



## Climate Change 2016 Information Request Celsia SA ESP

### Module: Introduction

### Page: Introduction

#### CC0.1

##### Introduction

**Please give a general description and introduction to your organization.**

Celsia is a public services company specializing in the electrical energy generation and commercialization business. We currently have an installed generation capacity of 2,332 MW, spread across 27 power plants located in Colombia, Panama, and Costa Rica: 21 plants are hydraulic, five plants are thermal and one wind power plant.

Our market share in Colombia is 50.01%, made up by the Empresa de Energía del Pacífico S.A. E.S.P., EPSA, which is present in the four stages of the electricity business: generation, transmission, distribution, and commercialization. The company is located in the Valle del Cauca, Tolima, Cauca, and Chocó departments. EPSA is also the main shareholder of the Compañía de Electricidad de Tuluá S.A. E.S.P., CETSA, that provides its services to the municipality of Tuluá.

As part of its transmission and distribution businesses, EPSA has 7 substations, and 274 kilometers of network ( $\geq 220$  kV), as well as 72 substations and 19,955 kilometers of network ( $\leq 220$  kV). As part of its commercialization area, it services more than 550,000 clients in the southwest region of Colombia, and has developed an important network of commercial offices, payment offices, and telephone service points.

We are present in Panama and Costa Rica through seven electric power plants that use water, thermal, and wind technologies.

Our work is focused on excellence, striving for results that generate value through time for all of our stakeholders in an ethical and transparent fashion, balancing economic profitability, development, and social inclusion, as well as with respect for the environment.

The redefinition of the Company's strategy is decisive when looking into the future. We seek superior results for the Company, and for the people and entities with which it is engaged.

Following the work guided by the Board of Directors and the Steering Committee, Celsia is taking a new client-focused strategic approach.

Given that asset management is now our main line of business, we have found new opportunities in the face of market needs, which are represented in the identification of three new lines of business:

**Cities-Sustainability:** the portfolio will consist of photovoltaic solar energy, efficient heating, cooling (thermal districts) and lighting, backup power and electrical installations.

**Companies-Productivity:** the portfolio will consist of photovoltaic solar energy, home automation or energy automation, lighting plants, networks and substations

**Homes-Wellbeing:** the portfolio will consist of photovoltaic solar energy, batteries that store energy services automation or automated energy management in the home, and funding options for these platforms

We want to expand our client base in the markets in which we currently have a presence as well as entering new ones, with precedence given to innovation, offering solutions tailor-made to the needs of our consumers.

**CC0.2****Reporting Year**

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

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

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

Work backwards from the most recent reporting year.

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

Enter Periods that will be disclosed

Thu 01 Jan 2015 - Thu 31 Dec 2015

**CC0.3****Country list configuration**

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

Select country

Colombia

Panama

Costa Rica

**CC0.4****Currency selection**

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

COP

**CC0.6****Modules**

As part of the request for information on behalf of investors, electric utilities, companies with electric utility activities or assets, companies in the automobile or auto component manufacture sub-industries, companies in the oil and gas sub-industries, companies in the information technology and telecommunications sectors and companies in the food, beverage and tobacco industry group should complete supplementary questions in addition to the main questionnaire.

If you are in these sector groupings (according to the Global Industry Classification Standard (GICS)), the corresponding sector modules will not appear below but will automatically appear in the navigation bar when you save this page. If you want to query your classification, please email [respond@cdp.net](mailto:respond@cdp.net).

If you have not been presented with a sector module that you consider would be appropriate for your company to answer, please select the module below. If you wish to view the questions first, please see <https://www.cdp.net/en-US/Programmes/Pages/More-questionnaires.aspx>.

**Further Information**

**Module: Management**

**Page: CC1. Governance**

**CC1.1**

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

Senior Manager/Officer

**CC1.1a**

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

Until last year, the climate change governance was in charge of the Commercial and Operations Issues Vice President, currently for the new strategy this responsibility lies with the President of The Company and the Board of Directors supported by the Corporate Affairs office who should drive the climate change policy, managing initiatives to mitigate GHGs, support the processes of dissemination, incentives and awareness among employees, and present to the community and other stakeholders how the company manages this material issue.

**CC1.2**

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

Yes

**CC1.2a**

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

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
All employees	Monetary reward	Other: Variable Compensation System by DJSI performance	The Company has implemented a Variable Compensation System, which aims to improve the Organization's results through good performance of employees in carrying out the corporate and competitive strategy. This system rewards employees for good performance achievements by paying an annual bonus incentive which is not part of their salary. For 2015 11% of such compensation corresponds to the performance of material sustainability issues. The metric is established based on the DJSI score. By 2015 the goal set had been achieved, and in 2016 employees received 100% of the compensation for this concept. In order to improve our DJSI performance, all relevant areas have action plans to raise the material aspects with some gaps related with DJSI outcomes, thus helping to achieve the goals established by Celsia.

**Further Information**

**Page: CC2. Strategy**

**CC2.1**

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

Integrated into multi-disciplinary company wide risk management processes

**CC2.1a**

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

Frequency of monitoring	To whom are results reported?	Geographical areas considered	How far into the future are risks considered?	Comment
Every two years	Senior manager/officer	Colombia, Panamá y Costa Rica	> 6 years	In the company, risk governance is understood to be a differentiating and essential factor for achieving business sustainability. Our risks analysis is based on an exercise that has multiple variables, in accordance to the risks manual of the Company. The manual offers a detailed explanation of the methodology adopted for risk management and the determination of the action frame. Regarding climate risk management, it's integrated into the risk management process of the company, which consists of a homologous and systematic implementation of joint actions in the optimal management of risks that may affect the strategy and sustainability model, so that it may reasonably ensure compliance with its objectives. The integral management of cycle risk involves identification, measurement, control, monitoring, communication and disclosure of risks and action plans to minimize them. The risk management policy of the company defines that each area or process is integrated to risk management.

**CC2.1b**

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

Climate change is identified as one of the aspects with the greatest relevance in the decision making process and evaluations of stakeholders. In order to so, the company has expressed its commitment with the mitigation and management adaptation of emissions, and the incorporation of eco-efficient actions in its processes in order for the company to sustainably grow.

Climate risk management has been integrated into the risk management system of the company. It is a measure and systemic application of coordinated actions regarding the ideal management of the risks that can affect the company's strategy model and sustainability, as well as the capability to achieve its goals. The comprehensive risk management cycle includes the identification, measurement, control, monitor, communication, and disclosure of the risks, as well as action plans to minimize them. The company's risk management policy indicates that all divisions and processes must be included in the risk management system. This process is methodically executed with the support of the insurance division. As such, the risks related to climate change are identified by the organization in line with the risks policy. Risks originating from weather phenomena are also monitored through the sales management process, assessing their impact on operational margins. This offers the possibility of detecting opportunities for the commercialization of energy, either the purchase or sale of, or the need to contract additional fuel for greater thermoelectric generation. In this way, the exposure of the portfolio caused by unfavorable water levels is reduced. In order to manage the identified risk in relation to weather phenomena, the Company carries out generation planning in deposits, through which it ensures the energy for the system and reduces the impact of said phenomena on the communities to a minimum because the deposit hydroelectric power plants facilitate the regulation of the water.

**CC2.1c**

**How do you prioritize the risks and opportunities identified?**

The Company identified the risks based on a qualitative and quantitative analysis, in accordance to the guidelines established in the definition of risk tolerance and appetite; this in addition to an assessment of the controls established so as to prioritize the principle residual risks that could affect the Company. Each risk is analyzed according to different dimensions, seeking to cover all strategic variables and stakeholders. These dimensions are: economic, human resources, reputation, environment, social, and market. Attached in the following file are the dimensions and definition of risk appetite and tolerance (attached Dimensions and definition of risk appetite and tolerance). Once the risks are analyzed, the failures that could give rise to the materialization of the risk are identified; plans or projects to be developed so as to reduce the level of risk are then proposed. The risk area monitors advances in the plans for the control of risks, and the Audit Department validates compliance of said plans and projects.

The Company analyzes the correlation of the business and financial risks which are the responsibility of the corresponding divisions as part of their decision making and management processes. These workshops are carried out with the SURA insurance company methodology, known as MANAGEMENT OF

**TENDENCIES AND RISKS..**

Furthermore, the Company is elaborating a correlation analysis of all the strategic risks; see the identification of risks in the 2015 Comprehensive Report (<http://goo.gl/FS0Ud6>) to provide an understanding of their systemic consequences, complexity, and potential impacts. The result will be a map of impacted risks that shows the intensity of the connection between the individual risks

**CC2.2****Is climate change integrated into your business strategy?**

Yes

**CC2.2a****Please describe the process of how climate change is integrated into your business strategy and any outcomes of this process**

Climate change is identified as a material issue within the socio-environmental management and is incorporated into our business model, similarly, risk and opportunities are analyzed to identify new business opportunities by diversifying the portfolio of products lined with our strategy.

In this sense, in Celsia we are convinced that the time for non-conventional renewable energy has come and solar and wind generation are the main sources for us: Their costs currently are competitive and there are many possibilities that complement our portfolio very well. We therefore leverage the knowledge that our research and development teams have acquired in the understanding and use of solar energy and the wind operation in Costa Rica, as part of our aspiration to become leaders in the use of these technologies. In the short term, we seek to have 250 MW installed capacity of solar energy in Colombia and Panama, and to increase Panama's wind capacity by 50 MW. We are also looking into, in conjunction with a developer, developing a wind project in the high potential area of La Guajira; unfortunately, wind generation in this region will be dependent on transmission lines that are not yet in place, but we are currently engaged in the bidding process and stand to begin construction soon. Thus, this partnership will prepare us for when the infrastructure is in operation, which we expect to happen within the time until 2019. Shareholders: We can see that wind and solar energy are here to stay, and we will be leaders in this field.

