

Module: Introduction**Page: Introduction****CC0.1****Introduction**

Please give a general description and introduction to your organization.

The Light Group comprises Light S.A., the holding company, headquartered in the city of Rio de Janeiro, its wholly-owned subsidiaries (directly controlled companies), and equity interest held in other companies. The Light Group explores electricity services, including the generation, transmission, commercialization, and distribution segments, as well as associated services. In 2016, net revenue totaled R\$8.8 billion. This document describes the policies and practices related to the holding company and wholly-owned subsidiaries, simply referred to as Light in this report.

As of December 31, 2016, Light's corporate structure comprised: Controlling Group (52.13%) and free float (47.87%), of which 9.39% is held by BNDESPar and 38.49% is held by minority shareholders. The Controlling Group comprises the following companies: Companhia Energética de Minas Gerais (Cemig) (26.06%), Luce Empreendimentos e Participações S.A. (LEPSA) (13.03%), and Rio Minas Energia S.A. (RME) (13.03%).

Directly Controlled Companies

Light Serviços de Eletricidade S.A. Its main activity is the distribution of electricity in a concession area that encompasses 31 cities of the State of Rio de Janeiro, including the capital city. In 2016, the consumption of all 4.4 million customers totaled 25,849 GWh.

Light Energia S.A. Its main activities are the study, planning, construction, operation, and exploration of energy generation, transmission, and commercialization systems, as well as associated services. It encompasses the Pereira Passos, Nilo Peçanha, Ilha dos Pombos, Santa Branca, and Fontes Nova power plants, with a total installed capacity of 855 MW. Light Energia holds equity interest in the following subsidiaries and jointly-controlled companies:

- Lajes Energia S.A. It is responsible for the implementation, operation, maintenance, and commercial exploration of the Lajes small hydroelectric power plant, with a nominal capacity of 17 MW;
- Renova Energia S.A. It operates in the energy generation segment through renewable alternative sources, including small hydroelectric power plants, and wind and solar power plants. Renova Energia holds a direct and/or indirect equity interest in these renewable alternative sources, totaling 1,979 MW of contracted energy, 683 MW of which are in operation or able to operate;
- Guanhões Energia S.A. This company is pre-operational. It was created to implement and explore four small hydroelectric power plants in the State of Minas Gerais, totaling 44 MW of installed capacity;
- Central Eólica São Judas Tadeu Ltda. This company is pre-operational. Its main activities will include the production and commercialization of electricity from a wind power plant, located in the State of Ceará, with a nominal capacity of 18 MW;

Central Eólica Fontainha Ltda. This company is pre-operational. Its main activities will include the production and commercialization of electricity from a wind power plant, located in the State of Ceará, with a nominal capacity of 16 MW.

Light Esco Prestação de Serviços S.A. Its main activity is the purchase, sale, import, and export of electricity, thermal energy, gases, and industrial utilities, as well as the provision of operating and maintenance services to industrial and commercial customers of a number of sectors. [G4-EN7]

Light Com Comercializadora de Energia S.A. Its main activities include short- and long-term commercialization of energy (purchase and sale) in the free market and the provision of consulting services to customers of a number of sectors.

Light Soluções em Eletricidade Ltda. Its main activity is the provision of services to low voltage customers, including the assembly, refurbishment, and maintenance of installations in general.

Itaocara Energia Ltda. This company is pre-operational. Its main activities will include the development of projects, construction, installation, operation, and exploration of generation power plants. It holds equity interest in the Consortium of the Itaocara hydroelectric power plant and in the following jointly-controlled company:

Usina Hidrelétrica Itaocara S.A. This company is pre-operational. It was established to construct the Itaocara hydroelectric power plant and it holds the concession for use of public asset for exploration of the Itaocara I hydroelectric power plant.

Instituto Light para o Desenvolvimento Urbano e Social. Its purpose is to participate in social and cultural projects, aimed at the economic and social development of cities.

CC0.2

Reporting Year

Please state the start and end date of the year for which you are reporting data.

The current reporting year is the latest/most recent 12-month period for which data is reported. Enter the dates of this year first.

We request data for more than one reporting period for some emission accounting questions. Please provide data for the three years prior to the current reporting year if you have not provided this information before, or if this is the first time you have answered a CDP information request. (This does not apply if you have been offered and selected the option of answering the shorter questionnaire). If you are going to provide additional years of data, please give the dates of those reporting periods here. Work backwards from the most recent reporting year.

Please enter dates in following format: day(DD)/month(MM)/year(YYYY) (i.e. 31/01/2001).

Enter Periods that will be disclosed

Fri 01 Jan 2016 - Sat 31 Dec 2016

CC0.3**Country list configuration**

Please select the countries for which you will be supplying data. If you are responding to the Electric Utilities module, this selection will be carried forward to assist you in completing your response.

Select country
Brazil

CC0.4**Currency selection**

Please select the currency in which you would like to submit your response. All financial information contained in the response should be in this currency.

BRL(R\$)

CC0.6**Modules**

As part of the request for information on behalf of investors, companies in the electric utility sector, companies in the automobile and auto component manufacturing sector, companies in the oil and gas sector, companies in the information and communications technology sector (ICT) and companies in the food, beverage and tobacco sector (FBT) should complete supplementary questions in addition to the core questionnaire.

If you are in these sector groupings, the corresponding sector modules will not appear among the options of question CC0.6 but will automatically appear in the ORS navigation bar when you save this page. If you want to query your classification, please email respond@cdp.net.

If you have not been presented with a sector module that you consider would be appropriate for your company to answer, please select the module below in CC0.6.

Further Information

Module: Management

CC1.1

Where is the highest level of direct responsibility for climate change within your organization?

Board or individual/sub-set of the Board or other committee appointed by the Board

CC1.1a

Please identify the position of the individual or name of the committee with this responsibility

Planning and Management Office - Responsible for sustainability management
Environmental Manager - Responsible for environmental management.

CC1.2

Do you provide incentives for the management of climate change issues, including the attainment of targets?

