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

CONTENTS

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

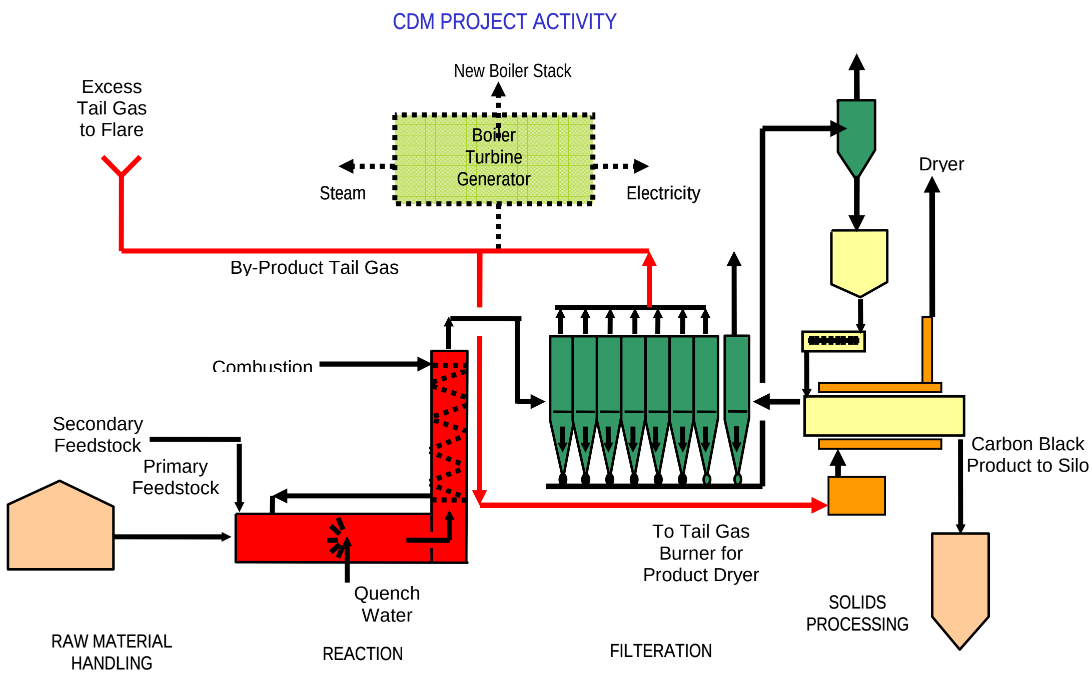
A.1 Title of the small-scale project activity:

>> Utilization of heat content of tail gas at PT Cabot Indonesia, Cilegon
This document is version No.04, completed on 08/06/2009.

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

Pyrolitic cracking of hydrocarbon feedstock to manufacture carbon black generates a by product process gas ("tail gas"). As shown in the simplified flow sheet below, carbon black particles formed in the gas phase reaction are separated and recovered from this tail gas in a fabric filter (bag house). Although this tail gas primarily contains water vapour, nitrogen, hydrogen, and carbon monoxide and inherently has a low calorific value, it is still combustible. Typically, about 30-35% of the tail gas is combusted for drying of the carbon black product. All the excess tail gas is disposed safely via combustion in an elevated flare.

Waste Heat Recovery from Carbon Black Tail Gas



The voluntary small-scale CDM activity will recover waste energy from a majority of the previously flared excess tail gas to generate steam and electricity in a new cogeneration unit. Tail gas will be combusted in a boiler and a majority of the steam produced will be used in a turbo-generator system to generate electricity. Since the option of electricity sales was not available when this project was conceived several years ago, the cogeneration plant is designed to primarily generate electricity for own use by PT. Cabot Indonesia (PTCI). However, some excess electricity could be exported back to PT. Krakatau Daya Listrik (KDL) from whom electricity was purchased prior to CDM project

implementation. Consequently, not all the tail gas generated by carbon black production can be used for energy recovery, and a small volume of tail gas will still have to be flared after project implementation.

Purpose of the project:
Electricity generated by the onsite cogeneration unit (5.5 MW design, 5 MW net, 4.5 MW actual usage internally) will displace electricity previously purchased from KDL, the local utility combusting fossil fuels. This project will thus displace emissions of the primary greenhouse gas carbon dioxide (CO_2) that KDL or PLN would continue to have emitted if PTCI did not generate electricity onsite via this waste heat recovery project. The KDL grid has connection with the national power company PLN JAMALI (Jawa Madura Bali) Grid.

Machines to be utilized:
The project will install a new steam boiler designed to produce 35 ton/hr steam at 44 Bar. The high-pressure steam produced will be sent to a turbo-generator to produce 5.5 MW of electricity. This design electricity rate corresponds to a design tail gas generation rate of 41,000 Nm^3/hr. Actual MW generation will depend on the tail gas volume actually combusted in the steam boiler.

For reference, tail gas fuel supply temperature will be 200-239 deg. C and its calorific value will be approximately 500-600 kcal/Nm^3. Actual tail gas volume and calorific value will fluctuate depending on the carbon black grade being manufactured in each of the two production units at Cilegon.

Project's Contribution to sustainable development: The four pillars of sustainable development have been addressed as follows:

The National Sustainability Criteria:
The project recovers valuable heat energy that was wasted via flaring before CDM project implementation. The weak carbon black tail gas will now be used in a boiler-turbine-generator system for generating steam and electricity, which otherwise would have been generated from fossil-fuel combustion. This will result in displacement of equivalent CO_2 emissions. By installing an onsite cogeneration unit, PTCI will thus end its purchase of local grid power and help balance the regional energy demand and supply situation and resulting shortages.

1. **Environmental Sustainability**
   Criteria: sustainable environment by implementing the conservation or diversification of natural resources utilization:
   - Indicator: *Keeping sustainable the ecological function*. The important factor here is the use of water for the boiler in generating steam for the co-generation system, and how the waste heat from the condensing system is released. In this project activity, PTCI will be using an air cooled condenser (ACC) instead of a cooling tower thus conserving valuable water resources. This strategy will also avoid the use of cooling tower treatment chemicals and eliminate the need to manage the cooling tower blow down stream.
     Other waste management requirements (solid, liquid, air, and noise) as stipulated in the UPL-UKL are adhered to in this project activity.
     Indicator: *Does not exceed the maximum limit of environmental quality standard existing at the national and local levels.*
     The environmental impact of the project activity is scrutinized by the Government and approval is expressed in terms of the issuance of EIA or UKL-UPL. Given the relatively small size of the PTCI cogeneration plant, a full EIA is not required. However, the

Cilegon site's UKL - UPL has already been modified to address this new waste heat recovery activity. In addition, PTCI has voluntarily conducted air dispersion modelling to fix the height for the new boiler stack. This stack is a relatively tall 65 m to ensure that ground-level ambient air quality standards are well protected.

- Indicator: *Keeping the biological diversity and prevent the occurrence of the genetic declining.* The project activity may affect biological diversity and/or genetic declining only through the liquid and/or gaseous effluents. The project activity does not increase the quantity of gaseous effluent. The small quantity of wastewater generated from the boiler system is treated in the onsite wastewater treatment plant before it is released to the environment.

Criteria: Safety and health of the local community

- Indicator: *Do not cause health problems. No hazardous effluent will be released to the atmosphere beyond the limit that is set by the Government.* This is also covered in the UKL-UPL. The quantity and quality of gaseous effluent that is normally released to the air will not change as a result of this project activity and hence there are no adverse impacts associated with this project.
- Indicator: *Follow the regulations of safety work.* The company adheres to the said national and local safety regulations strictly as a daily practice. In addition, the plant has to meet safety requirements and standards specified by its parent (Cabot Corporation).
- Indicator: *Procedure is well documented as to how to avoid accident.* This is implemented rigorously in the company. The company's accident record is one lost work day in last 10 years. The rate for other types of accidents is zero.

2. Economic Sustainability

Criteria: Local community welfare

- Indicator: *Does not diminish the local community income*

  The project activity will create job opportunities for local people during construction and operation period. Up to 200 personnel of various disciplines will be employed for construction purposes. In addition, two full time operators are expected to be employed for day-to-day project operations. The project activity will provide business opportunities for other local community members such as equipment manufacturers, construction contractors etc.
- Indicator: *There is an effort to overcome the impact declining income of some of the group of the community.* There is no group of the community which is expected to experience a decline in income due to this project activity during construction or operation of the plant. There will be no lay-offs due to this project but rather a modest increase in local employment as noted previously.
- Indicator: *There is an agreement from stakeholders to solve the problem of resignation according to national and local regulations.* The project activity will not cause people to lose their jobs and resign.

3. Social Sustainability

Criteria: Community participation.

- Indicator: *Existence of consultation process to the local community.* PTCI conducted a Stakeholders meeting on 17 January, 2008 to describe the project activity and actively seek input from plant neighbours and other community members. Additional details from this stakeholder consultation meeting are described later in this PDD.

- Indicator: *Presence of comments and follow-up actions to the comments, complaints of the local community.* There was no complaint received from the stakeholders, who were generally supportive of this voluntary PTCI project that will reduce GHG emissions that contribute to global warming. The meeting did not identify any significant follow-up actions required from PTCI.

Criteria: Project does not ruin the social integrity

- Indicator: *Does not cause a conflict in the local community.* There were 39 members of the community present in the stakeholders' consultation meeting. Nearly all the members actively participated in the meeting discussions with 37 members submitting their opinions in writing. All these opinions were generally supportive of the project plans and appreciative of PTCI's contributions to GHG reduction. Only two participants did not submit their responses (they left before the meeting was over).

4. Technology Sustainability

This project has high replication potential for waste heat recovery from tail gas in the carbon black industry globally. This type of project will also encourage other process industries in Indonesia that generate by product waste gases at high temperatures to evaluate similar waste heat recovery measures. This will then result in additional reductions in local fossil fuel consumption and associated GHG emissions. By taking the lead among chemical manufacturers in Indonesia, PTCI is encouraging other Indonesian companies to develop similar CDM projects.

Criteria: Presence of transfer of technology

- Indicator: *Does not result in a dependency to foreign agencies in know how and skill to operate tools and or equipment used.* The major equipment for this project is imported from India based on a competitive bidding process. The equipment vendors are providing know-how and technology transfer as part of the package. However, the cogeneration plant will be operated by two local PTCI employees especially hired and trained for this project activity and no additional foreign support is required.
- Indicator: *Does not use technology under development and testing as well as an old (barren) technology*. Generation of electricity using a boiler-turbine-generator system is a proven technology. This project's innovation is in using carbon black tail gas as boiler fuel rather than natural gas or other conventional fossil fuel.
- Indicator: *Effort to increase capacity and the use of local technology.* Although some project equipment had to be imported because of technology availability, equipment cost, and project schedule considerations, other equipment were supplied by Indonesian companies and vendors. As indicated previously, technology transfer and training of local PTCI staff are included in the equipment procurement package. The project was managed and executed primarily by local personnel, who are now well trained and qualified to implement similar cogeneration projects in Indonesia.

The Energy Sector Sustainability Criteria

In addition, specifically for energy projects, there are 7 sustainable criteria that must be fulfilled by the project activity. These are discussed below.