Our technological progress in the electricity sector continues apace, and the transformations that have been announced for years as future matters to be prepared for are now a reality. The costs of non-conventional renewable energy are coming increasingly close to those of traditional technologies; distributed generation, such as solar panels on roofs, are now the norm in many parts of the world. It will not be long before we do not have consumers so much as prosumers, a term that refers to the role of combining the production and consumption of energy: there will be energy efficiency models; home and office automation applications; electric vehicles that as well as transporting us, will serve as batteries for injecting and taking energy from the network based on the preferences and needs of prosumers; efficient lighting; new energy storage services for homes and as a complement to current networks; as well as more information and interaction with clients hour after hour, among many other aspects that are revolutionizing the industry and business models alike.

At Celsia, we have closely followed these developments, and have prepared ourselves to take advantage of the opportunities that arise out of them. We have therefore decided to include, as a fundamental part of our strategy, the development of new businesses geared toward meeting the needs of evermore active and well-informed clients. This last point is what has allowed us to change how we see the business, and we are concentrating on building a customer-facing company, managed not on the basis of assets like a traditional public utilities company, but as a modern company where plants, lines and substations are just one means of improving people's quality of life. We plan to implement this through three new business units:

1. CITIES-SUSTAINABILITY, through which we will play an active role in modern and friendly urban development, taking advantage of the trend of building cities within cities where we will provide services that go beyond the supply of energy to include thermal networks, co-generation, water, lighting, electric transportation, and so on.
2. COMPANIES-PRODUCTIVITY, through which we will provide comprehensive solutions to the energy needs of businesses, industries and property developers that will be able to concentrate resources in their primary activities, given that our objective is to venture far beyond the meter by making investments in electric assets, and combining these with operation, maintenance and energy-supply services.
3. HOMES-WELLBEING, through which we will reach residential clients, to deliver the best supply and management options for their electricity consumption. Innovation, represented by new technologies and business models, is at the heart of this proposition. As part of this, distributed distribution, storage, mobility, automation and the remote control of devices based on ICT, as well as new proposals oriented toward saving, efficiency, and minimizing CO2 emissions, constitute the foundations on which we are building this new vision of our Company.

That is how, we have set a Big Hairy Audacious Goal (BHAG) that responds to these new realities: to serve one million clients by 2025, generating USD 5 billion dollars, with 50% from new business.

**CC2.2c****Does your company use an internal price of carbon?**

Yes

**CC2.2d****Please provide details and examples of how your company uses an internal price of carbon**

In Colombia, there are no carbon taxes regulation yet. However, Celsia is aware that carbon taxes might be implemented in Colombia at an estimated price of 45000 to 60000 COP per ton, an average emissions of around 1-1,5 million tons per year. As a result, if a carbon tax would be applied in Colombia, The Company would have a negative financial implication up to COP 90,000 millions, as a tax cost.

Carbon taxes have been incorporated in our financial model to evaluate the impact of the regulation and the performance of each existing plant and project in the financial indicators (ebitda, ROIC and Free Cash Flow).

**CC2.3****Do you engage in activities that could either directly or indirectly influence public policy on climate change through any of the following? (tick all that apply)**

Direct engagement with policy makers

Trade associations

Funding research organizations

**CC2.3a****On what issues have you been engaging directly with policy makers?**

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
Clean energy generation	Support	Celsia has participated through the guilds in the advocacy of law 1715 renewable energy. Currently involved in discusión to promote the regulation of this law, it is expected the government implement environmental schemes, social, legal and taxation to facilitate the modernization of the energy mix for this year because COP21 commitments	At the moment, it has made the national tax authority (DIAN) apply the tax regime of incentives for renewable energy and UPME ( Mining and Energy Planning Unit) establish the conditions for registration of these projects.
Other: National Policies for Mitigation and Adaptation to Climate Change National Policies for Mitigation and Adaptation to Climate Change	Support	The "Intended Nationally Determined Contribution" (iNDC). presented by Colombia at COP 21 established a 20% reduction of GHG emissions compared to projected emissions by 2030. Currently is deciding how will perform the distribution of sectoral goals. In the case of Panama, its national contribution INDC establishes a commitment to reduce emissions to 2050, where 30% of the Mix will be based on renewable energy, currently Celsia is studying the effect of this on our operations and how Celsia can contribute to this national goal. The commitment of Costa Rica INDC 2030 states maintain their net emissions in tons of CO2 eq 9'374.000, which equals a reduction of 44% compared to BAU scenario, because our operations are in wind energy and the perspective of growth is based on increasing renewable energy generation, Celsia expects that its operation will help to accomplish the country INDC.	Celsia jointly with other companies is involved in the Climate Change Committee with the Energy and Mines Ministry, this committee is currently building the sectoral action plan for mitigation and adaptation to climate change in the electricity sector in Colombia. In the case of Panama, Celsia is analyzing the impact of INDC presented by this country as committed to reducing emissions by 2050, which states that in that year would be 30% of the mix based on renewable energy. Celsia operation in Costa Rica is fully based on renewable energy and its possible extension, is fully aligned with the local INDC and is verified through CDM of Guanacaste wind farm

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
Energy efficiency	Support	The Colombian Association of Electric Power Generators has the fundamental objective of supporting and promoting programs, policies and/or actions aimed at ensuring the sustainable development of Colombian power generation industry. The following measures were taken by the association to contribute to these processes: • Active participation to design Policies and environmental regulations. • Proposals to ensure environment protection and sustainability of electricity's provision. • Support of activities and actions aimed at ensuring availability and protection of water resources. The association encourages companies in the sector to become a great protector of biodiversity and other resources, including species threatened with extinction, and in actors that do not generate environmental liabilities to the planet. Likewise, the sustainable use of natural resources of the country for electricity generation is driven, while for coping with climate variability and vulnerability of water sources, the potential of other renewable and alternative energies such as wind, solar and geothermal sources are studied in order to ensure future supply and to maintain a low-carbon economy.	We participated in the study of the energy and regulation policy for the development of smart networks, and in the roadmap to 2030. This project was led by the Mining and Energy Planning Unit (UPME), the organization Colombia Inteligente, and the Inter-American Development Bank (IADB).

**CC2.3b**

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

Yes

**CC2.3c**

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

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you, or are you attempting to, influence the position?
ACOLGEN (Colombian Association of Electric Power Generators)	Consistent	The Colombian Association of Electric Power Generators has the fundamental objective of supporting and promoting programs, policies and/or actions aimed at ensuring the sustainable development of Colombian power generation industry. The following measures were taken by the association to contribute to these processes: • Active participation to design Policies and environmental regulations. • Proposals to ensure environment protection and sustainability of electricity's provision. • Support of activities and actions aimed at ensuring availability and protection of water resources. The association encourages companies in the sector to become a great protector of biodiversity and other resources, including species threatened with extinction, and in actors that do not generate environmental liabilities to the planet. Likewise, the sustainable use of natural resources of the country for electricity generation is driven, while for coping with climate variability and vulnerability of water sources, the potential of other renewable and alternative energies such as wind, solar and geothermal sources are studied in order to ensure future supply and to maintain a low-carbon economy.	As members we provide information, expertise in best practices and comments about the position of the company regarding the regulation and public policies in order to support the position and the advocacy work of the association.

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?
ANDESCO	Consistent	The objectives of ANDESCO are: To promote corporate and community environmental management under the principles of sustainability, understood as the right balance between environmental, social and economic aspects, in order to achieve Sustainable Development.	As members we provide information, expertise in best practices and comments about the position of the company regarding the regulation and public policies in order to support the position and the advocacy work of the association.
ANDEG	Consistent	ANDEG aims to propose and promote measures that contribute to National Government, Regulatory Committee, and Control and Supervisory authorities, to deepen the energy market. It also promotes the participation of associate companies in sectoral studies related to Climate Change and Sustainability as "energy policy objectives for a sustainable electricity market: Recovering efficient thermal generation for energy market" ( <a href="http://www.andeg.org/node/25">http://www.andeg.org/node/25</a> ).	As members we provide information, expertise in best practices and comments about the position of the company regarding the regulation and public policies in order to support the position and the advocacy work of the association.

**CC2.3d**

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

Yes

**CC2.3f**

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

As part of the Energy Cluster, the Company participated in the formulation of a pilot project along part of the Colombian Pacific coast, to provide sustainable energy solutions with hybrid energy-generation solutions (micro-turbines, solar photovoltaic with storage) in unconnected areas.

As founding partners, we sponsored the international competition known as Solar Decathlon, in which a number of universities specializing in engineering, architecture, sustainable urban design, renewable energy and related degree programs were invited to participate in the design, construction and operation of sustainable housing solutions through the use of solar energy-based electricity and heat sources, concepts of energy efficiency, and sustainable development. It is important to mention that Colombia is the first Latin American country to organize this event.

Alongside Creati Labs, we continue working on the construction of a new electric prototype and a hybrid bus for the mass transport system in the city of Cali (Masivo Integrado de Occidente – MIO), so as to promote the use of this type of transport system in the country.

We supported the Universidad del Valle in the building and equipping of an instrumental analysis laboratory. Through this project, the Polychlorinated Biphenyl



(PCB) identification stage was completed, highly polluting synthetic compounds present in some electrical devices. Moreover, the gradual, scalable elimination of these compounds was achieved in the laboratory, as a result of developments and prototypes by a group of researchers at that university. For this project, we received the 2015 Ámbar Award, organized by the Colombian Association of Electric Power Distribution Companies (Asocodis), which recognizes research and development in the electric sector.

