WATER AND EFFLUENT MANAGEMENT

GRI 2-25, 3-3, 303-1

Water is our primary environmental asset, in particular the São Francisco River, where most of our hydroelectric plants are located. We are committed to efficiently managing water resources and effluents, ensuring water is available in sufficient quantity and quality for its multiple applications.

Our parent company's Water Resource Policy guides our water stewardship practices, and is based on two core concepts: water is a shared, limited and precious resource; and water is an essential natural resource.

Eletrobras Chesf assesses and monitors water quality in the reservoirs and adjacent stretches of the rivers under our concession, including physical and chemical parameters such as temperature, pH, electrical conductivity, dissolved oxygen, turbidity, transparency, total alkalinity, total hardness, concentration of nitrate and nitrite, ammonia, total phosphorus, total phosphate, inorganic phosphorus, chlorides, chlorophyll, density of thermotolerant coliforms, concentration of pesticides, oil and grease. In addition, we monitor data on reservoir storage and streamflow.

Water quality testing is performed on a quarterly schedule. Monitoring frequency may increase to biweekly in drought conditions, or daily in the event of a severe drought.

We also work to raise awareness about the importance of water in communities surrounding our facilities, through our Environmental Education and Social Communication programs.

We regularly review and update our Annual Flood Control Plan, related rules and guidelines, our inventory of hydroelectric plant restrictions, our flood control manuals, and information reporting systems for host river basins. Eletrobras Chesf regularly provides information to communities using plain and clear language and the best suited channels for each location.

In 2022, the São Francisco River experienced its highest streamflow in the last 13 years due to heavy rainfall, especially in the state of Minas Gerais. In response, Eletrobras Chesf implemented special flow control measures at each of its reservoirs. On January 12, the outflow rates from dams on the São Francisco river was increased. The Sobradinho (BA) and Xingó (SE) dams reached an outflow of 4,000 cubic meters per second (m^3/s), or half of the maximum streamflow rate allowable for the river under flood control rules.

Eletrobras Chesf provided information on our portal, websites and radio spots to inform the public about our flood control measures. Information about changes in discharge rates is also provided via instant messaging. **GRI 303-1**

Changes in streamflow downstream from the Xingó Dam may also occur as a result of instructions given by the National Grid Operator (ONS) to optimize generation output in different regions of the country—the ONS is responsible for centrally planning, scheduling and dispatching generation facilities in Brazil. Eletrobras Chesf operates its reservoirs and dams in accordance with established rules, and shares information about these operations with other users, in accordance with legal and operational requirements. We also provide any required clarification to the Office of the Attorney General in Palmares (AL).

Eletrobras Chesf assesses and monitors water quality in the reservoirs and adjacent stretches of the rivers under our concession.

In 2022, after a 12-year hiatus, with the flood season came the resurgence of the Paulo Afonso waterfall, a series of falls that can reach a height of 80 meters in the tourist area of lakes and canyons on the São Francisco River. This led to increased visitation to the Eletrobras Chesf Park, following sanitary protocols and with enhanced safety measures implemented in collaboration with the City Hall of Paulo Afonso. Since reopening on January 14, 2022, the Paulo Afonso Complex received 20,500 visitors, including employees, residents from the region and tourists. The lookout at Xingó received 19,431 visitors in the year.


The Xingó spillway (AL/SE)

In December, heavy rainfall led to abnormally high streamflow through the Contas River in southern Bahia, where Eletrobras Chesf's Pedra Dam is located.

Heavy rainfall, especially upstream from the dam, increased the reservoir level and required the dam to increase its outflow. This led to flooding in the municipality of Jequié (BA) and other municipalities downstream from the dam, with some residents sustaining property damage as well as experiencing distress and uncertainties.

As a result of the flooding, several lawsuits were filed to hold Eletrobras Chesf liable for the flooding and to pay damages. In its defense, Eletrobras Chesf argued that the flooding was a result of extreme weather events that, by their very nature, are inevitable and not within the company's control, given that the Pedra Dam is limited in its flood attenuation capacity.

The exceptional nature of this event can be measured by the volume of the flood, which was the most severe in the past 41 years. In addition, the average daily outflow from the Pedra Dam, as measured on December 25, 2022, was 3,109 m³/s, .

During the flood control operations, outflow from the Pedra Dam was gradually increased in a controlled manner, helping to mitigate impacts from the heavy rainfall on downstream towns. By utilizing the reservoir's impoundment capacity, the hourly inflow rates of up to 4,500 m³/s were attenuated, limiting the maximum hourly outflow to 2,400 m³/s.

As a result, our flood control operations helped to limit flooding in locations downstream from the reservoir, as well as slowing the progress of peak flows.

Under these adverse conditions, we operated the Pedra Dam in strict compliance with applicable rules and guidelines. We maintained regular communication with state and municipal authorities, including the Civil Defense Department, providing them with timely updates on the reservoir's condition and alerting them in advance of necessary emergency measures to control water levels. As a result, local authorities were able to take appropriate action to protect residents from imminent flooding.

The legal proceedings are at an early stage, preceding discovery.

In the event of an environmental emergency, stakeholders can contact Eletrobras Chesf via a toll-free number (**0800 979 3090**) or by email to **meioambiente@chesf.com.br**.