1. Provision of support to implementation of energy diversification and conservation program.
   - Indicator: *Increasing utilization of non-oil sources or reducing energy utilization per production unit.* This project activity will utilize waste heat contained in the tail gas in the carbon black manufacturing activity to generate process heat and electricity which is in the

absence of the project activity would be utilizing fossil fuels, and thereby avoiding the use of extra fossil fuels.

2. Provision of support to development of clean energy type and clean energy technology.
    - Indicator: *Low concentration of NOx, SOx, and GHG emissions.* This project activity avoids the use of fossil fuels in the generation of process heat and electricity, and thereby avoiding additional emissions of pollutant gases such as CO_2, NOx, and SOx.
3. Provision of support of environmental conservation
    - Indicator: *Compliance with regulations on environment.* This project activity complies with environment regulations as stipulated in issued EIA (UKL-UPL). In addition this project activity also fulfils the sustainable Development Criteria for CDM projects (see above).
4. Provision of support of local economic growth.
    - Indicator: *Increasing income of local community or local economic activities surrounding the project location.* The project activity will create job opportunities for local people during construction and operation period. Up to 200 labourers and contractors of various disciplines plus two full time operators are expected to be employed for project construction. The project activity will provide business opportunity for local stakeholders such as suppliers, manufacturers, contractors etc.
5. Maintaining the employment rate without cessation of employees.
    - Indicator: *Non-existence of lay-offs.* There will be no reduction in number of employees Because of this project activity.
6. Provision of support to technology transfer process.
    - Indicator: *Increasing utilization or role of local human resources, quality and quantity, or existence of career development plan for the employees….*
      This project activity was planned and managed by the PTCI team; hence the local team now has gained the necessary knowledge and skills.
7. Provision of "Community Development" program.
    - Indicator: *Provision of clear and certain community development program by the project owner*
        - The project owner, PT Cabot Indonesia, has an established community development program that promotes education and sustainable livelihood for the local community.
        - Sponsors scholarships at the University of Tirtajaya for high-achiever poor students.
        - Sponsors scholarships for primary/secondary school students from nearby villages.
        - Provides regular assistance for various religious, social, and sport activities.
        - Participates in local Cilegon government activities such as Tsunami Drill in 2007.
        - Provided water well for the local Cilegon community at cost of 125 million Rp.
        - Donated 100,000 USD in financial assistance to tsunami victims in Bandar Aceh.

A.3. Project participants:

>>

Name of Party involved	*Project Participant*	*Party involved wish as project participant*
Republic of Indonesia	*PT. CABOT INDONESIA (PTCI)*	*No*

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

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

>> Jl. Amerika I, Kav A-5, Krakatau Industrial Estate, Cilegon 42443, Banten, West Java, Indonesia

A.4.1.1. Host Party(ies):

>> The Republic of Indonesia

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

>> Cilegon – Banten Province

A.4.1.3. City/Town/Community etc:

>> Industrial Estate Complex

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

>> The PTCI carbon black plant is located in Krakatau Industrial Real Estate, Cilegon in Banten Province, around 110 km from Jakarta the capital city of Indonesia. The geographical location of the plant is $05^0 59^{'} 43.1^{"}$ South, $105^0 59^{'} 45.0^{"}$ East.

The nearest airport is Bandara Soekarno Hatta, Banten around 60 km from the plant and the nearest harbour is Merak Harbour, Banten around 40 km from the plant. The exact location of the small-scale CDM project activity is shown in the following country, regional, provincial, and local maps.

MAP OF BANTEN MAP OF CILEGON

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

Title: AMS. III.Q (Version 1 Sectoral Scope: 4 EB 35), Indicative simplified baseline and monitoring methodologies for selected small-scale project activity.

TYPE III – Other Project Activities

III.Q. Waste Gas based energy systems

Reference: http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html.

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

>>The crediting period chosen is the one-time 10-year fixed term from 01/09/2009 through 31/08/2019.

Years	*Estimation of annual emission reductions in tonnes of CO_2-e*
2009	*10508.03*
2010	*31524.1*
2011	*31524.1*
2012	*31524.1*
2013	*31524.1*
2014	*31524.1*
2015	*31524.1*
2016	*31524.1*
2017	*31524.1*
2018	*31524.1*
2019	*21016.07*
Total estimated reduction (tonnes of CO_2-e)	*315,241*
Total number of crediting years	*10*
Annual average of the estimated reductions over the crediting period	*31,524.1*

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

>> No public funding from the parties included in Annex – I countries has been used for the project activity.

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

>>This activity is a stand alone project and not a part of any larger project. This is also the first activity of its kind for PTCI and for the carbon black industry in Indonesia.

According to the stipulation in Appendix C of the Simplified Modalities and Procedures fro Small-Scale CDM project activities, there is no registered small-scale CDM project activity or an application to register another small-scale CDM project activity:

- With the same project participant;
- In the same project category and technology/measure; and
- Registered within the previous 2 years; and
- Whose project boundary is within I km of the project boundary of the proposed small-scale activity at the closest point.

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:

>>.

Title: AMS. III.Q (Version 1 Sectoral Scope: 4 EB 35)

TYPE III – Other Project Activities

III.Q. Waste Gas based energy systems

Reference: http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html.

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

- >>This project recovers waste heat energy and converts it into steam and electricity. The waste gas used as fuel is a by-product of the carbon black manufacturing process. This activity replaces the baseline scenario of importing fossil-fuel based electricity from the local utility KDL and onsite steam generation in an existing boiler.
- Prior to the project activity, the extra waste gas is simply flared without any energy recovery. There are no regulations in Indonesia that prohibit flaring of carbon black tail gas or mandate energy recovery from this waste gas. The project thus falls within the scope of "Waste Gas Based Energy Systems" covered by AMS III.Q.
- As shown in Section A.4.3, the estimated emission reduction of 31524.1 t CO2/y is substantially less than the 60,000 t CO_2 /y threshold for small-scale CDM activities. The design electricity generation capacity is approximately 5.5 MW.
- The electricity produced from onsite waste heat recovery will primarily be used within the manufacturing facility. A small portion of electricity generated could be exported back to KDL.

The indicative simplified baseline and monitoring methodology applicable to category III.Q has been used for the project including baseline calculations. The emission reduction calculation is primarily based on amount of heat recovered from the tail gas. Annual emission reduction from the project activity is 31524.1 t CO_2e, which is well below the limit of 60,000 tCO_2e, specified in the small-scale methodology.

The applicability criteria(s) of the applied methodology, AMS III.Q, with relevant project justification(s), are as follows:

Sr. No.	Methodology Requirement	Applicability of Project Activity
1.	*The category is for project activities that utilize waste gas and/or waste heat at existing facilities as an energy source for:* • *Cogeneration; or* • *Generation of electricity; or* • *Direct use as process heat source; or*	The project activity entails recovery of the heat content of the tail gas generated from carbon black process, utilization of the same in a Waste Heat Recovery Boiler for generation of steam and subsequently electricity. The project activity is a tail gas based cogeneration project. Therefore the project activity meets the above applicability condition of the methodology.

	• *For generation of heat in element process (e.g. steam, hot water, hot oil, hot air);*	
2.	*The recovery of waste gas/heat may be a new initiative or an incremental gain is an existing practice.*	The project activity is a new initiative taken by the project proponent and before the project activity there has been no waste heat recovery from tail gas.
3.	*Measures are limited to those that result in emission reductions of less than or equal to 60 kt CO_2 equivalent annually.*	The annual emission reduction from the project activity is about 31524.1 t CO_2e, which is below the limit of 60 ktCO_2e as specified in the methodology.
4.	*The category is applicable under the following conditions:* ❖ *The energy produced with the recovered waste gas/heat or waste pressure should be measurable* ❖ *Energy generated in the project activity shall be used within the facility where the waste gas/heat or waste pressure is produced. An exception is made for the electricity generated by the project activity which may be exported to the grid.* ❖ *The waste gas/heat or waste pressure utilized in the project activity would have been flared or released into the atmosphere in the absence of the project activity*	The steam (energy) and electricity produced by the project activity will be measured and monitored by the project proponent. The steam (energy) and electricity produced by the project activity will be utilized within the facility where the tail gas is produced. In the case of an excess of generated electricity, a small portion may be exported to KDL, an independent electricity generation company which supplies electricity to the Krakatau Industrial Complex in Cilegon. Before the project activity, all the excess tail gas produced by the carbon black manufacturing process was flared without energy recovery. Therefore, the project activity meets the applicability condition of the methodology.
5.	*For the purpose of this category waste gas/heat/pressure is defined as: by-product gas/heat or pressure of machines and technical processes for which no useful application is found in the absence of the project activity and*	The tail gas to be utilized in the project activity is the by-product process gas from the carbon black reactor that was flared before the project activity. The tail gas has a low heating value that varies depending on the carbon black grade being produced by the plant. The heat available in the tail gas was not utilized before the project activity

	for which it can be demonstrated that it has not been used prior to, and would not be used in absence of the CDM project activity (e.g. because of low pressure, heating value or quantity available). In the project scenario, this waste gas/heat/pressure is recovered and conditioned for use.	because of technical & financial barriers explained in Section B. Therefore the project activity also meets this applicability condition of the methodology.
6	*Barrier to the prevailing practice*	CABOT operates over 20 Carbon Black plants around the world, but it is not common for the company to utilize the waste heat to generate power, including in Indonesia where there exists no Government regulation that requires the utilization of the waste heat. This lack of experience, in technical operations as well as its financial consequences, put the company at a high risk of failure, which is now laid upon the shoulder of the company.

