MONITORING REPORT FORM (CDM-MR) *
Version 01 - in effect as of: 28/09/2010

CONTENTS

* As contained within the document entitled "Guidelines for completing the monitoring report form (CDM-MR)" (EB 54 meeting report, annex 34).

MONITORING REPORT
Version 01 as of 08/02/2012

Poechos I Project
Reference number: 0086
Monitoring period #5 from 01/04/2010 to 31/03/2011(first and last days included)

SECTION A. General description of the project activity

A.1. Brief description of the project activity:

The Project is a hydroelectric power plant located in Peru, in the North-western Department of Piura. The Project's installed capacity and projected yearly average generation is 15.2 MW and 57,740 MWh per year, respectively. The expected load factor is 43.36%. The project supplies the generated electricity to the National Interconnected Electric Grid (SEIN).

Poechos I Hydroelectric Power Project takes advantage of the existing Poechos reservoir, constructed between 1971 and 1974, exclusively for the irrigation system named Chira-Piura.

The technology employed is based on 2 conventional Kaplan turbines (7.6 MW each) coupled to 2 three-phase synchronous generators (each of 9.5 MVA nominal capacity). The water is discharged into a tailrace channel (capacity 45 m^3/s) connected to the existing energy dissipater (stilling basin) of the bottom outlet and, hence, is fed back to the irrigation system.

The Project is in operation since April 2004 with an expected plant operating life of 40 years.

The total emission reductions achieved during the monitoring period from 01/04/2010 to 31/03/2011 are 38,183 t CO_2e.

A.2. Project Participants

Name of Party involved (*) ((host) indicates a host Party):	Private and/or public entity(ies) project participants(*) (as applicable)	Kindly indicate if the Party involved wishes to be considered as project participant (Yes/No)
Peru (host)	Sinersa, Peru	No
Netherlands	Netherlands' Ministry of Infrastructure and the Environment (IenM) International Bank for Reconstruction and Development (IBRD) as Trustee of the Netherlands CDM Facility (NCDMF)	Yes

A.3. Location of the project activity:

The Project is located in the North-western Peruvian Department of Piura, in the Sullana Province, in the Lancones District, in the Lancones Town. The project site is 40 km from the Sullana district (capital of the Sullana Province), and 30 km from the Peruvian-Ecuadorian border. The plant is located within the property of Poechos dam, built over the Chira River. The power house is located 81 meters above sea level.

The coordinates of the project site are: Latitude: -4.68437, Longitude: -80.52519.

A.4. Technical description of the project

The technology employed is based on conventional Kaplan turbines (2) and generators (2) that are widely used all over the world.

The penstock of the powerhouse is connected to the existing steel pipe of the bottom outlet. The penstock is bifurcated in two penstock pipes leading to a powerhouse with two generating units each of 7.6 MW capacity. The generating units consist of two Kaplan turbines coupled to synchronous generators (3-phase) each of 9.5 MVA nominal capacity. The part of the powerhouse in which the main equipment is installed is an underground reinforced concrete structure, whereas the other part is an above ground steel structure. The water is discharged into a tailrace channel (capacity 45 m^3/s) connected to the existing energy dissipater (stilling basin) of the bottom outlet and, hence, is fed back into the irrigation system. The control building is installed adjacent to the powerhouse. This building contains the control room, offices and auxiliary installations. The control room is equipped with a moderns system for automatic and remote control (SCADA).

The Project does also contain a 60 kV open-air switchyard with one main transformer of 30 MVA capacity. The power plant will be connected to the national grid through a new 60 kV overhead transmission line. The transmission line has a length of 38-km and will be connected to the existing Sullana substation.

A.5. Title, reference and version of the baseline and monitoring methodology applied to the project activity:

Title: ACM 0002 Consolidated baseline methodology for grid-connected electricity generation from renewable sources, version 2.
Sectoral scope: 01
Reference: http://cdm.unfccc.int/methodologies/DB/C505BVV9P8VSNNV3LTK1BP3OR24Y5L

The monitoring plan also refers to the "Tool for the demonstration and assessment of additionality" (EB 16).

A.6. Registration date of the project activity:

14/11/2005

A.7. Crediting period of the project activity and related information (start date and choice of crediting period):

Crediting period: 01/04/2004 – 31/03/2011 (renewable)
No changes to the start date of the crediting period post-registration proposed for the project.

