CLEAN DEVELOPMENT MECHANISM
PROJECT DESIGN DOCUMENT FORM (CDM-SSC-PDD)
Version 03 - in effect as of: 22 December 2006

CONTENTS

Annexes

Revision history of this document

Version Number	Date	Description and reason of revision
01	21 January 2003	Initial adoption
02	8 July 2005	• The Board agreed to revise the CDM SSC PDD to reflect guidance and clarifications provided by the Board since version 01 of this document. • As a consequence, the guidelines for completing CDM SSC PDD have been revised accordingly to version 2. The latest version can be found at <http://cdm.unfccc.int/Reference/Documents>.
03	22 December 2006	• The Board agreed to revise the CDM project design document for small-scale activities (CDM-SSC-PDD), taking into account CDM-PDD and CDM-NM.

SECTION A. General description of small-scale project activity

A.1 Title of the small-scale project activity:

Title: Fuel Switching from Mazout to Natural Gas in Quena Paper Industry Co. (QPIC)
Version: 05
Date of completion: 28th of November, 2012

A.2. Description of the small-scale project activity:

Project description:

The project activity is located at Quena Paper Industry Company (QPIC) factory in Kous, a town in the governorate of Quena in Upper Egypt. Established on an area of 110 feddans in June, 1995, QPIC manufactures newsprint paper, printing and writing paper using bagasse and imported pulp as the main raw materials. In the local market, QPIC's paper is acquired by many printing presses as a substitute for imported paper. About 25% of QPIC's production is exported. This percentage is intentionally limited to help meet the demands of the local market.[1]

There are two boilers at QPIC factory:

1) Main power boiler: burns heavy fuel oil (HFO), commercially known as mazout.
2) Recovery boiler: burns lignin as bio-fuel.

Under this project activity, a natural gas connection will be constructed to feed the main power boiler. The main power boiler is the only boiler included in the project boundary. The project boiler will remain to be connected to HFO storage tanks to be used for emergencies or if NG flow is disrupted.

The recovery boiler in QPIC factory, which burns lignin (a bio-fuel by-product of paper manufacture[2]), will remain as such. The recovery boiler is outside the boundary of this project activity.

Steam from the boilers provides process steam and drives a turbine that generates electricity for the factory's operation. No electricity is exported from the factory.

Purpose of the project activity:

The project activity reduces greenhouse gas (GHG) emissions at QPIC factory through switching the fuel in the power boiler from HFO to NG. The closest NG pipeline is located west of the Nile. There is currently no existing connection to Quena (east of the Nile) where QPIC is located. The NG network will be extended over 7.5 km to reach the QPIC factory.

The power boiler has a dual-fuel burner, which is capable of burning HFO and NG. The project activity includes construction of the external NG network to bring NG to the plant, a pressure reduction station,

[1] Data obtained from QPIC website accessed on April 24, 2012 - http://www.qpicpaper.com/index_en.php
[2] Research article on lignin, published March 3, 2009 - http://www.nanowerk.com/news/newsid=9480.php

the internal NG network, installing new piping system for the flow of NG, as well as adjusting an additional backup energy system for NG.

Contributions to sustainable development:

The project activity meets the sustainable development criteria established by Egypt's Designated National Authority (DNA), as evidenced by the DNA's Letter of Approval. Burning NG in place of HFO represents a clean technology demonstration to reduce the GHG emissions of the project activity.

Environmental impact: HFO contains large amounts of sulfur, while S-content in NG is insignificant.[3] Thus, fuel switching from HFO to NG will decrease the SOx emissions considerably, as well as decrease large portion of NOx and PMs, which are not considered under Kyoto protocol but are harmful pollutants. The project activity also reduces the risk of water contamination caused by possible HFO leakage during transportation from refineries to factory and discharging from tankers to storage tanks, in addition to reductions in pollution from tankers that are presently used for transporting the HFO.

Social impact: Decreased air pollutants will generally improve the health conditions in Kous town. Potential risks of skin contact during maintenance and handling of HFO, and fire and explosion risks of HFO tankers and storage tanks will be prevented creating social benefits for labour conditions. The introduction of piped NG will remove the need for these deliveries and help reduce heavy truck traffic in the area.

Economic and technological impact: The project activity will create the first NG connection to the town by financing the extension of the NG grid to the east of the Nile in Kous. The project makes it possible for smaller industries in the area to switch to NG, and – eventually – residential households.

A.3. Project participants:

Name of Party involved (*). ("host" indicates a host Party)	Private and/or public entity(ies) project participants (*) (as applicable)	Party involved and wishes to be considered as project participant (Yes/No)
Egypt (host)	Quena Paper Industry Co. (QPIC) – Private Entity	No
UK	Climate Corporation Emissions Trading GmbH – Private Entity	No

Please see the contact information listed in Annex 1.

[3] Combustion in energy and transformation industries (Section 3.3.4. Combustion of gas/oil, Table 3), EEA Europe Publications - http://www.eea.europa.eu/publications/EMEPCORINAIR/group01.pdf

A.4. Technical description of the small-scale project activity:

A.4.1. Location of the small-scale project activity:

A.4.1.1. Host Party(ies):

Arab Republic of Egypt (A.R.E.)

A.4.1.2. Region/State/Province etc.:

Quena Governorate

A.4.1.3. City/Town/Community etc:

Kous Town

A.4.1.4. Details of physical location, including information allowing the unique identification of this small-scale project activity :

QPIC factory is located in Kous town - Quena Governorate, which is close to Luxor city as illustrated in Figure (1). Using the actual location coordinates (N 26° 07' 29.86" latitude and E 32° 29' 27.69" longitude), a satellite image of QPIC factory is shown in Figure (2).

Figure 1: Egypt map showing the location of Kous (Qus) town - Qena governorate

Figure 2: Satellite image of QPIC factory using the location coordinates[4]

A.4.2. Type and category(ies) and technology/measure of the small-scale project activity:

Type III – Other project activities
Category B – Switching fossil fuel (Version 16)
Sectoral Scope 1 – Energy industries (renewable – non-renewable sources)

In QPIC factory, the main power boiler will undergo fuel switching to burn NG instead of HFO (mazout). The fuel switching project involves:

- Construction of infrastructure for the NG networks, both inside and outside the factory.
- Construction of pressure reduction station.
- Modification of the external connections of the boiler to allow for burning NG.
- Installation of measuring devices, safety valves, pressure control system, and other required equipment, as well as new operating standardization for NG that has to be introduced to the factory as part of the project activity.

[4] Actual GPS location coordinates were obtained onsite and used to obtain satellite image - http://maps.google.com/

The technical specifications of the power boiler encompassed by the project are summarized in the following table.

Table 1: Main power boiler specifications[5]

Specs. Description	Baseline Scenario	Project Scenario
Main fuel used	Heavy fuel oil	Natural gas
Model (Burners)	Dual-type burners	
Maximum continuous rate	240 tonne steam per hour	
Economic continuous rate	200 tonne steam per hour	
Operating pressure	64 bar (gauge)	
Outlet steam temperature	500ºC	

Regular maintenance at QPIC:

QPIC is an ISO 9001:2008 certified company and has a record of following the appropriate quality and environmental management system (QMS and EMS) procedures. Hence, QPIC maintains internal maintenance guidelines in accordance with ISO 9001 EP-730 (procedure for design and development), whose purpose is to plan, implement and follow up on the periodical maintenance work based on the preventive maintenance plan set for all production lines with the objective of increasing the efficiency of the equipment and instrumentation, as well as the operation and overall process efficiency.

Maintenance engineers and technicians are responsible for carrying out the maintenance regularly and keeping a thorough record of the equipment operation. Part of the technical specifications of the project boiler is a manual for maintenance, which includes instructions on how to apply proper maintenance procedure for the equipment and the appropriate frequency.

Regular training at QPIC:

QPIC also maintains internal training guideline in accordance with ISO 9001 QP-622 (procedure for the competence awareness and training), where department heads are responsible for specifying the training needs of their staff and providing the management with their annual training requirements on regular basis.

