

**MONITORING REPORT FORM (CDM-MR)****Version 01 - in effect as of: 1412/2010****AGUA FRESCA MULTIPURPOSE AND ENVIRONMENTAL SERVICES PROJECT****Project 0122****3rd Monitoring Period (01/01/2010 – 31/12/2010)****CONTENTS**

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**MONITORING REPORT**
Version 01 - December 14th 2010**AGUA FRESCA MULTIPURPOSE AND ENVIRONMENTAL SERVICES PROJECT**
Project 0122
3rd Monitoring Period (01/01/2010 – 31/12/2010)**SECTION A. General description of the project activity****A.1. Brief description of the project activity: >>**

Agua Fresca Project in its first stage, it is a hydroelectric run-of river power generation project, with a design flow of 2.9 m³/s, an installed capacity of 7.49 MW and an annual production of 63.3 GWh. The connection of the Project to the National Electrical Grid will be done in the Municipality of Fredonia, in the Fredonia Substation of Empresas Públicas de Medellín. For this, it will be necessary to build a 44 kV transmission line with a length of 15 km was built. It is estimated that the project will displace yearly 27.510 metric tons of CO₂, by displacing the power generation of the thermal plants in the Colombian Electric Sector .

The project reuses the water from the discharge of Rio Piedras Hydroelectric Plant. In case this plant is not operating, or operating with a flow less that 2.9 m³/s, Agua Fresca Power Plant counts with a secondary intake structure that takes water directly from the river. This way, Agua Fresca project is independent and has an increased reliance in its operation.

It is important to clarify the fact that in the PDD the design flow is 2.7 m³/s. The change in the design flow obeys to design adjustments made in the final stage in the project. This change does not result in a conflict for additional water resource usage because CORANTIOQUIA, the environmental authority, originally granted the project a water concession for 3.2 m³/s,

The Commissioning, Operation and Maintenance of the Plant are done by Empresas Públicas de Medellín. This company has a broad experience in hydropower project in Colombia, and it is one of the top utility companies of the country.

The second stage of the project comprehends the construction of a regional aqueduct to provide water for human consumption as for irrigation to the lands and settlements located in the Cauca River canyon between La Pintada and Bolombolo, harnessing the hydrological resource contributed by the Piedras River. This is still in financial evaluation.

A.2. Project Participants

Aguas de la Cabaña S.A. E.S.P. Private entity - official contact for the CDM project activity

The Republic of Austria. Federal Minister of Agriculture, Forestry, Environment and Water Management, represented by Kommunalkredit Public Consulting GmbH (KPC).

Empresas Públicas de Medellín S.A: Operation, Maintenance and Energy Purchase

A.3. Location of the project activity:

Agua Fresca Multipurpose and Environmental Services Project is located in the Republic of Colombia at the municipality of Jericó (Department of Antioquia) within the area of influence of the Piedras River basin.

Jericó is at the south west of the department of Antioquia, in the Colombian Andes, with an altitude ranging from 600 m to 3000 m. The project is located in the lower part of Piedras River's Basin, near the Cauca River and the sector of Puente Iglesias.

**A.4. Technical description of the project**

Essential technical aspects:

- Run-of-the river facility. The project does not imply the construction of dam or reservoir.
- Installed Capacity: 7.49 MW
- Design Flow: 2.9 m³/s
- Total Head: 327 m
- Power generation: 63.3 GWh / year
- Basin: Río Piedras. The project will reuse the waters of Río Piedras Hydroelectric Plant.
- Secondary intake structure
- Water inlet to back.
- Power house at surface.
- For electricity generation, and profiting the steep slope between the Río Piedras plant and the new project that will be located at the final stretch, the following technologies will be employed:
- One Pelton turbine with vertical axis of 7.49 MW, 720 rpm, and five jets, with 327 m of total head
- One synchronic generator of 8.08 MVA and 4.16 kV of nominal tension.
- Connection to the grid: transmission line (44 kV) 15 km length.
- Emission reduction: 27.510 Ton CO₂e per year.
- Commissioning, Operation and Maintenance of the Plant by Empresas Públicas de Medellín.

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



The methodology applied to the project activity is the AMS-I.D.: Grid connected renewable electricity generation version 6.

Category I.D. comprises renewable energy generation units, such as photovoltaics, hydro, tidal/wave, wind, geothermal, and biomass, that supply electricity to an electricity distribution system that is or would have been supplied by at least one fossil fuel or non-renewable biomass fired generating unit. Agua Fresca Project is a hydroelectric renewable energy generation project with an installed capacity lower than 15 MW (7.49 MW), thus the methodology is applicable.

A.6. Registration date of the project activity:

The project was registered before de UNFCCC in January 7th, 2006

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

The crediting period of the project is from 01 Jan 07 to 31 Dec 12

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

The monitoring report form was completed by Generadora Unión S.A. E.S.P.

Address: Cra 35 No 7 – 99 Medellin, Colombia

Telephone: +574 312 4084

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www.gunion.com

SECTION B. Implementation of the project activity**B.1. Implementation status of the project activity**

The project entered in commercial operation on April 2008, and since then it has been generating hydropower and delivering electricity to the Colombian National Grid. It is currently operated and maintained by Empresas Públicas de Medellín

On November 19th 2009, the UNFCCC issued 20,015 CERs corresponding to the emission reduced by Agua Fresca Project in its first crediting period (01/01/2007 – 31/12/2008).

On February 4th, 2010, the UNFCCC started the completeness check for issuing 25,584 CERs corresponding to the emission reduced by Agua Fresca Project in its second crediting period (01/01/2009 – 31/12/2009).

B.2. Revision of the monitoring plan

There has been no revision of the monitoring plan

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



There has been no deviation applied to this monitoring period

B.4. Notification or request of approval of changes

There has been no Notification or request of approval of changes applied to this monitoring period

SECTION C. Description of the monitoring system

Accordingly with the AMS I.D. methodology, the monitoring for category I.D projects -Renewable electricity generation for a grid - shall consist of metering the electricity generated by the renewable technology.

All the power generation plants in Colombia have records of their hourly generation and these records are public because of the market condition. All this information is gathered by XM Expertos en Mercados, a Colombian company that provides the integral services of operation, administration and development for the Colombian wholesale power market. Thus, the hourly generation of Agua Fresca project is available at all times. The report of the daily generation for the period January 1st 2010 to December 31st, 2010 available in the XM webpage is attached (Annex I)

The hourly generation for the period January 1st, 2010 to December 31st, 2010 is attached in the spreadsheet "Power Generation Agua Fresca Plant 2010.xls. (Annex II). This information was checked comparing the data delivered by Empresas Publicas de Medellín with the information available in the XM webpage (Annex III)

There are power gauges that measure the power delivered to the national grid. These gauges are maintained and calibrated by Empresas Públicas de Medellín, and they are checked annually. The calibration certificates are contained in the Annex IV

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

(Copy this table for each data and parameter. To report multiple values, a table may be used)

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

(Copy this table for each data and parameter. To report multiple values, a table may be used)

Data / Parameter:	Power Produced by Agua Fresca Hydropower Plant
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Data unit:	kWh
Description:	Power dispatched each year by Agua Fresca Hydropower Plant Project to the National Grid
Measured /Calculated /Default:	
Source of data:	EE.PP.M (project operator) XM Expertos en Mercados (Colombia's Power Wholesale Market Administrator)
Value(s) of monitored parameter:	
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Emission Reduction calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Electricity gauges installed complying with country regulations; records double checked with receipt of sales.
Measuring/ Reading/ Recording frequency:	hourly
Calculation method (if applicable):	
QA/QC procedures applied:	

SECTION E. Emission reductions calculation

E.1. Baseline emissions calculation

The Colombian Energy Sector

The Colombian Energy and Mining Planning Unit (UPME) is in charge of designing the National Electricity Sector Expansion Plan which is a reference or indicative plan based on the criteria established in both the PND and the PEN. The national strategic elements related to the electricity sector are summarized below:

- Attend the electricity demand with reliability higher than 95% in the long term
- Enhance the availability of firm capacity through the addition of thermal based capacity
- Improve system's efficiency through the installation of clean efficient technology
- Diversify the sources of electricity generation in the system, in the context of the availability of domestic energy resources.