A.8. Name of responsible person(s)/entity(ies):

Person in charge: Mr.Branislav Zdravkovic
Entity: SINERSA
Address: Calle Los Ruisenhores Oeste 277, San Isidro, Lima

SECTION B. Implementation of the project activity

B.1. Implementation status of the project activity

HPP Poechos I was commissioned in 01/04/2004, and it has been in operation since then.

During this monitoring period no events or situations which may impact the applicability of the methodology have occurred.

B.2. Revision of the monitoring plan

The monitoring plan has never been revised.

B.3. Request for deviation applied to this monitoring period

No request for deviation apply to this monitoring period.

B.4. Notification or request of approval of changes

No changes occurred in the project activity.

SECTION C. Description of the monitoring system

The monitoring system follows the methodology ACM0002, Version 2. All data collected as part of monitoring should be archived electronically and be kept at least for 2 years after the end of the last crediting period. 100% of the data should be monitored if not indicated otherwise in the tables below. All measurements should be conducted with calibrated measurement equipment according to relevant industry standards.

Components of the operational and management structure implemented by the plant are:

- A transparent system for the collection, computation and storage of data, including adequate record keeping and data monitoring systems;
- Clear procedures and protocols for collection and entry of data, use of workbooks and spreadsheets and any assumptions made, so that compliance with requirements can be assessed by a third party. Paper-based systems are also used as back-ups in the event of electronic system failures;
- A competent Project Manager, who is in charge of, and accountable for, the generation of data, monitoring, record keeping, and computation of ERs, and of audits and verification. He officially signs all worksheets;
- Internal training to staff to enable them to undertake the tasks required by the MP.

Organizational, Operational and Monitoring Obligations

Obligations of the Operator

Monitoring performance of The Project requires the fulfilment of operational data collection and processing obligations from the Operator. The Operator has the primary obligation of ensuring that sufficient and accurate information is available to calculate ERs in a transparent manner and of allowing for a successful verification of accounted ERs.

The Operator gathers and processes information needed to monitor ERs. It is required that the Operator calculate its ERs based on most recent available information, following The ERs Calculation Procedure (ERCP).

All data required for the MP will come from the COES and from The Project's final client, ENOSA. Data gathering and processing is done monthly by the Operator, as follow:

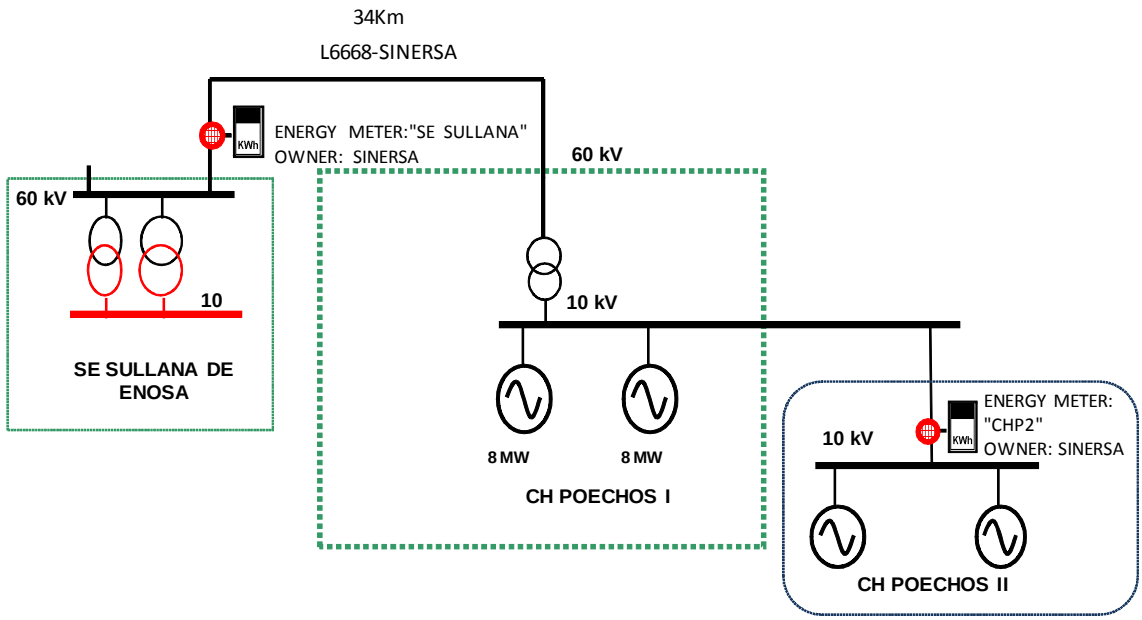
	At the end of each month:
COES **(Data Provider)**	-Report of hourly generation of the *SEIN*'s units (measurement: 15' or 30') -Report of weekly dispatch merit orders for "hours of maximum demand " -Real NECs per power plant in the *SEIN*.
ENOSA (Data Provider)	-Report of The Project hourly generation purchased by ENOSA.
Operator (Data processor)	-Verification of ENOSA's report of The Project hourly generation – comparison with own records; back up of any claims with receipt of sales -Monthly data filling in all the spreadsheets required, following the ERCP -Monthly report to The NCDMF