**Further Information**

question 2.1a: attached: risk manual content question 2.1b: attached: Commercial Presentation, it is a example of how are integrated risk management processes in the bussines, and Hydroclimatic and environmental network design question 2.1c: attached: Dimensions and definition of appetite and risk tolerance and Photovoltaic Project Risk Assessments: this is an example of risks clasification question 2.2a: attached: our new strategy and New\_bussines\_En

**Attachments**

- [https://www.cdp.net/sites/2016/29/45029/Climate\\_Change\\_2016/Shared\\_Documents/Attachments/ClimateChange2016/CC2.Strategy/Our\\_New\\_strategy.pdf](https://www.cdp.net/sites/2016/29/45029/Climate_Change_2016/Shared_Documents/Attachments/ClimateChange2016/CC2.Strategy/Our_New_strategy.pdf)
- [https://www.cdp.net/sites/2016/29/45029/Climate\\_Change\\_2016/Shared\\_Documents/Attachments/ClimateChange2016/CC2.Strategy/New\\_bussines\\_En.pptx](https://www.cdp.net/sites/2016/29/45029/Climate_Change_2016/Shared_Documents/Attachments/ClimateChange2016/CC2.Strategy/New_bussines_En.pptx)
- [https://www.cdp.net/sites/2016/29/45029/Climate\\_Change\\_2016/Shared\\_Documents/Attachments/ClimateChange2016/CC2.Strategy/Commercial\\_Presentation.pptx](https://www.cdp.net/sites/2016/29/45029/Climate_Change_2016/Shared_Documents/Attachments/ClimateChange2016/CC2.Strategy/Commercial_Presentation.pptx)
- [https://www.cdp.net/sites/2016/29/45029/Climate\\_Change\\_2016/Shared\\_Documents/Attachments/ClimateChange2016/CC2.Strategy/Dimensions\\_and\\_definition\\_of\\_appetite\\_and\\_risk\\_tolerance.xlsx](https://www.cdp.net/sites/2016/29/45029/Climate_Change_2016/Shared_Documents/Attachments/ClimateChange2016/CC2.Strategy/Dimensions_and_definition_of_appetite_and_risk_tolerance.xlsx)
- [https://www.cdp.net/sites/2016/29/45029/Climate\\_Change\\_2016/Shared\\_Documents/Attachments/ClimateChange2016/CC2.Strategy/Hydroclimatic\\_and\\_environmental\\_network\\_design.pptx](https://www.cdp.net/sites/2016/29/45029/Climate_Change_2016/Shared_Documents/Attachments/ClimateChange2016/CC2.Strategy/Hydroclimatic_and_environmental_network_design.pptx)
- [https://www.cdp.net/sites/2016/29/45029/Climate\\_Change\\_2016/Shared\\_Documents/Attachments/ClimateChange2016/CC2.Strategy/Risk\\_Manual.pdf](https://www.cdp.net/sites/2016/29/45029/Climate_Change_2016/Shared_Documents/Attachments/ClimateChange2016/CC2.Strategy/Risk_Manual.pdf)
- [https://www.cdp.net/sites/2016/29/45029/Climate\\_Change\\_2016/Shared\\_Documents/Attachments/ClimateChange2016/CC2.Strategy/Photovoltaic\\_Project\\_Risk\\_Assessments.xlsx](https://www.cdp.net/sites/2016/29/45029/Climate_Change_2016/Shared_Documents/Attachments/ClimateChange2016/CC2.Strategy/Photovoltaic_Project_Risk_Assessments.xlsx)

**Page: CC3. Targets and Initiatives**

**CC3.1**

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

Renewable energy consumption and/or production target

**CC3.1d**

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

ID	Energy types covered by target	Base year	Base year energy for energy type covered (MWh)	% renewable energy in base year	Target year	% renewable energy in target year	Comment
RE1	Electricity production	2015	1224	52%	2020	61%	Our plans is that in 10 years we have installed 250 MW of solar energy in Colombia and Panama and duplicate the wind capacity (to 100 MW) in Costa Rica, we're working to have 1,586 MW of installed capacity from renewable sources, including hydropower generation, solar power plants and wind for 2020.

**CC3.1e**

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

ID	% complete (time)	% complete (emissions or renewable energy)	Comment
RE1	0%	0%	Included in the company strategy, development initiated in 2015.

**CC3.2**

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

Yes

**CC3.2a**

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

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
Group of products	Electricity generation based on renewable energy, we established a new business model founded on the photovoltaic energy supply, which was tested by two large consumers who served as a benchmark in the upscaling process. In this regard, we have made progress in the installation of projects in different regions of the country: in Valle del Cauca, with projects installed in the Universidad Autónoma de Occidente in Cali; Ciudad Santa Bárbara in Palmira; Ciudadela el Castillo and Urbanización Océano Verde in Jamundí; and in Antioquia we reached the Compañía Nacional de Chocolates in Rionegro and Fundación Socya in Medellín. This pilot program consists of the sale of all of the energy demanded by the client, supported by photovoltaic generation by the Celsia plants in Panama. As to electric transportation, we are testing new technologies, some already in existence and others developed using Colombian expertise, thereby adapting the technology to local market conditions. Alongside Creati Labs, we continue working on the construction of a new electric prototype and a hybrid bus for the mass transport system in the city of Cali (Masivo Integrado de Occidente – MIO), so as to promote the use of this type of transport system in the country. We installed a solar thermal exploitation system and a monitoring system at the administrative facilities of the Salvajina Hydroelectric Power Plant.	Avoided emissions	Other: Estimate based on the emission factor UPME Colombia	0%	Less than or equal to 10%	The percentage of revenues from low carbon product/s in the reporting year is 0.006% The products group mentioned above correspond to initiatives from R&D, in 2015 the company invested \$ 2 362 140 000 COP

in these products. Of these projects it has been installed a total generation capacity of 341 kWp , equivalent to 3 573 tons of CO2 that will no longer be emitted over 25 years. Moreover, we are introducing this product in Panama, for which we adjusted the business model to the market conditions in that country and presented the first offer to conduct a pilot program with a client

Product	Power generation from renewable sources	Low carbon product	Other: power generation from renewable sources: water and wind, five (5) plants have CDM and one plant have VCS verification methodology.	37%	Less than or equal to 10%	Power generation from renewable sources: one Wind Power Plant in Costa Rica and 21 power plants hydraulic in Panamá and Colombia. In 2015 power generation from renewable sources was 3426 GWh. It is accounting for 44% of power generation company
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**CC3.3**  
**Did you have emissions reduction initiatives that were active within the reporting year (this can include those in the planning and/or implementation phases)**

Yes

**CC3.3a**  
**Please identify the total number of projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings**

Stage of development	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
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Under investigation	4	
To be implemented*	4	578968
Implementation commenced*	4	305.10
Implemented*	10	816
Not to be implemented		

**CC3.3b**

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

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Energy efficiency: Processes	Change of air compressors in the thermal power plant ZFC Flores IV unit. The two compressors designed and supplied by the Flores IV unit project were 200 HP each, were changed by two compressors 75 HP, they came into operation from March 2015. The project included changing technology from drying air to regenerative cooling, which saves 20% of the compressor capacity.	353.6	Scope 2 (location-based)	Voluntary	167266296	400571200	4-10 years	11-15 years	
Energy efficiency: Building services	Replacing conventional lighting for LED type They were cchanged in the following locations in the thermal power plant ZFC : Control room, office, warehouse, control room, substation and the MCC room. Savings of this project taking into account the maintenance and change of lamps, ballasts, and other minor accessories and the fact that the LED lamps have an average life greater than 60,000 hours guaranteed, compared with the average life of lamps gas discharge ranging from 6,000 to 10,000 hours.	25.4	Scope 2 (location-based)	Voluntary	24013881	72300635	4-10 years	6-10 years	
Energy efficiency: Processes	Replacement of the air conditioning system Flores I unit Building in the thermal power plant ZFC with a new unit that consumes 319,740 kWh/year instead the old unit that uses 857,604 kWh/year for an expected saving of 527,536 kWh/year. It became operational in January 2015.	237.4	Scope 2 (location-based)	Voluntary	112289656	81353300	4-10 years	11-15 years	

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Energy efficiency: Processes	Change BOP compressor of 125HP in Flores I in the thermal power plant ZFC by one compressor variable speed of 100 HP.	70.6	Scope 2 (location-based)	Voluntary	33381471	153138021	4-10 years	11-15 years	
Low carbon energy installation	Implementation of six projects of photovoltaic solar energy to customers	129.1	Scope 2 (location-based)	Voluntary	142000000	1133000000	11-15 years	21-30 years	

**CC3.3c**

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

Method	Comment
Other	In 2015, we sponsored the international competition known as Solar Decathlon, in which a number of universities specializing in engineering, architecture, sustainable urban design, renewable energy and related degree programs were invited to participate in the design, construction and operation of sustainable housing solutions through the use of solar energy-based electricity and heat sources, concepts of energy efficiency, and sustainable development. It is important to mention that Colombia is the first Latin American country to organize this event.
Employee engagement	Celsia has four (4) cars and one (1) electric motorcycle that are provided to employees for use in the transportation from and to the company in order to replace the traditional ways of transport and to reduce emissions due to transportation.
Dedicated budget for low carbon product R&D	Through the innovation model of the company, investment in research and implementation of renewable energy projects. innovation investment in 2015 was 6,008,220,000 COP. The lines of research into innovation are: 1. Electric Storage 2. Electric Transportation 3. Energy Efficiency 4. building automation
Partnering with governments on technology development	Alongside Creatti Labs, in 2015 we continue working on the construction of a new electric prototype and a hybrid bus for the mass transport system in the city of Cali (Masivo Integrado de Occidente – MIO), so as to promote the use of this type of transport system in the country.

