
Carbon Disclosure Project

2014

Companhia Energética
de Minas Gerais



English Version

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Introduction Module

Q0.1 Introduction

Founded in 1952 by then Governor of Minas Gerais, Juscelino Kubitschek de Oliveira, Companhia Energética de Minas Gerais (Cemig) operates in electric energy generation, transmission, commercialization, and distribution. In addition, the company works with energy solutions (Efficientia S.A.) and natural gas distribution (Gasmig). The Cemig group comprises the holding company, Companhia Energética de Minas Gerais – Cemig, through its wholly-owned subsidiaries – Cemig Geração e Transmissão S/A (Cemig GT) and Cemig Distribuição S.A. (Cemig D) – and a number of subsidiaries (151), consortia (18) and a holding fund, with assets in 23 Brazilian states (including the Federal District), in addition to Chile. Since its founding, the Company has assumed the role of ensuring the collective well-being of the areas where it operates in an innovative and sustainable way. This determination has led it to become the largest electricity distributor on transmission lines and networks and grow into one of the largest energy generation and transmission companies in the country. Cemig also has operations in natural gas exploration and distribution, in addition to data transmission (Cemig Telecom). Cemig has a 26.06% stake in Light S.A., energy distributor present in 31 municipalities in the state of Rio de Janeiro, covering a region with more than 11 million people. It also has stakes in the transmission company Transmissora Aliança de Energia Elétrica S.A. (Taesa). With a growth model that aims at increasing the use of renewable energy, in 2013, Cemig increased its stake in Renova, a leader in the wind energy market in Brazil. Currently, the Cemig GT has a 20.2% stake in Renova, and Light S.A. (company in which Cemig has a stake, as mentioned above) holds an 11.7% stake. The main objective for acquiring a stake in Renova is to make the company an arm for Cemig's expansion into the renewable energy market (not considering hydroelectric power plants).

Cemig is a mixed capital company controlled by the Government of Minas Gerais (51%) with more than 120,000 shareholders in 40 countries (data as of December 2013). Shares are traded in the Brazilian BM&FBovespa S.A., New York Stock Exchange (NYSE), and in the Mercado de Valores Latino-Americanos (*Latibex*) of Madrid. The Company's consolidated net operational revenue reached R\$ 18.97 billion in 2013, based on a primarily renewable energy matrix.

Not including the energy generated by Light S.A., Cemig's generation park has an installed capacity of 6,872 MW, with 96.6% from hydraulic generation, 2.7% from thermal generation (1.9% fuel oil and 0.8% process residual gas), and 0.7% from wind generation. Thus, Cemig is one of the largest electricity generators in Brazil with 63 hydroelectric power plants, 3 thermal power plants, and 4 wind farms. Adding proportionally the generation capacity of Cemig's holdings in subsidiaries / affiliates such as Light S.A. and Renova, Cemig's total installed capacity comes to 7,158 MW. The

company owns 9,748 km of transmission lines and 17,218 km of subtransmission lines; in the area of electricity distribution, the company is responsible for providing service to approximately 7.8 million people in 774 municipalities in Minas Gerais and managing the largest electricity distribution network in Latin America, with an extension of more than 484,000 km. At the end of 2013, Cemig had 7,922 direct employees.

For its commitment to principles of social and environmental responsibility, economic and financial integrity and technical excellence, the Company is recognized internationally as a benchmark for sustainability in the industry and is positioned as one of the main vectors for consolidation in the Brazilian electric sector. Cemig has been listed in the Dow Jones Sustainability Index (DJSI World) for 14 years, since its inception. For the 9th consecutive year, the Company has also participated in the Corporate Sustainability Index (ISE) of the BM&FBovespa, and was selected for the 4th time to be included in the Carbon Efficient Index (ICO2), created in 2010 by the BM&FBovespa and the Brazilian Development Bank (BNDES). In 2013, the Company won 1st place in the ET Carbon Ranking Leader Awards by the ET Carbon Ranking Brics 300 (Environmental Investment Organisation – United Kingdom), the ranking that evaluates greenhouse gas emissions, transparency and reliability of data from Brazilian, Indian, Chinese and Russian corporations. In 2013, CDP recognized the Company for the second consecutive time as one of the Ten Brazilian Companies excelling in transparency in the disclosure of information related to climate change.

MISSION

“To perform in the energy sector with profitability, quality and social responsibility”.

VISION

“To be the largest energy group in Brazil during this decade in terms of market value, with presence in gas, known as a global leader in sustainability, admired by customers and recognized for strength and performance”.

Q0.2 Reporting year

01/01/2013 a 31/12/2013

Q0.3 Country list configuration

Brazil.

Q0.4 Currency selection

BRL(R\$) – Reais.

Q0.6 Modules

Electric Utilities module.

Management Module

1. Governance

Q 1.1 Where is the highest level of direct responsibility for climate change within your organization?

Individual/Sub-set of the Board or other committee appointed by the Board.

If there is a responsible:

Q 1.1a Please identify the position of the individual or name of the committee with this responsibility.

The person at the highest level of direct responsibility for the subject of climate change at Cemig is the Executive Vice President, who reports directly to the President of the Company. The President is the highest level of the Executive Board, who in turn reports directly to the Board of Directors.

Cemig's administration is composed of the Board of Directors and the Executive Board. The members of the Board of Directors are elected during the General Shareholders' Meeting and elect the President and CEO, Executive Vice President, and appoint the Executive Director. The Executive Vice President is part of the Executive Board, which is considered as a group pertaining to the company's Board. Functional assignments the Executive Vice President as defined and approved by the Board of Directors, include i) replace the President in his absence, leave, temporary disability, resignation or vacancy, ii) promote the improvement of the company's social responsibility and corporate sustainability policies, iii) define the policies and guidelines on the environment, technological development, alternative energy sources, and technical standardization, iv) coordinate Cemig's performance strategy in relation to social responsibility, the environment, technological processes for the strategic management of technology, v) coordinate the deployment and maintenance of quality systems, vi) promote the implementation of programs for the technological development of the company, and vii) monitor the management of plans for meeting environmental, technological, and quality guidelines.

Q1.2 Do you provide incentives for the management of climate change issues, including the attainment of targets?

Yes.

If there are incentives:

Q1.2a 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
Board / Executive Board	Monetary reward	Indicator: Cemig's score on the Dow Jones Sustainability World Index. This index assesses issues related to climate change and sustainability. Cemig's score on the Dow Jones Sustainability Index is linked to the variable remuneration of the Executive Vice President, who is second from the top on the Executive Board, which administrates the company.
Corporate executive team	Monetary reward	Indicator: Cemig's participation in the Carbon Efficient Index (ICO2) portfolio. Developed by the BM&FBovespa and Brazilian Development Bank (BNDES), the ICO2 is an indicator based on the IBrX-50 portfolio, which, when deciding on shares to include, takes into account the relationship between gross revenue and greenhouse gas (GHG) emissions, and thus, assesses GHG emissions efficiency. Cemig's inclusion in ICO2 is linked to the variable remuneration of the team subordinate to the Executive Vice President.
Corporate executive team	Monetary reward	Indicator: Cemig's score on the environmental dimension of the Dow Jones Sustainability World Index. This index assesses issues related to climate change and sustainability. This team is also responsible for the achieving Cemig's sustainability goals with all climate change-related matters directly linked to these goals. Cemig's score on the environmental dimension of the Dow Jones Sustainability Index is linked to the variable remuneration of the team subordinate to Executive Vice President.
Energy managers	Monetary reward	Indicator: rate of energy losses in the electric system. Energy losses in the electric system are responsible for 99% of Cemig's Scope 2 emissions. To meet the goal of reducing of these measurable losses, the Total Distribution Losses Index (IPTD - Índice de Perdas Totais de Distribuição) was created with multi-year targets validated annually and monitored monthly. This loss index is linked to the variable remuneration of the management team for the Distribution Loss Management and Control Unit.
All employees	Other non-monetary reward	Indicator: rate of potential reduction of water and electricity consumption In 2013, a campaign against water and electricity waste at Cemig called "Attitudes that Move the World" was conducted and involved 3,700 employees and contractors through lectures, mobilizations, brochures, and giveaways. The company held a contest that received 300 projects for electricity and water conservation in the company with non-monetary rewards for the 6 best and most creative ideas. The reduction of electricity consumption is one of the company's goals (see question Q3.1 a), aiming at reducing GHG emissions.

2. Strategy

Q2.1 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.

Q2.1a 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
Six-monthly or more frequently	Individual/Sub-set of the Board or committee appointed by the Board	Brazil	> 6 years	<p>Cemig's Corporate Risk Management Policy establishes guidelines for identifying, analyzing, mitigating and monitoring existing risks.</p> <p>In 2013, the Cemig implemented SAP GRC Risk Management (RM) and Process Control (PC) modules in the corporate risks management process. With this new system for mapping risks and opportunities, the process is now done continuously and online: when registering a risk / opportunity, changes in the assessment or in the status of management plans can be made in the system at any time. All of those involved in the management of the risks / opportunities have immediate access to the information, increasing the transparency and reliability of the process. The system runs a model that looks at the causes and consequences of a risk / opportunity and inserts new parameters in the management model: inherent risk, residual, planned residual, and Control-Self Assessment.</p> <p>Cemig is the pioneer in Brazil in implementing RM and PC modules for risk management.</p>

Q2.1b Please describe how your risk and opportunity identification processes are applied at both company and asset level.

Cemig considers strategic opportunities / risks as those that can directly affect the company's business, namely, those that are associated with the senior management decision-making and can substantially affect the economic value of the organization. In

addition, the Company considers process risks / opportunities as those that can negatively / positively affect the attainment of goals and guidelines established by the company's Strategic Planning and can be identified in all processes in each business area: Commercialization, Generation, Transmission, Distribution, and Corporate.

Thus, the risks / opportunities at the corporate level are handled at Cemig as risks / strategic opportunities. Risks at the level of subsidiaries and individual plants, that is, at the asset level, include both strategic and process risks / opportunities.

The new system for mapping risks and opportunities implemented in 2013 (SAP GRC Risk Management (RM) and Process Control (PC) modules) allows both strategic and process risks / opportunities to be assessed with the same methodology defined by this new tool. The process of mapping risks / opportunities is done continuously since updating information and monitoring, and conducting assessments of controls and action plans are scheduled tasks to be carried out by those responsible, giving all of those involved in risk management specific roles and responsibilities. The hierarchical level for approval of the information collected has changed with the new tool. Previously, approvals were made at the Superintendence level. With RM and PC modules, they are now made at the Board level.

In addition, the new system allows a risk / opportunity being managed at the process level to have a direct link to a risk being evaluated at the strategic level.

Q2.1c How do you prioritize the risks and opportunities identified?

Cemig uses scales to classify the risks and opportunities according to its financial impacts, intangible impacts, likelihood, and relevance to the Company with provides estimated percentages between each of the points for each of the scales. From these scales, Cemig prioritizes each risk, which allows the risks to be ranked in an exposure matrix indicating risks / opportunities, and which includes the risks / opportunities surveyed throughout the process.

In addition, specifically for the "financial impact" variable referred to above, which is used to define the position of the risk / opportunity in the exposure matrix, information on financial implications of the risks / opportunities, controls, and measurements are entered into the new system. The system then calculates the cost/return of the inherent risk / opportunity (i.e., without management actions), the residual risk / opportunity (after implementing controls), and the planned residual risk / opportunity (after implementing measures). This allows deciding on prioritization based on robust financial analyses of the scenarios with and without the management of risks / opportunities.

Q 2.2 Is climate change integrated into your business strategy?

Yes.

If climate change is integrated into the company's business strategy:

Q2.2a Please describe the process of how climate change is integrated into your business strategy and any outcomes of this process.

- i. Risks and opportunities related to climate change are classified and prioritized in exposure matrices by the Corporate Risk Monitoring Committee and presented to the Executive Board. Therefore, these risk and opportunity assessments are presented to senior management, who use them to develop the company's Strategic Planning initiatives. Since the Executive Board defines and approves Cemig's strategy, the other directors plan the activities. The Board of Directors conducts the Strategic Planning process with the participation of the Executive Board.