Once the annual training plan is decided, the department heads are notified and asked to nominate staff members to attend each of the training sessions/workshops scheduled.

A.4.3 Estimated amount of emission reductions over the chosen crediting period:

The project will result in average emissions reduction of approximately 587378 tCO_2e in the 10 years crediting period. The annual average emissions reductions are shown in the following table.

[5] Technical specifications of the power boiler as listed in the boiler's manual.

Table 2: Estimated amount of emissions reduction

Year	Estimation of annual emissions reduction in tonnes of CO_2e (tCO_2e/yr)
30 Dec 2012 – 29 Dec 2013	58737.82
30 Dec 2013 – 29 Dec 2014	58737.82
30 Dec 2014 – 29 Dec 2015	58737.82
30 Dec 2015 – 29 Dec 2016	58737.82
30 Dec 2016 – 29 Dec 2017	58737.82
30 Dec 2017 – 29 Dec 2018	58737.82
30 Dec 2018 – 29 Dec 2019	58737.82
30 Dec 2019 – 29 Dec 2020	58737.82
30 Dec 2020 – 29 Dec 2021	58737.82
30 Dec 2021 – 29 Dec 2022	58737.82
Total estimated emissions reduction (tCO_2e)	**587378.2**
Crediting Period (years)	**10**
Annual average estimated emissions reduction over the crediting period (tCO_2e/yr)	**58737**

A.4.4. Public funding of the small-scale project activity:

Under the Egyptian Environmental Affairs Agency (EEAA), and supported by KfW (German development bank), Private Public Sector Industry Project (PPSI) is established to enhance pollution abatement projects for industrial facilities in Upper and Lower Egypt. PPSI project is operational from 2008 to 2012, providing a grant of 20% of the required investment to eligible applicants, which can be received only after one year of successful implementation of a project.[6]

To date, QPIC has not received grants for the fuel switching project activity. QPIC could be included in PPSI-Phase II project portfolio, and thus may be eligible to receiving the PPSI grant, given that successful implementation of the project activity is achieved. PPSI funding, if and when received, does not result in a diversion of Official Development Assistance (ODA). See Annex 2 of this document.

A.4.5. Confirmation that the small-scale project activity is not a debundled component of a large scale project activity:

Appendix C, paragraph 2 of the Simplified Modalities and Procedures for Small-Scale CDM project activities states that:

"A proposed small-scale project activity shall be deemed to be a debundled component of a large project activity if there is a registered small-scale CDM project activity or an application to register another small-scale CDM project activity: with the same project participants; in the same project category and technology/measure; registered within the previous 2 years; and whose project boundary is within 1 km of the project boundary of the proposed small-scale activity at the closest point"

[6] Information on PPSI as published on EEAA website accessed on April 24, 2012 - http://industry.eeaa.gov.eg/

Table 3: Demonstration that the project is not a debundled component of a large scale project activity

Appendix C, paragraph 2 Bundling Requirements	QPIC Fuel Switch Project
"Small-scale CDM project activity with the same project participants"	✓ There is no other CDM project that has been registered or has applied for registration by the project participants.
"Small-scale CDM project activity in the same project category and technology /measure"	✓ There has been no project activity that has been registered or applied for registration by the project participants in the same project category and technology/measure.
"Small-scale CDM project activity registered within the previous 2 years"	✓ There has been no project activity registered, or applied for registration, by the same project participants within the last two years..
"Small-scale CDM project activity whose project boundary is within 1 km of the project boundary of the proposed small-scale activity at the closest point."	✓ There has been no project activity that have been registered or applied for registration within 1 km of this project activity.

SECTION B. Application of a baseline and monitoring methodology

B.1. Title and reference of the approved baseline and monitoring methodology applied to the small-scale project activity:

The project activity applies the approved baseline methodology as defined in Appendix – B of the Simplified Modalities & Procedures for Small-Scale CDM Project Activities:
AMS-III.B. Switching Fossil Fuels (Version 16)

B.2 Justification of the choice of the project category:

As stated in AMS-III.B (Ver. 16) methodology, the baseline methodology is applicable to projects where:

Table 4: Demonstration of applicability of the chosen methodology

Applicability clauses of AMS-III.B (Version 16) methodology	Applicability of the clauses to the small scale project activity
1. *"This methodology comprises fossil fuel switching in industrial, residential, commercial, institutional, or electricity generation applications."*	✓ The project involves switching the fuel used to operate the main power boiler at QPIC factory from HFO to NG. HFO will be used only in case of emergency disruption of NG.
2. *"Fuel switch may be in a single element process or may include several element processes within the facility. Multiple fossil fuel switching in an element process however is not covered under this methodology."*	✓ The fuel switch will be in a single element process (please refer to *B.3. Description of Project Boundary*). The switch will be from only one type of fuel (mazout) to one type of fuel (NG).

3. *"This methodology is applicable for new facilities as well as for retrofit or replacement of existing installations."*	✓ The project involves fuel switching in an existing power boiler by retrofitting
4. *"Fuel switching may also result in energy efficiency improvements. If the project activity primarily aims at reducing emissions through fuel switching, it falls into this methodology. If fuel switching is part of a project activity focussed primarily on energy efficiency, the project activity falls under a Type II methodology."*	✓ The project activity primarily aims at reducing emissions through fuel switching from HFO to NG.
5. *"New facilities (Greenfield projects) and project activities involving capacity additions compared to the baseline scenario are only eligible if they comply with the related and relevant requirements in the general guidelines to SSC CDM methodologies. The requirements concerning demonstration of the remaining lifetime of the replaced equipment shall be met as described in the general guidelines to SSC CDM methodologies. If the remaining lifetime of the affected systems increases due to the project activity, the crediting period shall be limited to the estimated remaining lifetime, i.e. the time when the affected systems would have been replaced in the absence of the project activity"*	✓ The project is neither a new facility nor will it involve any capacity additions to the baseline scenario.
6. *"This methodology is not applicable to project activities that propose switch from fossil fuel use in the baseline to renewable biomass, bio-fuel or renewable energy in the project scenario. A relevant Type I methodology shall be used for such project activities that generate renewable energy displacing fossil fuel use. This methodology is also not applicable to project activities involving the use of waste gas; these project activities might be eligible under AMS-III.Q"*	✓ Renewable biomass, bio-fuel, renewable energy, or waste gas will not be used to replace HFO combustion in QPIC factory.
7. *"The facility may involve grid connected elemental processes however this methodology does not cover emission reductions on account of shift from use of a grid electricity or electricity exported to a grid"*	✓ No emissions reduction due to shift from use of grid electricity or electricity exported to a grid are claimed under the project activity.
8. *"This category is applicable to project activities where it is possible to directly measure and record the energy use/output (e.g., heat, steam and electricity) and consumption (e.g., fossil fuel) within the project boundary."*	✓ It is possible to directly measure energy output of steam generated by the boiler and the consumption of HFO and NG within the project boundary.

9. *"Heat, steam or electricity produced under the project activity shall be for on-site captive use or and/or export to other facilities included in the project boundary."*	✓ All the steam produced under the project activity will be only for on-site captive use. ✓ No energy (heat, steam or electricity) is exported to other facilities outside the project boundary.
10. *"In case energy produced by the project activity is delivered to another facility, or facilities, within the project boundary, a contract between the supplier and consumer(s) of the energy will have to be entered into specifying that only the facility generating the energy can claim emission reductions from the energy displacement. "*	✓ The energy produced by the project activity will be utilized by the factory itself.
11. *"Regulations do not constrain the facility from using the energy sources cited in paragraph 1 before or after the fuel switch. Regulations do not require the use of low carbon energy source (e.g. natural gas or any other fuel) in the element processes. "*	✓ The regulations do not constrain the facility from using the energy sources cited in paragraph 1. ✓ There are no legislative requirements in Egypt for the use of low carbon energy sources (e.g. NG).
12. *"The project activity does not result in integrated process change. The purpose is to exclude measures that affect other characteristics of the process besides switch of energy sources e.g. operational conditions, type of raw material processed, use of non-energy additives, change in type or quality of products manufactured etc."*	✓ The project activity will not result in integrated process change in QPIC factory. ✓ No change in operational conditions, type of raw materials, or type or quality of products will occur.
13. *"Measures are limited to those that result in emission reductions of less than or equal to 60 kt CO_2 equivalent annually."*	✓ The project activity will result in emissions reduction of less than 60 kt CO_2eq annually.

