Scantago ApS

Greenhouse Gas Inventory

2011/2012

January 2013

Contents

ABBREVIATIONS

GHG	Greenhouse gas
GHG Protocol	Report from the World Resource Institute http://www.ghgprotocol.org/
ICAO	International Civil Aviation Organization
Scope	Predefined set of boundaries for inclusion/excluding GHG emissions in the inventory.
UIC	International Union of Railways
WRI	World Resource Institute

INTRODUCTION

This report is the Greenhouse gas inventory for Scantago ApS, company registration number DK29174881 located on Bødkervej 22 in Holbæk, DENMARK.

The inventory covers the company fiscal year 2011/2012 (2011.10.01 – 2012.09.30).

The applied methodology for the establishing the inventory of direct and indirect emissions related to Scantago ApS, is based on the World Resource document "GHG Protocol" as well as the international standard ISO 14064.

EXIMA has been appointed for the establishment of the inventory by Scantago ApS. As an independent service provider within climate change, we have received all information requested and necessary for establishing a consistent, transparent and accurate inventory of the GHG emissions including identification and quantification of relevant emission sources.

Copenhagen 2013.01.07

Authored by:

EXIMA ApS
Roberta De Palma and
Lars Munkøe

EXECUTIVE SUMMARY

Scantago ApS is a service provider to the pharmaceutical industry offering advisory services and technical services to manufacturing sites. The majority of the activities relate to operations within Denmark but the company has also some international activities, which have been included in this inventory under scope 3 reporting protocol.

On behalf of the organization, EXIMA ApS has established GHG accounting practices for the GHG inventory covering the fiscal year 2011/12 (2011.10.01 – 2012.09.30).

The inventory applies a materiality approach for identifying GHG emission sources and for the fiscal year 2011/12, Scantago was directly and indirectly responsible for the emission of 21.5 tons of $CO_{2\text{-eqv}}$.

The largest emissions (64%) are within scope 1 (direct), followed by emissions within scope 3 (20% - other indirect) and scope 2 emissions (16% - indirect emissions from electricity consumption).

Approximately 63% of the global GHG emissions within the fiscal year, relate to road transportation in company cars or in private cars on behalf of the organization, while business travels by air and train contribute by approximately 9% only.

Compared to the baseline inventory of the previous fiscal year (2010/2011), the total GHG emissions of the organization have increased by approx. 17.5%, i.e. by 3.5 tons/year. An in depth analysis of the GHG inventory shows, that while GHG emissions associated to scope 1 have increased by 55%, the emissions associated to scope 2 and 3 have decreased by 14% and 21% respectively, compared with the baseline year.

The only source of GHG emissions that has increased is the one related to transportation by car owned by the company. This appears largely justified by the substantial increase by more than 56% of the company's activities and turnover within 2011/2012 compared to previous fiscal year. The decrease of emissions within scope 2 was partly achieved by introducing energy efficiency measures within computer hardware.

The company demonstrates improved level of corporate responsibility compared to previous GHG emission reporting period, reflected in the reduction of the specific electricity consumption, of the fuel CO2 intensity of its fleet and the implementation of carbon offsetting practices. Indeed the company has purchased 22 tons of CO2 carbon credits generated by a CDM project to fully compensate its CO2 emissions within 2011/2012: such practices could be anchored in a company policy and environmental program to be developed in the future.

METHODOLOGY

EMISSION SOURCES

Identified emission sources for Scantago are available in the table below categorized by scope:

ID	Scope	Source	Method
	Scope 1		
1		Consumption of natural gas for heating of offices and warehouse.	m/c
2		Consumption of fuels for cars owned by the organization.	m/c
	Scope 2		
3		Consumption of electricity for offices and warehouse.	m/c
	Scope 3		
4		Emissions from business travels by air or trains.	m/c
5		Consumption of fuels for cars not owned by the organization but used on behalf of the organization.	m/c

Table 1 - Emission sources for Scantago ApS.
c=Calculated; m=Measured; e=Estimated

Emission sources have been identified by applying a materiality approach and the table above lists the sources included in the scope three accounting when taking into consideration CO_2 emissions related to business travels only as scope 3 emission sources.