During the last annual cycle of the Cemig Strategic Planning process, the Board of Directors approved to update the Corporate Strategic Plan and define strategic objectives for the short term until 2035. The main drivers of Cemig's business strategy are related to balanced growth through both new projects and mergers and acquisitions, with the main commitment being sustainable growth and adding value for shareholders over the long term. With the aim of expanding installed capacity through a low-risk portfolio, expansion in renewable sources is particularly noteworthy.

- ii. Aspects of climate change that have influenced the Cemig's strategy:
 - Low carbon business development: Cemig has identified opportunities for business and market advantages arising from its low carbon energy matrix, which are primarily focused in i) using Cemig's expertise in the deployment and renovation of renewable power plants, and ii) investment in new energy sources.
 - Regulatory changes: Cemig identifies regulatory risks related to climate change, which are seriously contemplated in strategic decisions for the Company. Cemig conducts environmental due diligence for the acquisition of new assets (carbon risk assessment) to assess the possible financial impact of an increase in GHG emissions from the newly acquired assets and the possibility of internalizing emission costs due to new regulations.
 - Need for climate change mitigation: Although GHG emissions at the Company are already low, Cemig strives to reduce its emissions by setting emission reduction targets as well as reducing electricity consumption and electricity losses.
 - Need for adaptations to climate change: Cemig has a predominantly hydraulic generator park; thus, it has a low GHG emission intensity. However, it is subject to the consequences of climate change. Therefore, the Company invests in

improvements to weather forecasting systems, the infrastructure of its power plants, transmission lines, and distribution networks in order to deal with the consequences of climate change and improve water availability forecasting in its generation park.

- iii. Components of the strategy influenced by climate change in the short term (up to 5 years): Cemig invests in state-of-the-art techniques and equipment that allows for a high degree of accuracy when forecasting the intensity and location of storms. In addition, the Company established its corporate goal of reducing Scope 1 GHG intensity (tCO₂e/MWh) by 8% by 2015, based on 2008 emissions. Cemig also defined its goal of reducing electricity losses by committing to have total losses in 2017 lower than 10.85%.

- iv. Components of the strategy influenced by climate change over the long-term (over 10 years): the need to consolidate low carbon energy matrices has been a guide for technology R&D projects that Cemig may deploy on a large scale in the future, such as i) the development of the second version of the solarimetric atlas of Minas Gerais, ii) electricity generation in solar power plants connected to the electrical system and iii) the implementation of smart grid.

In addition, Cemig's recent acquisitions demonstrate the company's position in strengthening its focus on the expansion of renewable energy (see acquisitions in 2013 under item (vi) of this question). With these strategic actions, Cemig is expanding energy generation in the short term and investing in the diversification of the renewable matrix in the long term.

The climate change scenario opens new business opportunities for the Company, with expectations of great demand in the long term. Cemig owns the company Efficientia S.A, which operates in the development and feasibility of technological solutions that promote efficient energy use at nonresidential customer facilities.

- v. By maintaining a predominantly renewable matrix and conducting the carbon risk assessment, Cemig is able to make in advance decision on risks associated with increased electricity generation costs.

In addition, the development of new technologies, especially electricity generation using solar energy, puts Cemig in a vanguard position in the electricity sector and allows the Company to incorporate new technologies in its matrix and diversify business.

- vi. More significant strategic decisions taken by Cemig in 2013, influenced by new business opportunities as a result of climate change:

- investment in electricity loss management in distribution networks: loss control is one of Cemig's strategic goals, which among other benefits, enables a lower emissions factor for the Brazilian National Electrical System (SIN) with the potential to mitigate climate change.
- actions minimizing physical risks arising from extreme weather events:
 - improvements on distribution networks: establishment of a Protected Distribution Network (RDP) with shielded lines and networks, in addition to easement regularization as minimum standard for urban services
 - improvements to the transmission network, especially the acquisition of transformers and reinforcing the Taquaril Substation, which is responsible for providing service to the Belo Horizonte Metropolitan Area
- actions that increase opportunities for low carbon business development:
 - entrance into the controlling block of Renova, a company that represents the arm of Cemig's expansion into the renewable energy market. Cemig now has a 20.2% stake in the company.
 - equity acquisition in Brazil PCH through its stake in Renova. Brasil PCH holds 13 SHPs with an installed capacity of 291 MW (194 average MW);
 - an agreement with Vale to create Aliança Geração de Energia S.A., in which Cemig will have 45% stake and will be a platform for consolidating generation assets with a hydro installed capacity of 1,158 MW (652 average MW)
 - increased stake in the Belo Monte hydroelectric power plant to 14.18%
 - commissioning of Igarapé Thermal Power Plant: revitalization of the plant with a lower emissions intensity (tCO₂/MWh generated). Commissioned in 2013.

Q2.3 Do you engage in activities that could either directly or indirectly influence public policy on climate change through any of the following?

- Direct engagement with policy makers
- Trade associations
- Funding research organizations
- Other
- No

Q 2.3a On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Other: mitigation and adaptation to climate change	Support	<p>Created in 1977 as an Environmental Policy Committee, COPAM (State Environmental Policy Council) became the Minas Gerais State Council in 1987, and is currently the regulatory, collegiate, advisory and deliberative body subordinate to the State Secretariat for Environment and Sustainable Development (SEMAD). The purpose of the council is to deliberate on guidelines, policies, regulations and technical norms, standards and other operations-related measures to preserve the environment and environmental resources, in addition to its application by SEMAD, through entities linked to the council and other environmental regulatory and local agencies.</p> <p>Among the Thematic Chambers that comprise COPAM is the Energy and Climate Change Chamber (CEM), in which Cemig has a representative.</p> <p>The CEM is engaged in the development of the Energy and Climate Change Plan for Minas Gerais (PEMC), a cross-sectional planning tool that covers all socioeconomic sectors in the state of Minas Gerais that have an impact on GHG emissions and/or suffer the effects of climate change. The chamber is a public policy instrument created through a participatory process whose primary purpose is to develop guidelines and actions for mitigation and adaptation to climate change in Minas Gerais in order to ensure the transition to a low carbon economy and sustainable development in the state of Minas Gerais.</p>	Cemig supports this legislation with no exceptions.

Q2.3b Are you on the Board of any trade associations or provide funding beyond membership?

Yes.

Q 2.3c 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
Brazilian Business Council for Sustainable Development (CEBDS – <i>Conselho Empresarial Brasileiro para o Desenvolvimento Sustentável</i>)	Consistent	<p>Within the CEBDS is the Thematic Chamber on Energy and Climate Change (CTClima – <i>Câmara Temática de Energia e Mudanças do Clima</i>), in which Cemig has a representative. CTClima represents the vision of member companies in the CEBDS on matters related to climate change, in debates, and in public policy formulation with governments and other interest groups. CTClima's mission is "to be a proper forum for companies to understand its role in relation to climate change while assisting them in developing strategies to take advantage of opportunities, minimize risks, and prepare for a world with restrictions on greenhouse gas emissions".</p>	Cemig's representative in the Thematic Chamber of Energy and Climate Change (CTClima) participates in meetings, discussions, debates, and contributes to suggestions for

		<p>The CEBDS performs various activities associated to the theme, which can contribute to the development and improvements in related public policies. For example, CEBDS launched a research project called “Study on Adaptation and Vulnerability to Climate Change: The Case of the Brazilian Electricity Sector“. The publication represents an effort by the corporate sector to deepen the understanding of the topic, given the sensitivity of hydroelectric energy to climate variation and the sector’s increased participation in the national electricity matrix. Also in 2013, the study “Recommendations for Electric Energy Policy in Brazil” was launched. This publication presents solutions that contribute to the diversification of the Brazilian electricity matrix in a sustainable way. Among them include the importance of regulating sources and regional auctions, cogeneration and microgeneration, environmental licensing, and greater efficiency in transmission, distribution, and end consumption.</p>	<p>formulating public policy, when applicable.</p>
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Q2.3d Do you publically disclose a list of all the research organizations that you fund?

Yes¹.

Q2.3e Do you fund any research organizations to produce or disseminate public work on climate change?

Yes.

Q2.3f Please describe the work and how it aligns with your own strategy on climate change.

Cemig’s Research and Development (R&D) Program produces new methodologies, software processes, materials, devices, and equipment to improve the electrical system, in addition to the adaptation and mitigation of climate change, which benefits the electricity sector, Cemig, and society. Investment in innovation is aligned to the strategic drivers, “Ensuring Sustainability”, and “Being innovative in finding technological solutions for business operations”. Currently, research projects are underway that are linked to alternative energy sources as well as the mitigation and adaptation to climate risks. R&D projects related to climate change that stood out in 2013 are described below.

Cemig finances the project “Infrastructure for a Low-Cost *Smart-Grid*”, which is one of the initiatives undertaken by the Company related to climate change that defines its strategy for mitigation, adaptation, and the commitment to a low-carbon economy. The company is

¹ Cemig discloses all research projects that are carried out, organized by theme. Details on the projects are available at: http://www.cemig.com.br/en-us/Company_and_Future/Sustainability/water_resources/Pages/research_and_development_projects.aspx.

initially installing smart grids in the city of Sete Lagoas. This initiative will enable the automation of networks, metering systems, and the distributed generation and storage of energy, thus contributing to the reduction of losses, and consequently, the reduction of GHG emissions. Although smart grids are being discussed at the global level, it is still necessary to adapt legislation and evaluate technical and economic issues from the perspective of the Brazilian reality to maximize the benefits resulting from adopting this technology. In 2013, the “Consumer Calendar” was made available at: <http://portalcfu.cemig.com.br/portalcfu>, with the prominent factor of the website being the possibility for consumers participating in the project to monitor and be re-educated on their consumption habits.

In 2013, the project “Mitigation of Atmospheric Effluents from the Barreiro HPP” was initiated. The project is the result of a partnership between Cemig, CEFET (Federal Center for Technological Education of Minas Gerais), and the companies Neomatrix and V&M do Brasil. The project involves the construction of a plant annexed to the Barreiro Thermoelectric Power Plant located in Belo Horizonte to capture and sequester GHG emissions from the plant’s generation activities, with the prospect reducing emissions by 25%. In addition to developing technology to reduce GHG emissions by enabling less polluting thermal power plants to be incorporated into the energy matrix, the project contributes to the diversification of the matrix.

The second version of the Solarimetric Atlas of Minas Gerais is currently being designed. The new version will have an even more pronounced scientific appeal and will incorporate data from 5 modern solarimetric stations installed in rural Minas Gerais for the validation or any redefinition of the solarimetric maps of the state. With the publication of the new version of the Atlas, Cemig will be acting as a facilitator for the diversification of the Brazilian energy matrix focused on renewable energy alternatives.

In 2013, a Solar Photovoltaic Plant was fully installed in the Mineirão Stadium making it the first stadium hosting the 2014 FIFA World Cup to have this type of power plant, which has an installed capacity of 1.42 MWp. The plant was implemented through an R&D project. The deployment, operation and maintenance are the responsibility of the Portuguese company Martifer Solar. In early 2014, the power plant entered the commissioning and operations testing phase, with commercial operation expected before the stadium is handed over for the World Cup games.

Cemig develops important innovations that have positive effects on climate change mitigation. A list of all research projects funded by Cemig with additional information is

available at: http://www.cemig.com.br/en-us/Company_and_Future/Sustainability/water_resources/Pages/research_and_development_projects.aspx.

Q2.3h 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?

Cemig's Superintendences responsible for managing specific strategic objectives and corporate risk associated with climate change, under the approval of the Executive Board, lead the institutional relationship with public policymakers concerning the theme. The Superintendences are retrained on the strategy and Corporate Strategic Plan of the Company during the annual Strategic Planning cycle. As described in the answer to Q1.1, the person directly responsible for Cemig's Global Climate Change Strategy is the Executive Vice President. Therefore, the Executive Vice President's team ultimately evaluates all direct and indirect activities in which the company participates for the development of public policy, after approval by the Director of the area responsible. As a basic premise, all institutional activities follow the premises of the company's document entitled "10 Initiatives for the Climate".