Therefore, AMS-III.B methodology is applicable to this project activity.

B.3. Description of the project boundary:

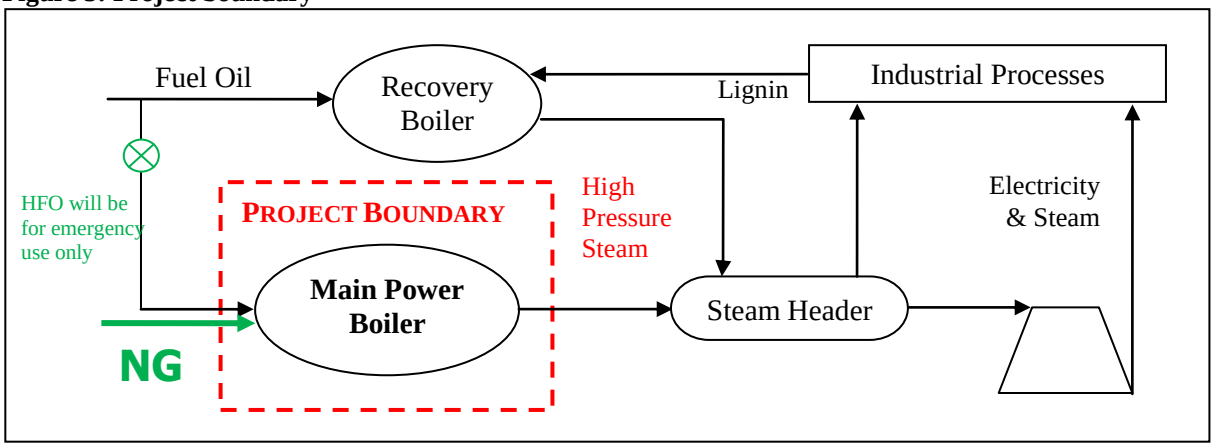
As stated in AMS-III.B:

"The project boundary is the physical, geographical site where the switching of energy source takes place. It includes all installations, processes or equipment affected by the switching. In case energy produced by the project activity is delivered to another facility, the boundary also extends to the industrial, commercial facilities consuming energy generated by the system."

For the fuel switching project activity at QPIC, the project boundary (presented in the figure below) is taken as the main power boiler in QPIC factory, since the fuel combustion and place where the fuel switch is to be applied is in the power boiler, while the recovery boiler will remain operating as in the baseline (please refer to *A.2.1. Project Description*).

The energy produced by the project activity is all used by QPIC and is not delivered to any other facility. The project boundary, accounting for all emissions emitted by the project activity, is illustrated as red-dotted-lines in Figure (3).

Figure 3: Project boundary



The following table shows the sources and types of gases included in the project boundary:

Table 5: Sources and types of gases included in the project boundary

Phase	Source	Gas	Included or not?	Justification/Explanation
Baseline	Heavy fuel oil combustion	CO_2	Yes	Main emission source in the baseline scenario.
		CH_4	No	Considered as minor source.
		N_2O	No	Considered as minor source.
Project activity	Natural gas combustion	CO_2	Yes	Main emission source in the project scenario.
		CH_4	No	Considered as minor source.
		N_2O	No	Considered as minor source.

B.4. Description of baseline and its development:

As stated in AMS-III.B:
"In case of existing facilities historical information (detailed records) on the use of fossil fuels and the plant output (e.g. heat or electricity) in the baseline captive energy generation plant from at least three years prior to project implementation shall be used in the baseline calculations."

The baseline scenario is the continuation in HFO combustion in the power boiler at QPIC factory as evident from the historical fuel consumption records for this boiler. In compliance with the methodology, emissions reduction will be determined using actual data which will also be monitored during verification. Historical records - from Oct 2008 until Sept 2011 - for fuel use and steam output by the project boiler are used to calculate the baseline emissions.[7] The key variables and parameters used to calculate the emissions reduction are listed in the following table.

[7] See Annex 3 for details on the historical baseline information used.

Table 6: Key variables and parameters

Variables and Parameters *	Data Source
Quantity of HFO combusted in the boiler (before project implementation)	QPIC historical data
Quantity of steam generated by the boiler (before project implementation)	QPIC historical data
Quantity of NG to be combusted in the boiler (after project implementation)	Calculated
Quantity of steam to be generated by the boiler (after project implementation)	Calculated
Net calorific value of HFO	National data
CO_2 emission factor of HFO	National data
Net calorific value of NG	National data
CO_2 emission factor of NG	National data
* Each parameter is described in more details in sections B.6.2 and B.7.1	

B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered small-scale CDM project activity:

In accordance with the requirements of the small-scale CDM PDD, barriers that would prevent the implementation of the project activity in absence of CDM will be determined according to the options provided in the "Guidelines on The Demonstration of Additionality of Small Scale Project Activities"[8], which state that:

> *Project participants should provide an explanation to show that the project activity would not have occurred anyway due to at least one of the following barriers: (a) Investment barrier; (b) Technological barrier; (c) Prevailing practice barrier; and (d) Other barriers.*

The applicable barriers for this project activity are within the *"other barriers"* category, defined as:

> *(d) Other barriers: without the project activity, for another specific reason identified by the project participant, such as institutional barriers or limited information, managerial resources, organizational capacity, financial resources, or capacity to absorb new technologies, emissions would have been higher*

The barrier applicable to QPIC is the limited financial resources, and is demonstrated below in accordance with the "Guidelines for the Objective Demonstration and Assessment of Barriers"[9], which state the following in paragraph 14:

> ***Guideline 1:*** *While demonstrating barriers related to the lack of access to capital, technologies and skilled labour, the project proponents shall provide information on the nature of the companies and entities involved in the financing and implementation of the project. More specifically:*
>
> - *While demonstrating barriers related to the lack of access to capital, information should include nature of company, organization and its ownership and, financial information.*

[8] Guidelines on The Demonstration of Additionality of Small Scale Project Activities (EB 68, Annex 27, Ver. 09.0) - http://cdm.unfccc.int/Reference/Guidclarif/meth/methSSC_guid05.pdf

[9] Guidelines for the Objective Demonstration and Assessment of Barriers (EB 50, Annex 13, Ver. 01) - http://cdm.unfccc.int/EB/050/eb50_repan13.pdf

The financial information provided to demonstrate the lack of access to capital, in accordance with the Guidelines for the Objective Demonstration and Assessment of Barriers, are discussed in details below:

a) Information on the nature of company (QPIC) and its ownership (shareholders)[10]:

Quena Paper Industry Company (QPIC) is an Egyptian Joint Stock Company (SAE) established on 15/06/1995 under Decision No. 347/1995 by minister of economy and foreign trade, under investment law No. 230/1989. The company's authorized capital is 700 million L.E., and the issued capital: 667.243 million L.E.

The shareholders in QPIC are: Holding Company for Food Industries, Egyptian Sugar and Integrated Industries Co. (ESIIC), National Bank of Egypt, National Investment Bank, Misr Insurance Co., and National (Al-Ahleya) Insurance Co.

b) Financial information on the large capital investment required:

In addition to the internal connections and other accompanying installations, the extension of the NG grid network requires considerable capital cost, in particular as the NG network has not yet reached Kous town, where the factory is located. Although the NG pipeline has been extended to Aswan, Kous is on the East of the Nile while the NG pipeline is on the West of the Nile and must be extended across the Nile. The following table summarizes the costs required for the project activity.

