

Welcome to your CDP Climate Change Questionnaire 2023

C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

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 energy 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 National Electric Energy Agency (Aneel).

C0.2

(C0.2) State the start and end date of the year for which you are reporting data and indicate whether you will be providing emissions data for past reporting years.

Reporting year

Start date

January 1, 2022

End date

December 31, 2022

Indicate if you are providing emissions data for past reporting years

No

C0.3

(C0.3) Select the countries/areas in which you operate.

Brazil

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.

BRL

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.

Operational control

C-EU0.7

(C-EU0.7) Which part of the electric utilities value chain does your organization operate in? Select all that apply.

Row 1

Electric utilities value chain

Electricity generation

Transmission

Distribution

Other divisions

Smart grids / demand response

Micro grids

C0.8

(C0.8) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, an ISIN code	BRCPLEACNOR8

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual or committee	Responsibilities for climate-related issues
Director on board	<p>Climate change issues are monitored by 3 (three) directors, one of whom is the CEO, who are part of the Sustainable Development Committee - CDS - and are brought to the attention and deliberation of the Board of Directors on a monthly basis.</p> <p>It should be made clear that the company's responsibility for climate issues does not rest exclusively with a specific member of the board, but with the board as a whole, including the CEO.</p> <p>Copel's Sustainable Development Committee is provided for in Section IV of Chapter V of the Bylaws, it is an independent, consultative and permanent body that advises the Board of Directors, with the characteristics, composition, operation and powers established in specific Internal Regulations. This Committee reports to the Board of Directors, to which it is directly linked.</p> <p>Ordinary meetings are held periodically, according to a pre-established calendar, in addition to occasional extraordinary meetings (when necessary). Minutes of all meetings of this Collegiate – both ordinary and extraordinary – are drawn up in the proper book.</p> <p>It is composed of 5 members, elected at the 206th extraordinary meeting of the Board of Directors, with the exception of one member elected at the 223rd ordinary meeting of the same board, in accordance with its internal regulations, the minutes of which are available on the company's Investor Relations website. In addition to the three directors mentioned above, there are two other members, one of whom is a member of the Nominating and Evaluation Committee and one external member.</p> <p>As an example of decision making - to improve climate management.</p>
Board-level committee	<p>In the internal regulations of the Sustainable Development Committee (Comitê de Desenvolvimento Sustentável - CDS), we have the following provisions in art. 2nd:</p>

	<p>The Sustainable Development Committee is a statutory, consultative and permanent body that advises the Board of Directors - CAD, taking into account the deliberative competence of that body, on the establishment of guidelines, policies and principles related to human resources management and sustainable development of the Company, its wholly-owned subsidiaries and controlled companies, with emphasis on the environmental, social and corporate governance (ESG) dimensions, within the best market practices, as well as the analysis and issuance of recommendations and opinions related to compliance with legal requirements and regulatory, internal provisions and commitments.</p> <p>Art. 11 In addition to the attributions established by the Bylaws of Copel (Holding), the Sustainable Development Committee is responsible for:</p> <p>I. evaluate, review and recommend to the Board of Directors the approval of people management and sustainability strategies, so that they are considered in the definition of the Company's Strategic Planning;</p> <p>V. evaluate the Company's policies and conduct related to Sustainability, Corporate Governance, People Management, Occupational Health and Safety and Relationship with interested parties;</p> <p>VII. evaluate and monitor the Company's performance and the execution of projects that improve sustainability practices with an emphasis on ESG dimensions (environmental, social and governance), as well as people management, resulting from the Strategic Planning;</p> <p>XI. monitor and anticipate trends in global sustainability issues, such as those related to issues associated with climate change and human rights, as well as people management.</p> <p>Copel's Sustainable Development Committee is provided for in Section IV of Chapter V of the Bylaws, Ordinary meetings are held periodically, according to a pre-established calendar, in addition to occasional extraordinary meetings (when necessary). Minutes of all meetings of this Collegiate – both ordinary and extraordinary – are drawn up in the proper book.</p>
<p>Other, please specify Board of Directors</p>	<p>It is incumbent upon the Board of Directors, in accordance with art. 28 of Copel Holding's Bylaws:</p> <p>I) set the general guidelines for the Company's business, including approval and monitoring of the business plan, strategic and investment planning, defining objectives and priorities in meeting public policies compatible with the Company's area of activity and its corporate purpose, seeking the sustainable development;</p> <p>XVII) approve and monitor the Company's general policies and their respective</p>

	amendments, with regard to: e) sustainability; f) climate change; Link to Copel Holding's Bylaws: https://api.mziq.com/mzfilemanager/v2/d/16a31b1b-5ecd-4214-a2e0-308a2393e330/0beb9de6-b446-9aae-3e68-db0792078011?origin=1
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C1.1b

(C1.1b) Provide further details on the board's oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – some meetings	Overseeing and guiding employee incentives Reviewing and guiding strategy Overseeing and guiding the development of a transition plan Overseeing the setting of corporate targets	<p>REVIEWING AND GUIDING STRATEGY</p> <p>The company's CEO coordinates the company's annual strategic planning review process that contemplates among others, questions related to climate change; and the Board of Directors approves the company's annual strategic planning review.</p> <p>The materiality process is carried out every 2 years simultaneously with the strategic planning process, focusing on guaranteeing the relevance of the themes that affect the company's businesses, considering global and local context. One of Copel's material themes is actions against climate change. The Executive Board and the Board of Directors participate in this process. Annually the CEO of the company approves the CDP climate change response.</p> <p>OVERSEEING AND GUIDING THE DEVELOPMENT OF A TRANSITION PLAN</p> <p>The company's CEO determines the implementation of strategic planning developments, including issues related to climate change. Therefore, the Chief Sustainability Officer coordinates the construction/revision of the Company's neutrality plan that is analyzed, approved, and submitted to the Sustainable Committee (CDS). The CDS, in turn, reviews the neutrality plan and recommends its approval by the Board of Directors.</p> <p>The Neutrality Plan is implemented by the Executive Board and monitored by the Chief Sustainability Officer who reports periodically to the Sustainability Committee</p>

		<p>about its development.</p> <p>OVERSEEING THE SETTING OF CORPORATE TARGETS The company's CEO determines the establishment of indicators linked to incentives and supervises the performance of these indicators. The Chief Sustainability Officer supports the development of indicators related to climate change. The Executive Board analyzes, approves, and forwards the indicators related to climate change to the Board of Directors deliberation after the Sustainability Committee analysis. The indicators and its targets are monitored through a system and reported periodically to the Sustainability Committee and Board of Directors.</p> <p>OVERSEEING AND GUIDING EMPLOYEE INCENTIVES In 2022, the Company's Board of Directors approved the linking of performance through the "ESG Indicator" corresponding to 10% of all variable compensation of directors and employees. The ESG indicator comprises 2 other indicators: Performance in the Dow Jones CSA Assessment, and Progress in the Carbon Neutrality Plan.</p>
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C1.1d

(C1.1d) Does your organization have at least one board member with competence on climate-related issues?

	Board member(s) have competence on climate-related issues	Criteria used to assess competence of board member(s) on climate-related issues
Row 1	Yes	<p>In order to be appointed to the position of member of the Sustainable Development Committee - (Comitê de Desenvolvimento Sustentável - CDS), proof of training compatible with the duties of the collegiate is required, in accordance with the statutory provisions in force, as well as with the duties defined in its bylaws.</p> <p>The excerpts considered in the statutory provisions and current legislation are transcribed below.</p> <p>Internal Regulations of the Sustainable Development Committee - CDS, Chapter III - Competencies and Attributions, art 11, inc. XI: XI. monitor and anticipate trends in global sustainability issues, such as those related to issues associated with climate change and human rights, as well as people management.</p>

	<p>Link to Portuguese version: https://api.mziq.com/mzfilemanager/v2/d/16a31b1b-5ecd-4214-a2e0-308a2393e330/49532dd0-9c22-a111-e1c9-5f219a24175f?origin=1</p> <p>Link to English version: https://api.mziq.com/mzfilemanager/v2/d/16a31b1b-5ecd-4214-a2e0-308a2393e330/71668019-7e5b-9ce3-2ccc-e348131c61ec?origin=1</p> <p>Nomination Policy, items 3.2.1 and 4.6: 3.2.1 - Focus on Results: the nominee's ability to prioritize and establish strategies for the high-performance realization of the corporate purpose of the company where he will operate, seeking to maximize value, generate profit, distribute dividends and maintain the company's economic and financial sustainability . 4.6 – Comply with the requirements and prohibitions provided for in the applicable legislation and in the internal rules.</p> <p>Link to Portuguese version: https://api.mziq.com/mzfilemanager/v2/d/16a31b1b-5ecd-4214-a2e0-308a2393e330/22617574-d45d-741e-fe6c-de8d0aa0d0d3?origin=1</p>
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C1.2

(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

Position or committee

Chief Executive Officer (CEO)

Climate-related responsibilities of this position

Integrating climate-related issues into the strategy
 Setting climate-related corporate targets
 Monitoring progress against climate-related corporate targets

Coverage of responsibilities

Reporting line

Reports to the board directly

Frequency of reporting to the board on climate-related issues via this reporting line

More frequently than quarterly

Please explain

Position or committee

Sustainability committee

Climate-related responsibilities of this position

Assessing climate-related risks and opportunities

Coverage of responsibilities

Reporting line

Reports to the board directly

Frequency of reporting to the board on climate-related issues via this reporting line

More frequently than quarterly

Please explain

Sustainable Development Committee (Comitê de Desenvolvimento Sustentável - CDS)

Position or committee

Chief Sustainability Officer (CSO)

Climate-related responsibilities of this position

Developing a climate transition plan

Integrating climate-related issues into the strategy

Setting climate-related corporate targets

Monitoring progress against climate-related corporate targets

Managing public policy engagement that may impact the climate

Assessing climate-related risks and opportunities

Coverage of responsibilities

Reporting line

Reports to the board directly

Frequency of reporting to the board on climate-related issues via this reporting line

More frequently than quarterly

Please explain

The Company's bylaws assigns responsibility for sustainability themes coordination to the Director of Governance, Risk and Compliance, which includes climate change.

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	<p>The Company has a variable compensation program (Performance Award – PPD) which is intended for all Copel employees and the executive board. More details can be found on the website: https://copelsustentabilidade.com/en/social/people-management/compensation/</p> <p>For the 2022 cycle, the Company's Board of Directors approved the linking of performance through the “ESG Indicator”, corresponding to 10% of all variable compensation of directors and employees. The ESG indicator consists of the result of 2 other indicators: Performance in the Dow Jones CSA Assessment, and Progress in the Carbon Neutrality Plan.</p> <p>The ESG indicator for variable compensation is the same used to measure the performance of the Strategic Objective “Expand and disseminate best ESG practices and strengthen risk management, internal controls and compliance”.</p>

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Entitled to incentive

Chief Executive Officer (CEO)

Type of incentive

Monetary reward

Incentive(s)

Bonus - % of salary

Performance indicator(s)

Achievement of a climate-related target

Implementation of an emissions reduction initiative

Incentive plan(s) this incentive is linked to

Short-Term Incentive Plan

Further details of incentive(s)

To maintain the commitment and engagement of Copel's professionals at all levels of the organization, Copel established ESG goals in its meritocracy program - linking up to 30% of the variable compensation program to objectives related to the climate and general performance of sustainability, health and work safety and internal controls. The

bonus is linked to the implementation of the Neutrality Plan and is linked to one third of the total 30%.

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan

As it is linked to progress in the Neutrality Plan, there is a direct correlation with the implementation of climate commitments and the Company's climate transition plan. This was the basis for the board of directors and subordinate management to develop efforts that allow leveraging the reduction of emissions.

Entitled to incentive

Executive officer

Type of incentive

Monetary reward

Incentive(s)

Bonus - % of salary

Performance indicator(s)

Achievement of a climate-related target

Implementation of an emissions reduction initiative

Incentive plan(s) this incentive is linked to

Short-Term Incentive Plan

Further details of incentive(s)

To maintain the commitment and engagement of Copel's professionals at all levels of the organization, Copel established ESG goals in its meritocracy program - linking up to 30% of the variable compensation program to objectives related to the climate and general performance of sustainability, health and work safety and internal controls. The bonus is linked to the implementation of the Neutrality Plan and is linked to one third of the total 30%.

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan

As it is linked to progress in the Neutrality Plan, there is a direct correlation with the implementation of climate commitments and the Company's climate transition plan. This was the basis for the board of directors and subordinate management to develop efforts that allow leveraging the reduction of emissions.

Entitled to incentive

Management group

Type of incentive

Monetary reward

Incentive(s)

Bonus - % of salary

Performance indicator(s)

Achievement of climate transition plan KPI
Achievement of a climate-related target
Implementation of an emissions reduction initiative

Incentive plan(s) this incentive is linked to

Short-Term Incentive Plan

Further details of incentive(s)

To maintain the commitment and engagement of Copel's professionals at all levels of the organization, Copel established ESG goals in its meritocracy program - linking up to 30% of the variable compensation program to objectives related to the climate and general performance of sustainability, health and work safety and internal controls. The bonus is linked to the implementation of the Neutrality Plan and is linked to one third of the total 30%.

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan

As it is linked to progress in the Neutrality Plan, there is a direct correlation with the implementation of climate commitments and the Company's climate transition plan. This was the basis for the board of directors and subordinate management to develop efforts that allow leveraging the reduction of emissions.

Entitled to incentive

All employees

Type of incentive

Monetary reward

Incentive(s)

Bonus - % of salary

Performance indicator(s)

Achievement of a climate-related target
Implementation of an emissions reduction initiative

Incentive plan(s) this incentive is linked to

Short-Term Incentive Plan

Further details of incentive(s)

To maintain the commitment and engagement of Copel's professionals at all levels of the organization, Copel established ESG goals in its meritocracy program - linking up to 30% of the variable compensation program to objectives related to the climate and general performance of sustainability, health and work safety and internal controls. The

bonus is linked to the implementation of the Neutrality Plan and is linked to one third of the total 30%.

Explain how this incentive contributes to the implementation of your organization’s climate commitments and/or climate transition plan

As it is linked to progress in the Neutrality Plan, there is a direct correlation with the implementation of climate commitments and the Company's climate transition plan. This was the basis for the board of directors and subordinate management to develop efforts that allow leveraging the reduction of emissions.

C2. Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?

Yes

C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

	From (years)	To (years)	Comment
Short-term	1	3	These periods have been defined based on the strategic risk.
Medium-term	3	9	
Long-term	9	100	Periods over 10 years are considered long-term horizons.

C2.1b

(C2.1b) How does your organization define substantive financial or strategic impact on your business?

The main corporate risks are identified based on strategic benchmarks and internal and external environments, inserted in the strategic planning cycle. Possible impacts on the financial, operational, image and socio-environmental perspectives are evaluated. The corporate risk profile is structured between strategic, operational, financial, conformity or compliance risks, considering the context of each event for this segmentation.

Copel uses a five-by-five risk matrix to assess and manage risks comprising two scales: level of probability and level of impact, that can be classified as:

Probability scales: remote, low, moderate, high, and very high

Impact scales: minimum, low, moderate, high, and very high.

Considering the intersection of the scales, the strategic impact is considered substantial when the risk level is high or critical.

According to the risk management methodology used by Copel, the financial impact must be quantitatively measured in monetary terms. The following data can be used to define the financial impact: increase in project/process costs, indemnities, fines, loss of assets, loss of revenue, etc.

For strategic and operational risks of great financial impact and related to new businesses, the following scale associated with the percentage of Share Capital or CAPEX is also considered as a parameter:

High: share capital or CAPEX between 1% and 2%, high impact on defined objectives, difficult to reverse.

Moderate: share capital or CAPEX between 0.5% and 1%, moderate impact on objectives, but recoverable.

Low: share capital or CAPEX between 0.1% and 0.5%, low impact on the objectives of the object of analysis.

Minimum: share capital or CAPEX of less than 0.1%, minimum impact to achieve the objectives of the object of analysis.

For example, when climate risk is identified, based on the risk methodology, it will be considered critical, high, moderate, low, or minimal according to these definitions.

The risk management methodology is exclusive to the Copel group and the activity of managing corporate risks (Copel Holding, its wholly-owned subsidiaries, and where applicable, subsidiaries and other equity interests) is linked to the Governance, Risks, Compliance Board, which periodically forwards the Corporate Risk Portfolio to the Company's Board of Directors for analysis and follow-up.

C2.2

(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

Value chain stage(s) covered

Direct operations
Upstream
Downstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

Annually, the main corporate risks are identified based on strategic benchmarks and internal and external environments, inserted in the strategic planning cycle. They occur at different times, in the preparation of the strategic plan, by the business areas at any time, in the review of internal processes, by demand of the new business area or for situations raised by Senior Management and supervisory bodies (Board of Directors and Fiscal Council), in these cases the short, medium and long time can be considered.. Possible impacts on the financial, operational and image perspectives are evaluated. The corporate risk profile is structured between strategic, operational, disclosure and compliance risks, considering the context of each event for this segmentation. The Portfolio of Main Corporate Risks aims to consolidate the risk management practices adopted by Copel, in line with its Bylaws, which establish that the Board of Directors is responsible for implementing and supervising the risk management and control systems established for the prevention and mitigation of the main risks to which the Company is exposed, including risks related to the integrity of accounting and financial information and those related to the occurrence of corruption and fraud. At this stage of the Company's risk management process, decisions are taken to mitigate, transfer, accept or control the identified climate risks and capitalize on the opportunities associated with them. In addition, building the portfolio of key risks includes monitoring the status of existing mitigation plans and adding new risks.

The "Risks and Controls Matrix" depicts the events that may impact the integrity of financial reports, the Company's processes and compliance with internal rules and current legislation, as well as existing mitigation actions, pointing out areas and those responsible for each process, risk, and control, among other information, which allows constant monitoring. Copel uses the SAP – GRC (Governance, Risk and Compliance) system to document its main processes and possible risks, as well as remediation and control actions, bringing greater agility, reliability and efficiency to the Company's risk management and control process. The severity assessment is carried out in terms of probability and impact, which is evaluated in four categories: financial impact, operational impact, image impact and socio-environmental impact. The implementation of the risk response presents as alternatives accept, avoid, accept, and increase the performance target, reduce, and share. In the analysis and review stage, the risks and associated treatment actions must be analyzed and reviewed by the risk manager, on a timely basis or at least annually, according to their risk category and their level of exposure. The Corporate Risk Portfolio is reviewed quarterly and during the Strategic Planning review cycle. The other risks are analyzed and revised by the risk manager through follow-up and critical analysis meetings (RAC's). In the reviews, the effectiveness of responses to risks is evaluated and any incidents are reported for evaluation and decision-making regarding the need to report to the supervisory bodies. The incident is recorded in the minutes of the RAC's, containing the description of the incident, area, date of the incident, date of detection, description of the loss, impacts, identified losses, related controls, etc., and are forwarded to the risk management area to its specific e-mail address, Corporate Risk Management. Finally, communication seeks to improve the quality of dialogue with stakeholders and support senior management and supervisory bodies in fulfilling their responsibilities.

To clarify the practice in relation to climate change, in the generation business, one can

mention the identification of acute and chronic physical risks raised by the Company's hydrology area to assess the impacts on the operation of the reservoirs.

In the distribution business, operations are subject to climatic factors that can damage the infrastructure of the electrical system, making them unavailable, reducing revenue and increasing reimbursement costs for consumers. It also affects compliance related to the minimum performance clauses established in our concession contract, which may adversely affect our results. Maintenance activities in adverse weather conditions can lead to accidents at work.

During the study phase of new projects, a short, medium and long-term risk analysis is carried out. Among the criteria used for this analysis is the climate issue related to carbon market transition, given the possibility of carbon emissions being charge in the future, which is not in practice in Brazil yet; and also, the opportunity to have gains from the sale of renewable energy bonds.