3. Targets and Initiatives

Q3.1 Did you have an emissions reduction target that was active (ongoing or reached completion) in the reporting year?

- () Absolute target
 () Intensity target
 (x) Absolute and intensity targets
 () No

If there is an absolute target:

Q3.1a Please provide details of your absolute target.

ID	Scope	% of emissions in Scope	% reduction from base year	Base year	Base year emissions (tCO ₂ e)	Target year	Comments
Abs-1	Scope 2	0.8%	4%	2011	4,502	2020	The company set a target for reducing the electricity consumption of both Cemig GT and Cemig D by 4% by 2020, in relation to the total consumed in 2011. In 2011, Cemig GT and Cemig D consumed 46,876 MWh of electricity, representing 0.8% of the company's Scope 2 emissions for the year in question (the remaining 99.2% were primarily from electrical losses, in addition to a small portion from electricity consumption of Efficientia and Cemig Telecom). That year, the emissions factor for the Brazilian National Electrical System (SIN) was 0.0292 tCO ₂ /MWh, so emissions associated with electricity consumption were 1,368 tCO ₂ . However, in order to compare emissions from electricity consumption in 2013 with base year emissions, they were reported in the side column using the emissions factor for the Brazilian National Electrical System (SIN) for 2013, which was equal to 0.0960 tCO ₂ /MWh, resulting in 4,502 tCO ₂ .

If there is an intensity target:

Q3.1b Please provide details of your intensity target.

ID	Scope	% of emissions in Scope	% reduction from base year	Metric	Base year	Normalized base year emissions (tCO ₂ e / MWh)	Target year	Comment
Int-1	Scope	100%	8%	tCO ₂ e /	2008	0.007801	2015	This target refers to

	1			MWh			Scope 1 emissions reduction related to electricity generated by Cemig; therefore, it is tCO ₂ / MWh generated.
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Q3.1c Please also indicate what change in absolute emissions this intensity target reflects.

ID	Direction of change anticipated in absolute Scope 1+2 emissions with target completion	% change anticipated in absolute Scope 1+2 emissions	Direction of change anticipated in absolute Scope 3 emissions with target completion	% change anticipated in absolute Scope 3 emissions	Comment
Int-1	Increase	14.08%	-	-	Despite the reduction of GHG emissions per MWh generated by Cemig when the target is attained, the Company expects the expansion of production to increase around 124% for 2015 in relation to 2008, leading to an increase in absolute Scope 1 emissions with target attainment. By 2015, there may be an increase in absolute emissions due to increased operations at the Igarapé Thermal Power Plant.

Q3.1d For all of your targets, please provide details on the progress made in the reporting year.

ID	% complete (time)	% complete (emissions)	Comment
Abs-1	22.22%	100%	In 2013, Cemig GT and Cemig D consumed 43,750 MWh of electricity, 6.67% lower than the figure verified for 2011 (target base year). Therefore, Cemig has already attained and surpassed its target of reducing electricity consumption by 4% compared to 2011.
Int-1	71.43%	100%	Scope 1 emissions were reduced compared to 2008 emissions, reaching 0.005642 tCO ₂ e / MWh generated by Cemig. Therefore, in 2013, the 0.007177 tCO ₂ e/MWh emission target for 2015 (8% reduction compared to 2008) was attained and surpassed. The Igarapé HPP was reactivated in 2012, and electricity generation at the power plant increased in 2013 in relation to 2012 (167,506 MWh in 2013 and 23,115 MWh in 2012). These events led to an increase in emissions compared to 2012. However, prior to reactivation, the Igarapé plant underwent a revitalization program expected to increase average thermal efficiency by 1.407% compared with the average for 2007-2008. In addition, other initiatives to reduce Scope 1 emissions such as the increased efficiency in the use of the company's vehicle fleet, and other actions, have also contributed to the significant reduction in emissions compared to the 2008 base year.

Q3.2 Does the use of your goods and/or services directly enable GHG emissions to be avoided by a third party?

Yes.

If the use of the company's goods and/or services enables GHG emissions to be directly prevented by third parties:

3.2a Please provide details of how the use of your goods and/or services directly enable GHG emissions to be avoided by a third party.

Efficientia S.A.: a wholly owned subsidiary of Cemig that provides services for the development and feasibility of energy efficiency projects, implements energy cogeneration projects, and offers consulting services to optimize the energy matrix of industries.

- i. This initiative allows the reduction of Scope 2 emissions of third parties, since it reduces the electricity consumption of its customers.
- ii. In 2013, the Santa Vitória TPP, a sugarcane bagasse cogeneration plant with an installed capacity of 20 MW, was fully activated.
In 2013, Efficientia signed contracts for the deployment of modernization projects on lighting systems, photovoltaic energy generation, and energy cogeneration. All of these projects allow the reduction of electricity consumption by the customer and/or low carbon electricity generation.
- iii. It is estimated that contracts signed in 2013 will bring about a reduction in emissions by 1,285 tCO₂/year.
- iv. It is estimated that the contracts signed in 2013 will save 13,164 MWh/year in electricity consumption and 219 MWh/year electricity generation. To calculate reductions in emissions, the emissions factor for the Brazilian national grid (SIN) for 2013 was used, calculated for GHG inventories by the Ministry of Science, Technology and Innovation (MCTI - *Ministério de Ciência, Tecnologia e Inovação*)², multiplied by the amount of electricity saved and generated;
- v. The generation of Certified Emission Reductions (CERs) within the scope of the CDM was not considered in any of the projects implemented.

Energia Inteligente (Intelligent Energy): a program consisting of various projects that promote energy efficiency in low-income communities and in nonprofit and philanthropic institutions.

² GHG emissions factors for the Brazilian National Interconnected System (SIN – *Sistema Inteligado Nacional*) for emission inventories of these gases. Available at: <http://www.mcti.gov.br/index.php/content/view/321144.html#ancora>.

- i. This initiative allows the reduction of Scope 2 emissions of third parties, since it reduces the electricity consumption in the communities it serves.
- ii. The Intelligent Energy Program encompasses three subprograms: *Energia do Bem*, *Conviver*, and *Prefeituras Ecoeficientes*.
Energia do Bem program is aimed at philanthropic and nonprofit organizations. In 2013, showers in 104 institutions for the elderly and in 6 public hospitals and charities were replaced, in addition to the replacement of 38 autoclaves and 980 sets of light fixtures and light bulbs in hospitals.
Conviver encompasses projects aimed at low-income consumers. In 2013, 1,098 solar heating systems were installed, 140,699 light bulbs and 2,164 refrigerators were replaced, in addition to the replacement of 220 family agricultural irrigation systems over 15 years old in the Jaíba Project.
Prefeituras Ecoeficientes encompasses projects aimed at municipal energy management.
All of these initiatives reduce electricity consumption of the people and organizations receiving service.
- iii. The actions taken in 2013 will prevent the emission of 1,673 tCO₂/year.
- iv. The actions taken in 2013 will allow a reduction in energy consumption by 17,420 MWh/year. To calculate reductions in emissions, the emissions factor for the SIN calculated by the MTCI² was used for 2013, multiplied by the amount of electricity saved annually.
- v. The generation of Certified Emission Reductions (CERs) within the scope of the CDM was not considered in the program.

Gasmig: Cemig's subsidiary and exclusive distributor of piped natural gas throughout Minas Gerais State. In addition, Gasmig has created the Inovagás project, which is aimed providing customers with energy efficient solutions.

- i. This initiative allows the reduction of Scope 1 emissions of third parties, since it allows customers to use fossil fuels having a lower GHG emissions factor.
- ii. In 2013, Gasmig installed 30.3 km of pipelines to distribute natural gas in the Minas Gerais State. The company brings natural gas infrastructure to strategic regions in the state, allowing carbon-intensive fossil fuels to be replaced in manufacturing industries.
- iii. In 2013, the consumption of natural gas distributed by Gasmig prevented emissions of 1,058,387 tCO₂.
- iv. Gasmig monitors the quantity of natural gas supplied to the sectors that that company serves. The company sold 1.488 billion m³ in 2013. The estimate for

emission reduction was made on the assumption that, in the absence of the natural gas distribution, industry would consume fuel oil (which corresponded to 93.89% of the natural gas consumed in 2013), vehicles would consume gasoline (3.82%), and thermal power plants would use diesel oil (2.29%). Using emissions factors and lower heat capacities and densities of the Brazilian GHG Protocol, natural gas emissions (real scenario), emissions if fuel oil were used, and gasoline and diesel (baseline scenario) were calculated subtracting real emissions from baseline emissions, thus defining the emissions that were prevented.

- v. The generation of Certified Emission Reductions (CERs) within the scope of the CDM was not considered by Gasmig.

Q3.3 Did you have emissions reduction initiatives that were active within the reporting year (this can include those in the planning and implementation phases)?

Yes.

Q3.3a 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 tCO ₂ e savings (only for rows marked *)
Under investigation	707	-
To be implemented *	0	0
Implementation commenced *	21	10,061
Implemented *	4	7,564
Not to be implemented	0	-

Q3.3b For those initiatives implemented in the reporting year, please provide details in the table below.

Activity type	Description of activity	Estimated annual tCO ₂ e savings	Annual monetary savings (R\$)	Investment required (R\$)	Payback period	Estimated lifetime of the initiative	Comment
Energy efficiency: Processes	<p>Nature of activity: comprises actions aimed at reducing technical losses of electricity in the distribution system. These losses are inherent in the transport of electricity through equipment and transmission and distribution lines. Actions carried out in 2013 to control and minimize technical losses include:</p> <ul style="list-style-type: none"> • Reinforcing the medium voltage / low voltage electric system and expansion and reinforcement of the high voltage subtransmission system (69 kV and 230 kV); • Completed installation of 385 fixed capacitors banks in the electric system • Acquisition and installation of distribution transformers with amorphous core technology, which reduces leakage losses by about 80%, in addition to reinforcing the respective low-voltage circuits. <p>In addition to these actions, other specific achievements stood out in 2013 such as the prospect of new networking technologies and drivers, studies to increase operational efficiency of the electrical system (circuit reconfiguration), establishment of criteria to limit the levels of technical losses in medium-voltage and low-voltage circuits and drafting a medium-voltage reactive compensation plan with an expectation of installing 225 automatic capacitor banks by 2016. Scope 2 emissions at the Company have been reduced (emissions associated with technical losses of electricity are accounted for in Scope 2 of Cemig's inventory. Losses are considered as the electrical consumption required for the generation of this electricity). This initiative is voluntary in relation to external regulators. There is a 10.48% target for technical</p>	3,898	16 million	29 million	1 – 3 years	20 years	A large part of the investment for Cemig to reduce technical losses in 2013 is related to the expansion and reinforcement of the subtransmission electrical system and the installation of capacitors in the medium-voltage electrical system.

	losses established by ANEEL (National Electric Energy Agency), which is mandatory for Cemig, though the initiatives described here are voluntarily adopted by the company to reach this target.						
Low carbon energy installation	<p>Nature of activity: the Santo Antônio HPP began operation in March 2012. In 2013, 713.7 MW were implemented. In February 2014, there were 20 turbines in commercial operation with 1,414 MW of installed capacity. By November 2015, the plant will have an installed capacity of 3,150 MW and a physical guarantee of 2,218 MW, representing estimated generation at 19,429,680 MWh / year. The power implemented in 2013 was equivalent to the generation of 4,401,531 MWh/year.</p> <p>Only 10% of the emission reductions associated with the deployment of the Santo Antônio HPP in 2013 were considered in the scope of the CDP since Cemig's stake in the venture is 10%. Since expanding electricity generation in low-carbon power plants, Cemig's Scope 1 emissions are lower. Cemig reduced its Scope 1 emissions per MWh produced (to calculate the reduction in emissions, indicated to the right, the emissions factor was used for Scope 1 tCO₂ per MWh produced by Cemig in 2012 and released in the 2013 CDP). If the Scope 2 emission reductions of Cemig's consumers were considered, using the emissions factor for the Brazilian National Electrical System (SIN), the emission reductions total 30,187 tCO₂e (but the emission reductions considered in the column at the side are Cemig's Scope 1 emissions).</p> <p>This initiative is voluntary in relation to external regulators.</p>	613	Not applicable	1.64 billion	11 – 15 years	More than 30 years	-