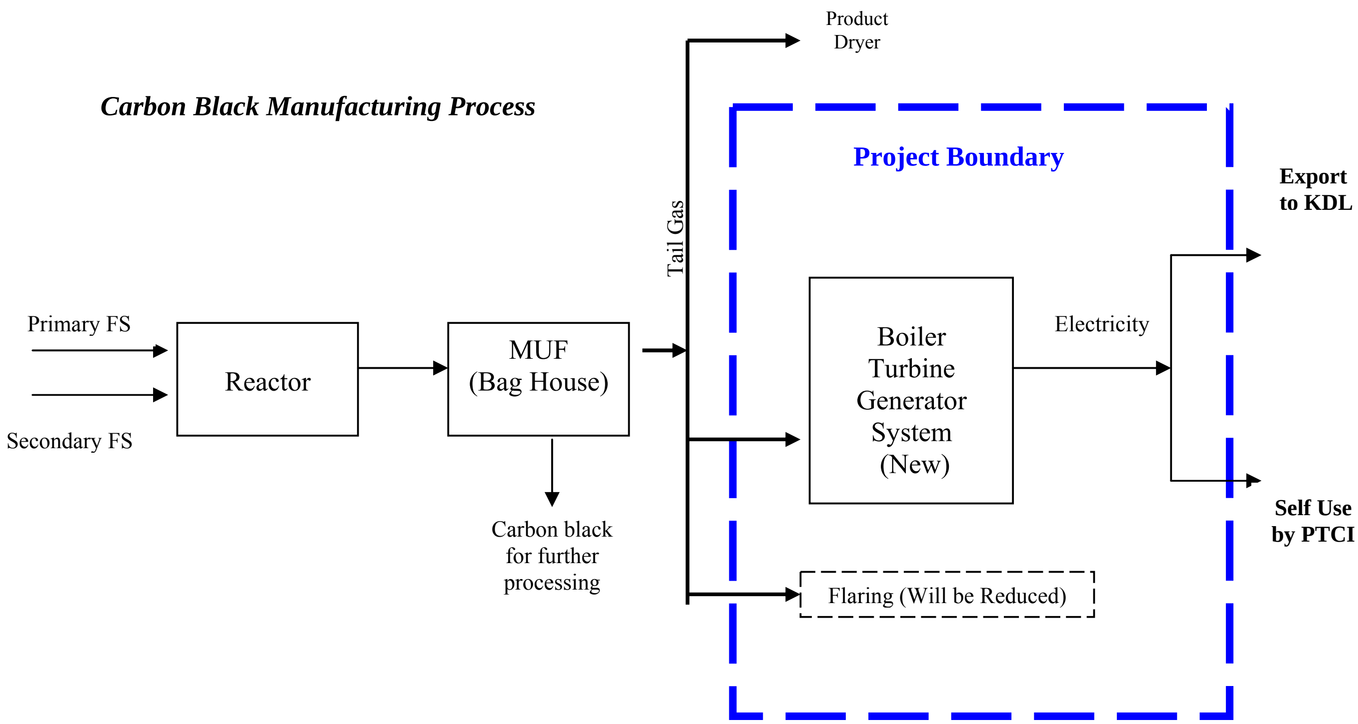
B.3. Description of the project boundary:

>>All operations that capture tail gas and convert it into steam and electricity occur within the company premises. Consistent with stipulations in AMS III Q, the boundary of this project activity is the cogeneration plant located within the premises of PTCI's carbon black manufacturing facility.

Project activity is energy recovery from excess tail gas (from which carbon black has first been separated in the main unit filter). In the baseline scenario, this tail gas is combusted and safely disposed via an elevated, open-flame flare. After the project activity, a majority of this excess tail gas is sent to the Boiler-Turbine-Generator system to produce steam and electricity. A small portion of the excess tail gas, approximately 10 %, will still be flared.

The project boundary is indicated via a blue dashed line in the simplified line diagram below. Project activities outside the dashed blue line (e.g., reactor, main unit filter, and other manufacturing unit operations) are not impacted by this project activity.

PTCI Project Boundary



B.4. Description of baseline and its development:

The project proponent, PTCI, has the following options to generate electricity consistent with current local laws and regulations:

1. Keep purchasing grid electricity from KDL;
2. Generate own electricity utilizing a cleaner fossil fuel such as natural gas; and
3. Use excess waste gas from manufacturing operations to generate steam and electricity.

No	***Options***	***Remarks***	***Relations to current laws and regulations***
1	*Keep purchasing electricity from KDL* *Baseline Scenario*	*The simplest option is for PTCI to keep purchasing electricity from KDL as has been done for many years. This business-as-usual scenario does not require the project proponent to make any new capital investment. In addition, this option has no technical risks given that KDL is an established utility company with power generation expertise. However, fossil-fuel combustion by KDL generates emissions of CO_2, a key greenhouse gas.*	*There is no law or regulation that would prohibit PTCI from procuring electricity from a private company such as KDL. Also, there is no restriction prohibiting KDL to generate and sell fossil fuel based electricity.*
2	*Generate own electricity using natural gas fuel in a new cogeneration plant* *Another Option Evaluated by Project Proponent*	*Given that natural gas is available in the Cilegon area, another option would be for PTCI to purchase its own natural gas and use in a new boiler-turbine-generator to generate electricity. Natural gas has a high heating value and there is minimal technical risk in power generation using stable supplies of this conventional fuel.* *However, onsite natural gas power generation would cost more than electricity purchase from KDL because of lack of economies of scale and other reasons. Although natural gas has lower carbon content than coal and other fossil fuels, using this fuel for generating design 5.5 MW will still generate significant CO_2 emissions, which is not desirable.*	*There is no law or regulation that prohibits PTCI to utilize natural gas to generate electricity.*
3	*Generate own electricity using carbon black tail gas in a new cogeneration plant* *CDM Project Activity*	*This option diverts a majority of excess tail gas that is flared to a new boiler-turbine-generator system for generating steam and electricity. This thus avoids purchase of fossil-fuel based electricity from KDL. This option is preferable to combusting natural gas fuel because the by-product tail gas is already available on site and not being used*	*There is no law or regulation that either requires or prohibits a carbon black company in Indonesia to recover waste heat from tail gas.*

in an energy efficient manner
.
However, unlike natural gas, carbon black tail gas has a very low calorific value and its quantity and quality varies depending on the plant's production profile. This introduces technical risks that must be managed compared to conventional fossil-fuel combustion.

As indicated in the table above, the first option, purchasing electricity from KDL, is the baseline scenario. The second option would be easy to implement but does not offer significant GHG reduction or other benefits. The final option (Option 3), utilization of heat content of tail gas, represents the CDM activity with significant GHG reduction benefits. It is clear that the proposed project activity is not the baseline or business-as-usual scenario.

Detail of the energy and emission baseline has been developed using the baseline methodology prescribed by the UNFCCC in Appendix B to Simplified M&P for small scale CDM projects activities belonging to AMS III.Q., version 01, paragraph 9. As per paragraph 9 of AMS III.Q "For computing the emissions in the baseline the procedure provided in paragraphs 6 to 13 of AMS I.C shall be used". As per paragraph 7 of AMS I.C "Cogeneration projects shall use one of the four following options for baseline emission calculations depending on the technology that would have been used to produce the thermal energy and electricity in the absence of the project activity "Electricity is imported from the grid and/or produced in a on-site captive power plant (with a possibility of export to the grid); steam/heat is produced from renewable biomass". (Note in this project activity, steam is generated by waste heat recovery from the tail gas, which after heat recovery process the tail gas is released to the atmosphere as is in the baseline situation.

Before the project activity, the project proponent met all its electricity needs by purchase from KDL. The following data summarizes actual electricity usage at the Cilegon plant over the previous five years.

Year	***Electricity consumption (kWh)***	***Data Basis***
2003	*27,494,140*	*Supplied by KDL*
2004	*28,364,870*	*Supplied by KDL*
2005	*26,905,009*	*Supplied by KDL*
2006	*28,310,593*	*Supplied by KDL*
2007	*17,957,099*	*Supplied by KDL*

These data indicate that that the design 5.5 MW capacity for the new cogeneration plant will be more than adequate to cover the plant's own electricity demand and will even allow some export back to KDL.

Besides generating the power, to serve all customers KDL also import electricity from PLN (JAMALI Grid). This is, therefore, JAMALI Grid Emission Factor = 0.888 tCO2/MWh used for calculating CO2 emission in this project ……………………………………………………………………………..... (1)

$f_{cap} = Q_{WG,BL} / Q_{WG,y}$ = (329,173,548 Nm3/h)/(316,464,000 Nm3/h) = 1.04, and, in accordance with AMS III Q, f_{cap} is set to 1. Theses figures are based on real operational data from January to December 2007.

Where
$Q_{WG,BL}$ = quantity of tail gas flared prior to the start of the project activity (Nm^3/y);
$Q_{WG,y}$ = quantity of tail gas used for energy generation during the year y (Nm^3/y).

Baseline Emissions is Due to Use of KDL Electricity

Paragraph 9 of AMS I C stipulates for the case of import of electricity from the grid shall be calculated according to the formula:

$BE_{ELECTR,y} = EG_y * EF_{CO2}$
Where,

$BE_{ELECTR,y}$ = Baseline emissions from electricity imported in the year y. Baseline emission has to be calculated in accordance with AMS I D, using a combined margin approach. The Government of Indonesia, with the service of a contracted consultants have performed the calculation of the JAMALI grid to be used for CDM project connected to the JAMALI grid, the newest, current value is 0.888 t CO_2e/MWh.
EGy = Amount of electricity displaced by the project activity in the year y
EF_{CO2} = Emission factor for the electricity supplier (KDL) in the year y

Based on 350 days of operation per year, the baseline emissions due to electricity import are:

$BE_{ELECTR,y}$ = 4.5 MW * 350 d/y *24 h/d * 0.888 tCO2/MWh = 33566.4 tCO2/y ……….(2)

Total Baseline Emissions for Project Activity

$BE_y = BE_{ELECTR,y}$
= 33566.4 …….………………………..(3)

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:

These barriers are:

- Investment barrier
- Technological barrier
- Barrier due to prevailing practice
- Other barriers

Alternatives Evaluated for Small-Scale CDM Activity

Project Proponent has identified/evaluated several project options per guidance in Attachment A to Appendix B of the small-scale modalities and procedures. However, only the two alternatives outlined below were considered plausible.

Alternative 1: Continue Purchase of Electricity and Onsite Natural Gas Combustion (Baseline Scenario)

Under this scenario, the project proponent would continue importing electricity from KDL, which uses fossil fuels to generate electricity. This alternative is in compliance with all applicable legal and regulatory requirements but would not serve to reduce GHGs. Maintaining this business-as-usual scenario does not require any capital investment nor does it have any technological or operational risks associated with its implementation. This is thus the baseline scenario existing before implementation of the subject small-scale project activity.

Alternative 2: Waste Heat Recovery at Project Proponent's Site (Project Activity)

This project activity will avoid purchase of fossil fuel based electricity from others resulting in net CO_2 emission reductions by recovering waste energy from tail gas already available onsite. The project will thus substitute fossil fuel based energy generation with waste heat based energy generation. There is no legal requirement for waste heat recovery (WHR) from carbon black tail gas in Indonesia or any other country globally. The project proponent has taken up this project voluntarily in spite of the investment and technological barriers involved and the project implementation risks. These barriers and challenges are further described below.

Investment Barriers

Assuming that all other factors are equal among various competing projects, a project with the highest internal rate of return (IRR) would probably be considered the best and undertaken first. However, for a chemical manufacturing company such as PTCI and its parent, Cabot Corporation, there are multiple factors and strategic considerations that are used to make a capital investment decision and all input factors are not equal. The company's main business is to manufacture carbon black and other chemicals for sale to customers and not to generate electricity from its by-product tail gas. Therefore, there is always competition for funds between capacity expansion projects and other non-strategic projects such as cogeneration from waste heat recovery.

Unlike a utility or landfill operator for instance, which typically has a single or several similar projects to evaluate, a chemical manufacturing company has a wide variety of project investment options. It is conceivable for a lower IRR project to be funded instead of one with higher returns if it fits the company's strategic plans or if required for safety or environmental compliance.

Cabot has studied this particular project for the last five years and all factors including the financial viability of the project were considered as part of that study. This evaluation specifically considered the impact of potential CDM revenues as far back as 2003 when many rules and protocols for CDM project implementation were still under development and there were no clear market signals for CO_2 pricing. Some of these internal discussions are documented in a feasibility study conducted by Cambridge Energy Research Associates (CERA) titled "Indonesian Market Assessment to Optimize Tail - Gas Utilization in Electricity Generation from Cabot's Carbon Black Facilities" (CERA, May 9, 2003, P.35-36). This study was commissioned on PTCI's behalf by its parent company, Cabot Corporation (Boston, USA).

