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

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

MONITORING REPORT
Version 1 – May 20th, 2011

EL CANADÁ HYDROELECTRIC PROJECT
UNFCCC Reference No. 0606
Monitoring Report from June 1st to November 22nd 2010

SECTION A. General description of the project activity

A.1. Brief description of the project activity:

El Canadá Hydroelectric Project consists of a 43 MW peaking run-of-river hydroelectric plant located on the Samalá River on the west coast of Guatemala, near the town of Santa María de Jesus. The western Guatemala region has 350 MW of demand and 31 MW of installed capacity. Construction began in February 2002 and was completed in December 2003. The Project started commercial operation per the Wholesale Market Norms on November 23rd, 2003. Since its commissioning, it has been producing an average of 175 GWh/year of electricity, which is sold to Guatemala's largest commercial distributor, COMEGSA, under a 10-year Power Purchase Agreement (PPA).

The Project contributes to the sustainable development of Guatemala in various ways. First, it has increased the supply of power to the local grid, improving stability and helping reduce losses in the distribution system. Second, it is reducing greenhouse gas emissions as well as emissions of local pollutants from power generation by using a cleaner energy source than what typically would have been used in the country. Third, it is one of the first renewable energy projects to be developed after the approval of Guatemala's new General Electricity Law. Its development has provided important knowledge and experience for other project developers that are striving to participate in the competitive national and regional market. Fourth, through the agreements the Project Company has entered into with the neighbouring municipalities, the Project is conserving sub-surface water, it has re-forested parts of the land where it was constructed, and it is making annual payments to improve the conditions of the local communities. Finally, it has created 250 jobs, injecting at least US$ 30 million into the Guatemalan economy over the course of the construction period.

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)
Guatemala (host)	Generadora de Occidente, Ltda. ("GdO")	No
Canada	International Bank for Reconstruction and Development (IBRD) as the Trustee of the Prototype Carbon Fund (PCF)	Yes
The Netherlands	International Bank for Reconstruction and Development (IBRD) as the Trustee of the Prototype Carbon Fund (PCF)	Yes
(*) In accordance with the CDM modalities and procedures, at the time of making the CDM-PDD public at the stage of validation, a Party involved may or may not have provided its approval. At the time of requesting registration, the approval by the Parties involved is required.		

A.3. Location of the project activity:

The Project is located on the Samalá River, 12 kilometers south of the Quetzaltenango Municipality and 198 kilometers due west from Guatemala City. Quetzaltenango is Guatemala's second largest city and is responsible for a large portion of the 350 MW maximum demand of the western region. The Samalá River is nearly 130 kilometers in length, and has relatively high flows, due to intense rainstorms over the western slopes of the volcanic mountain ranges that act as the river's basin. The slopes around the Project are very steep, with small plateaus. The Project is located immediately downstream from the existing Santa María hydro powerhouse owned by the national utility, Instituto Nacional de Electrificación (INDE), and utilizes some of the existing infrastructure.

A.4. Technical description of the project

Main Project Characteristics

Nominal Installed Capacity: 43.9 MW
Number of Units: 2 x 21.95 MW
Real Installed Capacity: 43 MW
Number of Units: 2 x 21.5 MW
Generation: 175 GWh/year
Head: 365 m
Maximum Hydraulic Capacity: 13.4 m^3/sec.
Powerline: 69 kV

The Project collects power flows from the tailrace of the existing Santa María power plant that is owned by INDE and also collects spillages from the Santa María dam and local inflow from the area between the Santa María dam and the Project diversion dam. All power flows flow through a desander, located immediately downstream of the diversion dam, and are subsequently diverted through a tunnel,

three meters in diameter and approximately 1200 m long, to a regulating pond. The regulating pond is designed to collect water inflows for daily peaking operation, totalling 5 hours. The live storage volume is 184,000 m^3, using an 8-meter pond fluctuation. The normal operating level of the reservoir is 1,416.90 meters above sea level (masl) and the minimum operating level is 1,409 masl. An intake structure on the regulating reservoir is equipped with trash racks and a hydraulically operated gate. The gate is equipped to close during emergency conditions in the event of penstock rupture. The penstock is approximately 2,400 m long and conveys the power flows from the regulating reservoir to the powerhouse. The penstock is comprised of a low- and a high-pressure section 1590 and 800 m long, respectively. The penstock is bifurcated into two 1.45-m diameter penstock pipes, approximately 46 m from the powerhouse.

The penstock pipe is buried over its total length. The low-pressure penstock diameter is 2.10 m, and the high-pressure section diameter 1.85 m. El Canadá powerhouse contains two 21.5-MW units. Each generating unit has a Pelton turbine and synchronous generator. The powerhouse crane has a capacity at least equal to the heaviest lift during equipment installation of 65 tons. The control room is be air conditioned and separate from the equipment area of the powerhouse. The output from the El Canadá facility is stepped up from 13.8 kV to 69 kV, before it is transmitted to Santa María substation about 3.6 km away for delivery to the INDE utility grid. The transmission line poles are steel and the guard and the power cables are 636 MCM ACSR. Each pole of the transmission line is grounded to provide a resistance of not more than 10 ohms.