The sector presents increased reliance on thermal-based generation capacity. After severe droughts, registered during the 1990s (i.e. 1992, 1997), that caused power shortages with associated forced rationing, the system has encouraged the development of more thermal generation capacity, specifically with the intention of increasing the share of firm capacity and enhancing the system's reliability of supply. The increase in thermal share of the SIN has also been the indirect result of the withdrawal of the public sector in large investments and the reluctance of private generators to enter the hydro electric generation an associated environmental and social requirements. Therefore, future additions to the



power mix to attend the projected growth in demand are anticipated to be thermal-based. While this responds to the need for flexibility and robustness of the system, the increase in thermal share contributes to the gradual increase of GHG emissions by the sector and the release of local criteria pollutants (such as NO_x and, SO_x particulates and volatile hydrocarbons, which have been linked to health of exposed populations).

The project activity reduces CO₂ emissions in electricity generation through the use of renewable energy sources. The project activity serves to displace fossil fuel-fired plants (a combination of coal and gas based power plants in the Colombian Interconnected National System) with clean energy provided by hydroelectricity. The inclusion of the project into the interconnected grid redistributes the dispatch of all the power plants giving rise to a most efficient electricity generation of the whole system. In the absence of the CDM project activity, no other project would have been implemented indeed, so that emission reductions would not occur.

Calculation of the Baseline

The baseline for small is calculated in the document: METODOLOGÍA SIMPLIFICADA PARA EL CÁLCULO DE LA LÍNEA BASE PARA PROYECTOS DE PEQUEÑA ESCALA: Generación de energía eléctrica con fuentes renovables interconectada a la red. Versión 1

This document is prepared by the UPME (Energy and Mining Planning Unit) of the Colombian Ministry of Mines and Energy. It presents the baseline calculation for small scale power generation Project activities. In this report, in the respective operating and build margin values, are **0.660** and **0.294** kg CO₂/ kWh, the arithmetic average was calculated to obtain **0.477kg CO₂/ kWh** as baseline value for the year 2004.

The emission factor of **0.477kg CO₂/ kWh** complies with the attachment 7 of the PDD, and it was confirmed by the CDM Executive Board in the section 71-c of on its 50th meeting, held in October 13th to 16th of 2009.

E.2. Project emissions calculation

The project does not have any emissions associated to its operation

E.3. Leakage calculation

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There is no leakage of emission in the project

E.4. Emission reductions calculation / table



Month	Generation (KWh - month)	Baseline Emissions (TonCO ₂ eq) Fe: 0,4770	Project Emissions (TonCO ₂ eq)	Leakage Emissions (TonCO ₂ eq)	Emission Reduction (TonCO ₂ eq)
January	2,334,690.00	1,114	0	0	1,114
February	1,737,159.60	829	0	0	829
March	1,815,707.14	866	0	0	866
April	4,404,914.68	2,101	0	0	2,101
May	5,147,092.20	2,455	0	0	2,455
June	4,431,089.56	2,114	0	0	2,114
July	5,375,452.88	2,564	0	0	2,564
August	5,344,534.80	2,549	0	0	2,549
September	5,193,368.82	2,477	0	0	2,477
October	5,393,059.20	2,572	0	0	2,572
November	5,133,494.40	2,449	0	0	2,449
December	5,201,787.60	2,481	0	0	2,481
Total	51,512,351				24,571

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 ₂ e)	27,510	24,571

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

Agua Fresca Power Plant reduced a total of 25,584 TonCO₂eq from the Colombian electric Grid in the year 2009. This figure is equivalent to 90% of the projected emissions (27.510 TonCO₂eq) for the year 2009. This 10% reduction was due to the summer and droughts on the first trimester of the year caused by the influence of El Niño phenomenon



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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		



ANNEX 1

16/2/2011 4:16:20 PM

Información generada por Neón entre 01/01/2010 y 31/12/2010 [DD/MM/YYYY];GENERACION
REAL;

; (kWh) ;

; AGUAS DE LA CABANA S.A. E.S.P.;

; Agente - Generador;

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XM Compañía de Expertos en Mercados S.A. ESP. - Medellín, Colombia - Calle 12 Sur Nro 18 - 168 Bloque 2

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ANNEX 2

AQUA FRESCA MULTIPURPOSE AND ENVIRONMENTAL SERVICES PROJECT (UNFCCC 01022)

GENERATION - YEAR 2010

Total Generation 2010 (KWh)	51,512,351
Emission Factor (kgCO ₂ /KWh)	0.4770
Emission Reduction (Ton CO ₂ e)	24,571

Hour	01/01/10	02/01/10	03/01/10	04/01/10	05/01/10	06/01/10	07/01/10	08/01/10	09/01/10	10/01/10	11/01/10	12/01/10	13/01/10	14/01/10	15/01/10	16/01/10	17/01/10	18/01/10	19/01/10	20/01/10	21/01/10	22/01/10	23/01/10	24/01/10	25/01/10	26/01/10	27/01/10	28/01/10	29/01/10	30/01/10	31/01/10	Total
1	4115.00	3799.00	3529.00	3259.00	3059.00	2859.00	2659.00	2459.00	2259.00	2059.00	1859.00	1659.00	1459.00	1259.00	1059.00	859.00	659.00	459.00	259.00	59.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85,370
2	4027.00	3695.00	3406.00	3144.00	2957.00	2760.00	2563.00	2366.00	2169.00	1972.00	1775.00	1578.00	1381.00	1184.00	987.00	790.00	593.00	396.00	199.00	99.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84,732
3	4069.00	3769.00	3470.00	3187.00	3000.00	2803.00	2606.00	2409.00	2212.00	2015.00	1818.00	1621.00	1424.00	1227.00	1030.00	833.00	636.00	439.00	242.00	121.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85,370
4	4108.00	3715.00	3455.00	3164.00	2977.00	2780.00	2583.00	2386.00	2189.00	1992.00	1795.00	1598.00	1401.00	1204.00	1007.00	810.00	613.00	416.00	219.00	118.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85,370
5	4188.00	3697.00	3441.00	3136.00	2949.00	2752.00	2555.00	2358.00	2161.00	1964.00	1767.00	1570.00	1373.00	1176.00	979.00	782.00	585.00	388.00	191.00	90.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85,370
6	4150.00	3697.00	3421.00	3136.00	2949.00	2752.00	2555.00	2358.00	2161.00	1964.00	1767.00	1570.00	1373.00	1176.00	979.00	782.00	585.00	388.00	191.00	90.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85,370
7	3686.00	3392.00	3127.00	2842.00	2657.00	2472.00	2287.00	2102.00	1917.00	1732.00	1547.00	1362.00	1177.00	992.00	807.00	622.00	437.00	252.00	127.00	62.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84,732
8	3781.00	3478.00	3188.00	2893.00	2708.00	2523.00	2338.00	2153.00	1968.00	1783.00	1598.00	1413.00	1228.00	1043.00	858.00	673.00	488.00	303.00	158.00	73.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85,370
9	3890.00	3511.00	3268.00	2994.00	2807.00	2610.00	2413.00	2216.00	2019.00	1822.00	1625.00	1428.00	1231.00	1034.00	837.00	640.00	443.00	246.00	123.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85,370
10	3744.00	3400.00	3147.00	2873.00	2688.00	2503.00	2318.00	2133.00	1948.00	1763.00	1578.00	1393.00	1208.00	1023.00	838.00	653.00	468.00	283.00	138.00	63.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84,732
11	3521.00	3218.00	2965.00	2691.00	2506.00	2321.00	2136.00	1951.00	1766.00	1581.00	1396.00	1211.00	1026.00	841.00	656.00	471.00	286.00	141.00	68.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84,732
12	3853.00	3504.00	3261.00	2987.00	2802.00	2617.00	2432.00	2247.00	2062.00	1877.00	1692.00	1507.00	1322.00	1137.00	952.00	767.00	582.00	397.00	202.00	97.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85,370
13	3842.00	3504.00	3261.00	2987.00	2802.00	2617.00	2432.00	2247.00	2062.00	1877.00	1692.00	1507.00	1322.00	1137.00	952.00	767.00	582.00	397.00	202.00	97.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85,370
14	3853.00	3504.00	3261.00	2987.00	2802.00	2617.00	2432.00	2247.00	2062.00	1877.00	1692.00	1507.00	1322.00	1137.00	952.00	767.00	582.00	397.00	202.00	97.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85,370
15	3890.00	3511.00	3268.00	2994.00	2807.00	2610.00	2413.00	2216.00	2019.00	1822.00	1625.00	1428.00	1231.00	1034.00	837.00	640.00	443.00	246.00	123.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85,370
16	3842.00	3504.00	3261.00	2987.00	2802.00	2617.00	2432.00	2247.00	2062.00	1877.00	1692.00	1507.00	1322.00	1137.00	952.00	767.00	582.00	397.00	202.00	97.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85,370
17	3890.00	3511.00	3268.00	2994.00	2807.00	2610.00	2413.00	2216.00	2019.00	1822.00	1625.00	1428.00	1231.00	1034.00	837.00	640.00	443.00	246.00	123.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85,370
18	3842.00	3504.00	3261.00	2987.00	2802.00	2617.00	2432.00	2247.00	2062.00	1877.00	1692.00	1507.00	1322.00	1137.00	952.00	767.00	582.00	397.00	202.00	97.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85,370
19	3890.00	3511.00	3268.00	2994.00	2807.00	2610.00	2413.00	2216.00	2019.00	1822.00	1625.00	1428.00	1231.00	1034.00	837.00	640.00	443.00	246.00	123.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85,370
20	3842.00	3504.00	3261.00	2987.00	2802.00	2617.00	2432.00	2247.00	2062.00	1877.00	1692.00	1507.00	1322.00	1137.00	952.00	767.00	582.00	397.00	202.00	97.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85,370
21	3890.00	3511.00	3268.00	2994.00	2807.00	2610.00	2413.00	2216.00	2019.00	1822.00	1625.00	1428.00	1231.00	1034.00	837.00	640.00	443.00	246.00	123.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85,370
22	3842.00	3504.00	3261.00	2987.00	2802.00	2617.00	2432.00	2247.00	2062.00	1877.00	1692.00	1507.00	1322.00	1137.00	952.00	767.00	582.00	397.00	202.00	97.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85,370
23	3890.00	3511.00	3268.00	2994.00	2807.00	2610.00	2413.00	2216.00	2019.00	1822.00	1625.00	1428.00	1231.00	1034.00	837.00	640.00	443.00	246.00	123.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85,370
24	3842.00	3504.00	3261.00	2987.00	2802.00	2617.00	2432.00	2247.00	2062.00	1877.00	1692.00	1507.00	1322.00	1137.00	952.00	767.00	582.00	397.00	202.00	97.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85,370
TOTAL	92,422	86,477	80,532	74,587	68,642	62,697	56,752	50,807	44,862	38,917	32,972	27,027	21,082	15,137	9,192	3,247	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,015,123