**Further Information****Page: CC4. Communication****CC4.1**

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

Publication	Status	Page/Section reference	Attach the document	Comment
In mainstream reports (including an integrated report) but have not used the CDSB Framework	Complete	Web page <a href="http://report2015.celsia.com/http://report2015.celsia.com/environmental-dimension/environmental-management/climate-change-and-management-of-emissions/">http://report2015.celsia.com/http://report2015.celsia.com/environmental-dimension/environmental-management/climate-change-and-management-of-emissions/</a>	<a href="https://www.cdp.net/sites/2016/29/45029/Climate%20Change%202016/Shared%20Documents/Attachments/CC4.1/Climate%20change%20and%20management%20of%20emissions%20-%20Integrated%20Report%202015.pdf">https://www.cdp.net/sites/2016/29/45029/Climate Change 2016/Shared Documents/Attachments/CC4.1/Climate change and management of emissions - Integrated Report 2015.pdf</a>	
In voluntary communications	Complete	DJSI Questionnaire_Chapter 2: Environmental Dimension		
In voluntary communications	Complete	Webpage <a href="http://www.celsia.com/sustainability/">http://www.celsia.com/sustainability/</a>		

#### Further Information

### Module: Risks and Opportunities

#### Page: CC5. Climate Change Risks

##### CC5.1

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

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

##### CC5.1a

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

Risk driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
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General environmental regulations, including planning	Possible changes in the regulation converting existing reservoirs to multipurpose use and decrease in flows that are granted or renewed by environmental restrictions Colombian authorities are currently evaluating the imposition of new environmental regulations to modify the environmental flow requirements, lowest level of reservoir operation, reservoir management plans, sediment management among others.	Reduction/disruption in production capacity	3 to 6 years	Direct	Very likely	Medium-high	Celsia is considering making the analysis of financial implications in the medium term	The organization consistently monitors initiatives that can generate adverse regulatory changes to the company, for the purpose prevent and mitigate its effects. Celsia forward proactive work with the guilds, participating in panel discussions for the regulation of standards.	The costs associated with managing this risk are related to travel and transportation for participation and attendance at events in all these initiatives, as well as the payment of complementary and explanatory studies, the cost is estimated at \$ 300 million of COP
Carbon taxes	Changes in energy regulation in Colombia can adversely affecting the assets in operating: their profitability or the business continuity. Colombia is part of the Carbon Pricing leadership coalition. The Minister of Finance announced in the Climate Business Forum 2016 that will be included green and carbon taxes in the next tax reform	Reduction in capital availability	1 to 3 years	Direct	Virtually certain	High	Celsia's direct GHG emissions amount to 1770276,78 t CO2/year. A carbon tax to direct emissions in Colombia may amount to COP 90000 M/year	Setting the strategy, which includes business diversification and increasing participation of renewable energies	For the next ten years Celsia expects to invest more than one billion dollars in new business and mix diversificacion
Product efficiency regulations and standards	Changes in energy regulation in Colombia adversely affecting the operation of assets, their profitability or business continuity:	Reduced demand for goods/services	>6 years	Indirect (Client)	Likely	Medium-high	The Analysis of financial implications is on the way for the next year	Development of activities for improving processes, products and services to promote	For 2015, the company's investment in innovation projects amounted to



The Colombian government, through the Ministry of Mines and Energy issues the Law 697 of 2011 about the Rational and Efficient Use of Energy (URE) as a matter of social, public and national interest, essential to ensure the full and timely energy supply, competitiveness of the Colombian economy, consumer protection and promotion of the use of non-conventional energy in a sustainable way with the environment and natural resources. In addition, under Resolution 180919 of 2010, it adopted the Action Plan to develop the Program of Rational and Efficient Use of Energy and other forms of non-conventional energy. These government measures aimed at reducing electricity demand and further development of competitors who offer renewable energy.

overall growth, achieve efficiency and ensure better market position.

COP 6000 million.

**CC5.1b**

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

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in precipitation extremes and droughts	<p>Shorter and intense droughts or floods: Within the risks matrix of the Company, it has been identified that the current natural phenomena associated with climate change affects river levels (flows), which are used during operations. In 2015 an UPME study (Planning Unit mining and energy) of the Ministry of Mines based in a standard 30-year series of rainfall records from several rivers in our country, suggests that climate change could limit the effective capacity of generation in all reservoirs. Reservoirs were classified according to the level of vulnerability to climate change in four (4) categories. It was found that the most vulnerable ones (Level 1 of Vulnerability) are: Pacífico, Cauca, Antioquia 1 and Antioquia 2, which coincide with the Organization's plants and projects."</p>	Reduction/disruption in production capacity	>6 years	Direct	More likely than not	Medium-high	The Analysis of financial implications is on the way for the next year	"The company has been linked to conservation and reforestation initiatives strategic to its operations in the basins. In Colombia, we continued with the conservation actions contained in the agreement with the Farallones National Natural Park in Cali and Las Hermosas; We supported the conservation of areas of environmental importance through ecological restoration actions and biological corridors; in the case of the Las Hermosas National Natural Park, we recovered 359 ha in the buffer zone, 25 linear km of isolation of riverside forest, and six tributaries, as well as converting 17 ha of land used for extensive stock-farming to a	Estimated investment by the agreement with the Farallones National Natural Park of COP 2,000 million over five years, of which COP 471 million was invested in 2015.

								more environmentally-friendly alternative, along the Tuluá, Nima and Amaime rivers. Celsia Reforested 473.41 hectares with 380 thousand trees of native species in the mid and upper basin of the Alto and Bajo Tuluá, Amaime, Nima, Rio Cali, Calima, Cucuana and Salvajin Hydroelectric Power Plants. "	
Change in temperature extremes	In a study published by USAID and UPME an increase in temperature to Colombia for the next 30 years it is identified. The increase in air temperature has an effect on the expansion of the transmission lines, the operation of equipment in power plants, plus the energy demand increases by cooling and ventilation needs.	Increased operational cost	>6 years	Direct	About as likely as not	Medium	The Analysis of financial implications is on the way for the next year	The compañía has changed its strategy to address the risks and opportunities from climate change, which is why in addition to working in the diversificación the mix of energy, including solar power generation photovoltaic have been established other lines of business, where it plays a key role installing solar panels in cities, homes and companies.	For the next ten years Celsia expects to invest more than one billion dollars in new business and mix diversifiacion

Change in mean (average) precipitation	Decreased availability of water resources : In a study published by USAID UPME and an increase in temperature to Colombia for the next 30 years it is identified. The same study from models determines that in 2050 will have a decrease between 6 and 8% of water contributions to the watersheds.	Reduction/disruption in production capacity	>6 years	Direct	About as likely as not	High	The Analysis of financial implications is on the way for the next year	From the new business area manages this risk seeking technological and hydrological complementarity to the generation mix, optimizing the mix between thermal, hydro generation and renewable energy for new businesses in which it penetrates. Furthermore, when hydro projects are evaluated generation projections are made based on historical hydrological records.	No estimated yet
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**CC5.1c**

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

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Induced changes in human and cultural environment	Opposition against energy projects: There are advocacy groups at local and international level against the construction of power plants, because their GHG emissions and also other possible impacts related with emissions of particulate matter, carbon monoxide, sulfur and nitrogen oxides	Reduced demand for goods/services	3 to 6 years	Direct	More likely than not	Low-medium	Celsia has not done the analysis, not consider it necessary for now	The organization has chosen not to set up action plans for this risk because it is not prioritized in their risk matrix	No estimated yet

**Further Information****Page: CC6. Climate Change Opportunities****CC6.1**

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

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

**CC6.1a**

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

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Voluntary agreements	We have identified opportunities related to climate change under the CDM and VCS certification schemes totaling 292.189 tonCO <sub>2</sub> eq / year, some projects are not currently certified.	Increased demand for existing products/services	>6 years	Direct	Very likely	Medium	The option of selling CERS or VCS bonds at the moment is not considered profitable by the virtual disappearance of the market by low costs per ton of carbon (US \$ 0.17), which means an income of about \$ 150 millions of COP	Given the low prices of carbon markets, the organization is considering to discount from their inventory the CDM and VCS bonds that are not committed	45 Million COP corresponding to audit services for emission discount and market registration

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Other regulatory drivers	Greater restrictions in terms of energy intensity: In 2014 the Ministry of Mines and Energy endorses the statement 902 which commits the mining and energy sector with the reduction of carbon footprint. For Electric Power establishes the promotion and development of national energy efficiency policy for the operation of the SIN (National Interconnected System); the promotion of unconventional sources of non-renewable energy in the SIN and non-interconnected areas (ZNI).	Reduced operational costs	3 to 6 years	Direct	Virtually certain	Medium	Analysis of financial implications has not been carried out.	Continuous monitoring of variables that may generate adverse regulatory changes for the company is executed in order to prevent and mitigate its effects. Proactive work is also advancing with guilds, participating in panel discussions for the regulation of law and as member of the climate change board and the Colombian strategy of low carbon development (ECDBC) of the Ministry of Environment and Sustainable Development."	Cost of management have been estimated but they are confidential

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Renewable energy regulation	Law 1715 of May 2014, is aimed at the development and use of unconventional sources of energy within the Colombian energy system. This law gives tax incentives to businesses that run all kinds of renewable energy projects	Investment opportunities	>6 years	Direct	Virtually certain	Medium-high	Financial implications have been estimated but they are confidential because they are projects in early evaluation.	"The company reformulated its strategy, giving prominence to renewable energies within their business. That is how in the short term going to have 250 MW installed solar power in Colombia and Panama and increase 50MW wind capacity at Costa Rica. 2020 will be expected to have a total of 2359 MW installed capacity from renewable sources, including power generation plants hydraulics, solar, wind and geothermal. complementar con nuevos negocios"	Cost of management have been estimated but they are confidential