All equipment utilized in the El Canadá Project is proven technology that has been successfully applied worldwide. Each of the two 21.5-MW generating units has a Pelton turbine and a synchronous generator. The rubber dam used in the diversion dam is a new technology introduced to Guatemala. Rubber dam technology was chosen in order to properly regulate the level at the diversion dam considering the operational restrictions due to being down stream from the Santa Maria powerhouse. This technology also has an added advantage during high volume situations during the wet season, the rubber dam can be deflated in order to avoid diverting mud, rocks, tree trunks, and other garbage into the desander.

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

Category of the project activity	Grid-connected electricity generation from renewable energy sources.
Methodology Used	ACM0002 ver. 6 – Consolidated methodology for grid-connected electricity generation from renewable sources
Choice of the crediting period	Renewable crediting period

A.6. Registration date of the project activity:

December 2nd, 2006

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

November 23rd, 2003 to November 22nd, 2010 (Renewable)

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

Organization:	Generadora de Occidente, Ltda.
Street/P.O.Box:	Diagonal 6, 10-65 Zona 10
Building:	Centro Gerencial Las Margaritas, Torre I, Nivel 8, Oficina 801
City:	Guatemala
State/Region:	Guatemala
Postfix/ZIP:	01010
Country:	Guatemala
Telephone:	+502 2327-7000
FAX:	+502 2339-3176
E-Mail:	
URL:	www.enel-latinamerica.com - www.enelgreenpower.com
Represented by:	
Title:	CDM Coordinator
Salutation:	Mr.
Last Name:	Ríos Villatoro
Middle Name:	Rafael
First Name:	Fernando
Department:	
Mobile:	+502 5918-7980
Direct FAX:	+502 2339-3176
Direct tel:	+502 2327-7000 Ext. 7015
Personal E-Mail:	fernando.rios@latinamerica.enel.it

SECTION B. Implementation of the project activity

B.1. Implementation status of the project activity

El Canadá Hydroelectric Project consists of a 43 MW peaking run-of-river hydroelectric plant located on the Samalá River on the west coast of Guatemala, near the town of Santa María de Jesus. The western Guatemala region has 350 MW of demand and 31 MW of installed capacity. Construction began in February 2002 and was completed in December 2003. The Project started commercial operation per the Wholesale Market Norms on November 23rd, 2003.

The Project collects power flows from the tailrace of the existing Santa María power plant that is owned by INDE and also collects spillages from the Santa María dam and local inflow from the area between the Santa María dam and the Project diversion dam. All power flows flow through a desander, located immediately downstream of the diversion dam, and are subsequently diverted through a tunnel, three meters in diameter and approximately 1200 m long, to a regulating pond. The regulating pond is designed to collect water inflows for daily peaking operation, totalling 5 hours. The live storage volume is 184,000 m^3, using an 8-meter pond fluctuation. The normal operating level of the reservoir is 1,416.90 meters above sea level (masl) and the minimum operating level is 1,409 masl. An intake structure on the regulating reservoir is equipped with trash racks and a hydraulically operated gate. The gate is equipped to close during emergency conditions in the event of penstock rupture. The penstock is approximately 2,400 m long and conveys the power flows from the regulating reservoir to the powerhouse. The penstock is comprised of a low- and a high-pressure section 1590 and 800 m long, respectively. The penstock is bifurcated into two 1.45-m diameter penstock pipes, approximately 46 m from the powerhouse.

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All equipment utilized in the El Canadá Project is proven technology that has been successfully applied worldwide. Each of the two 21.5-MW generating units has a Pelton turbine and a synchronous generator. The rubber dam used in the diversion dam is a new technology introduced to Guatemala. Rubber dam technology was chosen in order to properly regulate the level at the diversion dam considering the operational restrictions due to being down stream from the Santa Maria powerhouse. This technology also has an added advantage during high volume situations during the wet season, the rubber dam can be deflated in order to avoid diverting mud, rocks, tree trunks, and other garbage into the desander.

B.2. Revision of the monitoring plan

Not Applicable.

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

Not Applicable.

