Project design document form
(Version 12.0)

BASIC INFORMATION	
Title of the project activity	Rondinha Small Hydroelectric Power Plant
Scale of the project activity	☒ Large-scale ☐ Small-scale
Version number of the PDD	10
Completion date of the PDD	03/11/2022
Project participants	Rondinha Energética S.A. (Private)
Host Party	Brazil
Applied methodologies and standardized baselines	Energy Industries (renewable/non-renewable sources). Baseline and monitoring methodology ACM0002 “Grid-connected electricity generation from renewable sources”, version 14.0
Sectoral scopes	1
Estimated amount of annual average GHG emission reductions	10,238 tCO2

SECTION A. Description of project activity

A.1. Purpose and general description of project activity

The project activity will be developed by a special purpose entity named **Rondinha Energética S.A.**, property of **Atlantic Energias Renováveis S.A.** (**ATLANTIC**)[1] which is an energy holding company, based in Paraná State and has a number of activities in various regions of Brazil. Its investors and technology providers are from Brazil and Spain. ATLANTIC focus is on exploring clean and renewable energy sources and constantly developing projects and ventures installing efficiency standards for energy use.

The project activity consists in a Small Hydroelectric Power Plant that is located in the Chapecó River, part of the Uruguai River Basin, at the municipality of Passos Maia, which is part of the Santa Catarina State in Brazil. Prior to the implementation of the project activity, the area had no other power plants installed and therefore the project is a greenfield unit. The baseline scenario, which is established based on ACM0002 methodology (version14.0) is the generation of electricity that would have otherwise been generated by grid-connected power plants and by the addition of new generation sources.

The project is expected to contribute to GHG emission reductions by 10,238 CO_2 annually compared with the baseline scenario in the first crediting period. Atlantic invested in Rondinha Small Hydroelectric Power Plant (hereafter after referred as “the project”) based on the positive environmental and financial contribution of the CDM.

The project consists in a run-of-river power plant with 9.5994[2] MW installed capacity and a reservoir area of 0.62 km^2. The power plant consists of two generators with Kaplan horizontal turbines, in where each generator unit has a nominal power of 5.333 kVA. The annual net electricity generation is projected to be 51,500 MWh/year.

The project activity will help Brazil to fulfill its goals of promoting sustainable development. The project is in line with the CDM requirements of the host country since:

(a) It will avoid other projects that might generate energy through the burning of fossil fuels, reducing the potential emissions of GHG of those projects
(b) It creates jobs for the people in the State of Santa Catarina during the construction of the plant and to operate it when it’s finished. The project will create approximately 300 direct jobs and 50 indirect. Once the project is fully operational it will generate a permanent employment for approximately 12 people to perform tasks such as operation and maintenance, including maintenance of green areas, cleaning and security. It is worth noting that the project gives to its workers formal working conditions.
(c) It helps the local economy of the region, since the plant operation will require many service providers in many areas (health, administrative and juridical, technicians, engineers, etc.) On the other hand, the operation of the project, and hence the controlled supply of energy, will provide incentives to the increase in productive activities in several economic sectors. It has an impact on the job generation for primary and secondary sectors in the midterm (it makes the energy intensive economic activities more dynamic, such as agro-industrial processes) and for the business and services sector in the mid-long term.

[1] http://www.atlanticenergias.com.br/

[2] All environmental licenses and permits issued by regulators in Brazil refer to an installed capacity of 9.6 MW, as the original registered PDD (which is an rounded value of 9.5994 MW). However, considering the capacity of generators and its load factor, the exact installed capacity of the plant is 9.5994 MW. A Post Registration Change was carried out to show the exact installed capacity of the plant. This change does not affect addionality analysis which considered the rounded value.

(d) Even though the project presents very low environmental impacts, Atlantic will make considerable investments developing environmental programs to avoid or mitigate possible impacts. Regarding the regulations stated either by CONAMA or ANEEL, the project has adopted several mitigation actions, such as an environmental education/social communication program, monitoring program of water quality, re-vegetation and degraded lands recovery program, environmental control program to prevent erosion processes in accesses and internal ways from Rondinha SHPP and a fauna monitoring and conservation monitoring program.

(e) The equipment needed in this project will be supplied by national manufacturers; its use requires trainings for specialized local personnel to operate the small hydroelectric power plant and to correctly manage the project.

A.2. Location of project activity

The exact location of the project is 26° 40' 57" South and 52º 02' 44" West (GPS Coordinates). This localization is supported by the LAP Nº 121/09 (Preliminary License delivered by FATMA). It is also possible to obtain the location of the project in the ANEEL webpage, in the SIGEL system[3].

Project's location (December 2011, source: Google Maps)

Municipality of "Passos Maia" (Source: Wikimedia Commons[4])

[3]http://sigel.aneel.gov.br/brasil/viewer.htm

The project will be constructed over a greenfield site, and there are no previous facilities or other infrastructure installed currently as can be seen on the following satellite photo.

Project's location as a greenfield. (September 2010, source: Google Maps)

A.3. Technologies/measures

The project activity will generate electricity by a run-of-river power plant, a technology that has the minimum impact on the environment[5], since the reservoir was designed with a storage capacity of one day of electricity generation.

The project will use Kaplan turbines, which are a widely used technology. This type of turbine is a modification of the Francis turbine, with the intention to produce energy with high-flow and low head conditions.

The project activity will generate renewable energy that will be delivered to the National Interconnected System ("SIN"). The energy generated of 51,500 MWh was sourced from the document presented to the bank (BNDES), which is in line with the Annex 11, EB48 ("Guidelines for the reporting and validation of plant load factors").

The key technical specifications of the hydroelectric plant are the following:

Type of generation	Run-of-river
Power (installed capacity)	9.5994 MW
Capacity factor	61.24%
Average annual generation	51,500 MWh
Head	25.46 m
Reservoir Area	0.62 km^2
Power Density	15.48 W/m^2

[4]http://upload.wikimedia.org/wikipedia/commons/thumb/e/ed/SantaCatarina_Municip_PassosMaia.svg/800px-SantaCatarina_Municip_PassosMaia.svg.png

[5] http://www.esha.be/fileadmin/esha_files/documents/publications/publications/Brochure_EN.pdf and http://www.watershed-watch.org/publications/files/Run-of-River-long.pdf

Turbines (Technical data)	2 Kaplan - Horizontal Axis – 5.410 MW each and 400rpm
Generators (Technical data)	2 synchronic generators, 5,333 kVA each – rated voltage 13.8 kV – PF 0.9
Monitoring Equipment (Technical data)	Not defined yet, (the provider should be Power Metrics or Actaris)

The monitoring equipment will follow the yearly calibration procedures indicated by the ONS: Inmetro Ordinance No. 431 of December 4, 2007; High accuracy measurement meets stringent ANSI C12.1 Class 0.2 and IEC 62053-22 Class 0.2S, with two decimal points standard. One second loss calculation and error correction capabilities establish system losses and correct for measurement errors in real time.

A.4. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Brazil (host)	Rondinha Energética S.A. (Private)	No

A.5. Public funding of project activity

There is no public funding from Annex I Parties in this Project.

A.6. History of project activity

Rondinha Small Hydroelectric Power Plant CDM Project (Project 10080) was registered by CDM Executive Board on 18 December 2014. This PDD is being submitted because post-registration changes happened. Rondinha SHP started operation at 04/06/2014[6].

The Project Participants confirm that:

1. The proposed CDM project activity is not included as a Component Project Activity (CPA) in a registered CDM Programme of Activities (PoA);
2. The proposed CDM project activity is not a project activity that has been deregistered;
3. The proposed CDM project activity is not a CPA that has been excluded from a registered CDM PoA;
4. The proposed CDM project activity is not a registered CDM project activity or a CPA under a registered CDM PoA whose crediting period has or has not expired (hereinafter referred to as former project) exists in the same geographical location as the proposed CDM project activity.

A.7. Debundling

Not applicable. The project is a large-scale project activity.

[6] ANEEL Dispatch 1,709 from 03/06/2014.

SECTION B. Application of methodologies and standardized baselines

B.1. References to methodologies and standardized baselines

1. Baseline and monitoring methodology ACM0002 "Grid-connected electricity generation from renewable sources", version 14.0
2. Tool to calculate the emission factor for an electricity system, Version 04.0
3. Tool for the demonstration and assessment of additionality, Version 7.0.0

B.2. Applicability of methodologies and standardized baselines

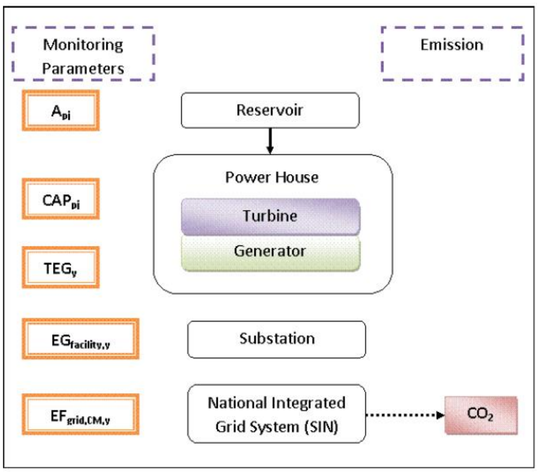
The methodology ACM0002 (version 14.0) is applicable to grid-connected renewable power generation project activities that (a) install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plant); (b) involve a capacity addition; (c) involve a retrofit of (an) existing plant(s); or (d) involve a replacement of (an) existing plant(s). In this case, the project complies with condition (a). There is further information on Appendix 3.