Water impacts GRI 2-25, 303-1

Type of venture*	Examples of impacts **	Examples of mitigation/compensation measures
Hydropower dams	Changing in the hydrosedimentary dynamics	Hydro-sedimentological monitoring program
	Changes in rainfall patterns/Reduced downstream streamflow	Hydro-sedimentological monitoring program
	Changes in groundwater levels	Hydrogeological monitoring program/ Groundwater level and quality monitoring program
	Conversion of river ecosystems from lotic to lentic	Water quality monitoring program
	Changes in surface water quality	Water quality monitoring program
	Riverbank erosion downstream of the reservoir	Erosion monitoring / Restoration of riparian forest cover
	Multiple reservoir uses	Environmental preservation and usage plan for artificial reservoirs (PACUERA)
Thermal power plants	Water consumption in the generation process	Water consumption and quality monitoring program
	Possibility of water contamination by waste/ oil spills	Water quality monitoring program/ Emergency Response Plan
	Varying temperature, turbidity and pH in discharged water	Water Quality and Effluent Monitoring Plan
Transmission lines and substations	Consumptive water use in the transmission process/ Consumptive water use in current conversion	Water consumption and quality monitoring program/Use of additives in cooling water to increase the number of cycles through the substation towers
Floating solar plants (in reservoirs)	Oil spills (equipment collapse)	Contingency plans / Bunding

Where the impact is most likely to occur, but will not necessarily occur in every case. Regardless of the project stage.
The magnitude and scale of the impact depend on the size of the project and the region where it is developed.
No water is consumed in areas with water stress. **GRI 303-5**
Water storage generates no impacts. **GRI 303-5**

River basins GRI 303-1

The water flowing through our hydropower plants is not consumed and is returned in its entirety to the downstream water body with the same level of quality as at the intake. Our reservoirs help to regulate downstream streamflow during drought and flood seasons, mitigating impacts.

All projects have secured or have applications pending for permits to use water resources for hydroelectric purposes.

We are active members of the São Francisco Watershed Committee (CBHSF). Eletrobras Chesf representatives participate in plenary meetings and other meetings of Subject-Matter Committees and the Middle and Lower São Francisco Sectoral Committees. We are also members of the Water Resource Working Group (WRWG) and the Alagoas State Water Resources Committee(CERH). We were also involved in the early planning of the Parnaíba River Basin Committee. As a member of the Eletrobras Group, Eletrobras Chesf is also a signatory of the Business Pledge for Biodiversity, launched by the Brazilian Business Council for Sustainable Development (CEBDS).

A waterfall near the Angiquinho Dam.

Water Withdrawal, Consumption and Discharge GRI 303-2, 303-3, 303-4, 303-5

Water for office use is primarily supplied by local utilities.

The impact from effluent discharge varies depending on the quantity, quality and destination. Most of the effluents generated by Eletrobras Chesf are sewage from office facilities and turbined water from hydroelectric dams.

All sewage is sent to conventional treatment systems (septic tanks or municipal sewage systems) and have no impact on waterbodies. Our hydroelectric dams have no adverse impacts on river water, as all turbined water returns to the watercourse without any alteration of its properties, and therefore does not require treatment.

Eletrobras' Business & Management Master Plan (PDNG) has set a target to reduce utility water consumption in administrative activities by 0.3% year on year. In 2020, 2021 and 2022 we achieve reductions of 6.82%, 14.71% and 2.03%, respectively.

Some of our key water savings initiatives include:

- modernization of plumbing fixtures
- consumption monitoring by our IGS Environmental system
- reservoir water quality monitoring programs
- monitoring of aquatic ecosystems and fish stocks
- reforestation and rehabilitation of riparian vegetation
- fish nurseries producing fry to restock populations of different species in the River basin
- rainwater harvesting projects
- environmental education initiatives in surrounding communities about responsible water use and preventing pollution

In 2022 the total volume of turbined water flow through hydropower dams located on rivers experiencing critical or very critical water stress (based on the method outlined by the Brazilian Water Agency (ANA)) was 510,555,744.00 ML. All hydroelectric plants have or are in the process of securing permits to use water resources.

Chesf-owned hydroelectric plants all pay Financial Compensation for the Use of Water Resources pursuant to Law no. 7,990/1989. In 2022, Chesf paid R$ 211,248,498.23 toward financial compensation.

The effluent (water discharge) volumes we report include total turbined water flowing through our hydroelectric dams, and 80% of the water used in administrative activities.

Water consumption is assumed to be 20% of the water used in administrative activities.

Law no. 9,433/97, which introduced the Brazilian National Water Resource Plan (PNRH), classifies waterbodies into different categories. Operations withdrawing water from and/or discharging water into a water body are subject to different requirements depending on the category.

Eletrobras Chesf is not subject to any industry-specific requirements for effluent discharge. We are compliant with the general requirements established in the applicable regulations.

Total water withdrawal by source (ML) GRI 303-3

Administrative activities	**598.22**
Groundwater	22.17
Rainwater	448.48
Utility water	87.77
Where no meter is present (estimated consumption)	**39.80**
Hydropower	215,461,123.20
Surface (turbined water)	215,461,123.20
Total water withdrawals [1]	**215,461,272.95**
Total water discharged[2] GRI 303-4	**215,461,211.16**
Total water consumed[3] GRI 303-5	**21.99**

Turbined water (hydroelectric plants in water-stressed areas)

GRI 303-3, 303-4

510,555,744.00

[1] Consumption estimates where no water meter is present are included in the total water withdrawal figures, but are not included in the calculations of water discharge and consumption.

[2] Total water discharge is the sum of effluents, used water, and unused water released to surface water, groundwater, seawater, or a third party, for which the organization has no further use, over the course of the reporting period.

[3] Total water consumed is the sum of all water that has been withdrawn and incorporated into products, used in the production of crops or generated as waste, has evaporated, transpired, or been consumed by humans or livestock, or is polluted to the point of being unusable by other users, and is therefore not released back to surface water, groundwater, seawater, or a third party over the course of the reporting period.

Water consumption data is derived from direct measurements at our operational facilities that are compiled and submitted to the appropriate department, which consolidates the information and generates water use performance indicators and disclosures. In 2022 our total water consumption was 30.58 ML.