No

CC1.2a

Please provide further details on the incentives provided for the management of climate change issues

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment

Further Information

Page: CC2. Strategy

CC2.1

Please select the option that best describes your risk management procedures with regard to climate change risks and opportunities

Integrated into multi-disciplinary company wide risk management processes

CC2.1a

Please provide further details on your risk management procedures with regard to climate change risks and opportunities

Frequency of monitoring	To whom are results reported?	Geographical areas considered	How far into the future are risks considered?	Comment
Annually	Senior manager/officer	Light's concession area	3 to 6 years	Climate change has an impact in different aspects of an electric services company. Light Energia – generation division (almost 99% hydroelectric), may be impacted due to the hydrological regime. Light SESA - distribution division can be affected by high demand due to high temperatures and intensive use of electrical appliances. Furthermore, higher consumption coupled with payment incapacity could increase losses and default. Light SA attempts to participate in all energy contract mechanisms in the short and long terms in order to guarantee complete market supply, including unexpected load elevations. Power supply quality indicators, such as DEC (Equivalent Outage Duration per Consumer) and FEC (Equivalent Outage Frequency per Consumer) worsen as a result of climate change impacts, elevating operating costs due to the deployment of special crisis management systems or the serious damage to electricity grids.

CC2.1b

Please describe how your risk and opportunity identification processes are applied at both company and asset level

The risk management process is incorporated into the strategic planning process. The strategic plan considers internal and external factors that may impact the company and any of its businesses. Besides analyzing the context yearly, the plan covers a span of five years, short term and long term objectives. To reach the directives and action plans, which are designated to every sector and manager, all risks are assessed, including operational, financial, regulatory, generation, human resources, commercial etc. In conclusion, to elaborate the strategic plan that is delivered to all leaders and key stakeholders, the risk management process related to climate change is incorporated into the analysis of the sector and the company's position within

CC2.1c

How do you prioritize the risks and opportunities identified?

The prioritization of the risks and opportunities of climate change follows the model of risk management adopted by Light. This model is based on methodology and activities recommended by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) / Enterprise Risk Management (ERM). Our company risks, are identified and organized into 3 categories: financial, operational and compliance. The Compliance category includes risks related to climate change, and climate change adaptation.

CC2.1d

Please explain why you do not have a process in place for assessing and managing risks and opportunities from climate change, and whether you plan to introduce such a process in future

Main reason for not having a process	Do you plan to introduce a process?	Comment

CC2.2

Is climate change integrated into your business strategy?

Yes

CC2.2a

Please describe the process of how climate change is integrated into your business strategy and any outcomes of this process

Aiming to contribute to the agenda relating to climate change and environmental preservation, Light has published the document "Commitments of Light for the environment and the climate," which lists the commitments and actions implemented by Light. The document shows guidelines that integrate and complement the Environmental Policy of Light and is aligned with the company's strategy.

These commitments are divided into six themes:

1. Prioritize the generation and distribution of energy obtained from renewable and clean sources
2. Being a pioneer in the development and diffusion of technologies that promote benefits for the climate and environment and reduce electricity waste
3. Conserving biodiversity of our reservoirs and its surroundings
4. Reduce direct and indirect GHG emissions
5. Undertake and promote the reuse and recycling of solid waste
6. Adopt and disseminate practical preservation of water quality and reduction of waste

Climate change is considered in defining the Light Energia's strategy (generation division), with respect to hydrological risk. Climate change is also considered in defining the Light SESA's strategy (distribution and supply division) with respect to temperature increase.

In the case of Light Energia is a long-term action because it involves the modernization of the monitoring of rainfall and flow rates in rivers system, which will allow better monitoring of river basins conditions where the plants are installed. This action aims to improve the productivity of plants, ensuring the generation of energy at competitive prices.

In the case of Light SESA is a short-term action because the rise in temperatures and the resulting increase in energy consumption are directly related to the increase in commercial losses and delinquencies. This action aims to reduce the level of commercial losses of Light, one of the highest in the nation. Consequently, the strategy was to invest in the modernization of the electric grid, energy efficiency projects and client relationships. The modernization of the electric grid will also benefit the power supply quality indicators, such as DEC (Equivalent Outage Duration per Consumer) and FEC (Equivalent Outage Frequency per Consumer).

CC2.2b

Please explain why climate change is not integrated into your business strategy

CC2.2c

Does your company use an internal price on carbon?

No, but we anticipate doing so in the next 2 years

CC2.2d

Please provide details and examples of how your company uses an internal price on carbon

CC2.3

Do you engage in activities that could either directly or indirectly influence public policy on climate change through any of the following? (tick all that apply)

Direct engagement with policy makers
Funding research organizations

CC2.3a

On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
Energy efficiency	Support	Energy Efficiency Program	Context: The Energy Efficiency Program (EEP) regulated by Federal Law 9.991/2000 and determines the application of 0.5% of net operating revenues in energy efficiency projects. Our Company invested in 2016 R\$16.889.637,55 in 16 energy efficiency projects resulting in the economy of 10962 MWh/year. We also have projects dedicated to in low-income clients who have Social Tariff Electricity. Those projects requires a more complex logistics due to the dispersion of households within communities of Rio de Janeiro, which also generates higher costs for project execution. However, EEP is very important for Light's strategy to reduce commercial losses and delinquencies and to improve energy efficiency solutions in those households. Action: Light works in partnership with the governments to guarantee the investments of EEP and in partnership with other energy companies to guarantee that the rules of EEP will be in accordance with the energy efficiency strategy of the companies.

CC2.3b

Are you on the Board of any trade associations or provide funding beyond membership?

CC2.3c

Please enter the details of those trade associations that are likely to take a position on climate change legislation

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you, or are you attempting to, influence the position?
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CC2.3d

Do you publicly disclose a list of all the research organizations that you fund?

Yes

CC2.3e

Please provide details of the other engagement activities that you undertake

CC2.3f

What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?

Light is listed on Novo Mercado, BM&FBovespa's high-level corporate governance market segment, which requires us to adopt a range of best governance practices.

In our governance framework, our Shareholders' Forum is the body responsible for consolidating and aligning decisions within the controlling shareholder group. It is formed by the General Meeting members, the Audit Board and the Controlling Shareholders' Forum. Our structure further includes Interface Forums, consisting of the Board of Directors and the Accounts, Finance, Human Resources, Management, Corporate Governance and Sustainability Committees.

Light has been included in the BM&FBovespa's Corporate Sustainability Index (ISE) for the 10th consecutive year. The ISE was created by BM&FBovespa along the lines of the NYSE's Dow Jones Sustainability Index (DJSI), and seeks to identify those companies with the best corporate sustainability practices, based on economic efficiency, environmental balance, social justice and corporate governance. Commitment to sustainability is part of the Company's Strategy, relying on the best corporate governance practices, with transparency, accounting, fairness and a constant dialogue with our stakeholders.