B.3. Project boundary, sources and greenhouse gases (GHGs)

According to the "Tool to calculate the emission factor for an electricity system, Version 04.0", the definition of connected electricity system is a system that is connected by transmission lines to the project electricity system. Power plants within the connected electricity system can be dispatched without significant transmission constraints but transmission to the project electricity system has significant transmission constraint. In the current case, the Brazilian DNA has defined Brazilian Interconnected Grid (SIN) as the single grid system to be used in every CDM project complying with methodologies ACM0002 and AMS-I.D. This is according to the Resolution Nº8, of May 26th 2008, and also to the Note that clarifies the procedure to reach this decision[7]

According to ACM0002 (version 14.0), the spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the proposed project is connected to.

Flow Diagram for the Project Boundary



[7] http://www.mct.gov.br/index.php/content/view/47953.html

Source		GHG	Included?	Justification/Explanation
Baseline	CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity.	CO_2	Yes	Main emission source
		CH_4	No	Minor emission source
		N_2O	No	Minor emission source
Project activity	For geothermal power plants, fugitive emissions of CH4 and CO2 from non-condensable gases contained in geothermal steam	CO_2	No	Main emission source
		CH_4	No	Minor emission source
		N_2O	No	Minor emission source
	CO2 emission from combustion of fossil fuels for electricity generation in solar thermal power plants and geothermal power plants	CO_2	No	Main emission source
		CH_4	No	Minor emission source
		N_2O	No	Minor emission source
	For hydro power plants, emissions of CH4 from the reservoir	CO_2	No	Main emission source
		CH_4	No	Minor emission source
		N_2O	No	Minor emission source

B.4. Establishment and description of baseline scenario

The baseline for the project activity has been established in reference to the methodology applicable to the project "Consolidated baseline methodology for grid connected electricity generation from renewable sources", ACM0002v14.0. The project activity will deliver renewable electricity to the SIN and in concordance with the selected methodology; the installation of a new grid-connected hydro power plant will produce the following baseline scenario:

Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system".

In the absence of the project activity, electricity would continue to be generated by the existing sources. The values of the Combined Margin (CM) are delivered by the DNA, due to the fact that the hourly generation data is confidential information. These values are calculated every year and delivered in the website of the DNA[8]; therefore an *ex-post* analysis will be adopted.

The baseline scenario has been identified as the continuation of the current practice in the Brazilian National Interconnected System (SIN) where electricity would be generated by the present sources in the grid.

B.5. Demonstration of additionality

Consistent with ACM0002/Version 14.0, the additionality of the bundled project activity shall be demonstrated and assessed using the "Tool for the demonstration and assessment of additionality" version 7.0.0, as described below:

<u>Prior Consideration</u>

Since the start date of the project is after August 2nd, 2008 and as per the "GUIDELINES ON THE DEMONSTRATION AND ASSESSMENT OF PRIOR CONSIDERATION OF THE CDM" version 4

[8] http://www.mct.gov.br/index.php/content/view/74689.html

(EB 62 Annex 13), the project proponent informed in writing to the DNA and the EB as per required on the guidelines.

Date	Event
October 2007	Basic Project performed by RTK
June 2008	EAS (Simplified Environmental Study) performed by RTK
March 2009	PCH Rondinha financial analysis performed by MS engineering (Investment Decision Date)
12 May 2009	Preliminary License issued by FATMA
July 2009	Hiring of CDM consultant
24 July 2009	**CDM prior consideration letters DNA (Date of prior consideration)**
29 July 2009	**CDM prior consideration letters UNFCCC (Date of prior consideration)**
2 October 2009	Installation License Issuance by FATMA
19 May 2010	**4 PPA's signed with Tramontina's group subsidiaries (Start Date) (Investment Decision Date)**
5 October 2010	ANEEL authorization for the first PBO
27 April 2011	Request for financing BNDES (Letter sent to BRDE Bank)
27 April 2011	Contract with "Impacto Assessoria Ambiental" in order to perform the programs defined in the EAS
May 2011	New PBO developed by VLB
15 June 2011	Contract to acquire the Turbines, Generators and all the related equipment signed
02 December 2013	Operational License Issuance by FATMA

Step 0: Demonstration whether the proposed project activity is the first-of-its-kind

Not applicable.

Step 1: Identification of alternatives to the project activity consistent with current laws and regulations

Sub-step 1a: Define alternatives to the project activity
There are two realistic and credible alternative scenarios available to the project activity:

Scenario 1: The proposed project activity undertaken without being registered as a CDM project activity.

Scenario 2: The continuation of the current situation (no project activity undertaken).

Sub-step 1b: Consistency with mandatory laws and regulations

All the alternatives and the project activity accomplishes with the mandatory laws and regulations.

Step 2: Investment analysis

According to the "Tool for the demonstration and assessment of additionality" the investment analysis has been selected.

Sub-step 2a . Determine appropriate analysis method

A benchmark analysis (Option III) was selected as the most appropriate analysis method to consider.

Sub-step 2b . Option III. Benchmark analysis

For the investment analysis, the Equity Internal Return Rate (IRR) has been chosen as the suitable financial/economic indicator of the project. A comparison of the Equity IRR with a selected benchmark (cost of equity) will be used to demonstrate that the project needs the carbon finance incentive.

The investment decision date is considered as **19/05/2010**, in where the project proponent signs a PPA with several clients.

Sub-step 2c. Calculation and comparison of financial indicators

Benchmark: Post tax real cost of equity

The project proponent selected the cost of equity calculation, based on the CAPM methodology and the guidelines for this calculation issued by the "Fundação Getulio Vargas"[9]

$$Ke = Rf + Beta(Rm - Rf)$$

The risk free considers two components: first the risk free rate from US bonds and second the Brazilian risk, a value that is not included in the US bonds.

The risk free rate from US bonds considers one year average of the bond of 20 years maturity, being this value 4.45%. Since this value is nominal it must be converted to real by calculating the expected inflation forecast, by using the U.S. Treasury securities at 20-year and the U.S. Treasury securities at 20-year inflation-indexed, and therefore the inflation has a value of 2.30%.

$$Rfusa = \left(\frac{1 + 4.45\%}{1 + 2.30\%}\right) - 1 = 2.10\%\ (Real)$$

In the case of the Brazilian risk (Page 17) [20], it's recommended a 5 years average of the "EMBI+Brazil", being this value 2.67%.

Then the final value for Rf is equal to 4.77% (2.10% + 2.67%).

Rm-Rf

This formula (Page 17) corresponds to the average annual return of shares minus the return of the American T bonds. As recommended, the average is taken from 1928 to the investment decision year. The value of Rm corresponds to 11.32% and the Rf for this case is 5.28%, being Rm-Rf equal to 6.03%.

This formula (Page 17) corresponds to the average annual return of shares minus the return of the American T bonds. As recommended, the average is taken from 1928 to the investment decision year. The value of Rm corresponds to 11.32% and the Rf for this case is 5.28%, being Rm-Rf equal to 6.03%.

[9] http://www.abce.org.br/downloads/ingleswacc.PDF

Beta

From the full list of companies traded, it´s selected the ones related with the power sector. The weighted levered beta for the sector is 2.47 (calculated), and this value unlevered is 0.82 (calculated). The following formula is used for lever the beta considering the situation of Brazil:

$$Beta = Bu\left[1 + (1 - t)\left(\frac{Wd}{We}\right)\right]$$

Bu=0.82 (calculated)
t=0% (Marginal Tax Rate equal to zero since the project proponent is assuming a profit for the tax calculation)
Wd=66.92% (average 2003-2011 BNDES support)
We=33.08% (average 2003-2011 BNDES support)

$$Beta = 0.82\left[1 + (1 - 0\%)\left(\frac{66.92\%}{33.08\%}\right)\right] = 2.47$$

Calculation of the benchmark

$$Ke = Rf + Beta(Rm - Rf) = 4.77\% + 2.47(6.03\%) = 19.70\%$$

Then the real cost of equity corresponds to 19.70%.

Investment Analysis

To be in line with the selected benchmark, it´s calculated the post-tax real equity IRR.

Investment Data Rondinha

Parameter	Value	Reference Documentation
Capacity (MW)	9.6[10]	PPA Signed on 19/05/2010
Energy Price (R$/MWH)	150	PPA Signed on 19/05/2010
Yearly Generation (MWh)	53,611	Basic Engineering project dated 2007, this information was used since it´s before the investment decision date. The one presented to the bank in 2011 is higher, and therefore this value is conservative.
Investment (R$)	57,907,824	Several documents, presented in the investment analysis.
O&M (thousand R$/year)	441,320	Hydroelectric Inventory Manual of Hydrographic Basins Electrobras, 2007
End of concession	31/12/2040	Authorizing Resolution

[10] The financial analysis considered the rounded value of 9.6 MW.

Parameter	Value	Reference Documentation
		ANEEL 2568, 2010
Taxes		
PIS + COFINS	3.65%	Law n° 10.637/2002, 10.833/2003 and 10.865/2004
INCOME TAX	34%	Composed as 9% of CSLL (Tax of Social Contribution), plus 15% of income tax and also an extra 10% for profits over R$ 240,000/year.
TUSD (R$/kW/Month)	1.16	Ratifying Resolution Nº 1.037,2010
ANEEL TAX (TFSEE)	0.5% of 363.60 R$/kW	DESPACHO Nº 4774, 2009 (Typical annual unit economic benefit (R$)). DECRETO Nº 2.410,1997 (charge % 0.5%)
Loan		
Debt (R$)	46,326,259	This is the maximum possible request to BNDES (source from 2010), which is 80% of the total. The value after the investment decision date was 71%, which gives an IRR of 14.20, lower than the calculated.
Interest Rate (%)	8.92%	Long Interest Rate from 2010 (6%) (Source 2010, BNDES) + BNDES Spread (0.9%) (Source 2010, Porto Conference) + Credit risk rate (2.02%) (Source 2010, Porto Conference)

Post Tax equity IRR. The computed real post tax equity IRR of the project is 16.64% for the project ***Rondinha*.** Considering the contribution of the CER, the computed real post tax equity IRR of the project is 18.19%.