CARBON OFF-SETTING

The organization has introduced carbon off-setting of actual GHG emissions within the fiscal year 2011/2012. This was achieved cancelling 22 tons CO2 of carbon credits generated by a CDM project registered under the Kyoto protocol (UNFCCC project registration n. 0194), fully compensating the annual CO2 emissions of the company for the year 2011/2012. The carbon credits were purchased through EXIMA, which has issued a certificate that is provided in annex 4.

The CDM project is a small scale wind power project located within the Wayuu Indigenous Territory in the North-eastern region of the Atlantic Colombian coast, in the area between Cabo de la Vela and Puerto Bolivar, within the region of Uribia in the Department of Guajira.

A detailed description of the CDM project is provided in annex 5.

CALCULATION APPROACH

Scope 1

Emission sources relate to the consumption of natural gas purchased from DONG Energy. Based on meter readings for consumption of gas covering the accounting period, the actual demand for natural gas has been measured.

Emission factor for consumption of natural gas is available from the gas supplier and a copy is available in Annex 1 to this report.

The GHG emission related to consumption of natural gas is a multiple of the consumption with the emission factor provided from the supplier of gas.

Scantago operates a fleet of service vehicles and this emission source is considered significant for the emission profile.

The organization has a detailed log of the mileage for each vehicle within the period and the aggregated mileage of the fleet is measured.

Based on information about each vehicle, average emission factors have been identified, applying the Sustainable Energy Ireland Authority on-line carbon emission tool. For individual emission factors, please refer to Annex 3 of this report.

The calculated GHG emission related to operation of the fleet of service vehicles is the aggregated multiple of the mileage of each vehicle with the specific emission factor per km.

Scope 2

Consumption of electricity is measured by a main electricity meter for the company. Based on information about the emission grid factor provided by the energy supplier NEAS-NVE/OK in Annex 2, the GHG emissions have been calculated as the multiple of the consumption and the specific emission per kWh of consumed electricity. Compared to previous fiscal year 2010/2011, the emission grid factor of the energy supplier has dropped by 6%.

Scope 3

Scope 3 emission sources consist of two contributors:

- Business travels by air and train;
- Travel by road in cars not owned by the organization.

The organization logs all travel activities by destination and mean of transport for all employees and during the accounting period a total of thirteen travels by train or air planes have been conducted.

Emissions related to travels by air is based on emissions calculated for each travel by applying the carbon emission calculator developed by the International Civil Aviation Organisation ICAO (http://www2.icao.int/en/carbonoffset/Pages/default.aspx)

Carbon emissions related to travels by railroad is based on the carbon calculator developed by the International Union of Railways (UIC).

GHG INVENTORY FOR 2011/2012

The inventory covering the fiscal year 2011/12 demonstrates a total emission corresponding to 21.5 ton $CO_{2\text{-eqv}}$. The figure below illustrates the breakdown of the global emission into the emission sources included in the scope 3 GHG inventory.