B.4. Notification or request of approval of changes

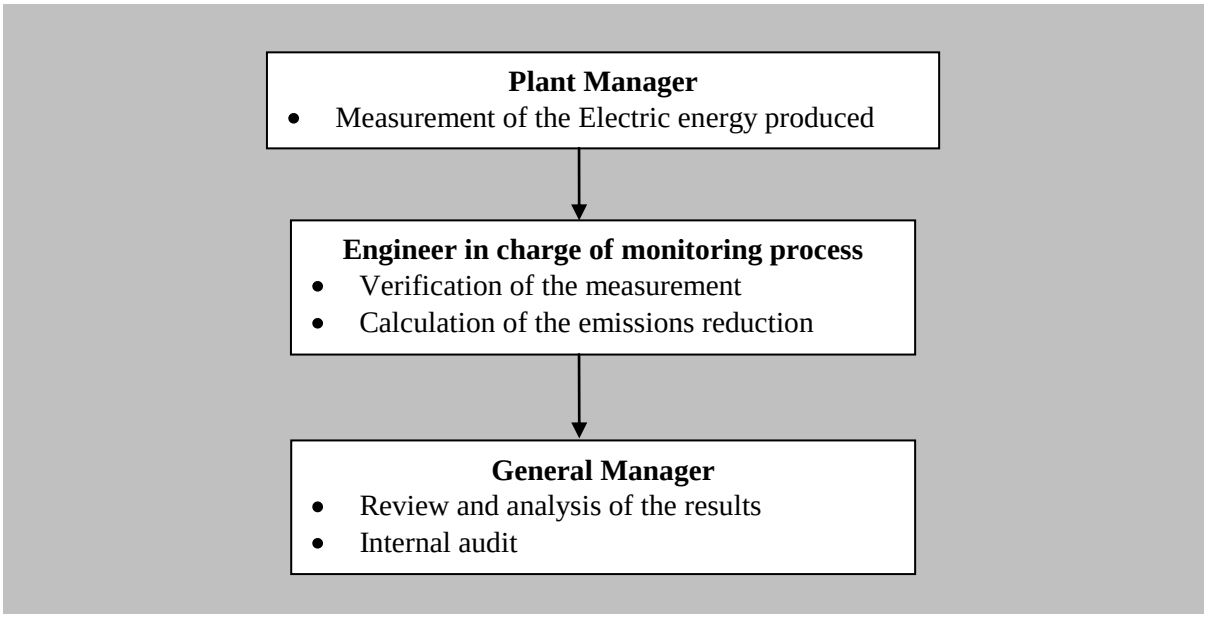
Not Applicable.

SECTION C. Description of the monitoring system

The monitoring of the emissions reductions was done according to the operational structure shown in the below chart. The first step is measuring process, followed by verification of the measurement, calculation of the emissions reductions, and finally, review and analysis of results. Generadora de Occidente, Ltda. General Manager will be the responsible for the monitoring process.

- The Plant Manager of El Canadá Hydroelectric Project is responsible of the electric energy measurement.
- The Marketing Analyst engineer of Generadora de Occidente, Ltda. is in charge of the monitoring process.
- The General Manager is responsible of the Monitoring Plan.

Personnel who carry out the monitoring function are trained in CDM procedures. New personnel have to follow up a training program and are formed in the specific skills required to carry out the Monitoring Plan.



Measuring and calculation procedure

1. Measuring

The Plant Manager collects electronically and monthly the generation data from the commercial energy meter installed in the El Canada Substation, which measures the energy produced by El Canada Hydroelectric Project and Montecristo Hydroelectric Project. In the Montecristo Substation in the 69 KV bus is installed the energy meter of Montecristo Hydroelectric Project, therefore El Canadá Hydroelectric Project could be calculated by difference. The generation data is reported in a spreadsheet for measuring control and register. The commercial meter data collection of the monitored month takes place during the first week of the following month.

The Plant Manager collects electronically and monthly the generation data from the commercial energy meter installed in the Montecristo Substation, which measures the energy produced by Montecristo Hydroelectric Project. The generation data is reported in a spreadsheet for measuring control and register. The commercial meter data collection of the monitored month takes place during the first week of the following month.

The Plant Manager collects electronically and monthly the generation data from the commercial energy meter installed in the El Canadá Substation, which measures the energy produced by El Canadá Hydroelectric Project and Montecristo Hydroelectric Project. In the Montecristo Substation in the 69 KV bus is installed the energy meter of Montecristo Hydroelectric Project, therefore El Canadá Hydroelectric Project could be calculated by difference. Calculated the difference the generation data is reported in a spreadsheet for measuring control and register. The commercial meter data collection of the monitored month takes place during the first week of the following month.

2. Calculation energy produced and verification

The person in charge of the monitoring process verifies the accuracy of the recorded energy data. For this purpose, is necessary to compare the data recorded against the information of the commercial measurement published by the *Administrador del Mercado Mayorista* (AMM) in Certificates emitted by them.

3. Calculation of emissions reductions

The person responsible of perform the Monitoring Process calculated the emissions reductions for the observation period using the *ex ante* emission factor according to the Table A.3.5 on the PDD.