The Operator calculates the ERs on the basis of this MP (following the ERCP) for the purpose of claiming ERs credits. The MP approach proposed will result in an accurate, yet conservative calculation of ERs. However, some uncertainties may lead to a deviation of monitored ERs and the verified ERs, especially errors in the data monitoring and processed system. The Operator is expected to prevent such errors and the verification audits are expected to uncover any possible errors. The CERs would be granted ex-post verification.

The net electricity to the grid of Poechos I is metered in the energy meter of Sullana. However, the project participant built recently other hydro power plant called Poechos II which its energy is also metered in the energy meter of Sullana. Poechos II also has its own energy meter located in its facility. Therefore the net electricity to the grid of Poechos I is the electricity metered in the meter of Sullana minus the energy metered in the energy meter of Poechos II.

Figure 1. Diagram location of energy meters for Poechos I (since April 2009)

DIAGRAM LOCATION OF ENERGY METERS FOR THE POECHOS I y II PROJECT



DESCRIPTION

ENERGY METER:"SE SULLANA" Measures the Energy delivered to ENOSA in this point.

ENERGY METER:"CHP2" Measures all the Energy delivered by HPP Poechos II.

Emission Reduction Calculation Procedure and Required Spreadsheet

The ERCP is the basic instrument for gathering, recording and processing information that will result in the measured ERs. The Operator shall keep The Project ERCP as a manual. The ERCP contains: i) data gathered from The Project final client: ENOSA, ii) data gathered from COES information system, and iii) data processed by the Operator. All data processing is done in Excel. The ERCP is designed from monthly calculation, based on final monthly COES reports and the final client monthly recording. Although it will only be possible to know the ERs at the end of each year (March 31st for The Project), filling data monthly in the required spreadsheets will provide time to review formulas, minimize errors and have data readily available for the Verifier in any period of the year. There are only 2 required spreadsheets to update with new data: Poechos DDA-OM.xls and Poechos BMS2.xls. The names of these files should be kept but should also reflect the date for which the latest adjustment is made.

DDA-OM Spreadsheet:

This excel file contains all data and formulas necessary to calculate the Dispatch Data Analysis Operating Margin. The data's year is the year of project generation (April 1st – March 31st). 14 worksheets compose the DDA-OM Spreadsheet:

- Worksheet #1: COEFs (tCO2e/MWh) to assign to each unit of the SEIN along the first crediting period.
- Worksheet #2: Calculation of monthly grid dispatch merit order for all thermal units of the SEIN.
- Worksheet #3 to Worksheet #14: one worksheet per month of the year; they contain the SEIN units hourly generation.

BM2 Spreadsheet:

This excel file, composed by four worksheets, contains all the calculations necessary to update the BM2. The data's year is the year of The Project generation:

- Worksheet #15: SEIN Installed Capacity (March 31st 2004 to March 31st 2011).

- Worksheet #16: New units built annual generation in the year of The Project generation.
- Worksheet #17: The BM2 Calculation in the year of The Project generation.
- Worksheet #18: The Baseline Emission Factor and ERs in the year of The Project generation.

Management and Operational Systems Monitoring Plan

A. Purpose:
It is the responsibility of the Operator to develop and implement a management and operational system that meets the requirements of The Project and of the MP. Equally, it is the Operator's responsibility to enter into appropriate agreements with local institutions (i.e. COES) and final clients (ENOSA), to secure an adequate data gathering, processing and recording. The operational and management system shall include, among others Data Handling.