C2.2a

(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Risk related to the diffusion of distributed micro and mini generation with compensation of credits, whose legal framework was given by Law No. 14,300/2022 of 01.06.2022. The growing installation of distributed micro and mini-generation, mainly through photovoltaic panels installed in homes, businesses, industries, rural producers, public buildings and small plots of land, causes distortions in the allocation of costs among the different users of the electricity distribution network and contributes to the over contracting of distributors, considering that according to the current regulatory model, distributors contract energy to serve their consumers years in advance. Risk related to the adequacy of the existing electricity network due to changes in the current regulation motivated by climatic issues, which would impact on non-provisioned financial investments or on administrative sanctions by the regulatory body.
Emerging regulation	Relevant, sometimes included	Risk related to the establishment of a regulated carbon market in the country, which, by definition, establishes targets for the reduction of greenhouse gases, which may impact costs for offsetting emissions from the company's thermoelectric plants. In Brazil, some bills related to carbon emissions are being processed, PL 528/21 proposes the definition of a Brazilian emissions trading system, with the risk of meeting mitigation targets, which indicates that thermal power plants will probably come to paying for greenhouse gas emissions and investments in this type of business will be less advantageous for energy companies.

Technology	Relevant, sometimes included	Risk of not keeping up with the speed and rhythm with which innovations in technological solutions and processes are demanded in the offer of low carbon products and services. This risk results in less competitiveness and loss of opportunities to attend new customers and new markets. It also impacts on the development of strategic partnerships such as those with energy efficiency service providers in commercial and industrial processes, and on the leadership in the adoption of initiatives focused on vanguard themes such as the development of infrastructure for recharging electric vehicles using photovoltaic panels and batteries.
Legal	Relevant, sometimes included	<p>Risk of not achieving quality metrics (DEC and FEC) imposed by the National Electric Energy Agency (ANEEL), due to failures in the supply of energy to customers as a result of the increase in extreme weather events, which may lead to lawsuits and heavy fines imposed by the regulatory agency.</p> <p>Risks of lawsuits, because despite the seasonal behavior and financial provisions compatible with historical values, it is understood that the intensification of acute physical risks to which the electrical networks are subject (rain, wind and lightning) increases the volume of lawsuits and the costs resulting from the complication related to the power outage, since the distributor is notified as a defendant, as the consumer tends not to differentiate between the origin of the disconnection and the discomfort/loss, which, in turn, affects legal measures.</p>
Market	Relevant, always included	<p>Risk related to the influence of rainfall conditions on the energy trading price in the free energy market. The Brazilian electricity sector is mainly supplied by hydroelectricity; therefore, climate forecast analyzes are essential for the energy trading business, considering that price volatility in the face of rainy conditions offers risks and opportunities in defining the best time to buy or sell energy and to manage the energy balance of the group's companies, considering, among others, projections of physical guarantee of hydroelectric plants (GSF) and risk assessments.</p> <p>Risk of impact on the distributor's cash flow since, within the scope of the energy distribution business, market projections to attend consumers are based on historical simulations that represent expectations of economic growth and seasonal variations in temperature, which in turn impact on greater or lesser consumption of electricity. If atypical temperatures occur in a given period, significant deviations may be incurred in relation to projected market, therefore, there is a risk of impact on cash flow which may lead to a drop in revenue as well as penalties on the part of the regulatory agency by subcontracting or over contracting.</p> <p>Risk of market loss, due to greater demand for certified renewable energy by customers, being intensified if Brazil undergoes a carbon</p>

		pricing mechanism and the Company does not have the amount of certified renewable energy.
Reputation	Relevant, sometimes included	<p>Risk of negative impact for the Copel Brand due to the increase in the number of severe weather events and the intensification of their effects, since the increase in the number of interruptions in the supply of energy may imply an increase in the number of complaints due to lack of energy or delay in its return. Added to this, electricity distribution companies in Brazil are evaluated through customer satisfaction indicators (ISQP/Abraade and IASC/Aneel) and a low score can have an impact on the Company's reputation with the regulatory body – Aneel.</p> <p>Reputational risk due to the commitments signed for a transition of 1.5°C in global temperature, since investments in thermal power generation plants using non-renewable sources can also compromise the image of companies in terms of investment, as well as representing difficulties in obtaining credits.</p>
Acute physical	Relevant, always included	<p>Risks of interruption in the energy supply, since networks, lines and installations of the energy transmission and distribution systems can be affected by the occurrence of extreme weather events such as heavy rain, lightning, and wind gusts. These interruptions may incur penalties to be charged by the regulatory body (ANEEL) due to the unavailability of the energy supply, as well as incur increased maintenance costs and operating costs for the recovery of the system.</p> <p>In wind generation, extreme weather events can lead to significant damage to turbines and/or damage to wind turbine blades. Critical events arising from intense heat waves added to dry air conditions can cause fires in the turbines. In addition to physical damage, there may be a reduction in power generation as a safety measure for the operation of the generator park.</p> <p>In hydroelectric generation, the eventual worsening of heavy rains can pose a risk to the structures, leading to increased costs with operation and maintenance, in addition to increasing the possibility of environmental risks such as diffuse pollution, silting up of reservoirs and surrounding communities. On the other hand, the lack of rainfall can compromise the storage of hydroelectric reservoirs, impacting the temporary reduction of the Company's generation capacity, given that the hydraulic source represents the highest percentage of generation.</p> <p>In addition, according to Brazilian legislation (Federal Law 9,433/97), the priority must be the water supply for human and animal consumption, and the generation of electric energy must be reduced if necessary, a fact shared with other energy generation companies in Brazil aiming to guarantee the availability of energy in case of water scarcity.</p>

Chronic physical	Relevant, always included	<p>Risk of power outages due to an increase in the average temperature that could result in overloading the electrical system. It happens due to the increase in electricity consumption from air conditioning equipment, at the same time imposing restrictions on the nominal capacity of electrical installations, which will imply in reducing the flow of electric current to compensate for the increase in temperature, leading the operation of the electrical system to more extreme operating conditions which may result, in more extreme cases, in the interruption of the energy supply. Risk of impacts on the storage status of the reservoirs due to rainfall that may vary over the year and over the years. There is the possibility of permanent deviations in rainfall averages over time, impacting the storage status of the reservoirs with consequences on the productive capacity of hydroelectric plants. Studies of climate scenarios for the southern region of Brazil point to the possibility of positive anomalies for this region.</p> <p>Risk of reduction in wind energy generation, due to the increase in heat waves that may require that the nominal power of wind turbines be reduced to mitigate the impact of high temperatures.</p>
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C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical

Cyclone, hurricane, typhoon

Primary potential financial impact

Increased direct costs

Company-specific description

The action of strong winds impact the physical structures of the company. In transmission, the last significant event occurred on November 23, 2015, at 9:23 am, with the untimely outages of LTs 230kV Figueira - Londrina (Eletrosul) circuits 1 and 2. LT 230kV Figueira - Londrina (Eletrosul) circuit 2 was promptly restored through automatic reconnection. There was no success in the reconnection of LT 230kV Figueira - Londrina (Eletrosul) circuit 1. An inspection was made by maintenance team, in which four structures of the mentioned transmission line were damaged due to high winds. The last large transmission event occurred on 16/11/2020, at 20h02min, when the sudden shutdown of the LT 230kV Bateias – Ponta Grossa Sul transmission line occurred. The maintenance team performed an inspection, which detected the collapse of three structures and damage to two other structures of such transmission line as a result of high intensity winds.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

4,047,144

Potential financial impact figure – maximum (currency)

17,341,432

Explanation of financial impact figure

To estimate the financial impact, historical data were used, climate scenarios (RCP 4.5) projected for 2040 and some assumptions were made: occurrence of 1 extreme event every two years, probability of 10% unavailability of structures whose lifespan is nearing the end or outdated, average costs for reconstruction of structures (direct costs of the last two occurrences) and discount of the variable portion (PV) (indirect costs - revenue of the last two occurrences).

The calculation of the financial impact was carried out based on the following expression: $\{(\% \text{ of structures in the park in obsolescence} * \text{Total structures in the park in operation}) * (\text{Average unit cost of reconstruction} + \text{Portion of PV of the last unit occurrence}) * (\text{Amount of collapsed structures} / \text{Total park structures in operation}) * (\text{Concession period} / \text{frequency of occurrences})\} - (\text{average cost of the last 2 contingencies})$

To calculate the minimum financial impact, the RCP 4.5 scenario was considered in 2040, projecting an average speed increase of 0.10 m/s and the involvement of 2

collapsed transmission structures and with a projected frequency of occurrence of an extreme event every two years.

Minimum Financial Impact = $\{(0.10 * 8416) * (1950000 + 265714.72) * [(2 / 8416)] * (30/2)\} - ((3900000 + 1300000) / 2) = \text{BRL } 4,047,144.00$

To calculate the maximum financial impact, the RCP 8.5 scenario was considered in 2040, projecting an average speed increase of 0.35 m/s and the involvement of 6 collapsed transmission structures (based on the worst historical data).

Maximum financial impact = $\{(0.10 * 8416) * (1950000 + 265714.72) * [(6 / 8416)] * (30/2)\} - ((3900000 + 1300000) / 2) = \text{BRL } 17,341,432.00$

Cost of response to risk

152,600,000

Description of response and explanation of cost calculation

To mitigate the effect of critical events, some reaction actions can be taken in the short term and some planning actions are being proposed for the coming years.

Considering the characteristics of the business, the facilities are exposed to weather events, therefore, meteorological monitoring is carried out in the short term and strategies are developed to restore the power system as quickly as possible.

As a response action, a contract was signed to provide services to respond to contingencies in transmission lines with the objective of reinforcing Copel's own team, enabling a rapid power system restoration in the event of a collapse of structures. The contract is linked to the service times defined by the regulatory agency and directly affects the value of the financial impact since the part of the variable portion tends to zero, reducing the additional values for pre-established activities and avoiding a possible overprice, in addition to the decrease in response time for cases involving large-scale incidents. The estimated cost of this risk response was calculated based on the following premise: the last 2 occurrences in transmission lines that resulted in manpower costs and mobility costs; and costs with materials replacement. Therefore, the total estimated cost of this risk totals the amount of BRL 3.9 million and BRL 1.3 million respectively. Due to the similarity of the activities allocated to each event, the average value of BRL 2.6 million/event can be considered as a risk response cost. Eventual revenue penalties were not considered in the system restoration costs.

In the long term, the history of occurrences in transmission lines supported by extreme events was analyzed and it was observed that the collapsed structures were designed with technical criteria that did not foresee such wind regime conditions. Transmission systems are designed with a lifespan of 30 years, and the transmission company must carry out their operation and maintenance and, when necessary, request authorization from the regulatory agency to carry out replacement, reinforcements, and improvements. Current transmission planning provides for intervention in 10% of the current structures that may be affected, with an estimated cost of around BRL 150 million/year in reinforcements and improvements in transmission facilities to replace assets with more efficient models, modern and adapted to new scenarios, increasing transmission capacity and reliability.

Comment

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical

Heavy precipitation (rain, hail, snow/ice)

Primary potential financial impact

Increased direct costs

Company-specific description

As a consequence of climate change, the occurrence of heavy rains can affect the hydrological regime, which can trigger a series of risks to operations, since during these events damage to the hydroelectric power plant facilities can occur, in addition to eventual overcoming of parameters established in the design phase, both in terms of structure and the capacity of the discharge devices (spillways), which would lead to an increase in operating and maintenance costs.

Copel currently has a generating complex composed of 18 hydroelectric power plants and has interest in another 8 hydroelectric projects. Over the past 10 years, Copel has recorded heavy rainfall that caused damage to its power plants in at least three situations. In 2014, Copel was impacted by an extreme precipitation event in the Iguaçu River basin which resulted in costs at the time of around BRL52.6 million (costs with services, materials and equipment, personnel, and travel) for the recovery of two small hydroelectric power plants on the Cavernoso River due to the damage caused. In 2016, a new significant event occurred in the Tibagi River basin, causing damage to the facilities of another small hydroelectric power plant located on the Apucarantina River, with costs of around BRL 2 million (including services, materials and equipment, personnel, and travel). The most recent event, which took place in 2022, caused damage to facilities on the Chopim River, in the Iguaçu River basin, affecting the Chopim I Hydroelectric Power Plant, with costs to be determined in 2023.

Time horizon

Long-term

Likelihood

Unlikely

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

16,616,600

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

To estimate the impacts, the probability associated with the recurrence time (TR) of the plant structures was used. Hydroelectric power plants and small hydroelectric power plants were considered in the analysis, as they are designed for recurrence time of up to 1,000 years. It was also considered, those that have historically experienced incidents. Considering the associated infrastructures of the dam, a projection of the change in the recurrence time of 100 years was carried out, using the increment of the RCP 4.5 scenario, which resulted in an increase of 19% in the average flows in the Paraná region. With the predicted increase in flow, the new recurrence time was estimated for the same flows, resulting in the reduction of the TR of these flows to 50 years. Considering a 10-year interval, the probability of occurrence of an event was calculated for the two recurrence times (TR100 and TR50), resulting in an increase of 91.3% in the probability of incidents related to floods.

$P = 1 - (1 - 1/TR)^n$ (TR: recurrence time, n: number of periods)

TR100:

Current 10-year probability of occurrence = $1 - (1 - 1/100)^{10} = 9.6\%$

TR50:

Probability of occurrence in future 10 years = $1 - (1 - 1/50)^{10} = 18.3\%$

The increment is obtained by the 18.3%/9.6% ratio, resulting in a 91.3% increase in the probability of flood-related incidents.

For the recent 10-year period, the average cost of recovering, per event, related to the damage caused in the last 3 contingencies was BRL 18,200,000.00. To calculate this cost, it was considered the costs of services provided, costs related to the acquisition of materials and equipment, and personnel costs. Costs associated with the discontinuity of generation were not considered.

To estimate the financial impact the following equation was used:

Financial impact = Probability increment * average cost of last contingencies

Financial impact = 91.3% * BRL 18,200,000.00 = BRL 16,616,600.00

Cost of response to risk

8,700,000

Description of response and explanation of cost calculation

Due to the impacts that hydropower plants are exposed to and considering the need for quick action to maintain operations and ensure the safety of those around the reservoir, Copel has developed a Dam Safety Plan (PSB) that includes structures monitoring procedures, safety inspections, periodic safety review and the dams Emergency Action Plans (EAP). Additionally, there are emergency flood action plans with periodic internal simulations. To increase the recurrence time (TR) of the powerhouse, flood protection systems were installed in three small hydroelectric power plants to minimize the impacts

of less severe floods. Additionally, teams are kept on standby, hydro climatological monitoring stations and weather forecast services are maintained 24 hours a day (which includes the provision of satellite images, meteorological radar and a forecasting system related to the amount of rain in the regions where reservoirs are located). Also, the hydrological studies, the capacity of the discharge devices and the stability of the concrete structures that are part of the Periodic Review and Dam Safety (RPS), are being reviewed to assess the impact of the change that has occurred so far regarding the hydrological regime of the hydrographic basins in the operational safety of dams (total expected investment of BRL 8,351,500.00). Updating hydrological data has enabled the review of hydrodynamic simulation studies, the elaboration of maps of floodable areas due to natural floods and the hypothetical rupture of the main dams. These actions are essential to respond to risk and thus minimize the impacts resulting from increased precipitation in a short period of time. The response cost is given by:
Response cost = Investment in monitoring + Execution of periodic dam safety review = BRL 6,000,000.00 + BRL 2,700,000.00 = BRL 8,700,000.00

Comment

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical

Cyclone, hurricane, typhoon

Primary potential financial impact

Increased direct costs

Company-specific description

The occurrence of heavy rains in a short period, accompanied by windstorms and lightning, can cause physical damage to the facilities that transport and distribute energy, leading to unavailability and increased costs for Copel DIS, caused by the reimbursement of consumers due to interruptions in the energy supply. To assess the effectiveness of actions and initiatives carried out in relation to energy quality, Copel DIS uses the indicators DEC (Equivalent Duration of Interruption per Consumer Unit) and FEC (Equivalent Frequency of Interruption per Consumer Unit). In 2022, approximately BRL 25 million were paid in indemnities to Copel DIS customers for violation of individual indicators of continuity of electricity supply (DIC, FIC, DMIC and DICRI). Extreme weather events may cause an increase in the indicators that measure the quality of the energy supply, and in the case of extrapolation of the DEC and FEC limits, according to specific conditions, may imply in a regulatory process by the regulator, implying the risk of losing the energy distribution concession by the company.

Time horizon

Short-term

Likelihood

Virtually certain

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

25,535,012

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

In 2022, the amount of BRL 25,535,012.27 corresponds to the following combination of costs: compensation costs (ANEEL penalty) for violation of the system, DIC continuity indicator (individual interruption time per consumer unit), FIC (frequency of individual interruption per consumer unit), DMIC (maximum duration of continuous interruption per consumer unit or connection point) and DICRI (duration of individual interruption on a critical day per consumer unit or connection point). In this case, the amount of BRL 25,535,012.27 = 24,775,587.59 of DIC, FIC and DMIC Remuneration + DICRI Remuneration (BRL 759,424.68).

Cost of response to risk

761,052,000

Description of response and explanation of cost calculation

To respond to the risk, investments are being made in a robust and secure network, with technologies that minimize the impact, frequency and duration of the interruptions and make the recovery of supply more agile. The main initiatives are:

- Three-phase Paraná Project, with the construction of 25,000 km of rural networks by 2025. In 2022, works worth BRL 530,762,682.00 were carried out.
- Carrying out work on substations and high voltage lines to expand, reinforce and combat DEC/FEC indicators, with an investment of BRL 230,289,773.20.

The sum of these two projects corresponds to BRL 761,052,000.00.

Other projects are also being carried out and contribute to the advancement of actions:

- Special projects (Smart Grid): intelligent equipment installation within the distribution network provides status data of the distribution system directing actions by the operation and field teams for a quick system recovery in case accidental shutdowns arises due to weather events.
- Contingency plan: action plan involving several areas of the company to act in the

electricity distribution system recovery in the event of alerts and impacts due to meteorological events.

- Total Reliability Project: refers to intensification of new technologies application and processes modernization, seeking efficiency in O&M processes focusing on increasing electricity distribution system availability and quality of energy distribution services.

- Electricity Distribution Network Resilience: refers to studies to standardize more reinforced structures in the construction of distribution networks, reinforcing the system to face severe weather events.

- Urban Forests: due to the pruning carried out to reduce the impact of vegetation on the electricity distribution network due to winds, Copel, through the Urban Forests Program, provides smaller vegetation to be planted in the vicinity of the networks, minimizing the risks of accidental shutdowns due to touches of branches depending on the winds.

- Integrated Vegetation Management Project: refers to power lines with less risk of power outages caused by the growth of vegetation incompatible with the electrical systems.

- Underground rural networks for less environmental impact.

Comment

Identifier

Risk 4

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Chronic physical

Temperature variability

Primary potential financial impact

Other, please specify

Penalidades devido a interrupção e qualidade da energia

Company-specific description

The profile of electricity consumption is related, among other factors, to the variation in ambient temperature. It is observed that during periods with higher temperatures there is a tendency to increase energy consumption due to the more frequent use of equipment aimed at thermal comfort. Particularly in the summer months, this impact is more noticeable. On the other hand, when the ambient temperature is higher, the limit of high voltage distribution lines is reduced to preserve the thermal balance of the conductors and guarantee the safe height of the cable to the ground. In this context, the electrical system is subjected to a more extreme operating condition, in which limits are lower and consumption is higher. In expansion planning studies, the ambient temperature value used to assess line loading was updated to promote greater operational safety. It is now considered the percentage of 95%, related to the time spent

at ambient temperature, as it is more realistic when compared to the average of maximum temperatures. It was observed that, in certain periods of the year the value of the ambient temperature remains above the average of the maximum temperatures in several occasions and for excessively long periods. This scenario imposes on conductors an operating condition above their thermal limit, which may compromise the mechanical characteristics of the material.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

170,000

Potential financial impact figure – maximum (currency)

1,100,000

Explanation of financial impact figure

This value considers the variation in the average cost per kilometer for cables replacing.

Cost of response to risk

1,100,000

Description of response and explanation of cost calculation

The value corresponds to the average cost per kilometer adopted for the construction of new high voltage distribution lines (BRL 1,100,000.00/km).

Comment

The risk exists but they are being mitigated. The company adopts operational measures to prevent power line loading from reaching its thermal limit.