** No surface water is withdrawn for administrative activities.*

*** No water is withdrawn in areas with water stress, other than non-consumptive withdrawals for hydroelectric generation.*

**** There are no other types of water (total dissolved solids > 1,000 mg/L) Only fresh water is discharged.*

***** The reported water discharge into areas with water stress refers to the turbined water discharged by the Pedra Dam, which is located in an area with water stress as classified by the ANA.*

****** There were no changes in water storage volumes, and therefore there were no impacts.*

******* Total rainwater harvested for use in office facilities is not included in the water withdrawal, discharge and consumption calculations.*

WATER AND EFFLUENT MANAGEMENT

GRI 3-3, 303-1, 303-2, 303-3, 303-4, 303-5

Eletrobras Furnas uses water resources in both operational and administrative activities. The water used by our hydropower plants (to drive the turbines and for cooling) and thermal power stations (for cooling) is not consumed and is returned in its entirety to the source water body at a higher level of quality than at the intake. All water is withdrawn from and discharged to freshwater sources.

Following use and appropriate treatment, wastewater is discharged to recipient water bodies or infiltrated into the soil. Our approach to effluent management consists of three main steps.

1. Identification: identifying the types of effluent sources in our activities and processes.

2. Treatment: determining the appropriate treatment process depending on the properties of the effluent, the volume, and the available footprint at the site, in order to achieve the required pollutant removal efficiency as stipulated in applicable regulations.

3. Monitoring: performing physical and chemical testing to ensure compliance with the discharge requirements under CONAMA Resolution 430/2011.

Projects licensed in the state of Rio de Janeiro regularly report effluent quality and quantity data to the state environmental regulator via Liquid Effluent Monitoring Reports (RAE).

In other states, information is submitted to regulators on request. Laboratory testing for water and effluent quality control is carried out in accordance with NBR ISO/IEC 17.025, by laboratories that are accredited to perform testing and calibration and that are members of the state metrology network and the State Network Forum.

Our stormwater systems are designed to prevent erosion and sediment transport under normal rainfall conditions. Furnas' water and effluent management practices include regular inspections on our facilities and equipment. Inspection reports describe observed issues and recommend improvements. This informs Effluent and Water Quality Monitoring Plans (PMEQA) outlining procedures for managing water and effluent quality (including municipal wastewater, plant wastewater and stormwater).

In 2022 we updated 33 PMEQAs. These plans establish guidance, requirements, procedures and measures for controlling and reducing water consumption in order to ensure compliance with applicable regulations and minimize impacts on the environment. See the Impacts on water table for more information on impacts.

Our approach to managing effluents consists of:

1. establishing appropriate methods for monitoring potable **water quality** and plant and municipal wastewater streams, including procedures for ensuring compliance with regulatory water quality standards; and

2. implementing procedures to manage water quality, reduce organic loads in effluents, and **manage the discharge of plant wastewater.**

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The methods we use to evaluate our management approach include surveys, technical meetings and regular updates to the PMEQA. Another important tool is our Environmental Hazards, Risks, Aspects and Impacts (PRAI) Form, which we use to identify environmental aspects and impacts related to the operation and maintenance of our facilities.

In the operation of our hydroelectric power plants, we schedule outflows in a way that optimizes electricity output to ensure a reliable supply to the National Grid, which is currently under the responsibility of the National Grid Operator (ONS). We also routinely collect hydrological and hydrosedimentological data from from our network of monitoring stations.

At the corporate level, our facilities department runs a water savings program in our office facilities that includes:

1. regular preventive maintenance to avoid water leakage

2. installing reduced-flow toilet flushes

3. installing pressure reducers on taps

Water metrics, except turbined water, are monitored by the infrastructure, environment and sustainability departments via the IGS System. Measurements may be made directly or by estimation, in line with best-practice standards and methods.

Performance indicators and targets have been set for each of the prioritized SDGs, and these are periodically monitored by senior management at the strategic and tactical level. They are also included in the Eletrobras Business & Management Master Plan (PDNG) and Furnas' corresponding Business & Management Plan (PNG). Among these targets is reducing consumption of utility-supplied water in office facilities.

We also support our parent company in meeting the Brazilian Business Pledge for Water Security, an initiative of the Brazilian Business Council for Sustainable Development (CEBDS), of which the Eletrobras Group is a signatory.

As another highlight in this area, our current headquarters has been certified LEED Gold for new construction and major renovation (LEED B+C). The building is estimated to be approximately 40% more water-efficient than conventional buildings. The LEED BD+C framework provides guidance on sustainable building and major renovations, and is designed to address environmental challenges while responding to the needs of a competitive market.

With most of our generation assets consisting of hydroelectric plants, our operations can be impacted by disputes over the shared use of water resources. To address this risk, we actively participate in related forums such as river basin committees. The principal matters addressed by these committees include the method of charging for the use of water flowing through hydroelectric plants, disputes over water use by other users (such as irrigation), requests for changes in plant operation rules (such as attempts to limit reservoir storage), and technical explanations about the operation of the plants (such as flow regulation and flood control).


The Luís Carlos Barreto de Carvalho Dam (MG/SP)

With our Santa Cruz thermal power plant located near the mouth of the São Francisco River (RJ), Eletrobras Furnas actively participates in the Guandu Committee, where we follow and provide inputs on the formulation of the water usage charges, ensuring a lower charge for the use of brackish water. The current charge is only 10% of the initial charge, as the company has successfully demonstrated that 99% of intake water is brackish water.