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

Data / Parameter:	**$EF_{OM,y}$**
Data unit:	t CO_2/MWh
Description:	Operating Margin Emission Factor
Source of data used:	Calculated
Value(s) :	The value applied for the first crediting period was 0.83
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	
Additional comment:	

Data / Parameter:	**$EF_{BM,y}$**
Data unit:	t CO_2/MWh
Description:	Build Margin Emission Factor
Source of data used:	Calculated
Value(s) :	The value applied for the first crediting period was 0.59
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	
Additional comment:	

Data / Parameter:	**EF_y**
Data unit:	t CO_2/MWh
Description:	Emission Factor
Source of data used:	Calculated
Value(s) :	The value applied for the first crediting period was 0.71
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	
Additional comment:	

Data / Parameter:	**$NCV_{i,y}$**
Data unit:	$TJ/10^3$ tonnes
Description:	Net Calorific Value
Source of data used:	IPCC Guidelines 2006
Value(s) :	The value applied for the first crediting period was based on the 1996 IPCC Guidelines.
Indicate what the data are used for (Baseline/ Project/	

Leakage emission calculations)	
Additional comment:	

D.2. Data and parameters monitored

Data / Parameter:	**$EG_{PJ,y}$ (=$EG_{facility,y}$) = E1 – E2**
Data unit:	MWh
Description:	Net electricity supplied to the grid by the project
Measured /Calculated /Default:	Measured – Hourly measurement and monthly recording
Source of data:	Calculated based on measured readings of E1 and E2
Value(s) of monitored parameter:	Spreadsheet "CER's Calculation - El Canada Jun-Dec 2010 v1"
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Calculate the emission reductions of the project
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Electricity meters
Measuring/ Reading/ Recording frequency:	Monthly
Calculation method (if applicable):	Not Applicable
QA/QC procedures applied:	Uncertainty of data is low as this value is calculated based on the meter readings at El Canada and Montecristo substations. Electricity supplied by the project activity to the grid. Double check by receipt of sales. As established in the NCC14, the measurement equipment has to comply with Norms: IEC 687 or ANSI/IEEE 12.2. Its exactitude must be of 0.2%. Data Registry: The measurement equipment must register the information in periods of 15 to 60 minutes. This equipment must have a non-volatile memory that allows the storage of information for at least the least 37 days and it has to have a battery capable of keeping these data during a period of at least 7 days, in case of failure of the auxiliary power feeding. The generated energy is monitored by AMM as well as by the Generator, and there is the secondary measurement equipment in case there would be any divergence in the information.

Data / Parameter:	**E1**
Data unit:	MWh
Description:	Electricity supplied to the grid by of El Canada and Montecristo Plants measured at El Canada substation
Measured /Calculated /Default:	Measured – Hourly measurement and monthly recording
Source of data:	Measured; Official metering data sent monthly to the AMM. Invoices

	to the final COMEGSA, a third part or the Economical Transaction Report submitted by AMM will be compared with the official data to AMM.
Value(s) of monitored parameter:	Spreadsheet "CER's Calculation - El Canada Jun-Dec 2010 v1"
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Calculate the emission reductions of the project
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Type: Principal Meter – ION 8600 Power Measurement Accuracy Class: +/- 0.20% Serial: PT-0511A048-00 Calibration frequency: Yearly Last calibration: September 17th, 2010 Validity: 18 months Type: Back up Meter – Maxsys 2510 Siemens Accuracy Class: +/- 0.20% Serial: 85 762 983 Calibration frequency: Yearly Last calibration: September 17th, 2010 Validity: 18 months
Measuring/ Reading/ Recording frequency:	Monthly
Calculation method (if applicable):	Not Applicable
QA/QC procedures applied:	Electricity supplied by the project activity to the grid. Double check by receipt of sales. As established in the NCC14, the measurement equipment has to comply with Norms: IEC 687 or ANSI/IEEE 12.2. Its exactitude must be of 0.2%. Data Registry: The measurement equipment must register the information in periods of 15 to 60 minutes. This equipment must have a non-volatile memory that allows the storage of information for at least the least 37 days and it has to have a battery capable of keeping these data during a period of at least 7 days, in case of failure of the auxiliary power feeding. The generated energy is monitored by AMM as well as by the Generator, and there is the secondary measurement equipment in case there would be any divergence in the information.