Light, in partnership with thirteen other companies in the power sector, is investing in research and development of a methodology to monitor and evaluate the greenhouse gases in Brazilian hydroelectric reservoirs.

Another important initiative, which aims to improve the management and reduction of GEE emissions is the Carbon Footprint Project. Definition of Carbon Footprint allows companies to know the impact of their supply chain in greenhouse gas emissions may rethink and adapt their activities to sustainable operations. The calculation considers the total emissions of a product or service, from raw material acquisition through production, distribution and use, to its final disposal. Thus, in a pioneer initiative, Light developed a tool that measures its carbon footprint. From the coming years, it will be possible to compare results from previous years and to adopt measures to reduce the carbon footprint of the company. Light believes that it is not enough to generate and distribute energy from renewable sources to be clean now, but it is also necessary to improve the internal processes.

CC2.3g

Please explain why you do not engage with policy makers

Further Information

Page: CC3. Targets and Initiatives

CC3.1

Did you have an emissions reduction or renewable energy consumption or production target that was active (ongoing or reached completion) in the reporting year?

Absolute target

CC3.1a

Please provide details of your absolute target

ID	Scope	% of emissions in scope	% reduction from base year	Base year	Base year emissions covered by target (metric tonnes CO2e)	Target year	Is this a science-based target?	Comment
Abs1	Scope 1	100%	6%	2014	37994	2016	No, but we anticipate setting one in the next 2 years	year on year rolling target

CC3.1b

Please provide details of your intensity target

ID	Scope	% of emissions in scope	% reduction from base year	Metric	Base year	Normalized base year emissions covered by target	Target year	Is this a science-based target?	Comment
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CC3.1c

Please also indicate what change in absolute emissions this intensity target reflects

ID	Direction of change anticipated in absolute Scope 1+2 emissions at target completion?	% change anticipated in absolute Scope 1+2 emissions	Direction of change anticipated in absolute Scope 3 emissions at target completion?	% change anticipated in absolute Scope 3 emissions	Comment
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CC3.1d

Please provide details of your renewable energy consumption and/or production target

ID	Energy types covered by target	Base year	Base year energy for energy type covered (MWh)	% renewable energy in base year	Target year	% renewable energy in target year	Comment
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CC3.1e

For all of your targets, please provide details on the progress made in the reporting year

ID	% complete (time)	% complete (emissions or renewable energy)	Comment
Abs1	100%	0%	Our target is a year on year rolling target. To improve our emission reduction commitment we implemented a composting project. This changed emissions from Scope 3 to Scope 1 leading to the non-achievement of the target. Despite that fact our emissions decreased as a result from our SF6 reduction project

CC3.1f

Please explain (i) why you do not have a target; and (ii) forecast how your emissions will change over the next five years

CC3.2

Do you classify any of your existing goods and/or services as low carbon products or do they enable a third party to avoid GHG emissions?

Yes

CC3.2a

Please provide details of your products and/or services that you classify as low carbon products or that enable a third party to avoid GHG emissions

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
Company-wide	The company has its generation of electricity based in Hydropower plants, a renewable source of clean energy. We believe that the fact could avoid third parties from using electricity from another source which might emit significant quantities of GHGs.	Avoided emissions	Other:	4.3%	Less than or equal to 10%	Our Company has hydro power plants that dispatch renewable energy to the grid. By doing so it reduces the fossil component of the national grid
Company-wide	Our Company has an ESCO that started to operate a tri-generation power plant in Coca Cola Facility. This plant is more efficient than Coca Cola baseline scenario. The GHG Emissions reduction in comparison with the baseline is not calculated yet but it will be done some time in the futures. The emissions reduction occurs outside light boundary.	Avoided emissions	Other:	0.5%	Less than or equal to 10%	The tri-generation power plant delivers steam, electricity and CO2 to Coca-cola plant. It is considered avoided emissions because in the absence of this plant Coca-Cola would run their old cogeneration plant and purchase fossil CO2 from the market

CC3.3

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

Yes

CC3.3a

Please identify the total number of projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings

Stage of development	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation		
To be implemented*		
Implementation commenced*		
Implemented*	2	9691
Not to be implemented		

CC3.3b

For those initiatives implemented in the reporting year, please provide details in the table below

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Energy efficiency: Processes	Light ESCO that started to operate a tri-generation power plant in Coca Cola Facility. This plant is more efficient than Coca Cola baseline scenario. The GHG Emissions reduction in comparison with the baseline is not calculated yet but it will be done some time in the futures.		Scope 1	Voluntary			4-10 years	16-20 years	Numbers are confidential
Fugitive emissions reductions	Light SESA has 11 power stations and three of them are the responsible for the majority of low-pressure problems occurrences. The company began to change some equipment in 2011 and aims to retrofit all the stations by 2020. The substitution of old o-rings for new EPDM (Ethylene Propylene Diene Monomer) o-rings that are more resistant to corrosion is the best way to reduce the low-pressure occurrences and mitigate SF6 emissions.	9691	Scope 1	Voluntary	3800	134285	1-3 years	3-5 years	The SF6 project is still in progress and more emissions reductions are expected in the coming years

CC3.3c

What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Dedicated budget for energy efficiency	The business activity of Light ESCO is to promote energy savings in Light clients. Thus, it is considered a strategic investment for Light group. Light Esco operation can be considered additional because when there is an ESCO service, there is an immediate reduce in electricity sales. We also understand that to be more precise in terms of emission reduction a project analyses should be performed for each investment made by light ESCO

CC3.3d

If you do not have any emissions reduction initiatives, please explain why not

Further Information

In 2016, the Light Recycles (Light Recicla) project received and forwarded a large volume of waste to recycling processes, generating income for a number of families and social nonprofit institutions registered in the project. Results from the collection of waste exceeded 2015 results. Approximately 1.1 thousand tons of waste and 17 thousand liters of vegetable oil were collected. Recycling generated savings of approximately 5,000 MWh. The bonus credited in electricity bills had the best annual result since the beginning of the project in 2011: more than R\$280 thousand benefited 2,660 customers and social institutions. The project maintained all 11 ecopoints in the city of Rio de Janeiro and one ecopoint in the city of Paraíba do Sul. The collection points located in the cities of Mesquita and Japeri were closed. It is important to mention the change of address of the ecopoint located in Botafogo, which was strategically transferred to a square. The container was renovated and received a graffiti intervention.

