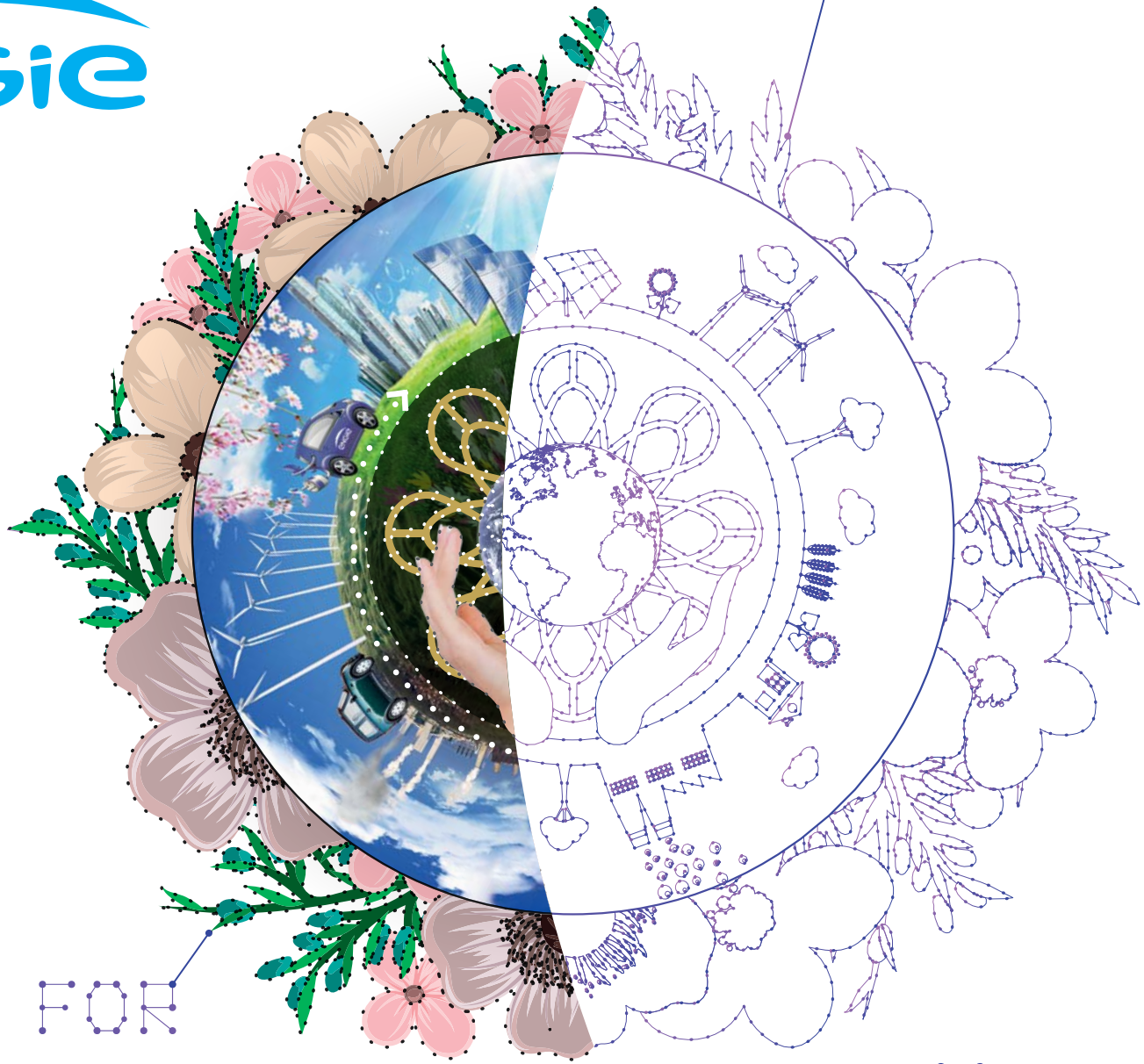
ENGIE

Sustainability Report 2018



Energy for harmonious progress

Supplements

Dear reader,

This brochure supplements ENGIE Brasil Energia's 2018 Sustainability Report and introduces to stakeholders a detailed, in-depth view of the Company's indicators and of how it manages material environmental aspects and **relationships with priority stakeholders for business value creation**.



2018 Sustainability Report

A Report focusing on the Company's **business model** and **strategy**, and on the **main highlights/overview** of its socio-environmental management.



Supplements brochure – Socio-Environmental Management

A Report that adds detail and depth to indicators and to how the Company manages material **environmental aspects**, as well as to **relationships with key publics** for business **value generation**.

As a leader of the energy sector, ENGIE has always been a pioneer, clearing the way to new horizons. The more we see the world as an arena of opportunities, the more collaborative we must be to capture their potential. Our purpose is to contribute to harmonious progress.

#ENGIEHarmonyProject



BROCHURE 1

Responsible Environmental Management

Respect for the environment is a fundamental value for ENGIE Brasil Energia. Looking beyond legal compliance, we continually analyze the environmental aspects and impacts of our activities, based on monitoring and control programs and actions, and adopt a series of volunteer initiatives to conserve natural resources an minimize impacts.

Overview of Environmental Management in 2018

Renewal of 4 operating licenses

Valid to 2022
- Cidade Azul Photovoltaic Solar Plant
- Jorge Lacerda Thermal Plant – Unit C

Valid to 2023
- Ferrari Thermal Plant
- Jaguara Hydroelectric Plant

12 NBR ISO 14001-certified projects

9 hydroelectric plants | 3 thermal plants
- 83.6% of installed capacity
- 95.2% of net electric energy generation

67 environmental targets set
- 72.7% attained or with related actions underway

Environmental goal status by Plant (as of 12/31/2018)

Project	Total goals	Attained	Not attained	With actions underway	Percentage of goals attained*
Jorge Lacerda Thermal Complex	5	2	3	0	40.0%
Cana Brava Hydroelectric Plant	6	5	1	0	83.3%
Estreito Hydroelectric Plant	6	6	0	0	100.0%
Itá Hydroelectric Plant	6	5	0	1	100.0%
Machadinho Hydroelectric Plant	7	7	0	0	100.0%
Passo Fundo Hydroelectric Plant	7	4	3	0	57.1%
Ponte de Pedra Hydroelectric Plant	8	4	4	0	50.0%
São Salvador Hydroelectric Plant	7	7	0	0	100.0%
Salto Osório Hydroelectric Plant	8	4	4	0	50.0%
Salto Santiago Hydroelectric Plant	7	4	3	0	57.1%
TOTAL	67	48	18	1	72.7%

* Disregards goals with actions underway.

Biodiversity

GRI 103-1; 103-2; 103-3; 304-1; 304-3

Scenario

We are aware of our operations' influence on biodiversity, and analyze impacts to make sure that effective management measures are taken to minimize negative impacts and generate positive ones to maintain biodiversity and protect species and ecosystems.

In projects being implemented, Fauna Conservation Programs seek to ensure the safety of the animals living in each region, reducing the negative impacts of plant-life suppression and contributing to maintaining the local biodiversity. For example, in the Bahia state Campo Largo and Umburanas Wind Complexes project 7,242 animals were rescued.

Company teams monitor any changes in the local fauna's behavior or in the number of species and individuals identified over the course of the project's implementation and operation to enable actions to prevent or mitigate impacts. In addition, this monitoring effort contributes to the collection of quantitative and qualitative data for scientific research.

The Biodiversity Matrix project, which has been in place since 2017, aims to identify animal and plant species in the areas near operating plants and the Conservation Units (CUs) close to the projects. The project is unprecedented in the sector and comprehends the six Brazilian biomes. It helps set environmental management and handling guidelines, reinforcing mechanisms for the protection of species and ecosystems.

Main Potential Impacts

Impacts

- Plant-life suppression
- Behavioral changes in the local fauna or change in the number of species and individuals

Mitigation steps taken

- Wildlife conservation, rescuing and safekeeping animals
- Ichthyofauna conservation
- Plant-life restoration

"Monitoring and conservation of endemic species - such as fish in reservoirs of hydroelectric power plants - are part of the **Company's commitment to the preservation of the environment.**"



Highlights of the Biodiversity Matrix project

BIODIVERSITY MATRIX
ENGIE

10 Parameters Analyzed

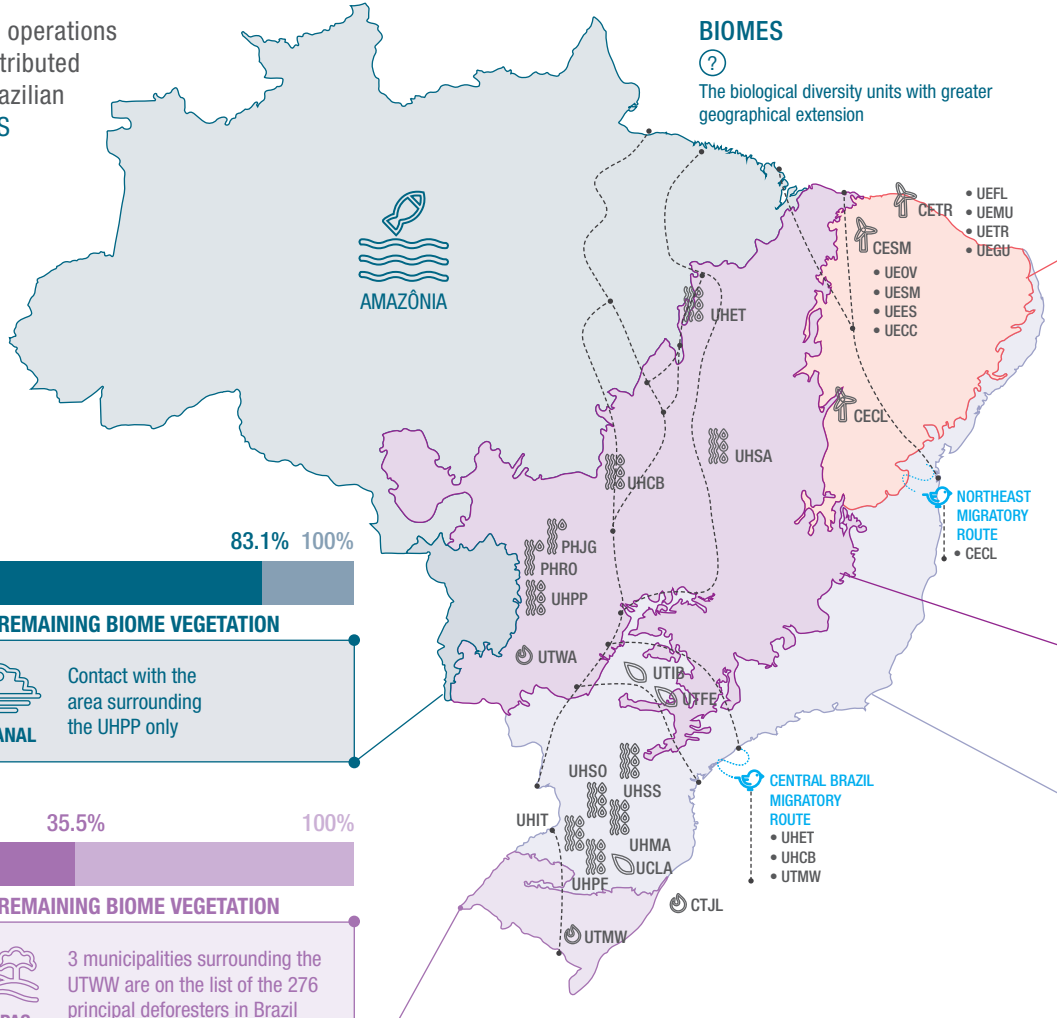
8 Incident Parameters

BIOMES
PHYTO-ECOLOGICAL REGIONS
VEGETATIONAL FORMATIONS
PRIORITY AREAS
CONSERVATION UNITS
INDIGENOUS LANDS
IMPORTANT BIRD AND BIODIVERSITY
MIGRATORY BIRDS