C2.4

(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.4a

(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Opp1

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

Ability to diversify business activities

Primary potential financial impact

Increased revenues resulting from increased production capacity

Company-specific description

Since 2017, Copel has carried out measurements at two solarimetric stations located in areas leased by Copel Brisa Potiguar. The development of solar energy projects in these areas is still under analysis and the respective studies must be completed to be submitted to future auctions. In this context, in 2019 Copel sold 30% of the energy of the Jandaíra Wind Complex in the "A-6 new energy auction". This wind complex is in the State of Rio Grande do Norte with 99 MW of installed capacity and has begun commercial operation in 2022. During the development of the wind project, studies were carried out for the use of the remaining areas of the complex, which indicated the potential for the implementation of a photovoltaic plant with 50 MW of installed capacity. The project obtained the Prior Environmental License from IDEMA in 2021 and is in the process of obtaining the Installation License.

Time horizon

Medium-term

Likelihood

About as likely as not

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

15,763,857

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Estimated annual revenue considering the average price of the last 5 auctions in the Regulated Contracting Environment (ACR) for the solar source was BRL 166.55/MWh. Considering an installed capacity of 50 MW and an average monthly energy production (P50) of 7,887.45 MWh/month, the financial impact value will be: $165.55 \times 7,887.45 \times 12 = \text{BRL } 15,763,857.57$

Cost to realize opportunity

190,000,000

Strategy to realize opportunity and explanation of cost calculation

During the development of the Jandaíra Wind Complex, studies were carried out for the use of the remaining areas of the complex, which indicated the potential for the implementation of a photovoltaic plant with 50 MW of installed capacity.

A Prior Environmental License was obtained from IDEMA in 2021 and the process of obtaining the Installation License is in progress.

Additionally, to connect with strategic partners to carry out projects and increase its competitiveness for participation in energy auctions, Copel periodically publicize its interest in business opportunities through public calls for registration of suppliers and strategic and specialized service providers in the various areas necessary to make opportunities viable.

To make the photovoltaic plant project feasible, Copel aims to participate in future energy auctions held by the regulatory agency (ANEEL) in the Regulated Contracting Environment - ACR and/or to sell the energy in the Free Contracting Environment - ACL. The estimated cost of this opportunity was obtained from market price quotations with equipment suppliers, environmental service providers (licensing, preparation of studies and execution of environmental programs), land releases, studies, and engineering projects, as well as with companies specialized in the execution of civil works and electromechanical assembly.

Comment

Identifier

Opp2

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

Ability to diversify business activities

Primary potential financial impact

Increased revenues resulting from increased production capacity

Company-specific description

In line with its Investment Policy and aiming to achieve the decarbonization of its matrix by 2030, in 2022 Copel completed the acquisition of the Aventura and Santa Rosa & Mundo Novo Wind Complexes, for BRL1,760.6 million (Material Fact 02/22). The project comprises 9 wind farms located in the municipalities of Touros and São Tomé in Rio Grande do Norte State, a region considered to be one of the best in the world for wind power generation, with a capacity factor of around 60%. With this acquisition, Copel added 260.4 MW to its renewable energy portfolio, surpassing 1 GW of installed capacity in wind sources in the northeast region of the country.

Time horizon

Short-term

Likelihood

Virtually certain

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

139,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The average annual Ebitda for the period of operation of the project was estimated based on the average energy generated by the wind farms of the Aventura (53.6 MWavg) and Santa Rosa & Mundo Novo (67.1 MWavg) complexes multiplied by the average values of energy sales carried out through the regulated contracting environment during the operation of the projects.

Cost to realize opportunity

1,803,000,000

Strategy to realize opportunity and explanation of cost calculation

The acquisition related to this opportunity is in line with the company's strategic planning, which seeks to increase its portfolio of energy generation from renewable

sources and consolidate itself as one of the largest companies in the sector. This opportunity has been realized after the stages of internal analysis by specialized areas such as environmental, engineering, land and regulatory; and economic financial and technical due diligence carried out by a specialized contracted company. The wind complexes are in full commercial operation, with a capacity factor of 61% and certified energy (P50) of 157.8 MW average. Around 76.5% of the project's energy was sold in the regulated environment (ACR). In addition, approximately 13.7% of the total energy generated is traded in the free environment (ACL), leaving around 9.8% for new contracts. It should be noted that until the start of energy supply in the regulated environment in 2023, around 95% of the energy was already sold in the free environment (ACL) at market prices. With this acquisition, Copel added 260.4 MW to its renewable energy portfolio, surpassing 1 GW of installed capacity in wind sources in the northeast region of the country. The reported cost refers to the acquisition value of the project (Relevant Fact 02/22).

Comment

Identifier

Opp3

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Energy source

Primary climate-related opportunity driver

Shift toward decentralized energy generation

Primary potential financial impact

Increased revenues resulting from increased production capacity

Company-specific description

Faced with the expansion of distributed generation (DG) and market opportunities, Copel defined, in its strategic planning, operating in the distributed generation segment as one of the ways to expand its business in a sustainable and profitable way in renewable sources. In 2022, grid connection permissions were obtained for 3 UFV projects totaling 15 MW to be implemented by 2024.

Time horizon

Medium-term

Likelihood

Very likely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

18,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The annual gross revenue forecast was estimated based on the leasing value of assets for energy consumers, of approximately BRL 500,000.00 / month per plant. Considering the implementation of the 3 UFVs with 6.4 MW of installed capacity, the expected annual financial impact will be: $500,000 \times 12 \times 3 =$ BRL 18 million. It is estimated that UFVs have a useful life of 30 years.

Cost to realize opportunity

90,000,000

Strategy to realize opportunity and explanation of cost calculation

Faced with the expansion of distributed generation (DG) and market opportunities, Copel defined, in its strategic planning, operating in the distributed generation segment as one of the ways to expand its business in a sustainable and profitable way in renewable sources.

In 2022, grid connection permissions were obtained for 3 UFV projects totaling 15 MW to be implemented by 2024.

The estimated cost for realizing the opportunity was estimated at BRL 4.7 million/MW based on market price quotations with equipment suppliers (trackers, inverters, photovoltaic panels), provision of environmental services (licensing, execution and monitoring of environmental programs), land permissions, studies and engineering projects, as well as with companies specialized in the execution of civil works and electromechanical assembly for the 3 plants. Considering the implementation of the 3 UFVs with 6.4 MW of installed capacity each, the total to be invested will be: $4.7 \times (10^6) \times 3 \times 6.4 =$ BRL 90 million.

Comment

Identifier

Opp4

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Markets

Primary climate-related opportunity driver

Access to new assets and locations needing insurance coverage

Primary potential financial impact

Increased revenues through access to new and emerging markets

Company-specific description

An opportunity to sell renewable energy certificates was identified, which are demanded by companies that have sustainability goals and report their emissions, as well as by companies that wish to voluntarily certify their electricity consumption.

Time horizon

Short-term

Likelihood

Very likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

2,000,000

Potential financial impact figure – maximum (currency)

4,000,000

Explanation of financial impact figure

The amounts refer to revenue from the sale of renewable energy certificates. An increase in sales of 30 to 40% is estimated in relation to the previous year, being that the certificate price for the end customer ranges from BRL 1.00 to BRL 2.00 per I-REC certificate. The minimum and maximum potential value of the financial impacts are expected considering the sale of 2,000,000 of these certificates.

Cost to realize opportunity

1,500,000

Strategy to realize opportunity and explanation of cost calculation

Initially, the certificates were purchased on the market but in 2022 the product (opportunity) was consolidated, and hydro and wind power plants from Copel were certified to provide the certificates that are offered to clients. Aiming to better attend clients' needs, the certificates are now also emitted quarterly as a product improvement.

The cost refers to the sum of operating costs: fixed cost for registering a project at Instituto Totum (BRL 7,020.00), variable costs for issuing certificates at Instituto Totum (BRL 0.184/ I-REC), acquisition of certificates at market price, if necessary, certificates redemption costs on the Evident platform on behalf of the clients (€0.06/I-REC) and process management costs.

Comment

C3. Business Strategy

C3.1

(C3.1) Does your organization's strategy include a climate transition plan that aligns with a 1.5°C world?

Row 1

Climate transition plan

Yes, we have a climate transition plan which aligns with a 1.5°C world

Publicly available climate transition plan

Yes

Mechanism by which feedback is collected from shareholders on your climate transition plan

Our climate transition plan is voted on at Annual General Meetings (AGMs)

Attach any relevant documents which detail your climate transition plan (optional)

The Company's Management Report was analyzed and deliberated upon by the company's shareholders at the Annual General Meeting held on 04/28/2023. The Greenhouse Gas Emissions Neutrality Plan is one of the reports comprised by the management report and represents the Company's commitment to neutralize its Scope 1 emissions by 2030. Among the guidelines of the Neutrality Plan is the decision to decarbonize the Company's electricity matrix through the divestment plans in the Araucária Thermoelectric Power Plant (UEGA) and Compagás, as well as the sale of renewable energy certificates from the Company's generating complex. Additionally, the Company has been developing technology to improve the management of electricity distribution with assets modernization and expansion of the Smart Grid Program. In 2022, the variable compensation (Performance Bonus) started to consider the achievement of the Neutrality Plan goals which were defined in accordance with the specificities of each wholly-owned subsidiary and each of the Executive Offices.

 AGOE - Ata.pdf

C3.2

(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?

Use of climate-related scenario analysis to inform strategy	
Row 1	Yes, qualitative

C3.2a

(C3.2a) Provide details of your organization’s use of climate-related scenario analysis.

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Physical climate scenarios RCP 8.5	Company-wide		<p>It is used analysis of climate scenarios as a tool to assess possible impacts related to physical, regulatory and transition risks that may affect the operation, as well as to take advantage of opportunities. In the energy distribution business, the RCP 8.5 scenario was used to diagnose the physical risks with the greatest impact on operation, maintenance, and operational services. The variables average daily wind intensity and precipitation volume in the southern region of Brazil were considered with a projection until the year 2050. Data from the current hindcast (1996-2005) were compared with the ten-year projections for the period between 2021 and 2049. The projections indicate that there is a trend towards an increase in the intensity of winds in the summer, mainly in the next two decades, and an increase in days with a threshold greater than 40 mm of precipitation, in addition to the increase in daily precipitation accumulated in winter/spring.</p> <p>If this scenario materializes, there will be a greater impact on acute physical risks causing damage to structures, implying additional costs with the recovery of damaged structures. There may also be an increase in the fall of trees and branches, affecting the power grid, which will contribute to its unavailability and impacting business indicators, as well as to customer dissatisfaction, which may incur costs with indemnities and penalties by the regulatory body. This scenario was the basis for developing Copel DIS adaptation plan.</p> <p>In the energy generation business, Copel took part in the R&D project on the effect of climate change on the hydrological regime of river basins and on the assured</p>

			<p>energy of hydroelectric plants. In this project, data for the present (1961-90) and future (2010-2100) climate were used, considering an intermediate scenario of GHG emissions. Future scenarios up to 2100 were used. Considering the years 2040, 2070 and 2100, it was verified that there is a predominance of increased water flow towards the south of Brazil and south of the Paraná River basin. The study was updated considering the RCP 8.5 scenario along with the HADGEM3, MIROC6 and MPI-M models with CMIP6 scenarios. The results indicate that there are possibilities of positive anomalies for the southern region of Brazil. The study will help in the development of the adaptation and planning plan for the coming years, especially in the period that cotemplates the concession contracts of the company's generation power plants.</p>
<p>Transition scenarios IEA NZE 2050</p>	<p>Company-wide</p>		<p>The scenarios analysis revealed that there may be a greater frequency of extreme weather occasions in the coming years in Brazil, which was considered in the risk analysis of the Company's businesses since they are in different points of the Brazilian geographic space. In practical terms, the study indicates that the greater occurrence of extreme weather events such as extreme rainfall, heat waves and prolonged droughts, can impact the generation of electricity from a water source. In addition, the study presents a possible increase in wind speed in a large part of Brazil, in practically all seasons of the year, which requires attention regarding transmission and distribution assets. Based on this scenario, the Company prioritized in its financial planning, investment in technological development and innovation, as well as the increase in renewable energy generation projects, such as wind, solar and hydroelectric plants. The quest for renewable energy is also observed with customers, who seek solutions that lead to the reduction of their Greenhouse Gas (GHG) emissions - through renewable energy consumption or through the acquisition of renewable energy certificates for Scope 2 emissions.</p>

C3.2b

(C3.2b) Provide details of the focal questions your organization seeks to address by using climate-related scenario analysis, and summarize the results with respect to these questions.

Row 1

Focal questions

Analysis of vulnerability to climate risk of Copel DIS assets

Results of the climate-related scenario analysis with respect to the focal questions

Copel, through its Climate Change Policy, defines guidelines to incorporate measures to adapt to climate changes in the operation and expansion of its assets, in each of its businesses.

At Copel DIS, the risk of interruption in energy supply caused by extreme weather events (heavy precipitation and strong winds) and the risk of overloading the system due to extreme variation in energy consumption due to rising temperatures, led to adaptations in processes and electricity distribution systems, with investments in a robust and secure network, adopting technologies that minimize the impact, frequency and duration of interruptions and make the recovery of supply more agile.

In this way, considering the climate change scenarios study, to mitigate the impact on electricity distribution networks with a direct impact on the quality indicators linked to the concession and on customer satisfaction, Copel DIS has been carrying out the following main actions:

- Construction of compact medium voltage networks and isolated low voltage networks, construction of underground networks, construction of more robust networks with more reinforced materials and with a new route preferably bordering public access roads, execution of works of the Paraná Triphasic Program, use of new technologies in the networks construction and execution of works to improve the operation in contingency conditions and the automation and modernization of equipment and systems.
- To ensure readiness to respond to extreme weather conditions, Copel DIS has a contingency plan to ensure the mobilization of the necessary actions to reduce impacts, mainly on quality indicators linked to the concession contract. There is also real-time climate monitoring by the Paraná Environmental Technology and Monitoring System - SIMEPAR with transmission of alerts to the Integrated Operation Center (CIDIS).
- Research and development projects for monitoring climate impacts in network shutdowns with artificial intelligence involving meteorological and outage data to anticipate early mobilization for climate events.
- Urban Forests: due to the pruning carried out to reduce the impact of vegetation on the electricity distribution network due to winds, Copel, through the Urban Forests Program, provides smaller vegetation to be planted in the vicinity of the networks, minimizing the risks of accidental shutdowns due to touches of branches depending on the winds.
- Integrated Vegetation Management Project: refers to power lines with less risk of power outages caused by the growth of vegetation incompatible with the electrical

systems.

- Underground rural networks for less environmental impact.
- In expansion planning studies, the ambient temperature value used to assess line loading was updated to promote greater operational safety.

C3.3

(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	<p>Copel's strategic planning was reviewed in 2022 with a horizon of 8 years (Vision 2030). The strategy is based on "Decarbonize the current portfolio and accelerate positioning in renewables and in energy transition avenues". A series of opportunities considering transition scenarios were evaluated in the short, medium and long term, such as: "Development of new wind farms through greenfield/brownfield projects" (horizon 1), "To begin operations in solar energy and distributed generation - GD" and "Expansion of offered services - focusing on energy efficiency/electrical installations/affordable services" (horizon 2) and "Service offer for electric vehicles, potentially combined with aggregators (VPPs) and storage" and "Market entry of green hydrogen with the development of a pilot project for base generation" (horizon 3). As a result of strategic planning, the Company's Climate Change Policy, the Neutrality Plan and in line with the Investment Policy whose guidelines establish the climate change factor as one of the aspects to be considered in all analysis of investment opportunities, Copel has decided that its electricity generation assets must be 100% renewable, with growth of at least 2 additional GW in wind and solar sources. As example of this strategic guideline, it is cited: in 2022, Copel finished the construction of Jandaíra Wind Complex with 90.1 MW of installed wind generation capacity with an investment of R\$ 400 million and signed a contract for the acquisition of 100% of the Complexes Wind farms Santa Rosa & Mundo Novo and Aventura, totaling 260.4 MW of installed capacity and an investment of R\$ 1,803 million. With these investments, Copel's renewable energy portfolio totals 1,113 MW. Copel also stopped the analysis of all non-renewable projects and</p>

		<p>initiated studies for disinvestment in all of the company's non-renewable assets.</p> <p>In addition to these actions, the “renewable energy certificate” product was improved to meet customer demands regarding quarterly reporting of their sustainability actions.</p> <p>For the purposes of neutralizing energy consumption in 2022, by the 1st half of 2023, around 2 million renewable energy certificates (I-REC) were issued on behalf of the company’s customers.</p>
Supply chain and/or value chain	Yes	<p>Copel has sought to encourage its customers and consumers to adopt alternatives that allow them to reduce their own emissions. At Copel Comercialização, there is the understanding that the global movement to reduce greenhouse gas emissions includes initiatives by committed companies and organizations that, among other actions, choose renewable energy contracts to attend their operations. The growing demand for renewable energy certificates confirms this trend. In this context, events were held with customers and their supply chains to clarify issues related to greenhouse gas inventories and renewable energy certificates.</p> <p>As for captive customers at Copel Distribuição, through its Energy Efficiency Program, the strategy was to select customer projects to replace old appliances with more modern and efficient ones, as well as the incorporation of distributed generation from renewable sources that are relevant in terms of energy savings and reduced demand on the end customer and that may represent a greater impact on the reduction of GHG emissions. In 2022, R\$ 58.2 million were invested in 166 projects. In addition, in 2022, 14 more projects were selected, with an estimated investment of more than R\$ 20 million in energy efficiency in the coming years. These projects have a time horizon of 3 years, and their benefits are long term (equipment lifetime of 10 to 20 years). Copel makes available to its suppliers and partners a series of manuals with guidance content, aiming to share, in addition to its principles and values, practices, processes and initiatives to improve management for sustainability in its supply chain.</p>
Investment in R&D	Yes	<p>Considering the possible impacts on operations due to climate change, the Company identified the need to invest in research on the subject. In 2023, investments in the order of R\$ 51 million are planned for R&D projects. Among the lines to be researched by our business areas, it is cited:</p> <p>a) Power generation: research into sub-seasonal, seasonal</p>

		<p>and medium-term climate forecasting with consequent forecast of accumulated precipitation and average temperature, through the evaluation of long-term climate variability scenarios and numerical weather forecast models GFS and US Climate, climate models from the European center ECMWF and with the Community Climate Limited Area Model; research on the application of techniques in the treatment of hydrology and historical series of winds to represent the dynamics of climatic phenomena with the objective of greater robustness to the performance of the system, economy and use of thermal energy. As a result of this project, the generation business expects to improve the use of renewable sources, minimizing the use of thermal energy.</p> <p>b) Electricity distribution: research to estimate and classify the risk of interruptions in the energy distribution networks using short-term meteorological forecasts and soft computing, whose objective is to mitigate risks and allow the adequate dimensioning of resources for emergency assistance in the face of events.</p> <p>c) Investments in research involving green hydrogen: participation as an investor and co-executor in partnership with the institutions Sanepar, CIBiogas and UFPR, in the project “Renewable hydrogen from the dry reforming of biogas from the treatment of domestic sewage as energy for electromobility”, approved within the scope of the government public selection MCTI/FINEP/FNDCT.</p> <p>Additionally, the Company's Open Innovation Program, which selects startups from around the world that offer solutions in the energy area, in its 2nd edition selected 5 projects related to the themes "green hydrogen and energy storage", "electromobility and smart cities", “customer relationship and service solutions”, “asset and facility management”, and “digitization and improvement in management and processes”.</p>
Operations	Yes	<p>Both acute and chronic physical risk directly affect Copel's businesses. Considering the results of climate scenarios, the Company's strategic planning, with a horizon of 5 years and revised annually, established as a guideline, investing in technologies and assets to guarantee a robust, reliable, and intelligent electrical system.</p> <p>In hydro generation, the precipitation variable is of greatest interest since an excessive volume can compromise the installations and, in its absence, it can reduce the generation</p>