Page: CC4. Communication

CC4.1

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

Publication	Status	Page/Section reference	Attach the document	Comment
In mainstream reports (including an integrated report) in accordance with the CDSB Framework	Complete	30/Environment and Climate Change	https://www.cdp.net/sites/2017/18/10718/Climate Change 2017/Shared Documents/Attachments/CC4.1/Annual Sustainability Report 2016_LIGHT.pdf	The document is also available in: http://ri.light.com.br/enu/reports http://ri.light.com.br/fck_temp/46_9/file/ANEXO%202011_CDP%202015_Climate%20Change%202015%20Information%20Request%20-%20LIGHT%20SA.pdf?target=_blank

Further Information

Module: Risks and Opportunities

Page: CC5. Climate Change Risks

CC5.1

Have you identified any inherent climate change risks that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

Risks driven by changes in regulation

Risks driven by changes in physical climate parameters

CC5.1a

Please describe your inherent risks that are driven by changes in regulation

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
General environmental regulations, including planning	The Law 12.187 (National Policy on Climate Change), published in December 2009, establishes a voluntary national obligation to establish a national voluntary commitment to reduce greenhouse gas emissions by 36,1% to 38,9% until 2020, also provides plans with emission limit values for several sectors, including the power sector. Our company does not produce electricity in fossil fuel plants, but we purchase fossil fuel electricity to sell to clients as a wholesale. Any increase in fossil fuel electricity price could lead to an	Increased capital cost	>6 years	Direct	More likely than not	Low-medium	Not Estimated	Our company has adopted a proactive position, participating in forums that discuss sector targets together with government authorities. In Brazil, electric energy is mostly supplied by renewable sources; still, unrealistic targets could impact the sector's viability.	Not Estimated

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	increase of capital cost to purchase energy.								
Emission reporting obligations	Rio de Janeiro has a state legislation on climate change, Law 5690, published in April 2010. This law led to a regulation by the Rio de Janeiro environmental agency (INEA). Resolution 64 and 65. The first demand the elaboration of GHG emissions inventory the second one demand the presentation of a mitigation plan in order to receive an environmental operation license. The Renewable electricity production and Electricity Distribution are not included in those legislations yet. There is a small possibility in changing the legislation to include	Increased capital cost	1 to 3 years	Direct	Unlikely	Low	Not Estimated	Our Company has two departments that analyses climate change: Sustainability and HSE. On top of that, we have a specialized consultancy company that help us with climate change issues, any change in legislation will be analyse in an advance. On top of that our company has already a GHG Inventory and internal targets	Not Estimated

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	distribution and CHP plants								
Product efficiency regulations and standards	Impact of related policies such as building regulations specifying more energy-efficient buildings; Rio de Janeiro Decreto nº 35745 that incentivates green building.	Reduced demand for goods/services	3 to 6 years	Direct	Unlikely	Medium	not estimated	Brazil is the fourth country in numbers of certificated green building. All national legislation up to the moment are it incentivize more greenbuilding such as Decreto nº 35745 are already in place and they only create incentives not obligations. The possible impacts are already considered. On top of that Light Esco that can operate in this business	Not Estimated

CC5.1b

Please describe your inherent risks that are driven by changes in physical climate parameters

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in mean (average) temperature	Increases in temperature have immediate impact on energy consumption, commercial losses, delinquency and may cause overloads. Our company has performed a study that indicates that there is a correlation between increase in temperature and increase in commercial losses. This indicates that people that steal electricity uses it more insensibly in warm whether	Increased operational cost	1 to 3 years	Direct	Likely	Medium-high	Not Estimated	Light uses the temperature as an input variable in their predictions of daily energy keeping an updated database of minimum, average and maximum of the municipality of Rio de Janeiro temperature. Light developed the R&D Project "Influence of Climate Condition on Light SESA's Electricity Market ", aiming to investigate, analyze and develop an innovative methodology to relate the climate (or more specifically the thermal sensation of the various regions that are part of Light's concession area) to the billed energy and electric power load. The study is based on historical data of those regions. The rise in temperatures and a consequent increase in energy consumption is directly related to increased losses and delinquency. Light incorporates into its analysis the ratio of the	Not Estimated

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								temperature rise and the use of air conditioning, with the increase in commercial losses. To mitigate the problem, Light invests in the modernization of the electric grid, energy efficiency projects and client relationships.	
Change in precipitation pattern	Change in precipitation pattern can be considered an important impact due to the fact that light has energy production with Hydro power plants. Extreme events in precipitation can reduce energy supply as it is occurring in these two years. On top of that, floods can increase maintenance costs in below ground electricity distribution nets.	Increased operational cost	1 to 3 years	Direct	Likely	High	not estimated	The management of hydrological risk involves monitoring indicators and scenarios, as well as adapt quickly to possible negative consequences of risk. The metrics for monitoring involving reservoir levels, environmental setting, indicators of climate monitoring and assessment of the political context.	not estimated

CC5.1c

Please describe your inherent risks that are driven by changes in other climate-related developments

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
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CC5.1d

Please explain why you do not consider your company to be exposed to inherent risks driven by changes in regulation that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC5.1e

Please explain why you do not consider your company to be exposed to inherent risks driven by changes in physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC5.1f

Please explain why you do not consider your company to be exposed to inherent risks driven by changes in other climate-related developments that have the potential to generate a substantive change in your business operations, revenue or expenditure

no risk had been identified

Further Information

Page: CC6. Climate Change Opportunities

CC6.1

Have you identified any inherent climate change opportunities that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

- Opportunities driven by changes in regulation
- Opportunities driven by changes in physical climate parameters
- Opportunities driven by changes in other climate-related developments

CC6.1a

Please describe your inherent opportunities that are driven by changes in regulation

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Renewable energy regulation	Renewable energy: the legislation governing the renewable energy market in Brazil is still incipient but there is incentive to customer that have a demand above 500kW to purchase renewable energy with a discount on the transmission	Investment opportunities	3 to 6 years	Direct	More likely than not	Medium	not estimated	The company participates directly and seeks to influence regulations and standards through official channels and specific meetings with ANEEL (National Electric Energy Agency). Light also composes ABRADDEE (Brazilian	not estimated