NO INCIDENTS

Ramsar WETLANDS
UNESCO WORLD HERITAGE

The 26 operations are distributed in 5 Brazilian BIOMES



BIOMES

The biological diversity units with greater geographical extension

0% 83.1% 100%

REMAINING BIOME VEGETATION

PANTANAL

Contact with the area surrounding the UHPP only

0% 35.5% 100%

REMAINING BIOME VEGETATION

PAMPAS

3 municipalities surrounding the UTWW are on the list of the 276 principal deforesters in Brazil

1 | **STEPPE**

0% 53.4% 100%

REMAINING BIOME VEGETATION

CAATINGA

All ENGIE Brasil Energia's wind farms are located in the only biome which is exclusively Brazilian

9 | **SAVANNA**

0% 51.2% 100%

REMAINING BIOME VEGETATION

CERRADA

Incorporates the largest diversity of energy sources in the generator complex

4 2 1 1

SAVANNA

0% 21.9% 100%

REMAINING BIOME VEGETATION

ATLANTIC RAINFOREST

The most deforested biome in Brazil, and where the largest part of the Company's installed power capacity is located

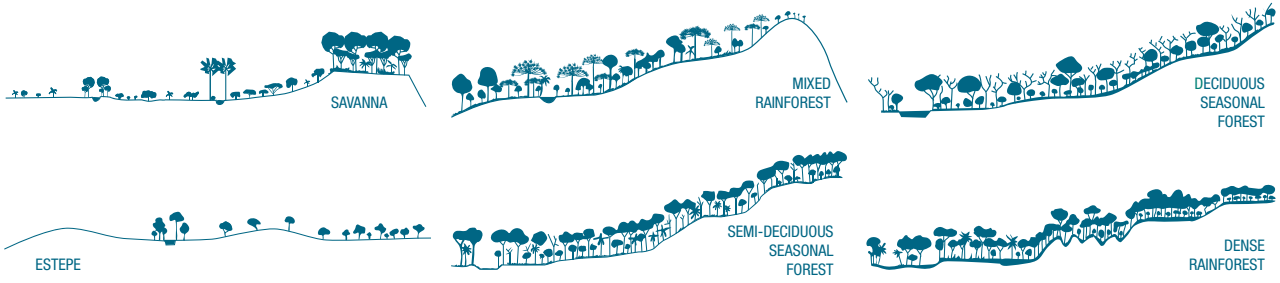
5 1 1

MIXED RAINFOREST
DENSE RAINFOREST
SEASONAL DECIDUOUS FOREST
SEASONAL SEMI DECIDUOUS FOREST

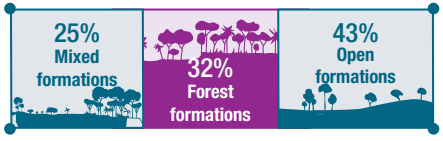
PHYTO-ECOLOGICAL REGIONS

Forest categories and characteristic biological forms which are repeated in the same climate and at the same altitude

6 of the 9 Brazilian **PHYTO-ECOLOGICAL REGIONS**, in addition to restinga moist broad leaf Restinga forest are found in ENGIE Brasil Energia's Generator Complex



ASPECTS OF THE VEGETATION in the Company's Generator Complex



UHET and **UHCB** in the Cerrado are the only operations in the **AREA OF ECOLOGICAL TENSION** (Contact between 2 or more Phyto-ecological Regions).



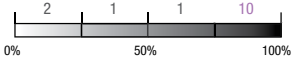
PRIORITY AREAS

Tool for guiding strategies of biodiversity conservation (public policies, licensing, conservation units)

14 OPERATIONS overlap **17 PRIORITY AREAS**

8 6

10 with a high % of overlap.



Considering the surrounding areas: **37 PRIORITY AREAS** divided in 4 classes of **Biological Importance**

Extremely High	16
Very High	13
High	7
Little Known	1

PRIORITY ACTIONS most cited in the regions of the generator complex

- Creation of Conservation Units
- Creation of Mosaics and Ecological Corridors

UETR and **UEMU** show a high degree of overlapping with 5 different Priority Areas

CONSERVATION UNITS

Territorial spaces, including their respective natural resources, created for preserving different populations, habitats and ecosystems

19 OPERATIONS **20 CUs** in their surrounding area

11 2 7

8 SUSTAINABLE USE

Direct use of natural resources permitted

Environmental Protection Area of the Lagoinha Dunes **CETR e CESM**

12 INTEGRAL PROTECTION

Preservation and use restricted to tourism, research and education

Rio dos Touros Ecological Station **UHSS and UHSO**
Natural Monument of the Fossilized Tress **UHET**

UHIT has contact with 3 Integral Protection Units, 2 of them established and supported by the Company

Parque Estadual Fritz Plaumann

Parque Natural Municipal Mata do Rio Uruguai Teixeira Soares

MIGRATORY BIRDS

Strategic document for licensing energy sector operations, especially wind farms

12 OPERATIONS with **AREAS OF CONCENTRATION** in their surrounding area

CTJL is completely inserted in an area with 60 species of Migratory Birds

4 OPERATIONS with **REPRODUCTIVE AREAS** in their surrounding area

UCLA is totally inserted in a Reproductive Area with individuals of the Red Spectacled Parrot species vulnerable

IMPORTANT BIRD AND BIODIVERSITY AREAS

Locations of international importance for bird conservation

8 OPERATIONS with **8 IBAs** surrounding them

36 birds globally threatened

2 birds threatened with extinction

UHET together with two IBAs:

- 13 globally threatened birds and 1 threatened with extinction
- More than 50% of the species with restricted distribution

INDIGENOUS LANDS

Federal Government Land, inhabited by one more tribes with environmental resources necessary for their wellbeing and physical and cultural reproduction

11 OPERATIONS with **12 INDIGENOUS TRIBAL LANDS**

SITUATION	
Declared	5
Regularized	5
Demarcated	1
Submitted	1

11 1

10 1 1

Main Projects

Wellsprings preservation

In 2018, we developed the Wellsprings Preservation Program with the Brejo da Brásida Residents Association in Sento Sé (BA), the region that houses the Campo Largo and Umburanas Wind Complexes. The Program, which had technicians from the Federal University of the Vale do São Francisco (UNIVASF) as partners, was intended to recover and protect wellsprings in three communities, including cleaning and saplings planting and fencing. As an additional benefit, the Program provided environmental education and awareness to the population and allowed rehabilitating the water well of the Como Rodoleiro community, in Umburana (BA).

Plant-life restoration

ENGIE Brasil Energia undertakes special restoration programs to recover areas degraded because of project implementations. Initiatives include reforestation with native species and other steps to enable bringing the local habitat to a situation close to that found before the construction works.

Another practice that helps conserve biodiversity is the Saplings Planting and Donation Program, which includes growing native species from the plants' regions and distributing saplings to the local communities.

In projects undergoing implementation, concern with plant-life recovery is also present. Around the Pampa Sul Thermal Plant alone, 120 thousand saplings of native species have been planted in 84 hectares, not to mention actions intended for the collection and allocation of plant germplasm (seeds).

Around the Campo Largo and Umburanas Wind Complex, the Company recovered degraded areas by means of the planting of 26.7 thousand saplings and the implementation of a saplings and seedlings nursery with 2 million seeds collected and 636 thousand planted including:

- 74 native species
- 10 protected species (with 3,308 saplings planted)

“In 2018, a total of **414 thousand saplings** were planted and donated in the areas surrounding the Plants, surpassing the company's annual goal for all Plants by **64.5%.**”



Water

Scenario

GRI 103-1; 103-2; 103-3; 303-1; 303-2; 303-3; 306-1

Our commitment to hydro resources conservation pervades all of ENGIE Brasil Energia's activities. We remain attentive to consumption indicators, opportunities for re-use, and wastewater quality.

Main Potential Impacts

Impacts

Thermal plants
- Change in the quality of the water in the bodies where water is emitted
- Change in the groundwater under the coal yard
- Change in water bodies' flow rate due to water outtake/consumption

Hydro plants
- Change in water bodies' flow rate in reservoirs

Mitigation steps taken

Thermal plants
- Continued river and ground water quality monitoring
- Effluents treatment at neutralization stations
- Cooling system to control the temperature of the water returned to rivers

Hydro plants
- Wellsprings conservation
- Multiple reservoir use

Water usage

In 2018, considering all outtake sources, the total volume of water used in operations was 493,096.7 thousand m3, down 1.5% from the previous year. Factors such as lower generation from thermal plants, implying lower consumption, and greater rainwater collection because of the heavy rains, contributed to this reduction.

