

MONITORING REPORT

Nueva Aldea Biomass Power Plant Phase 1

CDM Registration Reference Number: 258

VERSION 01

Monitoring period:

From: October 01, 2007

To: September 30, 2008



Celulosa Arauco y Constitución S.A.

October, 2008

SUMMARY TABLE

Name of the CDM project activity:	Nueva Aldea Biomass Power Plant Phase 1
CDM registration reference number:	258
Starting date of the project activity:	29/09/2003
Starting date of the first crediting period:	01/01/2005
Length of the first crediting period:	Seven (7) years.
Maximum length of the crediting period:	3 x Seven (7) years
Period covered by the current monitoring report:	01 October 2006 – 30 September 2007 (both days included)
Total net emission reductions claimed in the monitored period:	166,140 tCO₂eq

1. Project description and current status

Project description

The proposed project activity consists in the construction and operation of a new 30 MW biomass cogeneration power plant located inside a new forestry complex by Arauco: the Nueva Aldea Industrial Complex or the Nueva Aldea Project.

The proposed project activity is designed to use own and third party biomass for steam and electric power generation. Biomass from industrial and forestry operations in Chile is normally dumped in piles for natural decay. The project activity is presented by Celulosa Arauco y Constitución S.A. (from now on, Arauco), a leading forestry and pulp-producing company in the world.

The Nueva Aldea Industrial Complex is built in two phases.

Phase 1, that consists in the construction of:

- A sawmill.
- A plywood mill.
- A log-processing mill.
- A biomass cogeneration power plant.

Phase 2 that consists in the construction of:

- A new 856,000 tons per year of bleached kraft pulp mill.

When the Arauco administration evaluated the Nueva Aldea Phase 1 project, it decided to build an integrated cogeneration facility in order to optimize the energy performance of the industrial complex, to perceive additional revenues from power generation and to capture the benefits of the Kyoto Protocol.

In the Nueva Aldea Phase 1 complex, approximately 60% of the electric power generated by the new Power Plant is destined to serve the internal needs of the Nueva Aldea Industrial Complex in Phase 1. The remaining 40% of the electric power generation is sold mainly to the spot market in the Interconnected Central System grid (SIC grid) and to some free (non-regulated) customers of Arauco Generación¹.

It must be noted that since the common practice in the Sawmill and Plywood industries² does not include the cogeneration of electric power, the entire net electric power generation capacity of the

¹ Arauco Generación S.A. is a subsidiary of Celulosa Arauco y Constitución S.A. Arauco Generación provides administration services to Arauco in the areas of engineering and electric power generation.

² The log-processing mill does not really constitute an industry in Chile, however it is not the common practice in these mills to have a cogeneration unit in-site either.

new Power Plant in Phase 1 represents a net increase of clean energy in the SIC, and therefore considered part of the proposed project activity.

The Nueva Aldea Phase 1 project activity proponent believes that biomass power generation constitutes a sustainable source of power generation that brings clear advantages to mitigate global warming. Using the available natural resources in a rational way, the Nueva Aldea Phase 1 project activity helps to enhance the development of renewable energy sources in Chile, in particular the use of biomass generated as a by-product of the forestry industry, which has a significant potential in the country. The proposed project is a good example to demonstrate the viability of electricity generation as a source of revenue not only to the Sawmill / Plywood panel industry, but also to all forest-related industries. It is worthy to highlight, however, that none of the sawmill / plywood mills in Chile (and very few in the world) have this additional power generation capacity, making the Nueva Aldea Phase 1 Power Plant facility quite unique and particular in its type.

Baseline methodology

The name of the baseline methodology applied to the project activity is:

“Consolidated baseline methodology for grid-connected electricity generation from biomass residues”, ACM0006. (Version 01)

Applied baseline scenario for the project activity: N°3.

Documentation

The project was validated by DNV and registered on March 31, 2006. The Project Design Document, validation report, request for registration and registration approval are available on the UNFCCC website: <http://cdm.unfccc.int/Projects/registered.html>

Implementation and current status

The project has been completed as planned and described in the Project Design Document (PDD). Though the Nueva Aldea Phase 1 project activity falls under the category of an “early CDM project activity” (started functioning before the CDM registration date), the monitoring plan has been implemented and enforced just as described in the corresponding PDD.