Hour	01/02/10	02/02/10	03/02/10	04/02/10	05/02/10	06/02/10	07/02/10	08/02/10	09/02/10	10/02/10	11/02/10	12/02/10	13/02/10	14/02/10	15/02/10	16/02/10	17/02/10	18/02/10	19/02/10	20/02/10	21/02/10	22/02/10	23/02/10	24/02/10	25/02/10	26/02/10	27/02/10	28/02/10	Total	
	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	
1	2737	2460	2260	2060	1860	1660	1460	1260	1060	860	660	460	260	60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,647	
2	2730	2453	2253	2053	1853	1653	1453	1253	1053	853	653	453	253	53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,647	
3	2760	2480	2280	2080	1880	1680	1480	1280	1080	880	680	480	280	70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,647	
4	2669	2392	2192	1992	1792	1592	1392	1192	992	792	592	392	192	92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,647	
5	2669	2392	2192	1992	1792	1592	1392	1192	992	792	592	392	192	92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,647	
6	2669	2392	2192	1992	1792	1592	1392	1192	992	792	592	392	192	92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,647	
7	2512	2235	2035	1835	1635	1435	1235	1035	835	635	435	235	35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,647	
8	2512	2235	2035	1835	1635	1435	1235	1035	835	635	435	235	35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,647	
9	2512	2235	2035	1835	1635	1435	1235	1035	835	635	435	235	35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,647	
10	2467	2190	1990	1790	1590	1390	1190	990	790	590	390	190	90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,647	
11	2467	2190	1990	1790	1590	1390	1190	990	790	590	390	190	90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,647	
12	2719	2442	2242	2042	1842	1642	1442	1242	1042	842	642	442	242	42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,647	
13	2680	2403	2203	2003	1803	1603	1403	1203	1003	803	603	403	203	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,647	
14	2680	2403	2203	2003	1803	1603	1403	1203	1003	803	603	403	203	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,647	
15	2680	2403	2203	2003	1803	1603	1403	1203	1003	803	603	403	203	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,647	
16	2680	2403	2203	2003	1803	1603	1403	1203	1003	803	603	403	203	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,647	
17	2680	2403	2203	2003	1803	1603	1403	1203	1003	803	603	403	203	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,647	
18	2680	2403	2203	2003	1803	1603	1403	1203	1003	803	603	403	203	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,647	
19	2542	2265	2065	1865	1665	1465	1265	1065	865	665	465	265	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,647	
20	2542	2265	2065	1865	1665	1465	1265	1065	865	665	465	265	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,647	
21	2542	2265	2065	1865	1665	1465	1265	1065	865	665	465	265	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,647	
22	2542	2265	2065	1865	1665	1465	1265	1065	865	665	465	265	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,647	
23	2635	2358	2158	1958	1758	1558	1358	1158	958	758	558	358	158	58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,647	
24	2635	2358	2158	1958	1758	1558	1358	1158	958	758	558	358	158	58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76,647	
TOTAL	62,905	60,512	58,768	59,514	58,462	57,902	56,564	56,089	54,828	53,461	52,094	50,727	49,360	48,193	46,826	45,459	44,292	43,125	41,958	40,791	39,624	38,457	37,290	36,123	34,956	33,789	32,622	31,455	1,227,160	