Total Water Outtake by Source (thousand m³)

Source	2016	2017	2018
Surface waters (includes wetlands, rivers, lakes and oceans)	701,083.4	496,882.4	489,183.9
Ground water	18.9	12.2	12.20
Rainwater (directly collected and stored)	1,199.7	1,499.8	1,480.0
Municipal water supply or supply from other water utilities	2,053.8	2,380.7	2,420.5
Total	704,355.9	500,775.1	493,096.7

Water usage at thermal plants (thousand m³)

	2017	2018
Processing	6,000.8	6,000.9
Cooling	494,752.3	487,070.5
Consumption	6,526.7	4,511.1

Total volume of recycled, re-used and collected rainfall water (thousand m³) *GRI 303-3*

	2016	2017	2018
Recycled	24,601.0 (3.5%)	24,056.9 (4.8%)	25,126.6 (5.1%)
Re-used	2,444.2 (0.4%)	3,383.6 (0.7%)	1,287.9 (0.3%)
Rainwater collection	1,199.7 (0.2%)	1,499.8 (0.3%)	1,480.0 (0.3%)

Water disposal

The amount of water released by the Company is also tracked on a continuous basis by means of physical-chemical and biological analyses.

In 2018, planned water disposal totaled 488,568.1 thousand m³ returned to water bodies at quality and temperature levels in line with the standards provided by the law.

Affected sources of water

Our operations particularly affect the Caveiras River, in the region of the Lages Co-generation Unit, and the Tubarão River, near the Jorge Lacerda Thermal Complex, both in the state of Santa Catarina.

- **Jorge Lacerda Thermal Complex:** we continuously monitor the quality of the water of the Tubarão and Capivari Rivers and the effluents that the Complex generates, in addition to the groundwater under the project's coal yard. All of the Complex's wastewater is sent to ash ponds for neutralization. Furthermore, there is a closed-circuit liquid effluents system, preventing the release of effluents into rivers and enabling water re-use. The cooling system, however, requires returning water to the rivers. Therefore, the impact caused is the increase in the surrounding water temperature, subject to controls to keep it from exceeding the legal limit of 40º C.

- **Lages Co-generation Unit:** the impact caused by the plant's operations is associated with water consumption and effluents release. A neutralization station provides sedimentation physical-chemical treatment before disposal into the river, minimizing the impact of the demineralization of water that is a necessary effect of steam production. As for control of the temperature of the water returned to the river, we adopt procedures similar to those in force at the Jorge Lacerda Thermal Complex.

Main Projects

Hydro resources management outreach

To contribute to the conservation of the hydro resources in the regions where we operate, we are members of six Watershed Committees and participate in the Hydro Resources Boards of the states of Santa Catarina and Paraná, where we discuss, alongside with public- and private-sector institutions, the sustainable use of water by society.

Multiple use of reservoirs

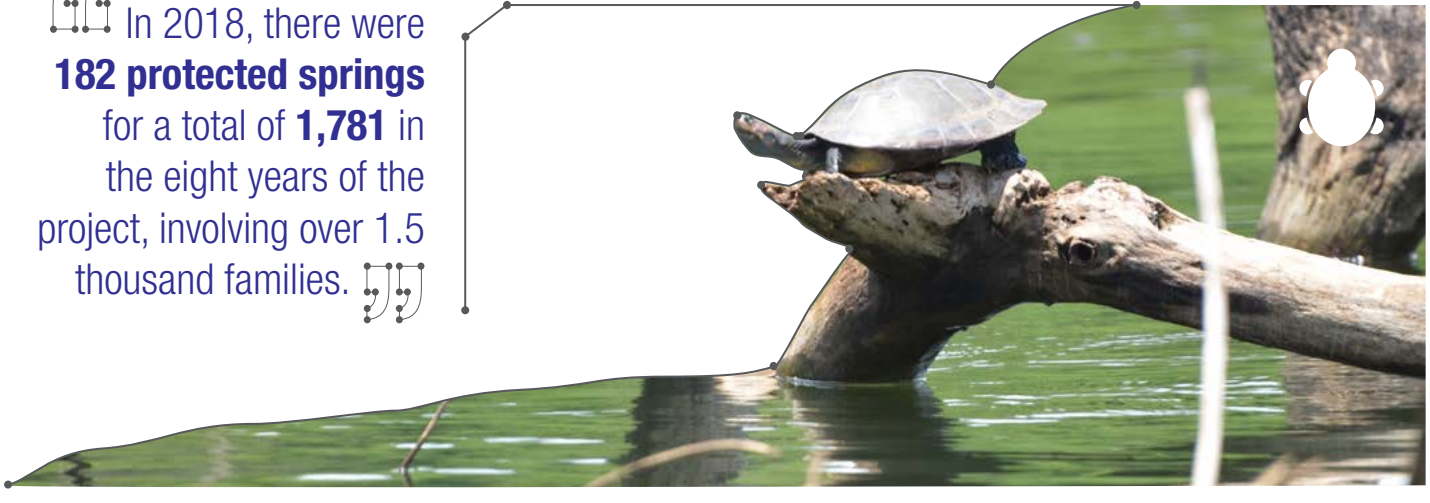
In the areas under the influence of hydroelectric plants, water conservation also involves the multiple use of reservoirs, which the Company governs based on the Environmental Plan for the Conservation and Use of the Surroundings of Artificial Reservoirs (Pacuera), an instrument that the law provides to minimize the negative impacts of activities conducted by communities and other businesses in the projects' region.

Wellsprings conservation

The Wellsprings Protection Program, which began in 2010 in Chopinzinho (PR) and was replicated in several areas where we are active, aims to protect water sources and ensure water supply and quality to local communities' existing and future generations. Through partnerships with social-work entities and the local communities, the Program's results have reached massive scale in recent years.

In 2018, 182 wellsprings received protection, and over the project's eight years, 1,781 did, with more than 1.5 thousand families involved.

> In 2018, there were **182 protected springs** for a total of **1,781** in the eight years of the project, involving over 1.5 thousand families.



Energy

GRI 103-1; 103-2; 103-3; 302-1; 302-3

Scenario

In line with global commitments to meet global warming containment targets, the Company is committed to the adoption of measures to reduce fossil fuels consumption and increase energy efficiency. The commitment is formalized and disseminated in ENGIE Brasil Energia's Sustainable Management Policy.

In 2018, the consumption of energy from non-renewable sources was down 2.3% from the previous year, with significant reductions in the use of gas (LPG) and coal because of reduced generation from thermal plants.

Main Potential Impacts

Impacts

- Electric energy consumption
- Ground fleet and air transportation fuel consumption
- Fuels consumed for thermal generation

Mitigation steps taken

- Preferred use of flex-fuel fleet vehicles, prioritizing ethanol
- Hiring collective transport services for workers at a majority of plants
- Increased use of tele- and video-conferencing, avoiding meeting-related travel

Performance

We reduced the Company's total energy consumption over the year: 56,861,864.43 GJ, down 3.0% from 2017. The reduction was in both grid electricity consumption – a significant 67.1% decrease – and in the consumption of non-renewable fuels and renewable sources, down 2.3% and 0.8%, respectively.

As a consequence, energy intensiveness was also down 11.2%, for a total 0.40 GJ consumed/GJ produced.

The reduction is due mainly to the Company's lower number of hours operating as synchronous compensator, a required condition to balance grid voltage that requires generators to operate as motors, consuming energy. The operation is mandatory and compensated, and conducted as determined by the National Electric Energy System Operator (ONS).



Energy intensity was reduced by 11.2% in the year, totaling 0.40 GJ consumed / GJ produced

In addition, starting in 2018, the methodology we use to measure energy consumption at plants has changed: we now subtract from the total energy consumed the amount of energy generated by the plant itself. That is, the figure now includes only grid energy consumed.

As for fuel consumption, the Jorge Lacerda Thermal Complex, responsible for around 75% of the consumption of fuel by the Company's thermal plants, is NBR ISO 50001 certified. The standard focuses on continuing improvement of energy performance, including efficient energy use aspects. To maintain the certification, several control measures have been adopted and are periodically submitted to internal and external audits.

Energy consumption by the organization (GJ)

	2016	2017	2018
Non-renewable sources			
Diesel Oil	174,667.21	131,189.78	160,411.96
Fuel Oil	63,499.93	123,631.64	124,675.09
Coal	48,770,775.91	45,132,422.85	44,122,138.66
Gas (LPG)	1,681,787.21	84,537.27	0.00
Total	50,690,730.26	45,471,781.54	44,407,225.71
Renewable sources			
Wood biomass	1,320,807.43	2,211,861.23	2,306,668.52
Sugarcane biomass	9,682,965.21	10,032,157.34	9,841,862.20
Total	11,003,772.64	12,244,018.57	12,148,530.72
Grid electricity consumption			
Grid electricity	601,373.90	931,596.12	306,108.00
Total energy consumption	62,295,876.80	58,647,396.23	56,861,864.43

Energy intensiveness (GJ consumed/GJ produced)

	2016	2017	2018
Energy consumed by the Company (GJ)	62,295,876.80	58,647,396.23	56,861,864.43
Energy produced (GJ)	160,532,337.19	130,804,278.33	141,624,012.58
Energy Intensiveness (Energy consumption within the Company /Energy production)	0.39	0.45	0.40

Emissions

GRI 103-1; 103-2; 103-3; 201-2; 305-1; 305-2; 305-3; 305-4

Scenario

We have a purpose and commitment to improve our actions and strategies intended to reduce the business's emissions of greenhouse gases, mitigating climate change and adapting practices and processes to an energy-transition scenario in the face of climate change.

To this end, as part of the actions under the ENGIE Sustainable Management Policy, we periodically take a Greenhouse Gases (GHG) Emissions Inventory that accounts for and quantifies emissions based on concepts and guidelines according to the Brazilian GHG Protocol Program. The inventory is verified by an independent outside party. The inventory's data consolidation takes account of the Program's two approaches: operational control and equity stake.

Main Potential Impacts

Impactos

- Direct and indirect emissions of CO_2, CH_4, N_2O, HFC_S, PFC_S, SF_6 e NF_3 gases
- Light and heavy ash generated from coal-burning thermal plants

Mitigation steps taken

- Clean energy sources are prevalent in the Company's portfolio (89.3%)
- Light ashes are allocated to the cement industry and heavy ashes to asphalt paving
- Renewable energy projects registered with the United Nations Organization (UN) Clean Development Mechanism (CDM).

Goals

The ENGIE group has two non-financial objectives directly related to climate change, to be attained by 2020:

- **More than 25% of its energy mix made up of renewable sources;**
- **At least 20% reduction in the CO_2 emissions index per unit of energy generated in 2020 versus 2012*.**

* It was 443kg CO_2/MWh in 2012.