Sustainability, economic and social well-being

The Nueva Aldea Phase 1 Power Plant reduces carbon emissions by replacing fossil fuel-based electricity generation and by preventing forestry biomass to be left to decay. The project promotes sustainable development by:

- Fostering the diversification of electricity generation towards renewable energy sources in the country.
- Using clean, efficient and top of the line technology to generate power, thus, conserving natural resources and the environment.
- Becoming a benchmark of an efficient and renewable energy generation project in the country. This encourages the development of modern and more efficient generation of electricity and thermal energy throughout the country using renewable biomass sources.
- Optimizing the use of natural resources, avoiding new uncontrolled waste disposal places in the surrounding area of the Power Plant.

2. Monitored parameters

All parameters needed to make the emission reduction calculations according to the monitoring plan are described in the PDD, section D.2. This section provides additional explanatory information about the monitored data.

The following table provides information about the monitored data for the baseline and project emission data variables:

Project activity monitored data

ID number.	Data variable.	Additional comments
1. $BF_{i,y}$	Quantity of biomass of type i combusted in the project plant.	The total biomass per type was constantly monitored during the verification period. The volume of the biomass was constantly measured and recorded each time at the entrance of the Plant. The apparent density of the biomass was also measured (electronic weighbridges) and used to determine the dry amount of biomass combusted in the power boiler. The biomass consumption at the Power Plant was determined by considering the biomass purchases (measured) and stock variations (measured) during each month.
2. NCV_i	Net calorific value of biomass fuel type i.	The net calorific values of the biomass types entering to the power boiler were measured in an external lab in the region and recorded each year.
3. EF_{CH_4}	Methane emission factor for combustion of biomass in the project plant.	Following the ACM0006 (Version 01) guidance, the project proponent used an uncertainty-adjusted referenced default values for this emission factor. Comparisons with direct measurements of the CH_4 quantities in the power boiler flue gases showed that the CH_4 emission factor used in the emission reduction calculation was extremely conservative (see “Additional data”, below).
4. AVD_y	Average return trip distance between biomass fuel supply sites and the project site.	Distances from biomass providers to the Plant were constantly monitored and recorded. This variable was calculated and reported on a monthly basis for the calculation of the project activity emission reductions each month.
5. TL_y	Average truckload of the trucks used for transportation of biomass.	Idem as above.
6. EF_{km,CO_2}	Average CO_2 emission factor for transportation of biomass with trucks.	Average fuel consumption was obtained from the transportation subcontractors, which was then used to calculate the corresponding CO_2 emission factor.
7. $COEF_{CO_2,i}$	Emission factors.	This factor was calculated using IPCC default values (Carbon content and fraction of carbon oxidized) and local national data (Net calorific values of the corresponding fossil fuels).
8. OF_y	On-site use of transport fuel.	Total quantities of fossil fuel per type for on-site biomass transportation were constantly monitored and monthly recorded. These amounts were used to calculate the fossil fuel consumption related to the project activity, just as described in page 42 of the validated PDD.
9. FF_y	Fossil fuel used in Power Boiler.	Total quantities of fossil fuel per type used in the power boiler were constantly monitored at the Power Plant. These amounts were used to calculate the fossil fuel consumption related to the project activity, just as described in page 42 of the validated PDD.