Sub-step 2d. Sensitivity analysis

A sensitivity analysis was performed to verify the soundness of the financial model and of its indicators. The post-tax, real, equity based IRR without CERs was reassessed upon potential variations in four variables: energy prices, PLF, investment and operational cost, based on the fact that they represent either more than 20% of investment costs or more than 20% of income.

Sensitivity Analysis based on default Limits of +/- 5% and +/- 10%

The Table and graph below show the IRR of the project for default limits of 5% and 10%, as well as -5% and -10% applied to the four variables:

Rondinha

	IRR with a 10% decrease	IRR with a 5% decrease	Equity IRR	IRR with a 5% increase	IRR with a 10% increase
Change in Project Power Generation	12.83%	14.68%	16.64%	18.72%	20.93%
Change in Energy Price	12.83%	14.68%	16.64%	18.72%	20.93%
Change in Investment	19.20%	17.91%	16.64%	15.37%	14.09%
Change in O&M	16.87%	16.75%	16.64%	16.53%	16.41

Sensitivity Analysis based on reaching the Benchmark

The table below shows the decrease or increase of the variables needed for the IRR to reach the benchmark:

TABLE *Rondinha*

	Decrease needed to reach the benchmark	Benchmark	Equity IRR	Benchmark	Increase needed to reach the benchmark
Change in Project Power Generation	-	19.70%	16.64%	19.70%	7.24%
Change in Energy Price	-	19.70%	16.64%	19.70%	7.24%
Change in Investment (INV)	-11.92%	19.70%	16.64%	19.70%	-
Change in O&M (max limit -100%)	-100.00%	19.70%	16.64%	19.70%	-

This project would reach the benchmark if one the following circumstances would take place:

1/ The Power Generation is 7.24% higher than anticipated. The PLF estimation was done based on historical statistics of long term, and therefore is unlikely that this situation could happen. The information used for the IRR calculation, was based on a report of 2007, since it is prior the start date of the project, being the PLF from this source 63.75%. However, in the loan request to BNDES (sourced from 2011) this value is 61.23%, and therefore to reach the benchmark an increase of 11.69% is needed.

2/ The Energy Price is 7.24% higher than the expected price. This situation is unlikely since the prices indicated in the present analysis are based on the PPA signed with some clients.

3/ The Investment would have to be 11.92% lower than expected. The project owner took its decision in May 19th, 2010. In April 2011, the requested amount to the bank was R$ 68,211,203 higher to the current investment analysis and therefore this situation is unlikely to happen. This request of the loan, was based on the strength of a financial investment study delivered to BRDE ("Regional Bank of Development"). Price differences may take place, but they would probably not reach a negative adjustment as substantial especially since inflation has been positive on the following years, prices of the equipment are rising due to the economy adjustments, etc.

4/ The O&M costs have a limited impact on the IRR. Even with O&M going up 10%, as per requested on the sensitivity analysis, the IRR of both projects doesn't reach the benchmark.

As a result, it´s highly unlikely that the equity IRR will surpass the benchmark under all reasonable circumstances and therefore it can be considered as financially unattractive under the CDM rules.

Step 3: Barrier analysis

According to the rules of the additionality analysis, it is not necessary to perform the analysis of barriers, if opting for the financial analysis as is the case here, and therefore step 3 does not apply.

Step 4: Common practice analysis

The "Guidelines on common practice", EB69 Annex 08, Version 2 is used for the analysis, as per required on the tool of additionality.

Sub-step4a. The proposed CDM project activity(ies) applies measure(s) that are listed in the definitions section above

Measure

As per the "Guidelines on common practice", this type of projects falls in the measure (b) "Switch of technology with or without change of energy source (including energy efficiency improvement as well as use of renewable energies)" (paragraph 2 of the guidelines).

Stepwise approach for common practice

Step 1: calculate applicable capacity or output range as +/-50% of the total design capacity or output of the proposed project activity.

Since Rondinha have an installed power of 9.5994 MW[11], the comparison will be with plants with a power capacity range of -50% to +50%, therefore between 4.8MW and 14.4MW.

Step 2: Step 2: identify similar projects (both CDM and non-CDM) which fulfill all of the following conditions:

(a) The projects are located in the applicable geographical area;

Brazil is a country that has an important extension, with a land size of 8,459,417 km2, which is only 12% smaller than China.

[11] The common practice considered the rounded value of 9.6 MW of installed capacity.

Figure: Brazil versus China[12]

Because of this extension, it has differences on the types of climate and resource availability, among the Regions, in where 6 different climates are in the same country. Moreover, the availability of the resource among the regions is completely different, as presented in the following figures.

Figure: Climate Zones[13]

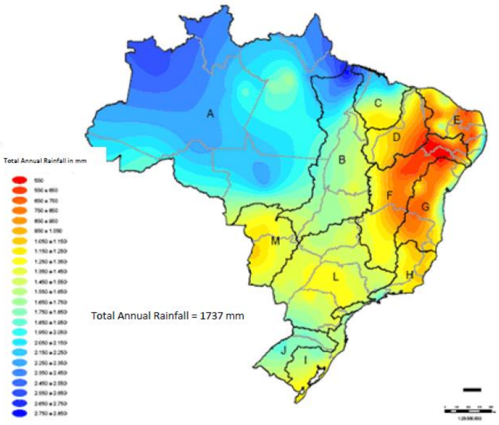


Figure: Total Yearly Rainfall Brazil[14]

In addition, the country is divided in macro regions[15] by the Brazilian Institute of Geography and Statistics, as can be observed in the following map.

[12] http://www.facegroup.com/tag/innovation-2

[13] http://www.brazilmycountry.com/brazil-map/climate-map-of-brazil/

[14] http://www.ctec.ufal.br/ceeng/iframe/conteudo/oficinas/oficina04.

[15] ftp://geoftp.ibge.gov.br/mapas_tematicos/politico/regionais/ html

Figure: Regions in Brazil[16]

Because of these arguments, in where the local conditions between the regions are different, the selected region is the south area, in where the project is located.

(b) The projects apply the same measure as the proposed project activity;

As per the "Guidelines on common practice", these projects falls in the measure (b) "Switch of technology with or without change of energy source (including energy efficiency improvement as well as use of renewable energies)" (paragraph 2 of the guidelines).

(c) The projects use the same energy source/fuel and feedstock as the proposed project activity, if a technology switch measure is implemented by the proposed project activity;

The project is not a technology switch measure.

(d) The plants in which the projects are implemented produce goods or services with comparable quality, properties and applications areas (e.g. clinker) as the proposed project plant;

All the plants produce electrical energy that is a comparable product.

(e) The capacity or output of the projects is within the applicable capacity or output range calculated in Step 1;

The included power plants will be between 4.8MW and 14.4MW

(f) The projects started commercial operation before the project design document (CDM-PDD) is published for global stakeholder consultation or before the start date of proposed project activity, whichever is earlier for the proposed project activity.

The start date of the project is considered as 19/05/2010 and the publication for stakeholder consultation was 08/02/2012. Therefore, the earliest date is 19/05/2010.

[16] http://en.wikipedia.org/wiki/States_of_Brazil

Step 3: within the projects identified in Step 2, identify those that are neither registered CDM project activities, project activities submitted for registration, nor project activities undergoing validation. Note their number Nall.

The total amount of operative generating units in Brazil, that fulfill all the conditions of Step 2, from (a) to (f), and that are not CDM project activities are:

Type of Unit	Quantity
PCH	2
PCH-PROINFA	3
PCH-NON PRE MARCH 2004	7
UHE	0
Nall	12

PCH - Small Hydroelectric Plant
PCH - PROINFA Small Hydroelectric Plant with the incentive of PROINFA
PCH PRE MARCH 2004 - Small Hydroelectric Plant that started before March 2004 without PROINFA
UHE - Hydroelectric Energy Plant

Step 4: within similar projects identified in Step 3, identify those that apply technologies that are different to the technology applied in the proposed project activity. Note their number Ndiff.

As per the guidelines, different technologies can be the following:

1) Subsidies or other financial flows (PROINFA): Many of the PCH projects enjoy the benefits of the PROINFA program. This program aimed to add 3,300 MW of installed capacity through small-hydro power plants, wind-power, and biomass energy generation. The scheme offered long-term contracts with special conditions, lower transmission costs, and smaller interest rates from the local development banks. In 2005, a revised version of PROINFA was released with the requirement that any CERs generated from participating projects would be given to Eletrobrás. Under PROINFA, projects had to be fully operational by the end 2008. These types of projects have been named PCH-PROINFA in the list.