ENGIE Brasil Energia's direct collaboration with the attainment of these objectives is essential. Our renewable energies mix has always been high, but reached its historical peak in 2018 at 89.3%. For comparison, the rate was 82.8% in 2012, that is, the indicator is up 6.5 p.p. Since then, three thermal plants have been decommissioned and new hydroelectric and complementary (wind and solar) plants joined the plant.

In addition, as part of the Company's commitment to its portfolio's decarbonization, a market survey for potential buyers for the Jorge Lacerda Thermal Complex (SC) and the Pampa Sul Thermal Plant (RS), which is being implemented, remains underway, but without a conclusion so far.



Ash disposal

One of ENGIE Brasil Energia's commitments is to allocate the light ashes produced by its coal-burning thermal plants to cement production. In 2018, 1,424.2 thousand tons of ashes were generated, of which 779.8 thousand tons of heavy ashes and 664.4 thousand dons of light ashes.

A total 1.3 million tons of ashes were allocated to the cement industry in 2018, to be used as a lye substitute and contributing to reduced CO2 emissions. Another 128.6 thousand tons of ashes from biomass-burning plants were allocated to agricultural activities, helping increase soil pH and nutrients, in addition to serving as a sustainable and economically viable alternative to fertilizers.

The heavy ashes produced by the Company's activities are used as a base for asphalt paving and to neutralize soil acidity while recovering coal refuse stacks, thanks to their high pH.

Carbon credits

In 2018, the United Nations Framework Convention on Climate Change (UNFCCC) registered as Clean Development Mechanism (CDM) projects the Campo Largo Wind Complex (Phase I) and the Umburanas Wind Complex, which contribute to the reduction of Greenhouse Gas (GHG) Emissions at a rate of approximately 770 thousand tons per year and 990 thousand tons per year, respectively. The projects are part of ENGIE's CDM Renewable Energies Activities Program in Brazil. All told, ENGIE Brasil Energia has 9 Renewable Energy projects registered with the CDM, including the Campo Largo Wind Complex (Phase I) and the Umburanas Wind Complex (Phase I). Together, these CDM projects are expected to generate around 2.4 million carbon credits per year from the generation of approximately 957 MW of clean and renewable energy.

In addition to their CDM registration, the renewable energy projects in the Activities Program are part of the ENGIE group's Green Bonds funding structure and thereby raise funds internationally to expand renewable energies in Brazil. Out of the 6.25 billion Euros that the Controlling entity raised with green bonds, close to 1.5 billion have been allocated to projects in Brazil. The Company's CDM-registered projects are listed next:

- **Lages Bioenergética:** the 28 MW wood waste-burning thermal plant was one of the first CDM projects registered in Brazil, in 2006. The seventh (and latest) carbon credits verification was completed in March 2017, with 2.5 million tCO2e accumulated over 10 years of CDM.

> Together, ENGIE Brazil projects are capable of generating **2.4 million carbon credits** per year.



- **Trairi Wind Complex:** the four wind farms that form the Complex (Trairi, Fleixeiras I, Guajiru and Mundaú) were registered in 2012 as Brazil's first investments made using the synergies of the CDM and climate-change mitigation policies. The Complex has currently accumulated around 1 million carbon credits available for issue.

- **Santa Mônica Wind Farm:** the project is located in Trairi (CE) and was the first in Brazil under ENGIE's CDM Renewable Energies Activities Program to be registered with the CDM, in September 2016. As such, the Complex raised the curtain on ENGIE's strategy of fostering the expansion of wind and solar energy, among other renewable energy technologies within the context of a consolidated program.

- **Assú V Photovoltaic Plant:** the 30 MW project located in the municipality of Assú do Rio Grande do Norte, was included in the CDM Renewable Energies Activities Program in August 2017 and is the cornerstone of ENGIE's centralized solar generation in Brazil. Generating renewable electric energy since December 2017, the project meets the energy demands of 130 thousand people and offers reduced emissions at a rate of around 45 thousand tCO_2e per year.

- **Campo Largo Wind Complex – Phase I:** operating at full capacity since December 2018, Campo Largo Phase I provides greenhouse gas emissions reduction at a rate of around 770 thousand tCO_2e per year.

- **Umburanas Wind Complex– Phase I:** this is the latest CDM-registered project, and is authorized to generate carbon credits for a period of 21 years starting in January 2019. It is expected to provide reduced emissions of around 990 thousand tCO_2e per year in greenhouse gases.

Performance

In terms of the operational control approach, the Company emitted 4,367,433.91 equivalent tons of Carbon Dioxide (tCO_2e); in terms of the equity stake approach, total emissions were 4,368,848.15 tCO_2e, as per the table next.

Total Emissions (tCO_2e)

	2016		2017		2018		
	Operational Control	Equity Stake	Operational Control	Equity Stake	Operational Control	Equity Stake	YoY Change (%)
Total Emissions	4,839,528.92	4,840,417.84	4,437,836.99	4,437,910.54	4,367,433.91	4,368,848.15	-1.6%

Direct Emissions (Scope 1)

The Company's direct emissions (equity stake) totaled 4,341,640.86 tCO2e, down 1.4% from 2017 and down 9.6% from 2016. The factors leading to the reduction include the decommissioning of the Charqueadas Thermal Plant in late 2016 and the suspension of operations at the William Arjona Thermal Plant since March 2017. In addition, the Jorge Lacerda Thermal Complex reduced its coal-burning emissions (1.42%) because of lower coal consumption (0.29%) and a change in the emission factor (1.13% reduction), because of changes in the reported lower calorific power (LCP).

The plant is the only coal-burning thermal plant still operated by the Company, and answers for more than 99% of the Company's direct emissions.

Direct Emissions (tCO_2e)

	2016		2017		2018	
Emission Sources	Operational Control	Equity Stake	Operational Control	Equity Stake	Operational Control	Equity Stake
Stationary combustion	4,796,867.41	4,795,133.36	4,403,289.31	4,401,752.88	4,339,686.00	4,338,187.06
Direct mobile combustion	536.97	555.09	520.42	537.83	401.60	413.11
Fugitive	574.15	2,207.65	145.0	167.37	321.13	2,973.33
Industrial processes emissions	3,360.39	3,360.39	-	-	-	-
Agricultural activities	23.66	25.81	27.06	30.57	7.79	14.77
Waste	3.76	5.05	14.55	16.00	51.07	52.60
Scope 1	4,801,366.34	4,801,287.35	4,403,996.75	4,402,504.66	4,340,467.59	4,341,640.86



Indirect Emissions (Scope 2)

Total indirect emissions, (in terms of equity stakes) were 12,089.20 tCO2e, down 37.7% from 2017, due, mainly, to:

- 15.3% decrease in the average emission factor of the SIN;
- Lower consumption at the Salto Osório and Machadinho Hydroelectric plants as SIN synchronous compensators (over 98% reduction at both plants).

Indirect Emissions (tCO_2e)

Emission Sources	2016		2017		2018	
	Operational Control	Equity Stake	Operational Control	Equity Stake	Operational Control	Equity Stake
Energy purchased	10,231.74	10,938.15	17,926.97	19,412.44	11,945.92	12,089.20
Scope 2	10,231.74	10,938.15	17,926.97	19,412.44	11,945.92	12,089.20

Other Sources (Scope 3)

Total emissions from other sources were 15,118.09 tCO2e according to the equity stake approach, down 5.5% from 2017. The improved performance is mainly the product of reduced emissions from the transportation of ashes from the Jorge Lacerda Thermal Complex (15.1%), Diesel fuel consumption by third-party vehicles running biomass freight from the Ibitiúva Thermal Plant (17%) and upstream transportation (66%) from the Salto Santiago Hydroelectric plant.

Other Sources (tCO_2e)

Emission Sources	2015		2017		2018	
	Operational Control	Equity Stake	Operational Control	Equity Stake	Operational Control	Equity Stake
Fuel- and energy-related activities not included in Scopes 1 and 2	2.57	2.57	6.69	6.69	5.96	5.96
Transportation and distribution (downstream)	8,788.02	8,788.02	7,326.54	7,326.54	6,519.05	6,415.72
Transportation and distribution (upstream)	17,360.36	17,458.07	7,219.18	7,161.56	7,037.66	7,107.15
Commuting (home-workplace)	304.73	370.00	265.32	334.61	250.39	318.25
Business travel	944.05	1,030.41	891.59	954.14	951.49	1,008.14
Waste from operations	531.11	543.27	203.96	209.90	253.47	260.51
Indirect fugitive	-	-	-	-	2.37	2.37
Scope 3	27,930.84	28,192.34	15,913.27	15,993.44	15,020.40	15,118.09

Emissions intensiveness

In 2018, the emissions intensiveness was down 8.9% according to the operational control approach and down 8.2% under the equity stake approach, indicating significant efficiency gains in operations from the emissions angle.

Emissions Intensiveness ($kgCO_2/MWh$)*

	Operational Control	Change from 2018 (%)	Equity Stake	Change from 2018 (%)
2016	191.7	-3.7	143.6	1.0
2017	202.7	-8.9	157.9	-8.2
2018	184.7	-	145.0	-

* Emissions intensiveness is calculated based on net energy and considers emissions under Scopes 1, 2 and 3.

In 2018, the **emission intensity indicator had an 8.9% reduction** in the operational control approach and a **8.2%** reduction in the equity stake approach, revealing a **significant improvement in the efficiency of the operations** from the point of view of emissions.

Other relevant atmospheric emissions

NO_x, SO_x and other relevant atmospheric emissions (t)

	2016	2017	2018	2018 x 2017 change (%)
NO_x	15,438.99	15,088.57	14,208.20	-5.8
SO_x	100,949.04	105,647.42	114,706.24	8.6
Particulate material (PM)	2,765.76	2,861.99	2,894.02	1.1

NO_x, SO_x and other relevant atmospheric emissions in kg/MWh

	2016	2017	2018	2018 x 2017 change (%)
NO_x	0.35	0.42	0.37	-11.9
SO_x	2.26	2.91	2.996	3.0
Particulate material (PM)	0.062	0.079	0.076	-3.8

Emissions by net generation (total) and combustion units (kg/MWh)

	Total net generation		Net generation from all combustion plants	
	2017	2018	2017	2018
NO_x	0.4269	0.371	4.0077	3.846
SO_x	2.9890	2.996	28.0611	31.046
Particulate material (PM)	0.0810	0.076	0.7602	0.783

Waste *GRI 306-2*

Scenario

Our waste management aims to guarantee environmentally adequate final disposal, as well as the expansion, wherever possible, of the recycling, re-use and materials recovery processes.

