

VALIDATION REPORT

Sindicatum Carbon Capital Limited

**Bangkok Kamphaeng Saen East:
Landfill Gas to Electricity Project**

SGS Climate Change Programme

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SGS United Kingdom Limited		Sindicatum Carbon Capital Limited	
Publication of PDD for Stakeholders Consultation			
Commenting Period:		21/03/2009 to 19/04/2009	
First PDD Version and Date:		Version 01 dated 14/03/2009	
Final PDD Version and Date:		Version 08 dated 13/08/2010	
Summary:			
Sindicatum Carbon Capital Limited has commissioned SGS to perform the validation of the project: Bangkok Kamphaeng Saen East: Landfill Gas to Electricity Project. Methodology Used: ACM0001 Consolidated baseline and monitoring methodology for landfill gas project activities Version and Date: Version 11 dated 11/06/2009 The scope of the validation is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and applicable CDM requirements. The report is based on the assessment of the project design document undertaken through stakeholder consultations, application of standard auditing techniques including but not limited to document reviews, follow up actions (e.g. site visit, telephone or e-mail interviews) and also the review of the applicable approved methodology and underlying formulae and calculations. The report and the annexed validation describes a total of 20 findings which include: • 05 Corrective Action Requests (CARs); • 15 Clarification Requests (CLs); • 02 Forward Action Requests (FARs); and All findings have been closed satisfactorily closed and CL#05 and CAR#15 are converted into FAR#05 and FAR#15. This project will be recommended to the CDM Executive Board with a request for registration			
Subject:		Document Distribution	
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Date: 21 st January 2011			
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Abbreviations

ACM	Approved Consolidated Methodology
BMA	Bangkok Metropolitan Administration
BGCL	Bangkok Greenpower Company Limited
CAR	Corrective action request
CDM	Clean development mechanism
CDM	EB CDM Executive Board
CER	Certified emission reduction
CL	Clarification request
CWDCL	Central Wastewater Development Company Limited
DOE	Designated Operational Entity
DNA	Designated National Authority
EB	Executive Board
ER	Emission Reduction(s)
ERPA	Emission Reductions Purchase Agreement
EIA	Environmental Impact Assessment
FSR	Feasibility Study Report
FAR	Forward action request
GHG	Green House Gas(es)
IEE	Initial Environmental Examination
IPCC	Intergovernmental Panel on Climate Change
ISCCP	International Sindicatum Climate Change Partnership
KP	Kyoto Protocol
LoA	Letter of Approval
LFG	Landfill Gas
MoC	Modalities of Communication
MSW	Municipal Solid Waste
MWe	Mega Watt (electric)
NPV	Net Present Value
NEPC	National Energy Policy Council
Nm ³ /h	Normal Cubic Metre per Hour
O&M	Operation & Maintenance
ODA	Official Development Assistance
PDD	Project Design Document
PP	Project Proponent
PPA	Power Purchase Agreement
QA/QC	Quality Assurance/Quality Control
SCC	Sindicatum Carbon Capital
SV	Site Visit
TGO	Thailand Greenhouse Gas Management Organization
UNFCCC	United Nations Framework Convention on Climate Change
USD	US Dollars
UK	United Kingdom of Great Britain and Northern Ireland
VSP	Very Small Power Producer
VVM	Validation and Verification Manual
XHL	Xentolar Holdings Limited

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1. Validation Opinion

SGS United Kingdom Ltd has been contracted by Sindicatum Carbon Capital Limited to perform a validation of the project: Bangkok Kamphaeng Saen East: Landfill Gas to Electricity Project in Thailand.

The Validation was performed in accordance with the UNFCCC criteria for the Clean Development Mechanism (CDM), Validation and Verification Manual version 1.2 and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The project activity involves the extraction and capturing LFG from the land fill, which will be utilized to generate electricity and/or flared to avoid methane emissions being released into the atmosphere. The LFG utilized in the project activity in the absence of the project activity would have been released into the atmosphere. The electricity, thus generated from LFG, will be fed to Thailand grid, which otherwise would have been generated in the fossil fuel dominant Thailand grid. The project activity will result in reductions of greenhouse gas (GHG) emissions that are real, measurable and give long-term benefits to the mitigation of climate change.

In our opinion, the project meets all relevant UNFCCC, CDM criteria and all relevant host country criteria. The project correctly applies methodology ACM0001 Version 11. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the project are estimated to be 1,911,605 tCO₂e over a 7 year crediting period during 10/04/2010 to 09/04/2017, averaging 273,086 tCO₂e annually. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given the underlying assumptions do not change.

The project will hence be recommended by SGS for registration with the UNFCCC.

Signed on Behalf of the Validation Body by Authorized Signatory



Signature:

Name: Siddharth Yadav

Date: 21st January 2011

2. Introduction

2.1 Objective

Sindicatum Carbon Capital Limited has commissioned SGS to perform the validation of the project: Bangkok Kamphaeng Saen East: Landfill Gas to Electricity Project with regard to the relevant requirements for Clean Development Mechanism (CDM) project activities. The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, the monitoring plan (MP) and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reduction (CER). UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities and related decisions by the COP/MOP and the CDM Executive Board.

2.2 Scope

The scope of the validation is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. SGS has employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.

The validation is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

2.3 GHG Project Description

The project activity will extract, capture and combust LFG in gas engines to generate electricity that will be fed to fossil fuel intensive Thailand grid. In the absence of project activity, the electricity generated by project activity, would have otherwise been generated into the Thailand grid. Also, when the gas engines system are not installed/or under planned maintenance or LFG gas is in surplus, it shall be flared in enclosed flare system to avoid release of methane gas (component of LFG), which otherwise would have occurred in the absence of project activity. Therefore, the project activity shall result in emission reduction first on account of methane avoidance into the atmosphere by flare or combustion in gas engine and second by feeding the renewable electricity, thus generated, to Thailand grid.

2.4 The Names and Roles of the Validation Team Members

Assessment Team	Role
Ashok Kumar Gautam	Lead Assessor & Sectoral Expert Scope 13
Nattarin Thunsiri	Local Assessor
Abhishek Mahawar	Financial Expert

Technical Review Team	Role
Kaviraj Singh	Technical Reviewer / Sectoral Expert Scope 13

3. Methodology

3.1 Review of CDM-PDD and Additional Documentation

The validation is performed primarily as a document review of the publicly available project document PDD version 01 dated 14/03/2009 and the subsequent PDD versions dated 02, 03, 04, 05, 06, 07 and 08 (final version). The assessment is performed by trained assessors using the validation protocol attached as Annex 2, table 2.

The site visit was performed on 22/04/2009 and 23/04/2009 and results are summarized in Annex 1 Local Assessment Checklist forming a part of the validation report. However, at the time of site visit there has not been any physical action (construction) or installation of gas collection system observed. Therefore, it may be concluded at the time of site visit, the project was not initiated on physically on ground and completely a green field project activity.

The team comprised of Ashok Kumar Gautam, Lead Assessor and Expert, and Nattarin Thunsiri, Local Assessor from Thailand to undertake the review of statements in PDD, project description, baseline situation, additionality, project implementation schedule, environmental and legal issues pertaining to project activity and baseline and a visit to place where local stakeholder consultation occurred. The representatives participated in the local stakeholder consultation were interviewed to take their call on the project by the local assessor in the leadership of the Lead Assessor.

3.2 Use of the Validation Protocol

The validation protocol used for the assessment is designed in accordance with the Validation and Verification Manual, Version 1 dated 28 November 2008. It serves the following purposes:

- it organises, details and clarifies the requirements the project is expected to meet; and
- it documents both how a particular requirement has been validated and the result of the validation (reporting).

The validation protocol consists of several tables. The different columns in these tables are described below.

Checklist Question	Ref ID	Means of Verification (MoV)	Comment	Draft and/or Final Conclusion
The various requirements are linked to checklist questions the project should meet.	Lists any references and sources used in the validation process. Full details are provided in the table at the bottom of the checklist.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (Y), or a Corrective Action Request (CAR) due to non-compliance with the checklist question (See below). Clarification Request (CL) is used when the validation team has identified a need for further clarification.

The completed validation protocol for this project is attached as Annex A.1 to this report

3.3 Findings

As an outcome of the validation process, the team can raise different types of findings

A Clarification Request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met

Where a non-conformance arises the Assessor shall raise a **Corrective Action Request (CAR)**. A CAR is issued, where:

- I. The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
- II. The CDM requirements have not been met;
- III. There is a risk that emission reductions cannot be monitored or calculated.

The validation process may be halted until the necessary information has been made available to the assessor. Failure to address a CL may result in a CAR. Information or clarifications provided as a result of a CL may also lead to a CAR.

A Forward Action Request (FAR) is raised during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration.

Corrective Action Requests and Clarification Requests are raised in the draft validation protocol and detailed in a separate form (Annex A.3). In this form, the Project Developer is given the opportunity to “close” outstanding CARs and respond to CLs and FARs.

3.4 Internal Quality Control

Following the completion of the assessment process and a recommendation by the Assessment team, all documentation will be forwarded to a Technical Reviewer. The task of the Technical Reviewer is to check that all procedures have been followed and all conclusions are justified. The Technical Reviewer will either accept or reject the recommendation made by the assessment team. Findings can be raised at this stage and client must address them within agreed timeline.

4. Validation Findings

4.1 Approval

CL#01 was raised to provide the LoA from host Party and UK DNA. The Letter of Approval from host Party and Annex 1 Party listed in Annex 1 of the PDD was not obtained during validation site visit.

In response the PP provided the LoA ^{/9/} reference no. TGO No.02/332 from host Party (Thailand) dated 7th August 2009 in the name of Bangkok Greenpower Co. Ltd. and PS Natural Energy Co., Ltd. confirming that the project activity contributes to the sustainable development of the country, which has ratified the KP on 28th August 2002 and participation by project participants (Bangkok Greenpower Co. Ltd. and PS Natural Energy Co., Ltd.) is voluntary. It is worth noting that the DNA from host Party has approved the authorization of project participation of both the project participants (as mentioned above) and confirms the contribution of project activity to sustainable development of the host country. The letter was received through the project participants directly. The title in the PDD Version 08^{/5d/} is found to be consistent with the project activity title endorsed in the LoA, referenced above. The authenticity of the LoA referenced above is confirmed from the contact details of Thailand DNA that are located at http://www.tgo.or.th/english/index.php?option=com_content&task=view&id=17&Itemid=29&limit=1&limitstart=2 where the LoA for aforesaid project activity is issued in the name of the PP (as per Annex 1 of the PDD) indicating the approval date as 23 July 2009 and issued on 7 August 2009.

The LoA from the UK DNA was also requested for the project participants (Sindicatum Carbon Capital Ltd and Xentolar Holdings Limited) from the Annex 1 Party (UK) for the proposed project activity. The LoA ^{/10/} dated 27th August 2009, reference number XenHLtd/02/2009, which was provided by the PP, confirmed the consistency with the proposed project activity title and endorsed the participation of Xentolar Holdings Limited. The LoA also confirmed that the UK has ratified the KP on 31st May 2002 and participates voluntarily in CDM and authorizes the project participant Xentolar Holdings Limited. The authenticity of LoAs (as reference above) provided by the UK DNA has been confirmed from the website link at <http://www.decc.gov.uk/EN/Search.aspx?search=DNA&mode=pub> indicating that UK DNA has approved the participation of Xentolar Holdings Limited and Sindicatum Carbon Capital Ltd. on 27 Aug 2009 and 22 Oct 2009 respectively.

The LoA ^{/8/} dated 22nd October 2009 reference number SCCL/06/2009 confirmed the consistency with the proposed project activity title and endorsed the participation of Sindicatum Carbon Capital Ltd. The LoA also confirmed that the UK has ratified the KP on 31st May 2002 and participates voluntarily in CDM and authorizes the project participant Sindicatum Carbon Capital Ltd.

The LoAs^{/8,10/} from the UK DNA, as referenced above, have been obtained from project participant (Sindicatum Carbon Capital Ltd.) directly.

Taking note of the provided LoAs^{/8,9,10/} and checking the consistencies with Section A.3 and Annex 1 of PDD Version 08^{/5d/}, the information and documents provided, were found satisfactory and it was concluded that requirements are clearly met. Therefore, CL#01 was closed out.

In the opinion of the validation team, the referenced LoAs^{/8,9,10/} are complying with VVM V1.2 paragraph 45-48, and reporting requirements as stipulated in VVM V1.2 paragraph 49 are clearly met. Further from the content of the authenticated LoAs^{/8,9,10/} it is established that these are not conditional to a specific PDD Version and therefore do not invite any assessment as required by VVM V1.2 paragraph 50.

4.2 Participation Requirements

As described above, it has been confirmed from the content of LoAs^{/8,9,10/} that Thailand and the UK are Parties to KP and project activity meets the participation requirements by establishing that each project participant is approved by (as detailed in the closure of CL#01 above) DNA and the final PDD Version 08^{/5d/} contain the project participants, which are approved.

However, in the webhosted PDD Version 01, the project participant viz., Central Wastewater Development Company Limited was listed but has subsequently withdrawn from the project activity voluntarily, through a withdrawal undertaking ^{/12/} dated 2nd September 2009 agreed by the other project participants. Further, Xentolar Holdings Limited was not listed in the webhosted PDD Version 01, but has been added to the final

PDD Version 08^{/5d/} and has demonstrated the participation requirements as described in closure to CL#01 above by submitting the LoA^{/10/}.

CL#02 was raised to provide the MoC in line to the format EB 45 Annex 60 duly signed by the project participants. The requested document was not available at the time of validation site visit.

In response, the MoC^{/11/} dated 30th October 2009 was received and was found to be consistent with the PDD Version 08^{/5d/} section A.3 and Annex 1. Upon confirmation of the required details consistency, CL#02 was closed out.

In the webhosted PDD, there was need for clarification in the name of one of the representative from the project participants (Ms Thanatda Visanyapong) since this name and same contacts appeared for two different companies (Bangkok Greenpower Co. Ltd. & Central Waste Development Co. Ltd.) listed in the PDD. In addition to this, the DOE observed that the same person was also the representative for a third company (Dynamic Energy Co. Ltd.) in a webhosted PDD for a CDM project (refers to webhosted PDD for Chiang Mai available at <http://cdm.unfccc.int/Projects/Validation/DB/HTH6MAYAOFF3D0G9Y8STXOWOMRKL6SQ/view.html>).

Sindicatum Carbon Capital Ltd. is a party in both the projects in question; therefore, CL#03 was raised to clarify the representative person. Furthermore, it was also not clear how the project proponents are related in the project activities and what kind of contract or operation services have been signed amongst them which are pertaining to the project activity. In response, the power of attorney^{/14,15/} was received in the name of Ms Thanatda Visanyapong from the project participants (host) confirming the transfer of power on the project related matters and therefore accepted. The project participants (host) will own the project activity and have secured the loans from the XHL (also Annex 1 party to the project activity). The organizational relations and links are further clarified in the section 4.6.5 (Investment barrier) of this report. Therefore, the CL#03 was closed out after satisfactory clarification.

In the opinion of the validation team and as required by VVM V1.2 paragraph 54, the participation of all the project participants listed in Section A.3 and Annex 1 of the PDD Version 08 is approved by the relevant DNA as referenced in section 4.1 of this report above based on the verified LoAs^{8,9,10/}.

4.3 Project Design Document including Project Description

The CDM PDD Version 08^{/5d/} conforms to the latest CDM PDD template available at http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/index.html and fulfils the requirements specified at <http://cdm.unfccc.int/Reference/Guidclarif/pdd/index.html> duly checked and found correct.

The title of the project activity is clear and unique as checked on <http://cdm.unfccc.int/Projects/Validation/DB/C45ZX848IYNITNP84VTCRECSURI2VH/view.html> and CDM PDD clearly indicated the version (01 dated 14/03/2009 in the webhosted PDD) and indicates the version number (08 dated 13/08/2010) in the PDD submitted along with request for registration.

CAR#17 was raised as the PDD Version 01 was having the following inconsistencies with regards to the requirements of EB41 Annex 12

In response, the revised PDD Version 02^{/12/} was submitted with appropriate changes which are found to be consistent with the PDD Version 08^{/5d/} as well. Therefore, CAR#17 was closed out satisfactorily. The detailed explanation of concern raised and closure for CAR#17 are described in Annex 3 of this validation report.

The description of the project activity adequately covers the elements required e.g. purpose, type of technology (including technical details) and contribution to sustainable development in the PDD Version 08^{/5d/}. The project activity will extract, capture and combust LFG in gas engines to generate electricity that will be fed to the fossil fuel intensive Thailand grid, where it would have otherwise been generated in the absence of project activity. Also, when the gas engines system is not installed/functional or LFG gas is available in surplus, it shall be flared in enclosed flare system to avoid release of methane gas (component of LFG) which otherwise would have occurred in the absence of project activity. Therefore, the project activity shall result in emission reduction first on account of methane avoidance into the atmosphere by flare or combustion in gas engine and second by dispatching electricity, thus generated to the Thailand electricity grid.

As part of the project activity, based on the LFG generation potential, will install 11 gas engines each with a capacity of 1.063 MWe, which may increase to a maximum of 15 gas engines if the LFG generation in the actual scenario exceeds the estimation. However, each host project participant can install up to 8 MWe giving a maximum possibility of 16 MWe, which is also constrained by the proposed grid connection. It has been ascertained during the site visit that there will be two grid connections having a maximum capacity of 8 MWe dispatch. In addition, 3 enclosed flares of 2000 Nm³/h will also be installed, which would be used in case of Gas Engines shutdown period or LFG is available in surplus.