2) Promotional policies (Plants that are UHE): The TUSD has two components: (i) the remuneration of the concessionaire for the exclusive use of the local network, called "TUSD-Serviço" (Service TUSD), which varies depending on the amount used by customer demand, and (ii) the regulatory costs applicable to the use of local network called "TUSD-Encargos" (Charge TUSD), established by regulatory authorities, and is related to the amount of energy consumed by the consumer. The plants that are categorized as UHE (Hydroelectric power Plants or HPP) have a total discount of the "TUSD-Encargos", besides, for UHEs, the operation of transmission and distribution is coordinated by the National Electric System Operator - ONS. The grids of low voltage (below 230 kV), which comprises the PCHs, usually serve at a regional (distribution networks) and their coordination and operation are performed by the local distribution utility. Therefore, the "ONS" is only responsible for UHEs. Besides, The UHEs have to pay the CFURH tax[17]

3) Legal Regulations (Projects in operation before March 2004): As different projects, it will be considered those that are operational before March 2004 (main reform in the market) and

[17] Compensação Financeira pela Utilização de Recursos Hídrico (Compensation for Use of Water Resources); see the link for more info: http://www.furnas.com.br/CFURH_arquivos/Relatorio_CFURH_2010.pdf

before the start date of the project, since before 2004 the investment climate was different. It took years for the electric sector in Brazil to become a modern industry. It started its reform in 1993 by ending the equality of the tariff and creating supply contracts between generators and distributors. By 1995 this reform became sounder when concepts of independent energy producers and free consumers were created and finally in 1996 the Ministry of Mines and Energy implemented a restructuration project for the electric sector in Brazil. The main results of the restructuration project were the switching from a monopolist and state-owned system to a competitive and more balanced state-private system. This restructuration project was finished in 1998 and set a conceptual and institutional model for the Brazilian electric sector, where several needs were identified and fulfilled, like the division of generation, transmission and distribution segments, regulation for the distribution and transmission of electric energy, creation of a regulatory entity (ANEEL), an operator of the system (ONS) and a space to trade electric energy (MAE). At that time, the Brazilian government decided to reduce the country's dependence on hydropower by the increase of thermoelectric generation. The federal government launched in early 2000 the Thermoelectric Priority Plan (Plano Prioritário de Termelétricas, PPT) planning the implementation of thermoelectric plants using mainly natural gas. In 2001 the sector went through a massive supply crisis that ended in an electric energy rationing program and in an adjustment of the model used until then. This situation led to the analysis of the model and in 2004, the newly elected government reviewed the institutional rules of the electric market and proposed a new model which was approved by the congress in March 2004[18]. The 2004 model was implemented to reduce market risks. Several institutions were created: (i) EPE[19] to be responsible for the long term planning of the electric sector, (ii) CMSE[20] to ensure the supply of energy and (iii) CCEE[21] to help with the activities related to commercialization of energy

Type of Unit	**Quantity**
PCH-PROINFA NON-CDM	3
PCH-NON PROINFA NON CDM PRE 2004	7
UHE	0
Ndiff	10

Step 5: calculate factor F=1-Ndiff/Nall representing the share of similar projects (penetration rate of the measure/technology) using a measure/technology similar to the measure/technology used in the proposed project activity that deliver the same output or capacity as the proposed project activity.

F= 1 - 10/12 = 0.17 (lower than 0.2)

And

N_{all}-N_{diff} = 2 (under 3)

[18] OCDE paper: "REGULATION OF THE ELECTRICITY SECTOR, 2005" (http://www.oecd.org/dataoecd/12/11/34427493.pdf) page 3.
[19] http://www.epe.gov.br/Paginas/default.aspx
[20] http://www.mme.gov.br/mme/menu/conselhos_comite/cmse.html
[21] http://www.ccee.org.br

According to the tool, the proposed project activity is a common practice if the factor F is greater than 0.2 and N_{all}-N_{diff} is greater than 3. In this case, since F is lower than 0.2 the project does not comply with those values; therefore, it is not a common practice project."

B.6. Estimation of emission reductions

B.6.1. Explanation of methodological choices

According to the selected approved methodology (ACM0002v14.0), the baseline emission factor (*EFy)* is calculated as a combined margin (*CM*), consisting of the combination of operating margin (OM) and build margin (BM) factors.

For the purpose of determining the build margin and the operating margin emission factors, a project electricity system is defined by the spatial extent of the power plants that are physically connected through transmission and distribution lines to the project activity (e.g. the renewable power plant location or the consumers where electricity is being saved) and that can be dispatched without significant transmission constraints. Similarly, a connected electricity system is an electricity system that is connected by transmission lines to the project electricity system. Power plants within the connected electricity system can be dispatched without significant transmission constraints but transmission to the project electricity system has significant transmission constraint.

According to the methodology, the emissions must be calculated as follows:

- **Project Emissions**

The project activity may involve project emissions that can be significant. These emissions shall be accounted for as project emissions by using the following equation:

$$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$$

Where:
PE_y = Project emissions in year *y* (tCO_2e/yr)
$PE_{FF,y}$ = Project emissions from fossil fuel consumption in year *y* (tCO_2/yr)
$PE_{GP,y}$ = Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year *y* (t tCO_2e/yr)
$PE_{HP,y}$ = Project emissions from water reservoirs of hydro power plants in year *y* (tCO_2e/yr)

Project emissions from fossil fuel consumption in year y (tCO_2/yr)

The project activity consists no fossil fuel consumption, $PE_{FF,y}$ = 0 tCO_2/year.

Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO_2e/yr)

The project activity consists no operation of geothermal power plants, $PE_{GP,y}$ = 0 tCO_2/year.
Emissions from water reservoirs of hydro power plants (PEHP,y)

The project activity will produce a new reservoir of 0.62 km^2, project proponents shall account for CH_4 and CO_2 emissions from the reservoir, estimated as follows:

(a) If the power density of the project activity (*PD*) is greater than 4 W/m^2 and less than or equal to 10 W/m2:

$$PE_{HP,y} = \frac{EF_{Res} \cdot TEG_y}{1000}$$

Where:
$PE_{HP,y}$ = Project emissions from water reservoirs (tCO_2e/yr)
EF_{Res} = Default emission factor for emissions from reservoirs of hydro power plants in year y ($kgCO_2e$/MWh)
TEGy = Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year y (MWh)

(b) If the power density of the project activity (*PD*) is greater than 10 W/m[2]:

$$PE_{HP,y} = 0$$

The power density of the project activity (*PD*) is calculated as follows:

$$PD = \frac{Cap_{PJ} - Cap_{BL}}{A_{PJ} - A_{BL}}$$

Where:
PD = Power density of the project activity (W/m2)
Cap_{PJ} = Installed capacity of the hydro power plant after the implementation of the project activity (W)
Cap_{BL} = Installed capacity of the hydro power plant before the implementation of the project activity (W). For new hydro power plants, this value is zero
A_{PJ} = Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full (m2)
A_{BL} = Area of the reservoir measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m2). For new reservoirs, this value is zero

- **Baseline Emissions**

According to ACM0002(version14.0), baseline emissions include only CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. It assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants. The baseline emissions are to be calculated as follows:

$$BE_y = EG_{PJ,y} * EF_{grid,CM,y}$$

Where:
BEy = Baseline emissions in year *y* (tCO_2/yr)
$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year *y* (MWh/yr)
$EF_{grid,CM,y}$ = Combined margin CO_2 emission factor for grid connected power generation in year *y* calculated using the latest version of the “Tool to calculate the emission factor for an electricity system” (tCO_2/MWh)

Calculation of $EG_{PJ,y}$

Since the project activity involves an installation of a greenfield grid-connected renewable power plant/unit at a site where no renewable power plant was operated prior to the implementation of the project activity, then:

$$EG_{PJ,y} = EG_{facility,y}$$

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year *y* (MWh/yr)
$EG_{facility,y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year *y* (MWh/yr)

- **Emission Factor ($EF_{grid,CM,y}$)**

According to ACM0002(version 14.0), the combined margin CO_2 emission factor for grid connected power generation in year y ($EF_{grid,CM,y}$) should be calculated using "Tool to calculate the emission factor for an electricity system", version 04.0 (the latest version).

Step 1. Identify the relevant electricity systems.

The Brazilian DNA has defined Brazilian Interconnected Grid (SIN) as the single grid system to be used in every CDM project complying with methodologies ACM0002 and AMS-I.D. This is according to the Resolution Nº8, of May 26th 2008, and also to the Note that clarifies the procedure to reach this decision[22].

The Brazilian DNA has chosen the Dispatch Data analysis for OM calculation following the "Tool to calculate the emission factor for an electricity system", approved by the CDM Executive Board. This option does not permit the vintage of ex-ante calculation of the emission factor. Thus, the OM is ex-post calculated. It will be updated annually applying the numbers published by the Brazilian DNA in its website (http://www.mct.gov.br/index.php/content/view/327118.html#ancora) for that year.

Step 4. Calculate the operating margin emission factor according to the selected method. Dispatch data analysis OM

The dispatch data analysis OM emission factor ($EF_{grid,OM-DD,y}$) is determined based on the grid power units that are actually dispatched at the margin during each hour *h* where the project is displacing grid electricity. This approach is not applicable to historical data and, thus, requires annual monitoring of $EF_{grid,OM-DD,y}$.