To guarantee proper disposal, the Company requires the companies retained to collect and dispose of waste to comply with the applicable environmental law, in particular Law No. 12.305 of 2010, which governs the National Solid Waste Policy.

All of the Company's projects undergoing implementation have in place a Solid Waste Management Program, a set of management procedures prepared based on scientific, technical and legal criteria to establish metrics and guidelines concerning waste management, from the source to their final destination. Program execution is supported by a Waste Management Plan that is shared with all employees and approved by the environmental authorities.

We also extend our best waste management practices to the local communities.

In the area surrounding the Santa Mônica Wind Complex, we continued to implement the Waste Triage Center to encourage selective collection in the municipality of Trairí (CE) and provide the socio-economic integration of local scavengers.

In the municipalities of Sento Sé and Umburanas (BA), we formed a partnership with public authorities to develop the local a Solid Waste Management Plans (PGRS) to achieve compliance with the applicable law, manage risks associated with the topic, foster recycling, and build the community's awareness of the relevance of selective waste collection for environmental preservation. The Plans also include implementation of a small landfill and a project for the remediation of exiting waste disposal areas (open-pit landfills).

Main Potential Impacts

Impacts

- Generation of hazardous waste and disposal in landfills
- Disposal of non-hazardous waste in landfills

Mitigation steps taken

- Solid Waste Management program upon project implementation
- Waste reutilization, recycling and recovery initiatives
- Support to surrounding municipalities' waste-management

> In 2018, the Company registered a decrease of 2.5% in the total waste destined and **recovered 87% of the waste generated.**



Performance

In 2018, the Company's total waste disposal was down 2.5%. In addition to steps focusing on the indicator's continued evolution, the figure reflects the decommissioning of the Charqueadas Thermal Plant in 2017 and, therefore, a zero volume of waste from the coal mine shaft.

Out of the total waste generated, 87.0% have been recovered.

Hazardous waste (t)

Destination	2016	2017	2018
Re-use	50.92	32.30	34.78
Recycling	114.18	46.84	82.12
Incineration (mass burning)	0.03	0.03	0.03
Landfill	191.79	71.78	108.96
Local storage	82.44	51.81	48.94
Co-processing	268.25	404.85	150.32
Total	707.61	607.62	425.14

Non-hazardous waste (t)

Destination	2016	2017	2018
Re-use	3.22	4.19	1.25
Recycling	1,053,046.10	868,470.91	813,440.62
Composting	67.76	70.05	257.01
Degraded areas recovery	690,187.05	510,130.63	632,368.55
Recovery, including energy recovery	78.78	77.60	58.78
Landfill	456.19	559.87	576.79
Coal mine shaft	33,546.94	32,550.00	0
Local storage	21.68	21.45	18.30
Co-processing	34.61	10.82	12.00
Total	1,777,442.33	1,411,895.53	1,446,733.29

Continued waste-management improvement is one of the environmental goals of several plants in our generation complex:

Jorge Lacerda Thermal Complex

- Goal of recovering 65% of waste, reducing shipments to landfills
- Attained, at 77.6% recovery.

Estreito Hydroelectric Plant

- Implementing a composting system with capacity to process 100% of organic waste.
- Attained; system has been implemented and is fully operational.

São Salvador Hydroelectric Plant

- Implementing a composting system with capacity to process 100% of organic waste.
- Attained; system has been implemented and is fully operational.

Ponte de Pedra Hydroelectric Plant

- Goal of recovering 90% of the waste, reducing shipments to landfills
- Attained, at 91% recovery.

Itá Hydroelectric Plant

- Goal of recovering 50% of the waste, reducing shipments to landfills
- Attained, at 50% recovery.

Machadinho Hydroelectric Plant

- Goal of recovering 40% of the waste, reducing shipments to landfills
- Attained, at 77.4% recovery.

Passo Fundo Hydroelectric Plant

- Goal of recovering 40% of the waste, reducing shipments to landfills
- Attained, at 90.3% recovery.

Salto Osório Hydroelectric Plant

- Goal of recovering 60% of the waste, reducing shipments to landfills
- Not attained. Total recovery was 50.3%.

Cana Brava Hydroelectric Plant

- Goal of recovering 55% of the waste, reducing shipments to landfills
- Not attained. Total recovery was 38.3%.



BROCHURE 2

Responsible Relationships

GRI 103-1; 103-2; 103-3; 406-1; 412-3

We operate alongside with different publics with which we share values, policies, practices and information. To guarantee ethics and respect in this relationships network, we connect with our stakeholders by means of several channels.

The ENGIE group has set a non-financial goal associated with society outreach, to be attained by 2020:

To have 100% of all industrial activities covered by an appropriate dialogue and consultation mechanism.

In addition to adding value to the Company's activities, a dialogue with society creates new commercial opportunities that meet strategic objectives associated with both the business and sustainable development.

ENGIE Brasil Energia plays an active role in the protection of human rights within its sphere of influence, and has drafted a specific corporate policy for this theme. The document lays down commitments and guidelines that focus on identifying, preventing and mitigating the negative impacts of its activities on human rights, both internally and externally. In this sense, agreements entered into with suppliers include clauses associated with the theme, including requirements in connection with combatting discrimination and the non-use of child, forced or mandatory labor, among other aspects, extensive to subcontractors.

In 2018, no operations were identified that posed significant risks of child or forced labor in ENGIE Brasil Energia's supply chain. In addition, for the duration of the period, the Company logged no claims or complaints associated with impacts on human rights, or allegations of discrimination.

The sub-chapters ahead show an overview of the Company's management in pursuit of maximizing business value creation for our priority stakeholders.

Employees

GRI 103-1; 103-2; 103-3

ENGIE Brasil Energia's employees are a key intangible asset for the development of our business, and are increasingly aligned with the corporate strategy's execution with a particular focus on the energy transition. We strive to provide an ethical working environment with favorable conditions for personal and professional development, conducive to quality of life, recognition and satisfaction.



Workforce profile

GRI 102-8; 102-41; 405-1

At the end of 2018, 1,337 employees were members of ENGIE Brasil Energia and non-consortium subsidiaries (Pampa Sul Thermal Power Plant and ENGIE Distributed Solar Generation), with the following composition:

By contract type

	Gender		Region				
	Female	Male	North	Northeast	Center-West	Southeast	South
Permanent	242	1075	12	83	57	61	1104
Temporary	3	8	0	0	0	0	11
Apprenticeship	4	5	0	0	0	0	9

By job type

	Gender	
	Female	Male
Full-time	245	1083
Part-time	4	5

	Gender		Region				
	Female	Male	North	Northeast	Center-West	Southeast	South
Total hires	49	186	0	21	5	29	180
Hiring rate	0.197	0.171	0.000	0.253	0.088	0.475	0.160
Total severances	20	90	0	3	2	2	103
Turnover	0.139	0.127	0.000	0.145	0.061	0.254	0.126

In addition to the foregoing, the Company also had 29 interns, and another 33 workers were employees of consortia controlled entities (27 with Companhia Energética Estreito and six with Itá Energética).

All employees are free to unionize and, in 2018, 100% of the workforce was covered by collective bargaining deals.

Diversity and equality

GRI 405-1

Respect for diversity is a guideline in both the Code of Ethics of ENGIE Brasil Energia and its Human Rights Policy. We do not abide prejudice for ethnicity, religion, gender, political-partisan affiliation, age, social status, physical limitation or any other form of discrimination.

The ENGIE Group has set a global goal of a minimum 25% of women in its workforce by 2020. To this end, awareness-building actions and discussions about the topic have been underway for several years, influencing the gradual evolution of indicators. The ongoing "Diversity Project", led by a cross-disciplinary team, is sponsored by Eduardo Sattamini (the Company's CEO) and aims to develop a culture of inclusion on several themes: gender, ethnicity, age, special needs, sexual orientation, manner of thinking, and more.

Gender equality

One of the main diversity-promotion challenges that energy companies face in Brazil and around the world lies in balancing the workforce between the male and female genders, due to the historical male prevalence as Engineering graduates. This reality has recently begun to be deconstructed, but still reflects in the sector's companies' workforce. In our case, this is confirmed by the following data:

- Out of the 388 employees currently allocated at the Company's headquarters, 62% are male and 38% are female. In other words, there is a better balance of genders, which is explained by the cross-disciplinary nature of the team, which includes workers from areas where greater gender balance prevails.
- The professionals allocated to the Plants, where teams have a more technical profile, the workforce is made up of 92% men and 8% women.

This is a major challenge, given the relevance of the theme to sustainability and business perpetuity. We are convinced that gender diversity is a key condition to overcome the other corporate challenges identified, given the context of the energy transition and constant innovation, which require a variety of views and approaches for more successful decision-making processes.

Therefore, the change is not limited to the hiring and selection system, but also includes skills-building and leaderships development. Another relevant element in the process is acculturation, so that equality may take place organically – and, therefore, perpetually.

Despite the low turnover (0.129% in 2018), reducing the speed of figures evolution, the Company has been making progress. In 2018, women held 16.4% of manager-level positions, up from 16.0% in the previous year. The percentage of women in the workforce increased from 15.1% in 2014 to 18.6% in 2018.

Diversity indicators

Employees + Governance bodies	Gender		Age bracket		
	Male	Female	Under 30	30-50	Over 50
Governance bodies					
Board of Directors	100%	0	0	43%	57%
Board of Executives	100%	0	0	38%	63%
Employees					
Management	83.6%	16.4%	1%	68%	31%
Analysts, engineers and specialists	75.1%	24.9%	17%	63%	20%
Operators, maintenance and administrative technicians	85.7%	14.3%	30%	57%	13%
Overall average	81%	19%	22%	61%	18%

Disabled Persons Inclusion

At yearend 2018, ENGIE Brasil Energia had 44 disabled or special-needs employees, not enough for compliance with Law 8.213/91, despite the significant 26% increase in employees with this profile between 2017 and 2018. The Company is under a Consent Decree with the oversight authorities and will work even harder to fully meet the required quota in 2019.

Training

GRI 404-1; 404-3

We have in place a Corporate Education Program intended to continuously develop employee competences and skills and enable the Company to quickly respond to the changes and innovations that the organizational strategy and energy transition require. The Program is structured on four fronts:

- **Business development** - intended for all employees and managed by the Human Resources are, it addresses basic knowledge of the Company and the electric energy sector.
- **Technical development** - improvement of the activities carried out in each of the Company's areas. In addition to specific training programs and courses, this front also covers schooling (including a 50% co-pay for graduate and post-graduate programs tuition) and languages (up to 60% co-pay).
- **Leadership development** - focused on building the skills required to lead, and intended for employees who manage teams and have the potential to manage.
- **Behavioral development** - develops self-awareness, skills, behaviors and attitudes that the activities of the Company's employees require.