The proposed project activity shall generate emission reductions of approximately 1,911,605 tCO₂e over a 7 year crediting period and the estimates were checked and verified by the assessment team from the ER spreadsheet^{/6a/} and input assumptions (waste characterization and waste quantity envisaged to be received during crediting period) at the site. The records pertaining to historic waste tipping quantity, waste characterization report and regulatory requirements for the project activity were checked during the site visit. These evidences are duly described in baseline identification and emission reductions section of this report. However, at the time of site visit the project activity had not commenced any operation and the continuation of the baseline was physically witnessed and found consistent with arguments given in the PDD Version 01, subsequent versions and Version 08^{/5d/}.

CL#18 was raised for

- a) The operational lifetime of the project is expected as 21 years. Proof for the operational lifetime of project activity / key components is required to be checked from comparable projects or project technologies or feasibility study.
- b) Evidence is required to be submitted that the technology used would not be changed during the crediting period.

In response, it was verified from the JE Jenbacher service agreement brochure ^{/58/} that major overhauls are required at 60,000 operating hours for gas engines, which is a key component. The operational and maintenance cost have been validated from O&M Cost ^{/52/} and Long Term Part Delivery Agreements ^{/53/}. The project activity Genset Tender Return Comparison indicates that lower operation cost in the project activity would be the reason not to change the gas engines and further they will be continually verified by verifying DOE. These responses were found to be adequate and consistent by the assessment team and therefore, CL#18 has been closed out.

CAR#04 was raised as the geographical coordinates of the project activity is mentioned as 14° 03'58.52" N 99°56'45.21"E. However, the coordinate shown in the figure A.4.1.4 was 14° 04'02.29" N, 99°56'46.65"E which was not matching. In response the project proponent provided appropriate coordinated as 14° 3'50.62"N 99°56'50.96"E in the revised PDD Version 02 ^{/2/}, which were duly verified by the assessment team and found to be correct. Therefore, CAR#04 was closed out.

The details of ownership could not be verified during the site visit and therefore CL#05 was raised to provide the ownership of the project activity to the project participants along with implementation schedule and other regulatory clearances obtained. In response the project proponent wished to convert the CL#05 into FAR#05 as it is not a requirement for validation as the process of obtaining PPA, Ministry of Industry License, Local Authority Construction License and Generating License would take some more time and are, in any case, requirements that must be met prior to the operation of the project. However, in order to ensure that efforts are being undertaken to procure above mentioned approvals, a letter of approval for PPA ^{/16/} and Thailand Board of Investment Approval ^{/17/} were provided. Furthermore, Sindicatum Carbon Capital and Xentolar Holdings Ltd. acting as a project participant and the role of SCC is, but not limited to, development and management of the project, CDM cycle through its Singapore subsidiary SCC South East Asia Limited. The project companies Bangkok Greenpower and PS Natural Energy Co., Ltd were established to facilitate the project implementation but both were represented by GRTE initially in the project documentation. The contract for equipment, project loans and permits are with above companies. The invoice of Gas Engine is already place dated 25 June 2009 (after two months from the date of the site visit) and it is expected the extraction mechanism for LFG will be commissioned by 2nd November 2009.

Therefore, CL#05 has been converted into FAR#05, as the delay in obtaining these licenses should not prevent the validation and can be verified by another DOE during the verification stage, if project activity is registered. Therefore, the issue is left for the verifying DOE to check these requirements are met prior to operation of the project activity.

CL#06 was raised to confirm if the project activity has received public funding or ODA in any form. It was confirmed that no such funding has been utilized for the project activity as confirmed by an undertaking by Xentolar Holdings Ltd. However, it was asked how Xentolar Holdings Ltd. can provide such information, as at that time Xentolar Holdings Ltd. was not included as project participant. In response to this query, the revised PDD included Xentolar Holdings Ltd. Understanding that Xentolar Holdings is a project participant (and also has provided the finance to the project activity) in the revised PDD, and submitted the LoA from the UK DNA, the CL#06 was closed out. Therefore, it is concluded that the project activity does not involve any type of public funding, in whatsoever manner.

4.4 Applicability of selected methodology to the project activity

Approved Baseline Monitoring Methodology Applied: ACM0001 Consolidated baseline and monitoring methodology for landfill gas project activities Version 11 dated 11/06/2009

The project activity fulfils the applicability conditions

- a) The captured gas is flared; and/or
- b) The captured gas is used to produce energy (e.g. electricity/thermal energy)

of the ACM0001 Version 11 and therefore is considered as the most applicable methodology. The methodology also covers the emissions reduction from the grid electricity displacement by the LFG electricity produced.

In the proposed project activity the captured gas will be combusted in gas engines (each having generating capacity as 1.063 MWe) to produce electricity that will be fed to Thailand grid and flared from 3 enclosed flare systems each rated at 2000 Nm³/h. The information has been verified from the technical specifications of the equipments ^{/20,21/} under consideration by the project activity. It is further stated that all the project emissions have been duly accounted in the monitoring plan of the proposed project activity as verified in the PDD Version 08^{/5d/} ..

The webhosted PDD was not clear on the capacity of Gas Engine estimated electricity generation and technical specification of the flares, therefore CL#07 was raised. In response to this the PDD was revised and documentary evidences namely Generator set specification ^{/20/} and Flare set specification ^{/21/} were provided. The project activity envisages installing gas engines having individual generating capacity as 1.063 MWe and each flare capacity would be 2000 Nm³/h. The information was found to be consistent with the evidences provided, as discussed above, and finally CL#07 was closed out satisfactorily.

Therefore, it can be concluded the proposed project activity complies with the applicability conditions, as discussed above, of the applied methodology ACM0001 Version 11. The reporting requirement in accordance with VVM V1.2 paragraph 76 is duly complied with.

It is noteworthy to mention that the PDD Version 01 (webhosted) applied ACM0001 Version 10, which was in grace period until 10th February 2010. Therefore, the project proponent wished to apply with the latest version i.e. ACM0001 Version 11 and meet its requirement. It was accepted by the DOE, as a newer version is an improved and valid version of the ACM0001 and project activity is also found to be consistent with the requirements. Upon such acceptance a revised PDD Version 08^{/5d/} was submitted by the PP which was found to be consistent with the updated requirements completely and was therefore accepted.

The DOE has assessed the requirements of ACM0001 Version 11, in the context of project activity and ensures the requirements stipulated in paragraph 65, 66 and 67 of VVM Version 1.2 are duly met.

As required by VVM V1.2 paragraph 77, it is also ascertained that no GHG emission sources, which are not addressed by the applied methodology, have been left out in the project boundary as a result of implementation of the proposed CDM project activity capable of contributing more than 1% of average annual emissions reductions.

4.5 Project Boundary

The inclusion/exclusion of the GHGs have been appropriately carried out in the PDD Version 08^{/5d/} as per the requirement of ACM0001 Version 11.

CL#08 was raised

- a) to clarify as the project boundary was not clear for depicted auxiliary usage and the direction of flow from Grid was not clear.
- b) to substantiate that waste would have been dumped at the same site to rule transportation emissions out
- c) to substantiate that there are no regulations or policies governing the release of LFG into the atmosphere as written in Sub-step 1b
- d) to substantiate that feeding power from LFG to Grid is as per law and necessary documentary evidence for the designated electricity generation capacity.

In response,

- a) the revised PDD was submitted with clear description of project sketch and thereby boundary.
- b) As per the agreement Employment Agreement No. SorNorRor 54/2547 between BMA and Group 79 Co., Ltd. the waste quantity from Nhong Kham to be disposed off at the landfill site was verified to be 7,269,651 tonnes for a period of 10 years at the project site was found valid and therefore the emissions were ruled out on account of transportation of MSW to the project site.

- c) Further, it was verified from Public Health Act B.E.2535 ^{/25/} that local administrative body (BMA here) has the authority to establish own regulations regarding the issuance of license to operate landfill. It was verified that for the project activity landfill, the concern Tung Bua Sub-district Administrative Organization, the local administration have not fixed any specific regulation requiring the destruction or release of LFG into the atmosphere.
- d) Finally, it was verified from the VSPP regulation ^{/26/}, on page 2, section B that generation of electricity from MSW is defined under Very Small Power Producers policy.

Upon confirmation of the statements made in the revised PDD ^{/2, 5d/}, the CL#08 was closed out.

As mentioned earlier, the project activity at the time of site visit was completely a Greenfield site where the baseline has been witnessed. However, based on the project design document and technical details provided by the PP and lay out designs of the proposed project activity, all the potential GHG sources have been included in the project boundary and shall be monitored, within the requirements of the methodology. The identified boundary and the selected sources and gases are justified for the project activity as reviewed in the PDD Version 08 ^{/5d/} and with regards to ACM0001 Version 11. In the opinion of the validation team, based on the referenced documents above, and as required by VVM V1.2 paragraph 80, the project boundary is complete and all the GHG sources, within the ambit of the applied methodology are appropriately covered and addressed and no other potential source of GHG emission is omitted.

4.6 Baseline Selection and Additionality

The identification of baseline has been done using the latest version of “Tool for the demonstration and assessment of additionality” (Version 5.2) and in accordance with applicable methodology.

The Step 1 Identification of alternative scenarios has been followed to define alternatives for baseline scenarios for LFG treatment/disposal and generation of electricity. The project activity is not generating heat energy therefore the alternatives related to heat generation are ignored from further discussion.

The alternatives for LFG treatment/disposal, in the reasonable context to the project activity may include

- 1) LFG 1: The project activity (capture of LFG and its use in gas engine/flares) undertaken without being registered as CDM project activity;
- 2) LFG 2: The atmospheric release of the LFG or partial capture of LFG and destruction to comply with regulations or contractual requirements to address safety and odor concerns.

The alternative LFG 1 is argued in the later section of additionality (using Barrier Analysis) and LFG 2 is found to be within the law. As already verified, in response to CL#08 (c) the continuation of existing practices is, where LFG is released into the atmosphere, not prevented by the applicable laws/license. It was verified from Public Health Act B.E.2535 ^{/25/} that local administrative body (BMA here) has the authority to establish own regulations regarding the issuance of license to operate landfill. It was verified that for the project activity landfill, the concern Tung Bua Sub-district Administrative Organization, the local administration have not fixed any specific regulation requiring the destruction or release of LFG into the atmosphere. Therefore, the project activity without CDM benefits subject to the barrier analysis and continuation of existing practice as endorsed by the operating license ^{/46,47,51/} and physical visit to the site by the validation team are the two plausible alternatives to the project activity.

The alternatives for the power generation, may include

- 1) P1: The power generated from the utilization of LFG in the gas engines undertaken without being registered as CDM project activity;
- 2) P2: Existing or construction of a new on –site or off –site fossil fuel fired cogeneration plant
- 3) P3: Existing or construction of a new on –site or off –site renewable based cogeneration plant
- 4) P4: Existing or construction of a new on-site or off-site fossil fuel fired captive power plant;
- 5) P5: Existing or construction of a new on-site or off-site renewable based captive power plant;
- 6) P6: Existing and/or new grid-connected power plants.

The alternative P1 is credible but argued in the Additionality section (refer 4.6.5 of this report and B.5 of the PDD Version 08) whereas, options P2 and P3 are not reasonable in the context of the project activity as there is no requirement of heat on-site or off-site and therefore are not considered credible/realistic, which

was also physically verified during the site visit by the assessment team (technical expert and local assessor).

There is no existing power plant at the project site, as witnessed during the site visit by the validation team. The power at the moment is sourced from connected grid for the overseeing waste tipping operations and which will continue to be utilized in the same way. Therefore, alternatives P4 and P5 are not considered relevant in the context of the project activity as there is no requirement of power at the project site in the baseline for LFG treatment. This implies that there is no requirement of the power at the project site to the magnitude the project activity power generation and therefore captive alternatives based on fossil fuel or renewable based are not appropriate.

The alternative P6, is found to be reasonable and credible baseline scenario as neither require any capital investment from the PP nor there is compulsion to do so. Therefore, the power generated in the project activity will be generated in the existing power plants or new power plants connected to grid and emission would occur based on mixed sources of power plant.

Further the baseline alternatives identified for power generation as P1, P2, P3, P4, P5, P6 are also not constrained by any laws in Thailand. However, on the other hand the National Energy Policy Council (NEPC) on 4th September 2006, prescribing the increasing quantity of power purchase from Very Small Power Producer for generating electricity of renewable energy and primary commercial energy in cogeneration system (<http://www.pea.co.th/vspp/vspp/Announce.pdf>). It will raise non-conventional renewable energy sources such as LFG utilization to produce electricity.

As required by VVM V1.2 paragraph 83, in the opinion of the validation team, by taking into account the national and sectoral policies, the generation of power in the absence of the project activity can have credible alternatives as

- 1) P1: The power generated from the utilization of LFG in the gas engines undertaken without being registered as CDM project activity;
- 2) P6: Existing and/or new grid-connected power plants.

Further, the credible alternatives for the fate of LFG being generated from landfills can be

- 1) LFG 1: The project activity (capture of LFG and its use in gas engine/flares) undertaken without being registered as CDM project activity;
- 2) LFG 2: The atmospheric release of the LFG and no destruction (due to absence of any regulation or contractual requirements)

In consequent to application of Step 2 of ACM0001 Identify the fuel for the baseline choice of energy source taking into account the national and/or sectoral policies as applicable.

It may be concluded that the identified scenarios for the LFG is to continue the existing practice of its release into the atmosphere and not capturing and flaring and/or combustion in gas engine without CDM benefits. Also, the option for electricity generation could be P1 where the project activity is taken without CDM benefits, which is facing the investment barrier as demonstrated in Additionality section 4.6.5, P6 where the electricity produced in the project activity, would be produced in the Thailand grid as the PP does not wish to establish the electricity generation using a captive system, as the current requirement (for overseeing waste tipping operations) is met either through the Grid or generator sets as verified during site visit.

The national policy (Dec 6, 2006) in the Thailand is to promote power generation from the renewable sources such as MSW and other renewable sources e.g. biomass, biogas, solar, wind and mini and micro hydro. One of such policy listed at electricitygovernance.wri.org/files/egi/Thailand.pdf allows VSPPs (≤ 10 MW) to get renewable adder (over and above the selling price) of THB 2.50/kWh for the power generated from MSW. The aforesaid policy provides distinctive advantage to the power generation from renewable sector over other conventional power generation sector.

Step 3: As indicated by ACM0001 Version 11 (either of Step 2/3 of latest additionality tool may be used to demonstrate the Additionality of the project activity) Step 3 (Barrier Analysis) of Additionality tool is applied to demonstrate the additionality of the project activity. Please refer to section 4.6.5 of this report where the additionality of the project activity is demonstrated using Barrier Analysis.

Step 4:

As demonstrated in section B.5 of PDD and Additionality sections of this validation report the identified baseline scenario is Scenario 1 as reproduced below from methodology and found appropriate as established in Step 1 and 2 above.

Scenario	Baseline		Description
	Landfill gas treatment	Power generation	
1	LFG 2 (Atmospheric release of the LFG)	P 6 (grid supply)	The atmospheric release of LFG is the current practice in Kamphaeng Saen East Landfill. Electricity is obtained from the Thailand Grid.

The identification of baseline is found appropriate considering the documents presented and verified^{/46,47,48,49,51/} and in consultation with the local assessor, confirming that there are no regulations that prevent the continuation of identified baseline i.e. release of LFG into atmosphere and generation of power in the grid connected power plants in the absence of project activity. An independent third party opinion^{/49/} also confirmed that there are no existing legal requirements compelling the project proponent to flare LFG from landfill in the baseline scenario.

Therefore, it can be concluded that the PDD Version 08^{/5d/} towards the identification of baseline scenario is fully complying with the validation requirements of VVM Version 1.2 paragraph 81, 82 and means of validation as laid down in paragraph 83, 84, 85, 86.

As required by VVM V1.2 paragraph 87, 88, in the opinion of DOE,

- (a) The revised PDD Version 08 (or its annexure) contains all the assumptions used to identify the baseline
- (b) The referenced documents are quoted in the PDD Version 08 used to establish the credible baseline and correctly interpreted
- (c) The assumptions and referenced documents sufficiently establishes that the identified baseline is justified and credible based on the reviewed by the validation team
- (d) The national and secotoral policies, which are promoting the electricity generation from renewable (including from municipal solid waste) are considered during the validation
- (e) The approved baseline methodology i.e. ACM0001 Version 11 has been correctly applied to the most reasonable baseline scenario that truly represents the baseline scenario in the absence of the CDM project activity

In the opinion of DOE and as required by VVM V1.2 paragraph 88, the steps taken and source of information used is completely referenced in this section while validating the identified baseline scenario.

4.6.1 Additionality

As prescribed by the methodology the latest version of “Tool for the demonstration and assessment of additionality” (Version 5.2) is used to conduct and demonstrate the additionality of the project activity. The Step 1 (including its sub step) has already be covered and verified in section 4.6 of this report above. The CDM PDD Version 08^{/5d/} has used Barrier Analysis to demonstrate the additionality of the project as addressed and in the section 4.6.4 later.

4.6.2 Prior Consideration of the Clean Development Mechanism

The project activity was green field at the time of the validation site visit. The start date identified for the project activity is 30/03/2009 when the payments for LFG gas rights have been made for an amount of THB 85,000,000. It is noteworthy to mention that the webhosted PDD contained the start date as 01/11/2009 (a future date), which was not found appropriate in line to EB41 para 67.

Taking note of the latest Guidelines on the demonstration and assessment of prior consideration of the CDM Version 01 (EB49 Annex 22) the start date is after 2nd August 2008, therefore, the section B (paragraph 2) is applied for the project activity, where a communication pertaining to project activity is required to be made by the PP to UNFCCC or DNA, within the 6 months from the start date. It is noteworthy to mention that the

PDD is prepared before the project activity start date (Version 01 dated 14/03/2009) and subsequently webhosted on 21/03/2009 after entering into the contract with validating DOE therefore such notification is not required by the PP. Henceforth, the requirements as per paragraph 2 of EB 49 Annex 22 are duly met by the project activity.