Data / Parameter:	**E2**
Data unit:	MWh
Description:	Electricity supplied to the grid by Montecristo Plant at Montecristo substation
Measured /Calculated /Default:	Measured – Hourly measurement and monthly recording
Source of data:	Spreadsheet "CER's Calculation - El Canada Jun-Dec 2010 v1"
Value(s) of monitored parameter:	As per the meter readings
Indicate what the data are used for (Baseline/ Project/ Leakage emission	Calculate the emission reductions of the project

calculations)	
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Type: Principal Meter – ION 8600 Power Measurement Accuracy Class: +/- 0.20% Serial: PT-0511A045-00 Calibration frequency: Yearly Last calibration: September 17th, 2010 Validity: 18 months Type: Back up Meter – Maxsys 2510 Siemens Accuracy Class: +/- 0.20% Serial: 85 762 982 Calibration frequency: Yearly Last calibration: September 17th, 2010 Validity: 18 months
Measuring/ Reading/ Recording frequency:	Monthly
Calculation method (if applicable):	Not Applicable
QA/QC procedures applied:	Electricity supplied by the project activity to the grid. Double check by receipt of sales. As established in the NCC14, the measurement equipment has to comply with Norms: IEC 687 or ANSI/IEEE 12.2. Its exactitude must be of 0.2%. Data Registry: The measurement equipment must register the information in periods of 15 to 60 minutes. This equipment must have a non-volatile memory that allows the storage of information for at least the least 37 days and it has to have a battery capable of keeping these data during a period of at least 7 days, in case of failure of the auxiliary power feeding. The generated energy is monitored by AMM as well as by the Generator, and there is the secondary measurement equipment in case there would be any divergence in the information.

Calibration of the meters of energy

According to the NCC-14 clause 14.12 "Periodic Verifications" the participant will verify his meters to fulfill the requirement of the Administrador del Mercado Mayorista, AMM (Wholesale Market Administrator) or of the manufacturer. Because of this, Generadora de Occidente, Ltda. last September 17th, 2010, proceeded to the calibration of his meters of energy, the principal meter and the support meter; giving as result that both meters fulfill with the requirements of the norm ANSI C12.20 and they were certified by the company AMELEC.

The results of the calibration of the meters of energy of Generadora de Occidente, Ltda., delivered by the company AMELEC are the following ones:

CALIBRATION CERTIFICATE	
Meter Model:	ION 8600
Meter Mark:	Power Measurement
Meter Serial No.:	PT-0511A048-00
Description:	Meter of principal energy
Meter Location:	El Canadá Hydroelectric Plant
Company Name:	Generadora de Occidente, Ltda.
Calibration Date:	September 17th, 2010

Calibration Company Name:	AMELEC
Calibration by:	Mario Raúl Túchez
Approved by:	Homero Arias
Accuracy Tests:	Meets the accuracy requirements

CALIBRATION CERTIFICATE	
Meter Model:	Maxys 2510
Meter Mark:	Siemens
Meter Serial No.:	85 762 983
Description:	Meter of support
Meter Location:	El Canadá Hydroelectric Plant
Company Name:	Generadora de Occidente, Ltda.
Calibration Date:	September 17th, 2010
Calibration Company Name:	AMELEC
Calibration by:	Mario Raúl Túchez
Approved by:	Homero Arias
Accuracy Tests:	Meets the accuracy requirements

According to the NCC-14 clause 14.12 "Periodic Verifications" the participant will verify his meters to fulfill the requirement of the Administrador del Mercado Mayorista, AMM (Wholesale Market Administrator) or of the manufacturer. Because of this, Generadora Montecristo, S.A. last September 17th, 2010, proceeded to the calibration of his meters of energy, the principal meter and the support meter; giving as result that both meters fulfill with the requirements of the norm ANSI C12.20 and they were certified by the company AMELEC.

The results of the calibration of the meters of energy of Generadora Montecristo, S.A., delivered by the company AMELEC are the following ones:

CALIBRATION CERTIFICATE	
Meter Model:	ION 8600
Meter Mark:	Power Measurement
Meter Serial No.:	PT-0511A045-00
Description:	Meter of principal energy
Meter Location:	Montecristo Hydroelectric Plant
Company Name:	Generadora Montecristo, S.A.
Calibration Date:	September 17th, 2010
Calibration Company Name:	AMELEC
Calibration by:	Mario Raúl Túchez
Approved by:	Homero Arias
Accuracy Tests:	Meets the accuracy requirements

CALIBRATION CERTIFICATE	
Meter Model:	Maxys 2510
Meter Mark:	Siemens
Meter Serial No.:	85 762 982
Description:	Meter of support
Meter Location:	Montecristo Hydroelectric Plant
Company Name:	Generadora Montecristo, S.A.
Calibration Date:	September 17th, 2010
Calibration Company Name:	AMELEC
Calibration by:	Mario Raúl Túchez

Approved by:	Homero Arias
Accuracy Tests:	Meets the accuracy requirements

The Hydroelectrics Projects El Canadá and Montecristo have a meter of principal energy that is used to obtain the readings of commercial measurement of the plant and a meter of support which is used to obtain the readings of commercial measurement in case that the principal meter trumps or is damaged, according to the stipulated in the regulation NCC-14 of the Administrador del Mercado Mayorista, AMM (Wholesale Market Administrator) in the clauses 14.6.1, 14.10 bis and 14.10 tris.

