing of sensitive information with external parties, in line with the General Data Protection Law, Code of Ethics and company bylaws.

The quality is monitored through a document-based audit, exam indicators, issuance of occupational health certificates, and user satisfaction.

Health and quality of life

GRI 403-3, 403-6

Copel offers a health plan managed by the Copel Foundation under a self-management system, whose monthly fees are shared (Copel pays 80% of the amount for employees hired until 2015; and 50% for those hired after 2015).

The accredited network throughout the state of Paraná offers medical, dental, and pharmaceutical care, and health plans in other states, including outpatient, hospital, and obstetric care, and psychology and physical therapy services. The pharmaceutical and drug program guarantees, in addition to discounts, subsidies for treatments.

In addition to periodic medical exams, the Company includes an additional stage of preventive exams to check for heart, gynecological, prostatic, colorectal and ophthalmological diseases, according to the employee's profile, free of charge.



2022
conducting a campaign to increase engagement and commitment to health

The chemical dependency care program provides specific medical treatment for employees, including inpatient and outpatient medical and psychological care.

In 2021, the *Plenamente* (Fully) Program offered a series of lectures focused on the employee's mental health, given all the turmoil caused by the COVID-19 pandemic, and psychological care. One of the existing initiatives that was integrated into *Plenamente* was the *Equilibrante* (Balanced) program, for the treatment and monitoring of eligible beneficiaries with emotional disorders such as anxiety, depression, and others. Linked to

the Copel Foundation, this treatment is free of charge. Consultations are held online, with psychologists, and a 24-hour hotline is available for emergency consultations with a specialized team. A team of specialized professionals guides the employees in situations that are considered high-risk.

Copel also offers, annually at no cost to the employee, flu vaccinations, and holds campaigns on important topics related to general health, such as yellow September, pink October and blue November, encouraging the use of the health plan's associated network.



Centers for primary care ^{GRI}

403-3, 403-6

Through the Copel Foundation, the company has three units of Primary Health Care (*Atenção Primária à Saúde - APS*), where employees and their dependents receive care without co-participation for the purpose of monitoring and prevention. The first main office was opened in 2021 at Copel's headquarters in Curitiba (PR). Two more units were inaugurated in 2022 in Maringá and Londrina.

The PHCs stand out as a great advance in health prevention and promotion, operating in the areas of mental health care, diabetes, hypertension, dyslipidemias, women's, children's, and elderly people's health, and smoking for prevention and treatment, with multidisciplinary follow-up by family doctors, nursing staff, dentists, nutritionists, and pharmacists.



WORK-RELATED INJURIES¹ GRI 403-9, SASB-IF-EU-320A.1

Fatalities in work-related accidents	Company employees	Outsourced workers ²
Number	0	3
Rate	0.00	0.18
High-consequence work-related injuries (excluding fatalities)	Company employees	Outsourced workers
Number	0	3
Rate	0.00	0.18
Recordable work-related injuries	Company employees	Outsourced workers
Number	20	112
Rate	1.84	6.59

1. The indexes were calculated for every 1,000,000 hours worked, and no worker was excluded from the calculation.

2. Workers who are not employees but whose work and/or workplace is controlled by the organization.

Work-related ill health GRI 403-10	Employees	Outsourced workers ¹
The number of cases of recordable work-related ill health	3	0

1. Workers who are not employees but whose work and/or workplace is controlled by the organization.

Occupational health and safety training GRI EU18	2022
Total of employees, contracted and subcontracted workers	14,449
Contracted and subcontracted employees undergoing safety training	9,672
% of contracted and subcontracted employees undergoing safety training	66.94%

Workers covered by an occupational health and safety management system ¹ GRI 403-8	Number	Percentage
Employees and workers who are not employees but whose work and/or workplace is controlled by the organization, who are covered by such a system.	14,449	100%
Employees and workers who are not employees but whose work and/or workplace is controlled by the organization, who are covered by such a system that has been internally audited.	14,449	100%
Employees and workers who are not employees but whose work and/or workplace is controlled by the organization, who are covered by such a system that has been audited or certified by an external party.	123	0.01%

1. At Copel Distribuição, no workers were excluded from this disclosure. In the other operations, it was only the company employees, given that the outsourced employees are covered by the contractor's risk management program.



See more

For more information about health and safety, go to the [Sustainability Portal](#)

Intellectual Capital

SDG



Capitals



Beyond a regulatory requirement in the energy market, investment in innovation has gained importance in Copel's new strategic map. As such, this topic is no longer a matter just for the research & development (R&D) areas and has now become a company-wide pursuit. Copel sees clearly the importance of innovation to remain active and strong in the markets where it operates and to promote the wellbeing and development of society.

With systematic actions in open innovation in partnership with other organizations and companies, the Company has come even closer to the universe of startups by launch-

ing Copel Volt, whose first edition in 2021 was attended by more than 200 entrepreneurs from five continents. A total of five startups were selected for projects in development - three Brazilian, one Asian and one European. In the second edition, for which applications were finalized in early 2023, the number of applicants rose to more than 280 and the number of participating countries jumped from 43 to 52 (*see the box*).





This experience also created the opportunity to expand its activity into the universe of new solutions in the energy segment, which culminated with the creation of a venture capital program to foster new businesses. Copel Venture was set up as a fund, with a BRL 150 million contribution from Copel, which will invest in creative ventures in areas such as renewable energy, particularly green hydrogen, efficiency in asset management, smart grid and smart cities, processes and digitization, and others (see table below). Through the fund, Copel becomes one of the first state-run organizations to use this financing instrument, which will allow a long-term relationship with innovative businesses that may even become profitable for the Company in the future. Copel has opened a tender to choose a specialized partner to manage the fund.

The disclosure of an innovation theory, in which the Company supports its interest in becoming an Energytech Platform and focus on digital solutions that impact its customers and reinforce its role in the energy sector is also part of the effort to enhance the innovation structure at Copel.

Copel Ventures' areas of interest

Renewable energy

Energy as a service (customer journey)

Asset management

Smart grid/cities

Innovative processes



Copel Volt: energytechs and solutions for the future

The program launched by Copel in 2021 brings the Company closer to startups from all over the world, expands the use of open innovation, and aims to speed up the development of new products and services.

The participating companies submitted ideas for one of the eight challenges proposed by Copel, such as asset and facility management, clean energy and new energy matrices, innovative internal processes, among others. Copel's professionals are trained to select and monitor the selected enterprises and undergo training on the use of open innovation methodologies, mentoring, and collaborating with startups. The five finalists receive mentoring and financial support to develop their ideas and will be able to generate new business models (see the selected candidates in the box).

With over 200 applications from entrepreneurs from Brazil and abroad, the first

screening involved defining the 30 startups that made their pitches and had their ideas assessed by a panel of experts and professionals from Copel. Fifteen of them

were chosen to participate in a three-day bootcamp, where they outlined their business plans and financial needs with the help of mentors.

The five finalist initiatives of the first edition

Move: a Brazilian startup of technological solutions for management and control of electric vehicle recharges. It is involved in the expansion of Copel's electric highway in Paraná (*see more on [page 151](#)*).

CUBi: an energy governance platform for industries that monitors data, analyzes results and offers energy saving suggestions.

NEX Energy: startup from Curitiba with the mission of helping companies save on their electricity bill through clean energy via the rental of a 100% renewable plant from Copel, solar or wind power. The initiative is aimed at enterprises that spend between BRL 1,000 and BRL 20,000 on electricity.

Prescinto: Indian startup uses AI to identify and suggest actions to improve generation performance in clean energy plants.

Watt-is: startup from Portugal that translates smart metering data into valuable information to improve the consumer experience, especially in terms of efficient energy use.



Copel Volt: Second edition

Also in 2022, Copel launched the second edition of Copel Volt, which will select another five innovative solutions to receive mentoring, support, and financial investment to leverage their ideas. In all, BRL 1.8 million will be made available for the project (startups in Seed, Series A, and Series B funding rounds).

The challenges launched are aimed at the future of energy, with a focus on energy transition, such as green hydrogen solutions and energy storage, electromobility, customer relationship, digitization, and others. The challenges are also aligned to the areas of interest of Copel Venture and are targeted at finding ideas that have synergy with the performance or needs of the four segments in which Copel operates.

The startups selected will be able to use the structure of the business and the competencies of collaborators to enhance their models, will be given access to a network of innovators in the energy sector and will gain visibility, as well as other benefits.

Investment in Research and Development (by topic)	2021	% in total investments	2022	% in total investments
Energy storage	BRL 2,824,659.65	3%	BRL 249,164.53	~0%
Energy efficiency	BRL 7,351,989.21	9%	BRL 5,021,355.08	5%
Alternative sources of electricity generation	BRL 2,170,382.58	3%	BRL 0.00	~0%
Management of Basins and Reservoirs	BRL 371,068.65	0%	BRL 87,414.42	~0%
Environment	BRL 6,952,157.43	9%	BRL 3,870,352.29	4%
Measurement, billing and preventing commercial loss	BRL 1,174,690.00	1%	BRL 1,079,553.04	1%
Operation of electricity systems	BRL 7,424,135.32	9%	BRL 9,404,677.85	10%
Electricity systems planning	BRL 12,441,896.39	15%	BRL 12,011,135.89	12%
Oversight, control and protection of electricity systems	BRL 10,557,231.21	13%	BRL 8,669,288.73	9%
Security	BRL 7,208,946.81	9%	BRL 5,293,328.60	6%
Quality and reliability of electricity services	BRL 8,183,922.37	10%	BRL 24,957,441.56	28%
Other	BRL 13,808,435.05	17%	BRL 24,014,931.57	25%
RD&I management	BRL 909,355.98	1%	BRL 174,331.41	~0%
Total	BRL 81,379,097.52	100%	BRL 94,832,974.97	100%



R&D Investments

The investment in R&D as a regulatory requirement is defined by Federal Law 9,991/2000 and monitored by the Brazilian Electricity Regulator (Aneel¹) within the scope of the Research & Technological Development Program for the Electrical Power Sector (ProP&D²). Companies in the sector must allocate part of their net operational revenue (ROL⁴) to the activity.

ProP&D proposes several lines of research, such as alternative sources of electricity generation, management of basins and reservoirs, energy efficiency, and quality and reliability of services, among others. Copel develops projects along these lines, always linked to its strategy, based on demands that arise from day-to-day problems, such as the need for new technologies or the construction of low-cost generation projects. Every project has its own schedule with deadlines for completion regulated by Aneel.

In the subsidiaries, specific R&D areas support the management of the initiatives, including initial engagement, management of monthly payments, and monthly verifica-

tion of financial statements. In 2022, Copel invested BRL 94.8 million in this research, of which BRL 60.4 by Copel Distribuição and BRL 34.4 million by Copel Geração e Transmissão. The monitoring of R&D programs and their budget execution can be checked internally in the Innovation Portal, which is used as a support tool for project managers.

Patents and Registrations

42 requests for registration filed at the National Industrial Property Institute (INPI³) in 2022

5 industrial patents granted

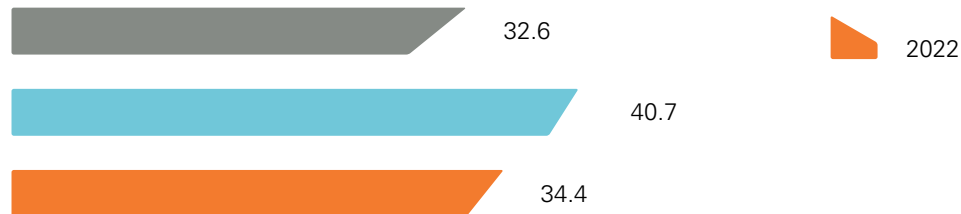
14 software registration certificates

9 industrial design registration certificates

1. Agência Nacional de Energia Elétrica
2. Programa de Pesquisa e Desenvolvimento Tecnológico do Setor de Energia Elétrica
3. Instituto Nacional de Propriedade Industrial
4. Receitas Operacionais Líquidas

INVESTMENTS IN R&D (IN BRL MILLION) GRI EU8

COPEL GeT



COPEL DIS





Major R&D projects in 2022 GRI EU8

Generation

Copel GeT has an area dedicated to management and support in the development of scientific/technological projects related to the Research and Technological Development Program for the Electricity Sector, an obligation defined by Law 9,991/2000. Regulated by the Brazilian Electricity Regulatory Agency (Aneel), the program sets an investment of 1% of the Net Operating Revenue (NOR) in R&D projects by the concession operators, permit holders and authorized entities in the electricity sector.

The R&D projects developed by the company are aimed at direct investments in activities to create new equipment, materials, techniques or methodologies.

To foster the sharing of ideas, knowledge, and the dissemination of good practices among employees, Copel GeT maintains Inov+ GeT. Through this initiative, they can register proposals that are evaluated by a

management committee. Every two years, a forum to present and discuss technical papers is also held at the subsidiary.

Distribution

Copel invests in the future of the energy sector as an essential element for the Company's long-term market positioning, particularly in the distribution segment - which is changing fast and facing challenges related to electric mobility and smart cities, which at the same time are opportunities to add value to the services offered.

A series of investments made by Copel DIS have been based on a high level of innovation, such as the Smart Electrical Grid program, automation based on models used in the United States and Japan and that may integrate in the future distributed micro-generation services, storage technologies, public lighting, and the supply of electric cars (*see more on [page 150](#)*).

Copel has the largest number of Research & Development Projects regulated by Aneel, and also supports the development of standards for the use of electric vehicle charging stations in buildings for collective use.