CL#09 was raised to provide the basis for considering project start date as 1st November, 2009 and how it is inline with the definition as per EB41 paragraph 67. It was also asked what happened after the FSR has been conducted for the project activity and how the project activity was conceived and by which project participant. It was also raised as part of this clarification to justify the gap between the project start date and start date of crediting period, which was just one month.

In response the based on the supporting documents obtained from the PP, it was verified that the start date of project activity is 30th March 2009 when the PP (Xentolar Holdings Limited) paid THB 85,000,000 to another PP, Bangkok Greenpower Co. Ltd. for gas right payment ^{/13/}. The start date is duly accepted as it indicated the commencement of project activity by obtaining the necessary rights (by the project participant) and involved real investment. The start date is duly validated in line to EB41 para 67 as this is the earliest event (and showing real investment) towards the project activity.

The chronology is clearly described in response to CL#09 (in the later part of this report) and was found appropriate and the project activity start date is appropriately considered as the project activity was not started physically on ground at the time of validation site visit.

By considering an appropriate project start date ^{/13/} the gap between project start date and crediting period start state gets expanded in line to the implementation schedule and taking note of registration time and therefore accepted. It is confirmed that the crediting period may only begin after the registration date.

After taking all the responses and review of relevant documents the CL#09 was closed out.

4.6.3 Identification of alternatives

The alternatives to the project activity are clearly described in section 4.6 where requirement of methodology and additionality tool are clearly addressed and found acceptable. Therefore, the requirements of this section are already detailed in the section 4.6 referred above and the discussion is closed here.

4.6.4 Investment analysis

As indicated and established in section 4.6 the project activity has only two alternatives

1. The project activity i.e. LFG 1 and P1 undertaken without being registered as a CDM project activity and
2. The other scenario i.e. LFG 2 (Atmospheric release of LFG or partial capture of LFG and destruction to comply with regulation or contractual requirements or to address safety and odour concern (status quo)

The other scenario (Point 2 above) is established to be baseline as discussed in section 4.6 of validation report; therefore, the only alternative remaining is the project activity.

The webhosted PDD and subsequent versions of PDD (till Version 05) included the Investment Analysis as a means of demonstrating the Additionality of the project activity.

Therefore, CL#10 was raised to provide the sources of input parameters used while determining the financial indicator (NPV) and the benchmark. In response to this, each of the input parameter was provided as detailed in the Annex 3 of this report (Findings Overview). However, due to the treatment (if it should be included or excluded following EB 22 Annex 3 as E- Policy) of renewable adder (which provides and additional revenue of THB 2.5/kWh for project activities generating electricity from MSW for 7 years from commissioning) rendering the project financially viable (when not considering any cash flow for gas rights), Investment Analysis, as means of demonstrating the Additionality, was dropped by project participants and Barrier Analysis was included in the revised PDD Version 06.

Following the applied methodology and also as per Additionality Tool either of Investment Analysis or Barrier Analysis is required to be demonstrated, the revised approach of Barrier Analysis was accepted and validated as part of CL#10, which is discussed in Section 4.6.5 of this report. Therefore, CL#10 is continued

in the Section 4.6.5 for the validation approach undertaken towards Barrier Analysis and discussed and closed there.

The continuation of baseline does not require any cost to be incurred and is clearly an attractive baseline option for the landfill operator.

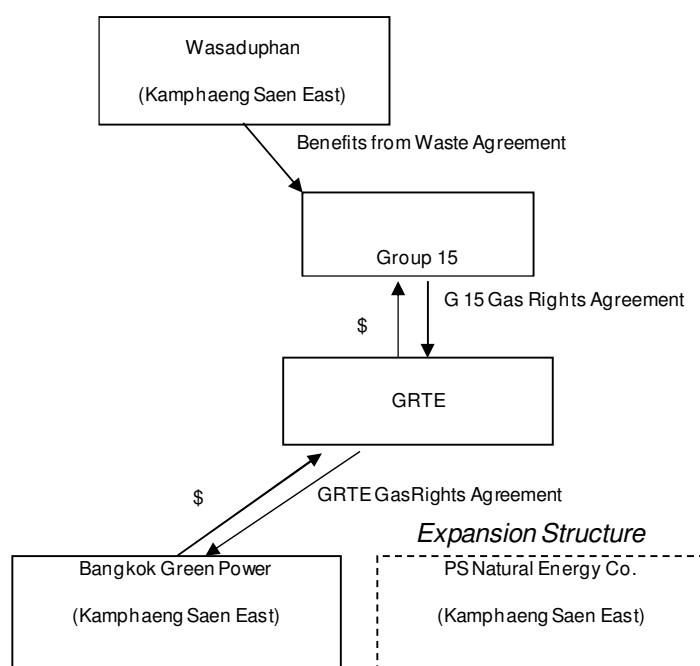
4.6.5 Barrier analysis

As explained in the Section 4.6.4 above, the webhosted PDD used Investment Analysis, which was taken out in PDD Version 06 due to lack of clarity on treatment of renewable adder, while determining the Additionality of the project activity.

In the PDD Version 08^{/5d/} the Additionality of the project activity is demonstrated using Barrier Analysis (i.e. Step 3 of latest Additionality Tool) and Guidelines for Objective Demonstration and Assessment of Barriers (Version 01) as per EB50 Annex13.

Investment Barrier:

Wasaduphan Turakit Co. Ltd “Wasaduphan” owns the Bangkok Saen East Landfill and is in the business of landfill operation for a number of years and has held the waste contract^{/51/} for the site with the Bangkok Metropolitan Administration since 2004. Wasaduphan Turakit Co., Ltd. contracted the gas rights (the gas rights agreement grants the rights to use biogas generated from the landfill areas for generating power and taking benefits from emission reduction of greenhouse gases (ERs) from a CDM project activity) to Group 15 Co., Ltd., which has been verified from the Gas rights contract^{/22/} dated 05/08/2008. The gas rights agreement^{/22/} also allows Group 15 Co., Ltd. to enter in further contract with GR-Tech Co. Ltd. or any other investor to utilize the biogas, generated in the landfill, for above purpose. GR-Tech Co. Ltd., identified an investor in ISCCP and in order to implement the project activities two companies were established as checked from incorporation certificates^{/41,42/} namely Bangkok Greenpower Co. Ltd and PS Natural Energy Co. Ltd, acting as the project participants in the project activity. The gas rights have, therefore, been further contracted to Bangkok Greenpower Co. Ltd. on 19/03/2009 by GR-Tech Co. Ltd. Therefore, there is a chain of gas rights from Wasaduphan Turakit Co., Ltd. to Group 15 Co., Ltd. to GR-Tech Co. Ltd. to Bangkok Greenpower Co. Ltd. A similar gas rights contract will be signed with other project participant namely PS Natural Energy Co. Ltd., if more gas potential is seen in actual situation. It is noteworthy to mention that Gas Rights obtained by project participants are only rights and not the obligation to execute the project activity. Following is the graphical representation of gas rights transfer agreement eventually to the project company.



**Chain of gas rights created to
Overcome Investment Barrier**

Chain of gas rights transfer between the landfill owner to project participant		
From (Grantor)	To (Grantee)	Agreement Date
Wasaduphan Turakit Co., Ltd. and Group 79 Co., Ltd.	Group 15 Co., Ltd.	05/08/2008 ^{/22/}
Group 15 Co., Ltd.	GRT Ecosystem Co., Ltd.	19/03/2009 ^{/39/}
GRT Ecosystem Co., Ltd.	BGCL	19/03/2009 ^{/40/}

The proposed project activity involves the project cost around 14.3 million USD, which has been validated from Quotation received from Krung Thai for Electrics ^{/33/}, Carbon Recycle for Pre-treatment ^{/34/}, Carbon Recycle for Shipping ^{/35/}, Fusion for Pipe work components ^{/36/}, Fusion for pipe work welding ^{/37/}, Navigat for Engine O&M ^{/38/}, Other O&M ^{/52/}, and Long Term Parts Delivery Quotation from ItalThai ^{/53/}. The overall cost has been computed in Cost Data ^{/32/} (in form of spreadsheet), which has been checked and found consistent with the quoted figures.

The audited financial results of the Wasaduphan Turakit Co., Ltd.^{/7c, 61/} and Group 15 Co., Ltd.^{/7d/} for last 2 years reveals that these companies do not have sufficient financial resources to meet even the 20% of the project cost, which is a minimum to approach a potential lender (bank). The companies involved as project participants (in the host country) viz., Bangkok Greenpower Co., Ltd. and PS Natural Energy Co., Ltd. were incorporated on 16/07/2008^{/41/} and 18/06/2009^{/42/} respectively. The intent of putting up these companies is to implement the proposed CDM project activity and one of them i.e. PS Natural Energy Co., Ltd. was indeed incorporated during the validation only (and specifically for the proposed CDM project activity) i.e. few months later to webhost the PDD. At the time of validation, PS Natural Energy Co., Ltd had only been in existence for less than one year and therefore audited financial accounts were not available. The incorporation documents of PS Natural Energy Co, Ltd were verified, and audited results^{/62/} that have been available in the last few months have now been checked and it is confirmed also that this company does not have the financial resources (with share capital of 1 million THB and loss of 27,100 THB) to establish the proposed project activity.

The audited sheet for Bangkok Greenpower Co., Ltd. in the year 2008, which was latest at the time of investment decision and PDD publication reveals that the capital was 10 million THB while the retained earnings were negative (-8916 THB) clearly suggesting the company was making losses. The parent company of Bangkok Greenpower Co., Ltd. i.e. Central Wastewater Development Co., Ltd. based on the audited financial results for year 2008 established that it was making losses (-13,316 THB) and capital with the company was just 10 million THB.

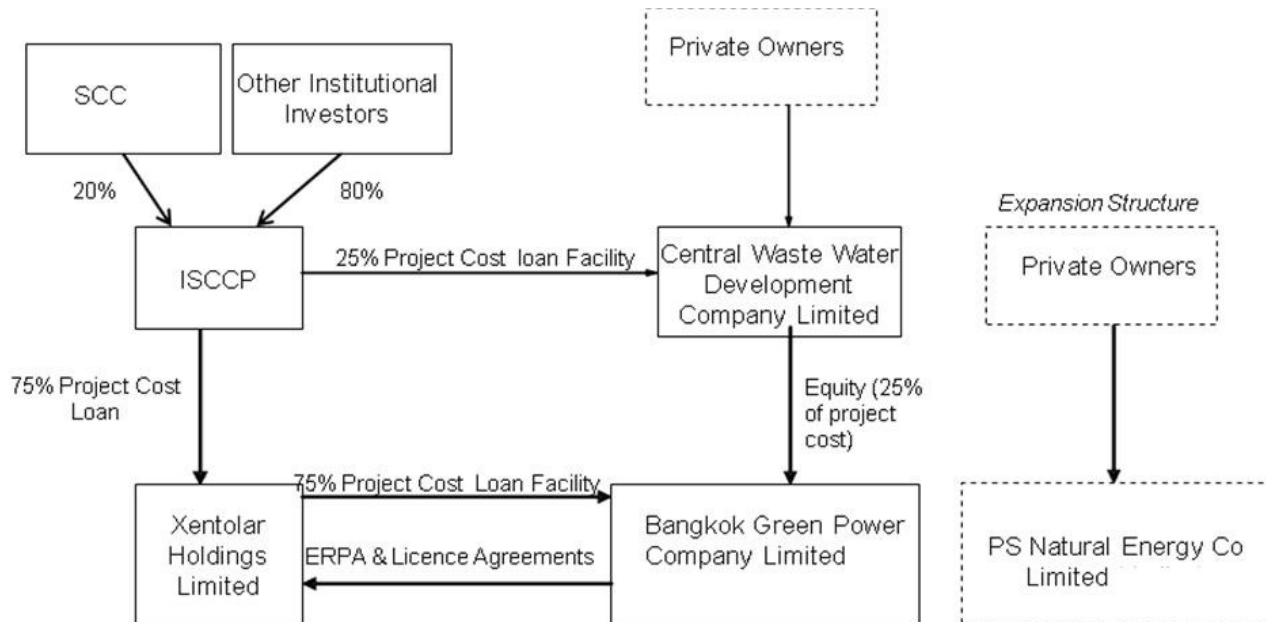
It has been also crosschecked from the paragraphs 47, 60 and 111, of the Clean Technology Investment Plan presented by the Government of Thailand

(http://siteresources.worldbank.org/INTCC/Resources/thailand_ctf_investment_plan_111209.pdf) that there exists number of barriers including finance, technology and know-how in Thailand. It is also endorsed by the fact that there are no commercially operating Landfill sites in Thailand which are generating power, through LFG, without CDM or other monetary benefits (donations). This has been demonstrated in the common practise analysis part of this report as well.

Therefore, it is concluded that “Wasaduphan Turakit Co., Ltd.,” and the project participants from host country (BGCL and PSNECL) lacks the financial resources to establish this project activity on its own. Under these circumstances, GRTE, on their behalf, started looking for an international organization, which would not only provide the technical support but financial means to undertake the project activity. GRTE, found a suitable partner in XHL which is a wholly owned subsidiary of ISCCP has loaned the project company (Bangkok Greenpower Co. Ltd^{/7a/}) 75% of the loan amount and remaining 25% have been loaned to the Parent Company (“Central Wastewater Development Company Ltd.”) by ISCCP Investment Platform Ltd.

The loan^{/19/} for an amount of THB 370,170,000 and Euro 880,000 has been granted to Bangkok Greenpower Co., Ltd. on 24/03/2009, which constitutes as 75% of total loan amount. Another loan^{/23/} for an amount of Euro 2,979,000 has been granted to Central Wastewater Development Co., Ltd., in relation to the project undertaken by Bangkok Greenpower Co., Ltd., which constitutes as 25% of the loan amount. Although, CWDCL is not the PP yet it owns 99.99% shares of BGCL and the loan agreement under clause 3.1 obligates CWDCL to buy the ordinary shares of BGCL with paid up capital not less than THB 143,000,000.

This arrangement was required (as per Board of Investment Approval^{/17/}) to overcome the barrier that foreign debt in Bangkok Greenpower Co., Ltd. can be only upto 75% and in order to arrange for 25% equity component the equivalent amount has been injected into the project activity through CWDCL. Following is the graphical representation of organizations as lenders and borrowers. The project participants are SCC, Xentolar Holdings Ltd. (from Annex 1) and BGCL and PSNECL (from Non Annex 1)



**Ownership /financing Structure
Created to Overcome
The Investment Barrier**

Disbursement of loan amount			
Lender	Borrower	Amount	Agreement Date
Xentolar Holdings Ltd.	Bangkok Greenpower Co., Ltd.	THB 370,170,000 and Euro 880,000	24/03/2009 ^{/19/}
ISCCP	Central Wastewater Development Co., Ltd.	Euro 2,979,000	24/03/2009 ^{/23/}

The amount received by CWDCL shall be used to buy 25% equity in the BGCL as per clause 3.1 of the agreement^{/23/} between ISCCP and CWDCL.

It has been explained earlier that, in Thailand, the project company in order to obtain incentives available to VSPPs the installed capacity should not exceed 10MWe. However, in the project activity there is possibility that LFG available in certain years may necessitate installation of gas engines to 11 numbers but not more than 15. The proposed grid connections are available for 8MWe (each) export implying that there shall be two grid connections, which would be in the name of each project company. The other project company i.e. PS Natural Energy Co., Ltd. is identified to participate in the project activity if the actual LFG generation requires installation of gas engines more than 10 MWe. The project cost, as referenced above, is estimated for installation of 11 gas engines at this stage and further loans (from the lenders) will be provided to PS Natural Energy Co. Ltd. on the same lines as BGCL.

The loan agreements, as reference above, have been done on the basis that project activity will generate CERs, for which an ERPA^{/7b/} has also been signed with borrower companies (one of them being host project participant) along with 100% Facility agreement (equivalent to loan agreement) on March 24, 2009. It has been verified that these two are inter-related and prepayments will be done in CERs and revenue from electricity exported to Thailand grid under clause 5.2.

On the other hand, the continuation of the baseline situation i.e. release of LFG into atmosphere and generation of electricity in the grid is established as it did not require investment from project participants and also witnessed during site visit and interaction with landfill operators. Furthermore, Wasaduphan Turakit Co., Ltd. has never previously been engaged in LFG to energy projects and under business as usual scenario and would have been unlikely to do so. It is demonstrated that investing in project would not be a feasible option for Wasaduphan Turakit Co., Ltd., and hence the continuation of the baseline is the most likely scenario, without attracting investors through CDM benefits.

While reviewing the investment barrier as per EB50 Annex13 following facts have been established;

*Paragraph 4. **Guideline 1:** While demonstrating barriers related to the lack of access to capital, technologies and skilled labour, the project proponents shall provide information on the nature of the companies and entities involved in the financing and implementation of the project. More specifically:*

- *While demonstrating barriers related to the lack of access to capital, information should include nature of company, organization and its ownership and, financial information;*

In the proposed CDM project activity the host country project participants viz., Bangkok Greenpower Co., Ltd. and PS Natural Energy Co., Ltd., were incorporated on 16/07/2008^{/41/} and 18/06/2009^{/42/} respectively. The project participants were identified or incorporated in order to implement the proposed CDM project activity while GRTE (which was having the landfill gas rights through a transference chain described previously) was looking for a potential investor and an organization conversant with technical know how to extract, capture and utilize landfill gas for energy generation purposes. The potential investor (also the CERs buyer to be generated from the project activity) was identified in Xentolar Holdings Ltd. (also an identified project participant from Annex 1 Party) and ISCCP. The technical know how was secured from SCC (also an identified project participant from Annex 1 Party). The gas rights from GRTE to project company i.e. BGCL are transferred in order to allow them rights over the landfill gas from the Bangkok East landfill site and secure loan for the project activity.