Cabot always has more projects than total funding available. At the same time, there are also some capital spending that needs to be done for replacement of aging equipment as well as for compliance related areas as safety, environment, etc. which do not generate any returns.

Hence, projects that are revenue earning or reduce costs are looked at for slightly higher than WACC benchmarks to make up for the projects that do not lead to any increase in returns. Hence, while the WACC was around 10% at the time of project analysis, typically, projects which earned less than 12-13% were considered as marginal/borderline projects, likely not to get approval. Only if there were other upsides available as CER credits in the current Cogen project under consideration, would senior management look to approve such marginal projects.

This optional waste heat recovery project on a loaded cost basis was always near the borderline in terms of returning the cost of capital at 10.2%. However, with potential CDM receipts, the return became relatively attractive which is 14.3% and over the internal capital hurdle rate. So at least the project does not lose value for the company after CDM revenues are taken into consideration. This helped the project to secure the necessary internal approvals.

IRR Sensitivity Analysis:

	Base	Plus 10%	Minus 10%	Plus 20%
Capex (Project costs)	$6,857k	$7,544k	$6,169k	$8,228k
IRR - w/o CDM	10.2%	8.2%	12.5%	6.5%
IRR - with CDM	14.3%	12.1%	16.9%	10.2%

Revenue	Base	Plus 5%	Minus 5%
IRR – w/o CDM	10.2%	12.0%	8.3%
IRR – with CDM	14.3%	16.0%	12.6%

	Base	Plus 10%	Minus 10%
Avoidance Utility Cost (in USD)	2,275.5K	2,503 K	2,047.95K
IRR-w/o CDM	10.2%	13.76%	6.29%
IRR-with CDM	14.3%	17.6%	10.8%

	Base	Plus 10%	Minus 10%

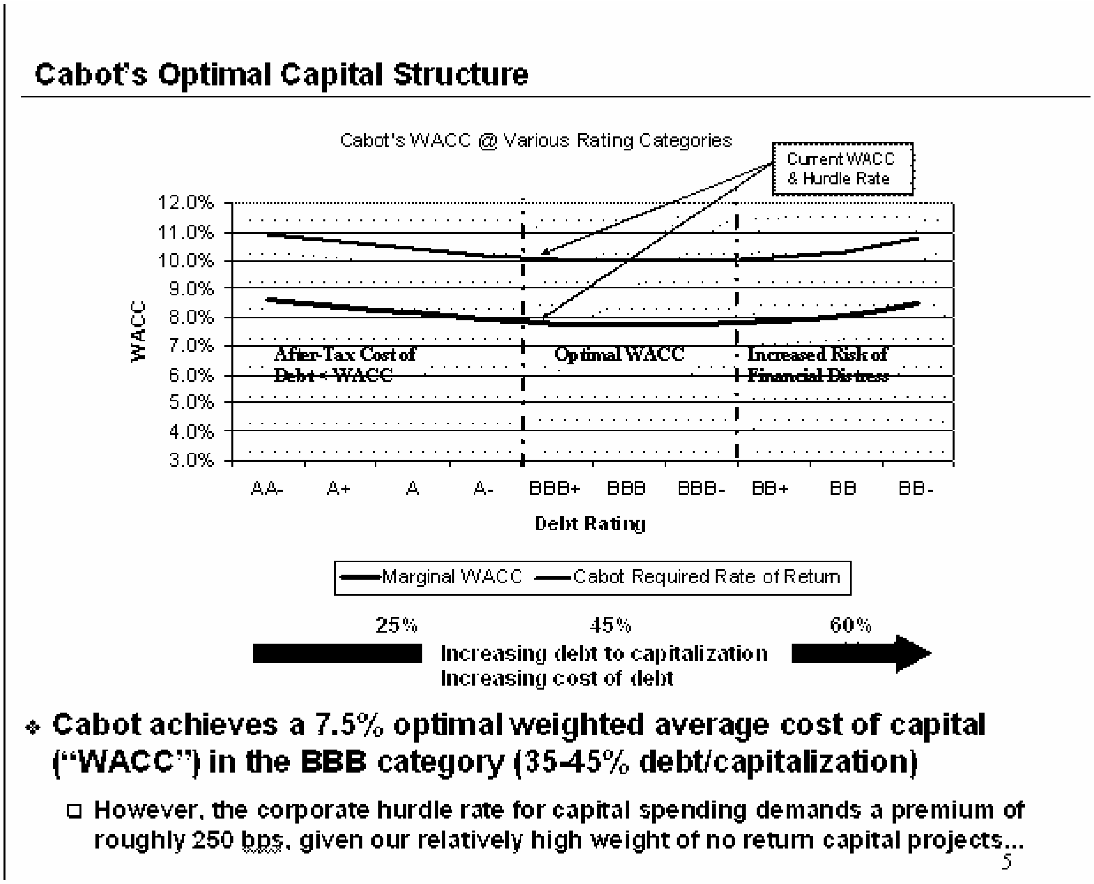
Cash Conversion Cost (in USD)	516,226	567,849	464,604
IRR-w/o CDM	10.2%	9.2%	11.3%
IRR-with CDM	14.3%	13.4%	15.2%

	Base	Plus 10%	Minus 10%
STA Cost (in USD)	168,628	185,491	151,765
IRR-w/o CDM	10.2%	9.9%	10.43%
IRR-with CDM	14.3%	14.1%	14.5%

	Base	Plus 10%	Minus 10%
Operating Cost (in USD)	226,171	248,788	203,554
IRR-w/o CDM	10.2%	9.8%	10.55%
IRR-with CDM	14.3%	14%	14.6%

It can be concluded from this IRR sensitivity analysis that if project cost increased by 10%, the project returns are even worse without CDM credit. Therefore, CDM credit is really needed to justify cogen project at Cilegon. Conversely, if the project cost is lower, the IRR can be better but this is an unlikely scenario. At the end, the actual Cilegon Cogen project cost was significantly higher than the base due to project delays and the associated run up in engineering and material costs. Therefore, the "plus 10% case" in the above table is closer to reality.

The applied benchmark was derived based on Cabot's weighted average cost of capital (WACC) data supplied bt the Corporate Treasury Group (Boston, MA) in 2002.



Although the proposed project activity will help PTCI reduce direct electricity purchase from the local fossil-fuel based grid, it also represents a "lost opportunity" for the company in Indonesia. Cabot typically for risk reasons balances out investment in single geographies and hence capacity expansions in Indonesia and other ASEAN countries would be paced out. It is because of this reason and the relatively low rate of return, it has been difficult for the project to readily secure funding when it was first conceived. This is evidenced by the fact that although the subject WHR project was initially evaluated in 2003, it has been delayed until 2007 for implementation because of lack of corporate financial support.

Furthermore, due to steep increases in prices of steel and other construction materials, the project costs increased substantially from the original estimate to $8.9 million. This required PTCI to raise requests for additional funding support which had to be justified and approved before additional funding could be secured. Potential CO_2 revenues from this small-scale cogeneration project make it financially more desirable and viable and help it overcome the financial barriers described above.

Technological Barriers

As discussed below, this small-scale project activity has to overcome several technological and design barriers for successful implementation and operation.

Reliability of Tail Gas Supply and Variations in Fuel Quality

An inherent technical barrier for this project is the fact that unlike natural gas or other conventional fuels, the quantity and quality of tail gas will vary depending on the type of carbon black grade being produced. Tail gas fuel represents excess gas from carbon black production that cannot be controlled like fossil fuel supply to a conventional power plant. Because the volume of excess tail gas will fluctuate, so will the steam and power generation rates. This poses key technical difficulties related to boiler turndown/sizing and associated boiler management and control systems.

A carbon black plant typically manufactures multiple grades of different surface areas to meet customer emands for different tyre and industrial applications. This means that not only the tail gas volume but also its heating value will fluctuate depending on grades being manufactured in different production units. If one production unit is down, tail gas from that unit will not be available for waste heat recovery and power generation. A tail gas based cogeneration system must be carefully designed to smooth out these inherent process fluctuations by combining waste gas from more than a single production unit and incorporating other innovative design and operational practices.

Low Heating Value of Tail Gas Fuel

Carbon black tail gas has a very low heating value (1.7-3.8 MJ/Nm^3), or as low as one-twentieth that of natural gas (37 MJ/Nm^3) depending on the carbon black grade being produced. Tail gas is almost 50% water vapour, which is contributed by the water of combustion, quench water used for stopping the carbon black reaction, and quench water used for cooling the hot tail gas. This gas also has a significant concentration of inert nitrogen. However, in spite of this low heating value, tail gas burns once it is ignited because it contains 8-12% hydrogen.

In addition, carbon black tail gas is typically combusted at about 220 deg. C (exhaust gas temperature from upstream bag house used to separate carbon black product from tail gas). Given the inherently low calorific value and the high inlet gas temperature, tail gas combustion requires substantially more gas volumes on a heat basis compared to natural gas combustion. This requires special designs for tail gas burners and associated instrumentation, which have to be much larger than equivalent natural gas based systems (natural gas is typically combusted at ambient temperatures).

Tail gas combustion temperatures are much lower than those achieved with natural gas or other higher heating value conventional fuels. If the temperature falls significantly below 100 deg. C, tail gas will not burn and the flame will go out. Therefore, another technical challenge for tail gas based WHR boiler systems is the ability to maintain flame stability at all times so as to avoid the potential for explosions. Furthermore, because of the low heating value of tail gas, conventional flame detection systems based on optical principles do not work and other technologies need to be used to ensure flame presence.

In addition to the challenge of maintaining flame stability during routine WHR boiler operations, there are also safety concerns for various shutdown scenarios. If the boiler is suddenly shutdown, the high moisture in tail gas will begin condensing and its heating value will almost double. As indicated before, a key component of tail gas is hydrogen, which has a very wide explosive range, low activation energy, and high flame velocity. Therefore, it is unsafe to leave tail gas trapped in lines and critical to design appropriate gas purge systems and safety interlocks. This technical barrier is not relevant for conventional fuel systems that can simply shutdown instantly if the WHR boiler goes down.

Reduced Sulphur Compounds and Other Undesirable Contaminants in Tail Gas

While waste energy in carbon black tail gas can be recovered to generate power and steam, it should be noted that tail gas is a process waste gas that contains undesirable reduced sulphur and reduced nitrogen compounds. These undesirable contaminants (present in ppm levels) must be completely oxidized in the boiler to ensure compliance with local air pollution control regulations and protect public health. Adequate residence time for complete oxidation of these compounds must be provided. The design of the WHR system must not simply focus on power generation at the expense of incomplete oxidation of these undesirable tail gas contaminants. This significant technical barrier is unique for waste energy recovery from process gases.

Contaminants present in the uncombusted tail gas result in additional technical challenges. For instance, sulphur (S) present in the carbon black feedstock contributes to H_2S in the by-product tail gas. When this tail gas is combusted in the WHR boiler, H_2S will be oxidized to SO_2 in the flue gas. It, is therefore, very important to ensure that the temperature at the boiler back-end and the stack does not drop below the sulphuric acid dew point and cause corrosion. This poses another technical challenge because the need for maximum energy recovery from waste gas has to be balanced against the need to maintain a sufficiently high exhaust temperature (say over 220 deg. C) to prevent acid corrosion. By comparison, there is no such technical limitation for natural gas based combustion systems because natural gas fuel has negligible sulphur content.