		<p>capacity. To minimize the first impact, real-time monitoring is carried out, checking on accumulated precipitation to help in anticipating actions, in the readiness of teams and in the execution of the emergency plan. As for the possibility of reducing power generation, the Company, for strategic reasons, has increased its portfolio with assets in other regions of the country, including diversifying its energy production with the inclusion of wind power plants.</p> <p>In power transmission, due to the possible increase in temperature, the strategy adopted consists of changing the construction pattern of transmission lines, adopting heat-resistant cables that can operate at temperatures above 90°C. Also, investments in reinforcements and improvements in the installations, in the order of R\$ 150 million/year, allow for the modernization of the system and the guarantee of better system reliability.</p> <p>In energy distribution, investments are being made in automation and equipment and systems modernization. In the expansion planning, the ambient temperature value used to evaluate cables loading was updated to promote greater operational safety, now considering the 95% percentile related to the time of permanence of the ambient temperature.</p> <p>Due to extreme events, for example the intensity of winds, which can compromise the supply of energy, some programs were developed: standardization of more reinforced structures (resilience of the distribution network), expansion of the rural network (Project Paraná Triphasic), use of more modern computational tools to optimize the emergency services of the workforce in the field and the use of intelligent equipment in the distribution network for quick recovery in cases of accidental shutdowns arising from extreme events (smart grids).</p>
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C3.4

(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues Direct costs	The financial planning horizon covers the short term (2023), medium and long term (2024 to 2027) and includes the 2030 Vision of decarbonizing

<p>Indirect costs Capital allocation Acquisitions and divestments Access to capital Assets Liabilities</p>	<p>the current portfolio with a focus on renewable energies. Operational, strategic and innovation investments must consider the guidelines of the Sustainable Development Committee. Among the evaluated criteria is the reduction of emissions with the implementation of renewable energy projects. As for business opportunities, they are supported by the Vision 2030 Strategic Plan and by the Investment Policy, where ESG issues must be considered in the investment decision and socio-environmental issues in the Business Plan.</p> <p>REVENUES: For each projected financial planning scenario, chronic and acute risks are considered in defining projection assumptions. In the generation business, since most of the company's generating complex is from hydraulic sources, dependent on the cyclical regimes of rainfall and inflows, the higher incidence of extreme weather phenomena can cause greater interannual variability of revenues, a risk that has been managed and constantly monitored by the company in its internal processes. Variables influenced by climate: : (i) GSF (Generation Scaling Factor) used in hydrological risk assessment; and (ii) PLD (Spot Price), are analyzed and interpreted by the company's technicians who project them for the entire concession period of the asset (medium and long term), managing the cost of hydrological risk. In terms of opportunity, the Company monitors the business environment resulting from economic, social and political changes caused by climate change, with short and medium term projections. Due to the greater awareness of large energy consumers, the demand for renewable energy certificates has grown, bringing additional sources of revenue from the company's renewable projects, which between 2021 and 2022 jumped from 9 to 21 TWh. Other initiatives that can contribute to the company's revenue are: investment in the open innovation program, Copel Volt, which encourages, among other topics, innovation in renewable energies and innovative internal processes; and an initiative in Corporate Venture Capital (CVC) through a Participation Investment Fund (FIP) to invest in innovative proposals within the energy sector.</p> <p>DIRECT COSTS: The reduction in the level of the reservoirs and the possibility of lower wind speed and its incidence, impact the group's energy availability, which may require the purchase of energy to fulfill energy sold contracts. In the projected financial planning scenarios, studies are carried out to estimate the short and medium term GSF (hydrological risk) and medium term (wind risk) to assess the Company's exposure or not in the spot market with highly volatile prices. In distribution, the risk associated with the energy portions subject to the GSF is linked to the hydrological risk in the Regulated Contracting Environment – ACR. In this way, the impacts resulting from the costs of acquiring and selling energy are monitored and</p>
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	<p>evaluated, updating its projection models and economic-financial planning to mitigate the moments of worst water flow recession in hydroelectric plants. Impacts are projected in the short and medium term according to climatic conditions established in historical averages.</p> <p>INDIRECT COSTS:</p> <p>Indirect costs are susceptible to the incidence of extreme weather events such as rain and prolonged storms that can cause significant damage to energy transmission and distribution assets, requiring extra resources and eventually the reconstruction of assets, affecting the short and medium term economic and financial results of the Company. However, the Company believes that there is an opportunity to manage the costs linked to extreme weather events in the medium and long term, investing in research and development of new technologies and constantly improving its processes. In this context, it is cited the “Transformation Program” that allows the distribution business to reduce power shortages caused mainly by severe weather events, with R\$ 2.7 billion allocated to the construction of 25 thousand kilometers of networks in rural areas and the expansion and implementation in the coming years of intelligent networks (Smart Grids) for more than 1.5 million consumer units (about 31% of Copel DIS consumers), which will enable the quick recovery of energy supply in the event of interruptions and also reducing the need to travel to the location (reducing travel emissions).</p> <p>ASSETS AND LIABILITIES:</p> <p>The Company's businesses require capital-intensive investments for the acquisition and expansion of long-term assets (Non-Current Assets). In this way, the assessment of risks and opportunities, including climatic ones, influenced the decisions of which assets to invest, affecting the Company's long-term economic and financial projections.</p> <p>The investments needed to maintain Copel's business require its own resources and those of third parties (Loans and Financing - Non-Current Liabilities), therefore, the assessment of risks and opportunities, including climate change, influenced the decisions of which assets to be invested, thus affecting the Company's economic and financial projections.</p> <p>CAPITAL EXPENDITURES, CAPITAL ALLOCATION AND ACQUISITIONS AND DISPOSALS:</p> <p>Short-term planning considers reaching 25% of the installed capacity from wind and solar sources. The Company's latest acquisitions are already moving in this direction, with 260.4MW in wind projects in 2022, Wind Complexes Santa Rosa & Mundo Novo and Aventura (Relevant Fact 02/2022), as part of the strategy to expand its generation park by more 2.2GW by 2030, primarily in wind and photovoltaic sources. In 2021, the Company had already acquired wind assets in the northeastern region of Brazil (Vilas Wind Complex), as well as had advanced in the implementation of its own wind project (Jandaíra Wind Complex).</p> <p>Still guided by the Strategic Plan – 2030 vision, with the explicit objective of decarbonizing its generation matrix, making it 100% renewable by</p>
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		2030, in 2022 Copel began the process of divestment of 100% of its shareholding in UEG Araucária, a thermoelectric power plant powered by natural gas (Relevant Fact 08/2022), as well as the closure of the thermoelectric generation project using natural gas in Paraná in joint development with Shell do Brasil. For the latter, the resources initially approved are being redirected to carry out new studies covering renewable sources and green hydrogen.
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C3.5

(C3.5) In your organization’s financial accounting, do you identify spending/revenue that is aligned with your organization’s climate transition?

Identification of spending/revenue that is aligned with your organization’s climate transition	
Row 1	Yes, we identify alignment with our climate transition plan

C3.5a

(C3.5a) Quantify the percentage share of your spending/revenue that is aligned with your organization’s climate transition.

Financial Metric

Revenue/Turnover

Type of alignment being reported for this financial metric

Alignment with our climate transition plan

Taxonomy under which information is being reported

Objective under which alignment is being reported

Amount of selected financial metric that is aligned in the reporting year (unit currency as selected in C0.4)

20,173,503,000

Percentage share of selected financial metric aligned in the reporting year (%)

92

Percentage share of selected financial metric planned to align in 2025 (%)

99

Percentage share of selected financial metric planned to align in 2030 (%)

100

Describe the methodology used to identify spending/revenue that is aligned

Copel's energy generating facilities are from renewable sources, therefore most revenues are from these sources, except for Compagás, UEG Araucária (thermoelectric power plant) and Figueira (thermoelectric power plant).

Financial Metric

CAPEX

Type of alignment being reported for this financial metric

Alignment with our climate transition plan

Taxonomy under which information is being reported

Objective under which alignment is being reported

Amount of selected financial metric that is aligned in the reporting year (unit currency as selected in C0.4)

2,320,800

Percentage share of selected financial metric aligned in the reporting year (%)

99

Percentage share of selected financial metric planned to align in 2025 (%)

99

Percentage share of selected financial metric planned to align in 2030 (%)

100

Describe the methodology used to identify spending/revenue that is aligned

Investments in renewable generation and modernization of power lines and networks were used.

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?

Absolute target

Intensity target

C4.1a

(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.

Target reference number

Abs 1

Is this a science-based target?

No, but we anticipate setting one in the next two years

Target ambition

Year target was set

2018

Target coverage

Business activity

Scope(s)

Scope 1

Scope 2 accounting method

Scope 3 category(ies)

Base year

2017

Base year Scope 1 emissions covered by target (metric tons CO2e)

13,172

Base year Scope 2 emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 2: Capital goods emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 4: Upstream transportation and distribution emissions covered by target (metric tons CO₂e)

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target (metric tons CO₂e)

Base year Scope 3, Category 6: Business travel emissions covered by target (metric tons CO₂e)

Base year Scope 3, Category 7: Employee commuting emissions covered by target (metric tons CO₂e)

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target (metric tons CO₂e)

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target (metric tons CO₂e)

Base year Scope 3, Category 10: Processing of sold products emissions covered by target (metric tons CO₂e)

Base year Scope 3, Category 11: Use of sold products emissions covered by target (metric tons CO₂e)

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target (metric tons CO₂e)

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target (metric tons CO₂e)

Base year Scope 3, Category 14: Franchises emissions covered by target (metric tons CO₂e)

Base year Scope 3, Category 15: Investments emissions covered by target (metric tons CO₂e)

Base year Scope 3, Other (upstream) emissions covered by target (metric tons CO2e)

Base year Scope 3, Other (downstream) emissions covered by target (metric tons CO2e)

Base year total Scope 3 emissions covered by target (metric tons CO2e)

Total base year emissions covered by target in all selected Scopes (metric tons CO2e)

13,172

Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1

100

Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target as % of total base year emissions in Scope 3, Category 1: Purchased goods and services (metric tons CO2e)

Base year Scope 3, Category 2: Capital goods emissions covered by target as % of total base year emissions in Scope 3, Category 2: Capital goods (metric tons CO2e)

Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target as % of total base year emissions in Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

Base year Scope 3, Category 4: Upstream transportation and distribution covered by target as % of total base year emissions in Scope 3, Category 4: Upstream transportation and distribution (metric tons CO2e)

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target as % of total base year emissions in Scope 3, Category 5: Waste generated in operations (metric tons CO2e)

Base year Scope 3, Category 6: Business travel emissions covered by target as % of total base year emissions in Scope 3, Category 6: Business travel (metric tons CO₂e)

Base year Scope 3, Category 7: Employee commuting covered by target as % of total base year emissions in Scope 3, Category 7: Employee commuting (metric tons CO₂e)

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 8: Upstream leased assets (metric tons CO₂e)

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target as % of total base year emissions in Scope 3, Category 9: Downstream transportation and distribution (metric tons CO₂e)

Base year Scope 3, Category 10: Processing of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 10: Processing of sold products (metric tons CO₂e)

Base year Scope 3, Category 11: Use of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 11: Use of sold products (metric tons CO₂e)

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO₂e)

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 13: Downstream leased assets (metric tons CO₂e)

Base year Scope 3, Category 14: Franchises emissions covered by target as % of total base year emissions in Scope 3, Category 14: Franchises (metric tons CO₂e)

Base year Scope 3, Category 15: Investments emissions covered by target as % of total base year emissions in Scope 3, Category 15: Investments (metric tons CO2e)

Base year Scope 3, Other (upstream) emissions covered by target as % of total base year emissions in Scope 3, Other (upstream) (metric tons CO2e)

Base year Scope 3, Other (downstream) emissions covered by target as % of total base year emissions in Scope 3, Other (downstream) (metric tons CO2e)

Base year total Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes

100

Target year

2022

Targeted reduction from base year (%)

2

Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]

12,908.56

Scope 1 emissions in reporting year covered by target (metric tons CO2e)

8,002

Scope 2 emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 1: Purchased goods and services emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 2: Capital goods emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 4: Upstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 5: Waste generated in operations emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 6: Business travel emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 7: Employee commuting emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 8: Upstream leased assets emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 9: Downstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 10: Processing of sold products emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 11: Use of sold products emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 12: End-of-life treatment of sold products emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 13: Downstream leased assets emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 14: Franchises emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 15: Investments emissions in reporting year covered by target (metric tons CO2e)

**Scope 3, Other (upstream) emissions in reporting year covered by target
(metric tons CO2e)**

**Scope 3, Other (downstream) emissions in reporting year covered by target
(metric tons CO2e)**

**Total Scope 3 emissions in reporting year covered by target (metric tons
CO2e)**

**Total emissions in reporting year covered by target in all selected scopes
(metric tons CO2e)**

8,002

Does this target cover any land-related emissions?

No, it does not cover any land-related emissions (e.g. non-FLAG SBT)

% of target achieved relative to base year [auto-calculated]

1,962.4962040692

Target status in reporting year

Achieved

Please explain target coverage and identify any exclusions

The goal is to reduce COPEL's fleet emissions by 2% by 2022, with an annual reduction target of 0.5% being adopted. The target is based by increasing the consumption of ethanol instead of gasoline in cars in which it is possible to switch from one fuel to the other.

Plan for achieving target, and progress made to the end of the reporting year

List the emissions reduction initiatives which contributed most to achieving this target

Since 2020, due to the pandemic, activities were carried out in home office, allowing for a high reduction in emissions, in addition, the majority use of ethanol as fuel contributed to the achievement of the target.

Target reference number

Abs 2

Is this a science-based target?

Yes, we consider this a science-based target, and we have committed to seek validation of this target by the Science Based Targets initiative in the next two years

Target ambition

1.5°C aligned

Year target was set

2022

Target coverage

Company-wide

Scope(s)

Scope 1

Scope 2 accounting method

Scope 3 category(ies)

Base year

2017

Base year Scope 1 emissions covered by target (metric tons CO₂e)

213,947

Base year Scope 2 emissions covered by target (metric tons CO₂e)

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target (metric tons CO₂e)

Base year Scope 3, Category 2: Capital goods emissions covered by target (metric tons CO₂e)

Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target (metric tons CO₂e)

Base year Scope 3, Category 4: Upstream transportation and distribution emissions covered by target (metric tons CO₂e)

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target (metric tons CO₂e)

Base year Scope 3, Category 6: Business travel emissions covered by target (metric tons CO₂e)

Base year Scope 3, Category 7: Employee commuting emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 10: Processing of sold products emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 11: Use of sold products emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 14: Franchises emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 15: Investments emissions covered by target (metric tons CO2e)

Base year Scope 3, Other (upstream) emissions covered by target (metric tons CO2e)

Base year Scope 3, Other (downstream) emissions covered by target (metric tons CO2e)

Base year total Scope 3 emissions covered by target (metric tons CO2e)

Total base year emissions covered by target in all selected Scopes (metric tons CO2e)

213,947

Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1

100

Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target as % of total base year emissions in Scope 3, Category 1: Purchased goods and services (metric tons CO₂e)

Base year Scope 3, Category 2: Capital goods emissions covered by target as % of total base year emissions in Scope 3, Category 2: Capital goods (metric tons CO₂e)

Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target as % of total base year emissions in Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO₂e)

Base year Scope 3, Category 4: Upstream transportation and distribution covered by target as % of total base year emissions in Scope 3, Category 4: Upstream transportation and distribution (metric tons CO₂e)

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target as % of total base year emissions in Scope 3, Category 5: Waste generated in operations (metric tons CO₂e)

Base year Scope 3, Category 6: Business travel emissions covered by target as % of total base year emissions in Scope 3, Category 6: Business travel (metric tons CO₂e)

Base year Scope 3, Category 7: Employee commuting covered by target as % of total base year emissions in Scope 3, Category 7: Employee commuting (metric tons CO₂e)

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 8: Upstream leased assets (metric tons CO₂e)

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target as % of total base year emissions in Scope 3, Category 9: Downstream transportation and distribution (metric tons CO₂e)

Base year Scope 3, Category 10: Processing of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 10: Processing of sold products (metric tons CO₂e)

Base year Scope 3, Category 11: Use of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 11: Use of sold products (metric tons CO₂e)

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO₂e)

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 13: Downstream leased assets (metric tons CO₂e)

Base year Scope 3, Category 14: Franchises emissions covered by target as % of total base year emissions in Scope 3, Category 14: Franchises (metric tons CO₂e)

Base year Scope 3, Category 15: Investments emissions covered by target as % of total base year emissions in Scope 3, Category 15: Investments (metric tons CO₂e)

Base year Scope 3, Other (upstream) emissions covered by target as % of total base year emissions in Scope 3, Other (upstream) (metric tons CO₂e)

Base year Scope 3, Other (downstream) emissions covered by target as % of total base year emissions in Scope 3, Other (downstream) (metric tons CO₂e)

Base year total Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes

100

Target year

2030

Targeted reduction from base year (%)

100

Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]

0

Scope 1 emissions in reporting year covered by target (metric tons CO2e)

50,834

Scope 2 emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 1: Purchased goods and services emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 2: Capital goods emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 4: Upstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 5: Waste generated in operations emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 6: Business travel emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 7: Employee commuting emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 8: Upstream leased assets emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 9: Downstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 10: Processing of sold products emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 11: Use of sold products emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 12: End-of-life treatment of sold products emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 13: Downstream leased assets emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 14: Franchises emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 15: Investments emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Other (upstream) emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Other (downstream) emissions in reporting year covered by target (metric tons CO2e)

Total Scope 3 emissions in reporting year covered by target (metric tons CO2e)

**Total emissions in reporting year covered by target in all selected scopes
(metric tons CO₂e)**

50,834

Does this target cover any land-related emissions?

Yes, it covers land-related and non-land related emissions (e.g. SBT approved before the release of FLAG target-setting guidance)

% of target achieved relative to base year [auto-calculated]

76.2399098842

Target status in reporting year

New

Please explain target coverage and identify any exclusions

The target applies to all scope 1 of the Company's own emissions, being defined based on actions that can be covered by the company. The sources considered are stationary combustion, mobile combustion, fugitive emissions and change in land use. It is also considered changes in land use and emissions related to the suppression of vegetation for asset's construction such as transmission and distribution power lines, and generation plants. Scope 2 and 3 targets were not defined at this moment as they are not in the company's immediate reach, but actions should be planned to be in force from 2030.

Plan for achieving target, and progress made to the end of the reporting year

The goals were built based on the scope 1 emission sources: by 2030 the Company's goal is to have no emissions from stationary combustion due to the existence of thermal power plants; promote the substitution of fuel with renewable sources and the addition of the use of electric cars; optimization of operating processes to reduce leakage of SF6 gas and optimize vegetation suppression processes (change in land use) to reduce emissions from this source. Targets are staggered with milestones in 2025, 2028, and 2030 for each reported source.

In 2022, studies were carried out to achieve emissions reduction from mobile combustion and the disposal of thermal assets.

List the emissions reduction initiatives which contributed most to achieving this target

C4.1b

(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).

Target reference number

Int 1

Is this a science-based target?