GENERATION - YEAR 2010

hour	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24			
	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh	kwh			
1	7291	7291	7228	7224	7224	7216	7216	7210	7210	7204	7204	7200	7200	7194	7194	7188	7188	7182	7182	7176	7176	7170	7170	7164	7164	7158	7158	7152	7152	7146	7146	7140	7140	7134	7134	7128	7128	7122	7122	7116	7116	7110	7110	7104	7104	7098	7098	7092	7092	
2	7291	7291	7228	7228	7224	7224	7216	7216	7210	7210	7204	7204	7200	7200	7194	7194	7188	7188	7182	7182	7176	7176	7170	7170	7164	7164	7158	7158	7152	7152	7146	7146	7140	7140	7134	7134	7128	7128	7122	7122	7116	7116	7110	7110	7104	7104	7098	7098	7092	7092
3	7292	7292	7228	7226	7225	7225	7220	7220	7215	7215	7210	7210	7205	7205	7200	7200	7195	7195	7190	7190	7185	7185	7180	7180	7175	7175	7170	7170	7165	7165	7160	7160	7155	7155	7150	7150	7145	7145	7140	7140	7135	7135	7130	7130	7125	7125	7120	7120	7115	7115
4	7296	7296	7226	7226	7220	7220	7214	7214	7208	7208	7202	7202	7196	7196	7190	7190	7184	7184	7178	7178	7172	7172	7166	7166	7160	7160	7154	7154	7148	7148	7142	7142	7136	7136	7130	7130	7124	7124	7118	7118	7112	7112	7106	7106	7100	7100	7094	7094	7088	7088
5	7296	7296	7226	7226	7220	7220	7214	7214	7208	7208	7202	7202	7196	7196	7190	7190	7184	7184	7178	7178	7172	7172	7166	7166	7160	7160	7154	7154	7148	7148	7142	7142	7136	7136	7130	7130	7124	7124	7118	7118	7112	7112	7106	7106	7100	7100	7094	7094	7088	7088
6	7300	7300	7226	7226	7222	7222	7216	7216	7220	7220	7214	7214	7208	7208	7202	7202	7196	7196	7190	7190	7184	7184	7178	7178	7172	7172	7166	7166	7160	7160	7154	7154	7148	7148	7142	7142	7136	7136	7130	7130	7124	7124	7118	7118	7112	7112	7106	7106	7100	7100
7	7300	7300	7226	7226	7222	7222	7216	7216	7220	7220	7214	7214	7208	7208	7202	7202	7196	7196	7190	7190	7184	7184	7178	7178	7172	7172	7166	7166	7160	7160	7154	7154	7148	7148	7142	7142	7136	7136	7130	7130	7124	7124	7118	7118	7112	7112	7106	7106	7100	7100
8	7300	7300	7226	7226	7222	7222	7216	7216	7220	7220	7214	7214	7208	7208	7202	7202	7196	7196	7190	7190	7184	7184	7178	7178	7172	7172	7166	7166	7160	7160	7154	7154	7148	7148	7142	7142	7136	7136	7130	7130	7124	7124	7118	7118	7112	7112	7106	7106	7100	7100
9	7298	7298	7226	7222	7218	7218	7216	7216	7210	7210	7204	7204	7200	7200	7194	7194	7188	7188	7182	7182	7176	7176	7170	7170	7164	7164	7158	7158	7152	7152	7146	7146	7140	7140	7134	7134	7128	7128	7122	7122	7116	7116	7110	7110	7104	7104	7098	7098	7092	7092
10	7298	7298	7226	7222	7218	7218	7216	7216	7210	7210	7204	7204	7200	7200	7194	7194	7188	7188	7182	7182	7176	7176	7170	7170	7164	7164	7158	7158	7152	7152	7146	7146	7140	7140	7134	7134	7128	7128	7122	7122	7116	7116	7110	7110	7104	7104	7098	7098	7092	7092
11	7298	7298	7226	7222	7218	7218	7216	7216	7210	7210	7204	7204	7200	7200	7194	7194	7188	7188	7182	7182	7176	7176	7170	7170	7164	7164	7158	7158	7152	7152	7146	7146	7140	7140	7134	7134	7128	7128	7122	7122	7116	7116	7110	7110	7104	7104	7098	7098	7092	7092
12	7298	7298	7226	7222	7218	7218	7216	7216	7210	7210	7204	7204	7200	7200	7194	7194	7188	7188	7182	7182	7176	7176	7170	7170	7164	7164	7158	7158	7152	7152	7146	7146	7140	7140	7134	7134	7128	7128	7122	7122	7116	7116	7110	7110	7104	7104	7098	7098	7092	7092
13	7298	7298	7226	7222	7218	7218	7216	7216	7210	7210	7204	7204	7200	7200	7194	7194	7188	7188	7182	7182	7176	7176	7170	7170	7164	7164	7158	7158	7152	7152	7146	7146	7140	7140	7134	7134	7128	7128	7122	7122	7116	7116	7110	7110	7104	7104	7098	7098	7092	7092
14	7298	7298	7226	7222	7218	7218	7216	7216	7210	7210	7204	7204	7200	7200	7194	7194	7188	7188	7182	7182	7176	7176	7170	7170	7164	7164	7158	7158	7152	7152	7146	7146	7140	7140	7134	7134	7128	7128	7122	7122	7116	7116	7110	7110	7104	7104	7098	7098	7092	7092
15	7292	7292	7218	7218	7212	7212	7206	7206	7200	7200	7194	7194	7188	7188	7182	7182	7176	7176	7170	7170	7164	7164	7158	7158	7152	7152	7146	7146	7140	7140	7134	7134	7128	7128	7122	7122	7116	7116	7110	7110	7104	7104	7098	7098	7092	7092	7086	7086		
16	7292	7292	7218	7218	7212	7212	7206	7206	7200	7200	7194	7194	7188	7188	7182	7182	7176	7176	7170	7170	7164	7164	7158	7158	7152	7152	7146	7146	7140	7140	7134	7134	7128	7128	7122	7122	7116	7116	7110	7110	7104	7104	7098	7098	7092	7092	7086	7086		
17	7292	7292	7218	7218	7212	7212	7206	7206	7200	7200	7194	7194	7188	7188	7182	7182	7176	7176	7170	7170	7164	7164	7158	7158	7152	7152	7146	7146	7140	7140	7134	7134	7128	7128	7122	7122	7116	7116	7110	7110	7104	7104	7098	7098	7092	7092	7086	7086		
18	7292	7292	7218	7218	7212	7212	7206	7206	7200	7200	7194	7194	7188	7188	7182	7182	7176	7176	7170	7170	7164	7164	7158	7158	7152	7152	7146	7146	7140	7140	7134	7134	7128	7128	7122	7122	7116	7116	7110	7110	7104	7104	7098	7098	7092	7092	7086	7086		
19	7292	7292	7218	7218	7212	7212	7206	7206	7200	7200	7194	7194	7188	7188	7182	7182	7176	7176	7170	7170	7164	7164	7158	7158	7152	7152	7146	7146	7140	7140	7134	7134	7128	7128	7122	7122	7116	7116	7110	7110	7104	7104	7098	7098	7092	7092	7086	7086		
20	7296	7296	7218	7218	7212	7212	7206	7206	7200	7200	7194	7194	7188	7188	7182	7182	7176	7176	7170	7170	7164	7164	7158	7158	7152	7152	7146	7146	7140	7140	7134	7134	7128	7128	7122	7122	7116	7116	7110	7110	7104	7104	7098	7098	7092	7092	7086	7086		
21	7292	7292	7217	7214	7216	7216	7210	7210	7204	7204	7198	7198	7192	7192	7186	7186	7180	7180	7174	7174	7168	7168	7162	7162	7156	7156	7150	7150	7144	7144	7138	7138	7132	7132	7126	7126	7120	7120	7114	7114	7108	7108	7102	7102	7096	7096	7090	7090		
22	7292	7292	7217	7214	7216	7216	7210	7210	7204	7204	7198	7198	7192	7192	7186	7186	7180	7180	7174	7174	7168	7168	7162	7162	7156	7156	7150	7150	7144	7144	7138	7138	7132	7132	7126	7126	7120	7120	7114	7114	7108	7108	7102	7102	7096	7096	7090	7090		
23	7292	7292	7217	7214	7216	7216	7210	7210	7204	7204	7198	7198	7192	7192	7186	7186	7180	7180	7174	7174	7168	7168	7162	7162	7156	7156	7150	7150	7144	7144	7138	7138	7132	7132	7126	7126	7120	7120	7114	7114	7108	7108	7102	7102	7096	7096	7090	7090		
24	7292	7292	7217	7214	7216	7216	7210	7210	7204	7204	7198	7198	7192	7192	7186	7186	7180	7180	7174	7174	7168	7168	7162	7162	7156	7156	7150	7150	7144	7144	7138	7138	7132	7132	7126	7126	7120	7120	7114	7114	7108	7108	7102	7102	7096	7096	7090	7090		
TOTAL	72486.0	72486.0	72411.0	72372.0	72372.0	72318.0	72270.0	72219.0	72165.0	72111.0	72057.0	71999.0	71945.0	71891.0	71837.0	71783.0	71729.0	71675.0	71621.0	71567.0	71513.0	71459.0	71405.0	71351.0	71297.0	71243.0	71189.0	71135.0	71081.0	71027.0	70973.0	70919.0	70865.0	70811.0	70757.0	70703.0	70649.0	70595.0	70541.0	70487.0	70433.0	70379.0	70325.0	70271.0	70217.0	70163.0	70109.0	70055.0	69999.0	