The project participants from the host country, BGCL and PSNECL are independently owned companies and not related to each other in terms of ownership^{/41,42/}. However, for the purpose of assessing lack of access to capital for the project activity, as faced by the project participants, were verified against the latest audited results^{/62,63/} available. It was established that BGCL had the capital of 10 million THB and had retained earnings negative (-8,916 THB). The other PP i.e. PSNECL was incorporated during validation^{/42/}, as reference above and therefore did not have any audited results. The parent company (CWDCL) of BGCL, which owns 99.99% share^{/41,62/} of the BGCL also had negative cash flows (retained earnings of -13,316 THB and capital of 10 million THB) in the year 2008 based on its audited financial results. It is noteworthy to mention that CWDCL is not a PP directly but has role to transfer 25% of the loan amount to the project company i.e. BGCL. The explanation of this arrangement along with other details is already explained earlier.

Therefore, it was concluded that the project companies lacked the capital or earnings to the tune of project capital cost (14.3 USD million) and were not having even the fund to approach a commercial bank. It is in the opinion of the validation team that any commercial bank would require contribution from the borrower around 20% and assets to mortgage. Generally, the power projects with off-take contracts throughout the world will have a debt to equity ratio in the range of 85:15 to 70:30 depending on the type of project and risks. (E.R Yescombe (2002) "Principles of Project Finance". Yescombe Consulting Ltd, Academic Press, San Diego, California. page 285). The same is additionally confirmed through a written communication from Kasemsri Charoensiddhi (Corporate Banking Relationship, TMB Bank Public Company Limited, Tel: 0-2242-3064-5 Fax: 0-2242-3790, Mobile: 081-139-9977, email: kasemsri.cha@tmbbank.com) that "Typically, the banks will finance these type of non-recourse project financing at no more than 3 : 1 debt to equity ratio, i.e. up to 75% of the debt will be lent to the project, depending upon future cash flows projection of the project. In terms of the equity, as the Banks view that sponsors/developers' commitment to the project is an integral part, they will be required to finance at least 25% of the investment costs themselves." It may be checked, as an example, for debt to equity ratio of 75:25 at <http://www.thaipr.net/nc/readnews.aspx?newsid=B6472D2324185D2291AE79EC9858A2BD&query=UmF0Y2hhYnVyaSBFbGVjdHJpY2I0eSBHZW5lcmF0aW5nIEhvbGRpbmc=>

In fact, for debt to equity ratio of 2:1 can also be confirmed at (depending on the type of project and risks)

<http://www.setatwork.eu/events/thailand/1002Day1Pres3-3/1.17%20-%20Session%203%20-%20Mr.%20Wannawut%20-%20TISCO%20Carbon%20Financing.pdf> (refer slide 7)

Therefore, it was adequate for the validation team to consider that a typical debt to equity ratio of 75:25 is prevalent in Thailand while financing the project and consideration of minimum 20% equity is indeed reasonable in the context of the project activity.

It was further established that these companies were not having exposure to landfill gas to energy project and would still have required technical know how. Therefore, the identified project participants from the Annex 1 Party not only provided loan amount (more than the project cost, as reference above) and provided technical knowhow after considering CDM benefits as evident in the ERPA agreement^{/76/} and Facility Agreement^{/7a/}.

However, in the opinion of the validation team, in the baseline the first entity that would have been in the position to establish the project activity without CDM would be landfill owner i.e. 'Wasaduphan Turakit Co., Ltd.' Since, 'Wasaduphan Turakit Co., Ltd.' was not having any previous experience in managing the landfill gas projects, it decided to transfer these rights to other special purpose companies viz., Group 15 Co., Ltd. and GRTE in lieu of gas rights fee. The gas rights fee entitles the landfill owner i.e. Wasaduphan Turakit Co., Ltd. to receive payments for the landfill gas utilized in a potential project. However, it was established that these gas rights do not necessarily indicate the commencement of the project activity as they are not binding in nature and would come in effect if there is a project activity that utilizes the landfill gas. During the validation, it was also checked from the perspective of landfill owner 'Wasaduphan Turakit Co., Ltd.' after reviewing their audited financial results^{/7c,61/} for year 2006, 2007 and 2008 (last 2 years financial audited results were already submitted along with project documentation to UNFCCC) that 'Wasaduphan Turakit Co., Ltd.' also did not retain sufficient funds to meet the minimum contribution (20% of the project cost). However, the audited results revealed that company was having positive retained earnings and higher capital available as compared to the project participants. Therefore, it was further established that the landfill owner also does not have sufficient funds and faced lack of access (investment barrier) that would prevent the project activity from occurring but would not prevent the baseline for the project activity as it does not require any capital investment.

The nature of company i.e. 'Wasaduphan Turakit Co., Ltd.' has been in the last few years limited to managing MSW in lieu of the waste tipping fee that is being paid by BMA. It lack the technical expertise to realize LFG to energy projects corroborated by the fact that there are no commercially running LFG to energy projects in Thailand with grant and that too, only one (addressed in common practice analysis section of this report). It is a privately owned company and financial information through audited balance sheets reveals that it does not have sufficient funds to cover the project cost on its own and would have faced difficulty to raise funds (of the size required for the project activity) from the bankers due to low margin money available. The project participants, who now own the gas rights, are relatively new entities and only being established to realize the project activity as CDM project activity and their financial means are much more limited to the parent company i.e. Wasaduphan Turakit Co., Ltd.. It clearly establishes that none of the company^{/7c,7d/} (in host country) involved in the project activity, directly or indirectly had financial means to raise the funds to the tune of project cost.

The access-to-finance barrier is attributed to two companies, specific to the project activity. Wasaduphan Turakit Co. Ltd ("Wasaduphan") which owns the Kamphaeng Saen East Landfill, and has been managing the disposal of Bangkok's waste at Kamphaeng Saeng for over 20 years. The second company, Group 15, is an independent company set up to commercialise opportunities arising from the operation of the Kamphaeng Saeng landfills, such as landfill gas utilization.

It has been validated through:

- a) Inspection of an audited financial statement for Wasaduphan^{/7c,61/} which confirms that the net assets of the company are significantly lower than the cost of the project funding and that it had insufficient assets to develop a landfill gas utilization project on its own.
- b) Inspection of audited financial accounts for Wasaduphan^{/7c,61/} which confirm revenues and expenditure consistent with that of a landfill operator but again show insufficient assets to develop a landfill gas utilization project
- c) Inspection of the audited accounts^{/7d/} of Group 15 also show that this company also did not have sufficient assets or resources to develop the landfill gas utilization project

Furthermore neither Wasaduphan nor Group 15 had funds to cover the bank requirements for a 100 percent corporate guarantee for the full value of any loan that could be provided by a commercial banking company. Thus, neither of the Thai companies could mobilize the funds needed to finance the project, whether in the form of a minimum equity contribution (25% as required by Thai banks), or the guarantee for the full amount of the debt (i.e. an on-balance sheet corporate financing).

The validated evidence demonstrates that neither Wasaduphan nor Group 15 had any ability to access sufficient financing to develop the proposed project activity. Hence, the gas rights to the project were transferred to a new company, GR-Tech Co. Ltd. GRTE was to identify alternatives to local finance, where neither equity nor assets from the project owner would be required to finance the development of the project. Such financing could only be secured through alternatives such as carbon finance. This access-to-finance barrier prevented the specific proposed project activity being developed without carbon finance, and is an opportunity that has been available for many years since Wasaduphan first started operation of the landfill.

*Paragraph 5. **Guideline 2:** The barrier test in Step 3 of the Tool for the demonstration and assessment of additionality states that .If the CDM does not alleviate the identified barriers that prevent the proposed project activity from occurring, then the project activity is not additional..*

- *Demonstrate in an objective way how the CDM alleviates each of the identified barriers to a level that the project is not prevented anymore from occurring by any of the barriers. Provide transparent and documented evidence, and offer conservative interpretations of this documented evidence. Anecdotal evidence can be included, but alone is not sufficient proof.*

Xentolar Holdings Limited is lender (75% through itself and 25% through its parent company ISCCP) and CER buyer to the project activity and also a PP from Annex 1 Party, has provided a loan to the project activity through Facility Agreement with both the project participants from host Party and under the arrangement of ERPA. These two agreements are interlinked together in return of rights on CERs (through Clause 5.2, referred as Set off) and/or revenue through the sales of electricity to Grid from the project activity. It is clearly evidenced that the lender has considered CDM benefits significantly, and thereby included a clause in Facility agreement and also entered into ERPA, which is binding on project participants (borrower) removes the investment barrier, i.e. access to finance, to an extent that project activity is no more prevented and consequently implemented.

*Paragraph 9. **Guideline 6:** In case the PPs make the claim for investment barriers, they should demonstrate in the PDD that the financing of the project was assured only due to the benefit of the CDM. Therefore, it should be demonstrated that the loan approval (or other significant financing decision(s)) by the lender takes explicitly the CDM registration into account.*

As established while following Guideline 2, there is binding clause (through Clause 5.2, referred as Set off) available in the Facility agreement and also the fact the ERPA has been signed with the same lender clearly establishes that CDM benefits (CER) and consequently CDM registration of the project activity has been taken into account. It is noteworthy to mention here that this agreement was made after the PDD was webhosted and a week before the project activity start date.

It has been reviewed through the Facility Agreement^{/7a/} and ERPA^{/7b/} between the lender and carbon credits buyer Xentolar Holdings (75% through itself and 25% through its parent company ISCCP) and the host Party project participant, Bangkok Green Power Co. Ltd. In the Facility Agreement, it was verified that the loan is made with provisions for repayments to be made through CERs generated from the project activity and available to the lender via the ERPA and through the sales of electricity to the Grid. If more gas becomes available, the project company has additional obligations for payment for gas rights under the gas rights agreement, and thus has the right under the ERPA to seek additional loans that must also be repaid in CERs via an ERPA. This shows that the lenders definitely took CDM registration and revenue into account, as that is the main way in which ISCCP and its subsidiary Xentolar (project participant) will repaid the funds that they prepaid for the construction/establishment of the project activity. The complete copy of the Facility Agreement^{/7a/} and ERPA^{/7b/} has been provided during request for registration on a confidential basis to CDM EB.

Therefore, the presented documents namely facility agreement^{/7a/}, ERPA^{/7b/}, audited financial sheets^{/7c,7d/}, nature of the companies, interview with the waste collection centres, government officials and interaction

with local assessors establishes and independent references as quoted in the common practise analysis sections establishes that the barriers are real and existing for the project activity in Thailand.

CL#10 was changed from Investment Analysis to Barrier Analysis and information was derived on the demonstration of the Investment Barrier. Sufficient information and evidences were provided, as quoted above, in the response of CL#10, as detailed in Annex 3 of this report, to assess the existence of Investment Barrier.

Therefore CL#10 was closed out.

Based on the requirement of Additionality Tool and EB50 Annex13 and information received along with necessary evidences, it can be concluded that Investment Barrier exists for the project activity and CDM benefits have played quite clear and distinct role in the decision making and actual implementation of the project activity. In the opinion of the validation team and as required by VVM V1.2 paragraph 117(a) the barriers faced by project participants (from the host country) are credible and real as endorsed by their audited financial results, referenced above. These barriers are identified to be credible in the opinion of the validation team. Further, in the opinion of the validation team and required by VVM V1.2 paragraph 117(b) the identified barrier prevented the implementation of the project activity but do not prevent the continuation of baseline i.e. release of LFG into the atmosphere and generation of power in the connected grid. In accordance with VVM V1.2 paragraph 118, the identified barrier has been thoroughly reviewed and assessed and found to be real and credible. These barriers are further corroborated by the common practise analysis in the next section of the report. Therefore, the project activity faced investment barrier, which is objective and credible and have been overcome through the consideration of CDM revenues (as reflected in the ERPA and Facility Agreement, details referenced above) is therefore project activity is found additional.

4.6.6 Common practice analysis

As part of Sub-step 4a, it is confirmed that in the identified region i.e. Thailand taking complete country into consideration, there are no other projects operational similar to project activity from The Journal of the Air and Waste Management Vol 58 page 634^{/43/}. Though, there is one project at Kasetsart University (as checked from Chiemchaisri, C and Chettiyappan, V: Greenhouse Gas Emission Potential of the Municipal Solid Waste Disposal Sites in Thailand, J. Air & Waste Manage. Assoc. 58:629–635^{/43/}) it has been found to be running through the funding received (checked from <http://www.phtnet.org/news51/view-news.asp?nID=521> cited in <http://www.thairath.co.th/news.php?section=agriculture&content=101801>)^{/45/} from King Rama IX Chipattana Foundation for an amount of 1 million Thai Baht and is purely a research project. All other CDM projects registered or under validation are excluded from the discussion as required by the Step 4a.

As part of Sub-step 4b, it can be concluded that there are no similar options that are occurring and the one that is in place is not similar considering it has received funding, as verified above, indicating that projects is running on donated funds is largely a research project.

CAR#11 was raised as PDD Version 01 did not describe the sub steps as per the Additionality Tool and the documentary evidence or references were requested for the statements. Further, it was requested to remove the projects which are under CDM cycle from this section, as it is not a requirement.

In response, the revised PDD was updated with the sub steps as per the Additionality tool and the statements were duly referenced as written above and similar projects under CDM cycle were removed. These changes resulted in satisfactory closure of the CAR#11.

Therefore, it is concluded in accordance with VVM V1.2 paragraph 121 that the identified region as complete country is appropriate and justified, there are no similar projects in any manner that are commercially operating without considering CDM revenues, and the proposed project activity is not a common practice in the identified region (Thailand) and therefore validates and complements the credibility of barrier analysis.

4.7 Application of Baseline Methodology and Calculation of Emission Factors

It has been found that the equations (and notations) to compute the ERs are consistent with ACM0001 Version 11. The baseline emissions have been determined as under;

$$BE_y = (MD_{project,y} - MD_{BL,y}) * GWP_{CH_4} + EL_{LFG,y} * CEF_{elec,BL,y} + ET_{LFG,y} * CEF_{ther,BL,y}$$

Where:

- BE_y = Baseline emission in year y (tCO₂e)
- $MD_{project,y}$ = The amount of methane that would have been destroyed/combusted during year y (tCH₄) in project scenario
- $MD_{BL,y}$ = The amount of methane that would have been destroyed/combusted during year y in the absence of the project due to regulatory and/or contractual requirement (tCH₄)
- GWP_{CH_4} = Global Warming Potential value for methane for the first commitment period is 21 (tCO₂e/tCH₄)
- $EL_{LFG,y}$ = Net quantity of electricity produced using LFG, which in the absence of this project activity would have been produced by power plants connected to the Thailand Grid during year y (MWh)
- $CEF_{elec,BL,y}$ = CO₂ emission factor of the Thailand Grid (tCO₂e/MWh)
- $ET_{LFG,y}$ = The quantity of thermal energy produced utilizing the landfill gas, which in the absence of project activity would have been produced from onsite/offsite fossil fuel fired boiler, during the year y (TJ)
- $CEF_{ther,BL,y}$ = CO₂ emission intensity of the fuel used by boiler to generate thermal energy which is displaced by LFG based thermal energy generation (t CO₂/TJ)

In this project there will be no thermal energy utilization from LFG: $ET_{LFG,y} = 0$

The value applied for $MD_{BL,y}$ is zero, taking into account that there are no contractual requirements to flare or combust LFG as checked from landfill operator license. It has also been verified during SV that there were no arrangements to flare LFG for security or other reasons and only venting of LFG was occurring into the atmosphere. Therefore, it has been accepted.

The Determination of $MD_{project,y}$ will be ex post on account of flaring and electricity in accordance with ACM0001 Version 11. All other computations pertaining to Baseline Emissions are in consistency with ACM0001 Version 11 and relevant Tools.

The determination of Project Emissions has also been taken into account in consistency with ACM0001 Version 11 in the absence of onsite electricity generation and found appropriate. The Project Emissions on account of emission from consumption of heat are not considered as they is no such usage identified and found OK. The equation and source of information is duly incorporated in PDD Version 08 and found acceptable and reasonable.

The Grid Emission Factor has also been determined using "Tool to calculate emission factor for an electricity system" Version 2 using the latest information available at the time of webhosting and reported data was found to be 0.59681 tCO₂e/MWh (changed to 0.57420 tCO₂e/MWh, as explained below). The information required while following Step 1 to 7 in the PDD Annex 3 is verified from <http://www.dede.go.th/dede/fileadmin/upload/cc/ElcThai110951.pdf> which is the latest at the time of webhosting. The approach to determine combined margin ($EF_{CM,y}$) is in accordance with the applied Tool to calculate emission factor for an electricity system Version 2 (as above). The validation of grid emission factor is mentioned below as per each step involved;

Step 1: The entire country, in the absence of published information on the delineation of project electricity system, has been identified as relevant electricity system for the project activity i.e. national grid.

Step 2: Out of the two options available, option 1 has been chosen by the PP, which includes only the grid connected power plants in the calculation. The information on off grid power plants is not available in the referenced source or any other public domain to that extent that allows the complete determination of combined margin. Therefore, the choice is justified and appropriate.

Step 3: The Simple OM approach out of 4 options listed in the “Tool to calculation emission factor for an electricity system,” has been identified as the contribution from low-cost/must run sources constitute 5.39%, which is less than 50% of total grid generation in the country, in the last 5 years (i.e from year 2003 to year 2007). A three year weighted average (year 2005 to year 2007) has been considered as an ex ante approach define in the aforesaid tool.