<p>Transportation: fleet</p>	<p>Nature of activity: fuel consumption at Cemig was reduced by 6.17% from 2012, which means the Cemig stopped consuming 11,300 GJ of fuel. This reduction was due mainly to Cemig's Fleet Management Practices in which 274 vehicles that run on common diesel were replaced with vehicles that use Diesel S-10, the reduction and optimization of employee transportation, and the results obtained with the Fleet Monitoring System deployed in 2012. Scope 1 emissions are reduced through the reduction in the burning of fossil fuels in its fleet of vehicles. This initiative is voluntary in relation to external regulators.</p>	<p>3,053</p>	<p>863 thousand</p>	<p>12 million</p>	<p>11 – 15 years</p>	<p>5 years</p>	<p>Fuel consumption was reduced by 6.17%, representing an avoided cost of about R\$ 863,000 for Cemig. This figure is the total cost avoided, and not annual.</p>
<p>Process emissions reductions</p>	<p>Nature of activity: implementation of smart grid in the Sete Lagoas City, which is a smart grid design research and development project with the ultimate goal of developing the company's competence in implementing a smart grid for its entire network. The installation of a smart grid enables greater efficiency in relation to GHG emissions in the supply of electricity, by the fact that consumers can manage their energy usage while it is used, and Brazilian consumers can generate energy in their homes using photovoltaic solar panels, for example. However, these future gains will result once the system is installed. The immediate gain is that by automating the disconnection and reconnection of the electricity supply, fewer cars and motorcycles belonging to Cemig's employees will need to be dispatched to buildings to perform these activities. Scope 1 emissions are reduced through the reduction in the burning of fossil fuels in its fleet of vehicles. This initiative is voluntary in relation to external regulators.</p>	<p>Expected emissions savings is still unknown</p>	<p>Confidential information</p>	<p>45 million</p>	<p>Confidential information</p>	<p>20 years</p>	<p>-</p>

Q3.3c What methods are used to drive investment in emission reduction activities?

Method	Comment
Compliance with regulatory requirements / standards	Federal Law No. 9,991/2000: 1% of the organization's net operating revenues must be invested in funding R&D and energy efficiency programs. Thus, Cemig created the Intelligent Energy (EI) Program, which is focused on energy efficiency comprised of various multi-year projects and socioenvironmental projects that develop energy efficiency actions for low-income communities (in compliance with Article 1, paragraph V, of Law No. 9.991/2000, included by law No. 12,212/2010), and in nonprofit and philanthropic organizations.
Financial optimization calculations	Cemig incorporates GHG emission parameters during the prior assessment of the technical and economic feasibility of a new project, considering the potential financial gains from the commercialization of carbon credits. This assessment has helped Cemig in decision-making regarding the execution of projects eligible for the Clean Development Mechanism (CDM).
Internal finance mechanisms	The replacement of the vehicle fleet uses resources from the Company's Investment Programs. The directive for Cemig is to renew its vehicle fleet annually so that the average age of vehicles does not exceed 5 years, which is the legal depreciation period established by government authorities.
Dedicated budget for low carbon product R&D	Cemig's Research and Development (R&D) Program aims to encourage the constant search for innovation and technological challenges in the electricity sector. In this context, Law 9,991/2000 stipulates that utilities and licensees engaged in electricity generation, transmission, and distribution must annually budget a part of its net operating revenue for the Research and Development Program for the Electrical Energy Sector, regulated by Aneel. To ensure the implementation of this feature, Cemig published public notices to attract projects in various lines of action. Among the project lines related to climate change include: Alternative sources, distributed and decentralized generation, thermoelectric generation and energy efficiency, watershed management and energy planning, metering, billing and commercial losses, and the environment.
Dedicated budget for other emission reduction initiatives	Within the Distribution Development Program (PDD), a budget is provided for Cemig's reduction of electrical losses in the system, an emissions reduction initiative to reduce emissions from Cemig and the national electricity grid.
Internal price of carbon	Cemig assesses the risk of increased carbon emissions in its energy matrix and the financial impact of the risk by conducting environmental due diligence and sensitivity analyses related to the acquisition of new enterprises. These procedures assist the company in decision-making related to business expansion.

4. Communication

Q 4.1 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	Page/Section reference	Attach the document
In mainstream financial reports (complete). More specifically, in the Annual and Sustainability Report (available on the company's website).	Page 135 / Environment Section, Climate Change Subsection	http://www.cemig.com.br/en-us/relatorio_anual/Documents/relatorio/index.html
In other regulatory filings (complete)	Form 20F: Page 59 / Section: "The Carbon Market"	http://cemig.infoinvest.com.br/en/11366/20F2013_ing.pdf
In voluntary communications (complete)	Throughout the document (GHG emissions inventory)	http://www.cemig.com.br/en-us/Company_and_Future/Sustainability/Programs/climate_changes/Documents/Cemig_2013_greenhouse_gas.pdf

Risks & Opportunities Module

5. Climate Change Risks

Q5.1 Have you identified any climate change risks that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply.

- (x) Risks driven by changes in regulations
- (x) Risks driven by changes in physical climate parameters
- (x) Risks driven by changes in other climate-related developments

Q5.1a Describe the risks due to changes in regulations.

Risk driver	Description	Potential impact	Timeframe	Direct / Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management methods	Cost of management
General environmental regulations, including planning	Through the National Policy on Climate Change, the Brazilian government has set a voluntary target of reducing between 36.1% and 38.9% of Brazilian GHG emissions. The risk associated with making this commitment is the increase in operating costs arising from possible agreements for the electricity sector, mainly related to the creation of additional costs on carbon emissions.	Increased operational cost	> 6 years	Direct	Likely	Low – medium	Less than 1% of net operating revenues	Management methods include defining a goal for reducing GHG emissions, and for new acquisitions, a carbon risk assessment in due diligence operations to minimize the probability and scale of the risk. Cemig has sought opportunities for expanding renewable energy generation, thus minimizing the magnitude of risk in the time horizon to up to 5 years.	Less than R\$400,000.00. The costs are annual and related to maintenance of the environmental team. They will exist as long as the risk persists.
Uncertainty surrounding new regulation	Despite having a low carbon energy matrix, Cemig operates a fossil fuel-powered thermal power plant whose operations may be affected in the case of new regulations be established in Brazil. These new regulations also become a risk if Cemig later plans to expand business operations in electricity generation through fossil fuel-powered thermal plants.	Increased operational cost	> 6 years	Direct	About as likely as not	Low – medium	Less than 1% of net operating revenues	Cemig conducts a carbon risk assessment in due diligence operations, accounts for corporate GHG emissions through the company's emissions inventory and sets targets for reducing GHG emission intensity. With these actions, a reduction is expected in the magnitude of the risk of taxation for the company with the	Less than R\$400,000.00. The costs are annual and related to maintenance of the TPP environmental team and conducting the Company's emissions inventories. The costs will exist as long as the risk persists.

								implementation of the new regulations.	
Cap-and-trade schemes	The establishment of a market for trading GHG emissions under a <i>cap-and-trade</i> system in Brazil can result in the need for more planning on Cemig's part in regards to compliance with specific regulations of the market, particularly in relation to monitoring and verifying emissions.	Increased operational cost	> 6 years	Direct	About as likely as not	Low – medium	Less than R\$2 million	Cemig has professionals trained in identifying projects generating carbon credits and has long-term contracts with verification and certification companies, thereby immediately reducing the probability of materialization of the risk for the company. Cemig has CDM projects to reduce emissions registered with the UNFCCC.	Less than R\$300,000.00. The associated costs are those related to monitoring and audits required for carbon credit validation and commercialization of carbon credits. The costs are not annual and incur when audits are performed.
Uncertainty surrounding new regulation	For the inventory of its GHG emissions, Cemig uses ISO 14,064-1 standards and the GHG Protocol to ensure the reliability of the data collected. In establishing	Increased operational cost	1 – 3 years	Direct	Unlikely	Low	Less than R\$100,000.00	For the inventory of its GHG emissions, Cemig uses ISO 14,064-1 standards and the <i>GHG Protocol</i> to ensure the reliability of the data	Less than R\$50,000.00. The associated costs are annual and related to the emissions inventory and audit

	<p>an emissions trading market or other instruments for reducing emissions, it may be required to adopt other methodologies and standards to prepare corporate inventories. Thus, Cemig may have to adjust current procedures that are already well established in order to comply with new regulations that could be adopted.</p>							<p>collected and for verification purposes by a third party. With this action, it is expected that the magnitude of the risk and probability of materialization of the risk are reduced.</p>	<p>conducted by a third party. These costs will exist whenever the emissions inventory is verified by a third party.</p>
<p>Other regulatory drivers</p>	<p>In order to propose measures to encourage energy efficiency in the country, the Ministry of Mines and Energy published the National Energy Efficiency Plan (PNEf – <i>Plano Nacional de Eficiência Energética</i>), which uses the National Plan on Climate Change as a reference and indicates the mitigation of climate change as one of its goals. The PNEf adopts a 10% reduction target in electricity consumption by 2030 using consumption in 2004 as a base.</p>	<p>Reduced demand for goods / service</p>	<p>1 – 3 years</p>	<p>Direct</p>	<p>More likely than not</p>	<p>Low – medium</p>	<p>Less than R\$10 million</p>	<p>Cemig follows legal discussions at the federal, state, and municipal levels. In addition, the Company has residential and industrial energy efficiency programs, which are described in the Annual and Sustainability Report.</p>	<p>In 2013, R\$35.2 million were applied. The costs are related to investments in energy efficiency programs.</p>

Q5.1b Please describe your risks that are driven by change in physical climate parameters.

Risk driver	Description	Potential Impact	Timeframe	Direct / Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management methods	Cost of management
Change in precipitation extremes and droughts	Climate change may cause undesirable impacts on reservoirs due to silting, which may occur faster (or, in an optimistic scenario, occur slower), depending on how changes in rainfall and hydrological regimes will affect each reservoir. This may shorten the life of the reservoirs and increase maintenance costs.	Reduction / disruption in production capacity	> 6 years	Direct	Unlikely	Medium	Less than 0.5% of net operating revenues	Cemig monitors silting in reservoirs through a series of actions such as mapping changes in bed morphology due to the deposit of sediments, monitoring decreases in the volume of reservoirs, studies on the useful life of reservoirs, and monitoring sediment accumulation. Cemig also participates in the Energy Reallocation Mechanism, which has the purpose of sharing hydrological risks: plants in high inflow and high production conditions transfer energy to plants in low inflow and low production conditions. This participation gives the ONS (Grid National Operator – <i>Operador Nacional do Sistema</i>) the freedom to dispatch plants and ensures Cemig's assured power commitments	Less than R\$2 million. The costs are annual and related to the maintenance of equipment and meteorological teams, dam safety, and risk management, in addition to investments in R&D and alternative forms of electricity generation. These costs will exist as long as the risk persists.

								are met. These actions contribute to reducing the likelihood and magnitude of the risk.	
Change in mean (average) temperature	Climate change may cause an increase in average temperatures and changes in rainfall and droughts. Indirectly, it may increase risks to the Energy Transmission System, since prolonged drought conditions maximize the risk of fires. Fires on easements or nearby can disrupt transmission lines.	Reduction / disruption in production capacity	3 – 6 years	Direct	About as likely as not	High	Less than 1% of net operating revenues	Cemig continually inspects and cleans easements where its transmission lines are located to maximize safety and transmission availability.	Less than R\$2 million. Costs are annual and related to cleaning on easements of transmission lines.
Change in precipitation extremes and droughts	Excess rainfall can cause structural problems in dams, leading to generation disruptions.	Reduction / disruption in production capacity	> 6 years	Direct	Very unlikely	High	Less than 1% of net operating revenues	The annual cycle for dam safety is comprised of field inspections, instrumentation data collection and analysis, planning and monitoring maintenance services, analyzing results, and classifying civil structures. The vulnerability of each dam is calculated automatically on a continuous basis and is monitored by	Less than R\$2 million. The costs are annual and related to maintenance of equipment and meteorological teams, dam safety, and risk management. These costs will exist as long as the risk persists.

								the Dam Safety and Control System - Inspector, which was developed through an R&D project and incorporates georeferencing tools to assess deterioration, enabling a comprehensive analysis of the behavior of each dam. Cemig was a pioneer in Brazil in the development of emergency action plans for dam failure and began studies on the matter in 2003. Emergency plans specific to each dam are currently available. These actions are carried out at present and contribute to reducing the likelihood of this risk occurring in the short term.	
Change in precipitation extremes and droughts	Heavy rainfall in a short period of time, accompanied by high winds and lightning can cause physical damage to facilities that transport and distribute energy, leading to the	Reduction/ disruption in production capacity	< 1 year	Direct	Very likely	High	Less than 1% of net operating revenues	The management methods aim to reduce the magnitude of this risk in the medium term through preventative adaptation measures like	Less than R\$2 million. The associated costs are those related to the maintenance of containment teams for this kind of risk.