This emission factor has been calculated as follows:

$$EF_{grid,OM-DD,y} = \frac{\sum_{h} EG_{PJ,h} \cdot EF_{EL,DD,h}}{EG_{PJ,y}}$$

Where:

$EF_{grid,OM-DD,y}$ = Dispatch data analysis operating margin CO_2 emission factor in year *y* (tCO_2 /MWh)

[22] http://www.mct.gov.br/index.php/content/view/47953.html

$EG_{PJ,h}$ = Electricity displaced by the project activity in hour *h* of year *y* (MWh)
$EF_{EL,DD,h}$ = CO_2 emission factor for grid power units in the top of the dispatch order in hour *h* in year *y* (tCO_2/MWh)
$EG_{PJ,y}$ = Total electricity displaced by the project activity in year *y* (MWh)
h = Hours in year *y* in which the project activity is displacing grid electricity
y = Year in which the project activity is displacing grid electricity

The $EF_{grid,OM-DD,y}$ is calculated by the Brazilian DNA according to ACM0002 and the numbers are published in the website (http://www.mct.gov.br/index.php/content/view/333605.html#ancora).

For estimation purpose, the operating margin data for the most recent year (2011) will be used:

OPERATING MARGIN - Average Emission Factor (tCO2/MWh) - monthly													
2011	Jan 0,2621	Feb 0,2876	Mar 0,2076	Apr 0,198	May 0,2698	Jun 0,341	Jul 0,3076	Aug 0,3009	Sep 0,2734	Oct 0,3498	Nov 0,3565	Dec 0,3495	Average 0.2919

Step 5: Calculate the build margin (BM) emission factor

Identify the group of power units to be included in the build margin

The sample group of power units used to calculate the build margin consists of either:
(a) The set of five power units that have been built most recently;or
(b) The set of power capacity additions in the electricity system that comprise 20% of the system generation (in MWh) and that have been built most recently.

The DNA has selected the option (b) (The set of power capacity additions in the electricity system that comprise 20% of the system generation and that have been built most recently) according to the Tool, to determine the build margin.

In terms of vintage of data, project participants can choose between one of the following two options:

Option 1: For the first crediting period, calculate the build margin emission factor ex ante based on the most recent information available on units already built for sample group m at the time of CDM-PDD submission to the DOE for validation. For the second crediting period, the build margin emission factor should be updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used. This option does not require monitoring the emission factor during the crediting period.

Option 2: For the first crediting period, the build margin emission factor shall be updated annually, ex post, including those units built up to the year of registration of the project activity or, if information up to the year of registration is not yet available, including those units built up to the latest year for which information is available. For the second crediting period, the build margin emissions factor shall be calculated ex ante, as described in Option 1 above. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used.

In this case, Option 2 was selected.

The build margin emissions factor is the generation-weighted average emission factor (tCO_2/MWh) of all power units *m* during the most recent year y for which power generation data is available, calculated as follows:

$$EF_{grid,BM,y} = \frac{\sum_m EG_{m,y} \cdot EF_{EL,m,h}}{\sum_m EG_{m,y}}$$

Where:
$EF_{grid,BM,y}$ = Build margin CO_2 emission factor in year *y* (tCO_2/MWh)
$EG_{m,y}$ = Net quantity of electricity generated and delivered to the grid by power unit *m* in year *y* (MWh)
$EF_{EL,m,y}$ = CO_2 emission factor of power unit *m* in year *y* (tCO_2/MWh)
m = Power units included in the build margin
y = Most recent historical year for which power generation data is available
The $EF_{grid,BM,y}$ is calculated by the Brazilian DNA according to ACM0002 and the number is published in the website (http://www.mct.gov.br/index.php/content/view/333605.html#ancora).

For estimation purpose, the build margin data for the most recent year will be used:

BUILD MARGIN Average Emission Factor (tCO_2/MWh) - ANNUAL	
2011	0.1056

Step 6. Calculate the combined margin emissions factor

The combined margin emissions factor is calculated as follows:

$$EF_{grid,CM,y} = EF_{grid,OM,y} \cdot w_{OM} + EF_{grid,BM,y} \cdot w_{BM}$$

Where:
$EF_{grid,BM,y}$ = Build margin CO_2 emission factor in year *y* (tCO_2/MWh)
$EF_{grid,OM,y}$ = Operating margin CO_2 emission factor in year *y* (tCO_2/MWh)
w_{OM} = Weighting of operating margin emissions factor (%)
w_{BM} = Weighting of build margin emissions factor (%)

The following default values should be used for w_{OM} and w_{BM}:

- Wind and solar power generation project activities: w_{OM} = 0.75 and w_{BM} = 0.25 (owing to their intermittent and non-dispatchable nature) for the first crediting period and for subsequent crediting periods;

- All other projects: w_{OM} = 0.5 and w_{BM} = 0.5 for the first crediting period, and w_{OM} = 0.25 and w_{BM} = 0.75 for the second and third crediting period, unless otherwise specified in the approved methodology which refers to this tool.

Since this is a small hydro project, the following weight will be used in the first crediting period:

- w_{OM} =50% OM w
- w_{BM} =50% BM w

- **Leakage**

The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing and transport). According to the methodology ACM0002 (version14.0), these emission sources are neglected in this project, therefore no leakage emissions are considered.

- **Emission Reductions**

$$ER_y = BE_y - PE_y$$

Where,
ERy =Emission reductions in year y (tCO_2/yr)
BEy =Baseline emissions in year y (tCO_2/yr)
PEy =Project emissions in year y (tCO_2e/yr)

B.6.2. Data and parameters fixed ex ante

This section includes a compilation of information on the data and parameters that are not monitored throughout the crediting period but that are determined only once and thus remain fixed throughout the crediting period AND that are available when validation is undertaken. Data that becomes available only after validation of the project activity (e.g. measurements after the implementation of the project activity) is included here but in the table in section B.7.1.

Data/Parameter	EF_{Res}
Data unit	$kgCO_2e$/MWh
Description	Default emission factor for emissions from reservoirs
Source of data	Decision at EB 23
Value(s) applied	90
Choice of data or measurement methods and procedures	The methodology states that this value shall be applied for emissions from water reservoirs of hydropower plants.
Purpose of data	Calculate project emissions from reservoir
Additional comment	

Data/Parameter	Cap_{BL}
Data unit	W
Description	Installed capacity of the hydro power plant before the implementation of the project activity. For new hydro power plants, this value is zero.
Source of data	Rondinha Small Hydroelectric Power Plant site
Value(s) applied	0
Choice of data or measurement methods and procedures	Determines the installed capacity based on recognized standards. Rondinha is a new hydro power plant, therefore, as per methodology, this value is zero.
Purpose of data	Calculate project emissions from reservoir
Additional comment	

Data/Parameter	A_{BL}
Data unit	m^2
Description	Area of the reservoir measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m2). For new reservoirs, this value is zero.
Source of data	Rondinha Small Hydroelectric Power Plant site
Value(s) applied	0
Choice of data or measurement methods and procedures	Measured from topographical surveys, maps, satellite pictures, etc. The project activity will produce a new reservoir of 0.76 km2, therefore this value is zero.
Purpose of data	Calculate project emissions from reservoir
Additional comment	

B.6.3. Ex ante calculation of emission reductions

In this project the average EF for the last published year (2011) will be used to estimate the projected emission reductions of the Rondinha Small Hydroelectric Power Plant.

- **Project Emissions**

$$\mathrm{PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}}$$

$PE_{FF,y}$ = 0 tCO_2e/yr
$PE_{GP,y}$ = 0 tCO_2e/yr

The power density of the project activity (*PD*) is calculated as follows:

$$PD = \frac{Cap_{pj} - Cap_{bl}}{A_{pj-}A_{bl}}$$

Where:
Cap_{PJ} = 9.5994*10^6 W
Cap_{BL} = 0 W
A_{PJ} = 0.62*10^6 m_2
A_{BL} = 0 m^2
PD = (9.5994*10^6 -0)/(0.62*10^6-0) = 15.48 W/m^2

Since the power density of the Rondinha Small Hydroelectric Power Plant is 15.48 W/m^2, greater than 10 W/m_2, according to the methodology:

$$\mathrm{PE_{HP,y} = 0}$$

- **Baseline Emissions**

$$BE_y = EG_{PJ,y} \cdot EF_{grid,CM,y}$$

$EG_{PJ,y}$ = $EG_{facility,y}$ = 51,500 MWh/yr

The combined margin emissions factor is calculated as follows:

$$EF_{grid,CM,y} = EF_{grid,OM,y} \cdot w_{OM} + EF_{grid,BM,y} \cdot w_{BM}$$

$EF_{grid,OM,y}$ = 0.2919 tCO_2/MWh
$EF_{grid,BM,y}$ = 0.1056 tCO_2/MWh
w_{OM} = 0.5
w_{BM} = 0.5
$EF_{grid,CM,y}$ = 0.2919 x 0.5 + 0.1056 x 0.5 =0.1988 tCO_2/MWh

Therefore, the baseline emissions are:

BE_y = 51,500 x 0.1988 = 10,238 tCO_2/yr

- **Emission Reductions**

Emission reductions are calculated as follows:

$ER_y = BE_y – PE_y$

BE_y = 10,238 tCO_2/yr
PE_y = 0 tCO_2e/yr
ER_y = 10,238 – 0 = 10,238 tCO_2e/yr

B.6.4. Summary of ex ante estimates of emission reductions

Year	Baseline emissions (t CO_2e)	Project emissions (t CO_2e)	Leakage (t CO_2e)	Emission reductions (t CO_2e)
Jan 2015 - 31 Dec 2015	10,238	0	0	10,238
Jan 2016 - 31 Dec 2016	10,238	0	0	10,238
Jan 2017 - 31 Dec 2017	10,238	0	0	10,238
Jan 2018 - 31 Dec 2018	10,238	0	0	10,238
Jan 2019 - 31 Dec 2019	10,238	0	0	10,238
Jan 2020 - 31 Dec 2020	10,238	0	0	10,238
Jan 2021 - 31 Dec 2021	10,238	0	0	10,238
Total	10,238	0	0	10,238
Total number of crediting years	7 years			
Annual average over the crediting period	10,238	0	0	10,238