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GENERATION - YEAR 2010

Year	01/1/10	02/1/10	03/1/10	04/1/10	05/1/10	06/1/10	07/1/10	08/1/10	09/1/10	10/1/10	11/1/10	12/1/10	13/1/10	14/1/10	15/1/10	16/1/10	17/1/10	18/1/10	19/1/10	20/1/10	21/1/10	22/1/10	23/1/10	24/1/10	25/1/10	26/1/10	27/1/10	28/1/10	29/1/10	30/1/10	Total	
	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	KW	
1	7163	7164	7167	7168	7169	7168	7165	7172	7175	7205	7174	7216	7216	7216	7205	7195	7187	7198	7188	7186	7202	7192	7112	7112	7121	7129	7129	7130	7129	7129	215,303	
2	7163	7168	7163	7169	7163	7174	7174	7204	7174	7204	7174	7204	7174	7204	7174	7199	7199	7204	7199	7204	7199	7112	7112	7121	7129	7129	7130	7129	7129	215,377		
3	7167	7164	7169	7186	7172	7162	7167	7156	7172	7172	7172	7159	7210	7210	7216	7212	7202	7195	7187	7202	7195	7186	7160	7121	7121	7133	7129	7129	7129	215,314		
4	7167	7183	7189	7183	7174	7164	7187	7156	7172	7172	7172	7159	7210	7210	7216	7212	7205	7194	7189	7202	7195	7198	7160	7128	7114	7123	7132	7132	7132	212,682		
5	7168	7168	7163	7169	7163	7168	7163	7168	7175	7208	7175	7208	7175	7208	7175	7208	7212	7199	7208	7212	7199	7112	7112	7121	7129	7129	7130	7129	7129	213,680		
6	7168	7163	7189	7183	7172	7165	7181	7151	7176	7158	7176	7158	7210	7210	7216	7212	7205	7193	7188	7208	7199	7194	7183	7170	7112	7123	7130	7129	7129	214,728		
7	7184	7184	7186	7187	7170	7166	7184	7174	6881	7201	7174	7186	7176	7176	7196	7217	7200	7214	7207	7207	7193	7189	7195	7162	7162	7126	7116	7128	7134	215,054		
8	7184	7186	7183	7187	7168	7160	7184	7154	7169	7168	7168	7186	7174	7186	7193	7217	7218	7213	7205	7186	7194	7202	7192	7172	7144	7126	7122	7121	7121	215,291		
9	7181	7169	7163	7169	7163	7163	7172	7163	7163	7163	7172	7163	7214	7214	7219	7213	7203	7182	7199	7199	7199	7199	7112	7112	7121	7129	7129	7130	7129	215,180		
10	7181	7187	7189	7181	7168	7163	7181	7145	7174	7200	7189	6942	7176	7183	7195	7208	7216	7211	7199	7183	7198	7204	7188	7172	7158	7112	7111	7123	7127	215,024		
11	7181	7189	7187	7167	7166	7159	7189	7160	7198	7198	7198	6967	7174	7183	7190	7207	7194	7195	7186	7182	7193	7198	7168	7110	7108	7122	7132	7127	7127	212,872		
12	7178	7188	7188	7189	7166	7158	7178	7163	7171	7195	7194	6921	7172	7182	7187	7206	7214	7207	7192	7192	7198	7184	7166	7153	7108	7118	7128	7128	7128	212,928		
13	7188	7188	7188	7188	7163	7160	7188	7163	7188	7188	7188	6967	7174	7183	7190	7207	7194	7195	7186	7182	7193	7198	7168	7110	7108	7122	7132	7127	7127	213,006		
14	7178	7189	7183	7178	7166	7158	7178	7160	7194	7200	7188	6928	7176	7183	7190	7217	7206	7198	7198	7188	7195	7184	7105	7105	7108	7122	7124	7124	7124	214,232		
15	7180	7183	7175	7163	7154	7140	7180	7141	7169	7188	7199	6872	7176	7186	7198	7208	7217	7205	7192	7192	7198	7178	7198	7198	7183	7164	7152	7153	7109	7121	212,861	
16	7181	7182	7183	7174	7160	7154	7181	7145	7176	7186	7196	7177	7182	7188	7198	7207	7205	7192	7188	7197	7198	7184	7175	7144	7126	7122	7121	7121	7121	208,003		
17	7182	7188	7188	7188	7163	7160	7188	7163	7188	7188	7188	6967	7174	7183	7190	7207	7206	7212	7194	7195	7182	7193	7198	7168	7110	7108	7122	7132	7127	7127	215,144	
18	7178	7181	7186	7174	7162	7156	7176	7152	7174	7171	7181	7162	7180	7182	7198	7206	7216	7207	7194	7194	7188	7177	7189	7200	7193	7122	7136	7125	7130	214,138		
19	7177	7177	7177	7178	7169	7163	7152	7177	7177	7164	7168	7165	7169	7167	7189	7208	7208	7204	7204	7183	7197	7189	7193	7181	7163	7147	7099	7100	7122	7130	215,240	
20	7176	7186	7186	7186	7163	7160	7186	7163	7186	7186	7186	6967	7174	7183	7190	7207	7206	7212	7194	7195	7182	7193	7198	7168	7110	7108	7122	7132	7127	7127	213,006	
21	7175	7184	7188	7174	7157	7147	7176	7148	7169	7194	7218	7182	7184	7188	7208	7211	7204	7207	7187	7178	7187	7194	7186	7142	7100	7112	7126	7126	7126	213,309		
22	7181	7162	7187	7171	7159	7150	7181	7147	7170	7198	7181	7162	7172	7180	7212	7211	7206	7193	7184	7181	7186	7198	7186	7163	7103	7117	7118	7126	7136	210,829		
23	7182	7183	7187	7174	7176	7158	7183	7162	7152	7173	7186	7152	7175	7184	7206	7216	7207	7210	7194	7184	7184	7188	7194	7182	7129	7127	7128	7138	7138	215,214		
24	7184	7184	7184	7184	7163	7160	7184	7163	7184	7184	7184	6967	7174	7183	7190	7207	7206	7212	7194	7195	7182	7193	7198	7168	7110	7108	7122	7132	7127	7127	213,006	
TOTAL	173,363.0	168,827.0	177,487.0	177,487.0	177,251.0	171,863.0	171,788.0	172,383.0	171,545.0	172,098.0	171,468.0	167,987.0	164,839.0	167,911.0	172,365.0	172,037.0	173,548.0	172,970.0	172,974.0	173,548.0	172,970.0	172,974.0	172,524.0	172,357.0	172,662.0	172,735.0	172,520.0	168,363.0	171,839.0	170,688.0	170,463.0	173,494.0

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ANNEX 3

**AGUA FRESCA MULTIPURPOSE AND ENVIRONMENTAL SERVICES PROJECT
(UNFCCC #0122)**

**CHECK OF HOURLY GENERATION
YEAR 2010**

		SOURCE: EEP PM		SOURCE: XM
MONTH	DAY	ENERGY		
		AGUA FRESCA POWER PLANT	ELECTRIC SUBSTATION - FREDONIA (COMMERCIAL BORDER)	
		EXPORT (MWH)	EXPORT (MWH)	EXPORT (MWH)
January	1	93,40	92,62	92,62
	2	90,20	89,48	89,48
	3	89,00	88,22	88,22
	4	88,90	88,14	88,14
	5	87,20	86,51	86,51
	6	85,20	84,59	84,59
	7	84,20	83,51	83,51
	8	84,10	83,39	83,39
	9	82,80	82,14	82,14
	10	89,10	88,41	88,41
	11	84,50	83,78	83,78
	12	79,50	78,90	78,90
	13	78,10	77,44	77,45
	14	76,30	75,67	75,67
	15	75,20	74,72	74,72
	16	73,70	73,14	73,13
	17	72,50	71,94	71,95
	18	71,30	70,79	70,79
	19	73,10	72,56	72,57
	20	69,20	68,68	68,64
	21	69,40	68,94	68,93
	22	65,50	65,02	65,01
	23	70,70	70,13	70,13
	24	71,80	71,45	71,45
	25	66,00	65,54	65,53
	26	74,50	73,86	73,87
	27	89,60	88,92	88,92
	28	73,40	72,84	72,84
	29	37,00	36,63	36,63
	30	41,50	41,23	41,22
	31	65,90	65,51	65,51
	1	63,40	62,91	62,91
	2	60,90	60,51	60,52
	3	60,20	59,77	59,77
	4	60,00	59,51	59,51
	5	60,90	60,45	60,44
	6	88,60	87,90	87,90
	7	66,10	65,56	65,55
	8	56,50	56,09	56,02
	9	59,90	59,49	59,49
	10	61,50	61,03	61,03