	<p>unavailability of these facilities and increased costs for Cemig due to compensating consumers for energy supply disruptions. These phenomena are increasingly associated with the effects of unfavorable microclimates, typical of large urban centers.</p>							<p>management of urban vegetation, the operation of weather stations and radar, which forecast the occurrence and intensity of storms more accurately, and an emergency plan that includes sending maintenance teams out to quickly restore electricity.</p>	
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Q5.1c Please describe your 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 methods	Cost of management
Changing consumer behaviour	High temperatures can lead to increased electricity consumption and overload the power distribution system, which can reduce electricity availability to consumers in these areas.	Reduction/ disruption in production capacity	< 1 year	Direct	About as likely as not	High	Less than 1% of net operating revenues	<p>This risk is managed by:</p> <ul style="list-style-type: none"> • Performing a diagnosis of the electric system for the need of expansion works • Monitoring operating conditions • Reprioritizing works <p>These actions contribute to reducing the likelihood and magnitude of the impact in the short term.</p>	Less than R\$400,000.00. The costs are annual and related to maintenance of the team responsible for carrying out the actions planned to minimize the risk of disruptions to the electric distribution system. These costs will exist as long as the risk persists.

6. Climate Change Opportunities

Q6.1 Have you identified any 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 regulations
- Opportunities driven by changes in physical climate parameters
- Opportunities driven by changes in other climate-related developments

Q6.1a Describe the opportunities due to changes in regulations.

Opportunity driver	Description	Potential impact	Timeframe	Direct / Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management methods	Cost of management
International agreements	Compliance with regulatory requirements and the development of new international agreements can create opportunities for Cemig, since, by having a predominantly renewable energy matrix with low carbon emissions, the Company is better prepared than its competitors to fit this scenario. The establishment of an emissions trading market under the <i>cap and trade</i> system in Brazil or internationally, similar to the CDM, for example, may lead Cemig to position itself as a major supplier of certified for emission reductions. This opportunity could increase revenue for Cemig.	Premium price opportunities	> 6 years	Direct	Very likely	Medium	Less than 1% of net operating revenues	Cemig has trained professionals in identifying projects generating carbon credits and has long-term contracts with competent testing and certification companies, thus increasing the outset, the possibility of taking advantage of this opportunity. Cemig own CDM projects to reduce emissions reported to the UNFCCC.	Less than R\$1 million. The associated costs are those related to monitoring and audits required for validation and commercialization of credits. The costs are not annual and occur when the audits occur.
Emission reporting obligations	Cemig's current generation matrix is predominantly renewable.	Increased stock price (market valuation)	> 6 years	Direct	About as likely as not	Low	Less than 1% of net operating revenues	With regard to the reporting emissions, Cemig performs its GHG	Less than R\$50,000.00. The associated costs are annual

	Emissions reporting obligations will demonstrate the company's low GHG emission energy matrix, which could attract a greater number of investors to the company, in addition to improving its reputation.							inventory annually, which is available on the company's website. This means the company is already prepared to handle the opportunity.	and related to the emissions inventory and audit conducted by a third part. This cost will exist for every audited emissions inventory.
Product labeling regulations and standards	If regulations are established that benefit the acquisition of renewable energy (green energy), Cemig will benefit by already having a renewable energy matrix, which is recognized as a strategic advantage for the company.	Premium price opportunities	> 6 years	Direct	Likely	Low	Less than 1% of net operating revenues	The company's energy trading area and sustainability area have followed the possibilities for the commercialization of green energy. Cemig should capitalize on all concrete possibilities identified.	Less than R\$10 million. The estimated costs are related to renewable energy certification when the matter is regulated in Brazil.

Q6.1b Describe the opportunities due to changes in physical climate parameters.

Opportunity driver	Description	Potential impact	Timeframe	Direct / Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management methods	Cost of management
Change in precipitation extremes and droughts	The 4 th IPCC Report analyzes possible scenarios of changes in precipitation patterns in the world, and indicates that the south and southeast regions of Brazil, where Cemig has most of its reservoirs, may fluctuate between maintaining hydro production and an increase.	Increased production capacity	> 6 years	Direct	About as likely as not	High	Less than 1% of net operating revenues	Cemig has experts in Meteorology and Hydrology, who use mathematical models to estimate rainfall and future inflows. Current availability and the projection of future availability are taken into consideration for the optimal operation of power plants. The Hydrometeorologic al Telemetry System (STH) has 168 stations for collecting real-time climatological and hydrological data in strategic locations in the state of Minas Gerais. The received data are processed by software. After calculations are performed, they are stored in a database variables displayed systematically. With the STH, Cemig has constant access to updated	Less than R\$1 million. The costs are annual and are associated to the maintenance of equipment and meteorological teams. These costs will exist as long as the risk persists.

								data on rainfall and the level of rivers and reservoirs, allowing the use of fluctuations in water availability for electric energy generation.	
Change in mean (average) temperature	The likely increase in average temperatures will cause changes in consumer patterns such as, for example, the increased use of ventilation and cooling systems, which will result in increased energy demand. The study conducted by Rodrigues <i>et al</i> (2013) assessed the potential impact of climate change on residential electricity demand from the projected increase in average quarterly temperatures according to the GHG emissions scenario in the 4 th IPCC Report. The results suggest that residential demand of electricity in Brazil may increase as a response to the projected increase in temperatures.	Increased demand for existing products / services	> 6 years	Direct	About as likely as not	High	Less than 1% of net operating revenues	In order to prepare for the increasing demand for energy, Cemig has been expanding the availability of electricity distribution infrastructure to meet the growth of this market through reinforcement works in substations, distribution lines and networks. These actions contribute to the increased likelihood of taking advantage of the opportunity and the magnitude.	Less than R\$400,000.00. The costs are annual and related to maintenance of the team responsible for carrying out the actions planned to minimize the risk of disruptions to the electric distribution system. These costs will exist as long as the risk persists.

6.1c Please describe the 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 methods	Cost of management
Reputation	In a low-carbon energy market, Cemig has a good reputation in front of its <i>stakeholders</i> due to its renewable energy matrix and R&D in energy alternatives and energy efficiency programs. In a climate change scenario, these characteristics of Cemig may lead to greater appreciation of the brand.	Increased stock price (market valuation)	1 – 3 years	Direct	Very likely	Medium	Less than 1% of net operating revenues	One of the methodologies Cemig uses before its stakeholders to evaluate the company's brand image and reputation due to its work in climate change is called RepTrak™ Deep Dive, which forms the general reputation index called Pulse. It involves assessing the degree of esteem, admiration, trust and empathy that the general public feels towards the company. In 2011, the Brand and Reputation Committee, was formalized. The committee analyzes actions for implementation to improve the company's performance on the subject. This way of working prepares Cemig to increase the likelihood and magnitude of this	Less than R\$1 million. It is related to costs for research into the brand value. This cost will exist every time the research is conducted.

								opportunity if it occurs in the short term.	
Other drivers	If there are more business investments in energy efficiency in order to reduce electricity consumption, and consequently, GHG emissions, there will be a possible increase in demand for services from Efficientia, a Cemig subsidiary.	Increased demand for existing products / services	1 – 3 years	Direct	Very likely	Low	Less than R\$1 million	Efficientia is a wholly owned subsidiary of Cemig and has been in operation since 2002 implementing energy efficiency projects for Cemig's customers. The company provides services for development and technical and financial feasibility of energy efficiency projects, deploys energy cogeneration projects and utility centers, offers consulting services to optimize the energy matrix of industries, provides classroom and distance training on energy management, and even provides consulting services. This existing structure allows Cemig to be prepared for increasing the magnitude of this opportunity in the short term.	Less than R\$500,000.00. The costs are annual and related to maintenance of the Efficientia team. These costs will exist whenever this opportunity exists.

Emissions Module

7. Emissions Methodology

Reference year:

2008.

Q7.1 Please provide your base year and base year emissions (Scopes 1 and 2).

Base year	Scope 1 base year emissions (metric tonnes CO ₂ e)	Scope 2 base year emissions (metric tonnes CO ₂ e)
2008	261,155	282,439

Q7.2 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.

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

Q7.3 Please give the source for the global warming potentials you have used.

Gas (global warming potential)	Reference
CO ₂ (1)	IPCC Fourth Assessment Report (AR4 - 100 years)
CH ₄ (25)	
N ₂ O (298)	
SF ₆ (22,800)	

Q7.4 Please give the emissions factors you have applied and their origin.

Fuel / Material / Energy	Emission Factor	Unit	Reference
Liquefied petroleum gas (LPG)	2.93502	tCO ₂ e per tonne	Brazil GHG Program
Natural gas	0.00207	tCO ₂ e per m ³	Brazil GHG Program
Kerosene	3.14177	tCO ₂ e per tonne	Brazil GHG Program
Other: Diesel oil (stationary combustion)	0.00264	tCO ₂ e per liter	Brazil GHG Program
Other: Pure automotive gasoline (stationary combustion)	0.00225	tCO ₂ e per liter	Brazil GHG Program
Other: Anhydrous ethanol (stationary combustion)	0.00155	tCO ₂ e per liter	Brazil GHG Program
Other: Biodiesel B100 (stationary combustion)	0.00236	tCO ₂ e per liter	Brazil GHG Program
Residual fuel oil	3.02473	tCO ₂ e per tonne	Brazil GHG Program
Aviation gasoline	0.00225	tCO ₂ e per liter	Brazil GHG Program
Other: Gasoline C (road transport)	0.00176	tCO ₂ e per liter	Brazil GHG Program
Other: Ethanol (road transport)	0.00256	kg CO ₂ e per liter	Brazil GHG Program
Other: Diesel oil (road transport)	0.00255	tCO ₂ e per liter	Brazil GHG Program

Other: Gasoline (water transport)	0.00237	tCO ₂ e per liter	Brazil GHG Program
Other: Air travel	0.11872 (long) 0.10376 (medium) 0.18183 (short)	Other: kgCO ₂ per passenger per km	Brazil GHG Program
Electricity	0.0960	tCO ₂ per MWh	MCTI, Brazil

8. Emissions Data

Q8.1 Please select the boundary you are using for your Scope 1 and 2 greenhouse gas inventory.

- Operational control

Q8.2 Please provide your gross global Scope 1 emissions figures in metric tonnes CO₂e.

156,618 tCO₂e.

Q8.3 Please provide your gross global Scope 2 emissions figures in metric tonnes CO₂e.

608,971 tCO₂e.

Q8.4 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?

No.