Baseline monitored data

ID number.	Data variable.	Additional comments
10. EG_y (EG_h if dispatch data OM is used)	Net quantity of electricity displaced by the project activity from the grid.	The net energy displaced from the grid resulted from subtracting the additional energy consumption of the Power Plant due to the project activity to the gross energy generation of the Power Plant (measured). The additional power consumption was determined by subtracting the baseline electricity consumption (established in the PDD) to the total energy consumption of the Power Plant (measured).
11. Q_y	Heat quantity	This information was obtained from the amount of steam to the processes and the corresponding enthalpy conditions.
12. EF_y	CO ₂ emission factor of the grid.	Calculated as the average (equal weights of 50% for each) between the OM and BM SIC emission factors.
13. $EF_{OM,y}$	CO ₂ Operating Margin emission factor of the grid.	This factor was calculated according to the chosen baseline methodology (which indicates to follow the ACM0002 methodology). For this coefficient and according to the PDD, the Simple Adjusted OM factor was used. For the 2008 coefficient, the information was available only until September 2008.
14. $EF_{BM,y}$	CO ₂ Build Margin emission factor of the grid.	This factor was calculated according to the chosen baseline methodology (which indicates to follow the ACM0002 methodology). In this case, the BM was calculated for each year (ex-post) and in each case, the weighted average of the emission coefficients of the most recent power plants responsible for 20% of the total power generation each year was used. For the 2008 coefficient, the information was available only until September 2008.
15. $F_{i,y}$	Amount of each fossil fuel consumed by each power source / plant.	This information was directly obtained by the CDEC-SIC Dispatch Center or directly from the electric power companies themselves.
16. $COEF_i$	CO ₂ emission coefficient of each fuel type i consumed by the electric power generators in the relevant grid.	This factor was calculated using IPCC default values (Carbon content and fraction of carbon oxidized) and local national data (Net calorific values of the corresponding fossil fuels).
17. $GEN_{j/k/n,y}$	Electricity generation of each power source / plant j/k or n.	This information was directly obtained by the CDEC-SIC Dispatch Center. For the 2008 generation, the information was available only until September 2008.
18.	Identification of power source / plant for the OM calculation.	This information was directly obtained by the CDEC-SIC Dispatch Center.
19.	Identification of power source / plant for the BM calculation.	This information was directly obtained by the CDEC-SIC Dispatch Center.
20. λ_y	Fraction of time during which low-cost / must-run sources are on the margin.	This factor was calculated from information directly obtained from the CDEC-SIC Dispatch Center. For the 2008 coefficient, the information was available only until September 2008.
21.a $GEN_{j/k/l,y}$ IMPORTS	Electricity imports to the project electricity system.	This information was directly obtained by the CDEC-SIC Dispatch Center. There are no imports / exports to the project activity electricity system.

21.b COEF _{ijy} IMPORTS	CO ₂ emission coefficient of fuels used in connected electricity systems (if imports occur).	See 21.a above.
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Though pages 41 and 42 of the registered PDD establish that the biomass associated to the project activity must be calculated using a specific electric power generation factor, EB038 requested the project proponent to use equation 24 of the ACM0006 (Version 01) instead. According to this, the project proponent uses this equation to calculate the biomass related to the project activity for the outstanding monitored period. For subsequent periods, the project proponent will continue to use equation 24 of the ACM0006 (Version 01) on this matter, just as instructed by the EB038 report.

The biomass related to the project activity will continue to be used in the calculation of the fossil fuel consumption associated to the project activity, just in the way it is indicated in the registered PDD.

Leakage monitored data

ID number.	Data variable.	Additional comments
22.	Amount of biomass of type i fired in all grid-connected power plants in the region / country	This variable was obtained from host country official data (Infor publications, company annual reports, publicly available environmental studies, among other official sources).
23.	Quantity of biomass of type i that is available in surplus in the region / country.	This variable was obtained from host country official data (Infor publications, company annual reports, publicly available environmental studies, among other official sources).

Additional data

To perform the emission reduction calculation, the project proponent monitored some additional data, which was in some cases necessary, in other cases optional for the compliance with the monitoring plan presented in the registered PDD.

Complementary data

Data	Comments
BDt / m ³ st	This factor was calculated each month to determine the amount of bone-dry ton (BDt) of biomass from humid volumetric quantities of biomass (cubic meters). To do so, the biomass humidity, the volume and the apparent density of the biomass were used and monitored.