Step 4: The operating margin factor has been determined using the Option A, i.e. based on data on fuel consumption and net electricity generation of each power plant/unit, taking the input values from the publicly available document at <http://www.dede.go.th/dede/fileadmin/upload/cc/EleThai110951.pdf>. While doing so, though all the data of fuel consumption (quantity and types) and NCV is taken as such from the publication <http://www.dede.go.th/dede/fileadmin/upload/cc/EleThai110951.pdf>, which is the most recent at the time of PDD publication, but NCV for coal has be considered to be the lowest one (from 13.72 TJ/tonne, which was based on simple average of 4 types of coal and lignite used in the country having NCVs 10.47 TJ/t, 10.88 TJ/t, 15.11 TJ/t and 18.42 TJ/t, to 10.47 TJ/tonne). The approach resulted in the reduction of Simple Operating Margin from factor from erstwhile 0.598 tCO₂e/MWh to 0.55 tCO₂e/MWh, which is conservative and led to overall reduction of combined margin (discussed later in Step 6) from erstwhile 0.59681 tCO₂e/MWh to 0.57420 tCO₂e/MWh.

Step 5: The identification of group of power plants for determination of Build Margin has been undertaken by taking five recently constructed (from year 2002 to year 2007) power plant, based on the publicly available information at <http://www.dede.go.th/dede/fileadmin/upload/cc/EleThai110951.pdf>, which constitutes more than 20% of electricity generation in the year 2007 therefore meeting the requirement.

Step 6: The determination of Build Margin based on the set of power units/plant identified in Step 4 and using the respective electricity generation and emission factor of type of fuel concerned is found to be 0.5952 tCO₂e/MWh, which is correct and in line to the requirement.

Step 7: The Simple Operating Margin (weighted average for year 2005 to year 2007) and Build Margin (year 2007) has been given equal weight to determine the ex ante combined margin as 0.57420 tCO₂e/MWh.

Therefore it can be concluded that all the required steps of the “Tool to calculate the emission factor for an electricity system” are duly complied with in the final PDD Version 08^{5d/} and Grid emission factor calculation^{66/}. All the selection, while determine the emission factor for the relevant electricity system are completely justified, as included in the Annex 3 of the PDD Version 08^{5d/} and Grid emission factor calculation^{66/} found meeting the criteria as set in the aforesaid Tool and VVM V1.2 paragraph 90.

CAR#13 (d) was raised as the information was not legible in Annex 3 to PDD Version 01 which was corrected in the revised versions (including Version 05). Therefore CAR#13(d) was closed out.

The methodology does not require considering the Leakage and have not been accounted, which is consistent with ACM0001 Version 11.

Therefore, the ER will be computed as under

$$ER_y = BE_y - PE_y$$

CL#12 was raised to substantiate, clarify

- Kindly substantiate the basis of concluding that MD_{BL,y} is 0% and there are no contractual or regulatory requirements that specify LFG to be destroyed in the PDD (refer page 21).
- In the determination of MD_{flared,y} the density of methane (D_{CH4}) and LFG_{flared,y} do not appear to be consistent (consider reference Temperature).

- c) In the determination of $MD_{\text{electricity},y}$ the density of methane (D_{CH_4}) and $LFG_{\text{electricity},y}$ do not appear to be consistent (consider reference Temperature).

In response, it was presented that for the project activity, Tung Bua Sub-district Administrative Organisation, the local administrative body has not set any specific regulations to compulsorily flare the LFG to obtain the license. The provided information Letters for Thung Bua (Correctness of Licenses) ^{/46,47/} was verified to be consistent with the statement and issue was closed out.

For point 'b' and 'c' above, it was confirmed as per ACM0001 Version 11 that selection is appropriate. Therefore, CL#12 was closed out. The information presented was also corroborated with the observation during site visit and was found consistent.

CAR#13 was raised for:

- The template of parameter is not in line with PDD template as it excludes Value of data, Justification of data applied.
- It is not clear how the 'regulatory requirements to capture and flare landfill gas' will be monitoring through the book referred. Please clarify.
- The documentary evidence for the considered density of methane as part of D_{CH_4}
- The determination of $CEF_{\text{elect,BL},y}$ is not clear/legible at several places in the Annex 3

In response, the revised PDD Version 02 was submitted, which incorporated the corrections and provided sources (page 9 of applied methodology for point 'c' above). Therefore, CAR#13 was closed out satisfactorily.

CL#14 was raised for following issues in the PDD Version 01 while determine the ex ante emission reductions.

- Justification for the amount of tipping for Landfill between 320,322 tonnes / year to 755,007 tonnes / year.
- Kindly provide the source of information for waste characterization sampling conducted by the PP on 28/08/2008
- The justification for considering the fraction of methane captured as 80%
- The justification for considering the flare efficiency as 90%
- The justification for considering the consumption of methane as 263 m³/hour for a 1.063 MW single generator set.
- The justification for considering the generator set efficiency as 0.408
- The justification for including the text in the PDD, that actual generator set may differ from those assumed to make an ex-ante estimate of emissions. Please clarify why it will not be considered change in project design later, if registered. Also, explain how it will not affect the revenue associated with project if the actually installed generator sets are more efficient.
- The basis for considering project emission as mentioned in the Table 9 (of PDD Version 01)

In response, it was verified from the Waste Contract ^{/51/} that the total amount of the waste contracted is 6,880,460 tonnes for a period of 10 years (indirectly worked out from contract amount in terms of Thai Baht 2,993,000,000 with a fixed rate of tipping fee Thai Baht 435/tonne). The waste dumped till year 2008 is taken from actual waste tipping records ^{/50/} and average value has been considered for the remaining quantity of waste to be tipped. The variation in the year 2012 is due to 366 days as compared to 365 days for other years between year 2009 and 2014. There is no escalation put in the projections, as there was no clear consistent trend observed in the actual wasted deposited already. The issue was closed out as the information was consistent with the sources.

The waste characterization was reported from Royal Haskoning Report ^{/27/} but the project proponent conducted another study before taking decision called Due Diligence Report ^{/28/}, which has been used in the determination of ex ante emission reductions. The Due Diligence Report was considered appropriate as it presented the more recent results and the entire procedure was clearly explained to the team leader on site. However, the ER spreadsheet was revised as the waste characterization in the Due Diligence Report ^{/28/} was

not consistent with the ER spreadsheet presented earlier. However, they are consistent in the version submitted along with request for registration. It is noted that the estimations in the PDD Version 08^{/5d/} have changed (dropped) primarily due to shifting of crediting period, however, they appear reasonable and realistic as per the applied decay model approved by EB.

The collection efficiency is determined to be 80% which is reasonable based on the studies conducted by project proponents and demonstrating the capabilities of their proprietary collection system (horizontal system instead of vertical wells) and accepted. The flare efficiency (90%) has been verified from "Tool to determine project emissions from flaring gases containing methane", which specifies 90% for enclosed flare system, which is conservative over the technical specifications^{/21/}, specific consumption of methane (corrected to 266 N3/hr) has been verified from Generator set specifications^{/20/} and genset efficiency (40%) has been validated from JGS 320 GS-L.L. Further, these figures are used for estimation of emission reductions only and the actual Ers will be monitored ex post. Therefore, CL#14 was closed out satisfactorily.

It is confirmed that PDD Version 08^{/5d/} is consistent with ACM0001 Version 11 and all the sources of information are duly incorporated "in data available at validation i.e. section B.6.2 of the PDD Version 08^{/5d/}" and are considered as reasonable and consistent with their respective. The following is a list of key parameters/variables that are used to determine ex ante Ers and associated validation remarks,

Parameter	Value taken	Source	Validation remarks
MD _{BL,y}	0	Public Health Act B.E.2535	Physically witnessed during site visit, independent third party opinion consultation with local assessor. Value justified.
OX	0.1	Tool to determine methane emissions avoided from disposal of waste at a SWDS Version 04	Physically soil covering was witnessed in the completed cells. The landfill site is managed SWDS and will remain so. Value justified.
MCF	1.0	Tool to determine methane emissions avoided from disposal of waste at a SWDS Version 04	Physically witnessed that landfill is anaerobically managed SWDS with controlled placement of waste e.g. compacting and leveling is practiced. The passive vents were of plastic material and not suitable for burning LFG. Value justified.
Climatic condition	Tropical	http://www.tmd.go.th/en/archive/rainfall.php	Value justified.
CEF _{elec,BL,y}	0.57420 tCO ₂ e/MWh	Tool to calculate the emission factor for an electricity system" Version 2	Latest data the time of webhosting is used and in accordance with Tool Value justified.

Therefore, it can be concluded the Ers estimated in the project activity are realistic, whereas, the actual Ers would be monitored ex post, in accordance with the procedures defined in the monitoring plan, therefore, accepted.

4.8 Application of Monitoring Methodology and Monitoring Plan

The monitoring plan of PDD Version 08^{/5d/} is found to fulfil the requirements of ACM0001 Version 11 and appropriate procedures are identified for data reporting and cross checks.

However, at the time of SV, there was no monitoring system in place due to early stages of the project, it shall be checked, therefore FAR#15 has been raised for this point, as mentioned below, during First Verification that all the monitoring equipments, their positioning, specifications are in line to PDD Version 08^{/5d/}.

CAR#15 was raised

- a) It was not clear what kind of monitoring equipments, their accuracy class will be installed in the project activity for LFG monitoring and Electricity consumed or generated. Please clarify.
- b) As the monitoring equipments are not seen on the site the positioning of meters can not be ascertained. Please clarify.
- c) The monitored parameters do not clearly define the frequency of calibration or calibration plan. Please clarify.
- d) It is not clear if T (units missing) and P for landfill gas will be monitored or not. Please clarify.
- e) It is not clear how EF_{LFG} will be monitored directly as this is net amount of electricity generated. How the auxiliary consumption, if any for power generation would be factored? Please clarify.
- f) The QA/QC for operation hours of energy plant are left blank. Please justify.
- g) It is not clear why thermocouple used for T_{flare} should be replaced or calibrated every year.

In response, the revised PDD ^{/2,5d/} and monitoring equipments, accuracy class are defined clearly and in line to the applied methodology. The frequency of calibration is defined in line to the requirement of methodology and will be as per manufactures recommendation. The parameters T and P will be monitored and defined appropriately. EL_{LFG} will be continuously measured and net electricity exported will be computed by subtracting the auxiliary consumptions. The annual replacement of the thermocouple is found in line to the "Tool to determine project emissions from flaring gases containing methane" page 14 and accepted. The issues were closed satisfactorily, however the CAR#15 has been converted to the FAR#15 as the position of monitoring equipments could not be examined at site (due to implementation to occur later) and shall be verified by verifying DOE. It has been assessed that these are not the CDM requirements for registration of project activity and, therefore it was accepted.

CL#16 was raised to provide the training programme and maintenance programme associated with the project activity. In response, Training Programme ^{/54/} was provided and it was established that appropriate requirements are incorporated in the PDD and training programme. Therefore, CL#16 was closed out.

It is confirmed by the validation team that the methane fraction ($w_{CH4,y}$) of the landfill gas and LFG flow will be measured on same basis (either wet or dry), according to the ACM0001 version 11 and information has been included explicitly mentioned in the revised PDD Version 08 for parameters viz., $LFG_{total,y}$, $LFG_{flare,y}$ and $LFG_{electricity,y}$ and $w_{CH4,y}$.

It can be concluded that the monitoring plan as defined in Section B.7.2 of the PDD Version 08^{/5d/} is clear, complete and consistent with the requirements stipulated by applied methodology and these requirements are met. Further, the appropriateness of the monitoring plan is established with the project activity design and capability of the project proponent is described and demonstrated during the validation process. Therefore, in the opinion of the validation team, the project participants will be able to implement the monitoring plan mentioned in the PDD and an interaction with dedicated team occurred during the site visit confirming the capability of team working for project participants.

In the opinion of the validation team and as required by VVM V1.2 paragraph 89, the baseline emissions, project emissions and leakages emissions have been reviewed against the requirements stipulated in the applied version of the methodology and are found to meet the requirements. The details of steps to determine can be witnessed/ reviewed while following section 4.7 and 4.8 of this report.

In accordance with the reporting requirement laid down in VVM V1.2 paragraph 92, the validation team is of the opinion that all assumptions and data used in the PDD Version 08 (or its annexure) to determine the

emission reductions are listed and transparently presented and the basis of assumptions are correctly quoted and interpreted which were found to be consistent with the sources mentioned and reasonable in the opinion of the validation team. The values used in the emission reductions (project emissions and baseline emissions and leakage) are specific in the context of the proposed CDM project activity and baseline methodology has been applied correctly. The validated assumptions and values can be replicated using the data provided in the PDD (or its annexure).

In accordance with the reporting requirement laid down in the VVM V1.2 paragraph 93, the data and parameters have been verified from the referenced information, as mentioned in the table in section 4.7 and wherever appropriate in section 4.7 and 4.8.

4.9 Environmental Impacts

The project activity does not require EIA as checked from http://www.tgo.or.th/index.php?option=com_content&task=view&id=32&Itemid=29 and require on IEE that has been verified to establish that project activity is not likely to have any adverse environmental impacts. Further, it has been checked that power generation less than 10 MW also do not require EIA to be conducted from <http://www.onep.go.th/content/pram/announcement01.htm> and http://www.onep.go.th/eia/T_data/T_size.html.

CL#19 was raised to clarify

- a) IEE is required for project activity to obtain LoA and submit a copy of IEE and this requirement
- b) Is this complying with the requirement of DNA?
- c) That EIA is not required for landfill projects (gas flaring) and power generation of less than 10 MW

After reviewing the information IEE ^{/55/} provided by the PP it has been confirmed that only IEE is required for project activity to comply with the requirement of DNA ^{/68,69,70/} and EIA is not required for power generation less than 10 MW. Therefore CL#19 was closed out. However, in the project activity the maximum capacity would be 8 Mwe for a project participant (from host country), and considering there are two host project participants a maximum of 16 Mwe can be installed, without requiring EIA.

Further, LoA ^{/9/} from the host Party confirms that project activity contributes to the sustainable development. It has been established that the environmental analysis conducted by the project activity is duly approved by regulatory authorities as indicated above and complete in accordance with VVM V1.2 paragraph 133.

4.10 Local Stakeholder Comments

CL#20 was raised because;

- a) What media was used to invite stakeholders?
- b) How stakeholders were identified?
- c) To provide meeting minutes of stakeholder consultation process
- d) To substantiate the summary of issues/comments by stakeholders, the source of information put in the PDD
- e) To justify the no-coherent statement that project will generate 36-40 MW according to calculation, and each company will generate 8 MW, initially 5 MW.
- f) How the resolution of the comments provided.

In response it was confirmed that direct invitation was sent to the identified stakeholders and additionally through advertisement in local news paper Ban Muang Biweekly year 7 number 95. The identification procedure of the local stakeholders was found appropriate and relevant. The meeting minutes and the sources of queries raised were examined from comprehensive report and found acceptable and consistent to the one presented in webhosted PDD.

The no-coherent and erroneous text, as asked in point 'e', was updated to reflect the actual situation and project activity will not exceed 16MW installed capacity, underlying fact that each host project participant

will have maximum possibility of 8Mwe grid connection. The comments were largely positive and therefore no further steps were required to address them. Therefore, CL#20 was closed out.

It is confirmed, in accordance with VVM V1.2 paragraph 130 that the description of the local stakeholders' information in the PDD Version 08^{5d/} is accurate and sufficiently covers that concern raised by local stakeholders. Further, it was also crosschecked by having interaction and watching the videos of the event that took place during the validation site visit.

5. Comments by Parties, Stakeholders and NGOs

In accordance with sub-paragraphs 40 (b) and (c) of the CDM modalities and procedures, the project design document of a proposed CDM project activity shall be made publicly available and the DOE shall invite comments on the validation requirements from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available. This chapter describes this process for this project.

5.1 Description of how and when the PDD was made publicly available

The Project Design Document for this project was made available on the UNFCCC website <http://cdm.unfccc.int/Projects/Validation/DB/C45ZX848IYNITNP84VTCRECSURI2VH/view.html> and was open for comments from 21 Mar 2009 until 19 Apr 2009. Comments were invited through the UNFCCC CDM homepage

5.2 Compilation of all comments received

Comment Number	Date Received	Submitter	Comment
			No Comments received.

5.3 Explanation of how comments have been taken into account

No comments received.

6. List of Persons Interviewed

Date	Name	Position	Short Description of Subject Discussed
22-04-2009	Werner Betzenbichler	VP, SCC	Review of PDD, Project technology and description, ER calculations
22-04-2009	Daniel Bussin	SCC	Baseline and Project Emissions
22-04-2009	Stephen Randall	SCC	Additionality and Investment Analysis
22-04-2009	Mr.Chartchai Hengsuwan	Chairman of Sub district Administration Organization (Thung – Bua)	Legal requirements and environmental regulations and local stakeholder consultation
22-04-2009	Mr.Boonchoo Chieng –Ngor	Chief executive of Sub district Administration Organization (Thung – Bua)	Legal requirements and environmental regulations and local stakeholder consultation

7. Document References

Category 1 Documents (documents provided by the Client that relate directly to the GHG components of the project, (i.e. the CDM Project Design Document, confirmation by the host Party on contribution to sustainable development and written approval of voluntary participation from the designated national authority):

- /1/ PDD Version 01 dated 14 March 2009 (webhosted PDD)
- /2/ PDD Version 02 dated 18 May 2009
- /3/ PDD Version 03 dated 26 June 2009
- /4/ PDD Version 04 dated 03 September 2009
- /5a/ PDD Version 05 dated 21 October 2009
- /5b/ PDD Version 06 dated 23 December 2009
- /5c/ PDD Version 07 dated 18 January 2010
- /5d/ PDD Version 08 dated 13 August 2010
- /6a/ Kamphaeng Saen East ER (Final Version) (Spreadsheet)
- /6b/ Grid emission calculation for 2007 (13 Aug 2010) (Spreadsheet) (Translation of the relevant sections have been provided in the spreadsheet as per the requirements of EB 54 Report Annex 28 Procedures for Request for Registration of Proposed CDM Project Activities)
- /7a/ Facility (=Loan) agreement between XHL and BGCL dated 24 March 2009
- /7b/ ERPA between XHL and BGCL dated 24 March 2009
- /7c/ Wasaduphan Turakit Co., Ltd. Audited Financial Sheet (Year 2007 and 2008) Latest at time of investment
- /7d/ Group 15 Co., Ltd. Audited Financial Sheet (Year 2007 and 2008) Latest at the time of investment
- /8/ UK LoA – SCC Bangkok Kamphaeng Saen East dated 22 October 2009
- /9/ LoA Bangkok East-EN Host Party (for both PPs) dated 07 August 2009
- /10/ UK LoA XHL Bangkok Kamphaeng East dated 27 August 2009
- /11/ Bangkok East MOC dated 30 October 2009
- /12/ Withdrawal from PDD as a project participant letter – Central Wastewater Development Company Limited
- /13/ Payment Advice dated 30/03/2009 (start date of project activity) by Xentolar Holdings Ltd. to Bangkok Greenpower Co., Ltd.