The Company, as a pioneer in the electric charging area, implemented the country's first electro-highway, the *Paranaense Eletrovia* in 2018, a 730-kilometer corridor on the BR-277, which connects the Port of Parana-guá to Foz do Iguacu, and offers 12 electric charging stations. In 2022, Copel expanded the vehicle charging stations to the BR-376 and BR-101 highways in a circuit from the outskirts of Londrina in northern Paraná to Joinville in Santa Catarina, connecting both states. As such, Copel's total number of charging stations has reached 23 in an expansion that was developed in partnership with the startup Move, selected by the Copel Volt program. Besides the expansion in the number of electric charging points, the project with Move is technologically inte-



grating all the electrical points into a single management system. As such, they will be centralized on a single platform, which will keep track of the chargers available, the amount of energy provided by each and the carbon dioxide emissions (CO2) not emitted by using electrical power instead of fossil fuel. The system will also be ready for the future sale of this type of supply.

Also in 2022, Copel introduced the first ultrafast charger in Curitiba. With capacity to connect three vehicles simultaneously to the station.

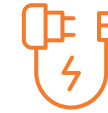
This milestone led to Copel being recognized in a survey by the Mobility publication of the *O Estado de São Paulo* newspaper and the Connected Smart Cities platform as one of the one hundred companies that will most influence the mobility sector in 2021. The nomination was the result of consultation with 30 professionals who work in the segment and who elected the companies

based on their practices of innovation, sustainability (ESG), and positive actions taken during the pandemic.

Copel is also coordinating an international group that brings together energy utilities to interconnect the electric roads in Brazil (PR, SC and RS), Paraguay, Uruguay and Argentina.



1st
ultra-fast charger was installed in Curitiba



23
total of charging stations

Hackathon Copel 2022

The Copel DIS project brought together 40 competing teams in an innovation marathon at the Paraná Engineering Institute under the slogan "Ideas that Move the Future." Aimed at undergraduate and graduate students from Paraná-based universities, the Hackathon's objective was to propose the dispute of ideas and solutions for improving the company's processes. The challenge proposed by Copel in the first edition was focused on the customer under the topic: How to leverage the benefits of the Smart Electrical Grid Program. The winning team will intern at Copel DIS in 2023 and take part in the implementation of the winning project.



Infrastructure Capital

SDG



Capitals



Generation and Transmission GRI EU1, EU2, EU23

Copel operates 54 of its own plants and has equity in 11 other plants, 24 of which are hydroelectric power plants, 38 wind farms, two thermoelectric and one solar power plant, with a total proportional installed capacity of 6,706.4 MW and a guaranteed output of 3,164.7 average MW.

To comply with important strategic and sustainability guidelines established for the generation business, the Company's main goal is to increase the share of alternative renewable energy sources in the energy matrix in a profitable and sustainable manner, reaching 100% by 2030.

In 2022, the Jandaíra Wind Complex went into operation two years ahead of schedule. This venture underpins the sustainable growth strategy and the commitment to create value with investments in projects that lead to the diversification and expansion of the company's portfolio through renewable energy sources.

Two wind power complexes were also acquired: Aventura and Santa Rosa & Mundo Novo, both in Rio Grande do Norte (RN). In combination with the investments made in 2021, 537.2 MW in wind power have been added in the last two years by Copel. Since

2018, the share of energy generated by wind turbines in the Company's electricity matrix rose from 6% to 17%, making GeT the 7th largest wind power generator in Brazil.

To achieve its growth targets of 2 gigawatts of generation by 2030, with 100% renewable generation and an increased share of alternative sources in its electricity matrix, the company needs to advance in the efficient management of its installations and its search for operational efficiency. In 2022, Copel began studies to divest non-renewable power plants: the Araucária thermoelectric power plant and the Figueira thermoelectric power plant.



New Wind Farms

Commissioning in 2022

Jandaíra
Wind Farm Complex
4 farms
90.1 MW
of installed capacity

Acquired in 2022 (added to the Matrix in 2023)

Aventura
Wind Farm Complex
4 farms
105.0 MW
of installed capacity

Santa Rosa & Mundo Novo
Wind Farm Complex
5 farms
155.4 MW
of installed capacity



See more

The complete list of Copel's power plants is in the Management Report

NET POWER GENERATION (GWH)¹ GRI EU2

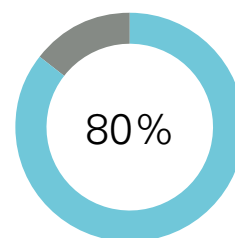
	2020	2021	2022
Hydropower plants ²	11,232.5	15,798.1	23,682.2
Wind farms	2,307.5	2,691.4 ⁴	2,901.3
Solar station	-	- ⁵	4.8
Thermopower plants ³	994.6	1,784.6 ⁴	204.26
Total	14,534.6	20,274.1	26,792.5

- The indicator takes into consideration the amount generated by Copel GeT operations and by the plants that Copel Holding Company has direct equity in: Elejor, Dona Francisca, Voltalia and Solar Paraná.
- The hydraulic power plants with installed capacity greater than 50 MW, correspond to the largest slice of the total energy generated by Copel. The total generated also includes the Elejor, Foz do Chopim, and Dona Francisca power plants, in volumes that are proportional to Copel's share.
- The increase in thermoelectric generation in 2020 and 2021 is associated with below average rainfall that caused ONS to require more generation from the Araucária thermoelectric power plant. The amounts informed also correspond to Copel's share.
- The results from wind and thermoelectric power in 2021 were corrected because the values were published inverted in the previous report. GRI 2-4
- Data were erroneously published in 2021. There was no production.

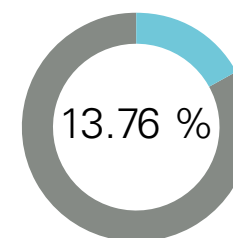
INSTALLED CAPACITY (MW) GRI EU1

	2020	2021	2022
Hydropower plants	5,340.6	5,369.4	5,369.4
Wind farms	645.8	832.7	922.8
Solar power plants	0	1.1	1.1
Thermopower plants	413.1	413.1	413.1
Total	6,399.5	6,616.3	6,706.4

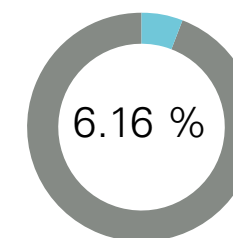
BREAKDOWN OF GENERATOR COMPLEX, BY INSTALLED CAPACITY GRI EU1



HYDROPOWER



WIND



THERMOPOWER



Operational efficiency in generation and transmission **GRI 3-3**

More than a commitment, operational efficiency is one of Copel's strategic goals for cutting costs while concurrently enabling the Company to reach excellence in operation.

Copel GeT has areas dedicated to the management of operational efficiency based on the guidelines, targets and goals defined by Copel's senior management in Strategic Planning and in line with the Management Excellence Model (MEG) of the National Quality Foundation (FNQ). The monitoring indicators are established in the Management Agreement executed by the Holding Company, Copel GeT and its departments. Certification processes also support this monitoring. Currently, Copel GeT has an Integrated Management System with ISO 9001, 14001 and 45001 certifications in the Operate and Maintain Generation Infrastructure processes; and ISO 9001 in the Operate and Maintain Transmission Infrastructure process.

The search for efficiency is also part of the open innovation program (*see more in Intellectual Capital*) and in research and

development projects, with technology as a lever to optimize and transform the business, such as, for example, the digitization of operation and maintenance processes.

Efficiency of plants

GRI EU6, EU11, EU30

Power generation is regulated and is still dependent on weather conditions for the assurance of delivery volumes.

The volume of hydropower plants that have an installed capacity of more than 50 MW is defined by the National System Operator (ONS) in accordance with the state of the reservoirs and the demand of the electrical system. Therefore, the amount of energy to be produced is not defined by Copel. In 2022, the availability factor of the hydropower plants was 92%, compared to 94% in 2021 and 91.4% in 2020.

Availability is the benchmark used by the industry to indicate the percentage of time that the generating units are available for

operation. Even in the recently built and smaller facilities, such as SHP Bela Vista, the availability indicators are above 90%, matching the performance of Copel GeT's main plants. With installed capacity of 29.81 MW and located between the municipalities of Verê and São João, Bela Vista had its first three generating units start up in 2021.

Wind generation depends on the availability of wind turbines (affected by operation and maintenance) and the availability of wind, which can vary over time. The figures also include the wind power plants located in the northeast region, which are linked to Copel's special purpose company. The availability factor for wind power was 95.16% in 2022.

The Thermopower Plant of Figueira went into the testing stage in 2022. The Electric and Gas plant of Araucária (UEGA) Availability: 71.30% in 2022; 76.19% in 2021; and 98.69% in 2020. Efficiency of 7,559.93 BTU/kWh in 2022; 7,322.95 BTU/kWh in 2021; and 7,321.66 BTU/kWh in 2020.

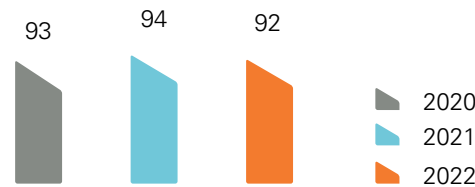
1. Modelo de Excelência em Gestão
2. Fundação Nacional da Qualidade
3. Operador Nacional do Sistema



Operation and maintenance (O&M) of the plants

To avoid or limit the consequences of functional and other failures (health, environment, safety, and costs), the operation and maintenance activities in the plants abide by a structured process of cause and effect analysis and definition of management policies. Meetings to analyze the occurrence of failures and applications that register and control the O&M routines such as team and material management, equipment registration, analysis of occurrences, and calculation of equipment performance indicators, as well as others, are part of the management. These activities are benefiting from the digitization of the Company's processes, which will continue to be stepped up until 2030.

AVERAGE AVAILABILITY FACTOR OF THE PLANTS (%) GRI EU30



New operations hub

The new Generation and Transmission Operation Hub (*Centro de Operação de Geração e Transmissão - COGT*) facilities were inaugurated in 2022 in Curitiba. The teams that work at the Hub are in charge of commanding, remotely and centrally, 24 hours a day, the dozens of power plants and substations and thousands of kilometers of power transmission lines.

Copel was a pioneer in the remote operation of power plants in Brazil, started by the Company

in the 1950s, and has since then invested in remote operation processes and technologies for all its assets. Besides the upgraded physical areas, the new digital system will allow the Generation and Transmission teams to be integrated and optimize the operation in all the states where it is available. It also integrated the different supervision and control platforms of power plants, lines, and substations and centralized data storage, increasing efficiency, quality, and safety.



Transmission

This sector is primarily aimed at providing services for the transport and transformation of electricity and is responsible for the construction, operation and maintenance of substations, as well as for the lines that will be used for energy transmission.

The Company fully owns and participates in transmission concessions in operation, corresponding to 9,685 km of transmission lines, with transformation power of its substations in the order of 20,462 MVA (megavolt amperes). **GRI EU4**

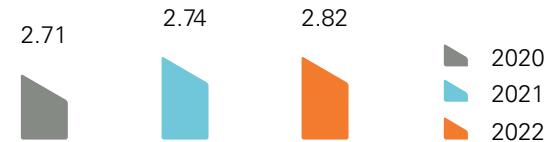
Annually, the transmission concessions in operation generate a Permitted Annual Revenue (PAR) of BRL 1.39 billion for Copel GeT, in proportion to its stake in the ventures.

Transmission efficiency

The main efficiency indicator in the transmission segment is the accounting of technical losses, i.e., those that occur in the transport of energy to the "Center of Gravity", where it is split into 50% for generators and 50% for energy consumers, in accordance with the terms of the current regulations.

In 2022, the indicator was 2.82, maintaining the previous year's rate, which was 2.74. The technical losses can be explained by a growth in power generation, restrictions in the transmission system and in the installation of new equipment in the system. Another cause is the concentration of generation at points far from the load center, which causes a significant variation in energy exchange.

TECHNICAL TRANSMISSION LOSS (%) GRI EU12



Investments in generation and transmission for 2023

Generation: **BRL 117.2 million**
Transmission: **BRL 103.7 million**



9,685 km
of transmission
lines



20,462 MVA
transformation
power of substations



See more

The complete list of Copel's transmission lines is in the Management Report



Transmission work GRI EU23

In addition to the projects acquired through auctions held by Aneel, Copel GeT has projects that derive from authorizing resolutions aimed at expanding and improving the existing set up. A few of them are:

- Authorizing Resolution 7,515/2018:** implementation of reinforcements in the 230 kV Cascavel, Ponta Grossa Norte, Umbará, Maringá and substations, with an **investment of approximately BRL 70.0 million and a Permitted Annual Revenue (PAR) of approximately BRL 9.5 million**, from the startup. The work was delivered before the regulatory deadline, between 2021 and 2022.
- Authorizing Resolution 8,543/2020** (amended by Authoritative Resolution 8,951/2020): refurbishment of the 230 kV Pilarzinho-Santa Mônica and Bateias-Pilarzinho transmission lines and implementation of reinforcements in the respective 230kV Santa Mônica, Bateias, and Pilarzinho substations. The **total investment amounted to BRL 32.5 million and a PAR of approximately BRL 4.2 million** as of the start of commercial operation. The work on Bateias-Pilarzinho was completed four months ahead of schedule, in 2022, and that of Pilarzinho-Santa Mônica is under way with completion in the first half of 2023.
- Authorizing Resolution 9,219/2020:** implementation of reinforcements in the 230 kV Guaira substation with an **investment of approximately BRL 38.8 million and a PAR of approximately BRL 6.0 million**, from the startup, which is scheduled by Aneel for April 2024.
- Authorizing Resolution 9,564/2020:** implementation of reinforcements in the 230 kV Sarandi substation with an **investment of approximately BRL 21.0 million and a PAR of approximately BRL 3.4 million**, from the startup, which is scheduled by Aneel for June 2023.
- Authorizing Resolution 9,741/2021:** refurbishment of the 230 kV transmission line Campo Comprido - Santa Quitéria, with an **investment of approximately BRL 4.3 million and a PAR of approximately BRL 577,700** from the startup, which is scheduled by Aneel for August 2023.
- Authorizing Resolution 10,688/2021:** implementation of reinforcements in the 230 kV CIC with an **investment of approximately BRL 24.4 million and a PAR of approximately BRL 3.7 million**, from the startup, which is scheduled by Aneel for April 2024.