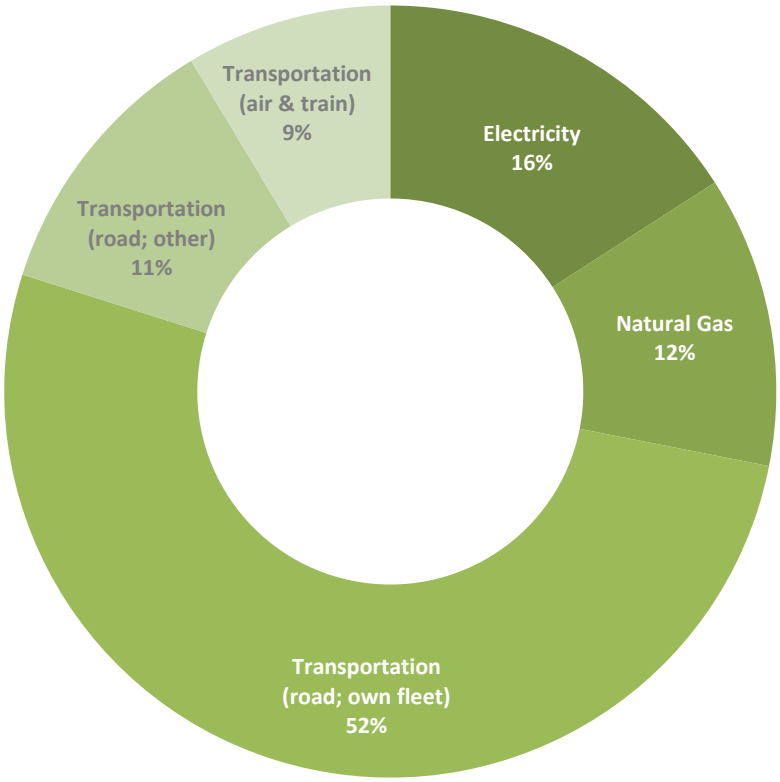


Figure 1 - Breakdown of GHG emissions 2011/12.

Emissions related to transports of employees as part of the business activities represent approx. 52% of the global emissions. Indirect emissions from the consumption of electricity are the second largest single emission source, representing 16% of the global emissions, followed by gas consumption which represents 12% of the total.

The figure below provides a breakdown of the global GHG emissions by scope and indicates that scope one emissions are representing 64% of the total emissions in total volumes, while scope 3 and 2 represent respectively 20% and 16% of total emissions.

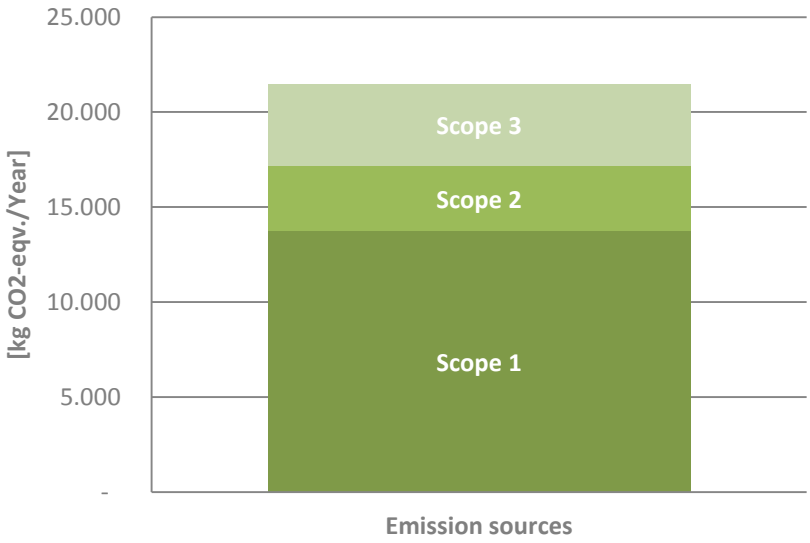


Figure 2 - Breakdown of GHG emission by scope.

GHG INVENTORY MANAGEMENT AND PERFORMANCE

The GHG emissions of Scantago Aps have increased by 17.5% within the fiscal year 2011/2012 compared to the reference baseline (GHG inventory for 2010/2011). The comparison to baseline of GHG emissions breakdowns by reporting scope and by source is illustrated in the charts below.

The overall GHG emissions associated to scope 1 have been subject to a substantial increase by 55%, while the emissions associated to scope 2 and 3 have decreased by 14% and 21% respectively.

The increase in emissions within scope 1 is due to transportation with cars owned by the company, which have actually increased by 76% compared to baseline. The emissions from gas consumption (office heating) have remained nearly the same (slight increase by 2%).

The 14% reduction of emissions within scope 2 linked to electricity consumption, are due to two main factors:

- A reduction of the electricity emission grid factor by approx. 6% compared to baseline
- A reduction of the company's office specific electricity consumption by approx. 8%, which decreased from 46 Kwh/m2 to 42 Kwh/m2. This was achieved by implementing energy efficiency measures within the office IT data storage units (server).