PDD Version	Date of Revision	Main changes reason for Revision (non-exhaustive)
Version 2	18/05/2009	In response to DOE as response to CDM.VAL2782 IN03: Section A.2 Changes in CER Section A.3 Change in Project Participants Section A.4.1.4 Change in coordinates Section A.4.4 Table 2 ex ante emission reduction Section B.3 Figure 3 project boundary Section B.4 Sub-step1b. Consistency with mandatory laws and regulations Section B.5 Demonstration of consideration of CDM prior to the investment decision Table 6 Effect of project life on predicted net present value

PDD Version	Date of Revision	Main changes reason for Revision (non-exhaustive)
		Table 7 variation of parameters for sensitivity analysis Figure 4 sensitivity analysis with capital recovery Step 4. Common practice analysis Section B.6 Determination of $MD_{BL,y}$ Section B.6.2 Data and parameters that are available at validation Section B.6.3 Table 7 CH₄ destroyed by power generation & flaring Section B.6.4 Summary of the ex-ante estimation of emission reductions Section B.7.1 Data and parameters monitored Annex 3: Baseline Information
Version 3	26/06/2009	In response to DOE as response to 2nd CDM.VAL2782 IN03: Section A.2 Changes in CER Section A.3 Change in Project Participants Section A.4.4 Table 2 ex ante emission reduction Section B.5 Step 2. Investment Analysis Sub-step 2b. Option III. Apply Benchmark analysis Sub-step 2c. Calculation and comparison of financial indicators Sub-step 2d: Sensitivity analysis Table 7 CH₄ destroyed by power generation & flaring Table 8 Ex- ante CO₂ reduction from electricity exported to the grid Table 9 ex-ante project emission from consumption of grid electricity Section B.6.4 Summary of the ex-ante estimation of emission reductions table
Version 4	03/09/2009	In response to DOE as response to 3rd CDM.VAL2782 IN03: Section A.4.3 LFG generator sets Section B.5 Sub-step 2c. Calculation and comparison of financial indicators Estimation of Project Value
Version 5	21/10/2009	Re-inclusion of SCC as project participant Section A.3 Re-inclusion of Project Participants
Version 6	23/12/2009	In response to DOE as response to 4th CDM.VAL2782 IN02: Section A.4.4 Table 2 ex ante emission reduction Section B.4

PDD Version	Date of Revision	Main changes reason for Revision (non-exhaustive)
		Step 3. Barrier analysis Step 3a. The Investment Barrier Section B5 Table 7 CH₄ destroyed by power generation & flaring Table 8 Ex- ante CO₂ reduction from electricity exported to the grid Table 9 ex-ante project emission from consumption of grid electricity B.6.4 Summary of the ex-ante estimation of emission reductions
Version 7	16/01/2010	In response to change of Methodology version Section A.4.4 Table 2 ex ante emission reduction Section B5 Table 7 CH₄ destroyed by power generation & flaring Table 8 Ex- ante CO₂ reduction from electricity exported to the grid Table 9 ex-ante project emission from consumption of grid electricity B.6.4 Summary of the ex-ante estimation of emission reductions B.7.1 Data and parameters monitored
Version 8	13/08/2010	In response to requesting registration incomplete: Section A.4.4 Table 2 ex ante emission reduction “Tool to calculate the emission factor for an electricity system” Version changed from version 1.1 to version 2 Section B.5 Step 3. Barrier Analysis Sub-step 3a. The Investment Barrier Annex 3: Baseline information Additional step added

Category 2 Documents (background documents used to check project assumptions and confirm the validity of information given in the Category 1 documents and in validation interviews):

- /14/ BKK East Power of Attorney (Bangkok Greenpower Co. Ltd.) dated 15/06/2009
- /15/ BKK East Power of Attorney (PS Natural Energy Co. Ltd.) dated 18/06/2009
- /16/ PPA (Letter of Approval for PPA) for Bangkok Greenpower Co. Ltd. (in Thai)
- /17/ Board of Investment Application Acknowledgement – Bangkok Greenpower Co. Ltd. (in Thai)
- /18/ BKK East revised implementation schedule (of the project activity)
- /19/ Facility (=Loan) Agreement between Bangkok Greenpower Co. Ltd. (as borrower) and Xentolar Holdings Ltd. (as lender) dated 24/03/2009
- /20/ Generator Set (JGS 320 GS-L.L) technical specifications by GE (in brochure)
- /21/ Flare Set technical specifications by Carbon Recycle (in brochure)
- /22/ -Gas rights transfer agreement between Wasaduphan Turakit Co., Ltd. and Group 79 Co., Ltd. (both as landfill owner) and Group 15 Co., Ltd. (to which the gas rights are transferred) dated 05/08/2008
- /23/ Facility Agreement between Central Wastewater Co., Ltd. (as borrower) and ISCCP Investment Platform Ltd. dated 24/03/2009
- /24/ <http://www.pea.co.th/vspp/vspp/Announce.pdf>
- /25/ Public Health Act B.E.2535 (English) No. NorThor 74401/105 dated 9 April 2004
- /26/ VSPP regulation: Regulations for the Purchase of Power from Very Small Power Producers (for the Generation Using Renewable Energy)
- /27/ Royal Haskoning report: Royal Haskoning and Retech Energy Co. Ltd , April 2008
- /28/ Due Diligence Report: Sindicatum Carbon Capital, September 2008
- /29/ Audited Financial Sheet for BGCL for year 2008
- /30/ Audited Financial Sheet for CWDCL for year 2008
- /31/ Facility Agreement between Bangkok Greenpower Co., Ltd. (as borrower) and Xentolar Holdings Ltd. (as lender) dated 24/03/2009, (page 44 for payment of THB 85,000,000)
- /32/ Cost Data, spreadsheet (compilation of) consisting of data related to cost (as mentioned below)
- /33/ Krung Thai Quotation- Electrics: submitted by Krung Thai United Electric Co. Ltd to GRT Energy Co., Ltd dated 08/11/2008
- /34/ Carbon Recycle Quotation – Pretreatment: Carbon Recycle, dated 26/03/2009 (Landfill Gas Pre-treatment Plant)
- /35/ Carbon Recycle Quotation – Shipping: Carbon Recycle, dated 26/03/2009 (Freight and Service of Gas Pre-treatment and Flare)
- /36/ Fusion Quotation – pipework components: 16/02/09 SCC Internal estimate based quantities needed and cost per item quoted by Fusion (Gas Collection System Pipework)–
- /37/ PAIL Quotation – Pipework welding: submitted by Proactive Asia Investments Limited (PAIL) to Sindicatum Carbon Capital dated 07/04/2009 –
- /38/ Navigat Quotation (Engine O&M): Navigat Energy dated 26/02/2009
- /39/ Gas rights transfer agreement between Group 15 Co., Ltd. (as Grantor) and GRT Ecosystem Co., Ltd. (as Grantee) dated 19/03/2009
- /40/ Gas rights transfer agreement between GRT Ecosystem Co., Ltd. (as Grantor) and Bangkok Greenpower Co., Ltd. (as Grantee) dated 19/03/2009
- /41/ Incorporation certificate for BGCL dated 16/07/2008
- /42/ Incorporation certificate for PS Natural Energy Co. Ltd. dated 18/06/2009

- /43/ *Journal Air & Waste Manage. Assoc. 58 page 629–635* – Chiemchaisri, C and Chettiyappan, V: Greenhouse Gas Emission Potential of the Municipal Solid Waste Disposal Sites in Thailand, *J. Air & Waste Manage. Assoc. volume 58, May 2008:629–635*
- /44/ <http://www.phtnet.org/news51/view-news.asp?nID=521>
- /45/ Research Fund from King (translation) dated 25/08/2008
- /46/ BKK East 05 Letters of Thung Bua_Correctness of Licences (3) No. NorThor 74401/105 dated 9 April 2004 (In Thai language)
- /47/ BKK East Letter of Thung Bua, Licence of Wasaduphan Turakit (translated in English) No. NorThor 74401/105 dated 9 April 2004
- /48/ BKK East Public Health Act B.E.2535 (English) (dated 29 March 1992, as per Gregorian Calendar)
- /49/ Independent third party opinion (on regulations from Landfill gas) by Norton Rose (Thailand) Limited dated 18/06/2009.
- /50/ Bangkok East Waste tipping rate (Based on actual waste tipped between year 2005 to year 2008)
- /51/ BKK East Waste Contract Agreement No. SorNorRor.53/2547 between Bangkok Metropolitan Administration and Wasaduphan Turakit Co., Ltd. dated 20/07/2004
- /52/ O&M Cost: Tender document SCC, dated 28/10/2008
- /53/ Long Term Parts Delivery Quotation ItalThai_131108 from ItalThai Industrial Co.,Ltd. to GR-Tech Co., Ltd dated 13/11/2008
- /54/ BKK East Training Plan
- /55/ BKK East IEE (Initial Environmental Examination of Electricity Generation Units of CDM Bangkok-East Landfill Projects)
- /56/ Newspaper Announcement for stakeholder consultation
- /57/ Stakeholder consultation report to TGO
- /58/ JE Jenbacher (Gas Engine) Service Agreement Brochure by GE
- /59/ http://www.tgo.or.th/index.php?option=com_content&task=view&id=32&Itemid=29
- /60/ http://www.onep.go.th/content/prra/ministry_announcement01.htm,
- /61/ http://www.onep.go.th/eia/T_data/T_size.html
- /61/ Audited Financial Sheet for Wasaduphan Turakit Co., Ltd. for year 2006
- /62/ Audited Financial Sheet for P S Natural Energy Co., Ltd. for year 2009 (dated April 25, 2010)

A.1 Annex 1: Local Assessment

This checklist is designed to provide confirmation of in-country data and information provided in the Project Design Document for Bangkok Kamphaeng Saen East: Landfill Gas to Electricity Project.

It serves as a “**reality check**” on the project that is completed by a Nattarin Thunsiri, local assessor from SGS Thailand

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
Is all information provided consistent and in compliance with the actual situation or planning?	The information pertaining to project activity could not be witnessed during validation site visit as there was no physical work seen on site.	Site visit	To be reviewed during verification.
Does the proposed CDM project activity involve the alteration of existing installations or process?	There is no alteration of existing installation or process. The existing system consisted of landfill without any LFG recovery, whereas the project activity involves the installation of LFG extraction and capture for the new cells and installation of gas engines and flare system to utilize the LFG for electricity generation and/or flare, as the case may be.	Site visit, plant records	No
Do the project participants possess ownership or licenses which will allow the implementation of the project at that site / those sites?	The project participants have obtained the Letter of Approval from Provincial Electricity Authority establishing the ownership of the projects. However, all the necessary clearances could not be obtained at the time of site visit.	Letter of Approval from PEA for proposed project activity	These details shall be examined at first verification. FAR#05 has been raised.
Does the information on public funding provided conform to the actual situation or planning as presented by the project participants?	During the site visit no contradicting information was found with regards to any public funding in the project activity.	Site visit.	No.

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
Is conservativeness addressed in the way of identifying the baseline?	The baseline described in the PDD has been physically witnessed during site visit and confirms to the statement. No flaring mechanism was noticed in the baseline and only venting has been seen.	Site visit	No
Is there a verifiable description of the baseline scenario?	The baseline has been physically verified during site visit and also adequate references were given while demonstrating the baseline.	Site visit and Annex 3 of this report.	No
Does the monitoring plan provide information on monitoring equipment and respective positioning in order to safeguard a proper installation?	The monitoring plan and CDM manual is having sufficient information but on site it could not be seen as no construction work started at the time.	CDM Manual	Yes CAR#15 was raised and converted to FAR#15 for this point. This shall be verified during first verification.
Is the undertaken stakeholder process described in a complete and transparent manner?	Yes, the videos of local stakeholders consultation was viewed and also local assessor interacted with local people.	Site visit	No

A.2 Annex 2: Validation Checklist

Table 1 Participation Requirements for Clean Development Mechanism (CDM) Project Activities (Ref PDD, Letters of Approval and UNFCCC website)

Requirement	Reference	Comments	Conclusion/C ARs/ CLs
1. All Parties involved have approved the project activity 1.1. Has the DNA of each Party involved in the proposed CDM project activity in section A.3 of the PDD provided a written letter of approval which confirms 1.1.1. The country is a Party to the Kyoto Protocol 1.1.2. Participation is Voluntary 1.1.3. The Host Party confirming that the proposed CDM project activity contributes to sustainable development of the country Non-Annex 1 Party shall submit a letter of approval 1.1.4. It refers to the precise proposed CDM project activity title in the PDD being submitted for registration	Annex 3, Clean Development Mechanism, Validation and Verification Manual, Version 01 (from this point forwarded referenced as VVM) - 49a-d /54a-b/125 Paragraph 37 CDM Modalities and procedures	The Annex 1 Party, United Kingdom of Great Britain and Northern Ireland is Party to Kyoto Protocol as checked from http://maindb.unfccc.int/public/country.pl?country=GB . The Non Annex 1 Party Thailand is Party to Kyoto Protocol as checked from http://maindb.unfccc.int/public/country.pl?country=TH Letter of Approval from DNA of Thailand and DNA of UK is required for project participants listed in section A.3 of PDD. CL#01 is raised. As detailed in the closure of CL#01, requested information is received and found OK.	CL#01 CL#01 Closed. Y

Requirement	Reference	Comments	Conclusion/C ARs/ CLs
1.2. If the project participant(s) listed in the PDD published at international stakeholder consultation are not included in the PDD submitted with request for registration, a letter should be obtained from the withdrawn project participant(s) confirming its voluntary withdrawal from the proposed project activity.	EB 30 Para. 41.	Will be checked at the time with the final version of the PDD. Central Wastewater Development Co. Ltd. were listed in PDD Version 01 but not in PDD Version 05.. Xentolar Holdings Ltd was not included in the PDD Version 01, webhosted. Voluntary withdrawal letter from CWDCL is taken and accepted. Xentolar Holdings Ltd. has provided the Letter of Approval from DNA of UK	Y
1.3. The letter/s of approval are unconditional with respect to 1.1.1 to 1.1.4 above	VVM Para. 49/54	Pending to CL#01 Yes, the letters of approval are unconditional.	Y
2. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof, and be entered into voluntarily	VVM Para. 54 Marrakech Accords, CDM Modalities §29 and §30 Kyoto Protocol Art. 12.2, Marrakech Accords, CDM Modalities §40a	Pending to CL#01 Yes, the project assist Non Annex 1 Party, Thailand, in achieving sustainable development as indicated in the Letter of Approval.	Y

Requirement	Reference	Comments	Conclusion/CARs/CLs
3. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for a minimum of 30 days, and the project design document and comments have been made publicly available	VVM Para. 128 Marrakech Accords, CDM Modalities, §40	The PDD was webhosted from 21 Mar 2009 to 19 Apr 2009 at http://cdm.unfccc.int/Projects/Validation/DB/C45ZX848IYNITNP84VTCRECSURI2VH/view.html . No comments have been received.	Y
4. The project design document is in accordance with the applicable CDM requirements for completing PDDs.	VVM Para. 57 Marrakech Accords, CDM Modalities, Appendix B, EB Decisions	There were inconsistencies in the PDD Version 01. CAR#17 is raised. The CDM PDD template used is Version 3 which is the latest available format and have been filled in accordance with EB41 Annex 12.	CAR#17 CAR#17 Closed. Y

Table 2 PDD

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
A. General Description of Project Activity				
A.1. Project Title				
A.1.1. Does the used project title clearly enable the reader to identify the unique CDM activity?	VVM Para.56 Guidelines for completing a CDM-PDD (PDD) section A.1	DR	The project title 'Bangkok Kamphaeng Saen East: Landfill Gas to Electricity Project' is clear and unique as checked from projects under validation http://cdm.unfccc.int/Projects/Validation/index.html and no project was found at http://cdm.unfccc.int/Projects/projsearch.html .	Y
A.1.2. Is there an indication of a revision number and the date of the revision?	VVM Para.56 PDD section A.1	DR	Yes, the webhosted PDD included date 14 Mar 2009 and version 01.	Y
A.2. Description of the Project Activity				
A.2.1. Does the description of the proposed CDM project activity as contained in the PDD sufficiently cover all relevant elements accurately?	VVM Para.59 PDD section A.2 see also A.4, A.4.3 and B.3	DR	In the proposed project activity LFG from landfill gas will be extracted and captured to utilized is primarily for the purpose of electricity generation using Gas engines. In the event, LFG can not be utilized it will be burnt in the connected flare system. The generated electricity will be exported to Thailand electricity grid. The project activity is expected to generate emission reduction by avoiding emissions from landfill and also by displacing the electricity which otherwise would have been generated in the Thailand electricity grid. The project activity will contribute to the sustainable development as endorsed from the description and further endorsed by Letter of Approval from host Party Letter of Approval.	Y
A.2.2. Does the information provide the reader with a clear understanding of the proposed CDM activity?	VVM Para.60 PDD section A.2 see also A.4, A.4.3 and B.3	DR	Yes, the project activity provides the clear understanding and gives an estimation of expected emission reductions over a crediting period of 7 years.	Y
A.2.3. Is all information provided	VVM Para.64	DR/S	Pending to site visit.	LAC