In 2022 Eletrobras Furnas' total water consumption was **2,022.13 megaliters**, while Santo Antônio Energia S.A. consumed 5,000 m^3. Data for Brasil Ventos is not available. No discharges are made in areas with water stress. **GRI 303-5**

Total water consumed is the sum of all water that has been withdrawn and incorporated into products, used in the production of crops or generated as waste, has evaporated, transpired, or been consumed by humans or livestock, or is polluted to the point of being unusable by other users, and is therefore not released back to surface water, groundwater, seawater, or a third party over the course of the reporting period.

Total volume of water withdrawal across all areas and in areas with water stress, by source GRI 303-3

Hydropower (m³)			
	2020	2021	2022
Total volume of turbined water	228,535,084,800	159,477,276,039	184,075,632,000
Total volume of turbined water flow through hydropower dams on rivers experiencing water stress (critical or very critical)	2,846,016,000	2,283,688,918	2,491,344,000
Administrative activities (m³)			
Water withdrawals directly from water bodies	-	41,420.83	27,985.5
Water withdrawals from groundwater sources	155,805.398	121,191.535	68,949.842
Total water withdrawals from utilities	155,175.65	153,858.41	127,840.5
Rainwater harvested	-	6,714.8	1,058.9
Total water withdrawal at sites without water meters, or buildings with shared water meters	-	7,286.6	9,046.9
Thermal generation (m³)			
Water withdrawals directly from water bodies	59,800,864.86	82,565,684.00	50,169,813.2

Data is not available for Brasil Ventos. At Messe MESA, total water withdrawals amounted to 25,000 m³.

Water metrics, except turbined water, are monitored by the infrastructure, environment and sustainability departments via the IGS System. Although the GRI protocol prescribes Megaliters (ML) as the unit of measure, we have reported in millions of cubic meters (m³) for consistency with the water volumes reported in previous years. Consumption estimates where no water meter is present and water withdrawals for transmission operations are included in the total water withdrawals figures, but are not included in the calculations of water discharge and consumption.

Total water discharge to all areas in megaliters, and a breakdown of this total by the following types of destination, if applicable GRI 303-4

	2020	2021	2022
Discharge into water bodies	Volume of water discharged (m³)		
Total water discharge into rivers with water stress	2,846,016,000	2,283,688,918	2,491,344,000
Water discharged by operations (Total)	**228,595,172.71**	**159,559,399,412**	**184,126,611.47**

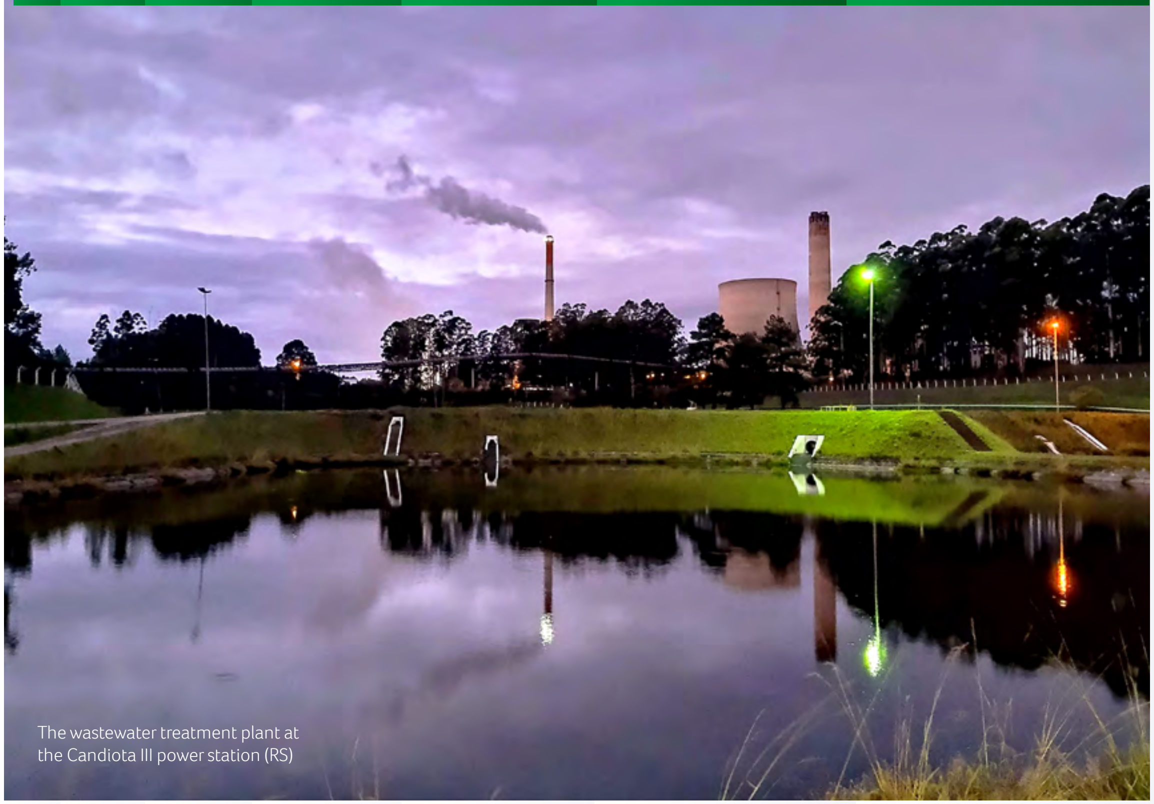
Data is not available for Brasil Ventos. For MESA, total water discharge was 20,000 m³, resulting in a consolidated discharge of 184,129,048,696.56 m³ for Eletrobras Furnas.

Water is discharged into freshwater bodies in accordance with applicable regulations.

Total water discharge is the sum of effluents, used water, and unused water released to surface water, groundwater, seawater, or a third party, for which the organization has no further use, over the course of the reporting period. The water discharge volumes reported by Eletrobras Group companies in 2022 include the volume of turbined water flow through hydropower dams, the volume of water returned to the rivers and oceans from the hydropower dams, and the volume of water used in aquaculture and protected areas, as well as 80% of the volume of water used for administrative activities.