B.7. Monitoring plan

B.7.1. Data and parameters to be monitored

Data/Parameter	$EG_{project,y}$
Data unit	MWh/yr
Description	Quantity of net electricity generation supplied by the project plants to the grid in year *y*
Source of data	Project activity site, electricity meters
Value(s) applied	(i) The quantity of electricity supplied by the project plant/unit to the grid; 51,500 (ii) The quantity of electricity delivered to the project plant/unit from the grid; 0
Measurement methods and procedures	The monitoring equipment will follow the yearly calibration procedures indicated by the ONS are Inmetro Ordinance No. 431 of December 4, 2007, attached High accuracy measurement meets stringent ANSI C12.1 Class 0.2 and IEC 62053-22 Class 0,2S measurement accuracy standards with two decimal points. One second loss calculation and error correction capabilities establish system losses and correct for measurement errors in real time. An electricity meter is installed to measure the electricity supplied to the grid and the result will be crosschecked with the sales receipt or the official report (CB002) from Electric Power Commercialization Chamber (CCEE). Net electricity will be measured continuously and the data will be archived in electronic and paper sources. The hourly record of the electricity supplied shall be delivered to the CCEE and the National Grid Operator (ONS). ONS standards will be applied, including submodules 12.5[23] and 12.3[24]. There will be a spreadsheet that will deliver GHG emission reductions of the project from the data stored and the procedures and equations described in the monitoring methodology ACM0002. All the data will be stored electronically on a daily basis over two years after the end of the crediting period. The equipment to be used is expected to have an accuracy range of 0.005 A to 20 A.
Monitoring frequency	The net amount generated is measured continuously.
QA/QC procedures	The energy meters will be calibrated in a regular basis according to the procedure stated by the ONS and according to the maintenance guidelines of the equipment. (Detailed QA/QC procedures are explained in Section 7.2). Cross check measurement results with records for sold electricity.
Purpose of data	Measuring the amount of power displaced by the project activity compared to the baseline configuration.
Additional comment	

Data/Parameter	*EFgrid,CM,y*
Data unit	tCO2/MWh
Description	Combined margin CO2 emission factor for grid connected power generation in year *y* calculated using the latest version of the “Tool to calculate the emission factor for an electricity system”.
Source of data	Brazilian DNA website: (http://www.mct.gov.br/index.php/content/view/333605.html#ancora)
Value(s) applied	0.1988
Measurement methods and procedures	The combine margin emission factor will be ex-post calculated along with its items OM and BM, which will be published in the DNA’s website.
Monitoring frequency	Annually
QA/QC procedures	-

23 http://www.ons.org.br/download/procedimentos/modulos/Modulo_12/Submodulo%2012.5_Rev_1.1.pdf

24 http://www.ons.org.br/download/procedimentos/modulos/Modulo_12/Submodulo%2012.3_Rev_1.0.pdf

Purpose of data	Calculating the amount of tonnes of CO_2 displaced by the project activity with every Mega Watt hour of power produced compared with the Baseline configuration.
Additional comment	

Data/Parameter	*EFgrid,OM,y*
Data unit	tCO2/MWh
Description	Operating margin CO2 emission factor for grid connected power generation in year *y* calculated using the latest version of the “Tool to calculate the emission factor for an electricity system”
Source of data	Brazilian DNA website: (http://www.mct.gov.br/index.php/content/view/333605.html#ancora)
Value(s) applied	0.2920 (average 12 months)
Measurement methods and procedures	The operating margin emission factor will be ex-post according to the latest value available from the DNA’s website.
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	Information to calculate the combined margin as per the “Tool to calculate the emission factor for an electricity system”.
Additional comment	

Data/Parameter	*EFgrid,BM,y*
Data unit	tCO2/MWh
Description	Build margin CO2 emission factor for grid connected power generation in year *y* calculated using the latest version of the “Tool to calculate the emission factor for an electricity system”.
Source of data	Brazilian DNA website: (http://www.mct.gov.br/index.php/content/view/333605.html#ancora).
Value(s) applied	0.1056
Measurement methods and procedures	The build margin emission factor will be ex-post according to the latest value available from the DNA’s website.
Monitoring frequency	Annually.
QA/QC procedures	
Purpose of data	Information to calculate the combined margin as per the “Tool to calculate the emission factor for an electricity system”.
Additional comment	

Data/Parameter	Cap_{PJ}
Data unit	W
Description	Installed capacity of the hydro power plant after the implementation of the project activity
Source of data	Project activity site
Value(s) applied	$9.5994*10^6$
Measurement methods and procedures	Manufacturer technical data and specifications, according to the CDM rules, the installed capacity of a CDM project is defined by the capacity of the generators. During the commissioning of the plant, one of the tests required was the verification if the installed capacity was hit.
Monitoring frequency	Annually
QA/QC procedures	Determine the installed capacity based on recognized standards.
Purpose of data	Calculating the amount of Energy potentially produced by the project activity.
Additional comment	

Data/Parameter	A_{PJ}

Data unit	m^2
Description	Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full.
Source of data	Project activity site
Value(s) applied	$0.62*10^6$
Measurement methods and procedures	Measured from topographical surveys, maps, satellite pictures, etc. This value will be calculated yearly based on the reservoir water level.
Monitoring frequency	Annually
QA/QC procedures	N/A
Purpose of data	Calculating the flooded area to determine the impact of the project and the amount of water available for the project operation in case of a river volume drop.
Additional comment	Before issuing the L.O.(Operation license), the environmental agency verifies if all required environmental programs were completed, including the reservoir area empty. The value applied includes the natural river channel.

B.7.2. Sampling plan

N/A

B.7.3. Other elements of monitoring plan

As described above, for this type of project the parameter measured is the amount of electricity generated by the hydroelectric power plant. On the other hand the emission factor is available from the DNA and published annually.

The power plant will have two billing meters, a main one and other one as backup, for reading and keeping record of the electricity generation. Both meters operate in parallel and with the same functional characteristics, so in case of failure the remaining one will be operative. The calibration of the meters will be performed according to the procedure stated by the ONS and according to the maintenance guidelines of the equipment.

The information of the energy generated is saved in the server of the billing measurement software of Atlantic power plants, which can be used whenever necessary.

The operational area of Atlantic should be responsible for the elaboration every month of a report containing the daily values of generation from the power plant, as well as the total values per month. Every month the report will be stored until 2 years after the end of the project. This activity will be performed by the operation programmer. All measurements billing of all the Atlantic plants are filed electronically in the metering server (UCM), beyond the record from CCEE.

The monitoring equipment will follow the yearly calibration procedures indicated by the ONS are Inmetro Ordinance No. 431 of December 4, 2007, attached High accuracy measurement meets stringent ANSI C12.1 Class 0.2 and IEC 62053-22 Class 0,2S measurement accuracy standards with two decimal points. One second loss calculation and error correction capabilities establish system losses and correct for measurement errors in real time.

With the data from the report the amount of Certified Emission Reductions generated will be calculated for the period, by applying the emission factor defined as per the ACM0002 version 14.0 methodology. Then the monitoring report is elaborated, which should be first approved by the financial area before presenting it to the DOE for verification.

SECTION C. Start date, crediting period type and duration

C.1. Start date of project activity

The starting date of a CDM project activity is defined in the CDM glossary as the earliest date at which either the implementation or construction or real action of a project activity begins.

The PP signed the contract to sell the energy on May 19th, 2010, becoming this a real action taken to start the project activity and thus is regarded as the start date of the project. The construction started on January 2013 and the operations started on June 2014.

C.2. Expected operational lifetime of project activity

30 years, 0 months

C.3. Crediting period of project activity

C.3.1. Type of crediting period

Renewable

C.3.2. Start date of crediting period

01/01/2015 or registration of the project

C.3.3. Duration of crediting period

7 years

SECTION D. Environmental impacts

D.1. Analysis of environmental impacts

The project participant, as per the environmental rules defined by the National Environmental Council (CONAMA[25]), is required to obtain three licenses on order to obtain the environmental permit to develop the hydroelectric power plant. These are the Preliminary license (LP), where an environmental impact assessment is performed, the Construction License (LI), where requirements for the construction are established, and the Operating License (LO), where there is test before operation of the plant is performed to ensure that it fulfills all environmental requirements.

The project has performed an Environmental assessment according to the Federal and State legislation, following the rules stated by CONAMA in the Resolution No. 279, June 27, 2001 of the National Environment Council, which requires the implementation of the Simplified Environmental Report - RAS, or a Simplified Environmental Study (EAS) by FATMA (Fundação do Meio Ambiente de Santa Catarina), replacing the corresponding to the EIA / RIMA in case of alternative energy sources, the case of SHP. Rondinha also meet the requirements of Instruction No. 44 of FATMA which states that plants with maximum installed power below 10 MW and that do not promote the

[25] Conselho Nacional do Meio Ambiente

removal of vegetation are allowed to perform a Simplified Environmental Study - EAS, replacing the EIA / RIMA.

The EAS evaluates the main effects in the environment that can be identified and analysed for the planning, implementation and operation periods, considering the project's characteristics and its influence area. The Rondinha Hydroelectric Power Plant has been granted with the Preliminary License (LAP) Nº 121/09, issued by FATMA on 22nd May 2009. The Construction License (LAI) Nº 22/2009 was issued on October 2nd 2009. The operation license N°10246/2013 was issued on December 2nd, 2013 by FATMA. The project does not imply negative environmental impacts outside the limits; otherwise this license would not have been issued. The Construction License was requested during the valid period of Preliminary License.