Table 7: Costs required for the project activity

Description	Costs in EGP	Costs in EUR*
Construction of external NG network & pressure reduction station	28,580,000	3,664,102
Construction of the internal NG network	989,468	126,855
Construction of the gas pumping room	383,106	49,116
Total construction costs	**29,952,574**	**3,840,073**
Reimbursement to farmers	457,091	58,601
Costs due to applied modifications to the external network	58,462	7,495
Costs due to applied modifications to the internal network	434,986.91	55,767
Additional expenses paid by QPIC thus far	**950,539.91**	**121,864**
* Based on an exchange rate of 1 EUR = 7.8 EGP [11]		

[10] QPIC website and brochure - http://www.qpicpaper.com/index_en.php

[11] Exchange rate obtained from XE, an online provider of foreign exchange services – Rate dated 20 Jan 2012 - http://www.xe.com/ict/?basecur=EGP&historical=true&month=1&day=20&year=2012&sort_by=name&image.x=21&image.y=14

c) Financial information on the company (QPIC):

As demonstrated by the company's financial documents, QPIC has posted a loss of EGP 39,734,845 (EUR 5.1 million) in 2009 and EGP 37,592,669 (EUR 4.8 million) in 2010. The company holds debts of EGP 924,456,006 and has been unable to repay these debts leading to the company's borrowing privileges being suspended by Egyptian banks.

In February 2010, QPIC restructured its debt with its major creditor bank to be paid in semi-annual payments of USD 9,963,000, plus interest payable on the loan. Only one payment has been made in June 2010. Since then, QPIC has been unable to pay, i.e. Dec 2010, Jun 2011 and Dec 2011 payment obligations could not be met. QPIC is also unable to re-finance its debt, as its major creditors hold company assets as collateral. A large portion of QPIC's debt is denominated in US dollars, with the result that it is very vulnerable to fluctuations in the currency market. Since the revolution in January 2011, Egypt's credit rating and currency outlook have been downgraded several times, most recently reaching B+ by Standard and Poor's [12], and BB- by Fitch [13]. The Egyptian Pound has fallen against the US dollar with the result that QPIC's debt has ballooned.

As a result of its financial situation, QPIC is not able to obtain external financing. Hence, in July 2009, QPIC board of directors came out with a recommendation to increase the company capital in order to obtain the necessary finance for the fuel switching project activity, as well as purchasing a new boiler for the factory. The board's request was rejected and unanimous shareholder approval could not be obtained. In September 2010, the board amended their recommendation into requesting an increase of the capital investment enough to meet the financial requirements of the fuel switching project only. Still, some of the shareholders refused the board's request and unanimous approval, once again, could not be reached.

In September 2011, the board came out with a recommendation that the shareholders approving to increase the capital investment for financing the fuel switching project are requested to cover the outstanding amount on behalf of those rejecting to contribute in the increase, in return of adjusting their respective shares in the company capital. The following board meeting in November 2011 concluded the same recommendation, and continued to request the approving shareholders to participate further in covering the outstanding value. To urge the shareholders to approve, QPIC provided the shareholders with updated information regarding the steps taken to register the fuel switching project as a CDM project, and explained the benefits of obtaining carbon credits to cover for part of the investment required. Based on the signed ERPA and after reviewing the work done to register the project and generate credits, the CDM became a key factor in allowing QPIC to convince the shareholder to complete the financing, in order to proceed with the implementation of the fuel switching project activity.

The following table shows the sequence of events relevant to increasing the capital investment of QPIC to finance the project activity.

[12] S&P lowers ratings on Egypt to 'B+' – Reuters Africa – Article dated 24 Nov 2011 - http://af.reuters.com/article/commoditiesNews/idAFWLB919120111124

[13] Fitch cuts Egypt to 'BB-': Outlook Negative – Ahram Online from Reuters – Article dated 30 Dec 2011 - http://english.ahram.org.eg/NewsContent/3/12/30578/Business/Economy/Fitch-cuts-Egypt-to-BB-Outlook-Negative.aspx

CDM – Executive Board

Table 8: Sequence of events for increasing QPIC capital investment

Activity	Date
QPIC board meeting recommendation: Request from the shareholders increasing the company capital investment to implement the fuel switching project activity only	30 Sept 2010
Board request officially rejected by one shareholder	15 May 2011
Board request officially rejected by a second shareholder	15 Sept 2011
QPIC board meeting recommendation: Request from the approving shareholders to cover the outstanding amount of the financing required on behalf of those who rejected	29 Sept 2011
Board request officially rejected by one shareholder	25 Oct 2011
Board request officially rejected by a second shareholder	21 Nov 2011
QPIC board meeting recommendation: Request from the approving shareholders to cover the outstanding amount of the financing required for the fuel switching project	30 Nov 2011
Letter from QPIC to one of the shareholders requesting approving to finance based on the benefits and steps taken to register the project as a CDM project	22 Jan 2012

In light of the above explained barriers accompanying the project activity, the baseline scenario (continuing to burn HFO) is the most viable option. As further evidence, the power boiler at QPIC factory has had duel-type burners since installation; however, it has been burning HFO since its commissioning.

Early consideration of the CDM component:

Once QPIC obtained the approval of the Egyptian Environmental Affairs Agency (EEAA) on the environmental impact assessment (EIA) submitted for the fuel switching project activity, members of the CDM Awareness and Promotion Unit (CDM-APU), under the EEAA Climate Change Unit, carried out a site visit and started working on a the due diligence for the project activity, and assisting QPIC in studying the feasibility of registering it as a CDM project. Since then, QPIC management has taken all the necessary steps towards project's registration, in parallel to the efforts exerted to implement the project. In order to accentuate how QPIC considered CDM an essential tool for undertaking the project, the timeline of project implementation together with CDM implementation timeline are illustrated in the following table, where the chronology of events show that the CDM potential has been assessed and considered in the early stages of planning and executing the project.

Table 9: Timeline of the project implementation, including the CDM component development

Event Description	Date
Submission of the Environmental Impact Assessment (EIA) to the Egyptian Environmental Affairs Agency (EEAA)	13 Jan 2010
EIA approval letter from the EEAA on the submitted EIA	29 Apr 2010
Due diligence and PIN development	*May 2010*
Letter to EGAS approving the budget set for the external network construction	07 Jul 2010
QPIC issued a check as advance payment on construction of the external NG network.	22 Dec 2010
Contract signed with GASCO for extension of NG network to QPIC and ESIIC factories in Kous, and reduction station construction (signed by ESIIC on behalf of itself and QPIC)	30 Dec 2010
Submission of prior consideration of the CDM to UNFCCC secretariat	*24 Jan 2011*

Call for tenders requesting consulting services from a CDM developer	*29 Mar 2011*
Issuance of letter of no objection from the Egyptian DNA	*25 May 2011*
Supplementary contract signed by QPIC and ESIIC	14 Jun 2011
ERPA signing with a CDM developer	*28 Jun 2011*
Contract signed with Egypt Gas for internal NG network construction	17 Jul 2011
Agreement signed with GASCO for gas pumping station construction	14 Aug 2011
QPIC issued a check as advance payment for construction of the internal NG network	15 Aug 2011
QPIC issued a check as advance payment on construction of the pumping station	08 Sept 2011
Letter to the Egyptian DNA requesting the issuance of LoA	*25 Sept 2011*
Local stakeholder consultation announcement in newspaper and EEAA website	*01 Nov 2011*
Local stakeholder consultation meeting held at QPIC factory – Kous	*13 Nov 2011*
Letter from the National Bank of Egypt on QPIC borrowing privileges	13 Mar 2012

As shown in the above table, QPIC has considered the incentives from CDM along with all other aspects of the project activity, e.g. financial, environmental, etc, and has taken continuous and real actions to ensure the CDM registration requirements are met.

B.6. Emission reductions:

B.6.1. Explanation of methodological choices:

In accordance with the methodology AMS-III.B (Version 16), the following is an explanation for the equations involved, and a description of the applicable variables and parameters for this project activity.