**AGUA FRESCA MULTIPURPOSE AND ENVIRONMENTAL SERVICES PROJECT
(UNFCCC #0122)**

**CHECK OF HOURLY GENERATION
YEAR 2010**

		SOURCE: EEP PM		SOURCE: XM
MONTH	DAY	ENERGY		
		AGUA FRESCA POWER PLANT	ELECTRIC SUBSTATION - FREDONIA (COMMERCIAL BORDER)	
		EXPORT (MWH)	EXPORT (MWH)	EXPORT (MWH)
February	11	58,40	58,03	58,03
	12	56,60	56,15	56,15
	13	54,90	54,50	54,50
	14	54,00	54,19	54,18
	15	59,00	58,16	58,16
	16	64,00	63,54	63,55
	17	56,00	55,36	55,36
	18	55,00	55,12	55,12
	19	54,00	53,05	53,05
	20	52,00	52,32	52,32
	21	52,00	51,61	51,61
	22	44,00	43,62	43,62
	23	78,00	77,02	77,02
	24	59,00	58,41	58,41
	25	131,00	129,78	129,78
	26	69,00	68,69	68,68
	27	60,00	59,06	59,05
	28	55,00	55,32	55,32
March	1	53,00	52,17	52,17
	2	30,00	29,94	29,94
	3	49,00	48,71	48,71
	4	60,00	58,91	58,91
	5	54,00	53,94	53,94
	6	52,00	51,46	51,46
	7	50,00	49,62	49,62
	8	50,00	49,65	49,65
	9	58,00	57,94	57,94
	10	65,00	64,71	64,71
	11	67,00	66,63	66,63
	12	53,00	52,32	52,32
	13	48,00	47,89	47,89
	14	49,00	49,14	49,14
	15	55,00	54,19	54,19
	16	41,00	40,33	40,33
	17	95,00	94,25	94,25
	18	84,00	82,94	82,94
	19	62,00	61,98	61,98
	20	79,00	78,30	78,30
	21	57,00	56,60	56,60
	22	53,00	52,81	52,81
	23	51,00	50,05	50,05

**AGUA FRESCA MULTIPURPOSE AND ENVIRONMENTAL SERVICES PROJECT
(UNFCCC #0122)**

**CHECK OF HOURLY GENERATION
YEAR 2010**

		SOURCE: EEP PM		SOURCE: XM
MONTH	DAY	ENERGY		
		AGUA FRESCA POWER PLANT	ELECTRIC SUBSTATION - FREDONIA (COMMERCIAL BORDER)	
		EXPORT (MWH)	EXPORT (MWH)	EXPORT (MWH)
	24	45,00	44,53	44,53
	25	43,00	43,12	43,12
	26	84,00	83,69	83,69
	27	59,00	58,38	58,38
	28	87,00	86,44	86,44
	29	58,00	57,03	57,03
	30	61,00	60,94	60,94
	31	78,00	77,09	77,09
April	1	128,00	126,63	126,63
	2	95,00	94,00	94,00
	3	142,00	141,03	141,03
	4	120,00	117,85	117,85
	5	134,00	132,54	132,54
	6	175,00	172,51	172,51
	7	159,00	157,17	157,17
	8	136,00	133,96	133,96
	9	160,00	158,86	158,86
	10	170,00	167,85	167,85
	11	174,00	170,76	170,76
	12	165,00	163,15	163,15
	13	174,00	171,89	171,89
	14	171,00	169,04	169,04
	15	157,00	154,80	154,80
	16	154,00	151,67	151,67
	17	141,00	139,80	139,80
	18	135,00	133,06	133,06
	19	130,00	128,46	128,46
	20	126,00	124,56	124,56
	21	170,00	168,02	168,02
	22	150,00	147,79	147,79
	23	133,00	131,64	131,64
	24	127,00	125,99	125,99
	25	125,00	124,25	124,25
	26	154,00	151,38	151,38
	27	140,00	138,01	138,01
	28	172,00	169,78	169,78
	29	174,00	171,39	171,39
	30	169,00	167,07	167,07
	1	164,00	161,12	161,12
	2	175,00	172,91	172,91
	3	175,00	172,88	172,88

**AGUA FRESCA MULTIPURPOSE AND ENVIRONMENTAL SERVICES PROJECT
(UNFCCC #0122)**

**CHECK OF HOURLY GENERATION
YEAR 2010**

		SOURCE: EEPFM		SOURCE: XM
MONTH	DAY	ENERGY		
		AGUA FRESCA POWER PLANT	ELECTRIC SUBSTATION - FREDONIA (COMMERCIAL BORDER)	
		EXPORT (MWH)	EXPORT (MWH)	EXPORT (MWH)
May	4	176,00	172,65	172,65
	5	130,00	128,31	128,31
	6	111,00	109,15	109,15
	7	174,00	171,66	171,66
	8	175,00	172,90	172,90
	9	176,00	172,86	172,86
	10	173,00	171,35	171,35
	11	175,00	171,76	171,76
	12	175,00	172,41	172,41
	13	174,00	172,20	172,20
	14	149,00	147,19	147,19
	15	173,00	169,77	169,77
	16	175,00	172,49	172,49
	17	175,00	172,42	172,42
	18	175,00	172,45	172,45
	19	174,00	171,73	171,73
	20	174,00	172,20	172,20
	21	175,00	172,24	172,24
	22	175,00	172,10	172,10
	23	174,00	172,08	172,08
	24	175,00	172,00	172,00
	25	174,00	171,90	171,90
	26	172,00	169,01	169,01
	27	133,00	131,53	131,53
	28	175,00	172,31	172,31
	29	174,00	172,08	172,08
	30	173,00	169,45	169,45
	31	174,00	172,00	172,00
	1	174,00	171,96	171,96
	2	174,00	171,80	171,80
	3	175,00	171,71	171,71
	4	174,00	171,79	171,79
	5	174,00	171,85	171,85
	6	175,00	171,76	171,76
	7	174,00	171,62	171,62
	8	174,00	171,56	171,56
	9	173,00	170,83	170,83
	10	174,00	171,37	171,37
	11	173,00	171,17	171,17
	12	76,00	74,64	74,64
	13	0,00	0,00	0,00

**AGUA FRESCA MULTIPURPOSE AND ENVIRONMENTAL SERVICES PROJECT
(UNFCCC #0122)**

**CHECK OF HOURLY GENERATION
YEAR 2010**

		SOURCE: EEPPM		SOURCE: XM
MONTH	DAY	ENERGY		
		AGUA FRESCA POWER PLANT	ELECTRIC SUBSTATION - FREDONIA (COMMERCIAL BORDER)	
		EXPORT (MWH)	EXPORT (MWH)	EXPORT (MWH)
June	14	0,00	0,00	0,00
	15	0,00	0,00	0,00
	16	62,00	60,42	60,42
	17	176,00	174,09	174,09
	18	177,00	174,07	174,07
	19	176,00	173,99	173,99
	20	164,00	160,92	160,92
	21	176,00	173,73	173,73
	22	174,00	171,24	171,24
	23	176,00	173,81	173,81
	24	176,00	173,76	173,76
	25	176,00	173,58	173,58
	26	172,00	168,64	168,64
	27	176,00	173,64	173,64
	28	176,00	173,62	173,62
	29	172,00	169,96	169,96
	30	176,00	173,55	173,55
July	1	176,00	173,46	173,46
	2	176,00	173,41	173,41
	3	176,00	173,33	173,33
	4	176,00	173,28	173,28
	5	176,00	173,19	173,19
	6	172,00	170,02	170,02
	7	176,00	173,27	173,27
	8	176,00	173,48	173,48
	9	176,00	173,40	173,40
	10	166,00	164,24	164,24
	11	178,00	175,12	175,12
	12	178,00	175,17	175,17
	13	170,00	167,47	167,47
	14	177,00	175,07	175,07
	15	178,00	174,99	174,99
	16	177,00	174,43	174,43
	17	177,00	174,74	174,74
	18	177,00	174,74	174,74
	19	175,00	172,50	172,50
	20	178,00	174,80	174,80
	21	177,00	174,72	174,72
	22	173,00	170,50	170,50
	23	177,00	174,65	174,65
	24	177,00	174,53	174,53