**CC6.1b**

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

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
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Other physical climate opportunities	Celsia has identified business opportunities with the growth of its portfolio through the acquisition and development of renewable energy projects. Power generation from renewable sources has advantages, because they have lower emissions making them more respectful of the environment. Also, power generation allows energy autonomy. On the other hand, from the voluntary carbon markets, these projects may be included within schemes that allow the marketing of these bonds."	New products/business services	>6 years	Direct	About as likely as not	Medium	Financial implications have been estimated but they are confidential because they are projects in early evaluation.	In the short term, we intend to have 250 MW installed solar power in Colombia and Panama and increase 50MW wind capacity at Costa Rica. 2020 will be expected to have a total of 2359 MW of installed capacity from renewable sources, including power generation plants hydraulics, solar, wind and geothermal "	Cost of management have been estimated but they are confidential
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**CC6.1c**

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

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Changing consumer behaviour	Our technological progress in the electricity sector continues apace, and the transformations that have been announced for years as future matters to be prepared for are now a reality. The costs of non-conventional renewable energy are coming increasingly close to those of traditional technologies; distributed generation, such as solar panels on roofs, are now	New products/business services	>6 years	Direct	Virtually certain	High	To serve one million clients by 2025, generating USD 2.5 billion dollars from new business.	At Celsia, we have closely followed these developments, and have prepared ourselves to take advantage of the opportunities that arise out of them. We have therefore decided to include, as a	Cost of management have been estimated but they are confidential



the norm in many parts of the world. It will not be long before we do not have consumers so much as prosumers, a term that refers to the role of combining the production and consumption of energy: there will be energy efficiency models; home and office automation applications; electric vehicles that as well as transporting us, will serve as batteries for injecting and taking energy from the network based on the preferences and needs of prosumers; efficient lighting; new energy storage services for homes and as a complement to current networks; as well as more information and interaction with clients hour after hour, among many other aspects that are revolutionizing the industry and business models alike.

fundamental part of our strategy, the development of new businesses geared toward meeting the needs of evermore active and well-informed clients. This last point is what has allowed us to change how we see the business, and we are concentrating on building a customer-facing company, managed not on the basis of assets like a traditional public utilities company, but as a modern company where plants, lines and substations are just one means of improving people's quality of life. We plan to implement this through three new business units: Cities-Sustainability: the portfolio will consist of photovoltaic solar energy, efficient

heating, cooling (thermal districts) and lighting, backup power and electrical installations. Companies- Productivity: the portfolio will consist of of photovoltaic solar energy, home automation or energy automation, lighting plants, networks and substations Homes- Wellbeing: the protafolio will consist of photovoltaic solar energy, batteries that store energy services automation or automated energy management in the home, and funding options for these platforms
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**Further Information**

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

**Page: CC7. Emissions Methodology**

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**CC7.1**  
**Please provide your base year and base year emissions (Scopes 1 and 2)**

Scope	Base year	Base year emissions (metric tonnes CO2e)
Scope 1	Thu 01 Jan 2015 - Thu 31 Dec 2015	2858179
Scope 2 (location-based)	Thu 01 Jan 2015 - Thu 31 Dec 2015	63059
Scope 2 (market-based)		

**CC7.2**  
Please give the name of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

Please select the published methodologies that you use  
ISO 14064-1

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

**CC7.3**  
Please give the source for the global warming potentials you have used

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

**CC7.4**  
Please give the emissions factors you have applied and their origin; alternatively, please attach an Excel spreadsheet with this data at the bottom of this page

Fuel/Material/Energy	Emission Factor	Unit	Reference
Natural gas	0.05535	metric tonnes CO2e per GJ	Colombia: FECOC (Emission factors for Colombian fuels) - UPME (Mining and Energy Planning Unit) - Ministry of Mines and Energy of the Republic of Colombia.
Diesel/Gas oil	0.07392	metric tonnes CO2e per GJ	Colombia: FECOC (Emission factors for Colombian fuels) - UPME (Mining and Energy Planning Unit) - Ministry of Mines and Energy of the Republic of Colombia.
Motor gasoline	0.07457	metric tonnes CO2e per GJ	Colombia: FECOC (Emission factors for Colombian fuels) - UPME (Mining and Energy Planning Unit) - Ministry of Mines and Energy of the Republic of Colombia.
Liquefied petroleum gas (LPG)	0.06553	metric tonnes CO2e per GJ	Colombia: FECOC (Emission factors for Colombian fuels) - UPME (Mining and Energy Planning Unit) - Ministry of Mines and Energy of the Republic of Colombia.
Electricity	0.221	metric tonnes CO2e per MWh	Colombia: XM Compañía de Expertos en Mercados S.A. ESP (operator of the National Interconnected System (SIN) and administrator of the Colombian Wholesale Energy Market (MEM))
Diesel/Gas oil	0.741	metric tonnes CO2e per GJ	Emission factor used to Central america: It was taken from IPCC
Distillate fuel oil No 1	0.0774	metric tonnes CO2e per GJ	Emission factor used to Central america: It was taken from IPCC

Fuel/Material/Energy	Emission Factor	Unit	Reference
Charcoal	0.0946	metric tonnes CO2e per GJ	Emission factor used to Central america: It was taken from IPCC
Motor gasoline	0.0693	metric tonnes CO2e per GJ	Emission factor used to Central america: It was taken from IPCC
Electricity	0.277	metric tonnes CO2e per MWh	Emission factor used to Panama, It was taken from "Electricity specific emission factors for grid electricity". It is attached
Electricity	0.038	metric tonnes CO2e per MWh	Costa Rica: For Costa Rica was taken from "Factores de emisión de gases efecto invernadero: emissions factors greenhouse gas " of the National Metrology Institute, it is attached

**Further Information**

emission factor used to Panama: "Electricity-specific-emission-factors-for-grid-electricity" emission factor used to Costa Rica "

**Attachments**

[https://www.cdp.net/sites/2016/29/45029/Climate Change 2016/Shared Documents/Attachments/ClimateChange2016/CC7.EmissionsMethodology/factoresemision-gei-2016 Costa Rica.pdf](https://www.cdp.net/sites/2016/29/45029/Climate%20Change%202016/Shared%20Documents/Attachments/ClimateChange2016/CC7.EmissionsMethodology/factoresemision-gei-2016%20Costa%20Rica.pdf)  
[https://www.cdp.net/sites/2016/29/45029/Climate Change 2016/Shared Documents/Attachments/ClimateChange2016/CC7.EmissionsMethodology/Electricity-specific-emission-factors-for-grid-electricity.pdf](https://www.cdp.net/sites/2016/29/45029/Climate%20Change%202016/Shared%20Documents/Attachments/ClimateChange2016/CC7.EmissionsMethodology/Electricity-specific-emission-factors-for-grid-electricity.pdf)

**Page: CC8. Emissions Data - (1 Jan 2015 - 31 Dec 2015)**

**CC8.1**

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

Operational control

**CC8.2**

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

2858178.91

**CC8.3**

**Does your company have any operations in markets providing product or supplier specific data in the form of contractual instruments?**

No

**CC8.3a**

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

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

63059.2	For Colombia, Panamá and Costa Rica do not apply the market-based method: the costumers can not choose the type of energy they buy because the energy generated in the country, in the interconnected areas, it goes the same interconnected system that is transmitted and delivery to the final user, so we perform the calculation of emissions scope 2 to the location-based method. For these countries there is only one node connection and therefore a unique emission factor
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**CC8.4**

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

Yes

**CC8.4a**

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

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

**CC8.5**

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

Scope	Uncertainty range	Main sources of uncertainty	Please expand on the uncertainty in your data
Scope 1	More than 5% but less than or equal to 10%	Data Management	For total calculation of uncertainty, a tool published by GHG Protocol, using aggregate statistics methods for estimating an uncertainty percentage based on the parameters of each inventory and the individual uncertainties of activity data and factors emission, is used. The emission factors used for calculating GHG inventory of Celsia are taken for different types of fuel from official sources such as the Mining Energy Planning Unit (UPME) of the Ministry of Mines and Energy for Colombia based plants and from IPCC for the other countries and other emission sources. The uncertainty percentages made for each activity data and emission factors are taken from those generated by IPCC for the evaluation of uncertainty for national GHG inventories.
Scope 2 (location-based)	More than 5% but less than or equal to 10%	Assumptions Data Management Other: other	Uncertainty in Scope 2 is associated with the annual emission factor of electricity used for calculating GHG inventory of Celsia. Scope 2 is taken from XM experts, operator of the energy market in Colombia who publishes the factor of national interconnected system each year in January and varies between 2% and 5%. For Panama uncertainty it's greater because we worked with an emission factor of 2011 to not find more updated values.
Scope 2 (market-based)			

**CC8.6**

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

Third party verification or assurance process in place

**CC8.6a**

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

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/section reference	Relevant standard	Proportion of reported Scope 1 emissions verified (%)
Annual process	Complete	High assurance	<a href="https://www.cdp.net/sites/2016/29/45029/Climate%20Change%202016/Shared%20Documents/Attachments/CC8.6a/Declaraci3n%20Celsia%20GEI%20por%20alcance.pdf">https://www.cdp.net/sites/2016/29/45029/Climate Change 2016/Shared Documents/Attachments/CC8.6a/Declaraci3n Celsia GEI por alcance.pdf</a>	Page 2	ISO14064-3	62