Baseline emissions:

The emission baseline is the current emissions of the facility expressed as emissions per unit of output. Baseline emissions shall be determined as follows:

$$BE_y = EF_{BSL} * Q_{PJ,y} \quad (1)$$

Parameter	Description	Unit
BE_y	Baseline emissions in the project activity in year *y*	tCO_2e
EF_{BSL}	Emission factor for the baseline situation	tCO_2/MWh
$Q_{PJ,y}$	Net energy output in the project activity in year *y*	MWh

The emission factor in the baseline situation (EF_{BSL}) is the coefficient for the fossil fuel used in the baseline expressed as emissions per unit of output (e.g. kg CO_2e/kWh).

$$EF_{BSL} = \sum FC_{i,j,BL,y} * NCV_j * EF_{CO2,j} / Q_{BSL,j} \quad (2)$$

Parameter	Description	Unit
EF_{BSL}	Emission factor for the baseline situation	tCO_2/MWh
$FC_{i,j,BL,y}$	Amount of fuel *j* consumed by the element process *i* during the year *y* operating at the baseline energy scenario	Mass or Volume Unit

NCV_j	Net calorific value of the fuel type *j*	kJ/ Mass or Volume Unit
$EF_{CO2,j}$	CO_2 emission factor of the fuel type *j*	tCO_2/kJ
$Q_{BSL,j}$	Net energy generated in the element process *i* in the baseline situation during the corresponding period of time for which the total fuel consumption was taken	MWh

Only one element process is included in this project activity operating on only one type of fuel in the baseline scenario. Therefore,

j = 1 (heavy fuel oil) and *i* = 1 (main power boiler)

Project emissions:

Project emissions from on-site consumption of fossil fuel should be calculated as follows:

$$PE_y = FC_{PJ,y} * EF_{FF,CO2,PJ} * NCV_{FF,PJ,y} \quad (4)$$

Parameter	Description	Unit
PE_y	Project emissions in the project activity in year *y*	tCO_2e
$FC_{PJ,y}$	Amount of fossil fuel consumed in the project activity during year *y*	Mass or Volume Unit
$EF_{FF,CO2,PJ}$	CO_2 emission factor of project fuel combusted in the project activity	tCO_2/TJ
$NCV_{FF,PJ,y}$	Net calorific value of the fossil fuel used in the project activity	TJ/ Mass or Volume Unit

Leakage:

No leakage calculation is required.

Emission reductions:

The emission reduction achieved by the project activity will be calculated as the difference between the baseline emissions and the project emissions:

$$ER_y = BE_y - PE_y \quad (5)$$

Parameter	Description	Unit
ER_y	Emission reductions in the year *y*	tCO_2e

B.6.2. Data and parameters that are available at validation:

Data / Parameter:	$FC_{BL,HFO}$
Data unit:	Tonne
Description:	HFO consumption in the project boiler in the baseline scenario (total sum for baseline years)
Source of data used:	Flow meter readings from QPIC factory historical data
Value applied:	198836
Justification of the	- Daily HFO inlet to the power boiler is monitored by flow meter (totalizer)

choice of data or description of measurement methods and procedures actually applied :	readings, which are recorded in factory log-books at the beginning and end of each of the three daily shifts (8 hours each) by the technician responsible for observing the boiler operation. These records of meter readings are signed off by the factory supervisor each morning.
Any comment:	- Data described above will be archived for the duration of the project activity, plus two additional years.

Data / Parameter:	**NCV_{HFO}**
Data unit:	GJ/Tonne HFO
Description:	Net calorific value for HFO
Source of data used:	Egyptian Environmental Affairs Agency/Egyptian Pollution Abatement Project (EEAA/EPAP): Self-monitoring manual for energy generating plants
Value applied:	41.08
Justification of the choice of data or description of measurement methods and procedures actually applied :	As stated in the methodology, *project participants may use accurate and reliable local or national data where available.*
Any comment:	

Data / Parameter:	**$EF_{CO2,HFO}$**
Data unit:	tCO_2/GJ
Description:	CO_2 emission factor for HFO
Source of data used:	Egyptian Environmental Affairs Agency/Egyptian Pollution Abatement Project (EEAA/EPAP): Self-monitoring manual for energy generating plants
Value applied:	0.076
Justification of the choice of data or description of measurement methods and procedures actually applied :	- As stated in the methodology, *project participants may use accurate and reliable local or national data where available.* - This value is calculated based on nationally reported carbon content of 86% for the Egyptian mazout.
Any comment:	

Data / Parameter:	**Q_{BSL}**
Data unit:	MWh
Description:	Net energy generated in the baseline situation (total sum of baseline years)
Source of data used:	Measured QPIC factory historical data
Value applied:	2199694
Justification of the choice of data or description of measurement methods and procedures actually applied :	- Quantities of generated steam are recorded as readings of flow meters installed on the steam outlet pipes of the project boiler. - Given that the operating pressure and temperature of both feed-in water and output steam are known, the net energy generated in the baseline scenario can be calculated. - The total value used represents the summation of the monthly values during the past 3 years of operation (listed in Annex 3 of this document).
Any comment:	-

Data / Parameter:	NCV_{NG}
Data unit:	GJ/Tonne NG
Description:	Net calorific value for NG per unit mass
Source of data used:	Egyptian Environmental Affairs Agency/Egyptian Pollution Abatement Project (EEAA/EPAP): Self-monitoring manual for energy generating plants
Value applied:	49.83
Justification of the choice of data or description of measurement methods and procedures actually applied :	As stated in the methodology, *project participants may use accurate and reliable local or national data where available.*
Any comment:	

Data / Parameter:	$EF_{CO2,NG}$
Data unit:	tCO_2/GJ
Description:	CO_2 emission factor for the NG
Source of data used:	Egyptian Environmental Affairs Agency/Egyptian Pollution Abatement Project (EEAA/EPAP): Self-monitoring manual for energy generating plants
Value applied:	0.055
Justification of the choice of data or description of measurement methods and procedures actually applied :	- As stated in the methodology, *project participants may use accurate and reliable local or national data where available.* - This value is calculated based on nationally reported carbon content of 75% for the Egyptian natural gas.
Any comment:	

Data / Parameter:	ρ_{NG}
Data unit:	gm/lit (kg/m^3)
Description:	Density of NG
Source of data used:	The Egyptian General Petroleum Corporation (EGPC)
Value applied:	0.84
Justification of the choice of data or description of measurement methods and procedures actually applied :	As stated in the methodology, *project participants may use accurate and reliable local or national data where available.*
Any comment:	-

B.6.3 Ex-ante calculation of emission reductions:

Baseline emissions:

Net energy generated in the baseline situation during the corresponding period of time for which the total HFO consumption was taken, Q_{BSL}, is estimated using historical data of steam generation at QPIC factory and other boiler operating parameters, e.g. pressure and temperature of feed-in water and output steam.

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From equation (2):

EF_{BSL} = $FC_{BL,HFO} * NCV_{HFO} * EF_{CO2,HFO} / Q_{BSL}$

= 198836 (Ton HFO) * $4.11*10^7$ (kJ/Ton HFO) * $7.68*10^{-8}$ (tCO_2/kJ) / 2199694 (MWh)

= 0.285 (tCO_2/MWh)

By substitution in equation (1):

BE_y = $EF_{BSL} * Q_{PJ,avg}$ = 0.285 (tCO_2/MWh) * 733231 (MWh/yr)

= 208998 (tCO_2/yr)

Project emissions:

Quantity of NG to be consumed in the project scenario, FC_{NG}, is estimated using historical data of HFO consumption at QPIC factory, and the net calorific values of both types of fuel; HFO and NG.

To calculate the NCV per unit volume:

NCV_{NG} = $NCV_{NG} * \rho_{NG}$ = $4.98*10^7$ (kJ/Ton NG) * $8.4*10^{-4}$ (Ton NG/m^3)

= $4.19*10^4$ (kJ/m^3) = $4.19*10^{10}$ (kJ/Million m^3)

By substitution in equation (4)

PE_y = $FC_{NG,avg.} * NCV_{NG} * EF_{CO2,NG}$

= 67.75 (Million m^3 NG/yr) * $4.19*10^{10}$ (kJ/Million m^3 NG) * $5.52*10^{-8}$ (tCO_2/kJ)

= 150260.9 (tCO_2/yr)

Emission reductions:

Using the values obtained from equations (1) and (4) and substituting in equation (5):

ER_y = $BE_y - PE_y - LE_y$ = 208998 (tCO_2/yr) - 150261 (tCO_2/yr) - 0

= 58737 (tCO_2e/yr)

B.6.4 Summary of the ex-ante estimation of emission reductions:

The following table shows the estimated emissions reductions obtained from the substitution in the methodological equations with the parameters listed above in section *B.6.2. Data and parameters that are available at validation*.