As a cornerstone of the process, the Individual Development Plan (PDI), developed by each employee with guidance and validation from their immediate superior, is intended to map out development actions associated with the needs of the position, the business and the interrelations with each individual's expectations and career-oriented aspirations. A new evaluations cycle began in 2018 that covers 100% of the workforce and is expected to be completed in 2019.

"In 2018, approximately **83 thousand accumulated hours were dedicated to employee training,** with investments of around R$ 4.53 million."



Average training hours

	Average(hours per employee)
Average by gender	
Male	79.70
Female	49.80
Average by employee class	
Managers	52.66
Analysts, specialists and engineers	65.99
Operators, maintenance technicians and assistants	84.18

Total training hours

	Total
2016	43,238.0
2017	51,829.0
2018	83,124.1



Global skills building

On a global scale, the ENGIE group shares the same commitments and challenges as ENGIE Brasil Energia, requiring corporate-level development and integration actions. To this end, the Controlling Entity invests in the ENGIE University, a corporate university that centralizes a wide range of educational and development programs, of which the following are worth mentioning:

U Camp: a physical structure temporarily set up in one of the 7 countries where the Company has business. Intended to reaffirm the croup's commitments and challenges within the energy transition context and to enable interaction between different areas and structures in pursuit of synergies and experiences exchange.

E.campus: an e-learning platform that makes more than 3 thousand courses available to any Group employee, on all domains of knowledge. The contents address the development of personal skills (leadership, enterprise, career management), techniques (interviews, project management) and behaviors (ethics, diversity management, organizational culture).

Compensation and benefits

Employees

We offer our employees fair compensation compatible with the local market and the industry, in addition to a comprehensive benefits plan that includes:

- Group life insurance (including coverage for total or partial permanent disability caused by accidents and diseases);
- Health-care plan, extensive to dependents (covers medical, hospitalization, dental and pharmaceutical support; psychotherapy and physical therapy treatments. Specialized reeducation; prescription glasses and contact lenses, hearing aids and orthopedic devices);
- Special needs and disability support (for dependents, there is the Disabled Dependents Support Program);
- Sick-leave pay supplementation;
- Extended maternity and paternity leave (Citizen Company Program);
- Day-care support;
- Discount agreements with gyms;
- Controlling entity stock-purchase plan;
- Food/meal vouchers (including during vacations) and transport vouchers; and
- Supplementary Retirement (with co-pay or 100% match from the Company).
- In addition, ENGIE Brasil Energia pays for 80% of the cost of prescription medicines for employees and their dependents, 60% of language course tuition, and 50% of higher and post-graduate education tuition.

Each year, we offer Profit Sharing (PLR) – subject to the approval of the shareholders at the General Meeting – calculated based on a formula as provided in the Collective Bargaining Deals with the unions representing the employees. The PLR takes into consideration both individual and team performance, in addition to each year's adjusted EBITDA and net income.

Third parties

Outsourced workers also have access to a permanent benefits program that includes food vouchers and medical and dental care plans whose amounts are provided in the agreements entered into with the Company's suppliers.

Organizational climate

We regularly conduct organizational climate surveys to evaluate how people management programs reflect on employee satisfaction.

In the 2018 edition, 90% of employees answered the survey. The five main findings were:

- 98% believe that "my team is clearly committed to workplace safety".
- 98% believe that "my work contributes to my company's business objectives".
- 98% believe that "ENGIE is an environmentally responsible company".
- 97% state that "I always try to go beyond my responsibilities while pursuing ENGIE's success".
- 97% state that "I fully believe in the products and services that my entity offers".

In addition to providing an employee perception and organizational climate benchmark, the survey provides grounds for improvement plans at both the corporate level and operational units.



Occupational Health and Safety (OHS)

GRI 403-1; 403-2

As defined in the Sustainable Management Policy, employees' physical and psychic integrity, professionalism, skills and competence are priorities for ENGIE Brasil Energia. The same care that we devote to our own workforce extends to service providers, and the relevant agreements include clauses in connection with the topic, upholding the assurance of sub-contractors' and third parties' health and safety.

OHS principles are disseminated across operational units by means of specific training programs and activities intended to prevent accidents and consolidate a culture of health and well-being. In 2018, the focus was on Managerial Safety Inspections (VGS) – where managers verify safety procedures, track control measures and communicate and engage with employees – and the identification and prevention of Accidents and/or Incidents with High Potential Severity (HIPO), which require priority attention.

Over the year, 113 employees from all of the Company's operational units attended the two modules.

Another noteworthy campaign was the general stoppage for reflection, which addressed the 10 precautions required while driving, whether professionally or in one's private life.

The Company has 11 Internal Accident Prevention Commissions (CIPAs) to provide guidance to employees on compliance with safety standards as a means to prevent occupational accidents and diseases. At the nine units where no Commissions exist, representatives are appointed to perform the same role. In 2018, the CIPAs had 80 members, plus 10 appointees, representing 100% of the Company's direct employees.

To assist the safety commissions and areas in connection with preventive matters, the risk-situations and near-emergencies system (GSR) seeks to encourage employees and service providers to point out situations that may create risks, standing as an important preventive tool.

Safety is in our DNA and stands as a required condition for the execution of any activity. Our collective goal is to reach zero severe or fatal accidents.

We embrace the "*No life at risk*" concept, which means, for employees and contractors alike, implementing management, control and preventive practices and methodologies applicable to all.



The concept was reinforced in a campaign held on the World Occupational Safety and Health Day, in April, introducing the four key tools to prevent severe and fatal accidents, as follows Life-Saving Rules, The Breakpoint, HIPOs, and Shared Vigilance.

> Thanks to prevention efforts, **we have not recorded any deaths in the Company's operations and no cases of occupational disease.**



In 2018, the Company logged three occupational accidents involving own employees and another 155 accidents involving the employees of retained companies. Thanks to preventive efforts, no deaths occurred in connection with the Company's operations, and there have been no cases of occupational diseases.

All of the collective bargaining deals entered into between ENGIE Brasil Energia and workers unions include specific OHS clauses, including rescue-team training and education. Third-parties are offered Occupational Safety Integration Training, which addresses the basics of OHS for the provision of services at the Company's units.

Occupational Accidents

	2016	2017	2018
Own employees			
Number of hours of risk exposure	2,024,902	1,910,390	2,060,731
Number of occupational and commuting accidents with and without leave	5	8	3
Number of days lost – occupational accidents with leave	5	8	30
Number of fatal accidents	0	0	0
Contractor employees			
Number of hours of risk exposure	3,247,650	6,311,671	18,728,672
Number of occupational and commuting accidents with and without leave	22	31	155
Number of days lost – occupational accidents with leave	1	1	0

Occupational Health and Safety (OHS) Indicators

Indicator	2016	2017	2018	Goal Attained?	2018 x 2017 Change	2019 Goal
Frequency Rate (FR), own employees[1]	0.490	1.050	0.970	-	↓	
Severity Rate (SR) own employees[2]	0.002	0.004	0.000	Sim (≤ 0.020)	↓	≤ 0.020
Frequency Rate (FR) own + long-term service provider employees[1]	1.520	1.030	1.390	Não (≤ 0.80)	↑	≤ 0.80
Frequency Rate (FR) short-term service providers + ongoing construction works[2 3]	-	0.690	1.640	Sim (≤ 2.40)	↑	≤ 2.30

1) FR = number of occupational accidents per million hours' risk exposure.
2) SR = number of days lost from occupational accidents had per thousand hours risk exposure.
3) Monitoring of this indicator began in 2017. Therefore, no history exists for 2016. The datum does not include construction of the Pampa Sul Thermal Plant.

Occupational Health and Safety (OHS) Indicators – Pampa Sul Thermal Plant

Indicator	2016	2017	2018	Change 2018 x 2017
Frequency Rate (FR), won employees[1]	0.000	0.000	0.000	-
Severity Rate (SR), own employees[2]	0.000	0.000	0.000	-
Frequency Rate (FR), including service providers[1]	4.900	2.220	2.360	↑
Severity Rate (SR), including service providers[2]	0.032	0.028	0.178	↑

1) FR = number of occupational accidents per million hours' risk exposure.
2) SR = number of days lost from occupational accidents had per thousand hours risk exposure.

Suppliers

GRI 102-9; 102-10; 103-1; 103-2; 103-3; 308-1; 414-1

Our suppliers chain includes companies of all sizes, in all industries and from every region in Brazil and worldwide. To foster sustainable practices in our value chain and guarantee alignment with our commitments and principles, compliance with the law, and appropriate quality standards, we review our suppliers upon accreditation for negotiations (certification) and, as concerns more critical ones, as services are provided or goods supplied.

Enablement (certification)

GRI 308-2; 414-2

In 2018, we reviewed our supplier risk-rating process to accurately identify the more critical suppliers and, in the following year, develop in-depth due diligence.

Under the new process every supplier will undergo an initial evaluation conducted by the technical, environmental social, and occupational health and safety teams. A supplier's risk will be defined based on the outcome of the evaluation and the supplies class. Those categorized as high- and medium- risk and impact – on operations, health and safety, and socio-environmental compliance – will necessarily undergo a more detailed evaluation and prior validation process before they can take part in bidding processes.

The criteria for certification of suppliers include, among others:

a) Scoring at least 85% on the evaluation forms; or

b) Not having restrictions from historical supply issues (when a supplier is enrolled in categories other than that of the request); or

c) Having a history of positive suppliers with another ENGIE Group company; or

d) Having an exclusive offer of a material or service (exclusive supplier with no market alternative – for example, previously determine brand).

At yearend 2018, the critical suppliers evaluation process for certification purposes was improved to include a stricter, more in-depth approach to environmental aspects, preparing us for the next step in more comprehensive due diligence in the following year.

2018 Overview of Supplier Relations

1,337
suppliers

100%
of new suppliers certified according to socio-environmental criteria

147
environmentally critical suppliers

18
socially critical suppliers monitored (documentary review of labor, health and safety, and environmental management)

At the Company's discretion, technical visits to suppliers can take place to verify the consistency of the information provided. If noncompliances are found, the supplier's registration may be deactivated and/or its certification may be cancelled.