**CC8.7**

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

Third party verification or assurance process in place

**CC8.7a**

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

Location-based or market-based figure?	Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 2 emissions verified (%)
Location-based	Annual process	Complete	High assurance	<a href="https://www.cdp.net/sites/2016/29/45029/Climate%20Change%202016/Shared%20Documents/Attachments/CC8.7a/Declaraci3n%20Celsia%20GEI%20por%20alcance.pdf">https://www.cdp.net/sites/2016/29/45029/Climate Change 2016/Shared Documents/Attachments/CC8.7a/Declaraci3n Celsia GEI por alcance.pdf</a>	Page 2	ISO14064-3	99

**CC8.8**

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

Additional data points verified	Comment
No additional data verified	

**CC8.9**

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

No

**Further Information****Attachments**

[https://www.cdp.net/sites/2016/29/45029/Climate Change 2016/Shared Documents/Attachments/ClimateChange2016/CC8.EmissionsData\(1Jan2015-31Dec2015\)/GHG Celsia Scopes 1 and 2.pdf](https://www.cdp.net/sites/2016/29/45029/Climate%20Change%202016/Shared%20Documents/Attachments/ClimateChange2016/CC8.EmissionsData(1Jan2015-31Dec2015)/GHG%20Celsia%20Scopes%201%20and%202.pdf)

**Page: CC9. Scope 1 Emissions Breakdown - (1 Jan 2015 - 31 Dec 2015)**

**CC9.1**

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

Yes

**CC9.1a**

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

Country/Region	Scope 1 metric tonnes CO2e
Colombia	1770276.78
Panama	1087874.74
Costa Rica	27.38

**CC9.2**

**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

**CC9.2a**

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

Business division	Scope 1 emissions (metric tonnes CO2e)
CELSIA Colombia	1767083
EPSA	3194
CELSIA Central America	1087902

**CC9.2b**

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

Facility	Scope 1 emissions (metric tonnes CO2e)	Latitude	Longitude
Administrative CELSIA	57.4		

Facility	Scope 1 emissions (metric tonnes CO2e)	Latitude	Longitude
Zona Franca CELSIA	1470132		
Meriléctrica	296888.3		
Río Piedras	1.6		
Hidromontañas	3.4		
EPSA Administrativo	186.7		
EPSA Distribución	1854.2		
Alto y Bajo Anchicayá	605.6		
Alto Tulúa	11.6		
Amaime + Nima I y II + Rio Cali I y II	49		
Calima	60.9		
Hidroprado	2.6		
Rriofrío 1 y 2	5.9		
Rumor	1.7		
Salvajina	415.9		
Complejo termoeléctrico Colón	1087807.47		
Dos Mares	67.27		
Administrativo Panamá	0.01		
Planta Eólica Guanacaste	27.38		

**CC9.2c**

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

GHG type	Scope 1 emissions (metric tonnes CO2e)
CO2	2838447
CH4	8236
N2O	5787
HFCs	586
PFCs	0
SF6	5123

**CC9.2d**

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

Activity	Scope 1 emissions (metric tonnes CO2e)
Energy generation	2856325
transmission and distribution of energy	1854

**Further Information**

**Page: CC10. Scope 2 Emissions Breakdown - (1 Jan 2015 - 31 Dec 2015)**



**CC10.1**

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

Yes

**CC10.1a**

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

Country/Region	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
Colombia	62957.47		30618.27	
Panama	95.35		167	
Costa Rica	6.36		344	

**CC10.2**

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

By business division

By facility

By activity

**CC10.2a**

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

Business division	Scope 2 emissions, location based (metric tonnes CO2e)	Scope 2 emissions, market-based (metric tonnes CO2e)
CELSIA Colombia	3616.93	
EPSA	59340.54	
CELSIA Central America	101.71	

**CC10.2b**

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

Facility	Scope 2 emissions, location based (metric tonnes CO2e)	Scope 2 emissions, market-based (metric tonnes CO2e)
CELSIA administrative	115.62	
Zona Franca CELSIA	3197.33	
Merilectrica	296.91	
Rio Piedras	4.58	
Hidromontañitas	2.49	
EPSA administrative	894.96	
EPSA transmission and distribution	56890.75	
Alto y Bajo Anchicayá	1055.39	
Alto Tulúa	5.21	
Amaime + Nima I y II + Rio Cali I y II	41.12	
Calima	211.22	

Facility	Scope 2 emissions, location based (metric tonnes CO2e)	Scope 2 emissions, market-based (metric tonnes CO2e)
Hidroprado	127.44	
Riofrío 1 y 2	0.61	
Rumor	0.78	
Salvajina	113.04	
Complejo termoeléctrico Colón	0	
Dos Mares	0	
Administrativo Panamá	95.35	
Planta Eólica Guanacaste	6.36	

**CC10.2c**

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

Activity	Scope 2 emissions, location based (metric tonnes CO2e)	Scope 2 emissions, market-based (metric tonnes CO2e)
Energy generation	6168	
transmission and distribution of energy	56891	

**Further Information****Page: CC11. Energy****CC11.1**

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

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

**CC11.2**

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

Energy type	Energy purchased and consumed (MWh)
Heat	0
Steam	0
Cooling	0

**CC11.3**

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

12495977

**CC11.3a**

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

Fuels	MWh
Diesel/Gas oil	1507540
Motor gasoline	3043
Natural gas	7367697
Propane	42
Diesel/Gas oil	735113
Charcoal	2882541

**CC11.4**

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

Basis for applying a low carbon emission factor	MWh consumed associated with low carbon electricity, heat, steam or cooling	Comment
No purchases or generation of low carbon electricity, heat, steam or cooling accounted with a low carbon emissions factor	0	In Colombia the energy generated enters into an interconnected system where electricity from different sources (hydro, thermal, minor sources, solar, etc.) is mixed. In 2014, the percentage of generation coming from renewable sources was 65%. In Panama the energy consumed in the plants is self-generated.

**CC11.5**

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

Total electricity consumed (MWh)	Consumed electricity that is purchased (MWh)	Total electricity produced (MWh)	Total renewable electricity produced (MWh)	Consumed renewable electricity that is produced by company (MWh)	Comment
	31129.71	7752000	3434540		Total electricity consumed (MWh): no data Consumed renewable electricity that is produced by company (MWh): no data

**Further Information****Page: CC12. Emissions Performance****CC12.1**

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

Increased

**CC12.1a**

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

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
Emissions reduction activities	0	No change	
Divestment	0	No change	
Acquisitions	74	Increase	At the end of 2014 the company acquired new assets in Panama and Costa Rica, 2015 was the first year of measurement of GHG inventory; for this reason, company's emissions increased significantly. CO2 emissions from Central America amounted to 1,088,017.016 tons of CO2, representing 74% of the increase for 2015 of GHG total inventory. Before this acquisition the company took 2012 as a base year, however, with the new plants we must take as a base year the 2015. The company will invest in the assets of Panama that will allow better performance in emissions; by 2020 is expected to carry out technological reconversion for the turbines of gas oil and fuel oil for natural gas and repowering coal turbine for better combustion efficiency .
Mergers	0	No change	
Change in output	0	No change	
Change in methodology	0	No change	
Change in boundary	0	No change	
Change in physical operating conditions	0	No change	
Unidentified	0	No change	

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
Other	24	Increase	<p>The emissions in Colombia presented an increase of 24% in GHG emissions, going from 1478542 tonnes CO2 in 2014 to 1833234 tonnes CO2 in 2015, this because on the way the Colombian Energy Market operates, the activity of thermal power plants increased in recent years. During drought and ENSO periods in Colombia, energy market allows entry into operation of thermal power plants to meet demand, which is why the organization has had a significant increase from 2014, and this is an aspect that is not under the company's control since it depends on the market and hydrological availability of the country (the availability of hydroelectric power determines the price behavior the energy market in Colombia) Total emissions of the company shows an increase of 98% over the previous year. Celsia is a private utility governed by the legal regulations applicable to this type of company that together with the energy market model does not allow to have to control their absolute emissions: • First of all, Celsia thermal plants (96% of Celsia's emissions for 2015) are assigned with a called "Reliability charge" which requires that they should be available all the time which entails an energy expenditure. • Thermal plants generally operate with natural gas fuel but this often is not available or has high prices and to meet the Reliability charge diesel is used which increases emissions. • Celsia is committed to contribute to the energy security of Colombia and as such must do everything possible so that this is maintained, so in cases of drought, damage or maintenance in other plants, thermal generation must address the lack of energy for the country or the region. • In Colombia, thermal plants were designed to operate in times of intense summer or variations such as ENSO where hydropower is not available or very low, in the recent years these periods of drought have increased in number and intensity which requires greater generation energy from thermoelectricity. • No less important is that the energy market in Colombia is regulated, is based on daily auctions of energy, they are based on prices (obviously the lowest) which does not allow thermal generation runs efficiently and promotes emission GHG Therefore, the reduction of these emissions is not under the company's control</p>

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

Location-based

**CC12.2**  
**Please describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO2e per unit currency total revenue**

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator: Unit total revenue	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
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0.79	metric tonnes CO2e	3691698	Location-based	38.55	Increase	Although company's revenues increased during 2014, absolute emissions also increased due to: Hydrological phenomena presented in Colombia that year and because of the consequent increase in demand for generation by thermal power plants in this country. - The acquisition of assets in Central America representing 63% of installed capacity thermal At our thermal power plants in central america, we plan to increase the power of the turbines, improving their efficiency and decrease the level of emissions per megawatt generated. In the short term, we intend to have 250 MW installed solar power in Colombia and Panama and increase 50MW wind capacity at Costa Rica. 2020 will be expected to have a total of 1586 MW installed capacity from renewable sources, including power generation plants hydraulics, solar and wind. Reaching a matrix with 56 % share of renewable energy
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**CC12.3**

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

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator	Metric denominator: Unit total	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
0.38	metric tonnes CO2e	megawatt hour (MWh)	7752000	Location-based	64.06	Increase	The generation of energy increased in 2015 and also the total emissions and intensity due to factors such as: -During 2015, El NIÑO caused the decreasing availability of hydropower. Because this, the thermal plants had to operate at full capacity for several months - The acquisition of assets in Central America increases the of installed capacity thermal to 63% For our thermal power plants in central america, we plan to increase the power of the turbines, improving their efficiency and decrease the level of emissions per megawatt generated. In the short term, we intend to have 250 MW installed solar power in Colombia and Panama and increase 50MW wind capacity at Costa Rica. For 2020 will be expected to have a total of 1586 MW installed capacity from renewable sources, including power generation plants hydraulics, solar and wind. Reaching a matrix with 56 % share of renewable energy that would reduce emissions intensity.