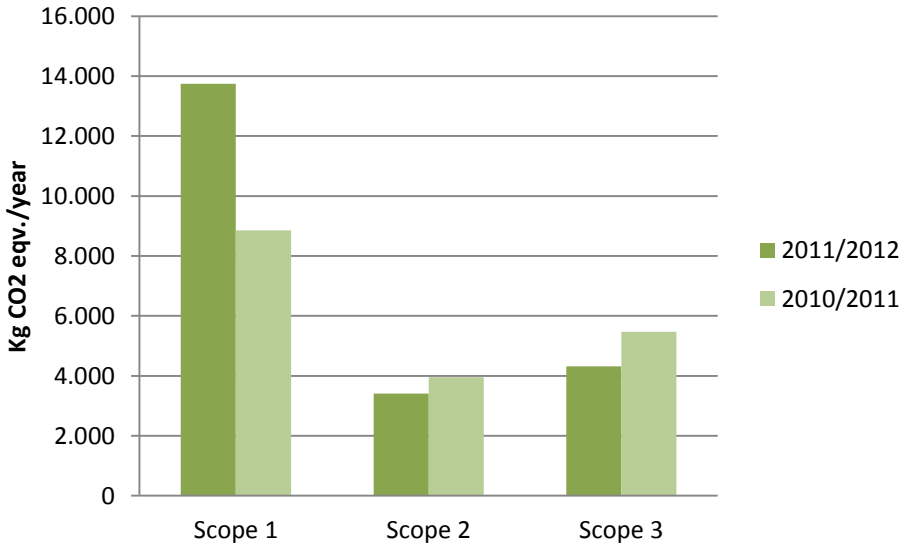


Figure 3 – Comparison to baseline of GHG emissions by reporting

scope.

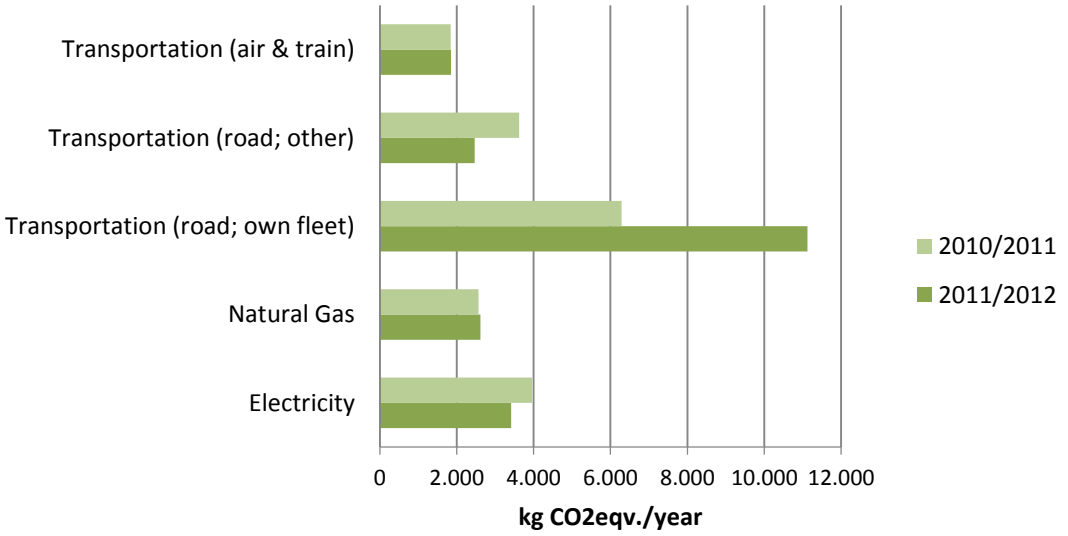


Figure 4 – Comparison to baseline of GHG emissions by source.

It is highlighted that while CO2 emissions related to cars owned by the company have increased by 76%, car emissions related to other cars on behalf of the company, have decreased by 32%, in line with the company policy on travels. Therefore the overall increase of emissions related to travels with cars (company owned and others) has effectively increased by 44% only. The emissions related to travels by air/train have remained constant compared to baseline.

The emissions related to company's transportation, are linked to the volume of company activities and the nature of the business, which predominantly consists of service's delivery to clients, part of which has to be delivered at client's site. During the fiscal year 2011/2012 the company activities have increased significantly with a turnover increase by 56% compared to baseline, which largely justify the overall 44% increase of CO2 car's transportations emissions. The specific carbon intensity of the company's activities, measured as CO2 emissions per unit of generated turnover [gCO2/euro], has dropped by 25%.