Unlike coal or other fossil-fuel-fired boilers, where radiation is the key heat transfer mechanism, tail-gas fired boilers primarily depend on convection because of the low heating value of the tail gas. Given these characteristics of the tail gas fuel and requirements for adequate destruction of contaminants present in the tail gas, each tail gas combustion system has to be carefully custom designed and off-the-shelf equipment are not available in Indonesia or any other country. This causes technical difficulties because only a handful of engineering companies globally have expertise in successfully addressing the technical barriers identified. PTCI faces an inherent technical risk in implementing a tail gas based cogeneration plant compared to a natural gas fired system where off-the-shelf burners and utility boilers can be used.

Small Frequency Variations

To reduce potential damage caused by frequency variations in the grid, PTCI will be installing an islanding relay. This relay would be activated under small frequency variations to prevent the turbine from tripping. On activation, this relay would decouple the onsite cogeneration plant from the grid and operate in a stand-alone or “island” mode.

However, frequent occurrences of such events may lead to thermal shocks in the system. Therefore, the project proponent needs to work with the turbine manufacturers to overcome this barrier and minimize impacts on turbine operating life.

Other Barriers

PTCI is a chemical company with expertise in carbon black production and not electricity generation. Cilegon plant personnel are developing and implementing a cogeneration plant based on waste heat recovery from tail gas for the first time. Although the Cilegon plant has been in operation since the 1990s, this project activity is being implemented now because of lack of knowledge about available

technologies for tail gas energy recovery and lack of managerial resources and organizational capacity for undertaking a voluntary project of this magnitude.

Given that PTCI is the only carbon black manufacturer in Indonesia, there is no precedent from any other company for energy recovery from low calorific value tail gas in this country. While Cabot Corporation is beginning to invest in such waste heat recovery projects to eliminate flaring of excess tail gas, this is not a prevalent or common practice as such because of the voluntary capital investment of $ 8-10 million that is typically required and competition with other internal projects (as discussed before). Project feasibility also depends on potential for electricity sales, local electricity prices, and other site-specific factors. For illustration purposes, none of Cabot's carbon black plants in North America currently have cogen plants based on utilization of energy in excess tail gas. This is actually not surprising because similar projects in industrialized countries do not have a mechanism for generating CO_2 credits and earning CDM revenues under the Kyoto protocol (as is possible in Indonesia and other developing countries),

Cilegon plant personnel are also not familiar with the challenges and complications of distributed power generation systems that connect with an electricity grid system. In addition, installing a boiler will introduce additional wastewater streams that will have to be managed differently from carbon black wastewater, which is relatively simple to handle.

Although plant personnel are very well trained in operating and maintaining a carbon black plant to meet customer needs, they have no experience in managing a cogeneration plant close coupled with production operations. Thus, the project proponent had to strengthen its human resource capabilities and provide training for the project activity by inviting external expertise. It is also very difficult to recruit experienced personnel to work in a chemical plant solely for purposes of managing a waste gas based cogeneration unit.

Therefore, adaptation of waste heat recovery for a carbon black manufacturing operation is a challenging proposition that required the project proponent to overcome multiple financial, technical, and other barriers. Given that unsuccessful handling of or more of these barriers could result in significant financial losses and impacted plant economics adversely, PTCI took a significant risk in developing this voluntary capital investment project.

Without the potential for CDM revenues through sale of certified emission reductions (CERs), this WHR project activity was unattractive for project proponent to pursue and implement. PTCI management agreed to do this project based on the understanding that CER revenues would also offset all CDM project transaction costs, including future monitoring and verification costs. As indicated previously, the significant capital investment required for a new cogeneration plant at Cilegon could as well have been used to fund a carbon black capacity expansion and meet growing product demand from the Indonesian tyre industry.

Evidence of Prior Serious Consideration of CDM Prior to Project Implementation

The following timeline highlights key events and milestones from the eight-year history of this CDM project to recover waste energy from carbon black tail gas at PT Cabot Indonesia's Cilegon plant. As this chronology indicates, this project started up and stopped several times due to economic reasons and consequently had to overcome significant financial barriers prior to implementation. Several project change orders (PCOs) had to be approved throughout the years. Additional project delays were caused by lack of qualified personnel to implement this project and use of overseas contract personnel, whose

performance was unsatisfactory. Although the initial project funds were first "committed" in May 2005, it can be seen that actual, uninterrupted project construction did not occur until February 2007 after additional PCOs had been approved and project finances re-evaluated. There have been significant changes in project design/scope and expected financial returns since the project was first conceived in 2002-03. For example, the initial design concept was to build a relatively large power plant to generate electricity for self use and sale to others but because of capital restrictions and other constraints, a much smaller 5.5 MW power plant generating electricity primarily for self-use was developed

CDM Project Timeline

No	Project Events	Date
1	Cabot first explored concept for utilization of waste heat from Cilegon tail gas	March 02
2	Internal alternatives analysis of options initiated	May 02
3	Corporate Energy team completes risk analysis for project	April 03
4	Project stopped due to poor IRR and related financial risks	May 03
5	Contracted CERA to discuss potential CO2 revenues from CDM project at Cilegon based on tail-gas utilization	May 03
6	Front end engineering design initiated	April 04
7	Environmental permitting activities initiated	May 04
8	Project internally approved to move to construction phase	Dec 04
9	Project first approved by Cabot Corporation's external Board of Directors in Boston, USA (approval of capital expenditure by Cabot Corpration Board of Directors)	13/05/2005
10	Project stopped again due to capital crunch and relatively low IRR	July 05
11	Purchase order for long-delivery equipment issued	Nov 05
12	Project stopped again due to internal financial reasons; no project activity	Nov 06
13	Initially started looking for CDM consultants in Indonesia	Dec 06
14	Received proposals for PDD development and interviewed consultants	April 07
15	Signed contract with YBUL for PDD development	July 07
16	Project rescoped and restarted with revised higher cost estimate	Feb 07
17	Mechanical completion of project	July 07
18	Project startup and shakedown	Oct 07
19	First draft of PDD developed by YBUL	Dec 07
20	PDD sent to Indonesian DNA; TUV Nord contracted for validation services	May 08
21	PDD for CDM project published on UNFCCC web site	June 08

The project timeline for this small-scale CDM project clearly demonstrates that PTCI's parent, Cabot Corporation (Boston, USA) seriously considered potential CO2 revenues for the proposed power plant at Cilegon as early as May 2003 and that this entered the decision-making process. In fact, CDM revenues were first considered seriously and evaluated more than two years before the project was formally approved by the external Board of Directors in May 2005, the so called "starting date" of this project (for CDM validation purposes only). Even though this initial commitment was received in May 2005, order of long-delivery equipment was delayed further to November 2005 due to further re-evaluation of project costs internally by Cabot management and re-prioritization of projects (capital expansion projects in China got preference). In the November 2005 timeframe, only purchase orders for the boiler and turbogenerator were placed with a nominal down payment solely to avoid further project delays. As

indicated in the chronology above, there was limited project activity in 2006 and the project was essentially on hold due to financial considerations.

As indicated above, Cabot personnel first started discussions with Cambridge Energy Research Associates (CERA) in 2003 to seriously evaluate the potential for monetizing CDM revenues due to CO2 emissions avoided by displacing purchased electricity at the Cilegon plant, especially since the project had a high financial risk profile. This initial evaluation indicated that necessary rules, protocols, and guidance for CDM development were not well developed at that early stage of CDM program implementation and there were no qualified CDM consultants available in Indonesia. In fact, the first CDM project in Indonesia was not registered until 2006. Potential CDM revenues from this project were thus re-evaluated again in 2006 after the project had been put on yet another hold and could not be justified solely on its own merit (i.e., avoided electricity costs in Indonesia that have not increased since 2004). Also, at this time a solar-cooker CDM project had been approved in Indonesia and Cabot management was now more comfortable with the potential for CO2 revenues via the CDM route.

Potential CO2 revenues were definitely considered to help revive the project. As already demonstrated by separate financial calculations, project IRR with potential CDM revenues are higher making this voluntary waste heat recovery project more attractive. Once it was clear that the project would really be a "go" the search process for local CDM consultants was started in late December 2006 - early 2007 timeframe. However, this process took an unusually long time because of lack of qualified PDD consultants in Indonesia. Cabot interviewed several consultants over a three to four month period before requesting proposals.

The reason this CDM project is being presented to the UNFCCC for registration is because of the multitude of financial and other project implementation barriers it has faced. This includes significant delays in PDD development and project validation activities, which have been ongoing for two and a half years as shown in the project chronology. However, the Indonesian DNA has already approved this first-of-a-kind CDM project for the Indonesian carbon black industry in September 2008 because of its contribution to sustainable development.

B.6. Emission reductions:

B.6.1. Explanation of methodological choices:

>>AMS III.Q. Version 01, paragraph 9, stipulates that procedures in AMS I.C. paragraph 6 to 13 should be used to calculate the baseline emission.

The step-by-step procedure used for estimating CO_2 emissions reductions from this project activity during the crediting period are summarized in the following table.

Steps	Description	Method Used	Remarks
1.	Calculation of project baseline emissions (BE,y)	The baseline emissions are calculated as per equation $BE_y = BE_{Elec,Grid,y}$	Baseline emissions for power generation are calculated using AMS I.C. paragraph 8 because prior to the project activity PTCI purchases electricity from KDL.
2.	Identification of grid CO_2 emission factor for KDL for use in baseline calculations	CO_2 emissions for electricity supplied by KDL were calculated using emission factor for grid electricity imported from the utility PLN. This PLN grid emission factor is used to calculate baseline emissions for Step 1.	PLN grid emission factor is based on use of electricity from the JAMALI (Java-Madura-Bali) grid. The factor has been calculated using ACM 0002 under the supervision of the Indonesian government. This approved grid emission factor is <u>0.888 tCO_2/MWh</u> (Source: Directorate General of Electricity and Energy Utilization, MEMR, 24 December, 2008; see Annex 3).
3.	Calculation of Project emissions due to auxiliary fossil fuel (PE_y)	Project emissions are calculated based on published IPCC emission factor for natural gas combustion.	A nominal amount of natural gas is used only as a back-up to tail gas fuel during boiler start up and other plant situations when good-quality tail gas is not available.
4.	Calculation of emission reductions (ER) due to project activity	Net emission reductions are calculated by deducting project emissions from baseline emissions calculated in Step 1 ($ER_y = BE_y - PE_y$)	

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

Data / Parameter:	Emission factor for PLN JAMALI Grid
Data unit:	tCO_2/MWh
Description:	Emission factor for electricity supplied by PLN in Jawa, Madura and Bali island
Source of data used:	KDL
Value applied:	0.888
Justification of the choice of data or description of measurement methods and procedures actually applied :	This approved grid emission factor is 0.888 tCO_2/MWh (Source: Directorate General of Electricity and Energy Utilization, MEMR, 24 December, 2008; see Annex 3).
Any comment:	Data archived: Crediting period + 2 yrs

B.6.3 Ex-ante calculation of emission reductions:

Project Emissions

There will be some "project emissions" from this project activity because of fossil fuel combustion after the project implementation. This occurs because natural gas is used to start up the cogeneration plant boiler when tail gas is not available. Some natural gas could potentially also be used as a supplemental fuel when good quality (calorific value) tail gas is not available from the carbon black production units.