B. Data Handling:
- The establishment of a transparent system for the collection, computation and storage of data, including adequate record keeping and data monitoring systems is required. The Operator must develop and implement a protocol that provides for these critical functions and processes, which must be ready for independent audit.
- For electronic-based and paper-based data entry and recording systems, there must be clarity in terms of the procedures and protocols for collection and entry of data, usage of spreadsheets and any assumptions made, so that compliance with requirements can be assessed by a third party. Stand-by processes and systems, e.g. paper-based systems, must be outlined and used in the event of, and to provide for, the possibility of systems failures.

C. Quality Assurance:
- Well-defined protocols and routine procedures, with good, professional data entry, extraction and reporting procedures will reduce costs and time while making it considerably easier for the auditor and verifier to do their work – the more organized and transparent the organization, the easier will be track, monitor, audit and verify.
- The Operator must keep proper management processes and systems records, as the auditors will request copies of such records to check compliance with the required management systems. Auditors will accept only one set of official information, and any discrepancies between the official, signed records and on-site records will be questioned.

Data: The project hourly generation data is defined according to corresponding monthly invoices approved by ENOSA, for the whole period. Original monthly ENOSA data is presented below.

Sindicato Energético S.A.

SUMMARY TABLE OF MONTHLY ENERGY INVOICED BY SINERSA TO ENOSA FROM HPP POECHOS I
PERIOD: APRIL 1st, 2010 TO MARCH 31st, 2011

	INVOICED ENERGY	
	TOTAL ENERGY	TOTAL ENERGY
MONTH	kWh	MWh
April - 2010	9,853,382.20	9,853.382
May-2010	9,457,236.05	9,457.236
June - 2010	7,225,325.67	7,225.326
July - 2010	4,442,262.22	4,442.262
August - 2010	5,340,278.80	5,340.279
September - 2010	4,428,788.22	4,428.788
October - 2010	4,561,007.65	4,561.008
November - 2010	3,503,059.37	3,503.059
December - 2010	1,966,875.42	1,966.875
January - 2011	1,914,585.48	1,914.585
February - 2011	6,915,422.82	6,915.423
March - 2011	5,268,676.75	5,268.677
	64,876,900.63	64,876.901

Signed as a sign that the values correspond to those really charged by HPP Poechos I to ENOSA in the period indicated according the respective invoices.

By SINERSA

Eng. Regy Risco Risco
O&M Manager
SINERSA

By ENOSA

Eng. Mario Arroyo Sabogal
Commercial Manager
ENOSA

Date: 04/15/2011

Monthly invoices have been defined and controlled by ENOSA using corresponding electric measuring system. Although no problems have been observed with operation of the neither measuring system nor ENOSA presented any claim related to measuring accuracy and instrument calibration, SINERSA carried out during 2009, relevant calibration of the measuring equipment, confirming that the equipment accuracy is totally within the established limits. Corresponding calibration certificate is presented at the end of this chapter.

All relevant data of the Peruvian Energy System has been obtained from COES.

Quality of Data Processing: All original data have been processed using the methodology explained above, as specified within ERCP of the PDD. For this activity the experience obtained during training and preparation of previous reports, have been used. Using corresponding monthly data, it was possible to calculate yearly consolidated Combined Margin.

Quality of Data Storage: For the corresponding calculation, actual and upgraded versions of the software have been used. All data from this period, as well as from previous periods are stored and available. All written annual reports are stored and kept within central company storage facility.

Quality of Data Delivery: Corresponding input data from COES and ENOSA have been presented to Verifier as well as all calculations made for the specified period.

Calibration: In Peru, there is no regulation about any frequency for calibration of the equipment, such as used for measurement of energy supplied from SINERSA to ENOSA. However the Project Entity has performed a calibration in July 10th, 2009 and plans to calibrate its meters periodically as stated in the PDD. It is necessary to mention that corresponding energy meter was also calibrated in factory prior to start of HPP Poechos I operation, from April 1st, 2004. As it could be observed form the corresponding certificate of the 2009 calibration, it was found that equipment operated totally within established technical limits, confirming that all measurements made up to calibration date, have been correct and accurate.