Q8.5 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 1 emissions: Uncertainty range	Scope 1 emissions: Main sources of uncertainty	Scope 1 emissions: Please expand on the uncertainty in your data	Scope 2 emissions: Uncertainty range	Scope 2 emissions: Main sources of uncertainty	Scope 2 emissions: Please expand on the uncertainty in your data
+/- 3.8% (more than 2% but less than or equal to 5%)	Data gaps Data management	The emission sources that were classified as "low certainty" are i) consumption of LPG (liquefied petroleum gas) for forklifts and ii) use of fertilizers. Both sources have low uncertainty associated with the emission factors used, equal to +/-5.0%, but have high uncertainty associated with the activity data, with values of +/- 15.0%.	+/-4.6% (more than 2% and less than or equal to 5%)	Other: Emission factor estimation	The activity data have a low associated uncertainty of +/- 1.0%. The emission factor used also has a low associated uncertainty equal to +/- 5.0%, and this factor was calculated by the Brazilian Ministry of Science, Technology & Innovation.

Q8.6 Please indicate the verification/assurance status that applies to your reported Scope 1 emissions.

- Third party verification or assurance complete

In case the verification / certification process is in progress or complete:

Q8.6a Please provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.

Type of verification or assurance	Attach the document	Page / section reference	Relevant standard	Proportion of reported Scope 1 emissions verified
Reasonable assurance	GHGEmissionsCemig2013_Verification	The entire document	ISO14064-3	100%

Q8.7 Please indicate the verification/assurance status that applies to your reported Scope 2 emissions.

- Third party verification or assurance complete

In case the verification / certification process is in progress or complete:

Q8.7a Please provide further details of the verification/assurance undertaken for your Scope 2 emissions, and attach the relevant statements.

Type of verification or assurance	Attach the document	Page / section reference	Relevant standard	Proportion of reported Scope 1 emissions verified
Reasonable assurance	GHGEmissionsCemig2013_Verification	The entire document	ISO14064-3	100%

Q8.8 Please identify if any data points other than emissions figures have been verified as part of the third party verification work undertaken.

Additional data points verified	Comment
No additional data verified	-

Q8.9 Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?

No. In 2013, emissions from biomass combustion totaled 828 tCO₂e in Scope 1 and 808 tCO₂e in Scope 3.

9. Scope 1 Emissions Breakdown

Q9.1 Do you have Scope 1 emissions sources in more than one country?

No.

Q9.2 Please indicate which other Scope 1 emissions breakdowns you are able to provide (tick all that apply).

- By business division
- By facility
- By GHG type
- By activity
- By legal structure

Q9.2a Please break down your total gross global Scope 1 emissions by business division.

Business division	Scope 1 Emissions (metric tonnes of CO ₂ e)
Cemig GT	133,375
Cemig D	12,744
<i>Rosal Energia</i>	8
<i>Sá Carvalho</i>	7
Efficientia	5
<i>Usina Térmica Ipatinga S.A.</i>	0
<i>Usina Térmica do Barreiro S.A.</i>	10,481
<i>Cemig Telecomunicações S.A.</i>	16

Q9.2c Please break down your total gross global Scope 1 emissions by GHG type.

GHG Type	Scope 1 Emissions (metric tonnes of CO ₂ e)
CO ₂	149,634
CH ₄	1,325
N ₂ O	2,166
SF ₆	3,493

Q9.2d Please break down your total gross global Scope 1 emissions by activity.

Activity	Scope 1 Emissions (metric tonnes of CO ₂ e)
Stationary combustion	141,314
Mobile combustion	11,766
Fugitive emissions	3,493
Fertilizer consumption	45

10. Scope 2 Emissions Breakdown

Q10.1 Do you have Scope 2 emissions sources in more than one country?

No.

Q10.2 Please indicate which other Scope 2 emissions breakdowns you are able to provide (tick all that apply).

- By business division
- By facility
- By activity
- By legal structure

Q10.2a Please break down your total gross global Scope 2 emissions by business division.

Business division	Scope 2 Emissions (metric tonnes of CO ₂ e)
Cemig GT	828
Cemig D	607,423
<i>Rosal Energia</i>	0
<i>Sá Carvalho</i>	0
Efficientia	0
<i>Usina Térmica Ipatinga S.A.</i>	0
<i>Usina Térmica do Barreiro S.A.</i>	0
<i>Cemig Telecomunicações S.A.</i>	720

Q 10.2c Please break down your total gross global Scope 2 emissions by activity.

Activity	Scope 2 Emissions (metric tonnes of CO ₂ e)
Electricity purchased	4,921
Technical losses in the grid	604,050

11. Energy

Q 11.1 What percentage of your total operational spend in the reporting year was on energy?

More than 45% but less than or equal to 50%.

Q 11.2 Please state how much fuel, electricity, heat, steam and cooling in MWh your organization has purchased and consumed during the reporting year.

Energy type	MWh
Fuel	582,330.45
Electricity	51,247*
Heat	0
Steam	0
Cooling	0

* This figure does not include technical and nontechnical electrical losses in the grid (which, in 2013, totaled 6,290,000 MWh), since the guidelines for this question request that only electricity purchased and consumed by Cemig must be included (the electricity that the company generates and consumes should not be included). However, in Scope 2 emissions, emissions due to electricity losses are included.

Q11.3 Please complete the table by breaking down the total “Fuel” figure entered above by fuel type.

Fuel	MWh
Biodiesel (B100)	1,735.80
Liquefied petroleum gas (LPG)	320.10
Natural gas	51,840.82
Motor gasoline	8,616.05
Aviation gasoline	1,239.44
Residual fuel oil	481,434.75
Diesel oil	35,328.74
Other: Anhydrous ethanol	1,814.35
Other: Hydrous ethanol	0.90

Q11.4 Please provide details of the electricity, heat, steam or cooling amounts that were accounted at a low carbon emission factor in the Scope 2 figure you provided in CC8.3.

Basis for applying a low carbon emission factor	MWh associated with low carbon electricity, heat, steam or cooling	Comments
Grid connected low carbon electricity generation owned by company, no instruments created	0	Only 0.6% of the electricity generated by Cemig does not come from low-carbon power plants (the electricity that is not low carbon is generated at the Igarapé TPP, which operates with fuel oil). Therefore, 99.4% of the electricity is generated by hydroelectric plants, wind farms and plants powered by process fuels. In 2013, these power plants exported 27,131,964 MWh of green energy to the Brazilian electrical system. As mentioned previously, these plants are connected to the

		<p>electrical grid. However, there are no low-emission certificates for the electricity. This electricity is exported to the grid and is not consumed by the company. Thus, Cemig does not generate any GHG emissions associated with this electricity consumption. Thus, by the fact that this generated electricity is not included into Cemig's Scope 2 emissions, the figure entered in the next column is zero, and not the 27,131,964 MWh of low carbon electricity produced by Cemig in 2013. All the electricity consumed by Cemig in the reporting year was recorded as purchased from the grid, and the emission factor for the national grid was used in the GHG emissions inventory.</p>
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12. Emissions Performance

Q12.1 How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to the previous year?

Increased.

Q12.1a 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	Comment
Emissions reduction activities	1.54%	Decrease in emissions	Transport management found opportunities to optimize logistics, which resulted in an emissions reduction of 3,053 tCO ₂ e in 2013. Also in 2013, the management of electricity technical losses resulted in an emissions reduction of 3,898 tCO ₂ e. In addition, the level of power at the Santo Antônio HPP in 2013 will allow a reduction of 613 tCO ₂ e in Cemig's Scope 1 emissions. More details on these initiatives are given in Q3.3b. They amount to an annual emissions reduction of 7,564 tCO ₂ e.
Divestment	0.00%	No change	There were no conveyances of Cemig business operations that altered Scope 1 and 2 emissions within the limits of its inventory.
Acquisitions	0.00%	No change	There were no acquisitions of Cemig business operations that altered Scope 1 and 2 emissions within the limits of its inventory.
Mergers	0.00%	No change	There were no mergers of Cemig business operations that altered Scope 1 and 2 emissions within the limits of its inventory.
Change in output	7.34%	Decrease in emissions	The Igarapé TPP is the only one of Cemig's power plants that generates electricity from fossil fuel (fuel oil). It was revitalized and resumed operations in 2012, after being down for 2 years due to reforms. In 2013, production at the plant increased compared to 2012. Emissions associated with the operation of the Igarapé TPP in 2013 were 130.693 tCO ₂ e compared to 2012 emissions of 24,344 tCO ₂ e. An increase in operations was responsible for the rise in Scope 1 + 2 emissions by 21.69% in 2013 compared to 2012. Cemig's production of electricity decreased from 38,468,800 GWh in 2012 to 27,299,470 GWh in 2013. If all the other conditions had remained unchanged over both years and assuming a linear reduction of emissions with a reduction in electricity generation, the decreased production would lead to Scope 1 + 2 emissions reduced by 29.03%. These two factors together led to an emissions reduction of 7.34% in 2013 compared to 2012.
Change in methodology	35.58%	Increase in emissions	Increase in Scope 2 emissions due to the increased emission factor for the Brazilian National Interconnected System (SIN) of 0.0686 tCO ₂ /MWh in 2012 to 0.0960 tCO ₂ /MWh in 2013. Scope 2 emissions in 2012 represented 89% of Scope 1 + 2 emissions.
Change in boundary	0.00%	No change	There was no change in the limits of the inventory for Scope 1 and Scope 2 emissions.
Changes in physical operating conditions	0.00%	No change	No changes in the physical operating conditions of Cemig's business operations were evaluated from the perspective of changes in Scope 1 and Scope 2 emissions in 2013 compared to 2012.
Unidentified	29.45%	Increase in emissions	29.45% of the increase in Scope 1 + 2 emissions in 2013 compared to 2012 cannot be properly traced. Therefore, the causes have not been identified. Together, all other items in this table represent a 26.69% increase in emissions with a total increase of 56.14%.
Other	0.00%	No change	No other changes in Cemig's business operations were evaluated from the perspective of changes in Scope 1 and Scope 2 emissions in 2013 compared to 2012.

Q12.2 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	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change
0.0000403664	mtCO ₂ e	Net operating revenues (R\$)	51.98%	Increase	This increase in emissions per unit of revenue in 2013 compared to 2012 is mainly due to the increase in Scope 1 and Scope 2 emissions in 2013. This increase in emissions was mainly due to the increased GHG emission factor for the Brazilian grid and an increase in electricity generation at the Igarapé TPP, which uses fuel oil as an energy source (both of which Cemig has no control over, since the electricity dispatch in the grid depends on the decisions of the ONS – Grid National Operator – <i>Operador Nacional do Sistema</i>). Cemig's net operating revenue rose by 2.74% during this period.

Q12.3 Please describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO₂e per full time equivalent (FTE) employee.

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change
96.6408187111	mtCO ₂ e	FTE employee	64.93%	Increase	This increase in emissions per equivalent full-time employed in 2013 compared to 2012 is mainly due to the increase in Scope 1 and Scope 2 emissions in 2013. This increase in emissions was mainly due to the increased GHG emission factor for the Brazilian grid and an increase in electricity generation at the Igarapé TPP, which uses fuel oil as an energy source (both of which Cemig has no control over, since the electricity dispatch in the grid depends on the decisions of the ONS – Grid National Operator – <i>Operador Nacional do Sistema</i>). There were no significant changes in the number of employees between 2012 and 2013 with a reduction of 5.33%.

Q12.4 Please provide an additional intensity (normalized) metric that is appropriate to your business operations.

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change
0.0280440817	mtCO ₂ e	Other: MWh produced	120.03%	Increase	This increase in emissions by electricity produced by Cemig in 2013 compared to 2012 is mainly due to the increase in Scope 1 and Scope 2 emissions in 2013. This increase in emissions was mainly due to the increased GHG emission factor for the Brazilian grid and an increase in electricity generation at the Igarapé TPP, which uses fuel oil as an energy source (both of which Cemig has no control over, since the electricity dispatch in the grid depends on the decisions of the ONS – Grid National Operator – <i>Operador Nacional do Sistema</i>). In addition, there was a significant reduction in electricity production in 2013, a reduction of 29.03%.