The key performance benchmarking figures related to the company CO2 emission as presented in Fig. 5, indicate a positive reduction trend compared to baseline, both for electricity specific consumption and fuel CO2 intensity. The gas specific consumption is in line with baseline (good energy efficiency of the building and its use).

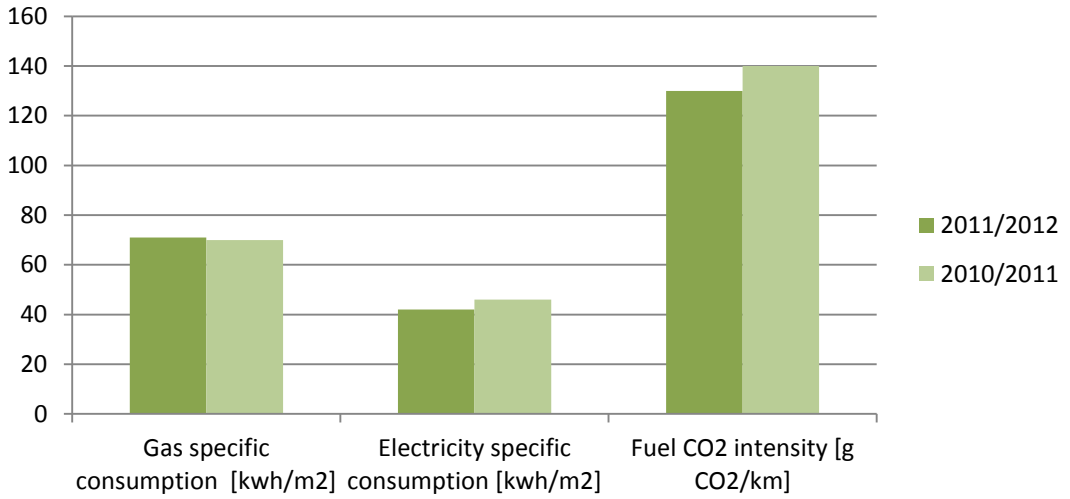


Figure 5 – Benchmarking of specific energy consumption figures.

The company has already introduced sound monitoring and accounting practices for GHG emissions, both for direct and indirect sources, which provides the basis for assessing performance and trends of the GHG emissions.

It is important to continue the current practices for monitoring consumptions of gas and electricity as well as introducing energy efficiency measures for anchoring current green procurement practices in a policy with relevant guidelines in order to ensure a positive impact on the development of the emission profile.

Due to the nature of the business of Scantago, and considering the baseline and the improvements already made, the potential for further reduction of CO2 emissions is challenging. Therefore the purchase of CO2 carbon credits for offsetting company's CO2 emissions, which was initiated within 2011/2012, should be considered as a viable practice to be continued in the future for demonstrating company's adherence to sustainability principles.

ANNEX 1 – EMISSION FACTOR GAS

Average 2012 values for composition and emission of greenhouse gases by consumption of 1m_N^3 of natural gas in Denmark.

Source of information: http://energinet.dk/DA/GAS/Gasdata-og-kvalitet/Gaskvalitet/Sider/Vis-gaskvalitet.aspx?Visning=aarsgennemsnit

2012		Gns.	Min	Max
Metan	mol - %	88,84	85,46	91,77
Ethan	mol - %	6,11	4,97	8,35
Propan	mol - %	2,44	1,52	3,55
I-butan	mol - %	0,37	0,24	0,44
N-butan	mol - %	0,54	0,32	0,66
I-pentan	mol - %	0,13	0,07	0,20
N-pentan	mol - %	0,08	0,05	0,12
Hexan+	mol - %	0,06	0,03	0,11
Nitrogen	mol - %	0,36	0,26	1,30
Kuldioxid	mol - %	1,06	0,23	1,80
Øvre brændværdi	kWh/m_n^3	12,146	11,700	12,415
Øvre brændværdi	MJ/m_n^3	43,725	42,120	44,694
Nedre brændværdi	kWh/m_n^3	10,985	10,572	11,238
Nedre brændværdi	MJ/m_n^3	39,548	38,059	40,457
Wobbe index	kWh/m_n^3	15,190	14,824	15,349
Wobbe index	MJ/m_n^3	54,684	53,366	55,256
Norm. Dens.	kg/m_n^3	0,8266	0,7974	0,8560
Rel. Dens.	[-]	0,6393	0,6168	0,6621
Metantal	[-]	72,1	69,4	77,4
H_2O-dugpunkt	°C	-22,6	-43,8	-9,7
HC-dugpunkt	°C	-11,9	-18,3	-4,0
Svovlbrinte	mg/m_n^3	3,2	0,2	6,8
Svovl-total	mg/m_n^3	2,4	-	-
CO_2 emissionsfaktor	kg/GJ	57,03		