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>tariff. Light invests in renewable energy and develops projects in R & D on renewable energy. Despite the legislation the Brazilian NDC states: "in the energy sector, achieving 45% of renewables in the energy mix by 2030, including: - expanding the use of renewable energy sources other than hydropower in the total energy mix to between 28% and 33% by 2030; - expanding the use of non-fossil fuel energy sources domestically, increasing the share of renewables (other than hydropower) in the power supply to at least 23% by 2030, including by raising the share of wind, biomass</p>							<p>Association of Electricity Distributors) an organization that has political power to influence the federal government. One way to maximize the opportunities in these segments is with the diversification of the activities of the company with investments in renewable energy. Another way to diversify is to invest in projects for energy efficiency and electrical engineering services.</p>	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	and solar; - achieving 10% efficiency gains in the electricity sector by 2030".								
Cap and trade schemes	Opportunities that may arise from emissions trading. Our electricity generation is almost 99% renewable so a cap and trade will not affect our energy generation price in a negative	Premium price opportunities	>6 years	Direct	More likely than not	Medium-high	not estimated	We have a contract with a consultancy company to monitor the climate change market in Brazil. If there is a proposition of a Cap and Trade system, it will analyzed in advance and included in a strategically plan. In Brazil a proposition of a Law takes time so there is enough time to prepare	irrelevant
Other regulatory drivers	Energy efficiency: The Energy Efficiency Program (EEP) is regulated by Federal Law 9.991/2000 and determines the application of 0.5% of net operating	Reduced operational costs	1 to 3 years	Direct	Likely	Medium-high	not estimated	Our company is constantly monitoring non-technical loss. The investments made on EEP are included in this monitoring system to provide data to replicate	not estimated

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>revenues in energy efficiency projects. EEP is very important for Light's strategy to reduce commercial losses and delinquencies and to improve energy efficiency solutions in those households. Another opportunity is the development of more sophisticated projects such as cogeneration plants, refrigeration plants and large structures of air conditioning. These actions have generated expertise in electric utilities.</p>							successful projects.	

CC6.1b

Please describe your inherent opportunities that are driven by changes in physical climate parameters

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in mean (average) temperature	The rise in temperatures and a consequent increase in energy consumption are directly related to the increase in losses and delinquencies and are both a risk and opportunity. The opportunity is to reduce these rates that directly affect the outcome, improving the company's performance.	Increased demand for existing products/services	>6 years	Direct	About as likely as not	Low-medium	not estimated	Light uses the temperature as an input variable in their predictions of daily energy keeping an updated database of minimum, average and maximum of the municipality of Rio de Janeiro temperature. Light developed the R&D Project "Influence of Climate Condition on Light SESA's Electricity Market ", aiming to investigate, analyze and develop an innovative methodology to relate the climate (or more specifically the thermal sensation of the various regions that are part of Light's concession area) to the billed energy and electric power load. The study is based on historical data of those regions. The rise in temperatures and a consequent increase in energy	not estimated

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								consumption is directly related to increased losses and delinquency. Light incorporates into its analysis the ratio of the temperature rise and the use of air conditioning, with the increase in commercial losses.	
Change in mean (average) precipitation	According to AR-5 there is a possibility to increase the amount of rain precipitation in the southeast where is located the majority of our Hydro power plants.	Increased production capacity	>6 years	Direct	Likely	High	not estimated	The expectation of the increase in rain precipitation is in a future distant scenario. Up to the moment there is no management strategy in place. In our hydrological studies we analyze the scenario with more precipitation.	not estimated

CC6.1c

Please describe your inherent opportunities that are driven by changes in other climate-related developments

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Reputation	Our company can have the reputation increased in a climate change scenario due to the fact that we produce 99% of our electricity from renewable sources	Wider social benefits	Unknown	Direct	Unlikely		not estimated	Social analyses and market researches	not estimated

CC6.1d

Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in regulation that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC6.1e

Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC6.1f

Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in other climate-related developments that have the potential to generate a substantive change in your business operations, revenue or expenditure

Further Information

Module: GHG Emissions Accounting, Energy and Fuel Use, and Trading

Page: CC7. Emissions Methodology

CC7.1

Please provide your base year and base year emissions (Scopes 1 and 2)

Scope	Base year	Base year emissions (metric tonnes CO2e)
Scope 1	Fri 01 Jan 2016 - Sat 31 Dec 2016	38726
Scope 2 (location-based)	Fri 01 Jan 2016 - Sat 31 Dec 2016	230699
Scope 2 (market-based)		

CC7.2

Please give the name of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

Please select the published methodologies that you use

Brazil GHG Protocol Programme
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)
IPCC Guidelines for National Greenhouse Gas Inventories, 2006
ISO 14064-1
Other

CC7.2a

If you have selected "Other" in CC7.2 please provide details of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

Our Company has developed an Carbon Footprint calculator.

CC7.3

Please give the source for the global warming potentials you have used

Gas	Reference
CO2	IPCC Fifth Assessment Report (AR5 - 100 year)
CH4	IPCC Fifth Assessment Report (AR5 - 100 year)
N2O	IPCC Fifth Assessment Report (AR5 - 100 year)
HFCs	IPCC Fifth Assessment Report (AR5 - 100 year)
SF6	

CC7.4

Please give the emissions factors you have applied and their origin; alternatively, please attach an Excel spreadsheet with this data at the bottom of this page

Fuel/Material/Energy	Emission Factor	Unit	Reference
Motor gasoline	3.087	metric tonnes CO2e per metric tonne	We have calculated this emission factor using the default emissions factors for road transport from the IPCC Guidelines, 2006, and the Brazilian factors for density and calorific value from the National Energy Balance (Balanço Energético Nacional), 2015
Diesel/Gas oil	3.182	metric tonnes CO2e per metric tonne	We have calculated this emission factor using the default emissions factors for road transport from the IPCC Guidelines, 2006, and the Brazilian factors for density and calorific value from the National Energy Balance (Balanço Energético Nacional), 2015
Biodiesels	0.043	metric tonnes CO2e per metric tonne	We have calculated this emission factor using the default emissions factors for road transport from the IPCC Guidelines, 2006, and the Brazilian factors for density and calorific value from the National Energy Balance (Balanço Energético Nacional), 2015
Motor gasoline	3.05	metric tonnes CO2e per metric tonne	We have calculated this emission factor using the default emissions factors for road transport from the IPCC Guidelines, 2006, and the Brazilian factors for density and calorific value from the National Energy Balance (Balanço Energético Nacional), 2015
Diesel/Gas oil	3.164	metric tonnes CO2e per metric tonne	We have calculated this emission factor using the default emissions factors for road transport from the IPCC Guidelines, 2006, and the Brazilian factors for density and calorific value from the National Energy Balance (Balanço Energético Nacional), 2015
Motor gasoline	3.028	metric tonnes CO2e per	We have calculated this emission factor using the default emissions factors for stationary combustion from the IPCC Guidelines, 2006, and the Brazilian factors for density and calorific value from the National Energy Balance (Balanço Energético Nacional), 2015