SECTION E. Emission reductions calculation

E.1. Baseline emissions calculation

Measuring

The Plant Manager collects electronically and monthly the generation data from the commercial energy meter installed in the El Canada Substation, which measures the energy produced by El Canada Hydroelectric Project and Montecristo Hydroelectric Project. In the Montecristo Substation in the 69 KV bus is installed the energy meter of Montecristo Hydroelectric Project, therefore El Canadá Hydroelectric Project could be calculated by difference. The generation data is reported in a spreadsheet for measuring control and register. The commercial meter data collection of the monitored month takes place during the first week of the following month. From the period June 1st to November 22nd, 2010, the energy produced by El Canadá Hydroelectric Project registered the following information:

El Canadá and Montecristo Hydroelectric Projects	
Year: 2010	
Month	**Generation (MWh)**
January	-
February	-
March	-
April	-
May	-
June	24,436
July	39,282
August	39,334
September	35,499
October	39,029
November	19,738
December	-
Total	**197,319**

The Plant Manager collects electronically and monthly the generation data from the commercial energy meter installed in the Montecristo Substation, which measures the energy produced by Montecristo Hydroelectric Project. The generation data is reported in a spreadsheet for measuring control and register. The commercial meter data collection of the monitored month takes place during the first week of the following month. From the period June 1st to November 22nd, 2010, the commercial energy meter installed in the Montecristo Substation registered the following information:

Montecristo Hydroelectric Project	
Year: 2010	
Month	**Generation (MWh)**
January	-
February	-
March	-
April	-
May	-
June	5,201
July	8,281
August	8,199
September	7,229
October	8,189
November	3,746
December	-
Total	**40,844**

The Plant Manager collects electronically and monthly the generation data from the commercial energy meter installed in the El Canadá Substation, which measures the energy produced by El Canadá Hydroelectric Project and Montecristo Hydroelectric Project. In the Montecristo Substation in the 69 KV bus is installed the energy meter of Montecristo Hydroelectric Project, therefore El Canadá Hydroelectric Project could be calculated by difference. Calculated the difference the generation data is reported in a spreadsheet for measuring control and register. The commercial meter data collection of the monitored month takes place during the first week of the following month. From the period June 1st to November 22nd, 2010, the energy produced by El Canadá Hydroelectric Project registered the following information:

El Canadá Hydroelectric Project	
Year: 2010	
Month	**Generation (MWh)**
January	-
February	-
March	-
April	-
May	-
June	19,236
July	31,001
August	31,135
September	28,270
October	30,840
November	15,992
December	-
Total	**156,475**

In January 21st, 2011 the Administrador del Mercado Mayorista, AMM (Wholesale Market Administrator) delivered the certification of records of measurement from January 1st to December 31st, 2010 of Generadora de Occidente, Ltda. The certificate delivered by the Wholesale Market Administrator of this measurement contains the following information:

WHOLESALE MARKET ADMINISTRATOR	
DEPARTMENT OF MEASUREMENT	
CERTIFICATION OF RECORDS OF MEASUREMENT	
GENERATOR:	Generadora de Occidente, Ltda.

LOCATION:	Km. 197 carretera a Zunil, Quetzaltenango
MONTH / YEAR	**ENERGY GENERATED (KWh)**
Jan-10	11,850,919
Feb-10	10,243,644
Mar-10	8,538,246
Apr-10	11,960,042
May-10	12,963,125
Jun-10	19,235,877
Jul-10	31,001,427
Aug-10	31,135,157
Sep-10	28,270,186
Oct-10	30,839,885
Nov-10	18,778,768
Dec-10	18,555,096
These data are monthly KWh energies	
Issue Date:	January 21st, 2011

In January 21st, 2011 the Administrador del Mercado Mayorista, AMM (Wholesale Market Administrator) delivered the certification of records of measurement from January 1st to December 31st, 2010 of Generadora Montecristo, S.A. The certificate delivered by the Wholesale Market Administrator of this measurement contains the following information:

WHOLESALE MARKET ADMINISTRATOR	
DEPARTMENT OF MEASUREMENT	
CERTIFICATION OF RECORDS OF MEASUREMENT	
GENERATOR:	Generadora Montecristo, S.A.
LOCATION:	Km. 197 carretera a Zunil, Quetzaltenango
MONTH / YEAR	**ENERGY GENERATED (KWh)**
Jan-10	3,101,650
Feb-10	2,607,987
Mar-10	2,187,016
Apr-10	3,128,095
May-10	3,441,592
Jun-10	5,200,508
Jul-10	8,280,712
Aug-10	8,199,081
Sep-10	7,228,902
Oct-10	8,188,791
Nov-10	3,746,154
Dec-10	1,995,774
These data are monthly KWh energies	
Issue Date:	January 21st, 2011

Calculation energy produced and verification

The person in charge of the monitoring process verifies the accuracy of the recorded energy data. For this purpose, is necessary to compare the data recorded against the information of the commercial measurement published by the *Administrador del Mercado Mayorista* (AMM) in Certificates emitted by them.