Annually, the transmission concessions in operation generate a Permitted Annual Revenue (PAR) of BRL 1.39 billion for Copel GeT, in proportion to its stake in the ventures.

Distribution

Copel is responsible for distributing power to more than 5 million consumers in 1,148 locations in 396 municipalities in Paraná and in Porto União (SC).

The company maintains installations at the 13.8 kV, 34.5 kV, 69 kV and 138 kV voltage levels, manages approximately 208,000 km of distribution networks and has 389 automated substations, with an installed capacity of 11,800 MVA.



more than 5 MM
consumers in Paraná and
Santa Catarina



389
automated
substations

GRID MARKET GRI EU3

Grid Market (TUSD)	Number of consumers			Energy sold (GWh)		
	2021	2022	%	2021	2022	%
Captive Market	4,926,608	5,011,555	1.7	19,312	19,370	0.3
Free market	2,318	2,629	13.4	11,531	12,244	6.2
Supplies for concession operators	7	7	-	932	925	(0.8)
Grid market	4,928,933	5,014,191	1.7	31,775	32,539	2.4

CAPTIVE MARKET GRI EU3

Energy sold (GWh)	2020	2021	2022	% 21/22
Residential	7,910	8,068	8,212	1.8
Industrial	2,314	2,275	2,102	-7.6
Commercial	4,172	4,149	4,294	3.5
Rural	2,451	2,461	2,357	-4.2
Other	2,333	2,359	2,405	1.9
Total	19,180	19,312	19,370	0.3





Operational efficiency in distribution **GRI EU6, EU12, EU28, EU29**

The concession agreements signed by Copel DIS and Aneel set out clear rules for maintaining operational efficiency with precepts on tariffs, regularity, continuity, safety, modernity and quality of services and of the service offered to consumers.

Operational efficiency and the quality of energy distribution are evaluated using the indicators SAIDI (System Average Interruption Duration Index) and SAIFI (System Average Interruption Frequency Index). The indicators set by Aneel, which also sets the limits to ensure the quality and efficiency of the electricity sector.

Copel DIS results are historically more efficient than the parameters set by Aneel, with advances achieved in previous years. In 2022, the rates showed a slight increase because of the higher number of adverse weather events, which resulted in more damage to the power grid. Therefore, the frequency of power supply disruptions registered a rate of 5.29 and the duration of interruptions a rate of 7.98. Although higher as compared to 2021, these results are 22% and 13%, respectively, below the limits set by Aneel.

The efficiency is also measured by the indicators of energy loss in distribution: the difference between the electricity acquired by the distributors and that billed to their consumers.

In 2022, the global losses represented 9% of all the energy injected into the distributor's system, of which 5.7% for technical losses, 1.9% for non-technical losses. Technical losses refer to the portion inherent to the transport process, voltage transformation, and measurement of energy in the utility's grid. The non-technical losses, in turn, derive from energy theft, measurement errors, errors in the billing process, consumer units without measurement equipment, and others. There were also 1.4% losses in the basic grid, which are external to the distribution system of the concession operator and are mostly technical in origin.

Copel DIS' efficiency results are historically higher than the parameters set by Aneel, with advances achieved in previous years.

Efficiency indicators ¹ GRI EU28, EU 29	SAIDI Copel	SAIDI Aneel	SAIFI Copel	SAIFI Aneel
2020	7.81	9.78	5.55	7.38
2021	7.20	9.28	4.76	6.84
2022	7.98	9.19	5.29	6.80

1. For the purpose of the concession agreement until 2021, the internal SAIDI and SAIFI indicators were considered as the target of the concession agreement - which encompass only the events that occurred in the distributor's assets, excluding transmission line events.

As of 2022, there is no difference, and the SAIDI and SAIFI cover all occurrences, regardless of origin, including losses in the basic grid that are external to the utility's distribution system and are of an imminently technical origin. The purpose of these indicators is to improve the quality of the service provided to the consumer.

Loss rate (%) GRI EU12	2020	2021	2022
Basic grid	1.6	1.5	1.4
Technical losses - Distribution	5.9	5.8	5.7
Non-technical losses - Distribution	1.8	1.9	1.9
Global losses - Distribution	9.3	9.2	9

Energy efficiency program GRI EU7

Federal Law 9,991/2000 and Aneel Regulatory Resolution 920/2021 set the use of funds in the Energy Efficiency Program aiming to increase the efficient use of electricity in all sectors of the economy.

Copel DIS issues every year a bid notice for consumers to submit project proposals that demonstrate the importance and economic feasibility of improving the energy efficiency of equipment, processes and end uses of energy. Industrial, residential (condominium), rural, commercial and service consumers, public authorities, public lighting and public services may participate.

A total of 14 projects were selected in 2022 from the bid notice for projects PEE COPEL 005/2021 from among industrial, residential (condominiums), and public lighting consumers. In the area of street lighting, the municipalities of Jandaia do Sul, Mallet, Porecatu, São José dos Pinhais, and São Mateus do Sul had projects approved. The consumers

will be summoned in early 2023 to sign the contractual instrument.

The PEE COPEL 006/2022 call-to-tender for proposals was also published and was open to receiving proposals for Energy Efficiency projects, including consumer units served in the concession area, belonging to the following typologies: industrial, residential (community areas in condominiums), public power, rural, public services, public lighting. The period for receiving proposals started in December 2022 and ended in March 2023.

The projects aimed at replacing equipment for energy-saving alternatives are to receive a total of BRL 30 million to replace light bulbs, household appliances, industrial machinery, and other equipment powered by electricity, provided that they replace similar old ones, bringing gains in efficiency in electricity consumption.



Energy Efficiency	2020	2021	2022
Energy Saved (MWh/year)	7,064.71	17,476.67	22,572.26
Energy avoided (tCO ₂ /year) ¹	621.69	1,537.95	2,674.81
Demand Reduction at Peak (kW)	776.30	2,607.27	2,682.73

¹Conversão de MWh e tCO₂ conforme anuário Relatório Síntese do Balanço Energético Nacional – BEN, disponível em: <https://www.epe.gov.br/pt/publicacoes-dados-abertos/publicacoes/balanco-energetico-nacional-ben>



Investments in distribution EU23

In a record year in terms of investments in energy distribution, Copel DIS allocated BRL 1.88 billion in infrastructure for lines, substations and physical facilities to improve and upgrade the electricity grid in Paraná and boost the quality of the services provided, as well as expand the service network for customers and consumers. The investments ensure access to electricity for the consumer and the municipalities, an input with a positive impact on the population's quality of life and on local economies, attracting new investments in commerce and industry.

Paraná Trifásico

Launched in 2019, this program accounted for the installation of 10,500 km of three-phase grids throughout the state of Paraná. This represents 42% of the total 25,000 kilometers scheduled for completion by 2025. The investment in the period was BRL 1.2 billion - with a total investment forecast of BRL 2.8 billion by the end of the construction work (*see more in Customers and Consumers*).

Besides making the grids more robust, Paraná Trifásico increases the interconnection between them, ensuring that the service is swiftly reestablished in the event of a power failure. Copel DIS uses in this process automated equipment and cables with innovative technology that includes insulating protective covers and reinforced resistance levels.

It also modifies the distribution grid layout by removing them from hard-to-access sites and placing them roadside, which greatly increases the quality of the supply and provides a major cut in Operation & Maintenance (O&M) costs.

This long-term project is an important initiative to ensure quality infrastructure for Paraná's agribusiness sector and energy security. It also provides a massive increase in the supply of energy to rural areas, positively impacting the comfort and quality of life of the rural population.

Smart Electrical Grids (SEG)

The process of automating Copel's distribution grids began in 2020 and is considered

the largest Smart Electrical Grid program in Brazil, following the model used in countries like the United States and Japan. It dynamically integrates the actions of all users connected to it, whether they are consumers or system operators. One of its advantages is a reduction in the power outage time caused by bad weather and other factors external to the system. Therefore, when the network repair requires the intervention of technicians, the Distribution Operation Hub pinpoints the exact location of the power failure.

Copel DIS will reach, in the three phases of the program, 1.6 million consumers with an investment of BRL 820 million. The first phase of implementation began in April 2021, with completion scheduled for April 2023, and includes 462,000 consumers. In 2022 alone, the technology received an investment of BRL 146 million and replaced 243,500 meters in the 73 cities where the project was underway. Since the beginning, 73 municipalities have benefited from the upgrade, which represents 48% of the total.

The tender to choose the company that will be contracted for phase two has already been held and this stage will benefit an



additional 511,000 consumers. In December 2023, at the end of the third phase, another 637,000 consumers will be served.

The plan for the program is the installation of sensors and remote control devices, including digital meters in consumer units, to directly transmit data to the Integrated Distribution Operation Hub. In addition to adding to the security and energy efficiency of the system and facilities by detecting the areas of energy loss and theft, this smart grid will also integrate other services in the future, such as distributed microgeneration, energy storage technologies, street lighting, and the charging points for electric cars.

Full reliability

This program aims to boost consumer trust in Copel's services based on four pillars: clear communication, automation, substation and redundancy.

By integrating the four aspects, it aims to reduce the duration of power disruptions, as well as the number of times they occur; increase assertiveness in the sending of maintenance teams when needed; increase

operational safety by improving the communication system; and implementing automatic grid reconfiguration systems.

In June 2022, Copel delivered three substations with the purpose of ramping up system reliability, reducing occurrences of power outages and fluctuations. The new units are located in Mandirituba in the eastern part of the state; in Salto do Itararé in the northern region; and in Sapopema in the mid-south region of Paraná. The work required around BRL 16 million in investments and will directly serve 13,600 households.

The three small substations (smart grids) are part of the Company's strategy to ensure that service quality in smaller cities will reach the level offered in large urban centers, after the investments have been made in automation.

The completed structures operate at 34,500 volts, and each has 7 megavolt-amperes of installed power.

Integrated Distribution Hub (Centro Integrado da Distribuição - CIDIS)

Since 2019, the Integrated Distribution Hub (CIDIS) centralizes all Copel's Distribution operations in a single location. CIDIS handles the entire operation of substations and networks of medium voltage and high voltage up to 138,000 Volts in the state of Paraná, in addition to managing the teams that are sent out to render emergency services throughout the state.

The entire management of the networks, including increases in distributed generation, can be remotely carried out through modern automation systems. The Smart Copel building is home to Copel DIS' largest on-site service branch, which has an intuitive self-service track, as well as attendants solve the more complex cases.

The modern and sustainable building features power generation, a filling station for electric cars and rainwater collection, which demonstrates the Company's care for the environment.



more than 637,000 consumers served by Smart Electrical Grid (SEG)



Other investments

During 2022, the implementation of actions to overhaul the power distribution system included more than 1,800 automated machines and the implementation of 304 self-healing systems (automatic recovery), resulting in a drop in SAIDI and SAIFI of respectively around 7.9% and 5.3%. The budget for maintenance of the live line (energized) and the dead line (de-energized) totaled BRL 94.1 million and, for pruning and cutting, was BRL stood at 33.4 million. Other ongoing projects include, for example, the implementation of the Workforce Management system (WFM), a management tool for the workforce in field.

Investment forecast in distribution

BRL 1.9 billion
in **2023**

Energy trading

The operational efficiency indicators in the energy trading business are related to security in the trading agreements, cost cuts and predictability, negotiation flexibility, reliability, etc., as well as the Price Forecast Accuracy Index supported by the analysis and calculation of the market and credit risks of energy purchase and sale operations.

With approximately 1,500 customer nationwide, Copel Mercado Livre has worked over the past two years to improve its management practices and systems and its digital transformation. To enhance governance and customer and market service, the company applies systems and methodologies such as the Management Excellence Model (*Modelo de Excelência em Gestão - MEG*) of the National Quality Foundation (*Fundação Nacional da Qualidade - FNQ*).

To create the best conditions to expand the customer portfolio, the digitization of processes has advanced significantly with the consolidation of tools that began to be implemented in 2021. The Customer Re-

lationship Management (CRM) system registers and monitors all sales, marketing, and customer service interactions and, in combination with the Free Market Management System (CML), expands the automation of processes and integration between platforms.

This process will continue to evolve after the launch of a virtual branch for free market customers in 2023. The customers will be able to access their bills easily and quickly, manage their consumption, monitor the contract, make requests and ask for services, send annual contractual mandatory reports, among other services. Tools for mapping and planning the free market customer journey will also be available.

Copel also continues to prepare itself to meet the new customer profile, with lower loads and average ticket and a large volume of contracts as of 2024. As of this date, according to Order 50/2022 of the Mining and Energy Ministry, the high voltage market (Tariff group A) will be totally free to buy

electricity from any supplier - which should multiply the number of trading agreements. Currently, only consumers with a load of more than 500 kW can migrate to the free market. There is also talk of allowing this access to all electricity consumers.

In addition to the larger volume of contracts to manage, this new group of customers will demand new products and services from the retailers, tailored to their needs. The investments made by Copel Mercado Livre in systems and technology will lead to more autonomy and transparency for its customers to manage their own contracts - and are also reflected in gains in process efficiency. In 2022 alone, the investment in technology and process improvements totaled BRL 2.6 million - and an additional BRL 1.6 million is projected for 2023.

Planned investments in Copel Mercado Livre

BRL 1.6 million
in **2023**





Financial Capital

SDG

8

Financial Capital



In 2022, Copel registered an adjusted EBITDA including non-recurring items of BRL 5.5 billion, up more than 10% in relation to 2021. This performance was mainly due to the better performance of Copel Geração e Transmissão (GeT) in the result of the purchase and sale of electricity in a more favorable hydrological scenario in 2022, the startup of the Vilas Wind Farm, the better result of Copel Distribuição (DIS) with lower manageable costs, such as staff and administrators, and the 0.8% growth of the billed grid market. Compagas also recorded results above those of 2021 and contributed to this growth.