Fuel/Material/Energy	Emission Factor	Unit	Reference
		metric tonne	
Diesel/Gas oil	3.138	metric tonnes CO2e per metric tonne	We have calculated this emission factor using the default emissions factors for stationary combustion from the IPCC Guidelines, 2006, and the Brazilian factors for density and calorific value from the National Energy Balance (Balanço Energético Nacional), 2015
Electricity	0.081	metric tonnes CO2e per MWh	Brazil - Sistema Interligado Nacional (SIN), 2016 : < http://www.mct.gov.br/index.php/content/view/321144.html >
Natural gas	2.191	metric tonnes CO2e per metric tonne	We have calculated this emission factor using the default emissions factors for road transport from the IPCC Guidelines, 2006, and the Brazilian factors for density and calorific value from the National Energy Balance (Balanço Energético Nacional), 2015
Aviation gasoline	3.157	metric tonnes CO2e per metric tonne	ICAO Flight Emissions Methodology V.5
Other: Solid Waste Treatment	4.08	metric tonnes CO2e per metric tonne	We have calculated this emission factor using the default DOC and fossil carbon content in industrial waste factors, the Methane Correction Factor (MCF) and Oxidations Factors for SWDS from the IPCC Guidelines V.5 Ch.2 and Ch.3, 2006. We used as well density data from Victoria EPA, Waste Materials Demsity Data and Caracterização Lixo Domiciliar 2012 - COMLURB .

Further Information

Attachments

[https://www.cdp.net/sites/2017/18/10718/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC7.EmissionsMethodology/2017.04.17 AMBIO - RELATÓRIO DE GEE LIGHT 2016_Final.pdf](https://www.cdp.net/sites/2017/18/10718/Climate%20Change%202017/Shared%20Documents/Attachments/ClimateChange2017/CC7.EmissionsMethodology/2017.04.17%20AMBIO%20-%20RELAT%C3%93RIO%20DE%20GEE%20LIGHT%202016_Final.pdf)
[https://www.cdp.net/sites/2017/18/10718/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC7.EmissionsMethodology/AMBIO -](https://www.cdp.net/sites/2017/18/10718/Climate%20Change%202017/Shared%20Documents/Attachments/ClimateChange2017/CC7.EmissionsMethodology/AMBIO%20-%20)

Page: CC8. Emissions Data - (1 Jan 2016 - 31 Dec 2016)

CC8.1

Please select the boundary you are using for your Scope 1 and 2 greenhouse gas inventory

Operational control

CC8.2

Please provide your gross global Scope 1 emissions figures in metric tonnes CO2e

3872662

CC8.3

Please describe your approach to reporting Scope 2 emissions

Scope 2, location-based	Scope 2, market-based	Comment
We are reporting a Scope 2, location-based figure	We have operations where we are able to access electricity supplier emissions factors or residual emissions factors, but are unable to report a Scope 2, market-based figure	

CC8.3a

Please provide your gross global Scope 2 emissions figures in metric tonnes CO2e

Scope 2, location-based	Scope 2, market-based (if applicable)	Comment
230699		

CC8.4

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

Yes

CC8.4a

Please provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure

Source	Relevance of Scope 1 emissions from this source	Relevance of location-based Scope 2 emissions from this source	Relevance of market-based Scope 2 emissions from this source (if applicable)	Explain why the source is excluded
	No emissions excluded	No emissions excluded	No emissions excluded	

CC8.5

Please estimate the level of uncertainty of the total gross global Scope 1 and 2 emissions figures that you have supplied and specify the sources of uncertainty in your data gathering, handling and calculations

Scope	Uncertainty range	Main sources of uncertainty	Please expand on the uncertainty in your data
Scope 1	Less than or equal to 2%	Data Management	Data conversion and collection
Scope 2 (location-based)	Less than or equal to 2%	Metering/ Measurement Constraints	Energy from transmission and distribution is measured by a specific department. The emission factor is provided by the Brazilian government t
Scope 2 (market-based)			

CC8.6

Please indicate the verification/assurance status that applies to your reported Scope 1 emissions

No third party verification or assurance

CC8.6a

Please provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/section reference	Relevant standard	Proportion of reported Scope 1 emissions verified (%)

CC8.6b

Please provide further details of the regulatory regime to which you are complying that specifies the use of Continuous Emission Monitoring Systems (CEMS)

Regulation	% of emissions covered by the system	Compliance period	Evidence of submission
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CC8.7

Please indicate the verification/assurance status that applies to at least one of your reported Scope 2 emissions figures

No third party verification or assurance

CC8.7a

Please provide further details of the verification/assurance undertaken for your location-based and/or market-based Scope 2 emissions, and attach the relevant statements

Location-based or market-based figure?	Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 2 emissions verified (%)
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CC8.8

Please identify if any data points have been verified as part of the third party verification work undertaken, other than the verification of emissions figures reported in CC8.6, CC8.7 and CC14.2

Additional data points verified	Comment
No additional data verified	

CC8.9

Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?

No

CC8.9a

Please provide the emissions from biologically sequestered carbon relevant to your organization in metric tonnes CO2

Further Information

Page: CC9. Scope 1 Emissions Breakdown - (1 Jan 2016 - 31 Dec 2016)

CC9.1

Do you have Scope 1 emissions sources in more than one country?

No

CC9.1a

Please break down your total gross global Scope 1 emissions by country/region

Country/Region	Scope 1 metric tonnes CO2e
----------------	----------------------------

CC9.2

Please indicate which other Scope 1 emissions breakdowns you are able to provide (tick all that apply)

- By business division
- By GHG type
- By activity

CC9.2a

Please break down your total gross global Scope 1 emissions by business division

Business division	Scope 1 emissions (metric tonnes CO2e)
Light SESA	7661
Light Energia	5503
Light ESCO	25561

CC9.2b

Please break down your total gross global Scope 1 emissions by facility

Facility	Scope 1 emissions (metric tonnes CO2e)	Latitude	Longitude
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CC9.2c

Please break down your total gross global Scope 1 emissions by GHG type

GHG type	Scope 1 emissions (metric tonnes CO2e)
CO2	29003
CH4	5217
N2O	626
HFCs	593
SF6	3285

CC9.2d

Please break down your total gross global Scope 1 emissions by activity

Activity	Scope 1 emissions (metric tonnes CO2e)
Mobile Combustion	3565
Stationary Combustion	25589
Fugitive Emissions	9572

Further Information

Page: CC10. Scope 2 Emissions Breakdown - (1 Jan 2016 - 31 Dec 2016)

CC10.1

Do you have Scope 2 emissions sources in more than one country?