13. Emissions Trading

Q13.1 Do you participate in any emissions trading schemes?

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

Q13.1b What is your strategy for complying with the schemes in which you participate or anticipate participating?

Recent international negotiations have made a significant impact on the carbon market. In December 2012, the first commitment period of the Kyoto Protocol ended. During the Conference of the Parties, it was decided that the agreement would be renewed, but with a different configuration. The agreement eventually lost strength, the value of carbon credits fell substantially, and currently, the advantage is not as good as before to register projects in this program. Economic instability worldwide contributed to decreased production in industries, including carbon intensive sectors, and consequently, a decreased demand for carbon credits.

Cemig has 11 registered projects under the CDM (Clean Development Mechanism) of the Kyoto Protocol, through which a total reduction of 1,072,113 tCO₂e is expected. Despite the current uncertainty of the value of its carbon credits under the Kyoto Protocol, these projects demonstrate that Cemig undertakes voluntary and additional action to reduce emissions while preparing for the possible scenario of participating in an emissions trading scheme.

At the national level, the National Policy on Climate Change (PNMC - *Política Nacional sobre Mudança do Clima*) establishes the Brazilian Emissions Reductions Market (MBRE - *Mercado Brasileiro de Reduções de Emissões*) as one of its tools to reduce GHG emissions. This market is not yet a reality, but is expected to materialize in the near future. The PNMC does not establish sectorial targets, but establishes that in order to achieve the voluntary target established by Law 12,187/2009 of reducing Brazilian emissions projected for 2020 by between 36.1% and 38.9%, actions will be implemented including the expansion of the supply of hydroelectric energy, renewable alternative resources, notably wind farms, small hydropower plants, and bioelectricity, as well as the supply of biofuels and increased energy efficiency.

The expansion of Cemig's electricity generation is being strategically planned to expand installed capacity using low-carbon sources. Cemig invests in the installation of new hydropower plants including SHPs (small hydropower plants – from 1 MW to 30 MW) and HPPs (hydroelectric power plants – over 30 MW), wind farms, and has put in a lot of effort to become a pioneer in acquiring the know-how for solar photovoltaic electricity generation in order to significantly insert the energy source into its generation matrix. Targeting a

growth model that aims to increase the use of various renewable resources, in 2013, the Company increased its equity stake in Renova. Cemig's entrance into the controlling block serves primarily to make Renova the arm of expansion in renewable energy for Cemig (not considering expansion in hydropower plants). Renova focuses on renewable electricity generation through wind farms, SHPs, and solar power plants. Currently, the company owns the largest wind power complex in Latin America with an installed capacity of more than 1GW, in addition to an extensive portfolio of projects with a capacity factor above the national average. In 2013, Renova became the leader in the renewable generation segment in the country with the sale of 355.5 MW in the second A-5 auction, and in the 2013 Brazilian Reserve Auction, the sale of 73.7 average MW, which will be generated by 9 wind farms with an installed capacity of 159 MW. In the field of solar energy generation, Renova delivered two distributed generation projects in 2013, one with an installed capacity of 25.65kWp and the other with 13.3kWp. In addition to these investments in electricity generation by renewable sources, Cemig has invested very significantly in the efficiency improvement of its productive processes related to electricity losses in the distribution system. This is the company's largest source of GHG emissions. To reduce technical losses, namely those inherent to the transmission of electricity through equipment and transmission and distribution lines, in 2013, Cemig invested more than R\$ 334 million to strengthen the electrical system and to install fixed capacitors and distribution transformers with amorphous core technology, which reduces empty losses to by about 80%. Thus, Cemig has been preparing to be ready to participate in an emissions trading market that may be established in Brazil.

Other preparation strategies for participation in emissions trading schemes are listed in the document "Cemig - 10 Initiatives for the Climate", where Cemig states its commitment to climate change. The initiatives with greatest relevance to climate change include electricity generation by renewable sources, implementation of energy efficiency and conservation projects, operations in the field of natural gas, investments in new energy sources (as long as they are low-carbon sources), improvements in the efficiency of processes, and the reduction in transportation emissions.

Q13.2 Has your organization originated any project-based carbon credits or purchased any within the reporting period?

No³.

³Cemig has a portfolio of 12 low-carbon, electricity generation projects connected to the Brazilian electric system, registered under the Clean Development Mechanism (CDM), including Cemig's power plants and power plants that Cemig has a stake in. This portfolio has the potential to generate 5,087,309 carbon credits annually, which represents an annual emissions reduction of 5,087,309 tCO₂. However, in 2013, these power plants did not request carbon credits from the United Nations Framework Convention on Climate Change

(UNFCCC). Therefore, Cemig generated no carbon credits in the reporting year, although operations at these plants led to reductions in emissions.

14. Scope 3 Emissions

Q14.1 Please account for your organization's Scope 3 emissions, disclosing and explaining any exclusions.

Sources of Scope 3 emissions	Evaluation Status	Metric tonnes CO ₂ e	Emissions calculation methodology	Percentage of emissions calculated using primary data	Explanation
Purchased goods and services	Not evaluated	-	-	-	-
Capital goods	Not evaluated	-	-	-	-
Fuel-and-energy-related activities (not included in Scope 1 or 2)	Not evaluated	-	-	-	Upstream emissions from fuels and electricity purchased by Cemig have not been assessed, just as electricity losses in the transmission and distribution of electricity consumed by Cemig have not been included. In addition, emissions from the generation of electricity bought by Cemig for resale have not been assessed. It is important to note, however, that the emissions from losses in the distribution and transmission systems for electricity produced by Cemig have been accounted for in Scope 2.
Upstream transportation and distribution	Relevant, calculated	1,194.48	<p>i) Types and sources of data used, emissions factors, and GWP values (global warming potential of the gas): data on the total distance travelled by outsourced trucks to transport cargo and trucks that transported fuel to the Igarapé TPP were used. The emission factors for the fuel consumed (diesel) and GWP values were obtained using the GHG <i>Protocol</i> Brazil calculation tool.</p> <p>ii) Description of the data quality of the reported emissions: these were obtained directly from all of Cemig's suppliers whose vehicles transported cargo for Cemig in 2013.</p> <p>iii) Description of the methodologies, assumptions and allocation methods used to calculate emissions: the GHG <i>Protocol</i> Brazil calculation tool (version v2013.1) was used.</p>	100%	-

Waste generated in operations	Not evaluated	-	-	-	-
Business travel	Relevant, calculated	1,691.23	<p>i) Types and sources of data used, emission factors and GWP values (global warming potential of the gas): data on the total distance traveled by Cemig employees on business via air travel were used. The emission factors and GWP values were obtained using the GHG <i>Protocol</i> Brazil calculation tool.</p> <p>ii) Description of the data quality of the reported emissions: the distances for all business trips via air by all Cemig employees in 2013 were calculated.</p> <p>iii) Description of the methodologies, assumptions and allocation methods used to calculate emissions: the GHG <i>Protocol</i> Brazil calculation tool (version v2013.1) was used. In addition, data from www.gcmapp.com were used to calculate the distances between airports.</p>	100%	-
Employee commuting	Relevant, calculated	840.66	<p>i) Types and sources of data used, emission factors and GWP values (global warming potential of the gas): data on the total distance traveled via bus by Cemig employees. The emission factors and GWP values were obtained using the GHG <i>Protocol</i> Brazil calculation tool.</p> <p>ii) Description of the data quality of the reported emissions: the distances for all travel via bus by Cemig employees in 2013 were calculated, along with the type of vehicle used for commutes (home – work).</p> <p>iii) Description of the methodologies, assumptions and allocation methods used to calculate emissions: the GHG <i>Protocol</i> Brazil calculation tool (version v2013.1) was used.</p>	100%	-
Upstream leased assets (the company as lessee)	Not relevant, explanation provided	-	-	-	No goods are leased by Cemig.
Downstream transportation and distribution	Relevant, calculated	11,563.37	<p>i) Types and sources of data used, emission factors and GWP values (global warming potential of the gas): data on the total fuel consumed by vehicles of contractors that provide electricity distribution services to Cemig were used. The emission factors</p>	100%	In 2012, Cemig began quantifying emissions from vehicles of contractors that provide operation and maintenance services for distribution services. Of the 37 companies

			<p>and GWP values were obtained using the GHG <i>Protocol</i> Brazil calculation tool.</p> <p>ii) Description of the data quality of the reported emissions: contractors whose vehicles are used to provide operational and maintenance services on the electricity distribution network supplied the data. Approximately half of the contractors supplied data for the calculation of GHG emissions from this source.</p> <p>iii) Description of the methodologies, assumptions and allocation methods used to calculate emissions: the GHG <i>Protocol</i> Brazil calculation tool (version v2013.1) was used.</p>		<p>surveyed in 2013, 20 responded with information for the inventory.</p>
Processing of sold products	Not relevant, explanation provided	-	-	-	<p>The product sold by Cemig (electricity) is not processed as an intermediate product for the production of a good for final consumption; electricity is an input in production processes, not an intermediate commodity. Therefore, this emissions source does not apply to Cemig.</p>
Use of sold products	Relevant, calculated	7,643,677.13	<p>i) Types and sources of data used, emission factors and GWP values (global warming potential of the gas): data on the consumption of Cemig-generated electricity by final consumers were used. The emission factors for the Brazilian grid and GWP values were obtained using the GHG <i>Protocol</i> Brazil calculation tool.</p> <p>ii) Description of the data quality of the reported emissions: the company closely monitors the data on electricity consumption by its customers.</p> <p>iii) Description of the methodologies, assumptions and allocation methods used to calculate emissions: the GHG <i>Protocol</i> Brazil calculation tool (version v2013.1) was used.</p>	100%	<p>The main source of Cemig's Scope 3 emissions is the consumption of Cemig-commercialized electricity by final consumers, which can be companies, commercial businesses or resident customers. Since the energy commercialized by Cemig is fed into the National Interconnected System, the emission factor for this system was used to calculate these emissions.</p>
End of life treatment of sold products	Not relevant, explanation provided	-	-	-	<p>The product sold by Cemig (electricity) does not have undergo any end-of-life treatment, since it does not generate waste needing to be treated or disposed. Therefore, this source does not apply to Cemig.</p>
Downstream	Not	-	-	-	-

leased assets (the organization as lessor)	evaluated				
Franchises	Not relevant, explanation provided	-	-	-	Cemig has no franchises. Therefore, this emissions source does not apply to the company.
Investments	Not evaluated	-	-	-	-

Q14.2 Please indicate the verification/assurance status that applies to your reported Scope 3 emissions.

- Third party verification or assurance complete

If verification/certification is in progress or is already complete:

Q14.2a Please provide further details of the verification/assurance undertaken, and attach the relevant statements.

Type of verification or assurance	Attach the document	Page / section reference	Relevant verification standard	Proportion of reported Scope 3 emissions verified
Reasonable assurance	GHGEmissionsCemig2013_Verification	The entire document	ISO14064-3	100%

Q 14.3 Are you able to compare your Scope 3 emissions for the reporting year with those for the previous year for any sources?

Yes.

If the answer is “yes”:

Q14.3a 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.