* MoV = Means of Verification, DR= Document Review, I= Interview

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
consistent and in compliance with the actual situation or planning?	PDD section A.2 see also A.4, A.4.3 and B.3	V	Yes, the project activity was green field at the time of site visit and existing landfill was observed without any LFG collection system in place.	Y
A.2.4. Is all information provided consistent with details provided in further chapters of the PDD?	VVM Para.64 PDD section A.2	DR/S V	Yes, the details are consistent as the project is green field. In the absence of project activity the existing landfill would continue to released LFG into the atmosphere, as checked during site visit.	Y
A.3. Project Participants				
A.3.1. Is the table required for the indication of project participants correctly applied?	VVM Para. 51 PDD section A.3	DR	Yes, the table is in accordance with CDM PDD template and filled appropriately. The Parties involved in the project activity do not wish to be included as project participants.	Y
A.3.2. Is all information provided in consistency with details provided by further chapters of the PDD (in particular Annex 1)?	VVM Para. 51 PDD section A.3	DR	Yes, the details in section A.2 are found consistent with Annex 1 to PDD Version 01. However, the contact details of the representative person are found identical in the host project participants. CL#03 was raised to clarify the same.	CL#03 CL#03 Closed. Y
A.4. Technical Description of the Project Activity				
A.4.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)? Are the latitude and longitude of the site indicated (decimal points)	VVM Para.64 PDD section A.4	DR	Regarding to the PDD, the geographical coordinates of the project activity is mentioned as 14° 03'58.52" N 99°56'45.21"E. However, the coordinate shown in the figure A.4.1.4 is 14° 04'02.29" N 99°56'46.65"E which is not matching. CAR#04 was raised for justification/correction.	CAR#04 CAR#04 Closed. Y
A.4.2. Does the proposed CDM project activity involve the alteration of existing	VVM Para.64 PDD section A.4	DR/S V	There is no alteration of existing installation or process. The existing system consisted of landfill without any LFG recovery, whereas the project activity involves the installation of LFG extraction and capture for the new cells and installation of gas	LAC N

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
installations or process?			engines and flare system to utilize the LFG for electricity generation and/or flare, as the case may be.	
A.4.3. Do the project participants possess ownership or licenses which will allow the implementation of the project at that site / those sites?	VVM Para.64 PDD section A.4	DR	The project participants have obtained the Letter of Approval from Provincial Electricity Authority establishing the ownership of the projects. However, all the necessary clearances could not be obtained at the time of site visit. CL#05 was raised to provide documentary evidences for ownership and regulatory clearances, which has not been converted into FAR#05 as these requirements are essential before the operation of the project activity. They need to be assessed during first verification.	CL#05 Converted to FAR#05
A.4.4. Is the category(ies) of the project activity correctly identified?	VVM Para.64 PDD section A.4	DR	Yes, the project category is appropriately identified in line to the applied methodology and defined scopes on UNFCCC website.	Y
A.4.5. Is all information provided in compliance with actual situation or planning as available by the project participants?	VVM Para.64 PDD section A.4	DR/S V	At the time of site visit, the project activity was not implemented. It was checked from implementation schedule that project activity is likely to be implemented by November 2009.	Y
A.4.6. Is the table required for the indication of projected emission reductions correctly applied?	VVM Para.64 PDD section A.4	DR	Yes, the table is appropriately applied.	Y
A.5. Public Funding				
A.5.1. Does the information on public funding provided conform to the actual situation or planning as presented by the project participants?	PDD section A.4.5	DR/S V	From the financial sources presented for the project activity and discussion on site with various stakeholders revealed that there is no public funding involved in the project activity including ODA. CL#06 was raised to confirm this.	CL#06 CL#06 Closed. Y
A.5.2. Is all information provided consistent with details	PDD section A.4.5	DR	Yes, the information on account of no funding from Annex 1 Party, ODA, is consistent with Annex 2 of the PDD Version 01.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
provided by further chapters of the PDD (in particular annex 2)?				
A.5.3. In case of public funding from Annex I Parties is it confirmed that such funding does not result in a diversion of official development assistance	PDD section A.4.5	DR	Not applicable, as there is no such (public) funding identified.	NA
B. Baseline and Monitoring Methodology				
B.1. Choice and Applicability				
B.1.1. Is the baseline methodology previously approved by the CDM Methodology Panel?	VVM Para.68 PDD section B.1	DR	Yes, the applied methodology ACM0001 Version 10 is duly approved by CDM EB. Although, a new version 11 has come in place but the request for registration can be sent till Feb 10, 2010 on ACM0001 Version 10. However, the PDD Version 07 has applied ACM0001 Version 11 dated 11/06/2009 is already approved. The change in the methodology version by PP is accepted as this is the latest version available.	Y
B.1.2. Has the methodology (incl. the tools) been altered from the original version as referenced in the PDD?	VVM Para.69 PDD section B (B.1-B.2)	DR	No, the methodology and tools are not altered and referred as applicable.	N
B.1.3. Is the selected approved methodology applicable to the project activity in the PDD?	VVM Para.75/66a/68/73 PDD section B (B.1-B.2)	DR	Yes, the project activity fulfils the criteria 'a' and 'b' of the applied methodology. CL#07 was raised to provide the technical data sheet for flaring mechanism and electricity generation from LFG.	CL#07 CL#07 Closed. Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.1.4. Is the discussion in the PDD in conformance with all applicability criteria of the applied methodology?	VVM Para.75/66b/68 PDD section B (B.1-B.2)	DR	Pending to CL#07 above Yes, the criteria are duly explained and justified. The project activity description is adequate along with documentary evidences provided in response to CL#07 confirms them.	Y
B.2. Project Boundary				
B.2.1. Are all emission sources and gases related to the baseline scenario, project scenario and leakage clearly identified and described in a complete and transparent manner? Is there information on GHG emissions in proposed CDM project activity boundary as a result of the implementation of the proposed CDM project activity which are expected to contribute more than 1% of the overall expected average annual emissions reductions, which are not addressed by the applied methodology.	VVM Para.79/76 /67a PDD section B.3	DR	The project activity boundary was not clear in the PDD Version 01. CL#08 was raised to a) The project boundary is not clear for depicted auxiliary usage and the direction of flow from Grid is not clear. Please provide an appropriate diagram for project activity b) Please substantiate that waste would have been dumped at the same site to rule transportation emissions out c) Please substantiate that there are no regulations or policies governing the release of LFG into the atmosphere as written in Sub-step 1b d) Please substantiate that feeding power from LFG to Grid is as per law and necessary documentary evidence for the designated electricity generation capacity.	CL#08 CL#08 Closed. Y
B.2.2. In case of grid connected electricity projects: Is the relevant grid correctly	VVM Para.79 PDD section B.3	DR	The identification of grid is appropriate and inline to the Tool to calculate emission factor for electricity system.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
identified in accordance with the tool to calculate emission factor of electricity system (wherever applicable) and the underlying methodology?				
B.2.3. Does the project boundary include the physical delineation of the proposed CDM project activity?	VVM Para.78/79 PDD section B.3 also see section A.4.3	DR	In the PDD version 01 the project boundary was not clear therefore CL#08 was raised.	CL#08 CL#08 Closed Y
B.2.4. Are the project's geographical boundaries and the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	VVM Para.76/79 PDD section B.3 also see section A.4.3	DR	In the PDD version 01 the project boundary was not clear therefore CL#08 was raised.	CL#08 CL#08 Closed Y
B.3. Identification of the Baseline Scenario				
B.3.1. Does the PDD discuss the identification of the most likely baseline scenario? Does the PDD follow the steps to determine the baseline scenario required by the methodology and is the application of the methodology and the discussion and determination of the	VVM Para.67b.80/82/86 PDD Section B.4/B.5	DR	The steps required by Tool to determine additionality of the project is appropriately followed.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
chosen baseline transparent?				
B.3.2. Are all tools/procedures in the methodology correctly applied to identify the most reasonable baseline scenario? This includes all potential realistic and credible baseline scenarios in the discussion taking into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	VVM Para.81/82/86a-d/83/84 PDD Section B.4/B.5	DR	The project activity enlists the potential baseline scenario appropriately and credible.	Y
B.3.3. Is the choice of the baseline compatible with the available data?	VVM Para.86b-c/95 PDD Section B.4/B.5	DR	In order to substantiate the identified baseline CL#08 (points b, c, d) was raised	CL#08 CL#08 Closed. Y
B.3.4. Is conservativeness addressed in the way of identifying the baseline?	VVM Para.90 PDD Section B.4/B.5	DR	The presented data and sources in the PDD along with information gathered on site established that conservativeness is applied in identify the baseline.	Y
B.3.5. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	VVM Para.90/91 PDD Section B.4/B.5	DR	Yes, the baseline represents the most likely baseline, as in the absence of project activity the status quo would have been maintained, implying that LFG would have continued to release in the atmosphere and electricity generated in the project activity would have been generated in the connected electricity system.	Y
B.3.6. Is there a verifiable description of the baseline scenario? Does this	VVM Para.86e/85 PDD Section	DR	Yes, the information is verifiable as seen on site visit. Further, in the absence of project activity the status quo would have occurred.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
include a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed CDM project activity?	B.4/B.5			
B.4. Additionality				
B.4.1. Does the PDD clearly demonstrate the additionality using the approach as specified in the methodology and by following all the required steps?	VVM Para.67d/95 PDD Section B.1/B.4/B.5	DR	Yes, the 'Additionality Tool' has been applied in line to the requirements of applied methodology.	Y
B.4.2. In case of using the additionality tool: Is the 'Additionality Tool' used in the PDD latest version? If an earlier version has been used, do the changes impact the discussion in the PDD? Are all steps followed in a transparent manner?	PDD Section B.1/B.4/B.5	DR	All the mandatory steps of the tool are applied using the latest available version 5.2.	Y
B.4.3. Has all information been backed up with references, sources and certification? Is the data presented credible and reliable with complete	VVM Para.93/91 PDD Section B	DR	Pending to other CARs/CLs in this section.	Pending Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
transparency to all available data and documentation?				
B.4.4. Is the discussion on additionality and the evidence provided consistent with the starting date of the project? If the project activity start date is prior to the validation is it discussed how the CDM was taken into account in the decision to go ahead with the project activity	VVM Para.102b PDD Section B.5	DR	Starting Date and CDM Serious Consideration a) As mentioned in section C.1.1 of the PDD, the starting date of the project activity is indicated as 01 November 2009. As this is future date kindly provide on what basis this has been considered as project starting date, in particular, with reference to EB41 paragraph 67. b) It is not clear what happened after the Feasibility study conducted in Dec 2007. Please provide the chronology of events from the feasibility study conducted in Dec 2007 till date. Also comment how the decision to proceed with validation of the project activity was conceived and by whom. b) Please substantiate as the project activity start date and crediting period start date have a gap of only 1 month, will it be possible to completely implement the project activity in this time span? CL#09 raised.	CL#09 CL#09 Closed. Y
B.4.5. For an existing project activity with a start date before 2 August 2008, for which the start date is prior to the date of publication of the PDD for global stakeholder consultation, is the real documented evidence for an assessment of real and continuing actions available for validation and is this evidence authentic?	EB 49, annex.22	DR	The project activity is not an existing project activity therefore this does not apply.	NA
B.4.6. If an investment analysis	VVM Para.	DR	CL#10 is raised to provide the sources of input values for project financial indicator and benchmark as given in the webhosted PDD.	CL#10

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
has been used, has it been shown that the proposed project activity is economically or financially less attractive than at least one other alternative without the revenue from the sale of CERs?	106, 107, 109 112a-c PDD Section B.5		The PDD Version 07 is not using investment analysis as a basis to demonstrate the Additionality of the project activity, rather Barrier Analysis has been adopted. Therefore, queries in CL#10 with regards to investment analysis has been ceased and CL#10 was focussed on Barrier Analysis.	CL#10 Closed. NA
B.4.7. If a benchmark is used, is it ensured that it is selected in accordance with the requirements of the tool /methodology and it represents standard returns in the market (not linked to the subjective profitability expectation or risk profile of a particular project developer).	VVM Para. 110 PDD Section B.5	DR	Pending to CL#10 The investment analysis has been omitted in the final version of PDD therefore validation on this aspect is ceased out.	CL#10 CL#10 Closed NA
B.4.8. If a barrier analysis has been used, has it been shown that the proposed project activity faces barriers that prevent the implementation of this type of proposed project activity but would not have prevented the implementation of at least one of the alternatives?	VVM Para. 114 115a-b/116 PDD Section B.5	DR	CL#10, which was raised initially for investment analysis, modified to demonstrate requirements with regards to Barrier Analysis, as under - Kindly provide the incorporation certificates of the project participants (in host country) and the parent companies managing landfills are engaged for last 20 years in the business of Landfill operation as indicated in the revised PDD dated 23/12/2009. - Please provide clearly the relevant text/section in the Loan Agreement with separately with each host project participants that loan by lender XHL has been disbursed considering CDM benefits (in line to EB 50 Annex13 para 9). Please provide the ERPA signed for the project activity with indication of relevant section earmarking the transfer of expected CERs. The Loan Agreement, as above, indicates the linkage to ERPA please categorically	CL#10 CL#10 Closed Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
			indicate how it is linked with pre-payment of CERs, if any. - While demonstrating EB50 Annex 13 para 4, please indicate if the provided documents and translated financial results of project participant's parent companies are depicted as confidential. If so, please consider the EB48 Annex 60 para 9 (e) Ensure that information marked as confidential or proprietary which has been submitted does not relate to the determination of additionality or the baseline; - Please indicate if the provided financial results of the above companies can be cross checked with a third party document or published information (e.g. company's website) or any other. - Please demonstrate compliance with Additionality Tool Step 3 "If the CDM does not alleviate the identified barriers that prevent the proposed project activity from occurring, then the project activity is not additional" in accordance with EB50 Annex 13 para 5 by clearly referencing the information along with evidences. - Please explain how Additionality Tool 5.2 (Sub step 3a second bullet) is demonstrated, "No private capital is available from domestic or international capital markets due to real or perceived risks associated with investment in the country where the proposed CDM project activity is to be implemented, as demonstrated by the credit rating of the country or other country investments reports of reputed origin." The webhosted PDD (and till Version 05) contained Investment Analysis (Step 2) as means to demonstrate the Additionality of the proposed CDM project activity. Please explain how the approach taken now in the recent version of PDD (Version 06) to demonstrate Additionality using Step 3 was also valid at the time of project start date and why it was not included in the webhosted PDD.	
B.4.9. Is the discussion on additionality consistent with the identification of all plausible and credible baseline scenarios?	VVM Para. 105 PDD Section B.5	DR	Yes, CL#08 and CL#10 were raised in the other sections.	CL#08 and CL#08 Closed. Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.4.10. Do the identified baseline scenarios include technologies and practices that include outputs or services comparable with the proposed CDM project activity? Do they also abide by the same applicable laws and legislations?	VVM Para. 105 PDD Section A.4.3/B.5	DR	Yes, the baseline scenario is consistent with the applicable laws and regulations. CL#08 was raised to confirm the same.	CL#08 CL#08 Closed out
B.4.11. Has it been shown that the project is not common practice?	VVM Para. 119a/b PDD Section B.5	DR	CL#11 is raised Common Practice Analysis a) The documentary reference included in Sub – step 4a shall be provided (marked as 4 & 5) b) The statements includes in the section are not quantitative and does not provide clear picture of other activities similar to the project activity. Please substantiate further. c) The outcome of Sub –step 4b are not detailed enough for particularly other projects referred in this section. Please substantiate further. d) The inclusion of CDM projects in this section is not required	CL#11 CL#11 closed Y
B.4.12. What are the key distinctions between the project activity and any similar projects that are widely used as common practice?	VVM Para. 118, 119c/d PDD Section B.5	DR	Pending to CL#11	Pending to CL#11 CL#11 closed There is no similar project identified