D. Reporting:

- The Operator reports regularly to The NCDMF as well as to Peruvian authorities as required.
- The Operator prepares reports, as needed for audit and verification purposes.

E. Training:

It is the Operator's responsibility to ensure that the required capacity and internal training is made available to assigned The Project Staff, to enable them to undertake the tasks required by this MP. NCDMF trains the Project Staff on the tasks needed to observe the present MP.

SECTION D. Data and parameters

D.1. Data and parameters determined at registration and not monitored during the monitoring period, including default values and factors

Not applicable

Data / Parameter:	
Data unit:	
Description:	
Source of data used:	
Value(s):	
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	
Additional comment:	

D.2. Data and parameters monitored

Data / Parameter:	**CM**
Data unit:	**tCO_2e/MWh**
Description:	Grid emission factor
Measured /Calculated /Default:	Calculated
Source of data:	COES: - Hourly generation of the SEIN's units.

	- Report of weekly dispatch merit order. - Real NEC per power plant n the SEIN.
Value(s) of monitored parameter:	0.58854
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	For baseline emissions calculation.
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	N/A
Measuring/ Reading/ Recording frequency:	Filling DDA-OM and BM2 Spreadsheets is required on a monthly basis according to the MR.
Calculation method (if applicable):	CM = 0.5(OM) + 0.5(BM)
QA/QC procedures applied:	DDA-OM Spreadsheet BM2 Spreadsheet

Data / Parameter:	**EGy**
Data unit:	**MWh**
Description:	Electricity supplied to the grid by the project
Measured /Calculated /Default:	Measured
Source of data:	ENOSA: - Project hourly generation. SINERSA: - Verification of ENOSA's report of The Project hourly generation –comparison with own records. - Monthly data filling in all the spreadsheet required.
Value(s) of monitored parameter:	64,876.901
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Generated electricity is used along with the grid emission factor to calculate the baseline emissions
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Type: ION 7600 Power Meter Accuracy class: 0.2 Serial No: PL-0305A001-01 Calibration frequency: Once in three years. Date of last calibration: July 10th, 2009 Validity: Up to July 10th, 2012 Type: ION 7650 Power Meter Accuracy class: 0.2 Serial No: PJ-1004A406-02 Calibration frequency: Once in three years. Date of last calibration: April 22nd, 2010 Validity: Up to April 22nd, 2013
Measuring/ Reading/ Recording frequency:	Continuous reading (Monthly reported)

Calculation method (if applicable):	N/A.
QA/QC procedures applied:	Cross-checking: Double check with receipt of sales to final client. Calibration: The calibration is done to each of the energy meters every three (3) years.

SECTION E. Emission reductions calculation

E.1. Baseline emissions calculation

Total quantity of tCO_2, as a reduction of CO_2 emission, due to hydropower plant operation, has been calculated using the Combined Margin (CM), according to ACM 0002.

CM is a simple average of Operating Margin (OM) and Build Margin (BM), applying the following formula:

$$CM = 0.5(OM) + 0.5(BM)$$

STEP 1. Calculation of the Operating Margin emission factor

The Dispatch Data Analysis OM method has been applied to calculate the operating margin emission factor. The following points were considered during the monitoring period for the calculation of the operating margin:

a) During the first step of analysis, dispatch data from COES has been received and analyzed, related to operation of the national electric system for each 15 minutes that have been converted to data covering each hour of system operation.
b) Data related to marginal costs have been also received from COES, providing conditions for determination of Order of Merits for each power plant, in function of corresponding operational costs of each unit and comparison with corresponding operation costs of Santa Rosa substation (as a unit measure for the whole Peruvian energy system), for the operation during peak load hours.
c) Using this Merit Order all thermal power plants of the national energy system has been compared and ordered in columns.
d) Resulting data has been introduced in sheets from #3 to #14 of the document: Poechos DDA-OM.xls (for details see Monitoring Plan)
e) Corresponding HPP Poechos 1 production, for each hour, has been also introduced in the same document, in column EE or corresponding column. This information has been introduced according to official data obtained by ENOSA, local distribution company that acquires total HPP Poechos 1 energy production
f) For the period of analysis (April 2010 – March 2011), the new power plants to enter into operation within national energy system are HPP Purmacana (MDL Project), TPP Emergcency Trujillo (re-entry), HPP Roncador, TPP Independencia W3, W1, W2 y W4, TPP Pisco TG1 y TG2, HPP Santa Cruz II G1 y G2 (MDL Project), TPP Las Flores, according to corresponding COES information.
g) For this period of analysis has been used the NECs corresponding to "Statistical Report 2010" of COES.