Copel's Net Operating Revenue stood at BRL 21,927.7 million, 8.6% down from 2021, mainly caused by the BRL 2.1 billion drop in electricity supply revenue due to the reduced dispatch at the Araucária Thermo-electric Power Plant in 2022, a consequence

of improved hydrological conditions, and the lower result from the sale of energy on the short-term market of Copel DIS. On the other hand, revenue from the supply of electricity grew by BRL 272.3 million as a result of the adjustment of the energy tariff for Copel DIS and the growth in the number of customers of Copel Comercialização.

Total operating costs and expenses reached BRL 19.5 billion, 3.1% higher than in 2021, with an increase in other operating costs and expenses related to the renegotiation of the hydrological risk (GSF)* and the negative effect of BRL 810.6 million due to the provision for allocation of PIS and Cofins credits in 2022. Disregarding these effects, operating costs and expenses decreased by 8.8% year-on-year. One of the efforts to increase the Company's efficiency was the staff and administrator item, which shrank by BRL 524 million in 2022. The dismissal program

and the consequent drop in the number of employees contributed to this result, even with the 7.19% salary adjustment granted. In October 2022, in accordance with the collective agreement. In addition, the cost of electricity purchased for resale dropped BRL 1.4 billion, also favored by the more amenable hydrological conditions.

The updating of the provision for allocation of PIS and Cofins contribution credits and the renegotiation of the hydrological risk also affected the company's net income, which was BRL 1.1 billion - as compared with the BRL 5 billion in the previous year.

*Note: asset constituted by the new agreement of hydrological risk under the terms of Law 13203/2015, and later amendments, derived from the recovered value of the cost with the Generation Scaling Factor (GSF). The amount was changed by Aneel into an extension of the concession term, which is amortized on a straight-line basis until the end of the new concession term.



Investments

Guided by the Investment Policy and the Investment and Innovation Committee (IIC), which define the strategic guidelines for sustainable growth, generation of value for shareholders, and perpetuity of the energy business, the schedules of the investment programs are on track.

Copel Distribuição represents the group's largest investment forecast and a large part is slated for the Transformation Program. The amount invested in 2022 was BRL 2,329.7 million (against a forecast of BRL 2,067.1 million). The annual 233rd meeting of the Company's Board of Directors approved in 2023 an investment of BRL 2,182.3 million under the program.

Once again, Copel Distribuição will absorb most of the funds earmarked for the ongoing improvement of operational efficiency and cost reduction through the progress of important projects, with emphasis on the continuity of the programs Paraná Trifásico and Smart Electrical Grids (SEG) initiated in 2021. These programs aim to renew depreciated assets in rural areas, improve the quality and speed of service, integrate with smart cities, and improve information via network sensing.

Also worth mentioning is the investment of BRL 229.4 million made in 2022 to get the Jandaíra Wind Farm fully operating.



See more

investments in [Infrastructure Capital](#).

Investments (BRL million)	Consolidated		Variation % 2022-2021	Forecast 2023
	2021	2022		
Copel Geração e Transmissão	494.8	472.7	(4.5)	274.9
Copel Distribuição	1,623.0	1,848.1	13.9	1,878.9
Copel Telecomunicações*	54.4	-	-	-
Copel Comercialização	2.0	2.6	30.0	1.6
Copel Serviços	0.7	0.1	-	1.0
Holding Company	3.5	6.2	77.1	5.0
Other	0.5	-	-	20.9
Total	2,178.9	2,329.7	6.9	2,182.3

* Copel Telecomunicações had its disposal process finalized in 2021.

See the main highlights of Copel's economic-financial performance below. The full details are included in Copel's [Management Report and Financial Statements 2022](#) and in the [Press Release 4Q22](#).



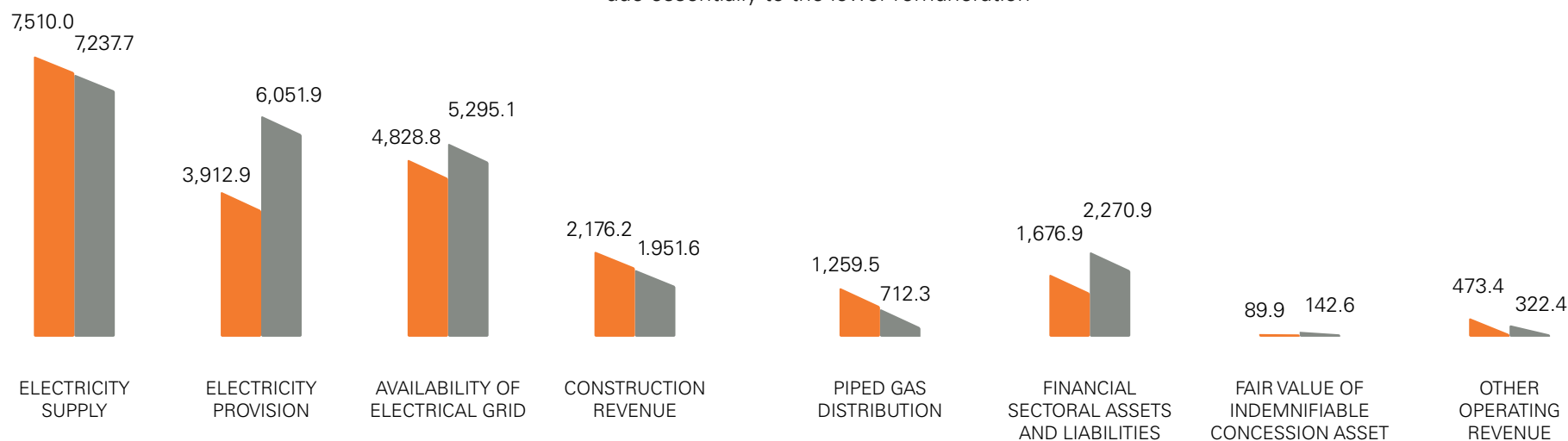
Economic-financial Performance

Net operating revenue

Net Operating Revenue increased by BRL 2,056.6 million in 2022, representing a 8.6% increase as compared with 2021. This variation was largely due to: This variation is mainly due to:

NET OPERATING REVENUE VARIATION

2022 2021



1) increase of BRL 272.3 million in Electricity Supply Revenue mainly due to the 4.90% adjustment in Copel DIS' Energy Tariff for the consumer as of 24/Jun/2022 and to the growth in the number of Copel Comercialização's customer base.

2) decrease of BRL 2,139.0 million in Electricity Supply mostly due to the lower dispatch of TPP Araucária in 2022, a consequence of the improvement of hydrological conditions and to the drop in the sale of energy in the Short-Term Market (MCP) of Copel DIS.

3) decrease of BRL 466.3 million in the Availability Revenue of the Electrical Network due essentially to the lower remuneration

of the transmission assets, the negative effect of the IPCA consumer price index; the increase of the revenue reduction account Account for Energy Development (*Conta de Desenvolvimento Energético – CDE*) of the distributor, allocated to cover the cost of the CDE objectives provided by law; and the effects of the reprofiling of the assets of the Basic Network of the Existing System (*Rede Básica do Sistema Existente - RBSE*) in 2021, non-recurring in 2022.

4) increase of BRL 224.6 million in Construction Revenue arising mainly from greater investments in the energy distribution segment.



5) increase of BRL 547.2 million in the Piped Gas Distribution Revenue due to the new tariff adjustments and the increase in distributed volume.

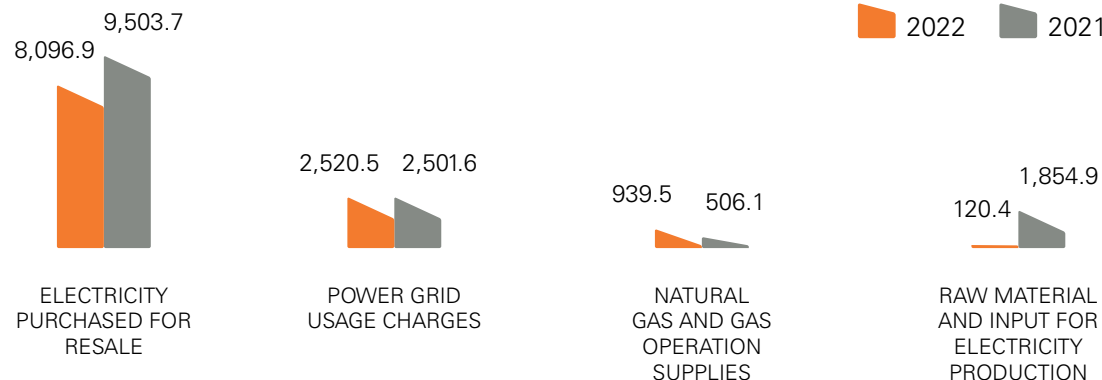
6) decrease of BRL 594.0 million in Result of Sectoral Financial Assets and Liabilities due to lower energy costs in view of the improved water scenario in 2022.

7) increase of BRL 151.0 million in Other Operating Revenues resulting mainly from revenues from leasing and rentals with emphasis on the growth in the distributor's revenues from sharing poles, a consequence of the higher volume of allocated poles/fixing points and the contractual adjustment defined by the General Market Price Index (IGP-M).

Operating costs and expenses

In 2022, operating costs and expenses dropped by BRL 1,812.9 million, down 8.9% as compared with 2021. This variation is mainly due to:

Non-manageable costs and expense



1) decrease of BRL 1,406.8 million in Electric Energy Purchased for Resale arising from more favorable hydrological conditions for the period and a drop in cost of energy contracted from Itaipu.

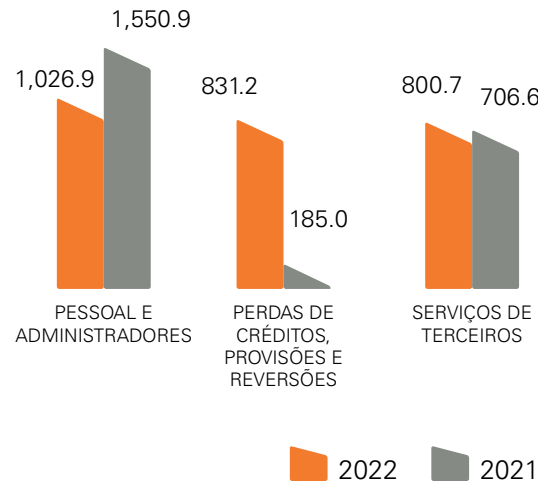
2) an increase of BRL 18.9 million in usage charges of electrical system due mainly to the higher value of the System Use Fees and the Reserve Energy Charge (*Encargo de Energia de Reserva - EER*), offset by the lower value of the System Services Charges (*Encargos dos Serviços do Sistema - ESS*) caused by the atypical higher thermal dispatch resulting from the 2021 water shortage.

3) increase of BRL 433.4 million in natural gas and input for gas operation arising from the higher acquisition volume and the increase in the price of gas for resale.

4) decrease of BRL 1,734.5 million decrease in raw materials and input for electricity production due to the lower dispatch of TPP Araucária as a result of improved hydrological conditions.



Manageable costs and expense



5) decrease of BRL 524.0 million in Staff and Management triggered mainly by the BRL 325.4 million drop in the performance and profit sharing provision, the decline of BRL 148.5 million in the voluntary dismissal program provision for the period, the drop in the number of employees and the cost reduction policy, offset by the salary adjustment of 7.19% in October 2022, in accordance with the collective agreement.

6) increase of BRL 646.2 million in Estimated Losses, Provisions and Reversals mostly

due to the increase in provisions for litigation and the impairment of the thermoelectric power plant of Araucária (UEGA). (More information in explanatory note 16.4 in the Financial Statements)

7) increase of BRL 94.1 million in third-party services resulting mainly from increase in costs with maintenance of the electrical system, customer service related to shut-offs, reconnections and inspections, and the increase of outsourced labor and communication and data processing, offset by the drop in UEGA's values due to lower dispatch in 2022.

8) increase of BRL 169.2 million in other operating costs and expenses due to a higher amount of financial compensation for the use of water resources, losses from the deactivation and disposal of assets and the update of the fair value of electricity generation concession assets.

9) drop of BRL 249.4 million in construction costs caused largely by investments made in the energy transmission infrastructure.

Indebtedness

The Company finances liquidity and capital needs primarily with funds provided by operations and through financing to expand and upgrade the businesses linked to generation, transmission, trade and distribution of energy.

It is important to point out that the Company endeavors to invest in projects and for this purpose uses financing lines available in the market, which make sense in Copel's capital structure in terms of financial leverage in view of the return of projects. The prospects for financing, as well as cash available, will be sufficient to meet the investment plan for the year of 2023.

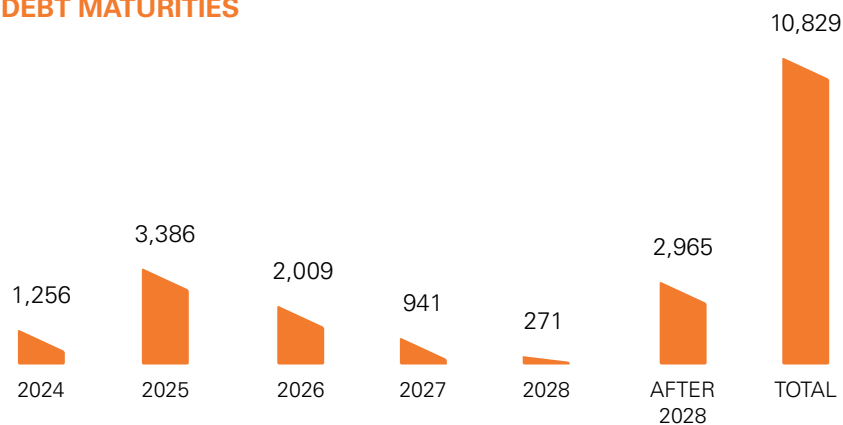
Copel's total consolidated debt totaled BRL 12,454.2 million on December 31, 2022, up 5.3% from the BRL 11,826.1 million recorded on December 31, 2021. The Company's leverage closed 2022 at double the EBITDA and the average maturity was 3.9 years.