No, and we do not anticipate setting one in the next two years

Target ambition

Year target was set

2018

Target coverage

Business division

Scope(s)

Scope 1

Scope 2 accounting method

Scope 3 category(ies)

Intensity metric

Metric tons CO₂e per megawatt hour (MWh)

Base year

2017

Intensity figure in base year for Scope 1 (metric tons CO₂e per unit of activity)

0.0086

Intensity figure in base year for Scope 2 (metric tons CO₂e per unit of activity)

Intensity figure in base year for Scope 3, Category 1: Purchased goods and services (metric tons CO₂e per unit of activity)

Intensity figure in base year for Scope 3, Category 2: Capital goods (metric tons CO₂e per unit of activity)

Intensity figure in base year for Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO₂e per unit of activity)

Intensity figure in base year for Scope 3, Category 4: Upstream transportation and distribution (metric tons CO₂e per unit of activity)

Intensity figure in base year for Scope 3, Category 5: Waste generated in operations (metric tons CO₂e per unit of activity)

Intensity figure in base year for Scope 3, Category 6: Business travel (metric tons CO₂e per unit of activity)

Intensity figure in base year for Scope 3, Category 7: Employee commuting (metric tons CO₂e per unit of activity)

Intensity figure in base year for Scope 3, Category 8: Upstream leased assets (metric tons CO₂e per unit of activity)

Intensity figure in base year for Scope 3, Category 9: Downstream transportation and distribution (metric tons CO₂e per unit of activity)

Intensity figure in base year for Scope 3, Category 10: Processing of sold products (metric tons CO₂e per unit of activity)

Intensity figure in base year for Scope 3, Category 11: Use of sold products (metric tons CO₂e per unit of activity)

Intensity figure in base year for Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO₂e per unit of activity)

Intensity figure in base year for Scope 3, Category 13: Downstream leased assets (metric tons CO₂e per unit of activity)

Intensity figure in base year for Scope 3, Category 14: Franchises (metric tons CO₂e per unit of activity)

Intensity figure in base year for Scope 3, Category 15: Investments (metric tons CO₂e per unit of activity)

Intensity figure in base year for Scope 3, Other (upstream) (metric tons CO₂e per unit of activity)

Intensity figure in base year for Scope 3, Other (downstream) (metric tons CO2e per unit of activity)

Intensity figure in base year for total Scope 3 (metric tons CO2e per unit of activity)

Intensity figure in base year for all selected Scopes (metric tons CO2e per unit of activity)

0.0086

% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure

100

% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure

% of total base year emissions in Scope 3, Category 1: Purchased goods and services covered by this Scope 3, Category 1: Purchased goods and services intensity figure

% of total base year emissions in Scope 3, Category 2: Capital goods covered by this Scope 3, Category 2: Capital goods intensity figure

% of total base year emissions in Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) covered by this Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) intensity figure

% of total base year emissions in Scope 3, Category 4: Upstream transportation and distribution covered by this Scope 3, Category 4: Upstream transportation and distribution intensity figure

% of total base year emissions in Scope 3, Category 5: Waste generated in operations covered by this Scope 3, Category 5: Waste generated in operations intensity figure

% of total base year emissions in Scope 3, Category 6: Business travel covered by this Scope 3, Category 6: Business travel intensity figure

% of total base year emissions in Scope 3, Category 7: Employee commuting covered by this Scope 3, Category 7: Employee commuting intensity figure

% of total base year emissions in Scope 3, Category 8: Upstream leased assets covered by this Scope 3, Category 8: Upstream leased assets intensity figure

% of total base year emissions in Scope 3, Category 9: Downstream transportation and distribution covered by this Scope 3, Category 9: Downstream transportation and distribution intensity figure

% of total base year emissions in Scope 3, Category 10: Processing of sold products covered by this Scope 3, Category 10: Processing of sold products intensity figure

% of total base year emissions in Scope 3, Category 11: Use of sold products covered by this Scope 3, Category 11: Use of sold products intensity figure

% of total base year emissions in Scope 3, Category 12: End-of-life treatment of sold products covered by this Scope 3, Category 12: End-of-life treatment of sold products intensity figure

% of total base year emissions in Scope 3, Category 13: Downstream leased assets covered by this Scope 3, Category 13: Downstream leased assets intensity figure

% of total base year emissions in Scope 3, Category 14: Franchises covered by this Scope 3, Category 14: Franchises intensity figure

% of total base year emissions in Scope 3, Category 15: Investments covered by this Scope 3, Category 15: Investments intensity figure

% of total base year emissions in Scope 3, Other (upstream) covered by this Scope 3, Other (upstream) intensity figure

% of total base year emissions in Scope 3, Other (downstream) covered by this Scope 3, Other (downstream) intensity figure

% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this total Scope 3 intensity figure

% of total base year emissions in all selected Scopes covered by this intensity figure

100

Target year

2022

Targeted reduction from base year (%)

4

Intensity figure in target year for all selected Scopes (metric tons CO₂e per unit of activity) [auto-calculated]

0.008256

% change anticipated in absolute Scope 1+2 emissions

0

% change anticipated in absolute Scope 3 emissions

0

Intensity figure in reporting year for Scope 1 (metric tons CO₂e per unit of activity)

0.00189

Intensity figure in reporting year for Scope 2 (metric tons CO₂e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 1: Purchased goods and services (metric tons CO₂e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 2: Capital goods (metric tons CO₂e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO₂e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 4: Upstream transportation and distribution (metric tons CO₂e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 5: Waste generated in operations (metric tons CO₂e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 6: Business travel (metric tons CO₂e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 7: Employee commuting (metric tons CO₂e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 8: Upstream leased assets (metric tons CO₂e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 9: Downstream transportation and distribution (metric tons CO₂e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 10: Processing of sold products (metric tons CO₂e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 11: Use of sold products (metric tons CO₂e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO₂e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 13: Downstream leased assets (metric tons CO₂e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 14: Franchises (metric tons CO₂e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 15: Investments (metric tons CO₂e per unit of activity)

Intensity figure in reporting year for Scope 3, Other (upstream) (metric tons CO₂e per unit of activity)

Intensity figure in reporting year for Scope 3, Other (downstream) (metric tons CO2e per unit of activity)

Intensity figure in reporting year for total Scope 3 (metric tons CO2e per unit of activity)

Intensity figure in reporting year for all selected Scopes (metric tons CO2e per unit of activity)

0.00189

Does this target cover any land-related emissions?

No, it does not cover any land-related emissions (e.g. non-FLAG SBT)

% of target achieved relative to base year [auto-calculated]

1,950.5813953488

Target status in reporting year

Achieved

Please explain target coverage and identify any exclusions

The goal is to reduce direct emissions due to energy generated by Copel GeT by 4% by 2022, with an annual target of 1% being adopted.

Plan for achieving target, and progress made to the end of the reporting year

List the emissions reduction initiatives which contributed most to achieving this target

Due to the modernization process of the Figueira thermal plant, there was a significant reduction in GHG emissions.

C4.2

(C4.2) Did you have any other climate-related targets that were active in the reporting year?

Target(s) to increase low-carbon energy consumption or production
Net-zero target(s)

C4.2a

(C4.2a) Provide details of your target(s) to increase low-carbon energy consumption or production.

Target reference number

Low 1

Year target was set

2022

Target coverage

Business division

Target type: energy carrier

Electricity

Target type: activity

Production

Target type: energy source

Renewable energy source(s) only

Base year

2021

Consumption or production of selected energy carrier in base year (MWh)

20,284,000

% share of low-carbon or renewable energy in base year

94

Target year

2030

% share of low-carbon or renewable energy in target year

100

% share of low-carbon or renewable energy in reporting year

94

% of target achieved relative to base year [auto-calculated]

0

Target status in reporting year

New

Is this target part of an emissions target?

Yes. Copel has a goal to decarbonise its generation matrix and expand 2GW of installed capacity in renewable energy by 2030.

Is this target part of an overarching initiative?

Other, please specify
Race to zero.

Please explain target coverage and identify any exclusions

The target applies to the Company's generation business as well as its holdings.

Plan for achieving target, and progress made to the end of the reporting year

Study of decarbonization of the company's generation matrix and study of business expansion such as investment in sources like wind and solar. By 2030, the Company aims to increase its capacity by 2GW of renewable energy, making its composition become: 15% solar, 29% wind and 56% hydro. Progress is disclosed annually in the Company's Integrated Report.

In line with the 2030 strategy/target, of making its generation exclusively from renewable sources and diversifying its generating complex, in 2022 Copel acquired the Santa Rosa & Mundo Novo and Aventura Wind Complexes, with 260.4 MW and initiated Jandaíra Wind Complex operations. With these investments, wind power generation has been growing year after year, rising from 2,118.8 GWh in 2020 to 2,901.3 GWh in 2022.

List the actions which contributed most to achieving this target

C4.2c

(C4.2c) Provide details of your net-zero target(s).

Target reference number

NZ1

Target coverage

Company-wide

Absolute/intensity emission target(s) linked to this net-zero target

Abs2

Target year for achieving net zero

2030

Is this a science-based target?

Yes, we consider this a science-based target, and we have committed to seek validation of this target by the Science Based Targets initiative in the next two years

Please explain target coverage and identify any exclusions

The target covers Scope 1 own emissions and considers fleet emissions reduction, thermal power plants decarbonization, efficient use of SF6 and optimization of suppression when building new projects.

Do you intend to neutralize any unabated emissions with permanent carbon removals at the target year?

Yes

Planned milestones and/or near-term investments for neutralization at target year

By 2025, ways to offset residual emissions will be studied. Based on these projections, strategic planning will be built.

Planned actions to mitigate emissions beyond your value chain (optional)

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO₂e savings.

	Number of initiatives	Total estimated annual CO ₂ e savings in metric tonnes CO ₂ e (only for rows marked *)
Under investigation	0	0
To be implemented*	4	267,401
Implementation commenced*	1	1
Implemented*	6	720,533
Not to be implemented	1	49,032

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Initiative category & Initiative type

Energy efficiency in production processes

Other, please specify

Reduction of vegetation suppression, use of drones to launch cables in distribution power lines, structures heightening, study of layout and positioning of the structure.

Estimated annual CO₂e savings (metric tonnes CO₂e)

1,710

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

1,400,074

Investment required (unit currency – as specified in C0.4)

1,090,031

Payback period

1-3 years

Estimated lifetime of the initiative

>30 years

Comment

The project is related to the construction of high voltage power distribution lines that preserved a total of 2130 trees in an area of 8.19 ha.

Initiative category & Initiative type

Energy efficiency in buildings

Lighting

Estimated annual CO2e savings (metric tonnes CO2e)

9

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 2 (location-based)

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

10,400

Investment required (unit currency – as specified in C0.4)

0

Payback period

<1 year

Estimated lifetime of the initiative

1-2 years

Comment

Referring to the project to replace conventional light bulbs with LED in the hydroelectric power plant facilities. The estimated annual savings is 12,431.9 kWh.

Initiative category & Initiative type

Low-carbon energy generation

Wind

Estimated annual CO2e savings (metric tonnes CO2e)

501,298

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

673,274

Investment required (unit currency – as specified in C0.4)

1,803,000,000

Payback period

4-10 years

Estimated lifetime of the initiative

16-20 years

Comment

In October 2022, Copel completed the acquisition of the Aventura and Santa Rosa & Novo Mundo Wind Complexes, comprising 9 wind farms totaling 260.4 MW of installed capacity. The value of the annual monetary savings was based on the potential revenues to be obtained from the commercialization of renewable energy certificates (I-RECs), based on market values negotiated in the year 2022.

Initiative category & Initiative type

Low-carbon energy generation

Wind

Estimated annual CO2e savings (metric tonnes CO2e)

217,545

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

139,972

Investment required (unit currency – as specified in C0.4)

411,000,000

Payback period

4-10 years

Estimated lifetime of the initiative

16-20 years

Comment

In October 2022, six generating units of the Jandaíra Wind Complex, which total 20.8 MW of installed capacity, entered commercial operation, equivalent to 23% of the complex's total reaching 100% of installed capacity in 2023. The value of savings annual monetary amount was based on potential revenues to be obtained from the sale of renewable energy certificates (I-RECs), based on market values negotiated in the year 2022.

C4.3c

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Employee engagement	Two employee engagement programs are used with the aim of promoting the reduction of emission: the Economize+ Campaign to reduce internal consumption of electricity; and the awareness of employees who use fleet vehicles to use ethanol instead of gasoline aiming to reduce the emission of greenhouse gases due to the use of the fleet.
Internal incentives/recognition programs	Employees are encouraged to propose ideas through the +DIS_Aí Program, the best ideas are awarded. As examples, we have some programs aimed at the efficient use of energy: Ecotimer, Boiler in Changing Rooms and Electrical Project in Reforms.
Compliance with regulatory requirements/standards	Emissions related to land use change are significant for Copel DIS GHG inventory and in periods when there is greater demand for field works these values become more significant, thus, alternatives and technologies have been sought that can allow the reduction of emissions already in the planning phase, this is the case of the use of drones. In addition, better environmental management has been sought with licensing bodies and the community, seeking to mitigate the intervention in plant suppression with the development of techniques and technology.
Internal price on carbon	Copel adopts the internal carbon price of USD 5.00/tCO ₂ e in the analysis of new business and on its current matrix, which still has two thermoelectric plants that would be subject to the impacts of possible pricing.
Partnering with governments on technology development	Copel operates in the development of the biogas and biomethane chain in the state of Paraná, acting in the definition of the Biogas Regulatory Framework in the state, in addition to being one of the

	founders and a member of the board of directors of the International Center for Renewable Energies - CIBiogás, one of the most renowned national entities in the sector.
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C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products.

Level of aggregation

Product or service

Taxonomy used to classify product(s) or service(s) as low-carbon

The EU Taxonomy for environmentally sustainable economic activities

Type of product(s) or service(s)

Power

Onshore wind

Description of product(s) or service(s)

The Company's generation matrix is made up of more than 95% of renewable energy and in recent years we have expanded our generating complex in renewable sources, especially wind farms. In addition, we started the process of certification of renewable wind energy through I-REC.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)

Yes

Methodology used to calculate avoided emissions

Other, please specify

We use the emission factor for energy consumed developed by the Brazilian Ministry of Science, Technology and Innovation.

Life cycle stage(s) covered for the low-carbon product(s) or services(s)

Not applicable

Functional unit used

MWh of generated energy

Reference product/service or baseline scenario used

If the Company did not invest in renewable sources, the reference would be the construction of new thermoelectric power generation projects, however this type of alternative is not part of our business portfolio.

Life cycle stage(s) covered for the reference product/service or baseline scenario

Not applicable

Estimated avoided emissions (metric tons CO₂e per functional unit) compared to reference product/service or baseline scenario

115,001

Explain your calculation of avoided emissions, including any assumptions

We consider that when consuming the energy produced by the Company, the country avoids the dispatch of thermoelectric plants, since within Brazil this matrix is used as an auxiliary source of energy. The Company has made investments to expand its renewable generating complex and is also certifying some of its plants to sell renewable energy certificates, as well as the energy trading business.

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year

3

Level of aggregation

Group of products or services

Taxonomy used to classify product(s) or service(s) as low-carbon

The EU Taxonomy for environmentally sustainable economic activities

Type of product(s) or service(s)

Power

Hydropower

Description of product(s) or service(s)

The Company's generation matrix is made up of more than 95% of renewable energy. In addition, we started the process of certification of renewable wind energy through I-REC.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)

Yes

Methodology used to calculate avoided emissions

Other, please specify

We use the emission factor for energy consumed developed by the Brazilian Ministry of Science, Technology and Innovation.

Life cycle stage(s) covered for the low-carbon product(s) or services(s)

Not applicable

Functional unit used

MWh of generated energy

Reference product/service or baseline scenario used

If the Company did not invest in renewable sources, the reference would be the construction of new thermoelectric power generation projects, however this type of alternative is not part of our business portfolio.

Life cycle stage(s) covered for the reference product/service or baseline scenario

Not applicable

Estimated avoided emissions (metric tons CO₂e per functional unit) compared to reference product/service or baseline scenario

962,137

Explain your calculation of avoided emissions, including any assumptions

We consider that when consuming the energy produced by the Company, the country avoids the dispatch of thermoelectric plants, since within Brazil this matrix is used as an auxiliary source of energy. The Company has made investments to expand its renewable generating complex and is also certifying some of its plants to sell renewable energy certificates, as well as the energy trading business.

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year

15

C-EU4.6

(C-EU4.6) Describe your organization's efforts to reduce methane emissions from your activities.

Copel's energy generation does not emit methane (our methane emissions were less than 0.2%).

We are seeking to reduce existing methane by gradually replacing fuel-powered light vehicles with electric vehicles. In the new assets construction we seek to reduce the suppression of vegetation.

C5. Emissions methodology

C5.1

(C5.1) Is this your first year of reporting emissions data to CDP?

No

C5.1a

(C5.1a) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data?

Row 1

Has there been a structural change?

Yes, a divestment

Name of organization(s) acquired, divested from, or merged with

Copel Telecomunicações

Details of structural change(s), including completion dates

The subsidiary had its sale completion in 2022, no longer computing emissions in the coming years.

C5.1b

(C5.1b) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?

	Change(s) in methodology, boundary, and/or reporting year definition?
Row 1	No

C5.1c

(C5.1c) Have your organization's base year emissions and past years' emissions been recalculated as a result of any changes or errors reported in C5.1a and/or C5.1b?

	Base year recalculation	Scope(s) recalculated	Base year emissions recalculation policy, including significance threshold	Past years' recalculation
Row 1	Yes	Scope 1 Scope 2, location-based Scope 3	Due to the sale of Copel Telecomunicações assets, emissions related to scope 1, 2 and 3 that comprised the base year of the inventory were reduced.	Yes

C5.2

(C5.2) Provide your base year and base year emissions.

Scope 1

Base year start

January 1, 2017

Base year end

December 31, 2017

Base year emissions (metric tons CO₂e)

213.616

Comment

The year 2017 was chosen because it was used as the basis for the construction of the goals approved by the Board of Directors of Copel with effect from 2019 to 2022. In 2022 the base year was revised due to the conclusion of Copel Telecomunicações sale, being discounted 367 tCO₂e.

Scope 2 (location-based)

Base year start

January 1, 2017

Base year end

December 31, 2017

Base year emissions (metric tons CO₂e)

319.729

Comment

The year 2017 was chosen because it was used as the basis for the construction of the goals approved by the Board of Directors of Copel with effect from 2019 to 2022. In 2022 the base year was revised due to the conclusion of Copel Telecomunicações sale, being discounted 62 tCO₂e.

Scope 2 (market-based)

Base year start

Base year end

Base year emissions (metric tons CO₂e)

Comment

In 2017 we did not consider this category within our inventory.

Scope 3 category 1: Purchased goods and services

Base year start

January 1, 2017

Base year end

December 31, 2017

Base year emissions (metric tons CO₂e)

Comment

In 2017 we did not consider this category within our inventory.

Scope 3 category 2: Capital goods

Base year start

January 1, 2017

Base year end

December 31, 2017

Base year emissions (metric tons CO₂e)

Comment

In 2017 we did not consider this category within our inventory.

Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)

Base year start

January 1, 2017

Base year end

December 31, 2017

Base year emissions (metric tons CO₂e)

Comment

In 2017 we did not consider this category within our inventory.

Scope 3 category 4: Upstream transportation and distribution

Base year start

January 1, 2017

Base year end

December 31, 2017

Base year emissions (metric tons CO₂e)

40

Comment

The year 2017 was chosen as the year in which some assumptions were defined for the data collection.

Scope 3 category 5: Waste generated in operations

Base year start

January 1, 2017

Base year end

December 31, 2017

Base year emissions (metric tons CO₂e)

3,479

Comment

The year 2017 was chosen as the year in which some assumptions were defined for the data collection.

Scope 3 category 6: Business travel

Base year start

January 1, 2017

Base year end

December 31, 2017

Base year emissions (metric tons CO₂e)

787

Comment

The year 2017 was chosen as the year in which some assumptions were defined for the data collection. Recently, the emissions related to this category for the base year was revised due to the sale of Copel Telecomunicações, therefore being discounted 17 tCO₂e.

Scope 3 category 7: Employee commuting

Base year start

January 1, 2017

Base year end

December 31, 2017

Base year emissions (metric tons CO₂e)

1,857

Comment

The year 2017 was chosen as the year in which some assumptions were defined for the data collection.

Scope 3 category 8: Upstream leased assets

Base year start

January 1, 2017

Base year end

December 31, 2017

Base year emissions (metric tons CO2e)

Comment

In 2017 we did not consider this category within our inventory.

Scope 3 category 9: Downstream transportation and distribution

Base year start

January 1, 2017

Base year end

December 31, 2017

Base year emissions (metric tons CO2e)

Comment

In 2017 we did not consider this category within our inventory.

Scope 3 category 10: Processing of sold products

Base year start

January 1, 2017

Base year end

December 31, 2017

Base year emissions (metric tons CO2e)

Comment

In 2017 we did not consider this category within our inventory.

Scope 3 category 11: Use of sold products

Base year start

January 1, 2017

Base year end

December 31, 2017

Base year emissions (metric tons CO2e)

Comment

In 2017 we did not consider this category within our inventory.

Scope 3 category 12: End of life treatment of sold products

Base year start

January 1, 2017

Base year end

December 31, 2017

Base year emissions (metric tons CO₂e)

Comment

In 2017 we did not consider this category within our inventory.

Scope 3 category 13: Downstream leased assets

Base year start

January 1, 2017

Base year end

December 31, 2017

Base year emissions (metric tons CO₂e)

Comment

In 2017 we did not consider this category within our inventory.

Scope 3 category 14: Franchises

Base year start

January 1, 2017

Base year end

December 31, 2017

Base year emissions (metric tons CO₂e)

Comment

In 2017 we did not consider this category within our inventory.