Consumption estimates where no water meter is present and water withdrawals for transmission operations are included in the total water withdrawals figures, but are not included in the calculations of water discharge and consumption.

Total water consumed is the sum of all water that has been withdrawn and incorporated into products, used in the production of crops or generated as waste, has evaporated, transpired, or been consumed by humans or livestock, or is polluted to the point of being unusable by other users, and is therefore not released back to surface water, groundwater, seawater, or a third party over the course of the reporting period.



The wastewater treatment plant at the Candiota III power station (RS)

WATER AND EFFLUENT MANAGEMENT

GRI 3-3, 302-4, 302-5, 303-1, 303-2, 303-3, 303-5

6 7 8 9 12 13 15

Our approach to managing water and effluents is guided by the Eletrobras Group Environmental Policy and Water Resource Policy, and aligned with the SDGs prioritized in our 2020-2035 Strategic Plan, in particular SDG 7 – Affordable and Clean Energy, SDG 13 – Climate Change and SDG 15 - Life on Land.

The goal of the policy is to ensure water resource availability and quality, and to mitigate any negative impacts from our operations.

Data is monitored on a quarterly basis via our Corporate Sustainability Disclosures System (IGS 2.0). We perform statistical analysis on the most significant changes to assess the consistency of reported data, as these anomalies may result from deviations from routine procedures.

This allows us to track patterns in water usage and effluent discharge and establish strategies, plans, and goals to enhance environmental performance within the company. Our aim is to continually improve sustainability-related processes. Our practices to achieve this include:

- reusing treated effluents in our thermal power plant
- installing water meters to quantify groundwater and surface water withdrawals
- using rainwater harvesting systems at some transmission facilities
- using smart systems to reduce water consumption in offices
- troubleshooting water leaks

We are currently installing flow meters in our water intake pipelines to measure surface water withdrawals.

Periodic Monitoring GRI 2-25, 2-29

Opportunities arising from our water management, water savings, water efficiency, reuse and rainwater harvesting practices, and our approach to managing the river basins hosting our hydroelectric dams and to using water resources sustainably, are described in the Eletrobras Group Environmental Policy, which draws guidance from the Brazilian National Water Resources Policy (Law no. 9,433/1997).

Water withdrawals and water quality are monitored in all our operations. Operational data is also monitored and provided to the appropriate authorities. All our operations have environmental licenses and, under those licenses and whenever required by environmental authorities, reports are issued on water and effluent quality monitoring results. All operations have permits for water withdrawal.

STAKEHOLDER ENGAGEMENT

Eletrobras Group companies engage stakeholders in awareness-raising, education and compliance surveillance activities. Other forms of engagement include our Reservoir Bank Environmental Conservation and Usage Plan (PACUERA) and the Ijuí River Basin Committee, where we engage in discussions on shared water use. The monitoring results for the Candiota watershed inform targets to reduce water consumption and effluent discharge under our Water Resource Management Plan. In addition to our Ombudsman, we have a dedicated channel for addressing environment-related concerns.

At our thermal power plant, water is withdrawn directly from an impoundment on the Candiota River. The water is used for cooling, steam generation, ash spraying and human consumption, as well as for yard and equipment washing. Water consumption in industrial applications includes losses, evaporation and ash spraying.

Biomonitoring is carried out at eight sampling stations along the course of the Candiota River, covering an area of approximately 800 km2. The assessment results are reported to the environmental regulator (IBAMA), which is co-responsible for environmental management alongside the State Animal Protection Foundation (FEPAM) and other stakeholders.

The Candiota River is part of the Mirim Lagoon and São Gonçalo Channel Watershed (L040). This watershed is registered with the Rio Grande do Sul State Environmental Authority and has an active River Basin Committee of which Eletrobras CGT Eletrosul is a member, contributing to enhanced management of water resources.

For administrative activities, water for consumption is largely supplied by local water utilities. In decentralized operations, water withdrawals are mostly sourced from groundwater.

In transmission operations, water consumption is negligible.

In hydroelectric operations, intake water is returned in its entirety to the downstream water body with the same level of quality as at the intake. Eletrobras CGT Eletrosul has no power plants in areas with water stress.

Water consumption by source(1 to 10) (thousands of m³) (2) GRI 303-3, 303-4 (3), 303-5 (4)

Water withdrawals(5 and 6)	2020	2021	2022
Administrative activities	64.97	58.82	88.20
Surface water	0.39	0.54	0.26
Groundwater	45.74	39.82	64.37
Rainwater	0.33	0.12	0.10
Utility water	18.50	17.89	22.69
Where no meter is present (estimated consumption)	-	-	0.78
Thermal power generation	7,487.71	12,527.09	9,400.19
Surface water	7,487.71	12,527.09	9,400.19
Wind power	0.02	0.15	0.18
Groundwater	0.02	0.15	0.18
Hydropower	6,492,929.80	7,609,181.04	8,038,410.55
Surface (turbined water)	6,492,929.80	7,609,181.04	8,038,410.55
Total water withdrawal (7)	6,500,482.50	7,621,767.10	8,047,899.02
Total water discharge(8)	6,500,417.92	7,611,787.98	8,040,679.91
Total water consumed (9)	64.58	9,979.62	7,218.32

(1) There are no hydroelectric dams and no water is discharged in water-stressed rivers.

(2) Although the GRI protocol prescribes Megaliters (ML) as the unit of measure, we have reported in millions of cubic meters (m³) for consistency with the water volumes reported in previous years.

(3) Total water discharge is the sum of effluents, used water, and unused water released to surface water, groundwater, seawater, or a third party, for which the organization has no further use, over the course of the reporting period.