In 2018, 100% of suppliers retained were certified, and there were no cases where a relationship had to be terminated, or improvements had to be agreed as a result of the evaluations.

Monitoring

After a supplier has been selected based on commercial and technical criteria and, depending on the kind of supply, on the evaluation produced by the certification process, specific document analysis for services provision begins for 100% of long-term service agreements taking place within the Company's facilities. At the discretion of technical and commercial managers, this may also apply to other kinds of services.

Additional requirements are also controlled in connection with supplies or services deemed critical, such as dicing, confined spaces, hot work, and more – for services – supply of coal, flammables, lubricants and more – for materials.

In the event of noncompliant documentation and/or the absence of documents during the rendering of services, the person in charge of the commercial relationship will formally notify the supplier, informing the regularization deadline.

If an irregularity persists, a "non compliance" is opened in the Company's management system and consider the application of a fine and/or payment withholding and/or barring the supplier's employees from entering the Company's facilities until the issue has been resolved.

In 2018, the contractor evaluation process was reinforced with a focus on developing OHS culture and management.

> We reviewed our supplier risk rating process in order to **improve the analysis of the most critical ones.**



Documental analysis of suppliers' compliance with legal and socio-environmental requirements

Document	Application	Delivery of documentation
CTPS copy – Social Security and Labor Card and registration form of outsourced employees.	All long-term agreements relate to suppliers of services within the Company's installations.	Beginning of the services (contracting).
Employee hiring, termination and control authorization form.	All long-term agreements relate to suppliers of services within the Company's installations.	Beginning of the services (contracting).
PAT – Worker Food Program (for food/meal voucher).	All long-term agreements relate to suppliers of services within the Company's installations.	Beginning of the services (contracting).
EPI (individual protection equipment) delivery form with CA (approval certificate).	All long-term agreements relate to suppliers of services within the Company's installations.	Beginning of the services (contracting) and when requested.
Representative delegation letter – by the Company and by the supplier.	All long-term agreements relate to suppliers of services within the Company's installations.	Beginning of the services.
Life insurance: insurance policy, list of the insured and proof of payment (should be at least R$ 25,000.00 per life).	All long-term agreements relate to suppliers of services within the Company's installations.	Beginning of the services (contracting) and when requested.
Health and dental assistance plan.	All long-term agreements relate to suppliers of services within the Company's installations.	Beginning of the services (contracting) and monthly.

Document	Application	Delivery of documentation
NR 10/ NR-20/ NR 33/ NR35 – Certificates for execution of work considered of risk with exposure to agents or conditions noxious to health.	When applicable.	Beginning of the services (contracting).
Professional License or Registration from class entities.	When applicable.	Beginning of the services (contracting).
Third party insurance: insurance policy and proof of payment.	When applicable.	Beginning of the services (contracting).
Collective Bargaining Agreement for the Category.	All long-term agreements relate to suppliers of services within the Company's installations.	Beginning of the services (contracting) and monthly.
ASO – Occupational Health Certification (should be executed according to the PCMSO).	All long-term agreements relate to suppliers of services within the Company's installations.	Beginning of the services (contracting) and annually (or upon alteration in the scope of the executed services).
List of beneficiaries with health and dental assistance plan.	All long-term agreements relate to suppliers of services within the Company's installations.	Beginning of the services (contracting) and monthly.
Drivers' License (CNH) for car drivers and field machine operators.	When applicable.	Beginning of the services (contracting) and when requested.

Documents requested and analyzed at the beginning of the services.

Documents requested and analyzed by the Company at the beginning of the services and delivered monthly by the suppliers for random sample analysis.

Documents requested by the Company and analyzed on a random sample basis.

Document	Application	Delivery of documentation
Annotation of Technical Responsibility (ART).	When applicable.	Beginning of the services (contracting) and monthly.
Environmental Licenses and Federal, State and Municipal public bodies.	When applicable.	Beginning of the services (contracting) and when requested.
Internal Accident Prevention Commission (CIPA).	When applicable.	Beginning of the services (contracting) and when requested.
Monthly payroll.	All long-term agreements relate to suppliers of services within the Company's installations.	Monthly.
Proof of deposit: RE / SEFIP; GPS/INSS; GFIP/FGTS.	All long-term agreements relate to suppliers of services within the Company's installations.	Monthly.
Occupational Health Medical Control Program (PCMSO).	All long-term agreements relate to suppliers of services within the Company's installations.	Monthly.
Proof of payment: Food/meal voucher; transportation voucher.	All long-term agreements relate to suppliers of services within the Company's installations.	Monthly and when requested.
PPRA – Environmental Risks Prevention Program.	All long-term agreements relate to suppliers of services within the Company's installations.	Beginning of the services (contracting) and when requested.

Documents requested and analyzed at the beginning of the services.

Documents requested by the Company and analyzed on a random sample basis.

Documents requested and analyzed by the Company at the beginning of the services and delivered monthly by the suppliers for random sample analysis.

In addition to reviewing documentation, we also conduct evaluations in the light of performance parameters.

Supplies (materials) analysis requirements include quality, punctuality and quantity, and apply to 100% of the materials acquired by the Company.

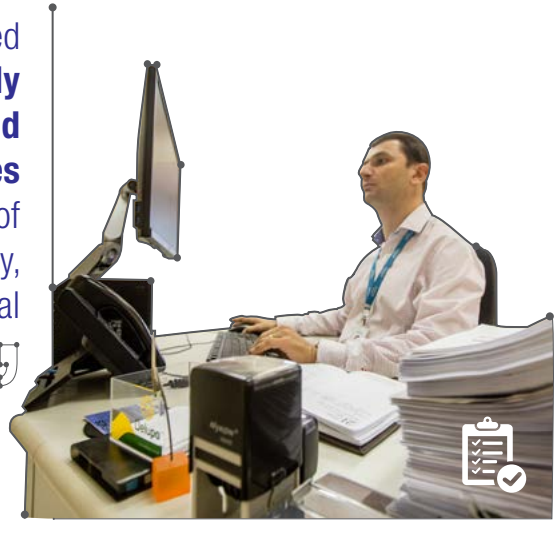
Services, by their turn, are analyzed according to a structured form completed jointly by the Company's technical, commercial and Health and Safety areas, and covers the following parameters: quality, safety, occupational medicine and hygiene; environment, and administrative and legal matters.

When the average score is below 70%, an improvements plan is discussed, then agreed between the parties with monitoring by the employee with technical responsibility.

Based on 2018's performance analyses and on document analyses, we identified 18 suppliers that pose a social risk, and 147 posing an environmental risk.

We expect the monitoring process to continue evolving next year, with the use of big data, due diligence regarding critical suppliers, and the establishment of a strategic-suppliers development initiative.

"In 2018, we monitored **147 environmentally critical suppliers and 18 socially critical ones** (documental review of labor, health and security, and environmental management)."



Communities

GRI 103-1; 103-2; 103-3; 413-1; 413-2

As partners in the sustainable development of the regions where we operate, the communities around our projects are a priority group of stakeholders for ENGIE Brasil Energia. Given this, we maintain open dialogue channels partnerships and various mechanisms in place to support local socio-economic and cultural development.

Project Implementation

Dialogue

The communities surrounding the Company's projects undergoing implementation are invited to take part in the environmental licensing process by means of public hearings intended to disclose information on each project and its potential socio-environmental impacts.

Once implementation begins, several channels of communication are created and made available, such as Ombudsmanship and information centers, visits to neighboring families, informative literature and handbooks, spots on the radio, and announcements from speaker cars.

In some projects, pursuant to the contents of the environmental licenses, Project Tracking Commissions (CAEs) are formed, made up of representatives of society, the public authority, and community leaderships, as a means to keep the population informed.

Local development

To foster the hiring of local workers, particularly for civil construction related jobs in projects undergoing implementation (such as masons, carpenters and rebar armature makers, to name a few), we hold professional initiation and skills courses in partnership with learning institutions. One exemplary case is going on by the Pampa Sul Thermal Power Plant, where 55% of workers come from the state of Rio Grande do Sul, 54% of which from the municipality of Candiota, 23% from Bagé, 9% from Pinheiro Machado and 7% from Hulha Negra.

Communal Vegetable Gardens

On the land surrounding the Umburanas and Campo Largo Wind Complexes, we installed community vegetable gardens and provided skills to local communities to foster their food self-sufficiency and help them market surplus production, generating income for the beneficiary families.

They grow and market vegetables, eggs, chicken, ducks, fish and shrimp. The Rodoleiro and Campo Largo communities' projects are already in full operation, and another four gardens are in their contracting or feasibility studies phases.



Despite the prioritization of local labor, the insufficient supply of contractors and service providers to meet the demand ends up attracting workers from other regions to the municipalities surrounding our projects. Even if this contributes to the dynamics of the local economy, the inflow may overload the public infrastructure because of excess population.

When any such impacts are found, we adopt mitigation and compensation measures, including investment in health, safety, leisure and sanitation. Other actions aim to assist the local public authorities in structuring their actions, such as drafting city master plans and managing waste.

Socio-environmental programs at projects undergoing implementation in 2018

Social impact assessments	12
Environmental impact and monitoring assessments	54
Public disclosure of the findings of environmental and social impact assessments	12
Community development programs	14
Stakeholder outreach programs	4
Community consultation committees and processes, including vulnerable groups	2
In-company boards, occupational health and safety committees and other forms of worker representation discussing impacts	7
Formal local community complaint processes	4
Total	109

Impacts of projects undergoing implementation on local communities in 2018

Projects

Campo Largo Wind Complex Phase I

Umburanas Wind Complex Phase I

Pampa Sul Thermal Plant

Positive impacts

- Local commerce growth
- Increased tax revenue
- Contribution to land-use planning
- Retainer of local businesses and labor
- Improved workforce qualification and training
- Increase in socio-economic development oriented public-private partnerships
- Jobs and income generation
- Implementation of social projects, improving communities' living circumstances
- Increased scientific research of the local fauna, flora and archeology
- Improved public infrastructure (public transit and equipment)

Negative impacts

- Suppressed vegetation and exposure of the local fauna to accident hazards
- Exposure of the community to dust, particulate and noise emissions
- Generating expectations amid the local population
- Overloading the public infrastructure
- Exposure of the local population to increased traffic

Land impacts

The Company's projects underway in 2018 did not involve the purchase or expropriation of land. Usually located in sparsely populated rural areas, they do not require the uprooting of households. The owners of the land affected by the implementation of access ways and transmission lines are indemnified for use restrictions or the establishment of rights-of-way.