ANNEX 2 – EMISSION FACTOR ELECTRICITY

Supplier: SEAS-NVE

Elleverandør: SEAS-NVE
Adresse: Hovedgaden 36
4520 Svinninge
Telefon: 70 29 29 29
Hjemmeside: www.seas-nve.dk

seas nve

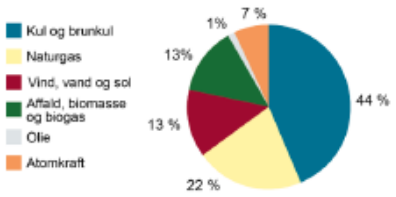
Generel deklaration 2011

Deklarationen viser brændselsfordelingen samt de tilhørende miljøpåvirkninger ved almindeligt salg af elektricitet i Danmark. Den generelle deklaration er beregnet ud fra elproduktionen i Danmark og er korrigeret for udvekslingen af el med nabolandene samt el-salget til de elkunder, der har købt individuelt deklareret elektricitet, fx vindmøllestrøm.

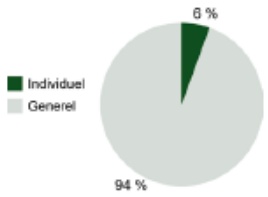
Figuren nedenfor til højre viser hvor stor en del af elforbruget i Danmark i 2011, der er købt som individuelt deklareret elektricitet. Det resterende elsalg er deklareret ved hjælp af den generelle deklaration.

Brændselsfordeling og el-salg ifølge individuelle deklarationer

Brændselsfordeling 2011



El-salg ifølge individuelle deklarationer 2011



Miljøforhold ved forbrug af 1 kWh

Elproduktion fra vedvarende energikilder, der omfatter el produceret fra vind, vand, sol, biogas, biomasse og den bionedbrydelige andel af affald, er kendetegnet ved ikke at medføre CO_2-emission.

Elproduktion fra vind, vand og sol er helt emissionsfri, mens der ved brug af biogas, biomasse, affald og fossile brændsler (kul, olie og naturgas) dannes en række emissioner til luften og restprodukter.

Emissioner til luften sker bl.a. som drivhusgasser (kuldioxid, metan og lattergas) og som forsurende gasser (svovldioxid og kvælstofoxider).

Restprodukter kan ofte anvendes, fx afsvovlingsproduktet gips til byggematerialer og kulasker til cementindustrien. Bioasker bruges ofte til gødskning.

Ved forbrug af 1 kWh fremkommer	Deklaration 2011	Deklaration 2010
Emissioner til luften	**g/kWh**	
CO_2 (Kuldioxid - drivhusgas)	446	473
CH_4 (Metan - drivhusgas)	0,24	0,24
N_2O (Lattergas - drivhusgas)	0,005	0,006
Drivhusgasser (CO_2-ækv.)	452	480
SO_2 (Svovldioxid)	0,07	0,07
NO_x (Kvælstofoxider)	0,32	0,34
CO (Kulilte)	0,15	0,15
NMVOC (Uforbrændte kulbrinter)	0,05	0,05
Partikler	0,01	0,01
Restprodukter	**g/kWh**	
Kulflyveaske	15,6	14,5
Kulslagge	1,6	2,0
Afsvovlingsprodukter (Gips m.v.)	6,1	5,8
Slagge (affaldsforbrænding)	7,4	7,2
RGA (røggasaffald)	1,3	1,2
Bioaske	1,2	1,1
Radioaktivt affald (mg)	0,3	0,1