(4) Total water consumed is the sum of all water that has been withdrawn and incorporated into products, used in the production of crops or generated as waste, has evaporated, transpired, or been consumed by humans or livestock, or is polluted to the point of being unusable by other users, and is therefore not released back to surface water, groundwater, seawater, or a third party over the course of the reporting period.

(5) The figures are not broken down by freshwater and other types of water, as water is only withdrawn from and discharged into freshwater rivers (total dissolved solids ≤1,000 mg/L).

(6) Consumption estimates where no water meter is present are included in the total water withdrawal figures, but are not included in the calculations of water discharge and consumption.

(7) Total rainwater harvested for use in office facilities is not included in the water withdrawal, discharge and consumption calculations.

(8) The total water discharge figures are for the Candiota III thermal plant only and do not include hydroelectric dams, as the water flowing through these facilities is not consumed.

(9) In 2021 we adjusted our procedures for calculating water consumption, which is now based only on the consumption at the Candiota III thermal power station. Eletrobras Group companies consume no water in areas with water stress. In 2022 there were no changes in water storage methods from previous years.

(10) Water metrics, except turbined water, are monitored by the infrastructure, environment and sustainability departments via the IGS System.

Discharge Management GRI 303-1, 303-2, 303-4

At Candiota III, the maximum discharge of treated effluent under the facility's Operation License is 15,600 m^3/day. Wastewater/effluents are discharged into the Candiota River, which is classified under Conama Resolution 357/2005 as class II freshwater.

All losses are piped to a wastewater treatment system, along with the rainwater runoff from industrial areas, to ensure compliance with environmental legislation and the Operating License requirements of the facility.

Following treatment, effluents are partly recycled back to the facility, and the surplus returns to the Candiota River, meeting the requirements for effluent discharge as stipulated by Conama Resolution 357/2005. At our thermal power plant, water is withdrawn from the Candiota River for consumption in the generation process, for cooling and for washing. We have two impoundments along the river, one for storage and the other for the water intake, both licensed by the National Water Agency (ANA) and compliant with minimum stream flow requirements.

The Candiota Watershed is used for multiple purposes including manufacturing, mining, agriculture and municipal water supply. Our thermal power plant generates liquid effluents that, after appropriate treatment, are partly recycled back to the plant, with the surplus returned to the Candiota River, the same water body from which the water is sourced, meeting the requirements for effluent discharge in the state of Rio Grande do Sul.

The main impact on the Candiota River arises from the large-volume water intake and consumption in the water-intensive thermal power generation process. There is no direct impact on river water quality from the thermal power generation process.

The priority substances of concern for which discharged water is treated are defined in an Effluent Monitoring Plan that is compliant with the facility's environmental license, Conama Resolutions 357/2005 and 430/2011, and Consema/RS Resolution 355/2017. We take daily measurements of stream flow, pH, temperature, hardness, suspended solids, settleable solids, DQO and oil and grease. We also perform weekly tests for 19 heavy metals and other analytes established in Consema/RS Resolution 355/2017.

Emissions limits are established in regulator resolutions per unit of effluent discharge; the higher the discharge volume, the lower the concentration limit. Parameters such as oils and grease, as well as suspended solids, are continuously monitored considering that the plant runs on solid fuel. Any deviations in control parameters are acted upon by adjusting the power plant and effluent treatment processes, ensuring that effluent quality is immediately corrected to comply with applicable standards. There are no known standards in the electricity sector for water discharge.

In other facilities, we generate municipal wastewater that is directed to the municipal sewer system whenever available. Where no municipal sewer system is available, sewage is generally directed to a septic drain field. The septic system is licensed together with the associated facility.

Gestão de água e efluentes GRI 3-3, 303-1, 303-2 , 303-4

A água é a principal matéria-prima para a operação da Eletrobras Eletronorte. Por isso, prezamos por uma gestão eficiente e sustentável de água e efluentes, o que é essencial para permanecermos prestando um serviço de qualidade à sociedade sem comprometer a sustentabilidade de ecossistemas.

O processo de estabelecimento de metas e objetivos relacionados à agua é norteado pela Política Ambiental da *holding* e realizado pelo Sistema IGS Ambiental. Um dos indicadores monitorados via IGS é o consumo de água pela Eletrobras Eletronorte administrada por rede de abastecimento, que indica a qualidade da água dos reservatórios das usinas hidrelétricas e possui meta de redução.

A Eletrobras Eletronorte não tem operações em áreas de estresse hídrico. No entanto, seus processos se relacionam com políticas públicas através do estabelecimento de objetivos, entre os quais destacam-se: elaborar e implantar o Termo de Cooperação Técnica com órgãos ambientais para fiscalização das áreas dos reservatórios das usinas, a fim de manter em zero os novos focos de degradação ambiental nas margens do reservatório, e atender condicionantes de licenciamento ambiental e demais requisitos legais aplicáveis para desenvolver 100% dos programas ambientais das usinas.

Para monitorar os efluentes, a Eletrobras Eletronorte realiza anualmente auditorias ambientais nas quais são avaliadas as ações de atendimento à legislação e os demais compromissos relacionados ao tema.

Os parâmetros prioritários que requerem atenção, para os quais há necessidade de tratamento do descarte são definidos nos Planos de Monitoramento de Efluentes que contemplam o acompanhamento trimestral de 25 parâmetros, além dos parâmetros, semanalmente, monitorados como pH, temperatura, cor aparente, turbidez, Sólidos Suspensos Totais (SST), Sólidos Dissolvidos, Sólidos Sedimentáveis (SS), Sulfato e Cloro Residual. A definição dos valores máximos permitidos (VMP) para cada parâmetros são estabelecidos nas resoluções dos órgãos de controle e nas licenças de operação. São pontos de atenção permanente o parâmetro óleos e graxas. Eventuais desvios identificados nos parâmetros de controle subsidiam adequações nos processos industriais e de tratamento de efluentes, visando a correção imediata da qualidade do efluente líquido descartado, de forma a atender a legislação aplicável.