The funds shown in the following table were obtained in 2022:

Income (in BRL million)	Company	Financier	Amount
Lot E financing agreement	Copel Geração e Transmissão	BNDES	33.6
Commercial note	Copel Geração e Transmissão	Debenture holders	1,000.0
7th Issue of Debentures	Copel Distribuição	Debenture holders	1,500.0
Credit note	Copel Distribuição	Banco do Brasil	750.0
Financing Agreement	Jandaíra I	Banco do Nordeste	11.2
Financing Agreement	Jandaíra II	Banco do Nordeste	29.6
Financing Agreement	Jandaíra III	Banco do Nordeste	33.9
Financing Agreement	Jandaíra IV	Banco do Nordeste	33.7
Total			3,392.0

Payments made in the year totaled BRL 4,279.4 million, of which BRL 3,051.8 million were principal and BRL 1,227.6 million were charges. The long-term debt maturity schedule, including loans, financing and debentures is:

DEBT MATURITIES

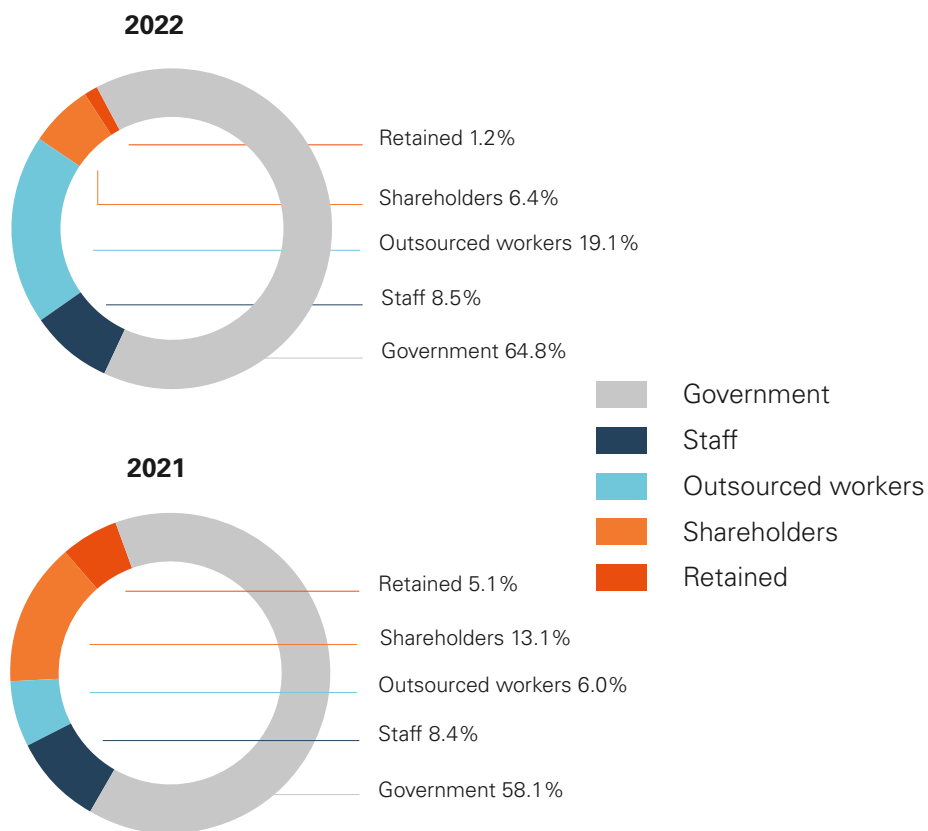


EBITDA (in BRL million)	Consolidated	
	2021	2022
Net income for the period	5,048.6	1,149.3
Net income for the period - discontinued operations	(1,189.6)	-
Deferred corp. income tax and CSLL contribution	790.5	(628.4)
Provision for corp. income tax and CSLL contribution	469.1	429.3
Net financial expenses (income)	327.4	1,966.0
EBIT	5,446.0	2,916.2
Depreciation and amortization	1,082.5	1,301.0
EBITDA	6,528.5	4,217.2
Adjusted EBITDA	5,000.4	5,522.5



Added value GRI 201-1

Copel registered BRL 15,221.9 million in total added value in 2022, 28.3% less than the previous year amounting BRL 21,227.4 million. The full statement can be found in the Financial Statements.



Consumer Default

In December 2022, the default of Copel DIS consumers, also known as Corporate Delinquency, hit BRL 191.8 million, which is equal to 0.90% of its billing for the previous 12 months, with a drop of 32.3% as compared with December 2021. The results show a significant improvement over the previous year in the two main default indicators of Copel DIS, according to the methodology.

The positive result was made possible due to the use of the collection tools, such as default notices (SMS, email, bill protests, collection letters) and, as a last resort, the suspension of supply. These actions led to the recovery of default accounts with many late-payment days.

Indicator (%)	2021	2022	Variation %
Default Company ¹	1.33	0.90	-32.33
Default Abradee ²	2.67	1.87	-29.96

1. Corporate criteria default index: pending energy from 16 to 360 days and 12 month billing.
 2. Abradee criteria default index: pending energy from 1 to 90 days and 12 month billing.

6

ANNEXES





GRI Content Index



CONTENT INDEX ESSENTIALS SERVICE

2023

The Content Index - Core Service has reviewed the GRI Content Summary and confirmed that the information is laid out clearly and consistently with the Standard. Disclosures 2-1 to 2-5, 3-1 and 3-2 are also correctly referenced in their respective sections in the body of the report.

Usage Statement	Companhia Paranaense de Energia – Copel reported in accordance with the GRI Standards for the period from January 1, 2022 to December 31, 2022.
GRI used	GRI 1: Foundations 2021
Applicable GRI Sector Standard(s)	GRI Energy sector supplement 2013

GRI Standard /Other source	CONTENT	Location	OMISSION			REF. NO. OF THE GRI SECTOR STANDARD
			Omitted requirement(s)	Reason	Explanation	
General content						
GRI 2: General Content 2021	2-1 Details of organization	33, 36, 37, 38, 39, 57				
	2-2 Entities included in the organization's sustainability report	7				
	2-3 Reporting period, frequency, and point of contact	7				
	2-4 Restatements of information	7				
	2-5 External audit	201				
	2-6 Activities, value chain and other business relationships	33, 39, 125				-
	2-7 Employees	129, 130, 195, 196				-
	2-8 Workers who are not employees	129				-
	2-9 Governance structure and its breakdown	57				-
	2-10 Appointment and selection for the highest governance body	57				-
	2-11 Chairman of the highest governance body	58				-



Annexes | GRI Content Index

GRI Standard /Other source	CONTENT	Location	OMISSION			REF. NO. OF THE GRI SECTOR STANDARD
			Omitted requirement(s)	Reason	Explanation	
GRI 2: General Content 2021	2-12 Role of highest governance body in overseeing impact management	116				-
	2-13 Delegation of responsibility for impact management	52, 61				-
	2-14 Role of highest governance body in sustainability reporting	07, 09				-
	2-15 Conflicts of interest	67				-
	2-16 Communicating critical concerns	71, 73				-
	2-17 Collective knowledge of highest governance body	63				-
	2-18 Evaluating the performance of the highest governance body	64				-
	2-19 Remuneration policies	64				-
	2-20 Process for determining remuneration	64, 132				-
	2-21 Annual total remuneration ratio	132				-
GRI 2: General Content 2021	2-22 Sustainable development strategy statement	4				-
	2-23 Political commitments	52, 55, 66				-
	2-24 Incorporation of political commitments	57				-
	2-25 Processes to remedy adverse impacts	69, 82, 100				-
	2-26 Mechanisms for counseling and raising concerns	69				-
	2-27 Compliance with laws and regulations	Significant amount considered to be above BRL 25 million. Copel's activities or operations in 2022 were not restricted. Also no fines or other monetary penalties were enforced.				-
	2-28 Membership in associations	86				-
	2-29 Approach to stakeholder engagement	105, 107				-
	2-30 Collective bargaining agreements	133				-



Annexes | GRI Content Index

GRI Standard /Other source	CONTENT	Location	OMISSION			REF. NO. OF THE GRI SECTOR STANDARD
			Omitted requirement(s)	Reason	Explanation	
Material topics						
GRI 3: Material Topics 2021	3-1 Process to define material topics	9				
	3-2 List of material topics	10				
Economic-financial performance						
GRI 3: Material Topics 2021	3-3 Material topics management	30				
GRI 201: Economic Performance 2016	201-1 Economic value generated and distributed	173				
	201-2 Financial implications and other risks and opportunities deriving from climate change	93				
	201-3 Defined benefit obligation and other pension plans	134				
	201-4 Financial aid received from government	Copel's social investments in 2022 included BRL 26.4 million through incentive laws.				
Operational efficiency						
GRI 3: Material Topics 2021	3-3 Material topics management	28				
Sector supplement GRI for energy 2013	EU2 Net energy output, by primary energy source and regulatory regime	37, 154, 155				
	EU6 Management approach to ensure short and long-term electricity availability and reliability	156, 161				
	EU7 Demand management programs, including residential, commercial, corporate and industrial programs	162				
	EU10 Planned capacity against projected electricity demand over the long term, by energy source and regulatory regime	37				



Annexes | GRI Content Index

GRI Standard /Other source	CONTENT	Location	OMISSION			REF. NO. OF THE GRI SECTOR STANDARD
			Omitted requirement(s)	Reason	Explanation	
Sector supplement GRI for energy 2013	EU11 Average generation efficiency of thermopower plants, by energy source and regulatory regime	156				
	EU12 Percentage of transmission and distribution loss in regard to total energy	158, 161				
	EU28 Frequency of power supply disruptions	38, 161				
	EU29 Average duration of power supply disruptions	38, 161				
	EU30 Average plant availability factor, by power source and by regulatory regime	156, 157				
Environmental management and actions against climate change						
GRI 3: Material Topics 2021	3-3 Material topics management	18				
GRI 301: Materials 2016	301-1 Materials used, by weight or volume	188				
	301-2 Raw or recycled materials used		All	Information not available.	Copel does not control nor has information regarding the recycled material used.	
GRI 302: Energy 2016	302-1 Energy consumption within the organization	90, 188, 189				
	302-2 Energy consumption outside the organization		All	Information not available.	Copel does not control or has information regarding on energy consumption outside the organization.	
	302-3 Energy Intensity	89				
	302-4 Reduction of energy consumption energy sector	89				
	302-5 Reductions in energy requirements of products and services		All	Not applicable.	This information is not applicable to Copel's business.	



Annexes | GRI Content Index

GRI Standard /Other source	CONTENT	Location	OMISSION			REF. NO. OF THE GRI SECTOR STANDARD
			Omitted requirement(s)	Reason	Explanation	
GRI 303: Water and effluents 2018	303-1 Interactions with water as a shared resource	77, 101				
	303-2 Management of water discharge-related impacts	77, 103				
	303-3 Water withdrawal	102				
	303-4 Water discharge	103				
	303-5 Water consumption	102				
GRI 304: Biodiversity 2016	304-1 Owned, leased or managed operating units within or adjacent to environmental protection areas and areas of high biodiversity value located outside environmental protection areas	191				
	304-2 Significant impacts of activities, products and services on biodiversity	96, 98, 99				
	304-3 Habitats protected or restored	194				
	304-4 IUCN Red List species and national conservation list species with habitats in areas affected by operations	97				
GRI 305: Emissions 2016	305-1 Direct GHG emissions (Scope 1)	95				
	305-2 Energy indirect (Scope 2) GHG emissions	95				
	305-3 Other indirect GHG emissions (Scope 3)	95				
	305-4 GHG emissions intensity	95				
	305-5 Reduction of GHG emissions	Indirect greenhouse gas emissions (Scope 2) dropped by 287,656.09 tCO ₂ e in 2022. This reduction was attributed to the decrease in the emission factor of the Brazilian system from 0.1264 tCO ₂ /MWh to 0.0426 tCO ₂ /MWh.				