**AGUA FRESCA MULTIPURPOSE AND ENVIRONMENTAL SERVICES PROJECT
(UNFCCC #0122)**

**CHECK OF HOURLY GENERATION
YEAR 2010**

		SOURCE: EEP PM		SOURCE: XM
MONTH	DAY	ENERGY		
		AGUA FRESCA POWER PLANT	ELECTRIC SUBSTATION - FREDONIA (COMMERCIAL BORDER)	
		EXPORT (MWH)	EXPORT (MWH)	EXPORT (MWH)
	25	177,00	174,49	174,49
	26	177,00	174,50	174,50
	27	177,00	174,52	174,52
	28	177,00	174,55	174,55
	29	177,00	174,42	174,42
	30	177,00	174,29	174,29
	30	177,00	174,19	174,19
August	1	177,00	174,21	174,21
	2	176,00	174,21	174,21
	3	177,00	174,17	174,17
	4	177,00	174,06	174,07
	5	176,00	174,04	174,04
	6	175,00	172,10	172,10
	7	176,00	174,18	174,18
	8	177,00	174,44	174,44
	9	177,00	174,43	174,43
	10	177,00	174,37	174,37
	11	177,00	174,37	174,37
	12	175,00	172,77	172,77
	13	177,00	174,36	174,37
	14	177,00	174,25	174,25
	15	177,00	174,18	174,18
	16	176,00	174,12	174,12
	17	169,00	166,32	166,31
	18	176,00	173,75	173,75
	19	162,00	159,07	159,07
	20	173,00	170,75	170,75
	21	177,00	174,15	174,15
	22	176,00	174,05	174,06
	23	176,00	173,73	173,73
	24	177,00	173,98	173,98
	25	176,00	173,89	173,89
	26	177,00	173,76	173,76
	27	176,00	173,73	173,73
	28	176,00	173,71	173,71
	29	158,00	155,87	155,87
	30	176,00	173,34	173,34
	31	172,00	170,18	170,18
	1	164,00	164,00	164,00
	2	176,00	175,45	175,45
	3	177,00	169,72	169,72

**AGUA FRESCA MULTIPURPOSE AND ENVIRONMENTAL SERVICES PROJECT
(UNFCCC #0122)**

**CHECK OF HOURLY GENERATION
YEAR 2010**

		SOURCE: EEPPM		SOURCE: XM
MONTH	DAY	ENERGY		
		AGUA FRESCA POWER PLANT	ELECTRIC SUBSTATION - FREDONIA (COMMERCIAL BORDER)	
		EXPORT (MWH)	EXPORT (MWH)	EXPORT (MWH)
September	4	175,00	173,00	173,00
	5	177,00	174,03	174,03
	6	176,00	173,92	173,92
	7	177,00	173,96	173,96
	8	176,00	174,07	174,07
	9	177,00	174,39	174,39
	10	178,00	174,96	174,96
	11	177,00	174,88	174,88
	12	176,00	173,38	173,38
	13	171,00	168,52	168,52
	14	177,00	175,02	175,02
	15	178,00	174,95	174,95
	16	177,00	175,14	175,14
	17	178,00	175,08	175,08
	18	173,00	171,17	171,17
	19	178,00	174,92	174,92
	20	177,00	174,88	174,88
	21	176,00	173,78	173,78
	22	165,00	163,04	163,04
	23	177,00	173,99	173,99
	24	178,00	175,32	175,32
	25	172,00	170,41	170,41
	26	178,00	175,02	175,02
	27	178,00	175,24	175,24
	28	176,00	173,38	173,38
	29	176,00	173,56	173,56
	30	176,00	174,20	174,20
	1	178,00	174,88	174,88
	2	177,00	174,87	174,87
	3	178,00	176,22	169,55
	4	177,00	174,83	174,83
	5	168,00	165,65	165,65
	6	177,00	174,87	174,87
	7	177,00	174,75	174,76
	8	176,00	173,64	173,64
	9	179,00	175,87	175,87
	10	178,00	175,72	175,72
	11	178,00	175,59	175,59
	12	178,00	175,43	175,43
	13	178,00	175,32	175,32
	14	178,00	175,20	175,20

**AGUA FRESCA MULTIPURPOSE AND ENVIRONMENTAL SERVICES PROJECT
(UNFCCC #0122)**

**CHECK OF HOURLY GENERATION
YEAR 2010**

		SOURCE: EEP PM		SOURCE: XM
MONTH	DAY	ENERGY		
		AGUA FRESCA POWER PLANT	ELECTRIC SUBSTATION - FREDONIA (COMMERCIAL BORDER)	
		EXPORT (MWH)	EXPORT (MWH)	EXPORT (MWH)
October	15	178,00	174,97	174,97
	16	173,00	171,20	171,20
	17	178,00	175,00	175,00
	18	178,00	175,01	175,01
	19	177,00	174,33	174,33
	20	178,00	174,88	174,88
	21	177,00	174,63	174,63
	22	177,00	174,42	174,43
	23	176,00	174,07	174,07
	24	177,00	173,91	173,91
	25	176,00	173,82	173,82
	26	176,00	173,69	173,69
	27	173,00	170,33	170,32
	28	176,00	173,43	173,43
	29	176,00	172,96	172,96
	30	175,00	172,44	172,44
	31	173,00	171,14	171,14
November	1	175,00	172,35	172,35
	2	169,00	166,53	166,53
	3	175,00	172,50	172,50
	4	175,00	172,29	172,29
	5	174,00	171,96	171,96
	6	175,00	171,79	171,79
	7	174,00	172,35	172,35
	8	175,00	171,55	171,55
	9	174,00	172,10	172,10
	10	175,00	171,62	171,62
	11	170,00	168,00	168,00
	12	167,00	164,84	164,84
	13	170,00	167,91	167,91
	14	175,00	172,37	172,37
	15	172,00	169,20	169,20
	16	175,00	173,04	173,04
	17	176,00	173,16	173,17
	18	175,00	172,97	172,97
	19	176,00	172,75	172,76
	20	175,00	172,52	172,52
	21	174,00	172,36	172,36
	22	175,00	172,66	172,66
	23	176,00	172,74	172,74

**AGUA FRESCA MULTIPURPOSE AND ENVIRONMENTAL SERVICES PROJECT
(UNFCCC #0122)**

**CHECK OF HOURLY GENERATION
YEAR 2010**

		SOURCE: EEPFM		SOURCE: XM
MONTH	DAY	ENERGY		
		AGUA FRESCA POWER PLANT	ELECTRIC SUBSTATION - FREDONIA (COMMERCIAL BORDER)	
		EXPORT (MWH)	EXPORT (MWH)	EXPORT (MWH)
	24	174,00	172,52	172,52
	25	169,00	166,38	166,38
	26	174,00	171,64	171,64
	27	173,00	170,69	170,69
	28	173,00	170,64	170,64
	29	173,00	170,93	170,93
	30	174,00	171,14	171,14
December	1	172,00	169,93	169,93
	2	133,00	130,72	130,71
	3	175,00	172,66	172,66
	4	175,00	172,63	172,63
	5	175,00	170,69	170,69
	6	174,00	172,27	172,27
	7	175,00	172,17	172,17
	8	174,00	171,48	171,48
	9	164,00	162,20	162,20
	10	175,00	172,05	172,06
	11	174,00	171,56	171,56
	12	173,00	170,96	170,96
	13	174,00	171,27	171,27
	14	167,00	164,71	164,71
	15	167,00	165,39	165,39
	16	175,00	171,77	171,77
	17	174,00	171,84	171,84
	18	174,00	172,05	172,05
	19	175,00	172,02	172,02
	20	174,00	172,13	172,13
	21	175,00	172,22	172,22
	22	174,00	171,84	171,84
	23	174,00	171,07	171,07
	24	169,00	166,74	166,73
	25	173,00	170,85	170,85
	26	167,00	163,81	163,81
	27	174,00	172,54	172,54
	28	176,00	172,91	172,91
	29	124,00	122,17	122,16
	30	176,00	173,70	173,70
	31	176,00	173,43	173,43
Total		52.206,70	51.512,35	51.505,46



ANNEX 4

EQUIPMENT CALIBRATION LABORATORY FOR THE MEASUREMENT OF ENERGY AND GAS
DIS-EM-LE-FR-014

Address: Cra. 65 Number 29-149 Telephone: 3806060 Fax: 265 93 50



Petitioner **AGUAFRESCA MINI POWERSTATION**

Instrument:	Electronic Power Gauge	Number	50202
Serial Number:	SEE ATTACHMENTS	Model:	SL761A061
Manufacturer:	ACTARIS	Quantity	2

DESCRIPTION OF THE INSTRUMENT:

Num. of Phases	3 phases	Num. of Threads	4 threads	Measure	Indirect
Nominal Frequency	60 Hz	Measurement Range:	3X57.7/100V-3X240/415V - 5(10)A		
Type of Precision	0.2 s	Gauge Constant	10000 IMP/KWH		
Calibration Date	2010-04-27	Date of Issue:	2010-06-22		
Number of pages of certificate and attachment	3	Environmental Conditions	23.5o C	63.0%	
			Temperature	Humidity	

Norm NTC 4856-2006-11-30 See Items 4.4.2, 4.4.3, 4.4.4, 4.4.5

Authorized signatures

Signature

OSCAR HUMBERTO HENAO

Calibrated by

Signature

ENG. ÁLVARO GARCÉS RAMÍREZ

Revised by

This report truly expresses the result of the measurements performed and may not be reproduced totally or partially, except if previously authorized in writing by the issuing laboratory.