Os efluentes gerados pelos empreendimentos da Eletrobras Eletronorte são monitorados periodicamente, conforme determinado nas Licenças de Operação, para verificação dos padrões de lançamento. A empresa busca atender aos padrões da legislação pertinente, como as Resoluções Conama 357/2005, 396/2008 e 430/2011, que dispõem sobre a classificação e diretrizes ambientais para o enquadramento das águas subterrâneas e superficiais e estabelecem as condições e padrões de lançamento de efluentes.

No processo produtivo de geração de energia elétrica por meio de nossas usinas hidrelétricas, a água retirada não é consumida, parcial ou totalmente, no processo a que se destina. Em vez disso, todo o volume de água utilizado para a geração é restituído à foz dos barramentos com qualidade semelhante à sua captação.

Os principais objetivos da gestão de água e efluentes:

- Eficiência ao utilizar os recursos
- Igualdade na alocação das águas entre todos os grupos socioeconômicos
- Proteção integrada dos ecossistemas e dos recursos hídricos

Os impactos relacionados à água são abordados após a definição das condicionantes de licenciamento e da identificação dos aspectos ambientais significativos relacionados ao tema. São estabelecidas medidas de controle, como os monitoramentos periódicos, e desenvolvidos programas socioambientais que visam, entre outros, a conscientização dos colaboradores e comunidades circunvizinhas por meio dos programas de educação ambiental e comunicação social. Também estabelecemos requisitos ambientais para fornecedores e parceiros, fomentando o engajamento da cadeia de suprimentos para ações de responsabilidade socioambiental, além dos demais programas de monitoramento relatados.

Em 2022, não houve mudanças nas formas de armazenamento de água em relação ao anos anteriores. No mesmo período, o volume total de água descartada foi de 241.542.950,99 m³, enquanto o de água consumida foi de 2.555.117,34 m³, ante 4.407,36 m³ no ano anterior. **GRI 303-4, 303-5**

Água como fator de impacto

Tipo de empreendimento *	Exemplos de impactos **	Exemplos de ações de mitigação e/ou de compensação
Usinas hidrelétricas	Alteração da dinâmica hidrossedimentológica	Programa de monitoramento hidrossedimentológico
	Alteração do regime fluvial/Diminuição de vazão a jusante	Programa de monitoramento hidrossedimentológico
	Alteração nos níveis dos lençóis freáticos	Programa de monitoramento hidrogeológico/Programa de Monitoramento do lençol freático e da qualidade das águas subterrâneas
	Alteração do regime de lótico para lêntico	Programa de monitoramento da qualidade da água
	Alteração da qualidade da água superficial	Programa de monitoramento da qualidade da água
	Erosão das margens do curso hídrico a jusante do reservatório	Monitoramento da erosão/Reposição de mata ciliar
	Usos múltiplos pela formação do reservatório	Plano ambiental de conservação e uso do entorno dos reservatórios artificiais - Pacuera
Usinas termelétricas	Uso consuntivo de água no processo de geração	Programa de monitoramento do consumo e qualidade da água
	Possibilidade de contaminação da água por resíduos/vazamento de óleo	Programa de monitoramento da qualidade da água/Plano de Atendimento às Emergências
	Alteração dos parâmetros como temperatura, turbidez e pH na água devolvida	Plano de Monitoramento da Qualidade da Água e Efluentes
Linhas de transmissão e subestações	Uso consuntivo de água no processo de transmissão/Uso consuntivo de água para conversão de corrente	Programa de monitoramento do consumo e qualidade da água /Adição de produto à água de resfriamento capaz de aumentar número de ciclos nas torres de Subestação Conversora
Usinas solares flutuantes (em reservatórios)	Vazamentos de óleo (colapso de equipamentos)	Plano de Contingência/Implantação de bacias de contenção

** Onde o impacto apontado é mais comum de ocorrer, mas não necessariamente ocorre sempre. Independente da fase do projeto/empreendimento.*

*** A intensidade, a magnitude e a importância do impacto dependem do porte do empreendimento e das caraterísticas da região onde será implantado.*

Retirada de água por fonte[1,2] (m^3)*** GRI 303-3

	2021	2022
Atividades administrativas		
Rede de abastecimento	40,42	28,93
Superficial	555,56	553,05
Subterrânea	39,06	59,76
Pluvial	-	0,03
Situações onde não há hidrômetros (consumo estimado)	14,53	11,35
Geração térmica		
Superficial	4067,52	2.116,25
Subterrâneas	209,99	263,94
Geração hidrelétrica		
Superficial (água turbinada)	270.333.049,13	271.939.127,12
Total de água captada[3]	**-**	**271.942.160,42**
Total de água descartada* GRI 303-4*	**-**	**271.939.640,52**
Total de água consumida* GRI 303-5[4]	**-**	**2.508,55**

[1] A Eletrobras Eletronorte não faz captação de água em locais com estresse hídrico.

[2] Em relação às premissas e metodologias usadas para a compreensão dos dados, a Eletrobras Eletronorte, em sua gestão de uso da água, tem como arcabouço fundamental a Política Ambiental das Empresas Eletrobras, concomitante à legislação que norteia o tema. A consistência da geração hidrelétrica é uniforme ao procedimento de transformar a energia potencial da água em energia mecânica por meio de turbina hidráulica. Consequentemente, a energia mecânica agrega - via turbina e gerador - a conversão em energia elétrica. Em termos de mensuração, as unidades administrativas que utilizam os serviços de companhias de água e esgoto obtêm dados por meio das respectivas faturas mensais. Quando utilizados poços tubulares profundos e sem hidrômetros, a mensuração é feita pela quantidade estimada de consumo de água dividida pelo número de empregados da unidade administrativa específica.