Scope 3 category 15: Investments

Base year start

January 1, 2017

Base year end

December 31, 2017

Base year emissions (metric tons CO₂e)

Comment

In 2017 we did not consider this category within our inventory.

Scope 3: Other (upstream)

Base year start

January 1, 2017

Base year end

December 31, 2017

Base year emissions (metric tons CO₂e)

Comment

In 2017 we did not consider this category within our inventory.

Scope 3: Other (downstream)

Base year start

January 1, 2017

Base year end

December 31, 2017

Base year emissions (metric tons CO₂e)

Comment

In 2017 we did not consider this category within our inventory.

C5.3

(C5.3) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

Brazil GHG Protocol Programme

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO₂e?

Reporting year

Gross global Scope 1 emissions (metric tons CO₂e)

50,834

Comment

C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We are reporting a Scope 2, market-based figure

Comment

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO₂e?

Reporting year

Scope 2, location-based

163,700

Scope 2, market-based (if applicable)

162,594

Comment

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1, Scope 2 or Scope 3 emissions that are within your selected reporting boundary which are not included in your disclosure?

No

C6.5

(C6.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status

Relevant, not yet calculated

Please explain

By the time the data was completed, suppliers had not submitted their emissions.

Capital goods

Evaluation status

Relevant, not yet calculated

Please explain

By the time the data was completed, suppliers had not submitted their emissions. We have invested in training suppliers, but we have not been successful in terms of returning emissions related to capital goods. In Brazil, the development of an inventory of greenhouse gases is voluntary.

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status

Not relevant, explanation provided

Please explain

The Figueira thermal power plant did not operate commercially in 2022. Furthermore, fuel-related emissions are due to transport and therefore are already accounted for in transport (up stream and down stream).

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

20,573

Emissions calculation methodology

Fuel-based method
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

The primary data are collected with the responsible areas and are entered in the Tool of the Brazilian GHG Protocol program (activity data, emission factors and GWPvalues)

Waste generated in operations

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

7,730

Emissions calculation methodology

Waste-type-specific method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

The primary data are collected with the responsible areas and are entered in the Tool of the Brazilian GHG Protocol program (activity data, emission factors and GWP values). Copel assists in the preparation of the calculation of GHG emissions

Business travel

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

206

Emissions calculation methodology

Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

The primary data are collected with the responsible areas and are entered in the Tool of the Brazilian GHG Protocol program (activity data, emission factors and GWP values)

Employee commuting

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO₂e)

307

Emissions calculation methodology

Supplier-specific method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

The primary data are collected with the responsible areas and are entered in the Tool of the Brazilian GHG Protocol program (activity data, emission factors and GWP values)

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

We do not have leased assets upstream. Thus, this source is not relevant for us.

Downstream transportation and distribution

Evaluation status

Not relevant, explanation provided

Please explain

In 2021, we reviewed the definitions of scope 3 categories and verified that emissions that were reported as downstream are upstream or related to service goods and that our activities do not apply to downstream transport.

Processing of sold products

Evaluation status

Not relevant, explanation provided

Please explain

Our main activity is the generation and distribution of electricity, so we do not process goods and therefore this emission source does not apply.

Use of sold products

Evaluation status

Not relevant, explanation provided

Please explain

Our activity does not require the Treatment of products sold at the end of their useful life because electricity is not a physical product, therefore this emission source is not relevant to us.

End of life treatment of sold products

Evaluation status

Not relevant, explanation provided

Please explain

We do not have Downstream Leased Assets. Thus, this source is not relevant for us.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

We do not have Downstream Leased Assets. Thus, this source is not relevant for us.

Franchises

Evaluation status

Not relevant, explanation provided

Please explain

We do not have franchises. Thus, this source is not relevant for us.

Investments

Evaluation status

Not relevant, explanation provided

Please explain

We do not have investments that result in emissions that are relevant.

Other (upstream)

Evaluation status

Please explain

Other (downstream)

Evaluation status

Please explain

C6.7

(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?

Yes

C6.7a

(C6.7a) Provide the emissions from biogenic carbon relevant to your organization in metric tons CO₂.

	CO ₂ emissions from biogenic carbon (metric tons CO ₂)	Comment
Row 1	11,074	these emissions come from scope 1 and scope 3 emissions

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO₂e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure

0.000000978

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO₂e)

214,535

Metric denominator

unit total revenue

Metric denominator: Unit total

21,927,721,000

Scope 2 figure used

Location-based

% change from previous year

49

Direction of change

Decreased

Reason(s) for change

Change in renewable energy consumption

Change in physical operating conditions

Please explain

In 2022 there was a reduction in scope 2 emissions due to the greater use of renewable energy in Brazil, unlike the previous year when there was a prolonged drought in the country resulting in an increase in the grid emission factor.

Intensity figure

0.008

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO₂e)

214,535

Metric denominator

megawatt hour generated (MWh)

Metric denominator: Unit total

26,792,500

Scope 2 figure used

Location-based

% change from previous year

72

Direction of change

Decreased

Reason(s) for change

Change in renewable energy consumption

Change in physical operating conditions

Other, please specify

Increase in energy generation.

Please explain

In 2022 there was a reduction in scope 2 emissions due to the greater use of renewable energy in Brazil, unlike the previous year when there was a prolonged drought in the country resulting in an increase in the grid emission factor. In addition, there was an increase in energy generation of 62%, which improved the indicator.

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?

Yes

C7.1a

(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	46,941	IPCC Fifth Assessment Report (AR5 – 100 year)
CH4	40	IPCC Fifth Assessment Report (AR5 – 100 year)
N2O	283	IPCC Fifth Assessment Report (AR5 – 100 year)

HFCs	608	IPCC Fifth Assessment Report (AR5 – 100 year)
SF6	2,961	IPCC Fifth Assessment Report (AR5 – 100 year)

C-EU7.1b

(C-EU7.1b) Break down your total gross global Scope 1 emissions from electric utilities value chain activities by greenhouse gas type.

	Gross Scope 1 CO2 emissions (metric tons CO2)	Gross Scope 1 methane emissions (metric tons CH4)	Gross Scope 1 SF6 emissions (metric tons SF6)	Total gross Scope 1 emissions (metric tons CO2e)	Comment
Fugitives	2.22	0	0.13	3,578	Emissions related to air conditioning, fire extinguishers and equipment using SF6
Combustion (Electric utilities)	39,084	0.42	0	39,260	Emissions related to stationary combustion.
Combustion (Gas utilities)	0	0	0	0	Not applicable
Combustion (Other)	7,854	1.03	0	8,002	Emissions related to mobile combustion.
Emissions not elsewhere classified	0	0	0	0	Emissions from land use change were only biogenic.

C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/area/region.

Country/area/region	Scope 1 emissions (metric tons CO2e)
Brazil	50,834

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

- By business division
- By activity

C7.3a

(C7.3a) Break down your total gross global Scope 1 emissions by business division.

Business division	Scope 1 emissions (metric ton CO2e)
Copel Geração e Transmissão S.A.	42,460
Copel Distribuição S.A.	8,052
Copel Holding	321

C7.3c

(C7.3c) Break down your total gross global Scope 1 emissions by business activity.

Activity	Scope 1 emissions (metric tons CO2e)
Stationary Combustion	39,260
Mobile Combustion	8,002
Fugitive Emissions	3,578
Land Use Change	0

C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4

(C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4) Break down your organization's total gross global Scope 1 emissions by sector production activity in metric tons CO2e.

	Gross Scope 1 emissions, metric tons CO2e	Comment
Electric utility activities	50,834	

C7.7

(C7.7) Is your organization able to break down your emissions data for any of the subsidiaries included in your CDP response?

Yes

C7.7a

(C7.7a) Break down your gross Scope 1 and Scope 2 emissions by subsidiary.

Subsidiary name

Copel Geração e Transmissão

Primary activity

Hydro generation

Select the unique identifier(s) you are able to provide for this subsidiary

ISIN code – bond

ISIN code – bond

BRCPGTDBS0A1

ISIN code – equity

CUSIP number

Ticker symbol

SEDOL code

LEI number

Other unique identifier

Scope 1 emissions (metric tons CO₂e)

42,460

Scope 2, location-based emissions (metric tons CO₂e)

24,119

Scope 2, market-based emissions (metric tons CO₂e)

0

Comment

Copel Geração e Transmissão's primary activities include wind power generation and energy transmission.

Subsidiary name

Copel Distribuição

Primary activity

Energy services & equipment

Select the unique identifier(s) you are able to provide for this subsidiary

ISIN code – bond

ISIN code – bond

BRCPLDDBS0D6

ISIN code – equity

CUSIP number

Ticker symbol

SEDOL code

LEI number

Other unique identifier

Scope 1 emissions (metric tons CO2e)

8,052

Scope 2, location-based emissions (metric tons CO2e)

139,580

Scope 2, market-based emissions (metric tons CO2e)

0

Comment

Copel Distribuição is responsible for distributing the energy to local consumers.

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Decreased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.

	Change in emissions (metric tons CO2e)	Direction of change in emissions	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	39,177	Increased	8.4	In 2022 there was an increase in coal consumption to carry out tests at the Figueira thermal power plant, which is being modernized. This consumption

				represented an emission of 39177 tCO ₂ e.
Other emissions reduction activities	7,516	Decreased	0.4	In 2022 the suppressions carried out were in anthropized areas and thus the emissions occurred as biogenic.
Divestment	0	No change	0	Despite the Company having disinvested in the Telecommunications segment, Copel continued to provide operation and maintenance services and therefore in 2022 it was not possible to observe changes in emissions.
Acquisitions	0	No change	0	The Company did not carry out acquisitions that justify changes in the direction of its 2022 inventory
Mergers	0	No change	0	The company did not carry out mergers in 2022
Change in output	1,484	Increased	0.3	Due to the higher number of customers attended, there was a 4% increase in emissions compared to the previous year due to the higher consumption of diesel as fuel.
Change in methodology	0	No change	0	There was no change in methodology in the year 2022.
Change in boundary	0	No change	0	No limit changes were made in 2020
Change in physical operating conditions	287,605	Decreased	61.6	Due to the lower dispatch of thermal power plants by the national system operator, the Brazilian emission factor was reduced and considering that Copel's greatest emission is due to electrical losses, there was a reduction of 285396 tCO ₂ e.
Unidentified	0	No change	0	All variations have been evaluated.
Other	1,959	Increased	0.4	There was an increase in the emission of fugitive sources, particularly SF ₆ . Although maintenance management is done periodically to prevent leaks, a larger portion occurred. It should be noted that the emission factor of SF ₆ is

				high and therefore even small leaks generate significant emissions.
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C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Location-based

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

More than 0% but less than or equal to 5%

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	10,246	143,648	153,894
Consumption of purchased or acquired electricity		20,612	3,080	23,692
Consumption of self-generated non-fuel renewable energy		28,340		28,340
Total energy consumption		59,198	146,728	205,926

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	Yes
Consumption of fuel for the generation of steam	No
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	No

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Sustainable biomass

Heating value

LHV

Total fuel MWh consumed by the organization

10,246

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

10,246

Comment

Brazilian GHG Protocol Program that uses data from the national energy balance.

Other biomass

Heating value

LHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Comment

We do not use other biomasses.

Other renewable fuels (e.g. renewable hydrogen)

Heating value

LHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Comment

We do not use other renewable fuel sources.

Coal

Heating value

LHV

Total fuel MWh consumed by the organization

114,298.79

MWh fuel consumed for self-generation of electricity

114,298.79

MWh fuel consumed for self-generation of heat

0

Comment

The consumption of coal is due to the operating tests of the thermal power plant, which is currently stopped for the modernization of the structure. Despite the burning of the fuel effectively there was no generation of energy to be sold.

Oil

Heating value

LHV

Total fuel MWh consumed by the organization

29,349.23

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

29,349.23

Comment

It was considered that commercial diesel contains an average of 10% of biodiesel and this proportion was applied to the calorific value and emission factor. These emissions come from the use of fuel by the fleet and Stationary emissions (use of fuels in emergency diesel generators and not in the production of energy itself).
It was considered that commercial gasoline contains an average of 27% of ethanol and this proportion was applied to the calorific value and the emission factor. These emissions come from the use of fuel by the fleet

Gas

Heating value

LHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Comment

We do not use other renewable fuel sources.

Other non-renewable fuels (e.g. non-renewable hydrogen)

Heating value

LHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Comment

We have no other non-renewable fuels.

Total fuel

Heating value

LHV

Total fuel MWh consumed by the organization

153,894

MWh fuel consumed for self-generation of electricity

114,299

MWh fuel consumed for self-generation of heat

39,595

Comment

C-EU8.2d

(C-EU8.2d) For your electric utility activities, provide a breakdown of your total power plant capacity, generation, and related emissions during the reporting year by source.

Coal – hard

Nameplate capacity (MW)

20

Gross electricity generation (GWh)

6.6

Net electricity generation (GWh)

5.75

Absolute scope 1 emissions (metric tons CO₂e)

39,209

Scope 1 emissions intensity (metric tons CO₂e per GWh)

6,815

Comment

The consumption of coal is due to the operating tests of the thermal power plant that is stopped for modernization of the structure.

Lignite

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO₂e)

0

Scope 1 emissions intensity (metric tons CO₂e per GWh)

0

Comment

We do not have this source of energy.

Oil

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO₂e)

0

Scope 1 emissions intensity (metric tons CO₂e per GWh)

0

Comment

We do not use this fuel for energy generation.

Gas

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

We do not use this fuel for energy generation.

Sustainable biomass

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

We do not use this fuel for energy generation.

Other biomass

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO₂e per GWh)

0

Comment

We do not use this fuel for energy generation.

Waste (non-biomass)

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO₂e)

0

Scope 1 emissions intensity (metric tons CO₂e per GWh)

0

Comment

We do not use this source in our own generation matrix.

Nuclear

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO₂e)

0

Scope 1 emissions intensity (metric tons CO₂e per GWh)

0

Comment

We do not use this fuel for energy generation.

Fossil-fuel plants fitted with CCS

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO₂e)

0

Scope 1 emissions intensity (metric tons CO₂e per GWh)

0

Comment

We do not use this fuel for energy generation.

Geothermal

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO₂e)

0

Scope 1 emissions intensity (metric tons CO₂e per GWh)

0

Comment

We do not use this fuel for energy generation.

Hydropower

Nameplate capacity (MW)

5,158

Gross electricity generation (GWh)

23,348

Net electricity generation (GWh)

22,594

Absolute scope 1 emissions (metric tons CO₂e)

512

Scope 1 emissions intensity (metric tons CO₂e per GWh)

0.02

Comment

Emissions must be provided as an internal service to generate energy.

Wind

Nameplate capacity (MW)

870

Gross electricity generation (GWh)

2,806

Net electricity generation (GWh)

2,700

Absolute scope 1 emissions (metric tons CO2e)

533

Scope 1 emissions intensity (metric tons CO2e per GWh)

0.2

Comment

Emissions must be provided as an internal service to generate energy.

Solar

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

Marine

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

We do not use this fuel for energy generation.

Other renewable

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

We do not use other sources.

Other non-renewable

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

We do not use other sources.

Total

Nameplate capacity (MW)

6,048

Gross electricity generation (GWh)

26,160.6

Net electricity generation (GWh)

25,299.75

Absolute scope 1 emissions (metric tons CO₂e)

40,254

Scope 1 emissions intensity (metric tons CO₂e per GWh)

1.59

Comment

C8.2g

(C8.2g) Provide a breakdown by country/area of your non-fuel energy consumption in the reporting year.

Country/area

Brazil

Consumption of purchased electricity (MWh)

23,692

Consumption of self-generated electricity (MWh)

28,340

Consumption of purchased heat, steam, and cooling (MWh)

0

Consumption of self-generated heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

52,032

C-EU8.4

(C-EU8.4) Does your electric utility organization have a transmission and distribution business?

Yes

C-EU8.4a

(C-EU8.4a) Disclose the following information about your transmission and distribution business.

Country/area/region

Brazil

Voltage level

Transmission (high voltage)

Annual load (GWh)

72,992

Annual energy losses (% of annual load)

2.72

Scope where emissions from energy losses are accounted for

Scope 2 (location-based)

Emissions from energy losses (metric tons CO₂e)

23,934

Length of network (km)

9,685

Number of connections

51

Area covered (km²)

484.25

Comment

Used as average swath width of 0.05 km and multiplied by the network extension = covered area

We consider transmission substations as connections.

Country/area/region

Brazil

Voltage level

Distribution (low voltage)

Annual load (GWh)

32,539

Annual energy losses (% of annual load)

9.02

Scope where emissions from energy losses are accounted for

Scope 2 (location-based)

Emissions from energy losses (metric tons CO2e)

138,744

Length of network (km)

208,133

Number of connections

5,014,184

Area covered (km2)

194,336

Comment

Annual Load refers to the energy consumed in the year;
Losses considers the Distributor's total losses (technical, non-technical and basic network) on the injected energy;
Number of connections is equivalent to the number of consumer units.

C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

Description

Energy usage

Metric value

15

Metric numerator

percentage

Metric denominator (intensity metric only)

not applicable

% change from previous year

0.1

Direction of change

Increased

Please explain

It was approved in 2022 that by 2025, 15% of the Company's light fleet should be electric cars.

C-EU9.5a

(C-EU9.5a) Break down, by source, your organization's CAPEX in the reporting year and CAPEX planned over the next 5 years.

Coal – hard

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

0

Explain your CAPEX calculations, including any assumptions

No CAPEX are foreseen for this source

Lignite

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

0

Explain your CAPEX calculations, including any assumptions

CAPEX is not foreseen for this source

Oil

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

0

Explain your CAPEX calculations, including any assumptions

CAPEX is not foreseen for this source

Gas

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

0

Explain your CAPEX calculations, including any assumptions

CAPEX is not foreseen for this source

Sustainable biomass

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

0

Explain your CAPEX calculations, including any assumptions

CAPEX is not foreseen for this source

Other biomass

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

0

Explain your CAPEX calculations, including any assumptions

CAPEX is not foreseen for this source

Waste (non-biomass)

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

0

Explain your CAPEX calculations, including any assumptions

No CAPEX are foreseen for this source

Nuclear

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

0

Explain your CAPEX calculations, including any assumptions

No CAPEX are foreseen for this source

Geothermal

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

0

Explain your CAPEX calculations, including any assumptions

CAPEX is not foreseen for this source

Hydropower

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

71,291,614

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

6.31

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

32.7

Most recent year in which a new power plant using this source was approved for development

2021

Explain your CAPEX calculations, including any assumptions

Value of hydropower plants maintenance budget in 2023. For the next 5 years, there will be only maintenance investments in hydropower plants.

Wind

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

1,057,644,922

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

93.69

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

67.3

Most recent year in which a new power plant using this source was approved for development

2023

Explain your CAPEX calculations, including any assumptions

Acquisition of the Eolo Wind Complex (BRL 1.05 bn), plus BRL 52 m for completion of the Jandaira Wind Complex. For the next 5 years, there will be only maintenance investments in wind complexes.

Solar

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

0

Explain your CAPEX calculations, including any assumptions

CAPEX is not foreseen for this source

Marine

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

0

Explain your CAPEX calculations, including any assumptions

CAPEX is not foreseen for this source

Fossil-fuel plants fitted with CCS

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

0

Explain your CAPEX calculations, including any assumptions

CAPEX is not foreseen for this source

Other renewable (e.g. renewable hydrogen)

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

0

Explain your CAPEX calculations, including any assumptions

CAPEX is not foreseen for this source

Other non-renewable (e.g. non-renewable hydrogen)

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

0

Explain your CAPEX calculations, including any assumptions

CAPEX is not foreseen for this source

C-EU9.5b

(C-EU9.5b) Break down your total planned CAPEX in your current CAPEX plan for products and services (e.g. smart grids, digitalization, etc.).