Annexes | GRI Content Index

GRI Standard /Other source	CONTENT	Location	OMISSION			REF. NO. OF THE GRI SECTOR STANDARD
			Omitted requirement(s)	Reason	Explanation	
GRI 305: Emissions 2016	305-6 Emissions of ozone-depleting substances (ODS)		All	Not applicable	Copel does not produce nor import and does not export substances that can destroy the ozone layer (SDO).	
	305-7 Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	NOx and SOx emissions were not measured in 2022 because the Figueira Thermal Power Plant operated only in testing phase, and its measurements were not mandatory according to the law in effect (SEMA Resolution 16/2014).				
GRI 306: Waste 2020	306-1 Waste generation and significant waste-related impacts	104				
	306-2 Waste-related impact management	104				
	306-3 Generated waste	104, 190				
	306-4 Waste diverted from disposal	190				
	306-5 Waste directed to disposal	191				
GRI 308: Environmental assessment of suppliers 2016	308-1 New suppliers that were screened using environmental criteria	125				
	308-2 Negative environmental impacts in the supply chain and actions taken	125, 127				
GRI Energy sector supplement 2013	EU13 Biodiversity of replacement habitats as compared to biodiversity of affected areas	100				



Annexes | GRI Content Index

GRI Standard /Other source	CONTENT	Location	OMISSION			REF. NO. OF THE GRI SECTOR STANDARD
			Omitted requirement(s)	Reason	Explanation	
People management and health and safety at work						
GRI 3: Material Topics 2021	3-3 Material topics management	24				
GRI 401: Employment 2016	401-1 New employee hires and employee turnover	196				
	401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	132, 133				
	401-3 Parental Leave	195				
GRI 403: Occupational health and safety 2018	403-1 Occupational health and safety management system	140, 146				
	403-2 Hazard identification, risk assessment, and incident investigation	140				
	403-3 Occupational health services	140, 144, 145				
	403-4 Worker participation, consultation, and communication on occupational health and safety	140				
	403-5 Worker training on occupational health and safety	140				
	403-6 Promotion of worker health	144, 145				
	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	140				
	403-8 Workers covered by an occupational health and safety management system	140, 146				
	403-9 Work-related injuries	146				
	403-10 Work-related illnesses	146				



Annexes | GRI Content Index

GRI Standard /Other source	CONTENT	Location	OMISSION			REF. NO. OF THE GRI SECTOR STANDARD
			Omitted requirement(s)	Reason	Explanation	
GRI 404: Training and Education 2016	404-1 Average hours of training per year per employee	131, 198				
	404-2 Programs for upgrading employee skills and transition assistance programs	129, 134				
	404-3 Percentage of employees receiving regular performance and career development assessments	132				
GRI 405: Diversity and equal opportunities 2016	405-1 Diversity in governance bodies and employees	58, 135, 136, 137, 197, 198				
	405-2 Ratio of basic salary and remuneration of women to men	195, 197				
GRI 406: Non-discrimination 2016	406-1 Incidents of discrimination and corrective actions taken	136				
GRI 407: Freedom of association and collective bargaining 2016	407-1 Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	125				
Sector supplement GRI for energy 2013	EU14 Programs and processes to ensure the availability of a skilled workforce	131				
	EU15 Percentage of employees who can retire in the next 5 and 10 years, by job category and region	134				
	EU16 Policies and requirements regarding the health and safety of employees and employees of contractors and subcontractors	140				
	EU18 Percentage of outsourced and subcontracted workers who have undergone relevant health and safety training	140, 146				



Annexes | GRI Content Index

GRI Standard /Other source	CONTENT	Location	OMISSION			REF. NO. OF THE GRI SECTOR STANDARD
			Omitted requirement(s)	Reason	Explanation	
Corporate governance, risk management and cybersecurity						
GRI 3: Material Topics 2021	3-3 Material topics management	15				
GRI 205: Anti-corruption 2016	205-1 Operations assessed for risks related to corruption	69				
	205-2 Communication and training about anti-corruption policies and procedures	67, 68	B, C, D and E requirements.	Information not available	Copel does not manage training information by region or by type of business partner. It was also not possible to check if the anti-corruption policies were informed to any other people or organization.	
	205-3 Confirmed incidents of corruption and actions taken	69				
GRI 206: Anti-Competitive Behavior 2016	206-1 Legal actions for anticompetitive behavior, anti-trust, and monopoly practices	There are no pending or closed legal actions in which the organization is challenged regarding the practice of unfair competition, antitrust and anti-monopoly violations.				
GRI 415: Public policies 2016	415-1 Political contributions	Since Copel is a mixed-capital company, it is legally forbidden from making this type of contribution. Art. 31(III) of Federal Law 9096, of September 19, 1995, forbids parties to directly or indirectly receive in any form or pretext, pecuniary or cash or cash-equivalent aid, including through advertising of any kind from public entities and legal entities of any nature, except for the provisions referred to in art. 38 of this Law and those from the Special Fund for Campaign Financing.				
GRI 418: Customer privacy 2016	418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	80				


[Annexes | GRI Content Index](#)

GRI Standard /Other source	CONTENT	Location	OMISSION			REF. NO. OF THE GRI SECTOR STANDARD
			Omitted requirement(s)	Reason	Explanation	
Social Responsibility						
GRI 3: Material Topics 2021	3-3 Material topics management	20				
GRI 202: Market presence 2016	202-1 Ratio of lowest wage and local minimum wage, by gender	197				
	202-2 Proportion of senior management hired from the local community	195				
GRI 203: Indirect economic impacts 2016	203-1 Infrastructure investments and support services	114				
	203-2 Significant indirect economic impacts	114, 122				
GRI 204: Procurement practices 2016	204-1 Proportion of spending on local suppliers	125, 127				
GRI 408: Child labor 2016	408-1 Operations and suppliers at significant risk for incidents of child labor	125				
GRI 409: Forced or compulsory labor 2016	409-1 Operations and suppliers at significant risk of forced or slave-like labor	125				
GRI 411: Rights of Indigenous people 2016	411-1 Incidents of violations involving rights of Indigenous peoples	124				
GRI 413: Local communities 2016	413-1 Operations with local community engagement, impact assessments, and development programs	114, 115, 118				
	413-2 Operations with significant actual and potential negative impacts on local communities	114				



Annexes | GRI Content Index

GRI Standard /Other source	CONTENT	Location	OMISSION			REF. NO. OF THE GRI SECTOR STANDARD
			Omitted requirement(s)	Reason	Explanation	
GRI 414: Social assessment of suppliers 2016	414-1 New suppliers selected based on social criteria	125				
	414-2 Negative social impacts in the supply chain and actions taken	125, 127				
GRI Energy sector supplement 2013	EU19 Stakeholder participation in decision-making processes related to energy planning and infrastructure development	105				
	EU20 Approach to managing displacement impacts	123				
	EU21 Contingency planning measures, disaster/emergency management plans and training programs, and recovery/restoration plans	76				
	EU22 Number of people physically or economically displaced and compensation, by type of project	123				
	EU25 Service user accidents and deaths involving company property	113				



Annexes | GRI Content Index

GRI Standard /Other source	CONTENT	Location	OMISSION			REF. NO. OF THE GRI SECTOR STANDARD
			Omitted requirement(s)	Reason	Explanation	
Transformation of the energy sector						
GRI 3: Material Topics 2021	3-3 Material topics management	26				
GRI Energy sector supplement 2013	EU1 Installed capacity, by primary energy source and by regulatory regime	154, 155				
	EU8 Research & development and expenditure aimed at providing reliable electricity and Promoting Sustainable Development	151, 152				
Other non-material topics						
Customer satisfaction						
GRI 3: Material Topics 2021	3-3 Material topics management	22				
GRI Energy sector supplement 2013	EU3 Number of residential, industrial, corporate and commercial customer accounts	108, 112, 160				
	EU23 Programs, including those in partnership with the government, to improve or maintain access to electricity services and customer support	122, 124, 154, 159, 163				
	EU24 Practices to address language, cultural, low literacy and disability related barriers to accessing and safely using electricity and customer support	112, 124				
	EU26 Percentage of population not served in licensed distribution or service areas	Copel concluded its Universalization Plan in the urban area in 2006 and in the rural area in 2010.				
	EU27 Number of residential disconnections due to default by duration of disconnection and by regulatory regime	111				



SASB Summary

Topic		Accounting metrics	Related GRI	Location
Greenhouse gas emissions and energy resource planning	IF-EU-110a.2	Emissions of greenhouse gases (GHG) associated with power deliveries	305-1, 305-2, 305-3, 305-6, 305-7	95
	IF-EU-110a.3	Discussion of the long and short-term strategy or plan for managing Scope 1 emissions, emission reduction targets, and an analysis of performance against these targets	305-1	50
Water management	IF-EU-140a.1	(1) Total water withdrawn, (2) Total water consumed, percentage of every withdrawal from high or extremely high water stress regions	303-1, 303-3, 303-4	101
	IF-EU-140a.3	Discussion of water management risks and description of strategies and practices to mitigate those risks	303-1	77
Energy access	IF-EU-240a.3	Amount of residential customers who had their power cut due to default, percentage reconnected within 30 days	EU27	111
	IF-EU-240a.4	Discussion of the impact of external factors on customer accessibility of electricity, including the economic conditions of the service territory	EU23, EU24	122
Health and safety of workforce	IF-EU-320a.1	(1) Total recordable injury rate (TRIR), (2) fatality rate, and (3) near miss frequency rate (NMFR)	403-9	146
Network resilience	IF-EU-550a.1	Number of incidents of non-compliance with standards or regulations on physical and/or cybersecurity	418-1	80
	IF-EU-550a.2	(1) System Average Interruption Duration Index (SAIDI), (2) System Average Interruption Frequency Index (SAIFI) and (3) Customer Average Interruption Duration Index (CAIDI), including the main event days	EU28, EU29	38
Activity metrics	IF-EU-000.A	Number of clients: (1) residential, (2) commercial and (3) industrial	EU3	108



Additional disclosures

Natural Capital

ENERGY CONSUMPTION FROM FOSSIL FUELS (GJ) GRI 302-1

Type of fuel	2020	2021	2022	2021 x 2022 variation (%)
Non renewable				
Gasoline	1,278.71	1,858.95	2,452.61	31.94
Diesel oil	98,926.87	85,611.67	103,204.63	20.55
Charcoal	-	-	411,475.69	-
Total	100,205.58	87,470.62	517,132.93	491%
Renewables				
Ethanol	19,051.17	21,814.88	24,173.80	10.81
Anhydrous Ethanol	0.00	0.00	627.07	-
Biodiesel	15,884.18	10,045.81	12,085.23	20.30
Total	34,935.35	31,860.69	36,886.1	15.77
Total fuel	135,140.93	119,331.31	554,019.02	364%

Note: details of the conversions are in the GRI summary that corresponds to the indicator. No aviation fuel was registered due to the sale of the aircraft.

USE OF MATERIALS¹ (in t) GRI 301-1

Copel Distribuição ²	2020	2021	2022
Aluminum conductors	-	-	8,556.94
Copper conductors	-	-	282.00
Crosshead	-	-	4,851.92
Polymer crosshead	-	-	95.22
Operating equipment	-	-	691.72
Iron	-	-	1,581.83
Insulators	-	-	1,936.83
Energy meters	-	-	580.67
Concrete poles	-	-	170,549.17
Fiber poles	-	-	635.62
Current transformer	-	-	166.00
Network transformer	-	-	4,715.26
Total	146,997.69	194,408.00	194,643.18

Copel Geração ³	2020	2021	2022
Aluminum	-	-	884.02
Copper	-	-	3,233.82
Electronic components	-	-	2,869.04
Contaminated	-	-	17,710.45
Miscellaneous operating equipment	-	-	520.00
Iron and Steel	-	-	3,372.62
Lighting	-	-	886.15
Insulators	-	-	410.08
Wood	-	-	25.00
Insulating Oil	-	-	840.00
Lubricant	-	-	5,961.30
Paper	-	-	146.11
Polymers	-	-	4,139.34
Glass and porcelain	-	-	26.64
Total	49,375.79	1,512,734.15	41,024.57

1. Copel has no information regarding the recycled material used.

2. In 2020 and 2021, the materials were disclosed in groups: 1. Copper and aluminum conductors; 2. Concrete, fiber and polymer poles and crossheads; 3. Transformers, insulators, meters and other operation equipment; 3. Iron. The materials were broken down and detailed by type in 2022.

3. In 2020 and 2021, the materials were disclosed in groups: 1. Aluminum, Copper, Iron and Steel; 2. Insulating and lubricating oils; 3. Insulators, Glass and Porcelain; 4. Chemical Products, Rags, Polymers and Paper; 5. Electronic Components. The materials were broken down and detailed by type in 2022.



Annexes | Additional disclosures

Electricity consumption (GJ) GRI 302-1	2020	2021	2022	2021 x 2022 variation (%)
Electricity consumption	265,886.34	237,888.98	187,316.68	-21.26

Electricity sold (GJ) GRI 302-1	2020	2021	2022	2021 x 2022 variation (%)
Electricity sold	65,413,543.83	70,751,504.92	70,487,895.32	-0.37

TOTAL ENERGY CONSUMPTION (MWh) GRI 302-1

Total energy consumption (MWh) GRI 302-1	2019	2020	2021	2022
Non-renewable sources total	79,921.41	40,907.63	34,738.08	155,407.36
Renewable sources total	45,975.28	70,488.84	64,489.78	50,519.23
Consumption total	125,896.69	111,396.46	99,227.86	205,926.59



Annexes | Additional disclosures

WASTE GENERATED, BY BREAKDOWN GRI 306-3

Waste breakdown	Waste description	Total weight of waste generated (t)		
		2021	2022	2021 x 2022 variation (%)
Hazardous waste - Class I	Batteries; lead-acid batteries; portable batteries; treated wood cross arms; unserviceable equipment containing insulating mineral oil; lamps; batteries; posts; oils; solvents and paints	4,523.66	1,194.55	-73.6
Non-hazardous waste - Class II	Paper; cardboard; food waste; pruning waste; sanitary waste; glass; metals; plastics and optical fiber scraps from telecom operations	53,335.13	7,127.17	-86.6
Total waste		57,858.79	8,321.72	-86

WASTE DIRECTED TO DISPOSAL, BY BREAKDOWN¹ GRI 306-4

	Total waste weight (t)			Total waste weight (t)			%
	2021			2022			
	At Copel	Outside Copel	Total	At Copel	Outside Copel	Total	
Hazardous waste							
Preparation for reuse	-	-	-	-	1,031.53	1,031.53	-
Recycling	-	3,971.16	3,971.16	-	2,708.53	2,708.53	-31.79
Reuse	-	311.50	311.50	-	-	-	-
Re-refining	-	-	252.58	-	-	-	-
Co-processing	-	50.77	50.77	-	-	-	-
Other recovery actions	-	-	-	-	176.32	176.32	-
Total hazardous waste diverted from disposal	0.00	4,586.01	4,586.01	-	3,916.38	3,916.38	-14.60
Non-hazardous waste							
Recycling	32.00	37,511.21	37,543.21	-	11,971.92	11,971.92	-68.11
Compost	13.42	9,914.50	9,927.92	-	-	-	-
Preparation for reuse	-	-	-	-	35,601.09	35,601.09	-
Other recovery actions	-	-	-	7.60	0.00	7.60	-
Total non-hazardous waste diverted from disposal	45.42	47,425.71	47,471.13	7.60	47,573.01	47,580.61	0.23
Total waste diverted from disposal	45.42	52,011.72	52,057.14	7.60	51,489.39	51,496.99	-1.08

1. The amount of waste generated in 2022, indicated in GRI 306-3, is less than the amount allocated because there is a difference between the time the waste is temporarily stored and the final destination.