The areas where the wind and solar farms/plants operate are leased. Impact on the areas' historical and archeological heritage is also subject to assessment and, as needed, the relevant sites are preserved on location or recovered and transferred to specialized institutions. Impacts on the area's other natural resources, such as land and water, are the subject of specific monitoring and control programs.

Implementation of the Gralha Azul Transmission System will require, starting in 2019, a small volume of expropriations or indemnifications. The areas intended for the substations will be expropriated, where as access ways will either entitle the owners for the establishment of rights-of-way, or acquisition negotiations are underway.

Operational Projects

Private social investment

We integrate the communities near the plants that we operate, and try to engage in movements relevant to the local population. As a sustainability strategy, we try to drive our corporate social responsibility actions by casting communities in a leading role, so as to encourage their development and autonomy.

In 2018, social responsibility investments totaled R$ 20.4 million, including own (17.2%) and incentivized (82.8%) funds. The latter is one of our main lines of action before communities, as it exponentially increases the volume of funds allocated to these communities, which are usually located in small municipalities.

Capacitar

With a focus on socio-cultural exchange as a means to improve the living standards of the communities surrounding the projects, the Capacitar Program aims to train community leaders and agents to manage projects enabled by federal-level tax benefits – such as the cultural incentives law (Rouanet Act), the Sports Incentives Law, the Children and Teenagers' Fund, the Senior Citizens' Fund, the National Cancer-Care Support Program (Pronon), and the National Disabled Persons Health Care Support Program (Pronas/PCD).

The program covers three main axes: building skills through printed materials, on-site meetings, and online courses. Eight courses were held in 2018, involving people in 12 different states (on-site and by videoconference), so that more than 3.2 thousand people have been trained since the initiative began, not to mention the over 6,000 free downloads of handbooks published on the project's Website. Details on the project are available at www.capacitar.vc.



Social responsibility investments (R$ thousands)

	2016	2017	2018	Change
Non-incentivized investments	5,044.28	2,898.14	3,497.00	20.7%
Investments through the Children's and Teenagers' Fund – FIA	2,544.27	2,022.85	1,836.98	-9.2%
Investments through the Cultural Incentives Law – Rouanet Act	10,184.72	9,537.11	8,798.00	-7.7%
Investments through the Sports Incentives Law	2,565.29	1,895.20	1,610.00	-15.0%
Investments through the National Cancer Care Support Program – PRONON	2,573.80	2,118.97	1,597.00	-24.6%
Investments through the National Disabled Persons Health Care Support Program - PRONAS/PCD	1,310.20	1,383.46	1,607.40	16.2%
Investments through the National Senior Citizens' Fund	2,348.33	2,423.19	1,430.90	-40.9%
Total	26,570.89	22,278.92	20,377.28	-8.5%

We further contribute indirectly in several ways to creating community value. One of them is the Financial Compensation for the Use of Hydro Resources (CFURH), which applies to hydroelectric plants. Pursuant to the law, municipalities receive 65% of the amount, States receive 25% and the Federal Government receives 10%. The pro-rating basis is set according to the percentage flooded area in each municipality.

In 2018, ENGIE Brasil Energia-operated plants generated R$ 164.4 million in royalties to 216 municipalities. The precise amount allocated to each recipient of this compensation can be viewed on Aneel's Website: https://bit.ly/20152uD

Volunteer Energy

In addition to direct donations from the Company, we encourage, through the "Volunteer Energy" program, **donations made via personal income tax (IRPF) from employees**, and even provide consultancy support to make the donations, which can be earmarked for culture centers, boarding houses, or elderly homes. Since the program began in 2017, more than R$ 127 thousand have been donated, with contributions from approximately 100 employees.

Another objective that directly ties in with the initiative is increased donor outreach to and involvement with the beneficiary projects, which also serves as an indirect means of encouraging volunteer work.



HOSPITAL pequeno PRÍNCIPE

In 2018, the main institution benefited by the campaign was the Pequeno Príncipe Hospital, in Paraná.

Culture and Sustainability Centers

The Culture and Sustainability Centers, which have already been implemented in five municipalities, are intended to fostering cultural and educational initiatives, and provide opportunities for community socialization and access to artistic manifestations such as drama, music, dance and film.

The Centers' main purposes are to:

- Foster the appreciation of local customs and traditions in the communities where ENGIE Brasil Energia is embedded;
- Inspire the young to pursue knowledge by means of social and digital inclusion, contributing to the generation of jobs and income and reducing rural and urban flight;
- Become economically sustainable projects, with a structured income-generation and cost-control program.

The Centers are essential tools to cementing the relationship with the communities surrounding operational projects. To continue evolving and gain increasing relevance, the Centers' managers interact and exchange best practices by means of REDE, an organization that fosters cultural activities exchanges, strengthening ties with public- and private-sector entities in pursuit of the projects' sustainability.

To enable the Centers' economic sustainability, ENGIE Brasil Energia used own (non-incentivized) funds to purchase and donate solar panels to four of them. Each building will be able to reduce its power expenses by up to 89%. At a total value of R$ 120 thousand, the equipment will pay for itself within five to eight years, depending on each project's characteristics. Another angle of the initiative is that it serves as a benchmark for the technology's dissemination to the region's residents and commerce.

Unveiling of the sixth Culture Center, in the Municipality of Minacu (GO), in the area under the influence of the Cana Brava Hydroelectric Plant, is set for the first half of 2019. In addition, the Company has secured preliminary approval from the Ministry of Culture for new Centers in three municipalities: Trairi (CE), in the area surrounding the Trairi and Santa Mônica Wind Complexes; Saudades do Iguaçu (PR), in the area surrounding the Salto Santiago Hydroelectric Plant, and Itá (SC), in the area surrounding the Itá Hydroelectric Plant. The projects are enabled to raise funds at this point.

> We donated solar panels to the Centers, collaborating with their economic viability,as well as environmental benefits.







Culture Centers in 2018

Center Location	Visitors (estimated)	Students - Workshops
Alto Bela Vista (SC)	7,000 - 9,000	100
Capivari de Baixo (SC)	250,000	136
Concórdia (SC)	39,000	83
Quedas do Iguaçu (PR)	4,000	433
Entre Rios do Sul (RS)	20,000	84

Visitations Program

The Visitations Program, done in partnership with other entities, is an important tool for interacting with communities, and provides for structured visitation routines for students, researchers and tourists at the plants in the Company's generation complex, showing how the projects work and the socio-environmental projects developed.

The Program is supplemented by presentations at schools and other community venues, with a focus on the same topics and emphasizing environmental education.

Around **106 thousand people attended the Visitation Program** in 2018.

Young Adult Literacy Program – AJA

The Young Adult Literacy (AJA) Program, held in Umburanas (BA) in the area surrounding the Campo Largo and Umburanas Wind Complex, saw its first class graduate in November 2018.

118 students were the beneficiaries, most of them elderly, **of which 70% could neither read nor write** and 74% had never attended school. Given this, the students' 90% attendance rate and the low dropout rate were remarkable.

In addition to its educational nature, the project also has a socializing angle. Activities included lectures and movie sessions, ophthalmological exams, and the donation of around 90 prescription glasses to students in need of corrective lenses. Students also received a kit containing a backpack and school uniform.

Besides the students, the AJA's beneficiaries included 30 teachers, who received training in the Youth and Adult Education mode.



Society

GRI 102-12 e 102-13

To leverage the value we generate for society, we support outside activities that promote sustainability and participate in associations dedicated to the industry's development, as follows:

Initiatives supported

- Movimento Nacional ODS – Nós Podemos Santa Catarina
- Pacto Empresarial pela Integridade e Contra a Corrupção, from Instituto Ethos

Associations with ENGIE representative membership:

- Associação Brasileira das Empresas Geradoras de Energia Elétrica (Abrage);
- Associação Brasileira de Energia Eólica (ABEEólica);
- Associação Brasileira de Carvão Mineral (ABCM);
- Associação Brasileira de Gerência de Riscos (ABGR);
- Associação Brasileira de Manutenção (Abraman);
- Associação Brasileira dos Agentes Comercializadores de Energia Elétrica (Abraceel);
- Associação Brasileira dos Contadores do Setor de Energia Elétrica (Abraconee);
- Associação Brasileira dos Produtores Independentes de Energia Elétrica (Apine);
- Associação Comercial e Industrial de Capivari de Baixo (Acicap);
- Associação Comercial e Industrial de Florianópolis (ACIF);
- Associação Comercial e Industrial de Lages (ACIL);
- Associação Comercial e Industrial de Tubarão (ACIT);
- Associação de Assistência à Saúde (Elosaúde);
- Associação Paulista de Cogeração de Energia (Cogen);
- Bacia Hidrográfica Apuaê-Inhandava;
- Centro de Pesquisa de Energia Elétrica (CEPEL);
- Comitê de Planejamento Energético do Estado do Rio Grande do Sul (Copergs);
- Conselho de Desenvolvimento do Território Cantuquiriguaçu (Condetec);
- Conselho Nacional de Recursos Hídricos (CNRH);
- Conselho Estadual de Recursos Hídricos de Santa Catarina (CERH-SC);
- Conselho Estadual de Recursos Hídricos do Paraná (CERH-PR);
- Conselho Temático de Meio Ambiente e Sustentabilidade da Confederação Nacional da Indústria (CNI);
- Federação das Indústrias do Estado de Santa Catarina (Fiesc);
- Federação e Centro das Indústrias do Estado do Rio Grande do Sul (Fiergs);
- Fundação Comitê de Gestão Empresarial (Funcoge);
- Fundação Eletrosul de Previdência e Assistência Social (ELOS);
- Grupo de Líderes de Santa Catarina (LIDE-SC);
- Instituto Acende Brasil;
- Instituto Brasileiro de Relações com Investidores (IBRI);
- Instituto dos Auditores Internos do Brasil (Audibra);
- International Hidropower Association (IHA); e
- Movimento Catarinense pela Excelência (Excelência SC).

Globally, controlling entity ENGIE is a signatory of the Carbon Disclosure Program (CDP), the United Nations Global Compact, the act4nature biodiversity protection initiative, and several initiatives dedicated to climate change and the energy transition:

- World Alliance for Efficient Solutions
- Business Leadership Criteria on Carbon Pricing
- Caring for Climate
- Hidrogen Council
- Terrawatt Initiative (founding member), which aims to exert global influence in the regulatory conditions for the mass construction of competitive solar generation.