Biomass humidity	This variable was constantly measured and monthly reported for the calculation of the net emission reductions of the project activity.
CH ₄ emission factor for uncontrolled burning of biomass	<p>According to the baseline methodology ACM0006 (Version 01), page 33, the project proponent may undertake measurements or use referenced default values to calculate the CH₄ baseline emissions from uncontrolled burning of biomass. Given that by the time the PDD was written there were no local measurements available, the validator indicated the project proponent to use the IPCC default factor corrected by the lowest conservativeness factor (Table N°4, page 34 of the ACM0006, Version 01). This led to extremely conservative CH₄ baseline emissions for the project activity, since in reality a significant portion of the biomass is left to natural decay in the open air, releasing a much higher amount of CH₄ than if it were burned in an uncontrolled way. As a result, the project proponent explicitly mentioned in the PDD (page 66) and in the validation report (page A36) that a local CH₄ measurement would be attempted in order to have a more accurate and fair estimation of the baseline emissions from this source.</p> <p>During September 2006, the project proponent hired the U.S. Forest Service of Missoula, Montana, USA to conduct a local measurement of the CH₄ emission factor for uncontrolled burning of biomass in the nearby area of the Power Plant. The result of this measurement indicated a CH₄ emission factor for uncontrolled burning of the same type of biomass used in the Nueva Aldea Power Plant of 740.5 Kg of CH₄ / TJ, with an associated standard deviation of 162.2 Kg of CH₄ / TJ. According to Table 4 of the ACM0006 (Version 01) baseline methodology, this led to a conservativeness factor of 0.94³, resulting in an adjusted CH₄ baseline emission factor for uncontrolled burning of biomass of 696.1 Kg of CH₄/TJ.</p>
CH ₄ emission factor for controlled burning of biomass in the power boiler	The project proponent also requested the U.S. Forest Service to carry out a CH ₄ emission factor measurement for controlled burning of biomass in the power boiler. The result of the measurement indicated insignificant (zero) CH ₄ emissions in the flue gases of the power boiler ⁴ . Considering this result and the fact that the project proponent is still using an IPCC default factor of 15.3 Kg of CH ₄ / TJ to calculate the project activity emissions related to biomass controlled burning in the power boiler, the net emission reduction calculation derived from the more efficient way of burning the biomass due to the project activity is conservative.
ε _{boiler}	<p>This is the energy efficiency of the boiler that would be used in the absence of the project activity. This parameter is used in equation 24 of the ACM0006 (Version 01).</p> <p>The efficiency of the boiler that would have been installed in the absence of the project activity is 85%. This efficiency value was determined based on the efficiency calculation of a real low-pressure boiler installed in one of the Arauco industrial facilities. The efficiency was calculated in accordance with the ASME PTC 4.1 Norm and was further validated with an expert opinion from a highly reputed consulting company, in the field of heat and power generation.</p>

³ A 95% confidence interval was calculated to determine the corresponding uncertainty range for the sample mean.

⁴ According to the final measurement report, the flue gases of the power boiler presented lower concentration of CH₄ (0.55 ppm) than clean air levels (1.7 ppm to 2 ppm). Therefore, the combustion process in power generation resulted in a net loss of CH₄ from the air used.

Summary of the main monitored data

According to the monitoring plan outlined above, the following table shows a summary of the main monitored data of the project activity during the monitored period.

Summary of main monitored data per year

		2007	2008
Operating Margin	(tCO ₂ /GWh)	809.0	864.4
Build Margin	(tCO ₂ /GWh)	570.5	505.0
Combined Margin	(tCO ₂ /GWh)	689.8	684.7
Net energy displaced from the grid	(GWh/yr)	46.7	150.6
Additional biomass due to project activity	(BDT/yr)	26,414	100,508
Net calorific value of the biomass	(TJ / 000 ton)	17.98	17.97
Avg distance between sawmills and P. Plant	(Km)	55.2	92.1
Avg load for 1 trip	(Ton/truck)	19.2	27.5
Additional fossil fuel consumed in P. Boiler			
Diesel	(Lt/yr)	128,708	290,398
Fuel Oil	(ton/yr)	0	0
LPG	(Lt/yr)	0	54
Addit. fossil fuel used for biomass transp. in P. Plant			
Diesel	(Lt/yr)	9,056	28,143

Note: Year 2007 considers monitored data from October to December and year 2008, from January to September.