WASTE DIRECTED TO DISPOSAL, BY BREAKDOWN GRI 306-5

	Total waste weight (t)			Total waste weight (t)			%
	2021		Total	2022		Total	
	At Copel	Outside Copel		At Copel	Outside Copel		
Hazardous waste							
Incineration without energy recovery	-	77.18	77.18	-	29.03	29.03	-62.39
Landfill	-	155.39	155.39	-	363.33	363.33	133.82
Total hazardous waste intended for disposal	-	232.57	232.57	-	392.36	392.36	68.71
Non-hazardous waste							
Landfill	-	2,169.43	2,169.43	-	3,935.96	3,935.96	81.43
Total non-hazardous waste intended for disposal	-	2,169.43	2,169.43	-	3,935.96	3,935.96	81.43
Total waste diverted from disposal	-	2,401.13	2,401.13	-	4,328.32	4,328.32	80.26

OPERATIONAL SITES OWNED, LEASED, MANAGED IN PROTECTED AREAS GRI 304-1

Area name	Size (km ²)	Location	Operation type	Biodiversity value
Vale do Codó State Park	0.02	Jaguariaíva (PR) and Campo Largo (PR)	Power Generation and Transmission	<p>Conservation Units intended for the maintenance of ecosystems free from changes caused by human interference, allowing only the indirect use of their natural attributes. The usage restrictions of these areas vary according to the category:</p> <p>Ecological Station - to preserve nature and conduct scientific research</p> <p>Park - of public possession and domain, and the private areas included within its boundaries will be expropriated, in accordance to the dictates of the law</p> <p>Wildlife Refuge - to protect natural environments by creating conditions for the existence or reproduction of species or communities of local plants and animals that live or migrate to the region</p>
Guaricana National Park	4.94	Morretes (PR), São José dos Pinhais (PR) and Guaratuba (PR)		
Campos Gerais National Park	1.92	Carambeí (PR), Castro (PR) and Ponta Grossa (PR)		
Tibagi River Wildlife Refuge	0.38	Ponta Grossa (PR)		
Mono Castro Wildlife Refuge	0.27	Castro (PR)		



Annexes | Additional disclosures

Area name	Size (km ²)	Location	Operation type	Biodiversity value
Environmental Protection Area of the Corumbataí, Botucatu and Tejuca Corumbataí Perimeter	1.71	Analandia (SP), Corumbataí (SP), Itirapina (SP) and São Carlos (SP)	Power Generation and Transmission	Conservation Units (CUs or Unidades de Conservação (UCs)) in which the exploration of the environment is allowed but in a way that ensures the continuity of renewable environmental resources and ecological processes, maintaining biodiversity and other ecological attributes in a socially fair and economically viable manner. The usage restrictions of these areas vary according to the category of the CU: Environmental Protection Area - usually an extensive area with a certain degree of human occupation home to abiotic, biotic, aesthetic or cultural attributes especially important for the quality of life and the wellbeing of humans. It aims to protect biological diversity, regulate the occupation process and ensure the sustainability of the use of natural resources. Private Natural Heritage Reserve - private area, recorded in perpetuity, with the purpose of conserving biological diversity.
Environmental Protection Area of Campinas	0.48	Campinas (SP), Jaguariúna (SP) and Pedreira (SP)		
Environmental Protection Area of Iguaçu	0.35	Curitiba (PR) and São José dos Pinhais (PR)		
Environmental Protection Area of Iraí	0.34	Colombo (PR), Pinhais (PR), Campina Grande do Sul (PR)		
Environmental Protection Area of Passaúna	1.23	Campo Largo (PR), Campo Magro (PR), Curitiba (PR), Almirante Tamandaré (PR), Campo Magro (PR), Araucária (PR)		
Environmental Protection Area of Pequeno	0.42	São José dos Pinhais (PR)		
Environmental Protection Area of Rio Paraíba do Sul	0.7	São José dos Campos (SP)		
Environmental Protection Area of Rio Verde	0.7	Campo Largo (PR)		



Annexes | Additional disclosures

Area name	Size (km ²)	Location	Operation type	Biodiversity value
State Environmental Protection Area of Escarpa Devoniana	10.61	Jaguariaíva (PR), Carambeí (PR), Castro (PR), Tibagi (PR), Ponta Grossa (PR), Balsa Nova (PR), Campo Largo (PR), Palmeira (PR)	Power Generation and Transmission	<p>Conservation Units (CUs or Unidades de Conservação (UCs)) in which the exploration of the environment is allowed but in a way that ensures the continuity of renewable environmental resources and ecological processes, maintaining biodiversity and other ecological attributes in a socially fair and economically viable manner. The usage restrictions of these areas vary according to the category of the CU: Environmental Protection Area: usually an extensive area with a certain degree of human occupation home to abiotic, biotic, aesthetic or cultural attributes especially important for the quality of life and the wellbeing of humans. It aims to protect biological diversity, regulate the occupation process and ensure the sustainability of the use of natural resources.</p> <p>Private Natural Heritage Reserve: private area, recorded in perpetuity, with the objective of conserving biological diversity.</p>
State Environmental Protection Area of Serra da Esperança	0.04	União da Vitória (PR)		
State Environmental Protection Area of Guaratuba	43.84	Morretes (PR), São José dos Pinhais (PR), Guaratuba (PR), Tijucas do Sul (PR)		
State Environmental Protection Area of Piraquara	0.05	Piraquara (PR)		
Environmental Protection Area Piracicaba Juqueri Mirim Area 1	2.16	Analândia (SP), Corumbataí (SP), Itirapina (SP) and Rio Claro (SP)		
Environmental Protection Area Piracicaba Juqueri Mirim Area 2	4.07	Amparo (SP), Bragança Paulista (SP), Campinas (SP), Igaratá (SP), Jaguariúna (SP), Morungaba (SP), Pedreira (SP), Piracaia (SP)		
Environmental Protection Area of the Cantareira System	3.3	Amparo (SP), Bragança Paulista (SP), Igaratá (SP), Morungaba (SP), Piracaia (SP)		
Natural Heritage Private Reserve of Morro da Mina	0.04	Antonina (PR)		
Natural Heritage Private Reserve of Perna do Pirata	0.0022	Morretes (PR)		
Fully protected areas	0.93	State of Parana	High voltage distribution lines (Linhas de distribuição de alta tensão - LDAT)	Includes national parks, state parks, wildlife refuge, biological reserve and ecological station for protection of terrestrial ecosystems
Fully protected areas	5	State of Parana	Distribution networks at 34.5 kV (Rede de Distribuição - RDs)	Includes national parks, state parks, wildlife refuge, biological reserve and ecological station for protection of terrestrial ecosystems



Annexes | Additional disclosures

Area name	Size (km ²)	Location	Operation type	Biodiversity value
RAMSAR Sites - Guaratuba Fully-Protected Area	1.5	Guaratuba, Mandirituba, Tijucas do Sul, Matinhos, Pontal do Paraná, São José dos Pinhais and Morretes (PR)	SE Vossoroca, SE Chaminé, SE Salto do Meio, High Voltage Distribution Lines (LDAT), Power Distribution Networks (RDs)	The RAMSAR Guaratuba Site has a high biodiversity value, given its high diversity of living creatures and rich landscape, composed of mountains, altitude fields, rivers, waterfalls, plains and mangroves. The APA is a natural distribution area for the marsh weevil (<i>Formicivora acutirostris</i>), an endangered species.
RAMSAR Sites ESEC Guaraqueçaba	0.01	Guaraqueçaba (PR)	Distribution networks at 34.5 kV	A fully protected area in the public domain, formed by mangroves, sandbanks, and coastal islands. It is home to the red-tailed parrot - <i>Amazona brasiliensis</i>

SIZE AND LOCATION OF ALL AREAS OF PROTECTED OR RESTORED HABITAT GRI 304-3

Area name	Size (ha)	Location	Situation of area
Forest Offsetting Projects	292.0000	Various	In Progress
Paraná PPAs	4,265.3700	Various	Protected and monitored
Mato Grosso PPAs	5,488.3500	Various	Protected and monitored
Serra do Mar Areas - Guaricana National Park	6,003.8300	Guaratuba (PR)	Protected and monitored
Serra do Mar Areas - Chaminé HPP	3,513.3600	Tijucas do Sul (PR)	Protected and monitored
Serra do Mar Areas - Guaricana HPP	795.4200	Various	Protected and monitored
Serra do Mar Areas - Various	70.0500	São José dos Pinhais (PR)	Protected and monitored
Tia Chica Ecological Station	423.0500	Pinhão (PR)	In process of formalization as an Integral Protection Conservation Unit
Rio Guarani State Park	2,322.0000	Três Barras do Paraná (PR)	Integral Protection Conservation Unit (State Decree 2322/2000)
Rio dos Touros Ecological Station	1,231.0600	Iguaçu Reserve (PR)	Integral Protection Conservation Unit (State Decree 4229/2001)



Human capital

Ratio of senior management hired from the local community GRI 202-2

The referrals for the board of directors must comply with the requirements and prohibitions defined by Federal Laws 6,404/1976

and 13,303/2016 and by the internal policy and standard for the nomination of members of statutory bodies. Copel's operations are located in 10 states and 100% of its board of directors were hired in the country.

ITS OWN EMPLOYEES BY EMPLOYMENT CONTRACT AND GENDER¹ GRI 2-7

Job Type	2021			2022		
	Full-time	Part-time	Total	Full-time	Part-time	Total
Women	1,411	6	1,417	1,267	1	1,268
Men	4,963	3	4,966	4,605	2	4,607
Total	6,374	9	6,383	5,872	3	5,875

1. Copel does not have any employees on zero-hour contracts.

Parental Leave GRI 401-3		2022
Employees who were entitled to <u>take</u> the leave	Men	4,607
	Women	1,268
Employees who <u>took</u> the leave	Men	163
	Women	55
Employees who <u>returned</u> to work during the reporting period after their leave of absence ended	Men	163
	Women	55
Employees who returned to work after their leave and were still employed 12 months after their return	Men	157
	Women	50
Return rate	Men	100%
	Women	100%
Retention rate	Men	96.32%
	Women	90.91%

PAYMENT INDICATORS BY GENDER

Level	Average Female Salary	Average Male Salary
Executive level (base salary)	R\$ 687.848,40	R\$ 639.976,76
Executive level (base salary + other financial incentives) ¹	R\$ 687.848,40	R\$ 639.976,76
Managerial level (base salary)	R\$ 132.462,43	R\$ 154.715,30
Managerial level (base salary + other financial incentives) ²	R\$ 176.867,72	R\$ 199.113,10
Non managerial level (base salary)	R\$ 68,061.61	R\$ 69,227.93

1 The variable remuneration portion that refers to the Performance Bonus for 2022 was not approved in Annual General Shareholders' Meeting. The executives are not entitled to the Profit Sharing.

2 Considers the variable remuneration that refers to Profit Sharing.

Difference	Difference between men and women (%) ^{1,2}
Average salary difference by gender	16.80
Mean salary difference by gender	16,68
Average bonus difference by gender	-0.02
Mean bonus difference by gender	0,00

1 Considers the Profit Sharing as a bonus.

2 Considers managers at the low, medium and top management levels and does not consider directors.



Turnover

NEW EMPLOYEE HIRES AND EMPLOYEE TURNOVER¹ GRI 401-1

	Admissions	Admissions rate (%)	Terminations	Turnover rate (%) ²
By Gender				
Male	3	100.00	362	3.67
Female	0	0.00	149	5.26
Total	3	100.00	511	4.03
By age				
Up to 30	0	0.00	3	1.44
From 30 to 50	1	33.33	150	1.63
Over 50	2	66.67	358	10.91
Total	3	100.00	511	4.03
By region				
South	3	100.00	509	4.06
Midwest	0	0.00	0	0.00
Northeast	0	0.00	2	6.67
Southeast	0	0.00	0	0.00
Total	3	100.00	511	4.03

1. For the calculation of number of new hires, the rate of new employees and turnover considered as hired, the hired and reinstated employees.

2. The turnover rate is calculated using the formula (hired + terminated/2)/by the total number of employees in content 2-7.

TURNOVER RATE OF COMPANY EMPLOYEES

Rate	2019	2020	2021	2022
Total turnover rate of employees	3.49%	3.07%	2.18%	4.03%
Total voluntary turnover rate of employees	3.27%	2.76%	1.87%	3.91%



Diversity

Ratio of lowest wage and local minimum wage, by gender GRI 202-1

Copel does not offer remuneration lower than the national minimum wage. Salaries are managed through the Career and Compensation Structure.

Variation between lowest wage and minimum wage, by gender ^{1 2 3}	2022		
	Men	Women	Variation Women x Men
Lowest salary paid by the organization	2,173.37	2,088.51	0.96
Minimum wage determined by law or union	1,212.00	1,212.00	1.00
Percentage ratio	1.79	1.72	0.96

1. For the calculation, employees with a reduced workday of 4 hours were disregarded.

2. Outsourced: HR does not have detailed information about outsourced workers.

3. Considering all business units (Copel Holding Company, Generation and Transmission, Distribution, Trading and Services).