ANNEX 3 – FLEET EMISSION FACTORS

Vehicle Number	Registered	Producer	Model	Fuel	kg CO2/km
3	2010	FIAT	Doblo Cargo 1.6	Diesel	0,138
4	2011	FIAT	Doblo Cargo 1.6	Diesel	0,133
5	2011	FIAT	Doblo Cargo 1.6	Diesel	0,133

Source of information:
http://www.seai.ie/Power_of_One/Getting_Around/HCIYC/

ANNEX 4 – CARBON OFFSETTING CERTIFICATE

Carbon Offset Certificate

On behalf of

Scantago ApS

company registration number DK29174881, we confirm the cancellation of volume

22 Tons of CO_2 emissions

from our account in the European Emission Trading System Registry for offsetting greenhouse gas emissions covering the period

2011.10.01 - 2012.09.30

Lars Munkøe
CEO, EXIMA ApS
Issue Date: 2013.01.14

Transaction and Carbon Credit Project information

Project Title	Jepirachi Wind Power Project
Country	Colombia
Project type	Clean Development Mechanism
UNFCCC Project No.	0194
EU ETS Registry transaction No.	DK592459

EXIMA

Issued by EXIMA ApS, Langogade 17, DK-2100 Copenhagen, DENMARK, Company Reg.No DK31474515
Tel +45 8870 9007, info@exima.eu, www.exima.eu

ANNEX 5 – CDM PROJECT OUTLINE

UNFCCC Project Reg. No	0194
Title	Jepirachi Wind Power Project
Country	Colombia, South America
Location	The Project is located within the Wayuu Indigenous Territory in the North-eastern region of the Atlantic Colombian coast, in the area between Cabo de la Vela and Puerto Bolivar, within the region of Uribia in the Department of Guajira.
Project Type	Small Scale
Methodology	ACM0002 ver. 3 Consolidated methodology for grid-connected electricity generation from renewable sources
Crediting Period	31 Jan 04 - 30 Jan 11
Registered by UN Executive Board	April 2006
Summary	The project contributes to transfer of technology, as it is the first wind power generation facility to operate in Colombia on a commercial basis. All equipment utilized in the Project is proven technology that has been successfully applied in similar projects in other regions of the world. The nominal power capacity of 19.5 MW is supplied by a total of 15 wind generators with a rated capacity of 1.3 MW each. The Project site is connected to the national grid via an 8km standard transmission line.
Background	Most of this installed capacity is hydro-based (about 66%) making the country highly reliant on hydropower. Since 1980 the Colombian Electricity Supply System has maintained a hydroelectric share in the range 55-75% and a thermal composition in the range 25 to 45%. In the period 1990-2001, five dry years affected the supply of electricity, including the drought of 1992

due to El Niño phenomenon. This caused power shortages with associated forced rationing of the supply and has been a cause of concern and has led efforts to diversify the sources of power, focusing on an expansion of thermal generation capacity.

The increase in thermal share of the energy supply 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 and 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 energy system, the increase in thermal share contributes to the gradual increase of greenhouse gas emissions by the sector and the release of local criteria pollutants (such as NOx and, SOx particulates and volatile hydrocarbons, which have been linked to health of exposed populations).

Detailed Project Description

The Guajira region on Colombia's northeast Atlantic coast is one of the poorest on the South American continent. An inhospitable environment has made everyday life on their traditional lands miserably difficult for the region's indigenous Indian people, the Wayuu.

There is no permanent access to drinking water, which results in a high level of disease in an area with ill-stocked health centres and lack of access to education.

Once construction is completed in February 2004, the fifteen windmills will be delivering around 68.3 GWh per year to the Colombian national grid.

Over a 21-year period, the project will prevent carbon dioxide emissions of 1,168,000 tons, which would occur if the power were generated by conventional methods.

The name Jepirachi means ”northeast wind“ in the Wayuu language, and indeed the location is ideal for wind generation—at a height of around 60 meters the average wind speed is 10 meters per second. And the wind is constant, ensuring a high annual yield of power.