Table 10: Summary of ERs estimation

Year	BE_y (tCO_2e/yr)	PE_y (tCO_2e/yr)	LE_y (tCO_2e/yr)	ER_y (tCO_2e/yr)
30 Dec 2012 – 29 Dec 2013	208998.73	150260.91	0	58737.82
30 Dec 2013 – 29 Dec 2014	208998.73	150260.91	0	58737.82
30 Dec 2014 – 29 Dec 2015	208998.73	150260.91	0	58737.82
30 Dec 2015 – 29 Dec 2016	208998.73	150260.91	0	58737.82
30 Dec 2016 – 29 Dec 2017	208998.73	150260.91	0	58737.82
30 Dec 2017 – 29 Dec 2018	208998.73	150260.91	0	58737.82

30 Dec 2018 – 29 Dec 2019	208998.73	150260.91	0	58737.82
30 Dec 2019 – 29 Dec 2020	208998.73	150260.91	0	58737.82
30 Dec 2020 – 29 Dec 2021	208998.73	150260.91	0	58737.82
30 Dec 2021 – 29 Dec 2022	208998.73	150260.91	0	58737.82
Total estimated ERs (tCO_2e)	**2089987**	**1502609**	**0**	**587378**

B.7 Application of a monitoring methodology and description of the monitoring plan:

B.7.1 Data and parameters monitored:

Data / Parameter:	**$FC_{NG,y}$**
Data unit:	Nm^3/hr NG
Description:	Flow rate of NG consumed in the project boiler for steam generation in year *y*
Source of data to be used:	Measured by the NG flow meter.
Value of data:	-
Description of measurement methods and procedures to be applied:	The flow rate of NG will be recorded continuously by a flow meter installed on the NG inlet pipe to the project boiler, and the records will be kept for the entire duration of the crediting period, plus two additional years.
QA/QC procedures to be applied:	The recorded values will be cross-checked with NG receipts. Meters will be calibrated at a minimum once every three years.
Any comment:	-

Data / Parameter:	**$Q_{PJ,i,y}$**
Data unit:	MWh/year
Description:	Net energy output of the boiler's steam in year *y*
Source of data to be used:	Calculated based on records of generated steam in tonne per hour.
Value of data:	-
Description of measurement methods and procedures to be applied:	- Net energy output will be calculated based on measured and monitored temperature, pressure, and steam generation. Specific enthalpy is obtained using these parameters using standard steam tables. - Steam measurement meters are to be read and recorded. The meters are normalized to 25° C and 1 atm. - Steam production correlates well with fuel consumption and paper production. The meter readings are used as part of routine monitoring of the operation of the facility.
QA/QC procedures to be applied:	Energy output is compared with fuel consumption to ensure that it is within normal operating range.
Any comment:	-

Data / Parameter:	**$FC_{HFO,y}$**
Data unit:	Tonne/month
Description:	Flow rate of backup HFO consumed in the project boiler for steam generation in year *y*

Source of data to be used:	Measured by the HFO flow meter.
Value of data:	-
Description of measurement methods and procedures to be applied:	The consumption of backup HFO will be measured by a flow meter already installed on the HFO inlet pipe to the project boiler, and the records will be kept for the entire duration of the crediting period, plus two additional years.
QA/QC procedures to be applied:	The consumption of HFO will be limited to disruptions in NG flow. The recorded values will be cross-checked with HFO daily tank records.
Any comment:	-

B.7.2 Description of the monitoring plan:

As stated in AMS-III.B. (Version 16)
Monitoring shall include:

a) Monitoring of the fossil fuel use (FC_y) and output of element process i after the project activity has been implemented ($Q_{PJ,y}$) - e.g. diesel use and steam generated by an industrial plant;

Therefore, fuel consumption (natural gas, and HFO if and when consumed) and process output (steam generated) are to be monitored. The parameters are explained in Sections B.6 and B.7.1 of this PDD. Data acquisition, storage and processing, handling, and the QA/QC procedures for each parameter are specified below.

Data Acquisition:

A. Steam: Steam production readings will be obtained (in tonnes/hr) from the gauges attached to the main outlet pipes of the project boiler. Readings will be recorded daily every 2 hours (4 readings/shifts) during each 8 hour shift (3 shifts/day) by the technician responsible for boiler operation. The steam production is measured by steam meters reference to 25°C and 1 atm.

B. Natural gas: The NG consumption readings will be obtained (in m^3/hour) from the fuel meters attached to the main inlet pipes to the project boiler. Readings will be recorded at the beginning and end of each 8 hour shift (3 shifts/day) by the technician responsible for boiler operation. The project entity will monitor and record these figures monthly.

C. Backup HFO: If and when HFO is burned in the project boiler, the consumption will be monitored by means of the fuel gauges attached to the boilers. The readings will be recorded for each shift during which the HFO is used in the same way as in the baseline scenario. In addition, records will be kept for the purchase of HFO in the financial department, also the same way as in the baseline scenario.

Data Storage and processing:

A. Steam: Records for steam production will be kept in the factory log-books during each shift as per the gauge readings. Monthly totals for steam production from each shift are continuously catalogued by the operation supervisor and kept in separate log-books. The production of steam is used to monitor overall plant operation. Records will be kept for a minimum of two years after the end of the crediting period.

B. Natural gas: Records for NG consumption will be kept in the factory's boiler operation log-books during each shift as per the meter readings. Monthly totals for NG consumption from each shift are continuously catalogued by the operation supervisor and kept in separate log-books. The consumption of fuel is used to monitor the overall plant operation. Records will be kept for a minimum of two years after the end of the crediting period.

C. Backup HFO: The consumption of HFO in the project boiler, when it occurs, is recorded in the factory log-books, shift-by-shift. Using HFO will signal a disruption in NG supply which is also recorded. Records will be kept for a minimum of two years after the end of the crediting period.

Data QA/QC Procedures:

- **Project boiler operation:**

A. Steam: Factory log-books recording steam production are signed off each morning by the factory supervisor. Steam production expected in routine operation is regularly calculated and any abnormalities are investigated.

B. Natural gas: Records for NG quantities are kept both by the project entity and by the gas company for billing purposes. The project entity records will be checked against gas purchase receipts. In addition, the factory log-books recording NG are signed each morning by the factory supervisor. NG consumption is used to calculate the factory energy balance for normal operation parameters. Any deviations from expected operation conditions are recorded and investigated.

C. Backup HFO: The use of HFO recorded by the boiler flow meter is to be cross-checked against draw-down records from the fuel storage tanks. The factory log-books showing fuel consumption are signed each morning by the factory supervisor. The consumption of HFO will be limited to disruptions in NG flow. Such occasions will be investigated.

- **Calibration:**

As part of ISO 9001:2008, QPIC follows MP-760 (procedure for control of monitoring and measuring equipment). While internal calibrations are the responsibility of the operation mangers, third party calibration of the instrument and equipment is managed by the Environment and Quality Division. After calibration of any equipment, the calibration certificate is kept in the equipment file, and the equipment itself is labelled with the most recent calibration data.

The gas flow meters and steam meters used for project activity monitoring will be added to this procedure for regular calibration. The NG, HFO and steam meters, used for monitoring and generation of CERs, will be calibrated at least once every three years.

Meters will be calibrated and certified according to national or IEC standards according to paragraph 12 of annex 35 of EB 35 report[14] to maintain an appropriate accuracy class.

- **Internal auditing:**

ISO 9001 procedure QP-822 (internal audit) and AP-423 (document control) are also followed at QPIC. QP-822 aims to insure that the QMS is being applied and the relevant procedures are

[14] EB 35 Report, Annex 35 (Version 11) - Indicative Simplified Baseline and Monitoring Methodologies for Selected Small-Scale CDM Project Activity Categories - http://cdm.unfccc.int/EB/035/eb35_repan35.pdf

followed by the respective departments. AP-423 helps QPIC maintain an assertive level of accuracy and consistency in documentation and record keeping.