The measuring verification is carried out as below shown:

El Canadá Hydroelectric Project Measurement Control			
Year: 2010			
Month	El Canada Generation (MWh)	AMM Comercial Measurement (MWh)	El Canada validated generation
January	-	-	Validated
February	-	-	Validated
March	-	-	Validated
April	-	-	Validated
May	-	-	Validated
June	19,236	19,236	Validated
July	31,001	31,001	Validated
August	31,135	31,135	Validated
September	28,270	28,270	Validated
October	30,840	30,840	Validated
November	15,992	15,992	Validated
December	-	-	Validated
Annual Total	**156,475**	**156,475**	

E.2. Project emissions calculation

Estimate of GHG emissions by sources:

Since the El Canadá Project is a run-of-river hydropower plant, it does not give rise to direct GHG emissions.

E.3. Leakage calculation

Not Applicable.

E.4. Emission reductions calculation / table

The person responsible of perform the Monitoring Process calculated the emissions reductions from June 1st to November 22nd, 2010 using the *ex ante* emission factor according to the Table A.3.5 on the PDD. The methodology used to the calculation of emissions reductions was the "ACM0002 – Consolidated methodology for grid-connected electricity generation from renewable sources" (version 6).

The chart prepared for the calculation is:

El Canadá Hydroelectric Project. First Crediting Period.			
Year	Annual validated generation (MWh)	Emission factor (ton CO2/MWh)	Emissions reductions (ton CO2)
Jun-Nov 22nd 2010	156,475	0.71	111,096

From June 1st to November 22nd, 2010 the El Canadá Hydroelectric Project has reduced 111,096 tones of CO_2 by using renewable resources for the generation of electrical energy.

The chart prepared for the calculation is:

El Canadá Hydroelectric Project. First Crediting Period.				
Year	Baseline Emissions (tCO_2e/yr)	Project Emissions (tCO2e/yr)	Leakage (tCO2e/yr)	Emissions Reductions (tCO_2e/yr)
Jun-Nov 22nd 2010	111,096	111,096	-	111,096

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

This section shall include a comparison of actual values of the emission reductions achieved during the monitoring period with the estimations in the registered 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)	**55,988**	**111,096**

The emission reduction achieved during the monitoring period is 98.43% below of the estimations in the registered CDM-PDD.

The 55,988 emission reductions (tCO_2e) value applied in ex-ante calculation of the registered CDM-PDD was calculated with the amount of reductions registered per year in the PDD (113,895 tCO_2e per year) divided by the days of the year (356 days) to obtain the amount of reductions per day (320 tCO_2e per day), this amount of reductions per day is multiplied by the days of the monitoring report from June 1st to November 22nd, 2010 (175 days) to obtain the amount of reductions of the monitoring report (55,988 tCO_2e).

The chart prepared for the calculation is:

PDD - Amount of Reductions	PDD - Days of the Year	PDD - Amount of Reductions per Day	Days of the Monitoring Report	MR - Amount of Reductions
113,895	356	320	175	55,988

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

The generation of El Canadá Hydroelectric Project from 2003 to 2010 is as follows:

Year	Generation (MWh)
2003	12,663
2004	142,918
2005	174,432
2006	162,889
2007	174,737
2008	214,677
2009	178,002
2010	212,031

The Table with the Estimated Amount of Emission Reductions over the chosen crediting period in the PDD of El Canadá Hydroelectric Project indicates that the annual generation it would be 124,250 MWh, comparing the estimated generation of the PDD with the real generation of the plant can be observed the following differences:

Year	Estimated Generation (MWh)	Real Generation (MWh)	% Difference
2003	9,250	12,663	+36.90
2004	101,473	142,918	+40.84
2005	108,072	174,432	+61.40
2006	124,250	162,889	+31.10
2007	124,250	174,737	+40.63
2008	124,250	214,677	+72.78
2009	124,250	178,002	+43.26
2010	113,895	212,031	+86.16

The reason for the 86.16% more electricity generated in the monitoring period from June 1st to November 22nd 2010 is:

a) Hydrologic increase flow of the river in 2010
b) In Guatemala the electrical plants that use renewal energy as fuel has prior of dispatch
c) In 2010 the hydroelectric plants generated 30.22% more electricity than 2009

The production of energy by technology in Guatemala in 2009 is as follow:

TECHNOLOGY	GWh	%
CO-GENERATORS (*)	1,068.79	13.3%
GAS TURBINES	34.70	0.4%
GEOTHERMAL	279.94	3.5%
HYDRAULIC PLANTS	2,892.86	36.1%
STEAM TURBINES	695.93	8.7%
INTERNAL COMBUSTION MOTOR	3,005.25	37.5%
IMPORTS	37.21	0.5%
TOTAL	**8,014.67**	**100.0%**