It is very difficult to predict as to how much natural gas will actually be used as a back-up or supplemental fuel in the new cogeneration plant. However, a natural gas usage rate of 1 million Nm^3/year is assumed for PDD calculation purposes (actual usage will be metered after project implementation).

The associated project emissions have been estimated and deducted from the baseline emissions previously calculated:

Natural gas usage: 1.0 million m^3/year (estimated future use)

Natural gas calorific value: 969.5 MMSCF/PJ (Indonesian average)
This equal with $3.64e^{-5}$ TJ/m^3

Natural gas Emission factor: 15.3 tC/TJ (IPCC)

$$PE_{,y} = HG_y * EF_{CO2}/\eta$$

Where,

PE_y = project emissions from the use of natural gas as boiler back-up fuel in the year y

HGy = the total natural gas back-up fuel used in the year y

EF_{CO2} = published emission factor for natural gas

η = efficiency of combustion, assumed to be 1

PE_y = 2,042.3 tCO2/y…………………………………………………………………………(4)

ER_y = BE_y - PE_y

Combining equations (3) and (4) gives

ER_y = 33566.4 tCO2/y - 2042.3 tCO2/y = 31524.1 tCO2/y…………………………….(5)

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

>> The crediting period chosen is the one-time 10-year fixed term from 01 September 2009 through 31 August 2019.

Years	*Estimation of project activity emissions (tCO2-e)*	*Estimation of baseline emissions (tCO2-e)*	*Estimation of leakage (tCO2-e)*	*Estimation of overall emission reductions (tCO2-e)*
2008	NA	NA	NA	NA
2009	680.8	11188.8	0	10508.03
2010	2042.3	33566.4	0	31524.1
2011	2042.3	33566.4	0	31524.1
2012	2042.3	33566.4	0	31524.1
2013	2042.3	33566.4	0	31524.1
2014	2042.3	33566.4	0	31524.1
2015	2042.3	33566.4	0	31524.1
2016	2042.3	33566.4	0	31524.1
2017	2042.3	33566.4	0	31524.1
2018	2042.3	33566.4	0	31524.1
2019	1361.5	22377.6	0	21016.07
Total (tonnes of CO2-e)	20,423	335664	0	315,241

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

B.7.1 Data and parameters monitored:

(Copy this table for each data and parameter)

Data / Parameter:	**Steam rate of generation**
Unit:	Ton/h
Description:	Steam will be used to drive a turbine-generator system to produce electricity
Source of data:	Actual measurement
Value of data:	35
Brief description of the measurement methods and procedures to be applied:	Measurement: Flow meter with D.P. Transmitter, Capacitance type, Silicon sensor with SS-3161, diaphragms. Range: 0 – 10,000 mmwc. Monitoring frequency: Continuous Archiving policy: Paper & Electronic Responsible: Cogen Engineer
QA/QC procedures to be applied (if any):	Flow meter calibration program set once a year.
Any comment:	

Data / Parameter:	**Steam pressure**
Unit:	Bars
Description:	Steam will be used to drive a turbine-generator system to produce electricity
Source of data:	Actual measurement
Value of data:	44
Brief description of measurement methods and procedures to be applied :	Measurement: Pressure Transmitter, Pizoresistive type, Silicon sensor with SS-3161 diaphragm. Range: 0 – 100 bar. Monitoring frequency: Continuous Archiving policy: Paper & Electronic Responsible: Cogen Engineer
QA/QC procedures to be applied (if any):	Pressure transmitter calibration program set once a year or annually.
Any comment	

Data / Parameter:	**Steam Temperature**
Unit:	^oC
Description:	Steam will be used to drive a turbine-generator system to produce electricity
Source of data:	Actual measurement
Value of data:	420
Brief description of measurement methods and procedures to be applied :	Measurement: Thermocoulple, Mineral Insulated, ungrounded CHROMEL/ALUMEL 'K' Type (Duplex), with SS316/INCONEL Operating Temp. 420 ^oC Monitoring frequency: Continuous Archiving policy: Paper & Electronic Responsible: Cogen Engineer
QA/QC procedures to be applied (if any):	Thermocouple calibration program set once a year or annually.
Any comment	

Data / Parameter:	**Electricity generated by cogeneration plant**
Unit:	MWh/y
Description:	Steam will be used to drive a turbine-generator system to produce electricity
Source of data:	Actual measurement
Value of data:	43,000
Brief description of measurement methods and procedures to be applied :	Measurement: Electricity meter, Secure Meter Ltd. Model E3M051, 3 phase, 4 wires. Monitoring frequency: Continuous & aggregated monthly Archiving policy: Paper & Electronic Responsible: Cogen Engineer
QA/QC procedures to be applied (if any)	KWh meter calibration program is set at once a year.
Any comment:	

Data / Parameter:	**Tail gas used in cogeneration plant**
Unit:	Nm^3/h
Description:	Carbon Black Tail Gas – Primary Boiler Fuel
Source of data:	PTCI COGEN logbook.
Value of data:	38,000 Nm^3/h
Brief description of the measurement methods and procedures to be applied:	Measurement: Flow meter with D.P Transmitter, Capacitance type, Silicon sensor with SS-3161 Diaphragms. Range: 0 – 100 mmwc. Monitoring frequency: Continuous Archiving policy: Paper & Electronic Responsible: Cogen Engineer
QA/QC procedures to be applied (if any):	Tail Gas Flow meter calibration program is set at once a year.
Any comment:	

Data / Parameter:	**Natural gas used in cogeneration plant (ONLY when tail gas is not**

	available or of poor quality)
Unit:	Nm^3/h
Description:	Purchased Natural Gas – Back-Up Boiler Fuel
Source of data:	Natural Gas meter at COGEN (Average Jan – Sept 08)
Value of data:	41,654
Brief description of the measurement methods and procedures to be applied:	Measurement: Flow meter with D.P Transmitter, Capacitance type, Silicon sensor with SS-3161 diaphragm. Range: 0 – 14,000 mmwc. Monitoring frequency: Continuous & aggregated monthly Archiving policy: Paper & Electronic Responsible: Cogen Engineer
QA/QC procedures to be applied (if any):	Natural Gas Flow meter calibration program is set at once per year.
Any comment:	

Data / Parameter:	**Natural gas NCV**
Unit:	TJ/m3
Description:	Purchased Natural Gas – Back-Up Boiler Fuel
Source of data:	Natural Gas Bill from Supplier (Average on Dec 08)
Value of data:	Data from the bill = 933.106 BTU/SCF equal with $3.47e^{-5}$ TJ/m^3 (Conversion 1 BTU/SCF = $3.72e^{-8}$ TJ/m^3 where 1 BTU = $1.055e^{-9}$ TJ, and 1 SCF = $2.832e^{-2}$ m^3 source http://www.themeter.net/conv5_e.htm). Data from the National Communications (Use for calculating the baseline) = 969.5 MMSCF/PJ equal with $3.64e^{-5}$ TJ/m^3 (Conversion 1 MMSCF = $2.832e^4$ m^3 source: http://www.themeter.net/conv19_e.htm, 1 PJ = $1e^3$TJ)
Brief description of the measurement methods and procedures to be applied:	Measurement: Monthly average of Gross Heating Value Monitoring frequency: Continuous & aggregated monthly Archiving policy: Paper & Electronic Responsible: Cogen Engineer
QA/QC procedures to be applied (if any):	Formal monthly Natural Gas, NVC report from the Gas Supplier (EHK)
Any comment:	

Data / Parameter:	**Electricity export to KDL**
Data unit:	MWh / y
Description:	Excess of electricity produced by the COGEN PLANT will be exported to PT KDL.
Source of data to be used:	Actual measurement
Value of data applied for the purpose of calculating expected emission reductions in section B.5	11,695 (based on average value taken from January 2008 to September 2008).
Description of measurement methods and procedures to be applied:	Measurement: Electricity meter, Actaris SL, 3 phase, 4 wires. Monitoring frequency: Monthly (recorded) Archiving Policy: Paper & Electronic Responsibility: Electrical/Instrument Supervisor
QA/QC procedures to be applied:	KWh meter calibration program is set at once a year.
Any comment:	

Data / Parameter:	Electricity import from KDL
Data unit:	MWh / y
Description:	Import electricity from PT KDL.
Source of data to be used:	Actual measurement
Value of data applied for the purpose of calculating expected emission reductions in section B.5	1,191(based on average value taken from January 2008 to September 2008).
Description of measurement methods and procedures to be applied:	Measurement: Electricity meter, LANDIS & GYR. 3 phase 3 wire meter Monitoring frequency: Monthly (recorded) Archiving Policy: Paper & Electronic Responsibility: Electrical/Instrument Supervisor
QA/QC procedures to be applied:	KWh meter calibration program is set at once a year.
Any comment:	

Data / Parameter:	f_{cap}
Data unit:	-
Description:	$f_{cap} = Q_{WG,BL} / Q_{WG,}$ $Q_{WG,BL}$ = quantity of tail gas flared prior to the start of the project activity (Nm^3/y) $Q_{WG,y}$ = quantity of tail gas used for energy generation during the year (Nm^3/y).
Source of data to be used:	QWGBL use 2007 data based on mass balance calculations = 329,173,548 Nm^3/y Q_{WGy} = yearly average tail gas use for power generation
Value of data applied for the purpose of calculating expected emission reductions in section B.5	1
Description of measurement methods and procedures to be applied:	Measurement: Flow meter with D.P Transmitter, Capacitance type, Silicon sensor with SS-3161 Diaphragms. Range: 0 – 100 mmwc. Monitoring frequency: Continuous Archiving policy: Paper & Electronic Responsible: Cogen Engineer
QA/QC procedures to be applied:	Tail Gas Flow meter calibration program is set at once a year.
Any comment:	

B.7.2 Description of the monitoring plan:

>>Project monitoring activities will be carried out in accordance with the following division of responsibilities.

CDM Activity Primary Contact: The facility general manager has overall responsibility for managing this CDM project activity at PTCI's Cilegon plant
.

CDM Activity Administration: The environmental engineer is responsible for day-to-day administration of CDM activity with assistance from plant team.

Data Collection/Archiving: The cogeneration plant engineer is responsible for managing and electronically archiving the data collected in support of the project activity.

Instrumentation/Calibration: The electrical engineer and maintenance manager are responsible for periodic calibration of measuring instruments and maintaining them..
>>

Emission monitoring and calculation procedure will follow the following organizational structure. All data and calculation formula required to proceed is given in the section B.6.3. The operators working on the project activity will be provided training on issues related to regular operation, monitoring of important parameters, safety measures to be taken and regular maintenance requirement of the important equipment.