The formula for the DDA-OM emission factor ($EF_{OM,\,Dispatch\,Data,y}$) is the following:

$$EF_{OM,\,Dispatch\,Data,y} = \frac{E_{OM,y}}{EG_y}$$

where EG_y is the generation of the project (in MWh) in year y, and $E_{OM.y}$ are the emissions (tCO2) associated with the operating margin calculated as

$$E_{OM,y} = \sum_h EG_h \cdot EF_{DD,h}$$

where EG_h is the generation of the project (in MWh) in each hour h and $EF_{DD,h}$ is the hourly generation-weighted average emissions per electricity unit (tCO2/MWh) of the set of power plants (n) in the top 10% of grid system dispatch order during hour h:

$$EF_{DD,h} = \frac{\sum_{i,n} F_{i,n,h} \cdot COEF_{i,n}}{\sum_n GEN_{n,h}}$$

where F, COEF and GEN are analogous to the variables described for the simple OM method above, but calculated on an hourly basis for the set of plants (n) falling within the top 10% of the system dispatch. To determine the set of plants (n), obtain from a national dispatch center: a) the grid system dispatch order of operation for each power plant of the system; and b) the amount of power (MWh) that is dispatched from all plants in the system during each hour that the project activity is operating (GEN_h). At each hour h, stack each plant's generation (GEN_h) using the merit orders. The set of plants (n) consists of those plants at the top of the stack (i.e., having the least merit), whose combined generation ($\Sigma\ GEN_h$) comprises 10% of total generation from all plants during that hour (including imports to the extent they are dispatched).

The following result has been obtained for the monitoring period (April 2009 – March 2010):

$E_{OM,y}$	tCO_2	36,760
EG_y	MWh	64,876.90
$EF_{OM,\ Dispatch\ Data,y}$	tCO_2/MWh	0.56661

STEP 2. Calculation of the Build Margin ($EF_{BM,y}$)

The BM is the weighted average emissions of either the 5 most recent or the most recent 20% of power plants built (in generation), whichever group is greater. The plants capacity additions to consider in the BM were obtained by reviewing annual statistics of new additions in the SEIN across latest years, and by selecting from these additions identified, only the ones that represent new units added. The following were considered for the monitoring period:

a) Calculations sheet Poechos BM2.xls, from Monitoring Plan, has been used
b) COES reported that for the period April 2004 - March 2005, no new power plant entered into operation.
c) COES reported that for the period April 2005 - March 2006, new power plants that entered into operation are Hydropower plant Yuncan and Thermal plant Santa Rosa.
d) COES reported that for the period April 2006 - March 2007, Thermal plant Chilca 1. entered into operation
e) COES reported that for the period April 2007 - March 2008, Thermal plant Kallpa entered into operation
f) COES reported that for the period April 2008 - March 2009, Thermal plant Oquendo and Hidraulic Plants Caña Brava, Santa Cruz and Carhuaquero G4 entered into operation
g) COES reported that for the period April 2009 – March 2010, HPP Santa Cruz G4 (MDL Project), TPP Kallpa G2, TPP Emergcency Trujillo, TPP Chilca1 G3, TPP Santa Rosa TG8, HPP La Joya (MDL Project), TPP Paramonga (Project MDL)
h) COES reported that for the period April 2010 - March 2011, the new power plants to enter into operation within national energy system are HPP Purmacana (MDL Project), TPP Emergcency Trujillo (re-entry), HPP Roncador, TPP Independencia W3, W1, W2 y W4, TPP Pisco TG1 y TG2, HPP Santa Cruz II G1 y G2 (MDL Project), TPP Las Flores.

i) Corresponding energy production for the period April 2010 – March 2011, for the new power plants, has been introduced, including classification according to technology applied for each power plant.
j) CDM projects production has not been introduced.
k) The generation of the 5 latest units incorporated to the SEIN is lower than the 20% latest generation incorporated to the SEIN.