* STEAM TURBINES

Source: AMM Statistical Report 2009 (http://www.amm.org.gt/pdfs/informes/2009/InfEst2009_01.pdf)

The production of energy by technology in Guatemala in 2010 is as follow:

TECHNOLOGY	GWh	%
CO-GENERATORS (*)	978.92	11.8%
GAS TURBINES	3.88	0.0%
GEOTHERMAL	259.31	3.1%
HYDRAULIC PLANTS	3,767.03	45.5%
STEAM TURBINES	1,043.42	12.6%

INTERNAL COMBUSTION MOTOR	1,861.36	22.5%
IMPORTS	362.30	4.4%
TOTAL	**8,276.21**	**100.0%**

* STEAM TURBINES

Source: AMM Statistical Report 2010 (http://www.amm.org.gt/pdfs/informes/2010/InfEst2010_01.pdf)

The annual generation for the hydroelectric plants in 2009 were 2,892.86 GWh and in 2010 had an increase of 30.22% and generated 3,767.03 GWh, it can be appreciated that more than 874.17 GWh were produced since the hydrological flow increase.

Year	Hydroelectric Annual Generation (GWh)	% Difference
2009	2,892.86	30.22%
2010	3,767.03	

The monthly historical data of the hydrological flow of Salama River from 2003 to 2010 is as follows:

HYDROLOGICAL FLOW OF SALAMA RIVER (m^3/s)								
	2003	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
JAN	5.100	3.960	3.780	4.820	3.740	4.781	5.015	4.900
FEB	5.100	3.750	3.450	4.260	3.380	4.646	5.043	4.730
MAR	5.100	3.560	3.600	4.100	4.050	3.816	4.165	3.590
APR	5.000	3.900	3.880	3.680	3.980	4.430	4.741	5.170
MAY	5.700	5.160	7.310	4.170	4.560	4.692	7.264	5.470
JUN	9.100	6.860	12.140	6.860	7.370	9.435	9.329	8.370
JUL	6.600	5.240	8.960	4.460	6.160	10.339	7.933	13.140
AUG	5.500	4.280	7.770	4.200	6.280	11.430	7.138	13.090
SEP	7.200	5.770	14.840	5.980	10.390	13.209	7.106	12.220
OCT	7.700	8.220	8.760	6.420	11.150	12.501	6.245	12.910
NOV	4.300	4.980	5.630	6.260	6.600	7.475	8.594	8.130
DEC	4.500	5.300	4.870	5.010	5.290	6.031	5.148	0.000

The average flow of the Salama River in 2009 were lower compared to those observed during 2010, especially during the rainy season which is from the month of July to October, and in this season is where the generation of the hydraulic plant is the best.

The monthly historical generation of El Canadá Hydroelectric Project from 2003 to 2010 is as follows:

GENERATION OF EL CANADÁ HYDROELECTRIC PROJECT (MWh)								
	2003	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
JAN	0	9,376	9,023	11,409	10,925	11,364	11,960	11,851
FEB	0	8,319	7,663	9,118	9,230	10,333	10,646	10,244
MAR	0	8,423	8,303	9,734	9,599	8,944	9,734	8,538
APR	0	8,955	8,203	8,436	9,383	9,935	10,929	11,960

MAY	0	12,238	12,433	12,920	10,754	10,846	17,151	12,963
JUN	0	15,764	19,208	20,396	16,895	21,586	21,455	19,236
JUL	0	12,442	20,663	13,582	14,601	24,554	18,712	31,001
AUG	0	10,136	17,706	12,771	14,968	26,782	16,962	31,135
SEP	0	16,327	20,055	18,430	24,210	29,939	16,428	28,270
OCT	0	19,473	22,863	19,876	26,698	29,373	14,654	30,840
NOV	2,726	11,424	15,835	14,337	15,715	16,915	17,097	15,992
DEC	9,937	10,041	12,476	11,881	11,760	14,105	12,274	0

During the months from May to October in 2010 the generation where more than compared in 2009 as well the hydrological flow in the river, the following charts it can be observed that the % increased in the generation of the plant has a increase in the hydrological flow.

DIFFERENCE IN GENERATION	
MAY	-24%
JUN	-10%
JUL	66%
AUG	84%
SEP	72%
OCT	110%

DIFFERENCE IN FLOW	
MAY	-25%
JUN	-10%
JUL	66%
AUG	83%
SEP	72%
OCT	107%

Hydraulic plants in the daily dispatch of the National System of Guatemala has priority of dispatch as the Commercial Coordination Norm No. 1 “Coordination of the Load Dispatch” – indicated in paragraph 1.4.2 point c) allocation of the total hydropower generation calculated in programming weekly slots, taking into account any significant changes in inputs of water.

Source AMM (http://www.amm.org.gt/pdfs/normas/ncc-01.pdf)

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