**Further Information**

**Page: CC13. Emissions Trading**

**CC13.1**

Do you participate in any emissions trading schemes?

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

**CC13.2**

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

Yes

**CC13.2a**

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

Credit origination or credit purchase	Project type	Project identification	Verified to which standard	Number of credits (metric tonnes of CO2e)	Number of credits (metric tonnes CO2e): Risk adjusted volume	Credits cancelled	Purpose, e.g. compliance
Credit origination	Hydro	1206: MONTANITAS HYDROELECTRIC PROJECT	VCS (Verified Carbon Standard)	478670		No	Voluntary Offsetting

**Further Information****Page: CC14. Scope 3 Emissions****CC14.1**

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

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation

Purchased goods and services	Not relevant, calculated	397.4	GHG Protocol- Corporate value chain (scope 3) accounting and reporting standard. Emission factor of Ecoinvent 2.2: paper, newsprint, at plant [CH]	50.00%	Calculated only for Celsia Colombia and for Central America it's in the process of calculation 50 tons of CO2e are quantified by purchasing paper in administrative activities of different Celsia sites, this year included paper billing users is included. In some plants we give fuel to the Army. Within the accounting of the company, this fuel appears as a purchase, but not used for the operation, it is donated to the army, who uses it for its security activities and its the reason to be included in this category. Whereas the army indirectly provides a monitoring and safety service to facilities of some of the plants and facilities located in vulnerable areas, emissions associated with donated fuel are located above the organization (emissions along the existence of the company) in the modality of service. For this purpose, 354,45 tons of CO2e were estimated.
Capital goods	Not evaluated		GHG Protocol Corporate value chain (scope 3) accounting and reporting standard		By 2015 emissions were not estimated in this category, however it shall be deemed to include them in future calculations.
Fuel-and-energy-related activities (not included in Scope 1 or 2)	Relevant, calculated	291413	GHG Protocol- Corporate value chain (scope 3) accounting and reporting standard: To calculate emissions by extraction of each type of fuel, emission factors of Ecoinvent 2.2 were used for the following activities: diesel, low-sulphur, at regional storage [RER], petrol, 5% vol. ethanol, from biomass, at service station [CH], liquefied petroleum gas, at service station [CH], natural gas, high pressure, at consumer [CH].	50.00%	Calculated only for Celsia Colombia, for Central America it is in the process of calculation Fuel extraction in Scope 1 and 3. Total quantities of fuels consumed both in thermal power generation and own and rented vehicles were included. Of total emissions in this category, 79% of them are associated with the extraction of Natural Gas for heat generation in generating plants in Colombia
Upstream transportation and distribution	Not evaluated				By 2015 emissions were not estimated in this category, however it shall be deemed to include them in future calculations.



Waste generated in operations	Relevant, calculated	1747.8	GHG Protocol- Corporate value chain (scope 3) accounting and reporting standard. Emission factors of Ecoinvent 2.2; for disposal (disposal, municipal solid waste, 22.9% water, to sanitary landfill [CH], disposal, municipal solid waste, 22.9% water, to municipal incineration [CH], disposal, hazardous waste, 0% water, to underground deposit [DE]) and for waste transport (transport, municipal waste collection, lorry 21t [CH], transport, lorry >32t, EURO3 [RER]). Amounts of ordinary and hazardous wastes are recorded for each installation from the environmental management system of the company, and these values are applied to emission factors named according to the disposal method used and distances to quantify emissions from transport to the disposal site that were reported for each of the facilities included in the limits.	50.00%	Calculated only for Celsia Colombia, for Central America it is in the process of calculation Celsia has a program to manage solid waste with sorting at source that is carried out within each of the facilities. This category includes quantified emissions associated with the disposal of 2105 tonnes of ordinary waste, 38 tons of hazardous waste for incineration and 20 tons of hazardous waste to be disposed in secure landfill.
Business travel	Relevant, calculated	3177.9	GHG Protocol- Corporate value chain (scope 3) accounting and reporting standard. This category includes business flights for Celsia and EPSA and fuel for rented vehicles operated by third parties for business transport services. To calculate emissions associated to business flights, purchasing records of tickets on commercial flights by 2014 were recovered from the shopping area, and emissions were evaluated in the carbon calculator icao.int (International Civil Aviation Organization) for each distance traveled. For emissions from outsourced transport, service provider reports the fuel used per trip to the organization for calculation purposes. For other services such as taxi, an estimate of fuel per number of trips and average travel distance is performed. For the calculation of 2014, the corresponding fuel to EPSA's third-parties vehicles are included (other than Renting), inter-company vehicles, taxis, boats and rented boats (used in operating plants with reservoirs) and rented vehicles of administrative areas.	70.00%	Calculated only for Celsia Colombia and Central America it is in the process of calculation Of total emissions estimated in this category, 16% corresponds to corporate flights, Private aircraft business group 6% and 78% % to emissions from outsourced transport services in EPSA. Records of Celsia's transportation in colombia providers could not be recovered and they were not included in the estimation of the latter topic.
Employee commuting	Relevant, calculated	532.7	For collecting data used in calculations in this category, surveys about transportation habits of employees of both organizations, and specifically tailored to the distance and location of the different sites to which employees must travel daily, were developed. Surveys were conducted by 122 partners of Celsia and 464 collaborators of EPSA representing 42% of all employees in the organization. These surveys were analyzed to determine distances and modes of transport used (including taxi, private car, bus, mass transit systems and bike). Moreover, EPSA implemented a program of "recognized kilometers" (to employees who use their own car for mobilization because of activities related to their work functions), which covers their fuel recorded per mileage by each of the employees under this system.	30.00%	Over the coming years we expect to obtain data in the survey of travel habits from a higher percentage of employees of the organization in order to quantify emissions in this category up to 100%
Upstream leased assets	Not evaluated				By 2015 emissions were not estimated in this category, however it shall be deemed to include them in future calculations.

Downstream transportation and distribution	Not evaluated				By 2015 emissions were not estimated in this category, however it shall be deemed to include them in future calculations.
Processing of sold products	Not evaluated				By 2015 emissions were not estimated in this category, however it shall be deemed to include them in future calculations.
Use of sold products	Not evaluated				By 2015 emissions were not estimated in this category, however it shall be deemed to include them in future calculations.
End of life treatment of sold products	Not evaluated				By 2015 emissions were not estimated in this category, however it shall be deemed to include them in future calculations.
Downstream leased assets	Not evaluated				By 2015 emissions were not estimated in this category, however it shall be deemed to include them in future calculations.
Franchises	Not evaluated				By 2015 emissions were not estimated in this category, however it shall be deemed to include them in future calculations.
Investments	Not evaluated				By 2015 emissions were not estimated in this category, however it shall be deemed to include them in future calculations.
Other (upstream)	Not evaluated				By 2015 emissions were not estimated in this category, however it shall be deemed to include them in future calculations.
Other (downstream)	Not evaluated				By 2015 emissions were not estimated in this category, however it shall be deemed to include them in future calculations.

**CC14.2**

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

No third party verification or assurance

**CC14.3**

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

Yes

**CC14.3a**

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

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
Employee commuting	Change in boundary	12	Increase	This item is estimated based on a survey of employees, variations depend on the number of employees that answer the survey. 2015 results does not include operations in Central America

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
Purchased goods & services	Change in boundary	29	Decrease	This item includes emissions for paper purchases and donations of fuel. This year presented a decrease in fuel donations to the army, hence a decrease in emissions. the company makes awareness campaigns aimed at encouraging paper saving at the offices of each site has trays which promotes the sheet reuse.
Waste generated in operations	Change in boundary	458	Increase	In 2015 an increase in the amount of waste due to the inclusion in the inventory of waste from gardening (pruning) is presented. In previous years had not been counted
Business travel	Acquisitions	64	Increase	This is mainly due to increase in flights that are presented by the need to travel between countries due to the recent adqusiación active in Central America. For the next years its expected to increase as the company is looking to expand their business from Colombia to Mexico . The company propels of technological means such as video calls and has an excellent infrastructure for it, mechanism that mitigates the increase in emissions

**CC14.4**

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

Yes, our suppliers

Yes, our customers

**CC14.4a**

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

For the first time, in 2015, Celsia measured 28 of its suppliers against the sustainability index, through which strengths, risks and opportunities were identified. Through the results obtained, we identified that our suppliers require greater support and assistance on issues such as climate change, biodiversity and corporate governance. Simultaneously, we conducted 238 audits and inspections on suppliers, establishing action and improvement plans with 17 of them.

In addition, the suppliers identified as strategic or critical are assessed twice a year in the criteria of quality, compliance, service, the environment, human rights and occupational health and safety.