The Jepirachi Wind Power Project was used as a basis to propose a new baseline methodology to the Clean Development Mechanism Executive Board based on least cost analysis and optimization modelling for renewable energy capacity additions to existing power systems. It was also the basis for the proposal of a new monitoring methodology for capacity expansion projects which replace electricity that would otherwise be generated and dispatched to the grid by other power plants.

Contribution to Sustainable Development

In order to ensure close linkage and harmonization of project activities with the indigenous peoples of the area as well as to ensure respect and integrity of their culture, the Jepirachi Project will contribute to the development of the host indigenous community by financing a series of community-driven projects.

The project includes a Social Management Plan during the project preparation phase, see separate table below. The main objective of this Plan was to inform, consult and agree with indigenous communities and local and environmental authorities on the activities as well as to carry out the formal consultation required under Colombian law.

First, it will demonstrate the potential for wind-based generation at the commercial level, thereby facilitating investments that will capture the relatively large wind-energy potential identified in the country.

Secondly, the Jepirachi Wind Power Project will contribute to the capacity to increase the share of non-hydroelectric energy in the national grid, which is currently dominated by hydroelectric and thermal energy options. This is critical for Colombia, as it must enhance the grid's reliability of supply to avoid the forced rationing experienced during the 1990s after severe droughts caused power shortages. Without carbon finance, the favoured option for capacity additions would be thermal energy given its relatively low cost.

Finally, the Jepirachi Wind Power Project will contribute to the development of the host indigenous community, which is among the poorest in the country, by financing a series of community-driven projects designed in consultation with the project sponsor, that are above and beyond what is required by the system of transfers mandated by Colombian law.
The social plan was the result of extensive consultation

with the community and the project developer about community needs. The main features of the social plan are: training to facilitate direct and indirect job creation; the provision of a water desalinization plant fed by wind power and the provision of water storage depots; the rehabilitation of the graveyard; health and educational facilities, as well as the refurbishing of a health centre, including solar powered refrigeration capacity. By targeting water supply, education and health services, the project addresses the priorities for social development identified by the community. There is also an agreement between the project sponsor and the host indigenous community to review the program two years following its implementation.

For its part, the World Bank Prototype Carbon Fund, PCF has agreed to pay a premium of US$0.50 per ton of emission reductions upon the implementation of this plan—in addition to the funds for the purchase of 800,000 tons—which will be monitored using a series of specified indicators.
The Emission Reductions Purchase Agreement contains an innovative clause that identifies under which conditions this premium will be paid, namely upon delivery of the emission reductions and upon verification that the social plan has been implemented.

Project web sites

http://wbcarbonfinance.org/Router.cfm?Page=Projport&ProjID=9605
http://cdm.unfccc.int/Projects/DB/SGS-UKL1135244574.04/view

Summary of the project Social Management Program

Program	Objectives	Project
Information and communication program	1. To inform communities on the project, its characteristics and stages 2. To establish harmonic relationships between communities and the project sponsor. 3. To encourage community participation.	a) Information, communication and dissemination of the wind project. b) Reception and resolution of claims c) Field visits to follow up the construction process
Employment opportunities program	Improve community income	a) Direct employment (recruitment and hiring) b) Indirect employment (acquisition of raw materials, goods and services)
Environmental education program	To promote sustainable development	a) Dissemination of the EMP for employees and communities b) Training on design of environmental projects c) Ethno education projects d) Training on management of reservoir of water e) Training on solid waste disposal f) Training on adequate use of natural resources
Participation and community strengthening program	1. To strengthen communities 2. To facilitate communities' access to financial resources	a) Training on indigenous rights according to Colombian law b) Training on formulation, implementation and assessment of self management projects to access legal transfers and additional PCF benefits

Program	**Objectives**	**Project**
Information and Training for employees program	To respect the cultural characteristics of communities	a) Training on cultural life of Wayuu people to employees and contractors
Compensation Program the standard of living	1. To compensate for the use of land and resources 2. To improve	a) Water desalinization plant b) Water storage c) School rehabilitation d) Health Center rehabilitation e) Rehabilitation of graveyard
Technology Dissemination Program	To inform and disseminate the advances of the new technology	a) Field visits to the wind power plant b) Dissemination of material on new technology