[3] O consumo estimado em situações onde não há hidrômetro foi considerado no total de água captada, mas não está sendo considerado nos totais de água descartada e consumida.

[4] O total de água consumida considera a soma de toda a água que foi retirada e incorporada em produtos, usada na produção de culturas ou gerada como resíduo, que evaporou, transpirou ou foi consumida por seres humanos ou gado, ou está poluída a ponto de ser inutilizada por outros usuários, e, portanto, não é liberada de volta às águas superficiais, subterrâneas, marítimas ou de terceiros durante o período coberto pelo relatório.

** O total de captação pluvial do consumo das atividades administrativas não está sendo considerado nos cálculos de água captada, descartada e consumida.*
*** O total de água descartada considera a soma dos efluentes, da água usada e da água não utilizada liberada para as águas superficiais, subterrâneas, marítimas ou de terceiros, para as quais a organização não tenha mais uso, durante o período coberto pelo relatório.*
O monitoramento dos indicadores de água, com exceção da água turbinada, é realizado por meio do Sistema IGS pelas áreas de infraestrutura, meio ambiente e de sustentabilidade.
Não há necessidade de discriminar as fontes de captação de água separando nas categorias de água doce e outros tipos de água, porque somente temos captação e realizamos descarte em rios de água doce (sólidos dissolvidos totais ≤1.000 mg/L).
**** Apesar do protocolo GRI utilizar a unidade de medida em megalitros (ML), reportamos em milhões de m^3 para manter consistência com os reportes dos volumes de água dos anos anteriores.*

CAPTAÇÃO, CONSUMO E DESCARTE **GRI 303-1, 303-2**

Historicamente, o maior consumo de água da Eletrobras Eletronorte concentrava-se nas atividades administrativas, mas com a incorporação da Amazonas GT, o uso da água nas atividades das usinas termelétricas passou a figurar parte significativa do consumo. Nesse contexto, a termelétrica Mauá 3 utiliza o processo de reúso da água da torre de resfriamento em vez do resfriamento direto, o que traz benefícios ambientais como:

- Menor impacto ambiental na captação de água em função da vazão requerida, bem menor que no caso do resfriamento direto;
- Impacto ambiental praticamente nulo no descarte, uma vez que a temperatura da água é praticamente igual à do corpo receptor.
- A mudança da sede da Eletrobras Eletronorte em 2022 para o Centro Corporativo Portinari, em Brasília, trouxe a potencial redução de cerca de 49% do consumo de água potável em sanitários e 100% do consumo de água potável no sistema de irrigação.

Em relação ao descarte, nas usinas hidrelétricas Tucuruí e Samuel existem Estações de Tratamento de Esgoto (ETEs) com monitoramento laboratorial da qualidade da água lançada no corpo hídrico.

Nas usinas hidrelétricas Curuá-Una e Coaracy Nunes, o lançamento é realizado em fossas sépticas e há monitoramento. Nas subestações e sedes das unidades regionais, em sua grande maioria, o descarte também é realizado em fossas sépticas. Na sede da empresa em Brasília e em alguns escritórios regionais, o descarte é realizado na rede de esgoto da concessionária de saneamento local.

Quanto à sua captação, a água utilizada nas usinas térmicas é retirada tanto de corpo hídrico superficial quanto subterrâneo, sendo utilizada no resfriamento das máquinas, nos sistemas auxiliares e na produção de água desmineralizada e descartada em corpo hídrico receptor após o uso. Um programa de monitoramento verifica se o efluente lançado atende aos padrões legais.

Nas usinas hidrelétricas Tucuruí, Samuel e Coaracy Nunes, a captação de água é realizada diretamente no corpo hídrico superficial, sendo tratada em Estações de Tratamento de Água (ETAs). Além disso, as usinas Tucuruí e Samuel fazem captação e armazenamento de água da chuva para uso na limpeza, conservação e jardinagem.

Na usina hidrelétrica Curuá-Una, em parte do consumo da usina hidrelétrica Samuel e na grande maioria das subestações e sedes das unidades regionais, a água é captada em poços tubulares profundos. Na sede da empresa, em Brasília, e em algumas unidades descentralizadas, a água é fornecida pela concessionária local de água e esgoto. Para consumo humano, é utilizada água mineral adquirida de fornecedores credenciados.

A Eletrobras Eletronorte tem como base para sua gestão de uso de água a Política Ambiental das Empresas Eletrobras, acompanhada pela legislação aplicável. A geração de energia hidrelétrica na Eletrobras Eletronorte é realizada através do processo de transformação da energia potencial da água em energia mecânica por meio de turbinas hidráulicas e posterior conversão em energia elétrica.

> A Eletrobras Eletronorte segue rigorosamente as políticas e regulamentações relacionadas ao uso da água, garantindo a eficiência e sustentabilidade em sua geração de energia

A mensuração do consumo de água é feita com base nas faturas mensais de serviços de água e esgoto para as unidades administrativas que as utilizam. Em casos em que não há hidrômetros, a mensuração é feita com base na quantidade estimada de consumo de água dividida pelo número de empregados da unidade administrativa em questão.

Em resumo, a Eletrobras Eletronorte segue rigorosamente as políticas e regulamentações relacionadas ao uso da água, garantindo a eficiência e sustentabilidade em sua geração de energia. Além disso, a mensuração do consumo de água é realizada de forma precisa e eficiente, garantindo o correto monitoramento do seu uso.