Source of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
Upstream transportation & distribution	Emissions reduction activities	50.86%	Decrease in emissions	The distance traveled by outsourced trucks to transport cargo decreased from 4,684,050 km in 2012 to 2,301,688 km in 2013. This decrease was due to initiatives implemented in 2013 to optimize logistics. If all other conditions remained unchanged over these two years for this emissions source, the increase in distance traveled would produce a decrease in Scope 3 emissions from upstream transportation and distribution of 50.86%.
Upstream transportation & distribution	Change in methodology	16.91%	Increase in emissions	The category of vehicles used to calculate upstream transportation emissions from outsourced trucks was changed in 2013 compared to 2012. Therefore, the average consumption value used for calculations is higher. Consumption increased

				<p>from 5.56 km/l in 2012 to 6.50 km/l in 2013.</p> <p>If all other conditions remained unchanged over these two years for this emissions source, the increase in average fuel consumption would produce an increase in Scope 3 emissions for <i>upstream</i> transportation and distribution of 16.91%.</p>
Upstream transportation & distribution	Change in output	13.61%	Increase in emissions	<p>The Igarapé TPP resumed operations in 2012, and electricity generation at the power plant was increased significantly in 2013 compared to 2012 (167,506 MWh in 2013 and 23,115 MWh in 2012). Thus, the source of upstream emissions from fuel-powered transportation to the Igarapé TPP became relevant in the 2013 emissions inventory and went on to be accounted for. This source was responsible for the emission of 292 tCO₂e for <i>upstream</i> transportation and distribution.</p> <p>The addition of this source led to an increase of 13.61% in Scope 3 emissions for upstream transportation and distribution.</p>
Business travel	Emissions reduction activities	13.40%	Decrease in emissions	<p>The distance traveled by employees on business trips via air in 2013 decreased 19% from 2012, enabling a 13.40% reduction in Scope 3 emissions. To do so, Cemig promoted 650 videoconferences in 2013, reducing the need for business trips. There are currently 26 locations outside Cemig's headquarters that are properly equipped and ready to conduct videoconferences.</p>
Employee commuting	Emissions reduction activities	3.66%	Decrease in emissions	<p>Cemig conducted an analysis of the routes buses use to transport employees in Belo Horizonte, which culminated in the reduction of the distance traveled for employee commutes via this form of transportation. In 2012, there were 16 lines. In 2013, 3 of these lines were no longer in use, leading to a total reduction of 23,998 km traveled in 2013 compared to 2012 and representing a reduction in GHG emissions of 8.95% by this form of transportation.</p> <p>This form of transportation represented 41% of Scope 3 emissions for "Employee Commuting" in 2012. Therefore, this reduction in distance traveled has led to reduction of 3.66% in total GHG emissions at the source for "Employee Commuting".</p>
Employee commuting	Unidentified	19.58%	Increase in emissions	<p>With regard to transportation for employees in the rural areas of Minas Gerais via diesel powered coach buses, there was an increase of 253,671 km of distance traveled in 2013 compared to 2012, representing a 72.42% increase in GHG emissions with this form of transportation. This form of transportation represented 40% of Scope 3 emissions for "Employee Commuting" in 2012. Therefore, this increase in distance traveled has led to increase of 29.33% in total GHG emissions at the source for "Employee Commuting".</p> <p>On the other hand, for employees commuting via gasoline-powered light vehicles, there was a reduction 366,752 km in the distance traveled in 2013 compared to 2012, representing a 52.20% decrease in GHG emissions with this form of transportation. This form of transportation represented 19% of Scope 3 emissions for "Employee Commuting" in 2012. Therefore, this reduction in distance traveled has led to reduction of 9.75% in total GHG emissions at the source for "Employee Commuting".</p> <p>For causes that have not been analyzed by Cemig, together, both scenarios have led to a total increase of 19.58% in GHG emissions at the source for "Employee Commuting".</p>
Downstream transportation and distribution	Change in output	24.49%	Decrease in emissions	<p>The data provided by the contractors responsible for downstream transportation indicated a 62% reduction in gasoline consumption, 79% in ethanol consumption, and 21% in diesel consumption. The reasons leading to the lower consumption at Cemig's suppliers are the changes in the Cemig's demand on</p>

				the services of these suppliers. These reductions in fuel consumption, together, have led to a 24.49% reduction in Scope 3 emissions for downstream transportation and distribution.
Use of sold products	Change in methodology	39.94%	Increase in emissions	The increase in the emission factor for the National Interconnected System (SIN - <i>Sistema Interligado Nacional</i>) of 0.0686 tCO ₂ /MWh in 2012 to 0.0960 tCO ₂ /MWh in 2013 means the same level of consumption of electricity generated by Cemig in these two periods represented emissions 39.94% higher than by consumers of this electricity in 2013 compared to 2012. The emissions from electricity consumption by Cemig customers was responsible for 99.84% of Scope 3 emissions in 2013.

Q14.4 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
- Yes, our customers
- Yes, other partners in the value chain
- No, we do not engage

Q14.4a Please give details of methods of engagement, your strategy for prioritizing engagements and measures of success.

In relation to engagement with suppliers, under the 2nd edition of the Carbon Management in the Value Chain Program of the Energy and Climate Change Thematic Chamber (CTClima) of the Brazilian Business Council for Sustainable Development (CEBDS), Cemig is incorporating GHG emission inventories from suppliers to construct the company's information base. This program aims at promoting the engagement with suppliers, especially those that have the most impact on Cemig's emissions, in order to formulate and publish GHG inventories by raising awareness and training selected suppliers.

Methods of engagement: selected suppliers were invited to participate in workshops with the main goal of raising participants' awareness on the need to adapt the management of business operations ahead of climate change. In addition, for the purpose of providing technical training on preparing GHG inventories, the workshops introduced the calculation tool of the Brazilian GHG *Protocol* Program and its use, prioritizing the definition of operating limits, the identification and classification of the main emission sources, and the classification of emissions into three Scopes. In addition to the workshops held in April 2013 under the program, a training course for suppliers on the preparation of its inventories is scheduled to be carried out by Cemig in April 2014.

Prioritization strategy for engagements: 50 companies were invited to participate in the Program, in which the suppliers of small and medium-sized businesses needing support to develop its GHG inventories were given priority.

Measures of success: considering all the suppliers of all the companies participating in the second edition of the Program, 22% of them participated in workshops carried out in 2013, which was 101 companies, representing a 9% increase compared to the 1st Edition in 2012 (note: Cemig has only participated in the 2nd edition). In an evaluation of the 2nd edition of events, participants had an average score of 4.26 in the workshops, considering a scale of 1 to 5. With regard to the quality of the information provided in order to prepare the inventories, the average score was 4.28. Of these 101 suppliers, 30 completed its emission inventories and 3 others are in the process of completing its inventories, which is an increase of approximately 70% when compared to the 2012 edition. Cemig has continues to promote the project, and as mentioned above, will hold additional workshops for the proper engagement of its 50 selected suppliers. Cemig uses and will use the participation of suppliers invited to the workshops and the preparation of GHG inventories by these suppliers after the training course to measure the success of the program.

In relation to the engagement with customers, Cemig runs the Intelligent Energy Program (*Programa Energia Inteligente*), which aims at promoting energy efficiency in low-income communities and nonprofit and charitable institutions that are consumers of electricity supplied by the company, in addition to promoting energy efficiency in public facilities. The Intelligent Energy Program comprises three subprograms: *Energia do Bem*, *Conviver e Prefeituras Ecoeficientes*. *Energia do Bem* carries out projects targeting charities and nonprofit organizations. *Conviver* encompasses projects directed towards low-income consumers. *Prefeituras Ecoeficientes* is aimed at municipal energy management. All of these initiatives reduce the electricity consumption of the people and organizations receiving service.

Methods of engagement: Cemig implements collaborative projects with its consumers selected for the Program, through which equipment is replaced for more efficient units and reforms are performed on electrical systems, in addition to promoting education about the efficient use of energy and the consequent reduction in environmental impacts.

Prioritization strategy for engagements: Cemig prioritizes its customers in low-income communities and nonprofit and charitable institutions for participation in the Intelligent Energy Program.

Measures of success: in 2013, through the *Energia do Bem* program, showers were replaced in 104 institutions for the elderly and in 6 public hospitals and charities. In addition, 38 autoclaves and 980 sets of lighting fixtures and light bulbs in hospitals were replaced. Through the *Conviver* program, 1,098 solar heating systems were installed, 140,699 light bulbs, 2,164 refrigerators, and 220 family agricultural irrigation systems over 15 years old

were replaced in the Jaíba Project. *Prefeituras Ecoeficientes* program deployed measures for the efficient use of electricity in municipal facilities in the participating cities. In partnership with city halls, 2 civil servants per city received training from Eletrobrás on matters related to public lighting efficiency, efficiency improvement in public buildings, and municipal energy management.

14.4b 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.

Number of suppliers	% of total spent	Comment
50	14.48%	Cemig invited 50 companies to participate in the second edition of the Carbon Management in the Value Chain Program, in which the suppliers of small and medium-sized businesses needing support to develop its GHG inventories were given priority.

14.4c If you have data on your suppliers' GHG emissions and climate change strategies, please explain how you make use of that data.

How you make use of the data	Please give details
Other	Cemig uses the data from these inventories to assess the scope of the Carbon Management in the Value Chain Program. In the future, when there are more qualified vendors, the data will be incorporated into the company's emissions inventory. The suppliers were invited to participate in Cemig's Carbon Management in the Value Chain Program in 2013. Cemig conducts training sessions with these suppliers with the goal of sensitizing them to climate change and the need to conduct GHG inventories and provides training to help them do so. After the completion of the training phase through workshops, trained suppliers prepare its emission inventories, which are used to construct Cemig's information base.

Supplement Electric Energy Utilities

The information below refers to emissions from stationary sources for generating electricity and not to Scope 1 as a whole.

EU0 Reference dates

EU 0.1 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 2018 if possible).

Year	Start date	End date
2008	01/01/2008	31/12/2008
2013	01/01/2013	31/12/2013
2018	01/01/2018	31/12/2018

EU1 Global totals by year

EU 1.1 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	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO ₂ e)	Emissions intensity (metric tonnes CO ₂ e/MWh)
2008	6,572	33,413	239,275	0.0072
2013	6,872	27,299	141,194	0.0052
2018	8,603	46,656	167,078	0.0036

EU2 Individual country profiles

EU 2.1 Please select the energy sources/fuels that you use to generate electricity in Brazil.

- Coal - Hard
- Lignite
- Oil & Gas (excluding CCGT)
- CCGT
- Nuclear
- Waste
- Hydro
- Other renewables

(x) Other

Complete the table below for the selected periods in question EU0.1 for oil & gas (excluding CCGT).

Year	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO ₂ e)	Emissions intensity (metric tonnes CO ₂ e/MWh)
2008	131	205	239,275	1.1672
2013	131	168	130,714	0.7804
2018	131	202	157,340	0.7789

Complete the table below for the selected periods in question EU0.1 for hydro.

Year	Nameplate capacity (MW)	Production (GWh)
2008	6,387	32,777
2013	6,639	26,636
2018	9,342	45,823

Complete the table below for the selected periods in question EU0.1 for other renewable resources (wind).

Year	Nameplate capacity (MW)	Production (GWh)
2008	1	0
2013	49	183
2018	77	231

Complete the table below for the selected periods in question EU 0.1 for other sources (blast furnace gases, tar, and other waste gases generated in steel industrial processes).

Year	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO ₂ e)	Emissions intensity (metric tonnes CO ₂ e/MWh)
2008	53	430	0	0.0000
2013	53	313	10,480	0.0335
2018	53	400	9,738	0.0243

Enter the values for all the sources mentioned above for the country referring to the periods selected in question EU 0.1.

Year	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO ₂ e)	Emissions intensity (metric tonnes CO ₂ e/MWh)
2008	6,572	33,413	239,275	0.0072
2013	6,872	27,299	141,194	0.0052
2018	8,603	46,656	167,078	0.0036

EU3 Renewable electricity sourcing regulations

EU 3.1 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.

EU4 Renewable electricity development

EU 4.1 Please give the contribution of renewable electricity to your organization's EBITDA (Earnings Before Interest, Tax, Depreciation and Amortisation) in the current reporting year in either monetary terms or as a percentage.

Please give:	Monetary figure	%	Comment
Renewable electricity's contribution to EBITDA	R\$ 2.932 billion	-	-

EU 4.2 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	Comment
Renewable electricity's contribution to EBITDA	-	40%	2020	It is expected that the fraction of renewable source in the organization's generation matrix will remain the same.

EU 4.3 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 planning	Comment
Capex planned for the development of renewable energy	R\$1,270,767,000.00	76.00%	2017	In the current Capex plan, substantial investments are planned for the Generation business, in which 98% of the electricity is generated from renewable sources.

Sign off

Name	Job title	Corresponding job category
Mr. Arlindo Porto Neto	Executive Vice President	Director on Board