In this area, department heads are responsible for documenting the work related to their departments and reporting the events in the appropriate forms according to the ISO 9001 standards. The documents and reports are then archived by the environment and quality department after review is made and recommendations are forwarded to the departments on how to improve and develop their procedure.

- **Additional training:**

  An additional training will be added for the purpose of familiarizing QPIC staff to the CDM project activity and the monitoring requirements. The focus of the training will be on the monitoring plan, and the compliance requirements as stated in the PDD.

AMS-III.B. also states that:

b) For electricity/thermal energy exported to other facilities, monitoring of the use of electricity and thermal energy shall be undertaken in the recipient end.

No electricity or thermal energy is exported to other facilities. Hence, the infrastructure for such energy export does not exist.

B.8 Date of completion of the application of the baseline and monitoring methodology and the name of the responsible person(s)/entity(ies)

Date of completion: 28th of November, 2012

Responsible entities:

Climate Corporation Emissions Trading GmbH

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Environmental Research & Consulting Co. (ERCC)

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SECTION C. Duration of the project activity / crediting period

C.1 Duration of the project activity:

C.1.1. Starting date of the project activity:

22/12/2010.

C.1.2. Expected operational lifetime of the project activity:

13 years, which represents the remaining operational lifetime of the project boiler. The remaining lifetime was estimated based on a default technical lifetime value of 25 years[15] and the boiler's date of commissioning of in September 2000, as evidenced by commissioning test documents.

C.2 Choice of the crediting period and related information:

The project activity will make use of fixed crediting period.

C.2.1. Renewable crediting period

>> Not Applicable.

C.2.2. Fixed crediting period:

C.2.2.1. Starting date:

30/12/2012 or date of registration - whichever is later.

C.2.2.2. Length:

10 years

SECTION D. Environmental impacts

D.1. If required by the host Party, documentation on the analysis of the environmental impacts of the project activity:

An environmental impact assessment (EIA) has been submitted to the Egyptian Environmental Affairs Agency (EEAA) in accordance with the national requirements. The project activity falls under category (B) of projects as specified by the Egyptian Environmental Law 4/1994 and the amendments in Law 9/2009. EEAA's approval letter on the submitted Form (B) EIA has been issued on the 29th of April, 2010.

D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party:

[15] In accordance with option (c) of the tool to determine the remaining lifetime of equipment (Ver. 01) and the default value for the technical lifetime of boilers - http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-10-v1.pdf

According to the submitted and approved EIA by QPIC and EEAA respectively, the following table summarizes the stack emissions before and after the project activity:

Table 11: Stack emissions of power boiler as stated in the EIA

Element	Before implementation (HFO)*		After implementation (NG)	
	Conc. (mg/m3)	Load (Ton/yr)	Conc. (mg/m3)	Load (Ton/yr)
CO	82	63.3	60	21.4
Hydrocarbon (HC)	-	-	-	-
NOx	354	269	250	178
SOx	4500	3420	10	7.1
Solid Particles	100	76.1	12	8.02
* Measurements were made using TEST0350 and ash filters.				

In addition, noise pollution is expected to decrease by 5% due to the reduction of load on the suction fans of inlet fuel to the power boiler.

Also according to the EIA, the following are some aspects of the project:

- The project is an extension; development of the NG network.
- The infrastructure for water, electricity, sanitation, roads/railways already exists.
- The project layout is determined based on the project boiler location.
- The main project component is the connection of natural gas from the pressure reduction station to the power boiler at Kous paper factory.
- The supply and installation will be the responsibility of the specialized company; GASCO.
- There will be no liquid waste generated during implementation. Suspended solids resulting from the construction work will be emitted only temporarily.

Construction debris (solid waste) will be used for paving at the end of the construction work.

Conclusion:

According to the EIA submitted to the EEAA, no significant negative environmental impacts are expected as a result of the project. Several positive impacts are expected, including the reduction of pollutants as products of combustion due to the cleaner combustion of natural gas.

SECTION E. Stakeholders' comments

E.1. Brief description how comments by local stakeholders have been invited and compiled:

A stakeholders meeting was held at QPIC factory on the 13th of November 2011. Public announcement of the meeting's time and date was published in the second biggest national newspaper in Egypt (Al-Akhbar newspaper) dated 01/11/2011. The announcement was also published on EEAA website on 02/11/2011. In addition, personal invitations were sent to the following organizations by fax and/or email:

- Head of the City Council – Kous town
- Head of the Egyptian Environmental Affairs Agency (EEAA)

- Manager of the Environmental Protection Project for Private and Public Industrial Sectors, EEAA
- Head of the Central Department for Environmental Impact Assessment, EEAA
- Head of the Central Department for Climate Change, EEAA
- General Manager of CDM and Mitigation Unit, Climate Change Unit, EEAA
- Executive Manager of CDM Awareness and Promotion Unit (CDM APU), EEAA
- Project Engineers from the CDM APU, EEAA
- Manager of the Environmental Affairs Office - Quena governorate
- Head of the EEAA Regional Office - Kous town branch
- Health Inspector – Kous town
- Manager of the Electricity Distribution Company – Kous town
- Neighbouring industries, i.e. Egyptian Sugar and Integrated Industries Company (ESIIC)
- Vice president of South Valley University for Social and Environmental Affairs
- NGOs (Sanabel, other)

The meeting was held on the scheduled time and date in the conference room at the administrative building at QPIC factory in Kous - Quena. It started with an overview of the company's activities, presented by the Head of Quality and Environment Department at QPIC Company, which included a summary of the factory's operation. QPIC's Chief Executive Manager then presented the environmental initiatives QPIC has been leading during the past couple of years, and the financial difficulty the company is facing in implementing the project activity. He emphasized QPIC's commitment to environmental improvement, and introduced the attendees to the representatives of the CDM APU and the project consultant (ERCC), to explain the CDM component of the project.

A representative from the CDM APU gave an introductory presentation explaining some aspects of climate change, greenhouse gases, Kyoto protocol, and the typical CDM project life cycle. A representative from Environmental Research & Consulting Co. (ERCC), the CDM consultant, followed by a description of the project activity and how CDM would help QPIC achieve its goals regarding the fuel switching project implementation.

After the presentations, questions and answers session was held where discussions about the project activity started. QPIC, CDM APU and ERCC representatives replied to the attendees' questions. A questionnaire was distributed afterward, where all the attendees responded positively to the question; "Do you agree to the implementation of this project activity?"


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E.2.	Summary of the comments received:

The comments received were not of much relevance with the technical aspect of the project activity but rather with social and economic issues in the area. A highlight of the comments is presented below:

- Some attendees inquired about whether the NG connection will be extended to the home city in case of project implementation. Also a pledge to QPIC to request extending the NG network to include nearby villages was made by one of the local community representatives.
- The City Council representative commented that if the gas network reaches the major factories in town, it would then be a matter of time before it is extended to villages, since the infrastructure costs are the major barrier for implementing such projects.
- EEAA representative also confirmed that the common practice for NG connections is to start by industries, which are likely to afford the capital investment, and then connect small industries and households to the grid through the already existing infrastructure.
- The manager of a neighbouring factory raised the issue of NG supplier limiting their contract to 10 years only, and inquired about how QPIC plans to overcome their financial loses in case of non-renewal of contract, given the large capital investment required and the continuing rise in price of NG. QPIC CEO explained that this is only one of the risks accompanying this project and that it cannot be avoided. He added that they're hoping to be able to renew the contract with the NG supplier after the present 10 year contract duration.
- The previous comment raised a question of what would happen in case of NG cut-off. QPIC representative explained that the company is obliged by contract to keep a backup HFO system for emergencies, and again repeated their hopes that the NG supply does not stop at the present contract's duration.
- Before the end of the meeting, one of the attendees asked about the details of how the number and price of CERs are determined. ERCC representative explained how emissions reduction is calculated for this specific project activity according to the applicable methodology, and gave a brief introduction on the carbon credits market and CERs trading schemes.