Some differences between the monitored data and the one used to calculate the net emission reductions in the registered PDD are due to the following reasons:

1. The use of some referential data in the PDD instead of actual monitored data (i.e. conversion factors, humidity factors, etc.).
2. An improvement in the accuracy of some monitored data that was previously used to calculate some emission reduction coefficients in the PDD (i.e. the CDEC-SIC Dispatch Center made some ex-post corrections in the power plant generation data for the past years).
3. The replacement of natural gas for diesel in fossil fuel power plant⁵ and a lower share of hydro power generation in the SIC grid during 2007 and 2008 compared to the year in which the Nueva Aldea Phase 1 PDD was written.

⁵ Natural gas from Argentina for electric power generation in Chile was virtually unavailable in 2007 and 2008.

Leakage

Though there are no official studies in the country about the supply / demand situation of forest biomass in the relevant area, Arauco performed annual studies for 2006 and 2007 using official bulletins from INFOR⁶ as well as other (whenever available) official sources to calculate the biomass supply and demand in the Nueva Aldea Phase 1 influence area⁷. This study was part of the monitoring plan of the Nueva Aldea Phase 1 project activity and was carried out according to approach L2 of the baseline methodology. A detailed and confidential Excel spreadsheet with the monitored data and the calculation of the forest biomass supply / demand situation each year was provided to the DOE to establish the quality and validity of the data sources and the accuracy of the calculated numbers. The following table provides the final results of such study:

SUPPLY / DEMAND SITUATION

(According to the "L2" criteria to establish leakage in the ACM0006 baseline methodology)

NUEVA ALDEA PHASE 1 INFLUENCE AREA SUPPLY / DEMAND SITUATION

Biomass supply		2007	2008
Total supply	(m³st/yr)	5,024,460	6,052,432
Biomass demand			
Total demand	(m³st/yr)	2,611,768	3,211,235
Total supply / total demand		1.9238	1.8848

According to the table above, it is clear that the quantity of available biomass in the influence area of the project activity is greater than the 25% threshold established in option L2 of the consolidated baseline methodology. These results are consistent with the fact that in the last years the existing biomass power plants in the area / region continue to function without restriction and that new biomass based projects are being considered in the area⁸.

From the above analysis, it is possible to conclude that the Nueva Aldea Phase 1 biomass Power Plant has not caused a biomass supply shortage in its influence area, and therefore has not caused other biomass consumers to switch from biomass fuels to fossil fuel sources. For these reasons, the associated leakage to the Nueva Aldea Phase 1 project activity is considered to be zero.

$$L_y = 0$$

⁶ INFOR stands for "Instituto Nacional Forestal" or "National Forestry Institute" in English.

⁷ The Nueva Aldea Phase 1 influence area is defined in page 63 of the registered PDD.

⁸ Including some prospective CDM biomass projects.

Biomass sources

Each time a biomass supplier delivers biomass fuels to the Nueva Aldea Power Plant, the supplier must sign a reception bill in which the supplier declares to know and comply with the outstanding Chilean forest law. This law mandates that all harvested forest plantations must be replanted; therefore it guarantees the sustainable source of the biomass fuels (as well as the source of any other products from the forest industry). The law also establishes that the purchase of products that come from illegally managed forestlands is also considered illegal in Chile.

Since the Chilean forest law is very stringent, failing to comply with it may imply hefty penalties for the transgressors in some cases. For these reasons all Arauco plants tend to be very selective in choosing their suppliers and have tight quality controls in the reception of raw-material.

Quality assurance

Quality control and quality assurance mechanisms for the monitored data were implemented as mentioned in the registered PDD. The following table provides additional information in the same format as the one used in the PDD.