Table 4: Monitoring and Calculation Activities and responsibility

Monitoring and calculation activities	Procedure and responsibility
Data Source and Collection	Readings of various meters will be recorded by technicians.
Frequency	Monitoring frequency should be as per section B of PDD
Review	All received data is reviewed by engineers in CDM monitoring organization
Data compilation	All the data is compiled and stored in CDM administrator
Emission calculation	Emission reduction calculation will be done annual based on the data collected. Engineers/Project In charge of CDM administrator will do the calculations
Review	(Plant Manager) In charge will review the calculation
Emission data review	Final calculations is reviewed and approved by Plant Manager
Record Keeping	All calculation and data record will be kept with the CDM administrator. (Crediting period + 2 years)

Applicable Calculation Formula:

ERy = (Electric Generated by Cogen (MWh/y) * GEF (tCO2/MWh)) – PEy ……………………….. (6)

Where,

$PE_{,y} = HG_y * EF_{CO2}/\eta$

Where,

PE_y = project emissions from the use of natural gas as boiler back-up fuel in the year y

HGy = the total natural gas back-up fuel used in the year y from the bill information

EF_{CO2} = published emission factor for natural gas

η = efficiency of combustion, assumed to be 1

Natural gas Emission factor: 15.3 tC/TJ (IPCC)

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 completing the final draft of this baseline and monitoring methodology:**
06.06.2008

Name of the person/entity determining the baseline:
PT. Cabot Indonesia & their associated consultants

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:

13/05/2005 as the date when Cabot Corporation Board of Directors approved capital expenditures for Cilegon Power Plant Project.

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

>>10-15 years

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

C.2.1. Renewable crediting period

C.2.1.1. Starting date of the first crediting period:

>>

C.2.1.2. Length of the first crediting period:

>>

C.2.2. Fixed crediting period:

C.2.2.1. Starting date:

>> 01/09/2009

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:

>> Given the small size of the power generation equipment (design 5.5 MW), the host Party Indonesia does not require a full environmental impact analysis or AMDAL. The plant's UKL/UPL document has already been modified to address this CDM project activity.

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:

>> Not applicable

SECTION E. Stakeholders' comments

>>

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

The project proponent PTCI invited the local community to a stakeholders meeting on January 17, 2008 at a meeting location with easy access in Cilegon city. People invited included leaders of local communities and villages, nongovernmental and other labour organizations. In addition, Heads of the local Environmental, Mining and Energy Office and the Industry and Trade office, BAPEDAL, several private companies and YBUL (consultant for PDD development) also attended this stakeholder meeting.

PTCI staff gave an introductory presentation on the CDM project activity and provided a forum for all participants to engage in discussions and raise questions. After the oral presentation and the "Question and Answer" session, a set of written questionnaires were distributed to the participants. The questionnaire responses were then carefully evaluated and categorized.

For reference, the questionnaires compiled the following information from each participant:

a. Personal data of stakeholder
b. Do you agree on the utilization of tail gas/waste gas as fuel for electricity generation at PTCI
c. Does this project have positive impacts on the welfare of the surrounding communities, from the point of view of the environment, social, economic, and technology
d. Does this project have negative impacts on the welfare of the surrounding communities, from the point of view of the environment, social, economic, and technology
e. Do you agree on the presence of this project of the utilization of tail gas/waste gas as a fuel for electricity power plant at PTCI
f. Please give other comments and suggestions.

E.2. Summary of the comments received:

The crucial issues are in questions c and d. Responses were grouped into two categories, namely positive and negative responses for each aspect of environment, social, economic, and technology. Highlights of comments are as follows:

On question c, 36 out of 37 respondents believe that the project will improve the welfare of the community from the environmental aspect. One respondent felt that there is no positive impact on the welfare of the community.

On question d, 34 out of 37 respondents believe that the project will not have a negative impact on the community welfare from the environmental point of view. Two respondents felt that the project could have a negative impact (no explanation given) whereas one person abstained.

Similarly, an overall majority of respondents believe that the project activity will contribute positively to the welfare of the community. On question e, all respondents support PTCI's electricity generation project based on waste heat recovery from tail gas.

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

All responses were listed and categorized either as positive or negative responses. This was done for each question on environment, social, economical, and technological aspect.

The next step was to evaluate how the different aspects fare. On environmental issues, a majority or 34 out of 37 responses are consistently positive while one person is consistently negative. This person's negative comment is based on the fact that not all the tail gas will be combusted to generate electricity and a small amount will still be flared. This statement has some merit but PTCI did not have the option of selling excess electricity back to KDL when this project was first conceived. From the project proponent's point of view, it would be financially beneficial if all the excess tail gas could be used to generate electricity thus generating even more CER revenues. In any case, less than 10% of the tail gas will still be flared after project activity compare to 65% flaring before the project so this activity will still result in a substantial reduction in GHG emissions.

Three respondents were concerned about potential pollution to atmosphere and water. PTCI explained that this project activity simply extracts energy from extra tail gas that was previously being flared. This does not increase pollution in any way but rather helps reduce greenhouse gases that cause global warming. The only difference will be that the gases coming out will now be cooler so PTCI has voluntarily compensated for this by installing a very tall 65-meter stack for the new boiler. The small wastewater streams generated by the boiler will be treated onsite prior to discharge to the environment.

While an overwhelming majority believe that the project will contribute positively to the community's social and economic welfare, a small group (seven personnel) did not agree but yet gave no reasons. This could be due to personal or other interests not related to the CDM project activity.

In conclusion, all valid and relevant comments raised at the stakeholders' meeting have been appropriately addressed by PTCI and there is strong support from the community for implementing this waste heat recovery project at Cilegon.

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY

Organization:	PT. Cabot Indonesia (PTCI)
Street/P.O.Box:	Jl. Amerika I Kav.A-5, Krakatau Industrial Estate Cilegon
Building:	-
City:	Cilegon
State/Region:	Banten Province
Postfix/ZIP:	Cilegon 42443
Country:	Indonesia
Telephone:	+62 254 311606
FAX:	+62 254 311525
E-Mail:	fery_faizal@cabot-corp.com
URL:	www.cabot-corp.com
Represented by:	
Title:	Plant Director
Salutation:	Mr.
Last Name:	Faizal
Middle Name:	N.A
First Name:	Fery
Department:	Manufacturing
Mobile:	+62 811 125641
Direct FAX:	+62 254 311525
Direct tel:	+62 254 311606
Personal E-Mail:	fery_faizal@cabot-corp.com

Annex 2

INFORMATION REGARDING PUBLIC FUNDING

There is no public funding is used in this project activity

Annex 3

BASELINE INFORMATION

Tail Gas Fuel

Tail gas is emitted as a by-product of the carbon black manufacturing activity in the company. In the absence of the project activity, this tail gas is flared. The design tail gas usage rate for the new cogeneration plant is 41,000 Nm^3 /h. This process fuel is typically available at a temperature of 200^0C to 230^0C with a calorific value of 500-600 kcal/$Nm^{3.}$

Electricity Imported by PTCI

Prior to the project activity, PTCI imported fossil fuel based electricity from a local electricity company, PT KDL (Krakatau Daya Listrik). For the last 5 years, electricity imports were as follows:

Year	***Electricity consumption (kWh)***	***Remarks***
2003	*27,494,140*	*Supplied by KDL*
2004	*28,364,870*	*Supplied by KDL*
2005	*26,905,009*	*Supplied by KDL*
2006	*28,310,593*	*Supplied by KDL*
2007	*17,957,099*	*Supplied by KDL*

Electricity Imported by KDL

KDL generates electricity utilizing fossil fuels, marine oil and lately mixed with natural gas. Fuel consumption data for the last 3 years is as follows:

No	***Category***	***Units***	***2005***	***2006***	***2007(September)***
1	*KDL import from PLN*	*MWh*	*1,253,113.00*	*1,107,888.00*	*660,579.55*

Emission factor for the Java-Madura-Bali (JAMALI) Power Grid

KDL imports a portion of its electricity from the JAMALI power grid operated by PT PLN, the state electricity company. An emission factor of 0.888 tCO_2/MWh for the JAMALI grid has been approved by the Government of Indonesia, Directorate General of Electricity and Energy Utilization, MEMR, via its letter dated 24 December 2008.

A copy of the original letter from Directorate General of Electricity and Energy Utilization, MEMR (unofficial) translation are included below for reference.

DEPARTEMEN ENERGI DAN SUMBER DAYA MINERAL REPUBLIK INDONESIA
DIREKTORAT JENDERAL LISTRIK DAN PEMANFAATAN ENERGI
Jl. H.R. Rasuna Said Blok X 2, Kav. 07 dan 08 Kuningan Jakarta 12950

Tromol Pos 3043/Jkt 10002 Telepon : (021) - 5225180 (5 saluran) Faks : 5256044-5256066 Web: www.djlpe.esdm.go.id

Nomor : 3783 / 21 /600.5/2008 — 24 Desember 2008
Lampiran : -
Hal : *Baseline* Faktor Emisi Sistem ketenagalistrikan Sumatera dan Updating *baseline* Faktor Emisi Sistem Ketenagalistrikan JAMALI

Yang terhormat,
Ketua Komisi Nasional Mekanisme Pembangunan Bersih
Kantor Kementerian Lingkungan Hidup
Jl. DI Panjaitan, Kav 24, Kebon Nanas
Jakarta Timur 13410

Dalam rangka implementasi proyek-proyek CDM yang akan diinterkoneksikan dengan Sistem Ketenagalistrikan Sumatera dan Jawa-Madura-Bali (JAMALI), Departemen Energi dan Sumber Daya Mineral bersama stakeholder telah melakukan perhitungan baseline faktor emisi untuk tahun 2008 pada sistem ketenagalistrikan Sumatera dan updating baseline faktor emisi sistem ketenagalistrikan JAMALI menggunakan *metodology* ACM0002 versi 7 dengan *combined margin emission factor*. Adapun hasil baseline faktor emisi tersebut adalah sebagai berikut:

a. Sistem ketenagalistrikan Sumatera : **0,743 tCO_2e/MWh;**

b. Sistem ketenagalistrikan JAMALI : **0,891 tCO_2e/MWh.** Angka baseline ini lebih tinggi dari baseline sistem ketenagalistrikan JAMALI tahun 2006 (**0,754 tCO_2e/MWh**), hal ini disebabkan masuknya beberapa PLTU batubara pada sistem JAMALI.

Atas perhatian Saudara, kami ucapkan terima kasih.

Direktur Jenderal Listrik dan
Pemanfaatan Energi,

J. Purwono
NIP 100006614

Tembusan:
1. Menteri Energi dan Sumber Daya Mineral
2. Staf Ahli Menteri ESDM Bidang Kewilayahan dan Lingkungan Hidup

Translation

Department of Energy and Mineral Resources of Republic of Indonesia
Directorate General of Electricity and Energy Utilization

Jl. H.R. Rasuna Said Blok X 2, Kav. 07 and 08 Kuningan Jakarta 12950

Tromol Pos 3043/Jkt 10002 Telephone: (021) – 5225180 (5 lines) Fax: 5256044-5256066 Web: www.djlpe.esdm.go.id

Jakarta, 24 December 2008

No. : 3783/21/600.5/2008
Attached: -
Re. : Baseline Emission Factor
Electricity Sumatera System and
Updating Baseline Emission Factor
Electricity at JAMALI System .