RATIO OF BASIC SALARY AND REMUNERATION OF WOMEN AND MEN GRI 405-2

Job category	Basic pay ration	Remuneration ratio
Secondary-level technical professional	0.97	0.96
Secondary-level professional	1.04	0.96
University-level professional	0.85	0.90

DIVERSITY OF GOVERNANCE BODIES AND EMPLOYEES, BY JOB CATEGORY AND AGE GRI 405-1

Company employees							
Job category	Total	under 30 years old		From 30 to 50		Above 50	
		Number	%	Number	%	Number	%
Operational	18	0	0.0%	2	11.1%	16	88.9%
Secondary-level technical professional	1,450	8	0.6%	1,157	79.8%	285	19.7%
Secondary-level professional	3,271	32	1.0%	2,366	72.3%	873	26.7%
University-level professional	1,136	3	0.3%	832	73.2%	301	26.5%
Total	5,875	43	0.73%	4,357	74.16%	1,475	25.11%



Annexes | Additional disclosures

DIVERSITY OF GOVERNANCE BODIES AND EMPLOYEES, BY JOB CATEGORY AND RACE/ COLOR/ETHNICITY GRI 405-1

Color/Race	Asian	White	Indigenous people	Mixed race	Black
Operational	0.0%	88.9%	0.0%	11.1%	0.0%
Secondary-level technical professional	2.4%	82.7%	0.1%	10.9%	3.9%
Secondary-level professional	3.1%	82.5%	0.2%	10.9%	3.3%
University-level professional	5.6%	86.2%	0.1%	6.6%	1.5%
Total	3.4%	82.9%	0.1%	10.1%	3.1%

25 employees did not inform the identification of color/race.

DIVERSITY OF GOVERNANCE BODIES AND EMPLOYEES, BY JOB CATEGORY AND VULNERABLE GROUP GRI 405-1

Color/Race	Women	Black	People with Disabilities	LGBTQIA+	Indigenous people	Above 50
Operational	0.0%	11.1%	0.0%	0.0%	0.0%	88.9%
Secondary-level technical professional	7.0%	14.8%	0.4%	0.0%	0.1%	19.7%
Secondary-level professional	26.5%	14.2%	3.2%	0.1%	0.2%	26.7%
University-level professional	26.4%	8.1%	1.1%	0.0%	0.1%	26.5%
Total	21.6%	13.1%	2.1%	0.1%	0.1%	25.1%

People development

HOURS OF TRAINING BY JOB CATEGORY GRI 404-1

	Operational	Secondary-level technical professional	Secondary-level professional	University-level professional	Total
Employee Total	18	1,450	3,271	1,136	5,875
Hours of training	444.44	77,591.42	87,700.60	45,443.62	211,180.08
Average training hours	24.69	53.51	26.81	40.00	35.95



SDGs and Priority Sector Goals

7. AFFORDABLE AND CLEAN ENERGY

SDG 7	<p>Goal 7.1: By 2030, ensure universal, reliable, modern, and affordable access to energy services.</p> <p>Sector Goal: Strive to reach a 5% gain in electrical efficiency (GWh or equivalent) by 2030.</p> <p>Copel Performance: The electricity generation complex produced 26,787.7 GWh in 2022, around 30% more than in 2021, when the production reached 20,284.3 GWh. In order to improve and guarantee the operational efficiency of its plants, Copel is making a series of investments, such as the expansion of its wind generation park.</p>	See more on page 154
	<p>Sector Goal: Enable access to electricity to 100% of the Brazilian population by 2030 through the use of new technologies, at affordable prices and with quality.</p> <p>Copel Performance: Copel currently meets all the criteria for universal access to electricity established by the Brazilian electricity regulator (Agência Nacional de Energia Elétrica - Aneel) and is improving its distribution assets in remote or hard-to-access places.</p>	See more on page 162
	<p>Goal 7.2: By 2030, substantially increase the share of renewable energy in the national energy mix.</p> <p>Copel Performance: Copel's energy matrix is 93.8% derived from renewable sources. The Company's goal is to reach 100% by 2030 and also to boost the generation of electricity from alternative sources, such as wind and solar.</p>	See more on page 154
	<p>Goal 7.3: By 2030, increase the rate of improvement in energy efficiency of the Brazilian economy.</p> <p>Copel Performance: The actions of Copel's energy efficiency program in 2022 led to savings of 22.572,26 MWh.</p>	See more on page 155

8. DECENT WORK AND ECONOMIC GROWTH

SDG 8	<p>Goal 8.3: Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro, small and medium-sized enterprises, including through access to financial services.</p> <p>Sector Goal: Foster strategies/initiatives to hire micro, small, and medium-sized companies in order to increase their share in the value chain (implementation goal/target).</p> <p>Copel Performance: Copel adopts practices of differentiated and special treatment for micro and small companies, as set forth in Federal Law 147/2014, which enables these suppliers to participate in contracting processes.</p>	See more on page 135
	<p>Sector Goal: Ensure no deaths of company employees and outsourced workers while on the job in the electricity sector.</p> <p>Copel Performance: The care for health and safety of employees and service providers is non-negotiable for Copel, which, in 2022, linked the goal of zero fatal accidents to the Company's variable remuneration program. Three deaths of outsourced professionals were recorded in 2022.</p>	See more on page 140

9. INDUSTRY, INNOVATION AND INFRASTRUCTURE

SDG 9	<p>Goal 9.1: Develop a quality, reliable, sustainable and robust infrastructure, including regional and cross-border infrastructure to support economic development and human well-being with a focus on equitable and affordable access for all.</p> <p>Sector Goal: Reach at least 80,000 public electric charge stations installed in the country by 2030.</p> <p>Copel Performance: In addition to an increase in the number of electric charge points, Copel has a project with a startup to technologically integrate all the charge points under a single management system. The first ultra-fast charger, with capacity to connect three vehicles at once, has started operating in Curitiba. Currently, Copel has 32 charging stations available in the state of Paraná.</p>	See more on page 152
	<p>Goal 9.4: By 2030, modernize the infrastructure and refurbish industries to make them sustainable, with increased efficiency in the use of resources and greater use of clean and environmentally sound industrial technologies and processes; with all countries operating in accordance with their respective capabilities.</p> <p>Sector Goal: Copel Performance: In 2022, Copel filed 42 patent applications, granting 14 software registrations, 9 industrial design registrations and 5 industrial patents. By 2030, expand the number of patents and licenses requested for every million reais invested in R&D projects.</p> <p>Copel Performance: 42 requests for registration filed at the National Industrial Property Institute (INPI) in 2022. 5 industrial patents granted, 14 software registration certificates and 9 industrial design registration certificates.</p>	See more on page 150



Annexes | Additional Disclosures

11. SUSTAINABLE CITIES AND COMMUNITIES:

SDG 11	<p>Goal 11.1: By 2030, ensure everyone has access to safe, appropriate and affordable housing and basic services and urbanize slums.</p> <p>Sector Goal: Reach less than 13% in real non-technical losses by 2030.</p> <p>Copel Performance: The non-technical losses are calculated on the low voltage market of Copel DIS: the amount reached in 2022 was 1.9%, compared to 1.89% in the previous year.</p>	See more on page 161
	<p>Sector Goal: Step up initiatives linked to smart cities by 2030.</p> <p>Copel Performance: Copel already has 430,000 smart meters installed in its concession area. In 2022 alone, it installed 244,000.</p>	See more on page 163
	<p>Goal 11.4: Step up efforts to protect and safeguard the world's cultural and natural heritage.</p> <p>Sector Goal: Conduct socio-economic analytics in traditional communities impacted by the operations of the electricity sector until 2025 to subsidize the implementation of voluntary projects.</p> <p>Sector Goal: Support the maintenance of projects aimed at preserving tangible and intangible historical heritage until 2030 to ensure the efficient use of funds and the effectiveness of the initiatives.</p> <p>Copel Performance: Copel implements projects to preserve tangible and intangible historical heritage that can be accessed in the Sustainability Portal: Sociocultural (https://copelsustentabilidade.com/social/sociocultural/).</p>	These initiatives can be checked in the socio-environmental reports of the wholly-owned subsidiaries, available on the website.

13. ACTION AGAINST GLOBAL CLIMATE CHANGE

SDG 13	<p>Goal 13.2: Integrate climate change measures into national policies, strategies and plans.</p> <p>Sector Goal: 15 power sector companies (generation, transmission, and distribution) with science-based targets approved by 2023.</p> <p>Copel Performance: Copel has the Carbon Neutrality Plan with the goals of scope 1 for 2030, based on SBTi¹.</p>	See more on page 91
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1. The Science Based Targets Initiative is a partnership between the Carbon Disclosure Project, the Global Compact, the World Resources Institute (WRI), and the World Wide Fund for Nature (WWF) that aims to encourage companies to adopt science-based greenhouse gas (GHG) reduction targets. In the specific case of energy, there is a guide produced by the coalition to assist in the setting of these goals.



Assurance Report GRI 2-5

(Convenience Translation into English from the Original Previously Issued in Portuguese)

Companhia Paranaense de Energia – Copel

Deloitte Touche Tohmatsu Auditores Independentes Ltda.

INDEPENDENT AUDITOR’S LIMITED ASSURANCE REPORT ON NON-FINANCIAL INFORMATION INCLUDED IN THE 2022 INTEGRATED REPORTING

To the Management and Shareholders of
Companhia Paranaense de Energia - Copel

Introduction

We have been engaged by Companhia Paranaense de Energia - Copel (“Company”) to submit our limited assurance report on the non-financial information included in the Company’s 2022 Integrated Reporting, related to the year ended December 31, 2022.

Our limited assurance scope does not comprise prior-period information or any other information disclosed in conjunction with the Integrated Reporting, including any embedded images, audio files or videos.

Management’s responsibilities

The Company’s Management is responsible for:

- Selecting and setting appropriate criteria to prepare the information included in the Integrated Reporting;
- Preparing the information based on the criteria and guidelines set out in the Global Reporting Initiative (GRI Standards), in addition to some Corporate Sustainability Assessment (CSA) and Sustainability

Accounting Standards Board (SASB) KPIs and including the guidelines set out in the OCPC 09 – Relato Integrado (“OCPC 09”) as required by CVM Resolution No. 14 issued on December 9, 2020.

- Designing, implementing and maintaining internal controls over relevant information for the preparation of the information included in the Integrated Reporting, that is free from material misstatement, whether due to fraud or error.



Auditor's responsibility

Our responsibility is to express a conclusion on the non-financial information included in the 2022 Integrated Reporting, based on our limited assurance engagement conducted in accordance with Technical Communication (CTO) No. 07 - 2022, issued by the Federal Accounting Council ("CFC"), and based on Brazilian standard NBC-TO-3000 - Assurance Engagements other than Audits or Reviews, issued by the CFC, which is equivalent to the international standard ISAE 3000 - Assurance Engagements other than Audits or Reviews of Historical Financial Information, issued by the International Auditing and Assurance Standards Board (IAASB). Those standards require that we comply with ethical and independence requirements and other related responsibilities, including as regards the adoption of the Brazilian Quality Control Standard (NBC PA 01) and, therefore, the implementation of a comprehensive quality control system, including documented policies and procedures on the compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

In addition, those standards require that the work be planned and performed to obtain limited assurance that the non-financial

information included in the 2022 Integrated Reporting, taken as a whole, is free from material misstatement.

A limited assurance engagement conducted in accordance with Brazilian standard NBC-TO-3000 (ISAE 3000) consists mainly of making inquiries of Management and other professionals of the Company involved in the preparation of the non-financial information, as well as applying analytical procedures to obtain evidence that enables us to reach a limited assurance conclusion on the information taken as a whole. A limited assurance engagement also requires the performance of additional procedures when the independent auditor becomes aware of matters that cause the auditor to believe that the information included in the Integrated Reporting, taken as a whole, might present material misstatements.

The procedures selected were based on our understanding of the aspects related to the compilation, materiality and presentation of the information included in the 2022 Integrated Reporting, and other circumstances of the engagement and our consideration of the areas and processes

concerning the material information disclosed in the 2022 Integrated Reporting, in which material misstatements might exist. The procedures comprised, among others:

- a) Planning the work, considering the relevance, the volume of quantitative and qualitative information and the operating and internal control systems that were used to prepare the information included in the 2022 Integrated Reporting;
- b) Understanding the calculation methodology and the procedures adopted for the compilation of KPIs through inquiries with the managers responsible for the preparation of the information;
- c) Applying analytical procedures to quantitative information and making inquiries about the qualitative information and its correlation with the indicators disclosed in the information included in the 2022 Integrated Reporting; and
- d) For cases in which non-financial data is correlated to financial indicators, comparing such KPI with the financial statements and/or accounting records.



The limited assurance engagement also included the compliance with the guidelines and criteria of the GRI, CSA and SASB, applied in the preparation of the information included in the Integrated Report.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our limited assurance conclusion.

Scope and limitations

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in scope than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Had we performed a reasonable assurance engagement, other matters and misstatements that might exist in the information included in the 2022 Integrated Reporting might have been identified. Accordingly, we do not express an opinion on this information.

Non-financial data are subject to more inherent limitations than financial data, due to the nature and diversity of the methods used to determine, calculate or estimate such data. Qualitative interpretations on materiality, relevance and accuracy of the data are subject to individual assumptions and judgments. In addition, we have not performed any work related to data disclosed for prior periods or future projections and goals.

The sustainability indicators have been prepared and presented pursuant to the criteria set out in GRI, CSA and SASB Standards and, therefore, are not intended to ensure compliance with social, economic, environmental or engineering laws and regulations. However, the aforementioned standards provide for the presentation and disclosure of possible non-compliance with such regulations when sanctions or significant fines are applied. Our limited assurance report should be read and understood in this context, which is inherent in the criteria selected (GRI, CSA and SASB Standards).

Conclusion

Based on the procedures performed, which are described herein, and on the evidence we have obtained, nothing has come to our attention that causes us to believe that the non-financial information, included in the Integrated Reporting of the Company for the year ended December 31, 2022, was not prepared, in all material respects, in accordance with the criteria and guidelines set out in the GRI, CSA and SASB.

The accompanying Integrated Reporting have been translated into English for the convenience of readers outside Brazil.

São Paulo, June 2, 2023

DELOITTE TOUCHE TOHMATSU
Auditores Independentes Ltda.

Jonas Dal Ponte
Engagement Partner



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Copel collection

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