For the next years we expect that the program will allow Celsia accompany a group of suppliers for develop their GHG inventories

**Supplier development**

In Valle del Cauca, we initiated the supplier development program, supporting seven suppliers in the implementation of a management system based on Colombian Technical Standard NTC 6001, for the development of a management model for small and micro enterprises.

Moreover, the Company supported the Energy Cluster in southwest Colombia, which, in partnership with the National Learning Service (SENA – Valle section) and the Universidad Autónoma de Occidente, embarked upon the renewable energy supplier development program focused on photovoltaic energy, with the participation of 31 companies from Valle de Cauca of which 21 are Company suppliers.

Support was also provided in the development of small suppliers in the form of advise on the following

**For customers:**

In 2015, the pilot programs of EPSA Assistance, Controlled Energy and Self-Generation (photovoltaic solar panels) were launched as part of the development of new products and services that allow us to grow together.

EPSA Assistance: carried out with 68 clients in the municipality of Palmira, Valle del Cauca, with the aim of upgrading electrical installations in their homes, achieving the benefits of improved safety and energy optimization.

Controlled Energy: developed in the municipalities of Pradera and Palmira, Valle del Cauca, to offer our clients the option of acquiring prepaid energy, facilitating

control of consumption.

Self-generation: launched using roofs with large surface areas, incorporating an average monthly demand of more than 24 MWh/month corresponding to five new clients in addition to existing ones, who at the close of 2015 were billed for close to 250 MWh for the year.

Other Products and Services

Innovation, represented by new technologies and business models, is the backbone of this proposition. As part of this, distributed generation, storage, mobility, automation and the remote control of devices based on ICT, as well as new proposals oriented toward saving, efficiency and minimizing CO2 emissions constitute the foundations on which we are building this new vision of our Company.

An offering that makes the difference in the electricity sector in the countries where we operate:

Cities-Sustainability: we offer greater energy autonomy, efficient heating and refrigeration systems, and self-generation options with clean energy, lighting, control centers, water and electric vehicle charging stations.

Companies-Productivity: we offer energy efficiency through optimal electrical installations, photovoltaic energy, back-up plants, asset management, and clean, renewable, and supplementary energy.

Homes-Wellbeing: we want to modernize homes that wish to be connected with renewable energy, especially photovoltaic, and offer the technological applications to control their energy consumption.

**CC14.4b**  
**To give a sense of scale of this engagement, please give the number of suppliers with whom you are engaging and the proportion of your total spend that they represent**

Number of suppliers	% of total spend (direct and indirect)	Comment
28		

**CC14.4c**  
**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
Use in supplier scorecards	In addition to recruitment policies, as part of monitoring and to ensure that suppliers support and strengthen the management on the economic, environmental and social issues, the organization conducts a risk analysis, both in the supplier's purchase and performance, focused on minimizing potential impacts through performance evaluation of suppliers based on the criteria of quality, service fulfillment, Environment, Health and Safety at Work.

**Further Information**

**Module: Sign Off**

**Page: CC15. Sign Off**

**CC15.1**  
**Please provide the following information for the person that has signed off (approved) your CDP climate change response**

Name	Job title	Corresponding job category
------	-----------	----------------------------

Francisco Hernandez | Socioenvironmental Projects - Corporative affaires | Environment/Sustainability manager

**Further Information****Module: Electric utilities****Page: EU0. Reference Dates****EU0.1**

Please enter the dates for the periods for which you will be providing data. The years given as column headings in subsequent tables correspond to the "year ending" dates selected below. It is requested that you report emissions for: (i) the current reporting year; (ii) one other year of historical data (i.e. before the current reporting year); and, (iii) one year of forecasted data (beyond 2020 if possible).

Year ending	Date range
2013	Tue 01 Jan 2013 - Tue 31 Dec 2013
2015	Thu 01 Jan 2015 - Thu 31 Dec 2015
2020	Wed 01 Jan 2020 - Thu 31 Dec 2020
2025	Wed 01 Jan 2025 - Wed 31 Dec 2025

**Further Information****Page: EU1. Global Totals by Year****EU1.1**

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

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emission intensity (metric tonnes CO2e/MWh)
2013	1777	6170	1301085	0.21
2015	2388	7752	2921238	0.38
2020	2750	13343	4853640	0.36
2025	3432	16157	4570352	0.28

**Further Information****Page: EU2. Individual Country Profiles - Colombia****EU2.1**

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

Oil & gas (excluding CCGT)  
 CCGT  
 Hydro  
 Other renewables

**EU2.1c**  
**Oil & gas (excluding CCGT)**

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

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2013	167	202	132905	0.66
2015	167	459	297185	0.65
2020	167	1350	694761	0.51
2025	167	1232	634016	0.51

**EU2.1d**  
**CCGT**

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

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2013	610	2474	1130549	0.46
2015	610	2917	1473329	0.51
2020	610	5590	2877621	0.51
2025	610	5159	2655741	0.51

**EU2.1g**  
**Hydro**

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

Year ending	Nameplate capacity (MW)	Production (GWh)
2013	1000	3494
2015	1057	2769
2020	1114	4045
2025	1466	6093

**EU2.1h**  
**Other renewables**

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

Year ending	Nameplate capacity (MW)	Production (GWh)
-------------	-------------------------	------------------

2013	0	0
2015	0	0
2020	200	276
2025	530	1546

**EU2.1j****Solid biomass**

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

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO <sub>2</sub> e)	Emissions intensity (metric tonnes CO <sub>2</sub> e/MWh)
2013	0	0	0	0
2015	0	0	0	0
2020	0	0	0	0
2025	0	0	0	0

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

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

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO <sub>2</sub> e)	Emissions intensity (metric tonnes CO <sub>2</sub> e/MWh)
2013	777	2676	1263454	0.47
2015	777	3376	1770515	0.52
2020	777	6939	3572381	0.51
2025	777	6390	3289757	0.51

**EU2.1l****Total figures for this country**

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

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes in CO <sub>2</sub> e)	Emissions intensity (metric tonnes CO <sub>2</sub> e/MWh)
2013	1777	6170	1263454	0.2
2015	1834	6145	1770515	0.29
2020	2091	11261	3572381	0.32
2025	2773	14029	3289757	0.23

**Further Information**

**EU2.1**

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

Other renewables

**EU2.1h**

Other renewables

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

Year ending	Nameplate capacity (MW)	Production (GWh)
2013	0	0
2015	50	261
2020	120	481
2025	120	481

**EU2.1j**

Solid biomass

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

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2013	0	0	0	0
2015	0	0	0	0
2020	0	0	0	0
2025	0	0	0	0

**EU2.1k**

Total thermal including solid biomass

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

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2013	0	0	0	0
2015	0	0	0	0
2020	0	0	0	0
2025	0	0	0	0

**EU2.1l**

Total figures for this country

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



Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes in CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2013	0	0	0	0
2015	50	261	0	0
2020	120	481	0	0
2025	120	481	0	0

#### Further Information

### Page: EU2. Individual Country Profiles - Panama

#### EU2.1

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

- Coal - hard
- Oil & gas (excluding CCGT)
- CCGT
- Hydro
- Other renewables
- Other

#### EU2.1a

##### Coal - hard

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

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2013	0	0	0	0
2015	120	638	851	1.33
2020	140	610	698	1.15
2025	140	610	698	1.15

#### EU2.1c

##### Oil & gas (excluding CCGT)

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

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2013	0	0	0	0
2015	160	15	30941	2.09
2020	0	0	0	0

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2025	0	0	0	0

#### EU2.1d CCGT

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

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2013	0	0	0	0
2015	0	0	0	0
2020	160	660	339872	0.51
2025	160	660	339872	0.51

#### EU2.1g Hydro

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

Year ending	Nameplate capacity (MW)	Production (GWh)
2013	0	0
2015	118	405
2020	118	644
2025	118	644

#### EU2.1h Other renewables

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

Year ending	Nameplate capacity (MW)	Production (GWh)
2013	0	0
2015	0	0
2020	34	51
2025	34	51

#### EU2.1i Other

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

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2013	0	0	0	0

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2015	87	297	202051	0.68
2020	87	357	243158	0.68
2025	87	356	242493	0.68

**EU2.1j****Solid biomass**

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

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2013	0	0	0	0
2015	0	0	0	0
2020	0	0	0	0
2025	0	0	0	0

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

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

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2013	0	0	0	0
2015	367	950	1084141	1.14
2020	387	1627	1281258	0.79
2025	387	1626	1280594	0.79

**EU2.1l****Total figures for this country**

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

Year ending	Nameplate capacity (MW)	Production (GWh)	Absolute emissions (metric tonnes in CO2e)	Emissions intensity (metric tonnes CO2e/MWh)
2013	0	0	0	0
2015	485	1355	1084141	0.80
2020	539	2322	1281258	0.55
2025	539	2308	1280594	0.55

**Further Information**

**Page: EU3. Renewable Electricity Sourcing Regulations****EU3.1**

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

No

**Further Information****Page: EU4. Renewable Electricity Development****EU4.1**

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

Please give:	Monetary figure	%	Comment
Renewable electricity's contribution to EBITDA		60.00%	Hidrological and wind power plants

**EU4.2**

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

Please give:	Monetary figure	%	Year ending	Comment
Renewable electricity's contribution to EBITDA		75.00%	2025	Adding to portfolio solar energy and additional renewable energy from hydro and wind projects.

**EU4.3**

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

Please give:	Monetary figure	%	End year of capex plan	Comment
Capex planned for renewable electricity development		60.00%	2025	The estimated Capex corresponds to wind generation projects, hydro and solar as a percentage of the company's investment mid and long term plan.

**Further Information**

CDP: [D][-,][D2]