Data	Uncertainty level	QA/QC procedures implemented during the monitored period.
1	Low	<p>Biomass fuels, as well as any other raw material that enters the Nueva Aldea Phase 1 Complex are weighed at the entrance of the complex (incoming and exiting trucks). In addition, the cargo volume of each truck carrying biomass fuels is also registered. Biomass inventory is monthly measured and therefore biomass consumption at the Nueva Aldea Phase 1 Power Boiler is duly calculated each month. Since the Nueva Aldea Power Phase 1 complex (as well as most of Arauco subsidiaries) uses the SAP systems, there are periodic and continuous consistency checks between the information that is loaded in SAP and the receipts from all suppliers including biomass. This is necessary not only to ensure the accuracy of the information used to calculate the Nueva Aldea Phase 1 net emission reductions, but also to ensure the good quality of the information used for accounting and tax-reporting purposes. This further ensures the good quality of the information used to calculate the emission reductions of the Nueva Aldea Phase 1 project.</p> <p>In addition to the above, the project proponent carried out energy balances on a periodic basis as a consistency crosschecking measure.</p>
2	Low	During the monitored period the NCV of the biomass per type combusted in the Power Boiler was measured each year, presenting minimum differences from one year to another. Comparisons with corresponding IPCC default values also validated and confirmed the measured values.
3, 6, 7, 16, 21.b	Low (CO ₂) / Medium (CH ₄)	Local values were used whenever possible. In cases in which they were not available, IPCC factors were used instead.
4	Low	Since the location of each biomass supplier is known (i.e. 99% of the biomass comes from permanent type sawmills in the nearby area), distances were obtained for each biomass supplier point from a regional road map.

5	Low	Trucks that transport the biomass are all of standard sizes. This variable was calculated from measured data (weight and volume of the cargo). Electronic weighbridges in which the measurements were performed receive periodic calibration and maintenance.
8, 9	Low	Fuel meters received periodic maintenance and calibration and the consistency of metered fuel consumption was checked with purchase dispatch bills.
10	Low	Electricity meters received periodic maintenance and calibration as per instructed by the equipment manufacturer. In addition, the Nueva Aldea administration performed periodic (monthly) consistency checks in the corresponding electric bus where the Nueva Aldea Phase 1 Power Plant connects to the SIC grid. Finally, the plant manager also performed consistency checks between the total energy generated by the plant and the total biomass fired at the power boiler (efficiency checks).
11	Low	Heat quantities are directly measured by dedicated steam flow meters and pressure / temperature meters. The associated uncertainty is very low, since these parameters are key to the production processes of the Nueva Aldea Phase 1 plant and therefore, receive periodic maintenance according to proper industry standards.
12, 13, 14, 15, 17, 18, 19, 20, 21a	Low	As mentioned in the PDD, the quality control of this data is beyond the control of the project operator. However, the project proponent calculated this emission coefficient from official and publicly available data from the CDEC-SIC dispatch center.
22, 23	Medium	The biomass surplus index was calculated using as much official information as possible. Practical consistency checks were performed whenever it was feasible (i.e. low cost biomass power plants in the influence area continue being low cost-must run power units after the Nueva Aldea Phase 1 Power Plant started operating).
Biomass origin	Low	In most cases, the Nueva Aldea biomass suppliers have some kind of sustainability certification (i.e. Certfor) or have signed supply contracts explicitly declaring to comply with the outstanding forest Chilean law that guarantees a sustainable origin of the biomass sold to the Nueva Aldea Phase 1 Power Plant.

In addition to the above, the project proponent developed a dedicated information system designed exclusively to guarantee the quality of the information related to the Nueva Aldea Phase 1 CDM project activity. During 2006/2007, this system was successfully incorporated to the Nueva Aldea Phase 1's ISO-14,001 / OHSAS 18,001 systems.

3. Emission reductions

Calculation formulas

As presented in the PDD and according to the baseline methodology, the net emission reduction calculation formula for the Nueva Aldea Phase 1 project is:

$$\text{Project Activity Net Emission savings} = \text{Baseline Emissions} - \text{Project Activity Emissions} - \text{Leakage}$$

or

$$PNE_y = BL_{E,y} - EM_{P,y} - L_y$$

or

$$PNE_y = (BL_{E1,y} + BL_{E2,y}) - (P_{E1,y} + P_{E2,y} + P_{E3,y} + P_{E4,y}) - L_y$$

Where:

$BL_{E1,y}$: Baseline emissions from avoided biomass disposal (tCO₂eq/yr).

$BL_{E2,y}$: Baseline emissions from grid electricity displacement (tCO₂/yr).

$P_{E1,y}$: Project emissions from biomass controlled burning in the Power Plant (tCO₂eq/yr).

$P_{E2,y}$: Project emissions from biomass transportation to the biomass Power Plant (tCO₂/yr).