E.3. Report on how due account was taken of any comments received:

There have been no concerns identified related to the project activity. Some of the general comments received are to be taken in consideration by the involved entities once the project is implemented, e.g. following up on the NG network extensions to households and nearby villages, etc.

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY

Project owner:

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Annex 2

INFORMATION REGARDING PUBLIC FUNDING

This project activity does not result in the diversion of any ODA.

Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung

Freiheit
Einheit
Demokratie

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BEARBEITET VON
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GZ: 222 K1034 EGY-0084/006
Bonn, 13.10.2009

Finanzielle Zusammenarbeit mit der Arabischen Republik Ägypten

hier: **Letter of non diversion** für das FZ – Projekt „Förderung von Umweltschutzinvestitionen in der privaten Industrie III“, BMZ Nr. 2000.6622.5

Bezug: Ihr Schreiben vom 05.10.2009

To whom it may concern

The German Federal Ministry of Economic Co-operation and Development (BMZ) supports the „ Förderung von Umweltschutzinvestitionen in der privaten Industrie III“ Projekt in the Arab Republic of Egypt”. The BMZ herewith affirms that the funding of this CDM project does not result in a diversion of Official Development Assistance and that this funding is separate from and is not counted towards the financial obligation of concerned parties”.

Mit freundlichen Grüßen

Im Auftrag

elektronisch unterzeichnet Peter Schlemminger

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2009/0249147

Annex 3

BASELINE INFORMATION

- Historical HFO (mazout) consumption data for the power boiler, Tonne

Month	2008	2009	2010	2011
Jan			7550	7059
Feb		12106	7087	4872
Mar			1262	5910
Apr		5544	7602	7391
May		3572	4251	7186
Jun		5372	6138	6864
Jul		5025	7127	7180
Aug		3583	6955	6273
Sep	13207	7926	5942	
Oct			7155	
Nov	8067	0	4140	
Dec	3086	6336	7068	
Annual Total	**24360**	**49464**	**72277**	**52735**
Total	**198836**			
Average	**66279**			

- Historical steam generation data for the power boiler, Tonne

Month	2008	2009	2010	2011
Jan			106302	92482
Feb		170787	98110	64540
Mar			18909	76353
Apr		77649	106414	95530
May		49847	60492	92570
Jun		70817	86981	87980
Jul		68524	101002	91635
Aug		49580	99335	80087
Sep	177855	111261	84278	
Oct			101359	
Nov	104412	0	56474	
Dec	45201	90818	100605	
Annual Total	**327468**	**689283**	**1020261**	**681177**
Total	**2718189**			
Average	**903063**			

- Summary of fuel consumption and steam generation data obtained from QPIC factory:

Parameter	Unit	Sep 08 -	2009	2010	- Aug 11	Total	3 yr avg.
FC_{HFO}	Ton HFO/yr	24360	49464	72277	52735	198836	66279
St.quantity	Ton St./yr	327468	689283	1020261	681177	2718189	906063
Q_{BSL}	GJ/yr	954013	2008088	2972326	1984473		
Q_{BSL}	MWh/yr	265003	557802	825646	551242	2199694	733231

- Feed-in water and output steam properties:

Parameter	Unit	Value	Source of Data
Water Temp	°C	120	QPIC Data
Enthalpy	GJ/ton steam	0.5040	www.efunda.com/materials/water/steamtable_general.cfm
St. Pressure	bar gauge	64	QPIC Data
St. Temp.	°C	500	QPIC Data
Enthalpy	GJ/ton steam	3.4173	www.efunda.com/materials/water/steamtable_general.cfm

Annex 4

MONITORING INFORMATION

The methodology specifies the parameters needed to be monitored. These are fuel consumption and product output for both baseline and project scenarios, of the energy generation process. As explained in the PDD, these parameters are monitored and cross-checked as a normal part of the monitoring of the plant's routine operation. The QA/QC procedures for data processing and record keeping are an integral part of the plant's ISO 9001 management system which is certified by a third party auditor on regular basis. In particular, the following are considered integral parts of the monitoring:

1) Operation and maintenance of the monitoring equipment: The plant conducts routine checks on monitoring equipment. As part of its normal operation, the plant engineers compare consumption and production figures for the boilers and plant equipment. Any errors in monitoring equipment or operation appear in this calculation. Any deviations are investigated and corrected immediately.

2) The factory supervisor and shift supervisor are updated daily on the plant consumption and production and sign the plants log books showing this consumption and production each morning. This ensures that monitoring is occurring on a regular basis and that monitored parameters are within expected values.

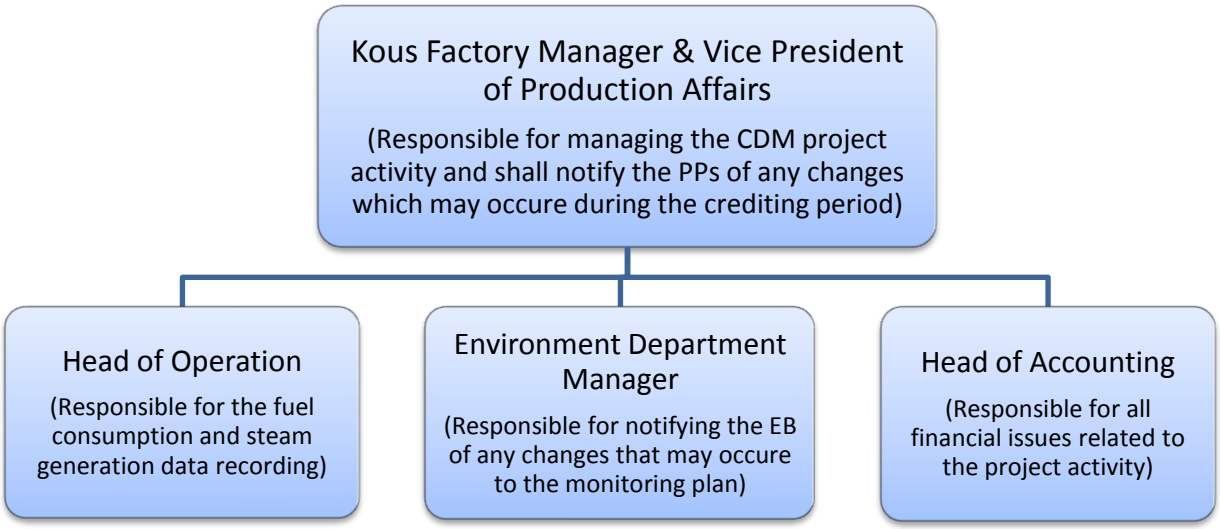
3) The meters will be calibrated once every three years at a minimum.

4) Liquid fuels are purchased against receipts, and the incoming fuels are weighed. Fuels are stored in tanks with meters for tank level and are recorded and their recordings checked again meters.

5) QA/QC procedures: the plant maintains QA/QC procedures for data collection, processing, and storage. These are part of its normal operation and part of its ISO 9001 certified management system. Meter readings are checked against purchase receipts and plant operation data. In the case of natural gas in particular, the meter is installed by the natural gas company and calibrated to ensure accurate operation. The meter is used for purchase and billing with the result that each party is interested in maintaining its accuracy.

6) As part of the implementation of this project, plant staff involved in monitoring will receive training and procedures to ensure the appropriate monitoring and archiving of data for review and verification for each monitoring period. The CDM training will follow the ISO 9001 procedures already implemented by QPIC.

The organization chart for the CDM project activity, including the personnel responsible for implementing the monitoring procedures is shown in the following figure:


Kous Factory Manager & Vice President of Production Affairs
(Responsible for managing the CDM project activity and shall notify the PPs of any changes which may occure during the crediting period)
Head of Operation
(Responsible for the fuel consumption and steam generation data recording)
Environment Department Manager
(Responsible for notifying the EB of any changes that may occure to the monitoring plan)
Head of Accounting
(Responsible for all financial issues related to the project activity)

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