No

CC10.1a

Please break down your total gross global Scope 2 emissions and energy consumption by country/region

Country/Region	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
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CC10.2

Please indicate which other Scope 2 emissions breakdowns you are able to provide (tick all that apply)

By business division
By activity

CC10.2a

Please break down your total gross global Scope 2 emissions by business division

Business division	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)
Light SESA	226841	
Light Energia	3528	
Light ESCO	329	

CC10.2b

Please break down your total gross global Scope 2 emissions by facility

Facility	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)
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CC10.2c

Please break down your total gross global Scope 2 emissions by activity

Activity	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)
Electricity Consumption	9789	
Transmission and Distribution	220909	

Further Information

Page: CC11. Energy

CC11.1

What percentage of your total operational spend in the reporting year was on energy?

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

CC11.2

Please state how much heat, steam, and cooling in MWh your organization has purchased and consumed during the reporting year

Energy type	MWh
Heat	0
Steam	19294
Cooling	23977

CC11.3

Please state how much fuel in MWh your organization has consumed (for energy purposes) during the reporting year

215233

CC11.3a

Please complete the table by breaking down the total "Fuel" figure entered above by fuel type

Fuels	MWh
Other: Ethanol	43
Natural gas	197337
Motor gasoline	71223
Diesel/Gas oil	10729

CC11.4

Please provide details of the electricity, heat, steam or cooling amounts that were accounted at a low carbon emission factor in the market-based Scope 2 figure reported in CC8.3a

Basis for applying a low carbon emission factor	MWh consumed associated with low carbon electricity, heat, steam or cooling	Emissions factor (in units of metric tonnes CO2e per MWh)	Comment
Other	0	0	Energy purchased from our own hydros. No data is available

CC11.5

Please report how much electricity you produce in MWh, and how much electricity you consume in MWh

Total electricity consumed (MWh)	Consumed electricity that is purchased (MWh)	Total electricity produced (MWh)	Total renewable electricity produced (MWh)	Consumed renewable electricity that is produced by company (MWh)	Comment
119889	119889	3792699	3721304		Our company generates renewable energy, but by contract all energy that is consume is also purchased so it is impossible to separate

Further Information

Page: CC12. Emissions Performance

CC12.1

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

Decreased

CC12.1a

Please identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined) and for each of them specify how your emissions compare to the previous year

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
Emissions reduction activities	9	Decrease	Project Activity that promotes upgrade in the substation where there is fugitive emission of SF6 (Carneiro e Posto Seis and Santo Antônio). The Plan is 71,42% achieved and the result was the mitigation of 344,46tCO2e. SF6 Emission in 2015 = 3.629,76 tCO2e SF6 Emission in 2016 = 3285tCO2e resulting in 9.49%
Divestment			
Acquisitions			
Mergers			
Change in output			
Change in methodology			
Change in boundary			
Change in physical operating conditions	38	Decrease	T&D Loss Emission in 2015 = 377.989,32 tCO2e T&D Loss Emission in 2016 = 230.699,29 resulting in -38.97%. The reduction is due to the increase of energy injected by the internal power plants connected directly to the A2 distribution system of the company, as well as to the reduction of the base load for the year 2016.
Unidentified			
Other	21	Increase	Light ESCO has increased the acquisition of Natural Gas in the CHP plant Is emission in 2015 = 17.645,87 tCO2e Emission in 2016 = 25.561,38tCO2e resulting in a Increase of 44.86% in Light ESCO Scope 1 and an overall 21.86% in the Group emission

CC12.1b

Is your emissions performance calculations in CC12.1 and CC12.1a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Location-based

CC12.2

Please describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO2e per unit currency total revenue

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator: Unit total revenue	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
0.00001291	metric tonnes CO2e	1	Location-based	63	Decrease	The reduction is due to the increase of energy injected by the internal power plants connected directly to the A2 distribution system of the company, as well as to the reduction of the base load for the year 2016.

CC12.3

Please provide any additional intensity (normalized) metrics that are appropriate to your business operations

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator	Metric denominator: Unit total	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
0.00653	metric tonnes CO2e	megawatt hour (MWh)	1	Location-based	65	Decrease	For Light SESA (Electricity Division).The reduction is due to the increase of energy injected by the internal power plants connected directly to the A2 distribution system of the company, as well as to the reduction of the base load for the year 2016.
0.00243	metric tonnes CO2e	megawatt hour (MWh)	1	Location-based	24	Decrease	Decrease emissions and increase energy generation

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator	Metric denominator: Unit total	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
0.36264	metric tonnes CO2e	megawatt hour (MWh)	1	Location-based	67	Increase	Increase in Natural gas consumption

Further Information

Page: CC13. Emissions Trading

CC13.1

Do you participate in any emissions trading schemes?

No, and we do not currently anticipate doing so in the next 2 years

CC13.1a

Please complete the following table for each of the emission trading schemes in which you participate

Scheme name	Period for which data is supplied	Allowances allocated	Allowances purchased	Verified emissions in metric tonnes CO2e	Details of ownership

CC13.1b

What is your strategy for complying with the schemes in which you participate or anticipate participating?

CC13.2

Has your organization originated any project-based carbon credits or purchased any within the reporting period?