$P_{E3,y}$: Project emissions from biomass transportation within the Power Plant site (tCO₂/yr).

$P_{E4,y}$: Project emissions from fossil fuel consumption in the Power Plant (tCO₂/yr).

L_y : Are the leakage emissions (tCO₂/yr).

The following section of the monitoring report evaluates each part of this equation and calculates the net emission reductions of the Nueva Aldea Phase 1 project activity on a monthly basis.

Emission reductions for the monitored period

For the calculation of the net emission reductions of the Nueva Aldea Phase 1 project activity, an Excel spreadsheet with the monitored data and the monthly / yearly calculation of the net emission reductions was provided to the DOE for the verification of the calculated numbers. For informative purposes, this monitoring report provides a table that shows the monthly net emission reduction of the Nueva Aldea Phase 1 project activity:

Net emission savings per month

		Baseline emissions		Project activity emissions				
	Net emission savings	Grid emissions	Methane emissions	Methane in P.B.	Fossil fuel in P.B.	Transport onsite	Transport to P. Plant	Leakage
(Months)	(tCO ₂ eq/yr)	(tCO ₂ /yr)	(tCO ₂ eq/yr)	(tCO ₂ eq/yr)	(tCO ₂ /yr)	(tCO ₂ /yr)	(tCO ₂ /yr)	(tCO ₂ /yr)
Year 2007								
October	11,774	9,445	2,652	58	256	9	0	0
November	12,187	10,853	1,562	34	72	7	115	0
December	14,485	11,891	2,727	60	14	8	52	0
Total year 2007	38,446	32,190	6,942	153	342	24	167	0
Year 2008								
January	16,304	11,240	5,276	116	1	10	85	0
February	13,406	11,453	2,119	47	74	6	40	0
March	16,319	12,864	3,650	80	43	11	61	0
April	15,205	12,259	3,145	69	90	7	33	0
May	14,147	12,147	2,310	51	210	6	43	0
June	13,423	11,688	1,841	40	44	6	15	0
July	10,830	8,771	2,327	51	180	11	26	0
August	14,815	12,006	3,024	66	89	11	49	0
September	13,245	10,702	2,703	59	44	9	47	0
October	0	0	0	0	0	0	0	0
November	0	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0	0
Total year 2008	127,695	103,130	26,395	580	775	75	400	0
3rd verif (Oct 07-Sept 08)	166,140	135,320	33,337	733	1,118	99	567	0
Total emissions claimed	166,140	135,320	33,337	733	1,118	99	567	0

Note: Net emission savings = Baseline emissions - Project activity emissions - Leakage.

CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY

Organization:	CELULOSA ARAUCO Y CONSTITUCIÓN S.A.
Street/P.O.Box:	El Golf 150
Building:	--
City:	Santiago
State/Region:	Región Metropolitana
Postfix/ZIP:	
Country:	Chile
Telephone:	56-2- 462 7000
FAX:	56-2-462 7003
E-Mail:	cpatrickson@arauco.cl
URL:	www.arauco.cl
Represented by:	
Title:	Development Manager of Arauco Generación S.A.
Salutation:	Mr.
Last Name:	Patrickson
Middle Name:	Albert
First Name:	Christian
Department:	Development
Mobile:	56-9158 3483
Direct FAX:	56-2-462 3857
Direct phone:	56-2-462 3795
Personal E-Mail:	cpatrickson@arauco.cl

Organization:	Inversiones Celco SL
Street/P.O.Box:	Plaza de Pablo Ruiz Picasso 1
Building:	Edificio Torre Picasso
City:	Madrid
State/Region:	Madrid
Postfix/ZIP:	28020
Country:	Spain
Telephone:	34-915-727488
FAX:	34-915-727450
E-Mail:	gtruffello@arauco.cl
URL:	
Represented by:	Gianfranco Truffello
Title:	Attorney in fact
Salutation:	Mr.
Last Name:	Truffello
Middle Name:	
First Name:	Gianfranco
Department:	

Mobile:	569-96997691
Direct FAX:	562-4617541
Direct phone:	562-4617221
Personal E-Mail:	gtruffello@arauco.cl