Contribution of the project activity to the sustainable development of the area

During the construction period of the power plant 300 people will be employed for a period of 12 months. When the project is fully operational it will generate a permanent employment for 12 people approximately for tasks such as operation and maintenance, including maintenance of green areas, cleaning and security.

Once operating, the project generates a positive direct impact in the region where it operates, because it provides the population with improvements in its quality of life by having an increased access to energy and by showing a tendency to increase the energy supply and the restructuring of the supply in line with the growing demand. The operation of the Rondinha Small Hydroelectric Power Plant will increase the reliability and energy security since it has been designed to meet the energy demand of the region in case of rationing.

a) Contribution to the local environmental sustainability

The Rondinha SHPP complies with the several environmental rules and rules from the electrical sector, stated either by CONAMA or ANEEL. Regarding this regulation the project has adopted several mitigation actions, such as an environmental education/social communication program, monitoring program of water and sediment levels, monitoring plan of limnology and water quality, conservation programs, recovery program, deforestation program, environmental control program to prevent erosion processes in accesses and internal ways from Rondinha SHPP and a fauna monitoring and conservation monitoring program. (See point D.2).

b) Contribution to the development of working conditions and net job generation

During the construction period of the power plant 300 people will be employed for a period of 12 months. When the project is fully operational it will generate a permanent employment for 12 people to perform tasks such as operation and maintenance, including maintenance of green areas, cleaning and security. It is worth noting that the project gives to its workers all formal working conditions, including training programs for the workers. On the other hand, the operation of the project, and hence the controlled supply of energy, will provide incentives to the increase in productive activities in several economic sectors. It has an impact on the job generation for primary and secondary sectors in the midterm (it makes the energy intensive economic activities more dynamic, such as agro-industrial processes) and for the business and services sector in the mid-long term.

The project is committed to the social responsibility within the region, performing an environmental education program to serve the state and municipal educators, project workers and service providers and the community in general. This shall allow to inform involved parties and also to identify possible needs of local population.

c) Contribution to income distribution

Once operating, the project generates a positive direct impact in the region where it operates, because it provides the population with improvements in its quality of life by having an increased access to energy (at lower costs than importing energy or reinforcing the system) and by showing a tendency to increase the energy supply and the restructuring of the supply in line with the growing demand.

Moreover, as discussed above, the project shall positively affect to the indirect generation of employment, giving more dynamism to several economical sectors. The region will also be benefited from the taxes generated from the electricity sale, which translates into an improvement of local and regional infrastructure, attending to social demands consequence of the economic dynamism. These factors, besides of contributing to a higher income level will as consequence derive in a better income distribution.

d) Contribution to training and technological development

The development of the project involves training on specialized personnel to operate the small hydroelectric power plant and to correctly manage the project. On the other hand, regarding the technological development, it is worth to note that Brazil has a vast hydroelectric potential and its electrical system relies mainly on hydroelectric plants. Still the region where the project is being developed has access to electricity through the interconnected system and an isolated system, which means that the project indeed transfers technology to the local grid. This case could be easily replicated in order to boost the development of hydroelectric projects in the region.

e) Contribution to the regional integration and articulation with other sectors

As explained earlier the project generates a positive impact in the region due to the increase of employment opportunities and better income distribution. These consequences impact several sectors as mentioned above, supporting then the local and regional economy by boosting the regional energetic integration, decreasing electrical vulnerability and dependency on fossil fuels (isolated grid).

D.2. Environmental impact assessment

This project has minor environmental impact, because is considered of small scale according to the Brazilian laws. The project activity has less than 30 MW and also it has a flooded area which is under the threshold of 3 km^2. Despite the small scale of the project, the requirements for obtaining the environmental permits, demands some conditions during the construction and the operation. A plan called EAS (*Estudo Ambiental Simplificado* or Simplified Environmental Study) was performed, it includes the monitoring of physical/chemical aspects (water and ground quality, erosion) and biological aspects (ichthyic fauna, terrestrial animals and flora). This monitoring process will be handled by an external company already defined, *Impacto Assessoria Ambiental.*

The plan focused on twelve different areas of analysis detailed below.

1. The *removal of vegetation cover* will occur for two reasons. One, the general implementation of the project will require the removal of vegetation. In addition later phases of the project will involve vegetation removal from affected areas in order to minimize impacts on water quality and aquatic biota.
2. Some *habit loss* and increased *hunting and fishing* are expected in the region. The main concern is the impact such loss could have on riparian and secondary forests, however the expectation is that the losses would be minimal and therefore recovered with time.
3. The *erosive process may be accelerated* by the construction of roads necessary for the project. This could lead to drainage interruption and damage to surrounding vegetation in the valleys.
4. *Water quality* could also be affected by population increase associated with the project. The mobilization of manpower would lead to a population increase which could lead to increased discharge of sewage which in turn could result in increased bacterial levels and turbidity.

5. *Changes to Icthyofauna* may occur with the establishment of cofferdams which would alter the structure and function of biotic flows. However the loss of biodiversity is expected to be limited by the increase in biomass.
6. *The elevation of groundwater* could occur however effects are expected to be minimal and any landslides would be minor.
7. *Waste generation* could have a major impact on PCH levels. This impact would be caused by the supplying and storage of fuel as well as oil changes of machinery and vehicles. These processes therefore need to be well documented and carried out by well trained employees.
8. *Population growth* is expected to occur due to the generation of jobs and migration to the area is also expected.
9. *Changes in the labor market* are expected due to an immediate boost in labor jobs. This will lead to a re-arrangement of the labor market which could impact the local economy resulting in more investment options and improved living conditions.
10. *Traffic is expected to intensify* on BR-282 freeway.
11. *Changes in the health framework* are expected to occur due to the influx of new people who could serve as hosts for new diseases. There will also be an increased possibility of work related injury and psychological effects related to the new work environment.
12. Finally a certain degree of *community relocation* may occur but is expected to be minimal and families will be taken care of.

Overall effects are expected to be minimal but attention should be paid to all areas of concern, especially with regards to waste generation.

Inside of the EAS specific programs has been designed and up-to-date these are the programs established:

- Monitoring and Control Program of Aquatic Ecosystem
- Monitoring and Control Program of Changes in Land Ecosystem
- Program to recover degraded areas
- Waste Management Program
- Employee Orientation and capacitation Program
- Environmental Education and Social Communications
- Environmental Monitoring Programme.

The project also signed compensation agreements with the relocated population; documents will be attached that prove this[26].

[26] PCH Rondinha - Acordo Assentados INCRA 3.pdf; PCH Rondinha - Acordo Assentados INCRA

SECTION E. Local stakeholder consultation

E.1. Modalities for local stakeholder consultation

According to the federal and local state legislation, the environmental licensing process may requests public hearings with the local community. Also, the same legislation requests the announcement of the issuance of the licenses (LP, LI and LO) in the local state official journal (*Diário Oficial do Estado*) and in the regional newspapers.

Other than the stakeholders comments requested for the environmental licenses, the Brazilian Designated National Authority, "*Comissão Interministerial de Mudanças Globais de Clima*", requests, in order to provide the letter of approval, that comments are required to local stakeholders based on a translated version of the PDD, and the validation report is issued by an authorized DOE (according to the Resolution no. 7, issued on March 5th, 2008). The translated version was sent to the stakeholders on October 11th 2011, marking the Public Consultation date.

The proponent of the project has sent the PDD to public consultation to the following stakeholders:

- Municipal Council of Passos Maia (Câmara Municipal de Passos Maia);
- Municipality of Passos Maia (Prefeitura de Passos Maia);
- State Economic Sustainable Development Secretary of Santa Catarina (Secretaria Estadual do desenvolvimento económico sustentavel de Santa Catarina);
- Federal Public Ministry (Ministerio Publico Federal)
- Environmental foundation of Santa Catarina (Fundacion do Meio Ambiente de Santa Catarina)
- Santa Catarina Public Ministry (Ministerio Publico de Santa Catarina)

It is to be mentioned that the municipalities of João Câmara and Parazinho have no community association, therefore there was no letter sent for them. Regarding the *Fórum Brasileiro de ONGs e Movimentos Sociais para o Meio Ambiente e o Desenvolvimento* (FBOMS) or Brazilian Forum of NGOs and Social Movements for Environment and Development the PP called the Brazilian DNA for their new address but they didn't have it yet.

E.2. Summary of comments received

One comment was received by the end of this PDD version, from the Municipality of Passos Maia, specifically from the City Council Chamber. The comment is a positive one and acknowledges the procurement of the Installation license, the contribution of the project to the local development in several areas as job creation, development of the commercial and services sectors in the zone and the contribution with the sustainability of the Brazilian electric energy grid.

E.3. Consideration of comments received

The comments received are positive ones and do not expect modifications or clarifications from the project, so there was no issue to take care of.

SECTION F. Approval and authorization

The letter of approval from the Brazilian government is not available yet.

Appendix 1. Contact information of project participants

Organization name	Rondinha Energética S.A.
Country	Brazil
Address	Alameda Dr. Carlos de Carvalho 555.
Telephone	+55 (41) 3079-7100
Fax	+55 (41) 3079-1502
E-mail	marcelo.marder@atlanticenergias.com.br
Website	http://www.atlanticenergias.com.br/
Contact person	Marcelo Marder

Appendix 2. Affirmation regarding public funding

No public funding will be used in this project activity

Appendix 3. Applicability of methodologies and standardized baselines

The project activity meets all the conditions established in the applicability criteria, according with the selected methodology.