No

CC13.2a

Please provide details on the project-based carbon credits originated or purchased by your organization in the reporting period

Credit origination or credit purchase	Project type	Project identification	Verified to which standard	Number of credits (metric tonnes CO2e)	Number of credits (metric tonnes CO2e): Risk adjusted volume	Credits canceled	Purpose, e.g. compliance
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Further Information

Page: CC14. Scope 3 Emissions

CC14.1

Please account for your organization's Scope 3 emissions, disclosing and explaining any exclusions

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Purchased goods and services	Relevant, calculated	4383	GHG Protocol Corporate Accounting and Reporting Standards 2006; IPCC Guidelines for National GHG Inventories.	100.00%	primary data collect directly from providers
Capital goods					
Fuel-and-energy-related activities (not included in Scope 1 or 2)					
Upstream transportation and distribution					
Waste generated in operations	Relevant, calculated	2380	GHG Protocol Corporate Accounting and Reporting Standards 2006; IPCC Guidelines for National GHG Inventories V.5 Ch.2 and Ch.3	100.00%	primary data collect directly from providers
Business travel	Not relevant, calculated	186	ICAO Flight Emissions Methodology V.5	100.00%	primary data collect directly from providers
Employee commuting					
Upstream leased assets					
Downstream transportation and distribution					
Processing of sold products					
Use of sold products					
End of life treatment of sold products					
Downstream leased assets					
Franchises					
Investments					
Other (upstream)					
Other (downstream)					

Please indicate the verification/assurance status that applies to your reported Scope 3 emissions

No third party verification or assurance

CC14.2a

Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 3 emissions verified (%)

CC14.3

Are you able to compare your Scope 3 emissions for the reporting year with those for the previous year for any sources?

Yes

CC14.3a

Please identify the reasons for any change in your Scope 3 emissions and for each of them specify how your emissions compare to the previous year

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
Purchased goods & services	Other: Internal changes in Supply Chain	52	Decrease	
Waste generated in operations	Change in physical operating conditions	7	Decrease	Small changes especially in water plants generation and removal from our dam's reservoirs some are nature related

CC14.4

Do you engage with any of the elements of your value chain on GHG emissions and climate change strategies? (Tick all that apply)

Yes, our suppliers

CC14.4a

Please give details of methods of engagement, your strategy for prioritizing engagements and measures of success

CC14.4b

To give a sense of scale of this engagement, please give the number of suppliers with whom you are engaging and the proportion of your total spend that they represent

Type of engagement	Number of suppliers	% of total spend (direct and indirect)	Impact of engagement
Other: Requesting GHG emissions data	14	1.5%	The impact is low. We do a seminar each year to engage the suppliers in improving their GHG emissions performance and to request information for our GHG Inventory

CC14.4c

Please explain why you do not engage with any elements of your value chain on GHG emissions and climate change strategies, and any plans you have to develop an engagement strategy in the future

Further Information

Module: Sign Off

Page: CC15. Sign Off

CC15.1

Please provide the following information for the person that has signed off (approved) your CDP climate change response

Name	Job title	Corresponding job category
Regiane Monteiro de Abreu	Sustainability Specialist	Other: Sustainability Specialist

Further Information

Module: Electric utilities

Page: EU0. Reference Dates

EU0.1

Please enter the dates for the periods for which you will be providing data. The years given as column headings in subsequent tables correspond to the "year ending" dates selected below. It is requested that you report emissions for: (i) the current reporting year; (ii) one other year of historical data (i.e. before the current reporting year); and, (iii) one year of forecasted data (beyond 2021 if possible).

Year ending	Date range
2014	Wed 01 Jan 2014 - Wed 31 Dec 2014
2015	Thu 01 Jan 2015 - Thu 31 Dec 2015
2016	Fri 01 Jan 2016 - Sat 31 Dec 2016
2020	Wed 01 Jan 2020 - Thu 31 Dec 2020

Further Information

Page: EU1. Global Totals by Year

EU1.1

In each column, please give a total figure for all the countries for which you will be providing data for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO ₂ e)	Emission intensity (metric tonnes CO ₂ e/MWh)
2014	971	3274	241	
2015	855	2823	6052	0.0034
2016	855	3792	276375	0.0024

Further Information**Page: EU2. Individual Country Profiles - Brazil**

EU2.1

Please select the energy sources/fuels that you use to generate electricity in this country

Hydro

EU2.1a

Coal - hard

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO ₂ e)	Emissions intensity (metric tonnes CO ₂ e/MWh)
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EU2.1b

Lignite

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
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EU2.1c

Oil & gas (excluding CCGT)

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
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EU2.1d

CCGT

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
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EU2.1e

Nuclear

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)
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EU2.1f**Waste**

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO ₂ e)	Emissions intensity (metric tonnes CO ₂ e/MWh)
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EU2.1g**Hydro**

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)
2014	855	3274

Year ending	Nameplate capacity (MW)	Production (GWh)
2015	855	3100
2016	855	3721

EU2.1h

Other renewables

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)

EU2.1i

Other

Please complete the following table for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO ₂ e)	Emissions intensity (metric tonnes CO ₂ e/MWh)

EU2.1j

Solid biomass

Please complete for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
-------------	-------------------------	------------------	---	--

EU2.1k**Total thermal including solid biomass**

Please complete for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
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EU2.1l**Total figures for this country**

Please enter total figures for this country for the "year ending" periods that you selected in answer to EU0.1

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2014	855	3274	529527	0.0009
2015	855	3100	453528	0.0034
2016	855	3721	276375	0.0024

Further Information

Page: EU3. Renewable Electricity Sourcing Regulations

EU3.1

In certain countries, e.g. Italy, the UK, the USA, electricity suppliers are required by regulation to incorporate a certain amount of renewable electricity in their energy mix. Is your organization subject to such regulatory requirements?

No

EU3.1a

Please provide the scheme name, the regulatory obligation in terms of the percentage of renewable electricity sourced (both current and future obligations) and give your position in relation to meeting the required percentages

Scheme name	Current % obligation	Future % obligation	Date of future obligation	Position in relation to meeting obligations

Further Information

Page: EU4. Renewable Electricity Development

EU4.1

Please give the contribution of renewable electricity to your organization's EBITDA (Earnings Before Interest, Tax, Depreciation and Amortization) in the current reporting year in either monetary terms or as a percentage

Please give:	Monetary figure	%	Comment
Renewable electricity's contribution to EBITDA	453	100%	The EBITDA is for Light Energia that only produces renewable energy

EU4.2

Please give the projected contribution of renewable electricity to your organization's EBITDA at a given point in the future in either monetary terms or as a percentage

Please give:	Monetary figure	%	Year ending	Comment
Renewable electricity's contribution to EBITDA		100%	2016	Confidential information

EU4.3

Please give the capital expenditure (capex) planned for the development of renewable electricity capacity in monetary terms and as a percentage of total capex planned for power generation in the current capex plan

Please give:	Monetary figure	%	End year of capex plan	Comment
Capex planned for renewable electricity development		100%	2016	Confidential information

Further Information

CDP 2017 Climate Change 2017 Information Request