Products and services	Description of product/service	CAPEX planned for product/service	Percentage of total CAPEX planned products and services	End of year CAPEX plan
Smart grid	REI Project (Smart Grids) that is being implemented in some regions of the State	89,427,769	4.89	2023
Other, please specify Expansão do Sistema de Distribuição de Energia	Investment in the renovation and expansion of the distribution network, construction, and expansion of Distribution Substation	1,669,781,384	91.25	2023
Other, please specify Transmissão de Energia	Electric Power Transmission	68,129,173	3.72	2027
Prosumer services	Energy Trading	2,586,379	0.14	2023

C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6

(C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

	Investment in low-carbon R&D	Comment
Row 1	Yes	<p>Since 1998, the Research and Development Program for the electricity sector, regulated by the National Electric Energy Agency (Aneel), determines that energy concessionaires invest 1% of their operating revenue in innovative technical solutions, prioritizing the achievement of practical application results, with a focus on creating and improving products, processes, methodologies and techniques, as well as supporting infrastructure, produce patents, technological training and benefits to energy consumers.</p> <p>Among the technologies that Copel is currently studying we can mention batteries for energy storage, electric mobility, integration of photovoltaic systems, integrated management of vegetation adjacent to lines, artificial intelligence for optimization of construction and maintenance processes with vegetation suppression, among others.</p> <p>We understand that any investment that results in operational efficiency or technical improvements contributes to climate change indicators. In 2022,</p>

		Copel invested BRL 94,840 million in R&D projects through its subsidiaries Copel DIS and Copel GET)
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C-CO9.6a/C-EU9.6a/C-OG9.6a

(C-CO9.6a/C-EU9.6a/C-OG9.6a) Provide details of your organization's investments in low-carbon R&D for your sector activities over the last three years.

Technology area	Stage of development in the reporting year	Average % of total R&D investment over the last 3 years	R&D investment figure in the reporting year (unit currency as selected in C0.4) (optional)	Average % of total R&D investment planned over the next 5 years	Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan
Battery storage	Applied research and development	35	0	15	Storage projects: PeD 2866-0444 / 2016 Spatial Multicriteria Algorithm for Application of Batteries for Supply Quality. PeD 2866-0450 / 2016 National Energy Storage and Management System for Bidirectional Electric Pole. PeD 2866-0452 / 2016 National Development of a Standard Energy Storage System with Residential Batteries (Sodium-Nickel) and Intelligent Control for Distributed Storage in Low Voltage Networks. PeD 2866-0454 / 2016 Mobile Storage System for Contingency Support s Programmed in SES. PeD 2866-0456 / 2016 Improved methodologies and tools for tactical planning and operational analysis of underground

					distribution networks with secondary mesh subject to the connection of distributed generators. PeD 2866-0460 / 2016 Integrated Hybrid System with Energy Storage for Isolated Areas (Island of Cobras). PeD 2866-0462 / 2016 Small Residential Batteries Integrated with Concept HEM and GLD.
Other, please specify Tecnologia Digital	Applied research and development	5	0	3	PD-02866-0509/2019 - UAV as Subsidy for the Automatic Generation of Ideal LD Tracking - With the aim of providing a methodology using images captured by drones and the application of artificial intelligence in the preparation of surveys and definition of the layout of the new planned networks, taking into account vegetation, distance, among other technical aspects, generating cost and emission reductions with displacement of teams, deforestation areas for the passage of the network and optimizing the route to optimize the subsequent operation and maintenance of the assets.
Other, please specify Infraestrutura	Applied research and development	5	0	8	PD-02866-0531/2020 Development of a New Topology of Overhead Networks with Covered

					<p>Cable with Structural Reinforcement for Rural Regions. With the objective of providing new methodologies for assembling "conventional" networks using protected cables in rural areas, making the network more robust and less susceptible to accidental disconnections, generating a reduction in the teams travel to attend to occurrences and deforestation.</p>
Battery storage	Applied research and development	15	0	15	<p>Looking at the development of new technologies for low-carbon transport in the country, Copel Distribuição has been conducting research on electric mobility projects: Research and development of a national fast charger for electric vehicles (EV) (PeD 2866-0490/2017), Module for integrating an electricity distributor with demand-side energy management platforms in electric mobility (PeD 2866-0516/2019), Charging Station of the Future (PeD 2866-0517/2019), Virtual billing and analysis system for consumer/prosumer behavior in relation to the use of electric vehicle charging stations (PeD 2866-0518/2019), Multi-</p>

					agent innovation interface involving the automotive industry, energy systems and electric mobility infrastructures for smart highway (PeD 2866-0519 / 2019).
Battery storage	Applied research and development	6	0	10	With the aim of encouraging and making economically viable the generation of electricity from biogas derived from waste and liquid effluents in the Brazilian energy matrix, ANEEL launched the Public Call 14/2012. Based on this call, Copel GeT, in partnership with Fundação Parque Itaipu Tecnológica – FPTI and CIBIOGÁS – Centro Internacional de Energias Renováveis, executed the R&D Project "Technical and commercial arrangements for distributed generation of electricity from biogas from residual biomass of pig farming in rural properties in the municipality of Entre Rios do Oeste". The project cost was BRL 17,193,012.40 and the execution period was from August 2016 to July 2019. The project arrangement covered 18 pig farms through a biogas collection network, approximately 20.6 km long. The biogas

				<p>generated by each producer is transported to a 480 kW Mini Thermoelectric Power Plant. The energy generated is used to offset the consumption of 66 public buildings in the municipality. This generation model makes it possible to treat 215 tons of waste daily and, as a product, there are 4,600 m³/day of biogas. Therefore, the project had significant environmental gains, since it allows the treatment of the large volume of waste that would be scattered on the ground, with the risk of reaching bodies of water when washed by rain. In some cases, waste is irresponsibly dumped directly into rivers, gradually transforming watersheds. In addition, the expansion of this rural sanitation through the treatment of residual biomass improves air quality, reduces the risk of diseases and the emission of greenhouse gases. Furthermore, the final residue of this treatment is a biofertilizer rich in nitrogen, phosphorus, and potassium. Finally, the project, in addition to being economically viable for the producers</p>
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					and the municipality, had a positive environmental impact on the region as a highlight.
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C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.

Verification or assurance cycle in place

Annual process


Status in the current reporting year

Complete

Type of verification or assurance

Reasonable assurance

Attach the statement

 Declaration CDP - Copel - Ciclo 2023.pdf

Page/ section reference

full document

Relevant standard

ABNT NBR ISO 14064-3:2007 (Associação Brasileira de Normas Técnicas)

Proportion of reported emissions verified (%)

100

C10.1b

(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.

Scope 2 approach

Scope 2 location-based

Verification or assurance cycle in place

Annual process


Status in the current reporting year

Complete

Type of verification or assurance

Reasonable assurance

Attach the statement

 Declaration CDP - Copel - Ciclo 2023.pdf

Page/ section reference

full document

Relevant standard

ABNT NBR ISO 14064-3:2007 (Associação Brasileira de Normas Técnicas)

Proportion of reported emissions verified (%)

100

C10.1c

(C10.1c) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.

Scope 3 category

Scope 3: Upstream transportation and distribution

Scope 3: Waste generated in operations

Scope 3: Business travel

Scope 3: Employee commuting

Verification or assurance cycle in place

Annual process


Status in the current reporting year

Complete

Type of verification or assurance

Reasonable assurance

Attach the statement

 Declaration CDP - Copel - Ciclo 2023.pdf

Page/section reference

full document

Relevant standard

ABNT NBR ISO 14064-3:2007 (Associação Brasileira de Normas Técnicas)

Proportion of reported emissions verified (%)

100


C10.2



(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?





Yes



C10.2a



(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?


Disclosure module verification relates to	Data verified	Verification standard	Please explain
C1. Governance	Other, please specify GRI Governance Disclosures and TCFD	Limited Assurance of nonfinancial information (GRI Standards 2016), based on ISAE3000, carried out by Deloitte. And Materiality Disclosures Services, carried out by the Global Reporting Initiative (GRI).	Responsibility for the topic of Climate Change within the company is described in the 2022 Copel Integrated Report (GRI 2-12 - page 116), and is based on the company's official documents. The Assurance Letter is presented on pages 201 and 203, and the GRI Materiality Disclosures Service certification seal on page 175. Copel Integrated Report 2022.pdf  1
C2. Risks and opportunities	Other, please specify	Limited Assurance of nonfinancial information (GRI	The topic of Climate Change is considered in the Company's risk analysis, which publicly discloses the data

	GRI Risks Disclosures and TCFD	Standards 2016), based on ISAE3000, carried out by Deloitte. And Materiality Disclosures Services, carried out by the Global Reporting Initiative (GRI).	in the Copel 2022 Integrated Report, as recommended by the Task Force on Climate-related Financial Disclosure (pages 91-95) in the 2022 Copel Integrated Report. This information refers to GRI Standards 103 for the material topic Environmental Management and Actions against Climate Change. The Assurance Letter is presented on pages 201 and 203, and the GRI Materiality Disclosures Service certification seal on page 175. Copel Integrated Report 2022.pdf  1
C3. Business strategy	Renewable energy products	Limited Assurance of nonfinancial information (GRI Standards 2016), based on ISAE3000, carried out by Deloitte. And Materiality Disclosures Services, carried out by the Global Reporting Initiative (GRI).	The Climate Change theme is integrated into Copel's processes, and is considered, for example, in prospecting for new business, in R&D activities, and in business operations, etc. The GRI Standards 201-2 is disclosed in the Copel 2021 Integrated Report (page 93), and the generation operation indicators (GRI G4 EU 1 and EU2) are on pages 154 and 155. The Assurance Letter is presented on pages 201 and 203, and the GRI Materiality Disclosures Service certification seal on page 175. Copel Integrated Report 2022.pdf  1
C4. Targets and performance	Progress against emissions reduction target	Limited Assurance of nonfinancial information (GRI Standards 2016), based on ISAE3000, carried out by Deloitte. And Materiality Disclosures Services, carried out by the Global Reporting Initiative (GRI).	The goals and projects are described in the item Climate Change, in the Copel 2022 Integrated Report (pages 91 to 95) and correspond to GRI Standards 103 for the material theme Environmental Management and Actions against Climate Change. The Assurance Letter is presented on pages 201 and 203, and the GRI Materiality Disclosures Service certification seal on page 175. The GHG emissions inventory is verified annually. By comparing the verified data, an analysis is made of the progress of the targets regarding the

			reduction of emissions. Copel Integrated Report 2022.pdf  1
C5. Emissions performance	Progress against emissions reduction target	Limited Assurance of nonfinancial information (GRI Standards 2016), based on ISAE3000, carried out by Deloitte. And Materiality Disclosures Services, carried out by the Global Reporting Initiative (GRI).	The goals and projects are described in the item Climate Change, in the Copel 2022 Integrated Report (pages 91 to 95) and correspond to GRI Standards 103 for the material theme Environmental Management and Actions against Climate Change. The Assurance Letter is presented on pages 201 and 203, and the GRI Materiality Disclosures Service certification seal on page 175. The GHG emissions inventory is verified annually. By comparing the verified data, an analysis is made of the progress of the targets regarding the reduction of emissions. Copel Integrated Report 2022.pdf  1
C6. Emissions data	Year on year change in emissions (Scope 1)	Limited Assurance of nonfinancial information (GRI Standards 2016), based on ISAE3000, carried out by Deloitte. And Materiality Disclosures Services, carried out by the Global Reporting Initiative (GRI).	The breakdown of emissions by scope and type of gas is presented on page 95 of the Copel 2022 Integrated Report. The Assurance Letter is presented on pages 201 and 203, and the GRI Materiality Disclosures Service certification seal on page 175. Copel Integrated Report 2022.pdf  1
C7. Emissions breakdown	Year on year change in emissions (Scope 1 and 2)	Limited Assurance of nonfinancial information (GRI Standards 2016), based on ISAE3000, carried out by Deloitte. And Materiality Disclosures Services, carried out by the Global	The variation of emissions by scope is presented on page 95 of the Copel 2022 Integrated Report. The Assurance Letter is presented on pages 201 and 203, and the GRI Materiality Disclosures Service certification seal on page 175. Copel Integrated Report 2022.pdf  1

		Reporting Initiative (GRI).	
C8. Energy	Energy consumption	Limited Assurance of nonfinancial information (GRI Standards 2016), based on ISAE3000, carried out by Deloitte. And Materiality Disclosures Services, carried out by the Global Reporting Initiative (GRI).	Information on energy consumption (GRI302) is detailed in the Copel 2022 Integrated Report (pages 89 and 90). The Assurance Letter is presented on pages 201 and 203, and the GRI Materiality Disclosures Service certification seal on page 175. Copel Integrated Report 2022.pdf  1
C9. Additional metrics	Renewable energy products	Limited Assurance of nonfinancial information (GRI Standards 2016), based on ISAE3000, carried out by Deloitte. And Materiality Disclosures Services, carried out by the Global Reporting Initiative (GRI).	Information on energy consumption (GRI302) is detailed in the Copel 2022 Integrated Report (pages 89 and 90). The Assurance Letter is presented on pages 201 and 203, and the GRI Materiality Disclosures Service certification seal on page 175. Copel Integrated Report 2022.pdf  1
C11. Carbon pricing	Product footprint verification	Limited Assurance of nonfinancial information (GRI Standards 2016), based on ISAE3000, carried out by Deloitte. And Materiality Disclosures Services, carried out by the Global Reporting Initiative (GRI).	Carbon pricing is part of climate change management, especially in prospecting for new businesses, and the data is publicly cited in the Copel 2022 Integrated Report, as recommended by the Task Force on Climate-related Financial Disclosure (pages 91 to 95) in the 2022 Copel Integrated Report. This information refers to the GRI Standards 103 for the material topic Environmental Management and Actions against Climate Change. The Assurance Letter is presented on pages 201 and 203, and the GRI Materiality Disclosures Service certification seal on page 175. Copel Integrated Report 2022.pdf

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C12. Engagement	Other, please specify GRI Suppliers Management Disclosures	Limited Assurance of nonfinancial information (GRI Standards 2016), based on ISAE3000, carried out by Deloitte. And Materiality Disclosures Services, carried out by the Global Reporting Initiative (GRI).	Engagement with suppliers is described in the 2022 Copel Integrated Report (pages 125 and 127), referring to GRI 102-9, 308-1, 408-1, 412-3 and 414-1. The Assurance Letter is presented on pages 201 and 203, and the GRI Materiality Disclosures Service certification seal on page 175. Copel Integrated Report 2022.pdf  1

 1 Copel Integrated Report 2022.pdf

C11. Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?

No, but we anticipate being regulated in the next three years

C11.1d

(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

At the beginning of 2020 there was a movement regarding the proposition of laws that are linked to the obligation to carry out inventories as well as regarding a future carbon taxation. Due to the pandemic, these issues did not advance, but this fact ignited a warning to us because the expectation was that the studies on the pricing models that the Brazilian government had been developing would be finalized, so we believed until last year that by 2022 the issue would not be consolidated. Since the Brazilian energy system is regulated by a federal agent we will have to wait for the positioning of the regulatory agent in order to know how the issue will be conducted in case the bill becomes law. Copel has a climate change commission, which deals with issues such as strategic planning of climate change and which also monitors the progress of the bills and their impacts.

Additionally, in 2022, Brazil was going through a presidential election and many proposed projects did not move forward. With the change of federal government, it is believed that there may be some change in the base text proposed in previous years.

In view of this scenario, Copel anticipated and structured its neutrality plan so that large emissions (from thermal power plants) are removed from the energy generation portfolio. In addition, it is intended to reduce emissions from other sources as an incentive for the use of

renewable fuel in the fleet and the use of electric cars, optimization of suppression processes and the use of renewable energy in terms of electricity consumption.

C11.2

(C11.2) Has your organization canceled any project-based carbon credits within the reporting year?

No

C11.3

(C11.3) Does your organization use an internal price on carbon?

Yes

C11.3a

(C11.3a) Provide details of how your organization uses an internal price on carbon.

Type of internal carbon price

Shadow price

How the price is determined

Alignment with the price of a carbon tax

Objective(s) for implementing this internal carbon price

Change internal behavior
Identify and seize low-carbon opportunities
Stress test investments

Scope(s) covered

Scope 1

Pricing approach used – spatial variance

Uniform

Pricing approach used – temporal variance

Evolutionary

Indicate how you expect the price to change over time

The impact value is used in the qualitative risk assessment, since the Brazilian power generation market is regulated and, so far, does not provide for penalties. Considering that Brazil does not currently have a reference value for the price of carbon and because there are no reduction targets for companies, it is believed that the proposed initial value will be low, but this value should be increased over time. We add to the costs the possible need for mitigation if pricing is implemented in the country. The carbon price should be updated based on the regulation of the emission

reduction market and the definition of the carbon pricing modality to be adopted in Brazil.

Actual price(s) used – minimum (currency as specified in C0.4 per metric ton CO2e)

27.4

Actual price(s) used – maximum (currency as specified in C0.4 per metric ton CO2e)

109.5

Business decision-making processes this internal carbon price is applied to

Risk management
Opportunity management

Mandatory enforcement of this internal carbon price within these business decision-making processes

Yes, for all decision-making processes

Explain how this internal carbon price has contributed to the implementation of your organization's climate commitments and/or climate transition plan

When developing the Company's Carbon Neutrality Plan it was considered the possibility of carbon pricing in Brazil in the coming years, as well as how this carbon pricing could impact the company's revenue since the Brazilian electricity sector is regulated by Aneel (National Electric Energy Agency) and there is a dependence on how the regulatory body will consider these additional costs. One of the points of concern for future taxation is the fact that there is a thermal power plant in Copel's portfolio, which could represent an additional cost. There is also the possibility of this cost being increased due to the construction of new thermal power plants. For the Company, once having taken the decision to neutralize its direct emissions, taxation ceases to be a risk with a negative impact.

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

Yes, our suppliers
Yes, our customers/clients
Yes, other partners in the value chain

C12.1a

(C12.1a) Provide details of your climate-related supplier engagement strategy.

Type of engagement

Engagement & incentivization (changing supplier behavior)

Details of engagement

Run an engagement campaign to educate suppliers about climate change
Provide training, support, and best practices on how to make credible renewable energy usage claims

% of suppliers by number

100

% total procurement spend (direct and indirect)

100

% of supplier-related Scope 3 emissions as reported in C6.5

100

Rationale for the coverage of your engagement

In Brazil, there is no legal requirement for companies to carry out and publish a greenhouse gas inventory.

With the aim of engaging and developing suppliers, the Company has defined as a strategy the promotion of online events in the form of webinars (at least every two months), where topics related to sustainability are addressed.

In these events, several themes are addressed that can encourage the adoption of practices related to sustainability through the sharing of knowledge with suppliers. As an example, it is cited the online Workshop on Preparing a Greenhouse Gas Inventory stands out.

Invitations for Copel's online events are sent to all suppliers with contracts in effect at the time of the events, in addition to asking them to extend the invitation to their main suppliers, as a strategy to increasing coverage to the second level of the chain.

The periodic promotion of this event was established by analyzing the results of the satisfaction surveys of the participants of the Climate Change Webinar and also of the Webinar Mitigation of Impacts on Natural Habitats. In these surveys the suppliers demonstrated a high level of satisfaction with the event and emphasized the importance of the theme and the interest in the subject. Considering the needs and expectations of our suppliers, the workshop was planned with the objective of guiding and clarifying how to prepare a GHG inventory, reinforcing the theme and providing the opportunity for a practical discussion. Technical materials developed based on the guidelines of the Brazilian GHG Protocol program were made available to participants to help suppliers carry out a greenhouse gas inventory using the calculation tool of the Brazilian GHG Protocol Program. Technical materials, as well as all webinars held are permanently available on the Company's Supplier Training Platform (<https://www.copel.com/site/fornecedores-e-parceiros/>), allowing access at any time by any supplier.

Impact of engagement, including measures of success

Specifically, regarding the Climate Change event, 18 of the invited suppliers participated in the webinar at its launch. The content remained available for access on Copel's

website (<https://www.copel.com/site/fornecedores-e-parceiros/formacao-de-fornecedores/>) to all Copel's suppliers and their suppliers. In addition, the public registry of emissions of the Brazilian GHG Protocol Program was consulted and two suppliers that participated in the events and published their inventory were identified, obtaining silver and gold qualification (with external verification), which demonstrates a positive impact of the Company's actions.

Additionally, it was also noticed that the work of knowledge dissemination and awareness resulted in a greater interest of suppliers in seeking knowledge on the subject, jumping from 57% in 2020 to 66% in 2023 of suppliers who indicated the desire to obtain more knowledge about environmental education for employees and about the sustainable use of natural resources.