The following formula applied to the select sample (20%) to obtain average emissions was used:

$$EF_{BM,y} = \frac{\sum_{i,m} F_{i,m,y} \cdot COEF_{i,m}}{\sum_{m} GEN_{m,y}}$$

where $F_{i,m,y}$, $COEFi,m$ and $GEN_{m,y}$ are analogous to the variables described for the simple OM method above for plants m.

The following results were obtained for the period April 2010 – March 2011:

Technologies in Selected Sample	Most Recent Year Gen (GWh)	% per technology	APFR	C	O	44/12	CO2 Emissions(tCO2)
Coal	0.00	0%	0.00	25.80	0.980	3.67	0
d2	128.18	2%	1,538.11	20.20	0.990	3.67	112,783
r6	0.00	0%	0.00	21.10	0.990	3.67	0
r500	0.00	0%	0.00	21.10	0.990	3.67	0
Dry Gas	6,901.65	98%	75,290.72	15.30	0.995	3.67	4,202,691
Pure Methane Gas	0.00	0%	0.00	14.50	0.995	3.67	0
Dry Gas CC	0.00	0%	0.00	15.30	0.995	3.67	0
Hydro	39.29	1%	0.00	0.00	0.000	0.00	0
Total	7,069.11	100%					4,315,474

BM2= **0.61047** **tCO2//MWh**

STEP 3. Calculate the baseline emission factor (combined margin)

The CM was calculated as the simple average of both the resulting OM and the resulting BM. All margins expressed in tCO_2/MWh. The formula used for the CM was:

CM = 0.5 x OM + 0.5 x BM.

CM= 0.5 x (0.56661) + 0.5 x (0.61047) = **0.58854 tCO_2/MWh.**

E.1. Baseline emissions calculation

The baseline emissions is calculated monthly ERs (measured in tCO_2) by multiplying the generation in MWh (or MWh) times 0.58854 in tCO_2/MWh (or tCO_2/MWh), which is the baseline emission factor for the project and will be used for the first crediting period (7 years). The generated electricity for the monitoring period is 64,876.901 MWh.

The baseline emissions for this monitoring period are: **38,183 tCO_2e**

E.2. Project emissions calculation

Given that the proposed project is a hydropower plant, the project emissions are zero.

E.3. Leakage calculation

Because the project's existing equipment is neither transferred to another activity nor it comes from another activity, leakage is zero and does not need to be monitored.

E.4. Emission reductions calculation / table

The emission reductions calculation is shown in the below table.

Period	Total Baseline Emissions (tCO_2e)	Total Project Emissions (tCO_2e)	Total Leakage (tCO_2e)	Total Emission Reductions (tCO_2e)
	A	B	C	D = A – B – C
01/04/2010 - 31/03/2011	**38,183**	**0**	**0**	**38,183**

E.5. Comparison of actual emission reductions with estimates in the CDM-PDD

Item	Values applied in ex-ante calculation of the registered CDM-PDD	Actual values reached during the monitoring period
Emission reductions (tCO_2e)	**31,463**	**38,183**

E.6. Remarks on difference from estimated value in the PDD

The achieved emission reductions during the monitoring period are greater than those stated in the registered CDM-PDD.

For the project, the main parameter that defines annual energy production and consequently reduction of the emission of CO_2, is hydrology. HPP Poechos I could produce up to 133 GWh/year, if it operates during the whole year with maximum required volume of water and in that way establishing conditions for the maximum theoretical production of the plant.

The PDD has used an annual production close to 58 GWh/year. From the above presented data it is noticeable that each year for the hydrology of the Chira River varies widely, where for example the first year of operation was a very dry one, while the latest two were with annual inflows considerable over average values. Therefore, the total energy production for the verification period April 1st, 2010 – March 31st, 2011 was more than average, which directly resulted in increase of the corresponding reduction of CO_2 emissions.

We can notice that for the period April 1st, 2010-March 31st, 2011 verified the plant load factor was 49%, which is normal and usual for a hydropower plant with available water for energy production.

Anyhow, for the whole period of 7 years, the total difference between real and estimated data within PDD is only 22%,which could be treated as reasonable.

History of the document

Version	Date	Nature of revision
01	EB 54, Annex 34 28 May 2010	Initial adoption.
Decision Class: Regulatory **Document Type**: Guideline, Form **Business Function**: Issuance		

[*] As contained within the document entitled "Guidelines for completing the monitoring report form (CDM-MR)" (EB 54 meeting report, annex 34).