To.
Chairman, Designated National Authority
Office of the Minister of Environment
Jl.D.I. Panjaitan, Kav 24, Kebon Nanas
East Jakarta 13410

In the framework of the implementation of CDM projects which are going to be connected to Electricity Systems of Sumatra and Java-Madura-Bali (JAMALI), Ministry of Energy and Mineral Resources together with stakeholders have calculated the baseline emission factors for 2008 for the Sumatra grid and updated the baseline emission factor for the JAMALI grid utilizing the ACM0002 methodology version 7 with the combined margin emission factor. The results of the calculation of the baseline emission factors are as follows:

a. Sumatra grid: 0.743 tCO_2e/MWh;
b. JAMALI grid: 0.888 tCO_2e/MWh. The value of this baseline is higher than the baseline for JAMALI grid in the year 2006 (0.754 tCO_2e/MWh), due to the entrance of several coal fired power plants onto the JAMALI grid.

On your given attention. we express thanks.

Director General for Electricity
and Energy Utilization

J.Purwono
NIP 100006614

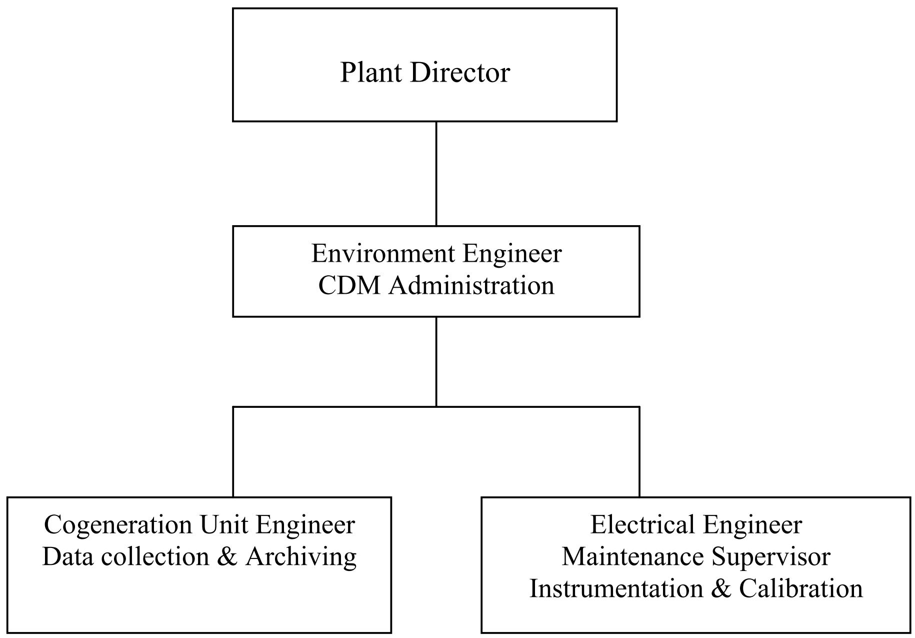
CC:
1. Minister of Energy and Mineral Resources
2. Expert Staff of the MEMR,Regional and Environment matters

Translated by: Lolo M Panggabean.

Annex 4

MONITORING INFORMATION

Monitoring organizational structure is as follows:



Annex 5

Information on the assumption of electrical price not increased in 2003

Source; www.kompas.com

KOMPAS
AMANAT HATI NURANI RAKYAT

Bisnis & Investasi

Jumat, 26 September 2003

DPR Rekomendasikan Kenaikan TDL Ditunda

Jakarta, Kompas - Komisi VIII Dewan Perwakilan Rakyat akhirnya meminta pemerintah menunda kenaikan tarif dasar listrik (TDL) tahap keempat tanggal 1 Oktober 2003. Untuk mengurangi defisit yang lebih besar, DPR mendesak pemerintah agar lebih ketat mengawasi kinerja PLN supaya dapat meningkatkan efisiensi dan menekan kerugian.

Rekomendasi tersebut dihasilkan setelah Komisi VIII DPR melakukan rapat tertutup dengan Direktur Jenderal Listrik dan Pemanfaatan Energi Luluk Sumiarso yang juga Ketua Tim Tarif Pemerintah, di Jakarta, Kamis (25/9) malam. Rapat yang dipimpin Wakil Ketua Komisi VIII Agusman Effendi ini sempat diskors beberapa saat untuk melakukan lobi antarfraksi sebelum menghasilkan kesimpulan.

Kepada wartawan, Agusman menjelaskan, DPR menerima penjelasan pemerintah tentang rencana kenaikan TDL tahap keempat sesuai Keputusan Presiden (Keppres) Nomor 89 Tahun 2002. "Setelah mempertimbangkan

masukan pemerintah dan pendapat masyarakat, DPR meminta pemerintah menunda kenaikan TDL tersebut," kata Agusman.

Pemerintah juga diminta melakukan sosialisasi kepada masyarakat pengguna listrik kelas R1-450 volt ampere (VA), B1-450 VA, dan I1-450 VA untuk menghemat listrik karena subsidi untuk mereka masih cukup besar.

Selain itu, pemerintah harus memberikan kepastian penyediaan sambungan listrik pada masyarakat yang belum menikmati listrik secara merata dan bertahap sesuai kemampuan anggaran yang ada.

Menurut Agusman, pemerintah dan DPR sebaiknya duduk bersama untuk mengkaji perhitungan nilai tukar rupiah terhadap dollar AS dan kerugian PLN, yang selama ini dipakai sebagai dasar kenaikan TDL tersebut. Dengan nilai tukar Rp 8.500 per dollar AS, kerugian yang diderita PLN hanya Rp 30 miliar dan bisa diatasi dengan melakukan efisiensi.

Menanggapi itu, menurut Luluk, rekomendasi DPR akan disampaikan kepada Menteri ESDM untuk dibawa dalam rapat koordinasi terbatas. Hasilnya akan menjadi bahan pertimbangan pemerintah sebelum menentukan alternatif kenaikan TDL.

Sebelumnya, pemerintah mengajukan tiga opsi kenaikan TDL tahap keempat berdasarkan perubahan asumsi nilai tukar rupiah terhadap dollar AS. Ketiga opsi itu adalah pertama, TDL tetap dinaikkan. Kedua, kenaikan dibatalkan, atau naik secara parsial, yaitu kenaikan biaya pemakaian dengan biaya beban tidak dinaikkan. Keputusan pemerintah akan dikeluarkan sebelum tanggal 1 Oktober 2003. Namun, jika sampai batas waktu itu belum ada keputusan, Keppres No 89/2002 tetap berlaku.

Moratorium

Sebelumnya, Working Group on Power Sector Restructuring (WGPSR) menyerukan kepada pemerintah dan PLN untuk melakukan moratorium kenaikan TDL tahap keempat karena kebijakan itu hanya akan memberatkan rakyat kecil. WGPSR juga menolak pemerintah mengambil opsi kenaikan tarif listrik secara parsial di mana sebagian kelompok pelanggan saja yang akan merasakan kenaikan TDL tersebut.

Demikian diutarakan Koordinator WGPSR Fabby Tumiwa dalam siaran persnya. Menurut Fabby, sekalipun pemerintah mengambil opsi parsial, yang terkena dampak kenaikan adalah golongan R1-450 VA dan atau golongan Industri. Padahal, pelanggan R1-450 VA adalah kelompok miskin yang sensitif terhadap kenaikan harga sehingga membuat kelompok itu semakin terpuruk.

Sementara itu, menaikkan tarif industri akan memperburuk iklim investasi di Indonesia dan dapat mengakibatkan efek berantai kenaikan harga barang serta mendorong inflasi. "Kenaikan parsial juga bertentangan dengan kebijakan pemerintah dan PLN mengenai subsidi silang antargolongan. Seharusnya kebijakan subsidi silang antargolongan tarif diperbolehkan sebagai mekanisme pemerataan dan keadilan," katanya.

WGPSR berpendapat, jika moratorium kenaikan TDL dilakukan, akan ada kesempatan untuk mengkaji kebijakan tarif, subsidi, dan kebijakan energi yang ada selama ini.(BOY/WAS)

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Design By KCM

Translation of above articles as follows:

DPR Recommended Delaying the Raise Of TDL

Jakarta, Kompas – Commission VIII of the DPR requested that the government delays the 4th phase raise of the TDL that was previously scheduled on October 1, 2003. To minimize a larger deficit, DPR urged that the government implement a tighter monitoring on the performance of the PLN, in order to improve its efficiency and to minimize loss.

The recommendation came after the Commission VIII held a closed meeting with the Director General of Electricity and Energy Utilization (DJLPE) Luluk Sumiarso, who is also the Head of the Government's Tariff Team, on Thursday evening in Jakarta. The meeting which was lead by the Deputy Chief Commission VIII Agusman Effendi was suspended to allow lobby between fractions before they make the decision.

To the press Agusman explained, the DPR accepted the Government's explanation on the 4th phase raise of the TDL plan based on the President's Decision (Keppres) No. 89 in 2002. "After considering inputs from the Government and the people, DPR request that the Government delay the raise of the TDL," said Agusman.

The Government is also requested to make familiarization to the electricity users class R1-450 volt ampere (VA), V1-450 VA and I1-450 VA to minimize electricity usage because the subsidize for them is still large.

On the other hand, the Government must ensure the availability of electricity network to the people who have not used electricity widely and gradually based on the available budget.

According to Agusman, the Government and the DPR should discuss together to evaluate the calculation of the currency exchange rate and the loss of the PLN, which is currently used as the baseline to raise the TDL. With the exchange rate Rp 8,500 per USD, the PLN's loss is only Rp 30 billion and can be minimized by improving efficiency.

Luluk responded, DPR's recommendation will be conveyed to the Minister of ESDM to be discussed in the Coordination Meeting. The results will be used as the Government's consideration before deciding the alternative for raising the TDL.

Beforehand, the Government proposed 3 options for the 4th phase rise of the TDL based on the change of the assumption of the exchange rate. The 1st option is to raise the TDL. The 2nd option is to cancel the raise. The 3rd option is partially raised the TDL (raise of usage price but the load charge is not raised).

Moratorium

Previously, the Working Group on Power Sector Restructuring (WGPSR) urged the Government and PLN to make a moratorium of the 4th phase TDL increase because the policy will burden the "rakyat kecil". WGPSR also rejected the Government's option to partially raise the TDL because only some groups of users will be affected by the increase.

Fabby Tumiwa explained in his press conference. According to Fabby, although the Government take the partial option, the groups that will be affected are the R1-450 VA and/or the industrial sector. While users in the R1-450 VA category are poor people who are sensitive to the price increase and it will make their life more miserable

On the other hand, raising the tariff for the industrial sector will reduce the willing to invest in Indonesia and will cause chain effect to the price increase of commodities and higher inflation. "Partial raise also contradicts with the Government's policy and PLN about the cross subsidize between tariff categories. The cross subsidize between the categories is allowed as a mechanism for equality & fairness.

WGPSR said, if the moratorium of the TDL is implemented, there will be opportunity to evaluate the existing tariff policy, subsidize and energy policy. (BOY/WAS)