The results contained in the current report refer to the moment and conditions in which the measurements were made. The issuing laboratory is not responsible for the damages which might be derived from the inadequate use of the calibrated instruments.

CALIBRATION METHOD:

The calibration method is done by differential comparison of the tested gauge and the calibration pattern of the Equipment Calibration Laboratory for the Measurement of Energy and Gas of Empresas Públicas de Medellín E.S.P.

Error is determined by comparing the impulses per second taken from the calibration equipment photoelectrical bolster, which are read by the gauge tested and the impulses per second issued by the pattern.

TRACEABILITY

The equipment used in the calibration of this instrument is traced to the international patterns of the corresponding magnitudes.

For the calibration of this instrument, the EMH comparator was used (Energie Messtechnik GmbH), KOM 200.3 Serial Number 17956, made by EMH with calibration certificate number 3893 PTB 03 of Physikalisch-Technische Bundesanstalt of Germany

In this case we worked with calibration equipment:

<u>Number</u>	<u>Brand</u>	<u>Series</u>
Number 18	EMH-MTE	21374

The equipment described has internal calibration number **1808**

UNCERTAINTY OF MEASUREMENT

For the evaluated calibration points, the testing equipment for the gauges complies with Standard NTC 2423 "Electrotechnia. Gauges. Testing Equipment for Electrical Power Gauges". The uncertainty in measurement, expressed in the results of the attached annex, is calculated by multiplying the standard uncertainty combined by the factor of coverage K equal to 2: corresponding to the effective degrees of freedom, with which an approximate level of trustworthiness of 95% is achieved for normal distribution.

OBSERVATIONS

Accredited Laboratory according to Resolution 3670 of February 20, 2003

The conformity analysis of the equipment included in the current calibration certificate is done based on the norm:

RESULTS: See Attachment

FIELD CALIBRATION FORMAT

CLIENT		CITY		MAIN (ID)																
Series	36068848			Temperature	23.5 C			PATTERN EQUIPMENT USED			<table border="1"> <tr><td>Brand</td><td>MTE-EMH</td></tr> <tr><td>Series</td><td>21374</td></tr> <tr><td>Type</td><td>PRS 1.3</td></tr> <tr><td>Equipment Number</td><td>18</td></tr> </table>		Brand	MTE-EMH	Series	21374	Type	PRS 1.3	Equipment Number	18
Brand	MTE-EMH																			
Series	21374																			
Type	PRS 1.3																			
Equipment Number	18																			
Type:	SL761A061			Relative Humidity	63%															
Manufacturer	ACTARIS			Frequency	60 HZ															
Plate voltage	3X57.7/100-3X240/415			Calibrating Technician	Oscar Henao															
Plate current	5(10)A			Date	27/04/2010															
Plate current	Calibration current	10000 imp/kWh		10000 imp/kWh	Procedure used DIS-EM-LE-IN-009			Passed self test before test Yes Passed self test when equipment reentered laboratory Yes												
TP meas.	TC Meas.	KTE	44000V3/110V3	150/5																
Phases - Threads	Type	3 PHASES - 4 THREADS		0.2 S																
BACKUP (ID:)																				
Series	36068848			Temperature	23.5 C			PATTERN EQUIPMENT USED			<table border="1"> <tr><td>Brand</td><td>MTE-EMH</td></tr> <tr><td>Series</td><td>21374</td></tr> <tr><td>Type</td><td>PRS 1.3</td></tr> <tr><td>Equipment Number</td><td>18</td></tr> </table>		Brand	MTE-EMH	Series	21374	Type	PRS 1.3	Equipment Number	18
Brand	MTE-EMH																			
Series	21374																			
Type	PRS 1.3																			
Equipment Number	18																			
Type:	SL761A061			Relative Humidity	63%															
Manufacturer	ACTARIS			Frequency	60 HZ															
Plate voltage	3X57.7/100-3X240/415			Calibrating Technician	Oscar Henao															
Plate current	5(10)A			Date	27/04/2010															
Plate current/Calibration current	10000 imp/kWh		10000 imp/kWh	Procedure used DIS-EM-LE-IN-009			Passed self test before test Yes Passed self test when equipment reentered laboratory Yes													
TP meas.	TC Meas.	KTE	44000V3/110V3						150/5											
Phases - Threads	Type	3 PHASES - 4 THREADS							0.2 S											

		*WITH THE EXISTING CHARGE IN THE GAUGE (MAIN)															36068848			
Pattern Range		VALUES TAKEN FROM THE PATTERN					% GAUGE ERROR													
Volt	Amp	AV. VOLT	% In	AV. AMP	PHASE	F.P Average	1	2	3	AV. ERROR	COMPLIES	S. DEVIATION	Ua. Uncertainty	Ub. Uncertainty	Cp	Uc Uncertainty	CONST. K (Table)	Uexp. Uncertainty		
120	1.2	61.74	laverage	2.436	RST	0.99	-0.007	-0.001	-0.006	-0.005	YES	0.003	0.002	0.04	0.07	0.04	2	0.08		

		*WITH THE EXISTING CHARGE IN THE GAUGE (BACKUP)															36061873			
Pattern Range		VALUES TAKEN FROM THE PATTERN					% GAUGE ERROR													
Volt	Amp	AV. VOLT	% In	AV. AMP	PHASE	F.P Average	1	2	3	AV. ERROR	COMPLIES	S. DEVIATION	Ua. Uncertainty	Ub. Uncertainty	Cp	Uc Uncertainty	CONST. K (Table)	Uexp. Uncertainty		
120	1.2	61.74	laverage	2.436	RST	0.99	-0.09	-0.084	-0.099	-0.091	YES	0.008	0.005	0.04	0.07	0.04	2	0.08		

TENSION HARMONICS (%)				CURRENT HARMONICS (%)			
Vr	Vs	Vt		Ir	Is	It	
1.31	1.14	1.27		0.86	0.75	0.81	
Average Harmonic V		1.24		Average Harmonic I		0.8	

DATA TAKEN FROM THE PATTERN (*WITH THE EXISTING CHARGE IN THE GAUGE)											
Vr	Vs	Vl	Ir	Is	It	F.P.r	F.P.s	F.P.l	Average V	Average I	Average FP
61.43	62.13	61.66	2.407	2.391	2.51	0.99	0.99	0.99	61.74	2.436	0.99
POT PATTERN INST.			0.448 POT GAUGE INST			0.448					



EQUIPMENT CALIBRATION LABORATORY FOR THE MEASUREMENT OF ENERGY AND GAS
Cra. 65 Number 29-149 Telephone: 3806060
DIS-EM-LE-FR-014

CALIBRATION REPORT NUMBER

50202

FIELD CALIBRATION FORMAT

CLIENT

CITY

VERIFICATION OF CONSTANT (MAIN MEASURES)

INITIAL READING	POWER APPLIED	FINAL READING	DIFFERENCE	ERROR
8776,101	0,038	8776,138	0,038	0

VERIFICATION OF CONSTANT (BACKUP MEASURES)

INITIAL READING	POWER APPLIED	FINAL READING	DIFFERENCE	ERROR
8765,201	0,037	8765,238	0,037	0

S: Standard Deviation

Us: Uncertainty Type A

Uc: Combined uncertainty

Ub: Uncertainty Type B

Vefec: Effective value of freedom degrees

K: Coverage factor

Uexp: Expand. Uncertainty

OBSERVATIONS

*Values taken with the charge the client has at the moment of calibration.

Approved by: Álvaro Garcés Ramírez

50202-CALIB AT AGUA FRESCA MINI POWERSTATION ON SITE – 201004-27.xls-ATTACHMENT 1

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