Comment

Type of engagement

Engagement & incentivization (changing supplier behavior)

Details of engagement

Run an engagement campaign to educate suppliers about climate change
Climate change performance is featured in supplier awards scheme

% of suppliers by number

38

% total procurement spend (direct and indirect)

60

% of supplier-related Scope 3 emissions as reported in C6.5

5

Rationale for the coverage of your engagement

In 2022, Copel held the Supplier Award aiming to engage suppliers in continuous improvement, recognizing the companies with the best performances in line with Copel's strategic objectives as a way of recognizing the best results presented by suppliers. In the 2022 edition of the Award, a new category was awarded, Sustainability, which within the criteria considered the themes of climate change. For the main categories of materials and services supply, the self-assessment that supports the evaluation criteria of the Sustainability Category included questions that involve carrying out a GHG inventory and carbon footprint, monitoring energy, water, fuel, and printing consumption, and applying tools to improve energy efficiency.

In this event, suppliers of the main categories of materials and services are recognized, that is, those strategic objects for carrying out the core activity of Copel Distribuição, among which we mention: meter reading services, operational and NR10 services, maintenance services for distribution networks of up to 34.5kV, construction services for distribution networks of up to 34.5kV, manufacturers of distribution transformers, manufacturers of electrical cables and manufacturers of concrete poles.

Impact of engagement, including measures of success

Despite being an award for carrying out good practices, which means that there is competition between suppliers, the objective is to achieve long-term mutual benefits in the relationship with suppliers with focus on work safety, sustainability, quality, punctuality, efficiency, with reflections on the final product delivered to Copel and society. It is expected that in the next awards, new ideas will be presented, and that sustainable practices will be part of the companies' actions.

Comment

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

Type of engagement & Details of engagement

Education/information sharing

Run an engagement campaign to education customers about your climate change performance and strategy

% of customers by number

1

% of customer - related Scope 3 emissions as reported in C6.5

0

Please explain the rationale for selecting this group of customers and scope of engagement

The Energy Efficiency Program - PEE is ruled by Federal Law No. 9,991/2000 and regulated by Aneel and aims to promote the efficient use of electricity through projects that demonstrate the importance and economic viability of improving the energy efficiency of equipment, processes, and end uses of energy. The objective is to maximize the public benefits of the energy saved and the demand avoided, encouraging the development of new technologies and the adoption of habits and rational practices for the use of electric energy. Participation in the program is open to all Copel Distribuição customers. It is noteworthy that knowledge about the correct disposal of equipment, as well as the efficient use of energy, is part of the obligations contained in the regulations that rule the program. Training related to the theme is carried out with consumers benefited by the Energy Efficiency project. All energy efficiency projects carried out with regulated resources require the environmentally correct disposal of all equipment (light bulbs, air conditioners, refrigerators, motors, etc.), bringing to the knowledge and action of the consumers involved the need for care and the importance of correct disposal, aiming at reverse manufacturing and recycling of components.

Impact of engagement, including measures of success

The objective is to maximize the public benefits of the energy saved and the demand avoided by the Energy Efficiency Program projects, encouraging the development of new technologies and the creation of habits and rational practices for the use of electric energy. Through other actions, we seek to develop socialization among children and adolescents, to guide communities on the conscious and safe use of electricity, to encourage the development of complementary educational activities that seek to change the consumption habits of the school community resulting in a change in the habits of spectators/consumers in order to reduce energy consumption.

C12.1d

(C12.1d) Give details of your climate-related engagement strategy with other partners in the value chain.

Copel has been actively working to promote the development of the renewable hydrogen chain, focusing on the state of Paraná, being one of the members of a government group dedicated to developing this market in the state, along with other entities linked to the state of Paraná. In addition, in 2022, Companhia Paranaense de Saneamento - Sanepar (as executor) and Copel (as co-executor) had a project approved in first place within the scope of the MCTI/FINEP/FNDCT Public Selection – “Support for projects to encourage the use of fuels and hydrogen obtained in a sustainable way with application in the transport sector/fuels of the future”. The project budget is estimated in R\$ 12 million, having CIBiogás and the Federal University of Paraná as science and technology partner institutions. The project foresees, among other actions, the construction of an unprecedented reference unit in one of Sanepar's Sewage Treatment Stations (ETE) with a production capacity of 14 kg of H₂/day (the equivalent of supplying three electric cars). In this project, renewable hydrogen will be used for electromobility purposes. This will be the first renewable hydrogen production plant in Brazil focused on the dry catalytic reforming of biogas from sewage and the project should be contracted in 2023, as soon as the grant term is signed with Finep.

Another initiative in 2022, refers to the launch of the public notice for the second edition of the Open Innovation Program Copel Volt aimed at contracting startups to demonstrate in representative conditions of the real application environment (Proof of Concept - PoC), innovative solutions with the potential to meet the proposed challenges. The program attracted the registration of 284 national and international startups and was composed of 5 related challenges among which are solutions in the areas of Green Hydrogen, Energy Storage, and other Clean Energy, Electromobility and Smart Cities allowing Copel to expand its scope of energy solutions aligned with the Company's ESG strategies and SDG 13.

Through a pilot project within the Energy Efficiency Program - PEE, governed by federal law No. 9,991/2000 and regulated by Aneel, COPEL held in 2022, together with other energy distributors, the National Energy Efficiency Olympics (ONEE) focused in promoting knowledge about the efficient use of energy and ways to combat its waste. Participants took part of a three-module course covering topics such as energy and its transformations; energy sources and matrices; energy production/generation and conscious consumption; and energy efficiency actions and fight against energy waste. The educational competition had 2,600 subscribers in Paraná and 306 medalists from the State comprising 78 gold medals, 121 silver and 107 bronze.

C12.2

(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization's purchasing process?

Yes, suppliers have to meet climate-related requirements, but they are not included in our supplier contracts

C12.2a

(C12.2a) Provide details of the climate-related requirements that suppliers have to meet as part of your organization's purchasing process and the compliance mechanisms in place.

Climate-related requirement

Measuring product-level emissions

Description of this climate related requirement

Copel, as a state-owned company, is subject to Federal Law No. 13,303/16 and its Internal Regulation for Tenders and Contracts, which restrict actions for selecting and retaining suppliers. However, within the supplier selection and contracting process, the company uses compliance with labor, human rights, tax, and environmental legislation as additional criteria in the selection of suppliers. The criteria are defined in the bidding notices and contractual clauses. Depending on the object to be contracted, some specific clauses are included in the contract drafts that accompany the public notice when it is published.

The standard bidding notices contain a requirement to submit a GHG inventory for objects identified by the environment area as critical upon consultation with the buyer.

% suppliers by procurement spend that have to comply with this climate-related requirement

0.5

% suppliers by procurement spend in compliance with this climate-related requirement

0.1

Mechanisms for monitoring compliance with this climate-related requirement

First-party verification

Response to supplier non-compliance with this climate-related requirement

Other, please specify

Solicitar que envie o inventário e engajar novamente se necessário.

C12.3

(C12.3) Does your organization engage in activities that could either directly or indirectly influence policy, law, or regulation that may impact the climate?

Row 1

External engagement activities that could directly or indirectly influence policy, law, or regulation that may impact the climate

Yes, we engage directly with policy makers

Yes, our membership of/engagement with trade associations could influence policy, law, or regulation that may impact the climate


Does your organization have a public commitment or position statement to conduct your engagement activities in line with the goals of the Paris Agreement?

Yes

Attach commitment or position statement(s)

Attached is the Net Zero Ambition Movement letter of commitment, an accelerating initiative that aims to challenge and support companies that are part of the UN Global Compact to set robust, science-based targets to reduce greenhouse gas emissions - and , thus ensuring that the company works with the urgency and ambition necessary for the transformation we need.

The movement aims to leverage impact deliveries for Brazilian society, which is why it proposes to work with the Brazilian business sector with individual commitments with the collective ambition of reducing 2 Gigatons of CO₂e in accumulated emissions by 2030.

 Processo_18.851.746-3_1 (1).pdf

Describe the process(es) your organization has in place to ensure that your external engagement activities are consistent with your climate commitments and/or climate transition plan

The actions approved by the Board of Directors regarding the neutrality plan were analyzed by the Company's Sustainable Development Committee, which is the body responsible for advising the Board of Directors. Within the actions aligned with the Company's strategic planning are the increase in generation from renewable energy sources and the search for decarbonization. Thus, when participating in associations and public policy movements, Copel's position is to engage in actions that contribute to the fulfillment of its neutrality plan.

C12.3a

(C12.3a) On what policy, law, or regulation that may impact the climate has your organization been engaging directly with policy makers in the reporting year?

Specify the policy, law, or regulation on which your organization is engaging with policy makers

Bill 576/2021, which regulates the granting of authorizations for the use of offshore energy potential.

Category of policy, law, or regulation that may impact the climate

Low-carbon products and services

Focus area of policy, law, or regulation that may impact the climate

Other, please specify
Geração de Energia Renovável

Policy, law, or regulation geographic coverage

National

Country/area/region the policy, law, or regulation applies to

Brazil

Your organization's position on the policy, law, or regulation

Support with no exceptions

Description of engagement with policy makers

Analysis of the bill and acting as an associate of Abeeólica (Brazilian Wind Energy Association).

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Please explain whether this policy, law or regulation is central to the achievement of your climate transition plan and, if so, how?

In parts. The plan does not directly depend on this bill, but its approval is favorable because we intend to expand business in renewable generation and the approval of the bill enables the expansion in this type of business.

C12.3b

(C12.3b) Provide details of the trade associations your organization is a member of, or engages with, which are likely to take a position on any policy, law or regulation that may impact the climate.

Trade association

Other, please specify

CEBDS - Conselho Empresarial Brasileiro para o Desenvolvimento Sustentável

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

No, we did not attempt to influence their position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

Copel participates in the CEBDS Thematic Chamber on Energy and Climate Change (CTClima), which is formed by large Brazilian companies and has the proposal to address issues related to energy and climate change and help companies to take advantage of new market opportunities and minimize their risks arising from the climatechange process. CTClima also monitors and participates in the Conferences of the Parties to the United Nations Framework Convention (CoP) and in forums of the FederalGovernment and civil society. In addition, the Company participates in discussions related to a compulsory carbon market proposal elaborated through engagement carriedout through events and consultations with its members

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

89,623

Describe the aim of your organization's funding

Copel understands that funding contributes to leverage the actions promoted by CEBDS both in the discussions of the engaged companies as well as in the availability of time for professionals to follow the progress of bills, and to prepare analysis that guide companies regarding the purpose of the bills of law.

CEBDS promotes dialogue with companies on the subject of climate change and what practices can be developed by companies so that actions to combat global warmingare accelerated. Copel contributes as an associate member and also participates in some actions promoted by the institution. As there is a broad debate with companies,CEBDS is invited to contribute to the proposals made by the Brazilian government regarding climate change.In 2021, Copel signed, together with leaders of 105 national and foreign companies, in addition to sector entities, a letter in support of environmental goals and Brazil'sengagement in an agenda for sustainable development. This CEBDS-led document highlights the need for a low-carbon economy and recognizes the responsibility of the business sector in this transformation.

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

C12.4

(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Publication

In mainstream reports

Status

Complete

Attach the document

 Management Report and Financial Statements 2022.pdf

Page/Section reference

pages 25 and 26

Content elements

Other, please specify
Abordagem geral da Temática

Comment

In the Company's Management Report the Climate Change theme is presented.


Publication

In mainstream reports, incorporating the TCFD recommendations

Status

Complete

Attach the document

 Copel Integrated Report 2022.pdf

Page/Section reference

pages 91 to 95

Content elements

Other, please specify
TCFD

Comment

In Copel's Integrated Report the topic Climate Change is presented in accordance with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

Publication

In other regulatory filings

Status

Complete

Attach the document

 Report 20 - F.pdf

Page/Section reference

Pages: 10;11;16; and 63

Content elements

Governance
Strategy
Risks & opportunities

Comment

In 20F report the risks related to Climate Change, related to the Company's operations, are presented.

Publication

In mainstream reports, incorporating the TCFD recommendations

Status

Complete

Attach the document

 formulario referencia Copel.pdf

Page/Section reference

pages 30; 51; 63-65; 154; 158; 224-226; 236; 252.

Content elements

Governance
Strategy
Risks & opportunities

Comment

Copel's Reference Form presents the governance and risks approach to Climate Change

The file exceeds 30 Mb so we are forwarding the link

<https://api.mziq.com/mzfilemanager/v2/d/16a31b1b-5ecd-4214-a2e0-308a2393e330/e2b6f0a4-1216-ccc4-7b4a-df5372b41adc?origin=1>

C12.5

(C12.5) Indicate the collaborative frameworks, initiatives and/or commitments related to environmental issues for which you are a signatory/member.

	Environmental collaborative framework, initiative and/or commitment	Describe your organization's role within each framework, initiative and/or commitment
Row 1	Race to Zero Campaign UN Global Compact	Participates in meetings and engages in promoting actions that will reduce emissions. Added to this, it includes commitments in the Company's planning.

C15. Biodiversity

C15.1

(C15.1) Is there board-level oversight and/or executive management-level responsibility for biodiversity-related issues within your organization?

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity
Row 1	Yes, both board-level oversight and executive management-level responsibility	Board-level supervision: There is oversight at the Board level, considering the provisions of the Art. 11, item VII, of the Internal Regulation of the Sustainable Development Committee - CDS - and the monthly report of the CDS to the Board of Directors, as transcribed below. VII. evaluate and monitor the Company's performance and the execution of projects that improve sustainability practices, with emphasis on ESG dimensions (environmental, social and governance), as well as people management, resulting from the Strategic Planning.

C15.2

(C15.2) Has your organization made a public commitment and/or endorsed any initiatives related to biodiversity?

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Biodiversity-related public commitments	Initiatives endorsed
Row 1	Yes, we have made public commitments and publicly endorsed initiatives related to biodiversity	Adoption of the mitigation hierarchy approach Commitment to avoidance of negative impacts on threatened and protected species Other, please specify Adherence to the Monitoring Network of the Large Mammals of Serra do Mar Program; Prioritization of SDG 15 - Life on Earth.	SDG Other, please specify Participation in the Interinstitutional Committee for the Evaluation of Municipal UrbanAfforestation Plans - Participation in REDA: State Network for Animal Rights - Adhesion to the Monitoring Network ofthe Large Mammals Program of Serra do Mar)

C15.3

(C15.3) Does your organization assess the impacts and dependencies of its value chain on biodiversity?

Impacts on biodiversity

Indicate whether your organization undertakes this type of assessment

Yes

Value chain stage(s) covered

Direct operations

Tools and methods to assess impacts and/or dependencies on biodiversity

Other, please specify

Environmental studies, environmental impact assessment (EIA), environmental management and analysis of indicators GRI: 304-1, 304-2, 304-3, 304-4 e G4-EU13

Please explain how the tools and methods are implemented and provide an indication of the associated outcome(s)

The impacts on biodiversity are evaluated mainly during the environmental studies carried out in the planning and implementation phase of new projects when the environmental impact assessment is also carried out. During the operation phase, environmental programs are carried out to mitigate possible negative impacts and enhance the positive ones, in addition to self-monitoring reports according to the specificity of each project. In addition, annual monitoring of the GRI indicators and other internal indicators is carried out, enabling periodic analysis of the impacts of business on

biodiversity. This information is used in the Social and Environmental Report and the Integrated Report.

Dependencies on biodiversity

Indicate whether your organization undertakes this type of assessment

Yes

Value chain stage(s) covered

Direct operations

Tools and methods to assess impacts and/or dependencies on biodiversity

Other, please specify

No specific tools are used but the analysis carried out are based on the TEEB guidelines

Please explain how the tools and methods are implemented and provide an indication of the associated outcome(s)

During planning and reviews of environmental programs, analysis of impacts and dependencies on ecosystem services are carried out.

C15.4

(C15.4) Does your organization have activities located in or near to biodiversity-sensitive areas in the reporting year?

Yes

C15.4a

(C15.4a) Provide details of your organization's activities in the reporting year located in or near to biodiversity -sensitive areas.

Classification of biodiversity -sensitive area

Other biodiversity sensitive area, please specify
Unidades SNUC e APCBs

Country/area

Brazil

Name of the biodiversity-sensitive area

Sustainable Use Conservation Units

Proximity

Overlap

Briefly describe your organization's activities in the reporting year located in or near to the selected area

Implementation and operation of hydropower plants (UHE), small hydropower plants (PCH) and transmission lines (LT)

Indicate whether any of your organization's activities located in or near to the selected area could negatively affect biodiversity

Yes, but mitigation measures have been implemented

Mitigation measures implemented within the selected area

Project design
Scheduling
Physical controls
Operational controls
Restoration
Biodiversity offsets

Explain how your organization's activities located in or near to the selected area could negatively affect biodiversity, how this was assessed, and describe any mitigation measures implemented

In the implementation of new developments, Copel's multidisciplinary teams perform the analysis of the intended location, avoiding areas that are more conserved - large green fragments, Conservation Units (UCs), Permanent Preservation Areas (APPs), Legal Reserves (RLs), Priority Areas for Biodiversity Conservation (APCBs), among others. Environmental studies carried out to analyze environmental impacts of new developments also indicates the best location for these developments with the premise of avoiding or minimizing negative environmental impacts as much as possible. When possible, adjustments/modifications are made to some points of the development's location prioritizing the use of areas that have already been altered, especially those with a higher degree of anthropization. It should be noted that many of Copel GeT's developments have their concession date quite old and were installed before these areas were decreed as UCs or their analysis as APCBs.

In general, the management of the impacts of Copel's projects in relation to these more conserved areas is carried out through environmental programs that accompany the suppression of vegetation, promote the monitoring and rescue of flora and fauna, favor the recovery of Permanent Preservation Areas, encourage the maintenance of biodiversity and forest replacement, and provide for the monitoring and rescue of archaeological heritage, among others. In addition, compensatory measures are implemented for negative impacts, such as the establishment of perpetual environmental right of way in well-developed forest areas, the execution of reforestation with native species around remnants associated with the areas of influence of the projects and the eradication of exotic species of flora in some areas, including within Conservation Units. In the specific case of direct impact on Conservation Units or their buffer zone, as provided for in the legislation, licensing can only be granted with authorization from the body responsible for the administration of the UC. In these cases, when conditions from this consultation arise, the Environmental Programs planned for the enterprise include actions that aim to fully meet these conditions. As an example, the case of the Fauna Monitoring Subprogram with a specific focus on the *Callithrix aurita* species carried out for the implementation and part of the operation of the 500 kV

Transmission Line (LT) Araraquara II - Taubaté, as required by the environmental agency, the LT should pass through a part of the Environmental Protection Area (APA) Springs of the Paraíba do Sul River, obtaining important data for the conservation of this species. After the project was completed, the route was changed to deviate from this UC and after alignments the environmental agency approved the new route.

C15.5

(C15.5) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?	Type of action taken to progress biodiversity-related commitments
Row 1	Yes, we are taking actions to progress our biodiversity-related commitments	Land/water protection Land/water management Species management Education & awareness Law & policy


C15.6

(C15.6) Does your organization use biodiversity indicators to monitor performance across its activities?

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	Yes, we use indicators	State and benefit indicators Pressure indicators

C15.7

(C15.7) Have you published information about your organization's response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
In voluntary sustainability report or other voluntary communications	Content of biodiversity-related policies or commitments Governance Impacts on biodiversity Details on biodiversity indicators	pages 96-101 and 191-194  1

	Biodiversity strategy	
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 ¹Copel Integrated Report 2022.pdf

C16. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

More information about Copel's practices can be obtained on its communication portals:
<https://copelsustentabilidade.com/en/>
Annual Social and Environmental Reports - Copel IR -
<https://copelsustentabilidade.com/en/corporate-sustainability/sustainability-documents-and-publications/reports/integrated-reporting/>

C16.1

(C16.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	CEO of the Company, who is also a member of Copel's board of directors and sustainability committee.	Chief Executive Officer (CEO)

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	I understand that my response will be shared with all requesting stakeholders	Response permission
Please select your submission options	Yes	Public

Please confirm below

I have read and accept the applicable Terms