Requirement	**Validation (Applicable)**
The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/units solar power plant/unit, wave power plant/unit or tidal power plant/unit;	The project activity is the installation of a new hydro power plant (run of river).
Other Conditions	**Validation (Not Applicable)**
The project activity is implemented in an existing reservoir, with no change in the volume of reservoir.	Not applicable, since the project is a greenfield facility.
The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the Project Emissions section, is greater than 4 W/m^2 .	Not applicable, since the project is a greenfield facility
The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the Project Emissions section, is greater than 4 W/m^2.	The project activity will produce a new reservoir of 0.62 km^2 and the installed power will be 9.5994 MW, therefore the power density will be 15.48 W/m^2, which is higher than 4 W/m^2.
Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site.	Not applicable, since the project does not involve switching from fossil fuels to renewable energy sources at the site of the project.
Biomass fired power plants	Not applicable, since the project is a hydro power plant.
Hydro power plants that result in new reservoirs or in the increase in existing reservoirs where the power density of the power plant is less than 4 W/m^2.	Not applicable, since the project activity will produce a new reservoir of 0.62 km^2 and the installed power will be 9.5994 MW, therefore the power density will be 15.48 W/m^2, which is higher than 4 W/m^2.

Appendix 4. Further background information on ex ante calculation of emission reductions

Brazilian National Interconnected System

In July 2005, a working group was created to make sure the CDM project proponents could have access to the necessary information of the national electric grid. For this purpose, ACM0002 methodology was selected.

For that purpose, the Ministry of Mines and Energy, the Ministry of Science and Technology, the National Operator of the Electricity System and the Inter-ministerial Commission on Climate Change (CIMGC) worked together to adjust the methodology to the particular circumstances of the Brazilian electrical system.

The working group proposed the adoption of four subsystems, following the subdivision adopted by the National Operator of the Electricity System; that is, North, Northeast, Southeast/Middle-West and South subsystems.

The problem was that the structure of 4 subsystems differed from the structure adopted by the vast majority of the projects already submitted, which considered only two subsystems (North/Northeast and South/Southeast/Mid-West), furthermore, in a Public Consultation made by the CIMGC, the adoption of a structure of 4 subsystems was widely criticized

It should be noted, that during the Public Consultation period, the CDM Executive Board, adopted in Bonn, Germany, the ACM0002 methodology, which indicates a specific methodological tool to calculate the emission factor for electricity systems.

Therefore, it began a long process that included a series of simulations, which took into account:

1) Four subsystems: North, Northeast; Southeast/Mid-West; South.
2) Two subsystems: North/Northeast; South/Southeast/Mid-West.
3) A single system.

After completing this process, the working group met on 28/04/2008 and analyzed the results of the simulations. The members of the group agreed that the current transmission constraints between the subsystems of the SIN are not significant enough to reduce substantially the global benefit of the project, being thus advisable to adopt the configuration of a single electricity system in Brazil.

OM= Operational Margin
BM= Build Margin
CM= Combined Margin

DATA		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yearly
OM tonCO2/MWh	50%	0,2621	0,2876	0,2076	0,1977	0,2698	0,341	0,3076	0,3009	0,2734	0,3498	0,3565	0,3495	
BM	50%	0,1056	0,1056	0,1056	0,1056	0,1056	0,1056	0,1056	0,1056	0,1056	0,1056	0,1056	0,1056	average
CM		0,1839	0,1966	0,1566	0,1517	0,1877	0,2233	0,2066	0,2033	0,1895	0,2277	0,2311	0,2276	**0,1988**
CER		787,9	842,5	671,1	649,9	804,4	956,9	885,4	871,0	812,1	975,8	990,1	975,1	**10223,0**

Appendix 5. Further background information on monitoring plan

The State Company for Generation and Transmission of Electric Energy of Brazil (CEEE-GT) is the responsible entity of the procedures and it will record the data related to the electricity generated by the renewable technology.

The monitoring plan will be executed based on the simplified baseline and monitoring procedures established in the version 14.0 of ACM0002 methodology.

Appendix 6. Summary report of comments received from local stakeholders

Not applicable. The project did not receive any comment from local stakeholders.

Appendix 7. Summary of post-registration changes

To register the post-registration changes, Project Participants (PPs) had to use the current template of CDM-PDD-FORM. This form has some sections and requirements that were not present the CDM-PDD-FORM used at the registered PDD. Also, the order of the sections is not the same. Therefore, some updates were necessary to attend it.

The post registration changes proposed in this version of the PDD are:

Permanent Changes to the Project Design

Letter "H" of item 241 of the CDM p**roject standard for project activities:**

"Actual operational parameters that are within the control of the project participants, differing from the expected parameters";

1. The turbines implemented by the project activity have different capacity (5.410 MW) from the predicted in the registered PDD (4.990 MW). This change did not impact the installed capacity of the plant and the electricity supply to the grid estimation, which is defined by generators capacity.
2. The registered PDD stated that the generators have 5.333 kVA of installed capacity each, with load factor of 0.9. Using these values, the registered PDD considered the installed capacity of the plant as 9.6 MW which is a rounded value for 9.5994 MW which is obtained if the load factor is applied to the capacity of the generators. The rounded value of 9.6 MW is the official installed capacity value considered by regulators and authorities in Brazil for the plant. All environmental licenses, sectorial authorizations and permits refer to and installed capacity of 9.6 MW. Brazilian Regulators do not consider this immaterial variation a change in the installed capacity. However, to use the exact value of the installed capacity of the plant, as CDM definition, this PDD was updated, using the value of 9.5994 MW as installed capacity of the plant. No additional investment was performed, and these changes do not affect the revenues potential of the plant. Therefore, additionality analysis was not affected.
3. The area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full reservoir area (A_{PJ}) is a parameter to be monitored. The operation license of the plant 3370/2018 showed that the reservoir area

implemented differs from information presented at the PDD registered. A_{PJ} of Rondinha SHP is 620,000. This value was also updated in the PDD.

4. Changes of item 2 and 3 impacted power density result which was also updated.

Additionally, to comply paragraph 242 of the CDM project standard for project activities, the PP shall report in the revised PDD the impacts of the proposed or actual changes to the registered CDM project activity on the following:

- **The applicability and application of the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents with which the project activity has been registered;**

There is no impact in the applicability and application of the applied methodologies and the other applied methodological regulatory documents with which the project has been registered.

- **The project boundary and any implications on the inclusion or exclusion of emissions sources and leakage emissions**

There is no impact in the project boundary and any implications on the inclusion or exclusion of emissions sources and leakage emissions.

- **The compliance of the monitoring plan with the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents;**

There is no impact in the compliance of the monitoring plan with the applied methodologies and the other applied methodological regulatory documents.

- **The level of accuracy and completeness in the monitoring of the project activity compared with the requirements contained in the registered monitoring plan;**

There is no impact in the level of accuracy and completeness in the monitoring of the project activity compared with the requirements contained in the registered monitoring plan.

- **The additionality of the project activity;**

There is no impact in the additionality of the project activity.

- **The scale of the project activity.**

There is no impact in the scale of the project activity which is a large scale project activity.

Document information

Version	*Date*	*Description*
12.0	8 October 2021	Revision to: Improve consistency with version 03.0 of the “CDM project standard for project activities” (CDM-EB93-A04-STAN).
11.0	31 May 2019	Revision to: • Ensure consistency with version 02.0 of the “CDM project standard for project activities” (CDM-EB93-A04-STAN); • Make editorial improvements.
10.1	28 June 2017	Revision to make editorial improvement.
10.0	7 June 2017	Revision to: • Improve consistency with the “CDM project standard for project activities” and with the PoA-DD and CPA-DD forms; • Make editorial improvement.
09.0	24 May 2017	Revision to: • Ensure consistency with the “CDM project standard for project activities” (CDM-EB93-A04-STAN) (version 01.0); • Incorporate the “Project design document form for small-scale CDM project activities” (CDM-SSC-PDD-FORM); • Make editorial improvement.
08.0	22 July 2016	EB 90, Annex 1 Revision to include provisions related to automatically additional project activities.
07.0	15 April 2016	Revision to ensure consistency with the “Standard: Applicability of sectoral scopes” (CDM-EB88-A04-STAN) (version 01.0).
06.0	9 March 2015	Revision to: • Include provisions related to statement on erroneous inclusion of a CPA; • Include provisions related to delayed submission of a monitoring plan; • Provisions related to local stakeholder consultation; • Provisions related to the Host Party; • Make editorial improvement.

Version	*Date*	*Description*
05.0	25 June 2014	Revision to: • Include the Attachment: Instructions for filling out the project design document form for CDM project activities (these instructions supersede the "Guidelines for completing the project design document form" (Version 01.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for the application of the methodology (ies) to the project activity in B.7.4 and Appendix 1; • Change the reference number from F-CDM-PDD to CDM-PDD-FORM; • Make editorial improvement.
04.1	11 April 2012	Editorial revision to change version 02 line in history box from Annex 06 to Annex 06b.
04.0	13 March 2012	Revision required to ensure consistency with the “Guidelines for completing the project design document form for CDM project activities” (EB 66, Annex 8).
03.0	26 July 2006	EB 25, Annex 15
02.0	14 June 2004	EB 14, Annex 06b
01.0	03 August 2002	EB 05, Paragraph 12 Initial adoption.

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