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.5. Application of the Baseline Methodology				
B.5.1. Has the approved methodology been applied correctly for determining baseline emissions ?	VVM Para. 91d PDD Section B (B.6.1 -B.71)	DR	Yes, the approved methodology ACM0001 Version 10 is applied correctly. However, the final PDD Version 07 applied ACM0001 Version 11, which is also consistent with the requirements of the approved methodology. CL#12 was raised to substantiate the values considered for $MD_{BL,y}$, $MD_{electricity,y}$ and $MD_{flared,y}$	CL#12 CL#12 closed Y
B.5.2. Has the approved methodology been applied correctly for determining project emissions ?	VVM Para. 90/91d PDD Section B (B.6.2-B.71)	DR	Yes, the approved methodology ACM0001 Version 10 is applied correctly. However, the final PDD Version 07 applied ACM0001 Version 11, which is also consistent with the requirements of the approved methodology.	
B.5.3. Has the approved methodology been applied correctly for determining leakage ?	VVM Para. 91d PDD Section B (B.6.2 -B.71)	DR	The applied methodology do not prescribe leakage to be taken into account.	Y
B.5.4. Where applicable, has the approved methodology been applied correctly for the direct calculation of emission reductions ?	VVM Para 88/91d PDD Section B (B.6.2 -B.71)	DR	Yes, the direct calculations of the emission reductions is consistent in the PDD with regards to applied methodology and ER spreadsheet, which is annexure to the PDD, reflects the same. However, CL#14 was raised to substantiate assumptions.	CL#14 CL#14 closed Y
B.5.5. Where there is an option between different equations or parameters, has the methodological choices for the project been explained, have they been properly justified and are they correct?	VVM Para.89/90/91 PDD Section B (B.6.2 -B.71)	DR	Yes, the values considered are appropriate in the final version of the PDD. However,	Y
B.5.6. Are uncertainties in the	PDD Sections	DR	Pending to other CLs/CARs in this sections.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
GHG emissions estimates properly addressed in the documentation?	B.5-C		As the CLs/CARs raised in this section have been closed out establishing the suitability of the assumptions considered. In the project activity the ex post ER will be done based on actual LFG destroyed, therefore, estimation is accepted.	
B.6. Ex-ante Data and Parameters Used				
B.6.1. Are the data provided in compliance with the methodology?	VVM Para. 91/67c PDD Section B.6.3/B.6.4	DR	Yes, the data provided in the PDD is in compliance with the applied methodology	Y
B.6.2. Is all the data derived from official data sources or replicable records and have these been correctly quoted?	VVM Para. 91a/b PDD Section B.6.3/B.6.4	DR	CL#12, CL#13 were raised to derive the sources considered for assumptions. The required information was received and also incorporated in the final PDD.	CL#12 and CL#13 closed. Y
B.6.3. Is the vintage of the baseline data correct?	PDD Section B.6.3/B.6.4	DR	Pending to other CLs/CARs in this section Based on the closure of CL#12 and CL#13 it can be concluded that the most recent data has been used consistently in the PDD.	CL#12 and CL#13 closed. Y
B.6.4. Is all the data appropriate and correctly applied to the CDM project activity?	VVM Para. 91c PDD Section B.6.3/B.6.4	DR	Pending to CL#12 and CL#13 and CL#14	CL#12, 13 & 14 closed. Y
B.6.5. Are data and parameters that are not being monitored and remained fixed throughout the crediting period appropriately assessed, correct, and will they	VVM Para. 90 PDD Section B.6.3/B.6.4	DR	Pending to CL#12 and CL#13 and CL#14	CL#12, 13 & 14 closed. Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
result in conservative estimates?				
B.7. Calculation of Emissions Reductions				
B.7.1. Has the approved methodology been applied correctly for determining emission reductions ?	VVM Para. 91d PDD Section A.4.4/B.6	DR	Pending to CL#14	CL#14 CL#14 closed Y
B.7.2. Are the emission reduction calculations documented in a complete and transparent manner?	VVM Para. 91e PDD Section B.6	DR	Yes and pending to CL#14	CL#14 CL#14 closed Y
B.7.3. Is the projection based on same procedures as used for later monitoring or acceptable alternative models?	PDD Section B.6	DR	Yes, the projections are consistent in terms of ex ante and ex post estimations. Furthermore, in actual scenario, the additional parameters shall be monitored resulting in actual determinations of CERs in line to the methodology	Y
B.7.4. Is the calculation of the emission reduction correct?	VVM Para. 91e PDD Section B.6	DR	Yes, pending to CL#14 and CL#12, CL#13	CL#12, 13 & 14 closed Y
B.8. Emission Reductions				
B.8.1. Is the form/table required for the indication of projected emission reductions correctly applied?	PDD Section A.4.4/ Section B.6	DR	Yes, the table is correctly applied.	Y
B.8.2. Is the projection in line with the envisioned time	PDD Section A.4.4/ Section B.6	DR	Yes, the implementation schedule in the final PDD Version 07 is consistent with the indicated crediting period.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
schedule for the project's implementation and the indicated crediting period?				
B.9. Monitoring Methodology				
B.9.1. Does the monitoring methodology provide a consistent approach in the context of all parameters to be monitored and further information provided by the PDD? Are all parameters and data that are available at validation consistent with the approved methodology. Has this data been interpreted and applied correctly?	VVM Para. 67e PDD Section B.7-B.8 see also Annex 4	DR DR	CAR#15 was raised as PDD Version 01 were having inconsistencies with regards to the applied methodology. CL#12, 13 and 14 were raised in other sections. However in the final PDD Version 07 they are deemed to be consistent with the sources and with applied methodology.	Y CL#12, 13 & 14 closed Y
B.9.2. Does the monitoring methodology apply consistently the choice of the option selected for monitoring both of project and baseline emissions?	PDD Sections B and C	DR	Yes, the choice of monitoring is consistent for baseline and project emissions.	Y
B.10. Data and Parameters Monitored				
B.10.1. Does the monitoring plan in the PDD comply with the approved	VVM Para. 91a/91d/121/79	DR	Yes, it has been assessed that the final PDD Version 07 a) the parameters required by the selected approved methodology in the context of the project activity are identified	CAR#15 CAR#15 closed

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
methodology provided for the collection and archiving of all relevant data necessary for estimation or measuring the emission reductions within the project boundary during the crediting period?	PDD Section B.7-B.7.2		b) The monitoring plan contains all necessary parameters, that they are clearly described and that the means of monitoring described in the plan complies with the requirements of the methodology; c) The monitoring arrangements described in the monitoring plan are feasible within the project design; d) The means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions achieved by/resulting from the proposed CDM project activity can be reported ex post and verified. This includes applicable data for monitoring the baseline emissions, the project emissions, leakage or if applicable direct monitoring of emission reductions However, CAR#15 was raised to correct inconsistencies.	Y
B.10.2. Are the choices of project GHG indicators reasonable and in conformance with the requirements set by the approved methodology applied?	PDD Section B.7-B.7.2/B.6.2	DR	Pending to CAR#15	CAR#15 CAR#15 closed Y
B.10.3. Will it be possible to determine the specified project GHG indicators?	PDD Section B.6.2-B.8	DR	Pending to CAR#15	CAR#15 CAR#15 closed Y
B.10.4. Is the information given for each monitoring variable by the presented table sufficient to ensure the verification of a proper implementation of the monitoring plan?	PDD Section B.6.2-B.7.1	DR	Pending to CAR#15	CAR#15 CAR#15 closed Y
B.10.5. Is the information given for each monitoring variable by the presented	PDD Section B.6.2-B.7.1	DR	Pending to CAR#15	CAR#15 CAR#15 closed

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
table sufficient to ensure the delivery of high quality data free of potential for biases or intended or unintended changes in data records?				Y
B.10.6. Is the monitoring approach in line with current good practice, i.e. will it deliver data in a reliable and reasonably acceptable accuracy?	PDD Section B.5-B.7.2	DR	Pending to CAR#15 Furthermore, the PDD Version 07 applies ACM0001 Version 11, which is an improved version of the methodology and project activity has suitably adapted the requirements.	CAR#15 CAR#15 closed Y
B.10.7. Are all formulae used to determine project emission clearly indicated and in compliance with the monitoring methodology.	PDD Section B.6.2-B.7.1	DR	Pending to CAR#15	CAR#15 CAR#15 closed Y
B.11. Quality Control (QC) and Quality Assurance (QA) Procedures				
B.11.1. Is the selection of data undergoing quality control and quality assurance procedures complete?	VVM Para. 121 Refer to all data within the PDD Inc. B.6.2-B.7.1	DR	Pending to CAR#15	CAR#15 CAR#15 closed Y
B.11.2. Is the belonging determination of uncertainty levels done correctly for each ID in a correct and reliable manner?	Refer to all data within the PDD Inc. B.4/B.7.2/Annex 4	DR	Pending to CAR#15	CAR#15 CAR#15 closed Y
B.11.3. Are quality control procedures and quality	VVM Para 121	DR	Pending to CAR#15	CAR#15 CAR#15

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
assurance procedures sufficiently described to ensure the delivery of high quality data?				closed Y
B.11.4. Is it ensured that data will be bound to national or internal reference standards?	VVM Para. 86d	DR	Pending to CAR#15	CAR#15 CAR#15 closed Y
B.11.5. Is it ensured that data provisions will be free of potential conflicts of interests resulting in a tendency of overestimating emission reductions?	VVM Para. 19	DR	Pending to CAR#15	CAR#15 CAR#15 closed Y
B.12. Operational and Management Structure				
B.12.1. Is the authority and responsibility of project management clearly described?	PDD Section B.8/Annex 1	DR	Pending to CAR#15	CAR#15 CAR#15 closed Y
B.12.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	PDD Section B.8/Annex 1	DR	Pending to CAR#15	CAR#15 CAR#15 closed Y
B.12.3. Are procedures identified for training of monitoring personnel?	PDD Section B.8/Annex 1	DR	Pending to CAR#15	CAR#15 CAR#15 closed Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.13. Monitoring Plan (Annex 4)				
B.13.1. Is the monitoring plan developed in a project specific manner clearly addressing the unique features of the CDM activity?	VVM Para. 122a	DR	Pending to CAR#15	CAR#15 CAR#15 closed Y
B.13.2. Does the monitoring plan completely describe all measures to be implemented for monitoring all parameter required, including measures to be implemented for ensuring data quality?	VVM Para. 122b	DR	Pending to CAR#15	CAR#15 CAR#15 closed Y
B.13.3. Does the monitoring plan provide information on monitoring equipment and respective positioning in order to safeguard a proper installation?	VVM Para. 122b	DR	Pending to CAR#15 Furthermore, the element requiring the positioning of meters could not be assessed on site and definite information was not available at the time of site visit due to no real efforts been seen on site towards the construction.	CAR#15 CAR#15 closed FAR#15 is raised for this point.
B.13.4. Are procedures identified for calibration of monitoring equipment?	VVM Para. 122a-c	DR	Yes, the calibration will be as per manufacturer recommendations, which would be obtained once the meters are installed and be part of CDM monitoring manual.	Y
B.13.5. Are procedures identified for maintenance of monitoring equipment and installations?	VVM Para. 122a-c	DR	Yes, the thermocouples will be replaced annually and procedures are defined in the PDD version 07 as well as in more detailed fashion in the CDM monitoring manual.	Y
B.13.6. Are procedures identified for day-to-day records	VVM Para.	DR	Yes, it is clearly defined in the PDD Version 07 and CDM monitoring manual.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
handling (including what records to keep, storage area of records and how to process performance documentation)	122a-c			
B.13.7. Are procedures identified for dealing with possible monitoring data adjustments and missing data allowing redundant reconstruction of data in case of monitoring problems?	VVM Para. 122a-c	DR	Yes, it is clearly defined in the PDD Version 07 and CDM monitoring manual.	Y
B.13.8. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	VVM Para.122a-c	DR	Yes, it is clearly defined in the PDD Version 07 and CDM monitoring manual.	Y
B.13.9. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	VVM Para. 122a-c	DR	Yes, it is clearly defined in the PDD Version 07 and CDM monitoring manual.	Y
B.13.10. Describe the ability of the project participants to implement the monitoring plan.	VVM Para. 122c	DR	Yes, it is clearly defined in the PDD Version 07 and CDM monitoring manual. CL#16 was raised in order to obtain how the maintenance and training would undertaken in the project activity.	CL#16 CL#16 closed Y
B.14. Baseline Details				
B.14.1. Is there any indication of a date when determining the	PDD Section B.8/Annex 3	DR	The webhosted PDD contained sufficient information. However, the revised version of the PDD Version 07 applied ACM0001 Version 11 and therefore date has been	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
baseline?			updated.	
B.14.2. Is this consistent with the time line of the PDD history?	Also see revision history of the PDD	DR	Yes it is consistent with the PDD timeline.	Y
B.14.3. Is all data required provided in a complete manner by annex 3 of the PDD?	PDD Annex 3	DR	Yes, in particular the details pertaining to Grid Emission Factor of Thailand grid.	Y
C. Duration of the Project / Crediting Period				
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	VVM Para. 102a-c PDD Section C.1.1/C.1.2	DR	The starting date of the project activity is raised in the CL#09 as 01 November 2009 was considered which was a future date. However, in response it was assessed that 30 March 2009 is the earliest event when the project activity began. The operational lifetime was questioned through CL#18.	CL#09 and CL#18 closed Y
C.1.2. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10 years)?	VVM Para. 102a PDD Section C.2/C.2.1/C.2.2	DR	Yes, the assumed crediting period is reasonable. CL#18 was raised to seek further information and substantiation.	CL#18 closed Y
C.1.3. Does the project's operational lifetime exceed the crediting period	VVM Para. 102a PDD Section C.1.2/C.2.1.1/C.2.1.2	DR	Yes, the project lifetime is consistent with the crediting period.	Y
C.1.4. Does the start date indicate whether this is a new project activity or a	VVM Para. 102a/ 98	DR	The start date in the PDD Version 07, which is validated, affirms that the project activity is a new project activity.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
pre-existing project activity?	PDD Section C.1.1/C.2.1.1			
D. Environmental Impacts				
D.1.1. Does the project comply with environmental legislation in the host country?	VVM Para. 131 PDD section D	DR	CL#19 was raised to derive information as what is applicable on the project activity.	CL#19 CL#19 closed Y
D.1.2. Has an analysis of the environmental impacts of the project activity been sufficiently described?	VVM Para. 131 PDD section D	DR	Yes, it has been sufficiently described.	CL#19 CL#19 closed Y
D.1.3. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	VVM Para. 131 PDD section D	DR	There are no such requirements established by Government for the project activity having size less than 10 MW. It is noteworthy to mention that there are two host participants in the project activity which would own 8 MW each therefore, EIA is not required.	CL#19 CL#19 closed Y
D.1.4. Will the project create any adverse environmental effects?	VVM Para. 131 PDD section D	DR	It does not appear that project activity will have adverse environmental effects and have been sufficiently described in the PDD.	Y
D.1.5. Are trans-boundary environmental impacts considered in the analysis?	VVM Para. 131 PDD section D	DR	The IEE conducted for the project activity reveals that project activity contributes to the sustainable development rather.	Y
D.1.6. Have identified environmental impacts been addressed in the project design?	VVM Para. 131 PDD section D	DR	There are no adverse impacts expected and appropriate mechanism viz. for leachate management etc. is already identified.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
E. Stakeholder Comments				
E.1.1. Have relevant stakeholders been consulted?	VVM Para. 128a PDD Section E.1	DR	Yes, the relevant stakeholders, as described in the PDD have been consulted. CL#20 was raised to substantiate the arguments in the PDD.	CL#20 CL#20 closed Y
E.1.2. Have appropriate media been used to invite comments by local stakeholders?	VVM Para. 128a PDD Section E.1	DR	Direct invitations, information in local news paper has been used, which is appropriate. CL#20 was raised to substantiate further.	CL#20 CL#20 closed Y
E.1.3. Is the undertaken stakeholder process described in a complete and transparent manner?	VVM Para. 128b PDD Section E.1	DR	Yes, the stakeholders process has been taken in transparent manner.	LAC Y
E.1.4. Is a summary of the stakeholder comments received provided?	VVM Para. 128b PDD Section E.2	DR	Yes, CL#20 was raised to provide the same and it has been confirmed that the same information was also used to obtain LoA.	Y
E.1.5. Has due account been taken of any stakeholder comments received?	VVM Para. 128b PDD Section E.3	DR	Yes, as there has been largely the positive remarks towards the project activity.	Y

References

Reference ID	Title / Description	Comments
1	PDD Version 01	Webhosted PDD
2	ACM0001 Version 10 and Version 11	Applied Methodology
3	Guidelines Project Design Document (CDM-PDD) and the Proposed new baseline and monitoring methodologies (CDM-NM)	EB 41 Annex 12 Version 07
4	VVM Version 1 and Version 1.1	For validation reference and compliance
5	Tool for the demonstration and assessment of additionality	For Additionality demonstration
6	Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site	For ex ante baseline emissions
7	Tool to calculate baseline, project and/or leakage emissions from electricity consumption	For BE, PE due to electricity import and export in the project activity
8	Tool to determine project emissions from flaring gases containing methane	For PE determination due to flaring of LFG
9	Tool to calculate the emission factor for an electricity system	For determining Grid Emission Factor of Thailand Grid

A.3 Annex 3: Overview of Findings

Findings Overview Summary

	CARs	CLs	FARs
Total Number raised	05	15	02

Date:	28/04/2009		Raised by:	Ashok Kumar Gautam		
Type:	CL	Number:	01	Reference:	Table 1, item No.1	
Lead Assessor Comment:				Date: 28/04/2009		
<u>Letter of Approval</u> Letter of approval from Thailand DNA (TGO) and UK DNA are required to be submitted by the project proponent.						
Project Participant Response:				Date: 20/05/2009		
An application for approval has been made to the Thailand DNA. Approval from the UK DNA will be sought after approval has been received from the Thailand DNA. Copies of both Letters of Approval will be provided to SGS as soon as they are received from the respective DNAs.						
Documentation Provided by Project Participant:						
Not yet provided						
Information Verified by Lead Assessor:						
The process is underway for LoA from TGO and UK DNA						
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 15/06/2009		
CL Open						
Project Participant Response:				Date: 02/11/2009		
The LoA from Annex 1 and Non Annex 1 Party is provided.						
Documentation Provided by Project Participant:						
LoAs Bangkok East						
Information Verified by Lead Assessor:						
The LoAs are consistent with the project title, project participants and meets the required criteria.						
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 03/12/2009		
As the host Party LoA and LoA from UK DNA are appropriate in the context of the PDD, CL#01 is closed out.						
Acceptance and Close out by Lead Assessor:				Date: 03/12/2009		

Date:	28/04/2009		Raised by:	Ashok Kumar Gautam		
Type:	CL	Number:	02		Reference:	A.3.2
Lead Assessor Comment:				Date: 28/04/2009		
<u>Modalities of Communication</u> Please provide the letter on the modalities of communication (MoC) of the project proponents the format as per EB 45 Annex 60.						
Project Participant Response:				Date: 18/05/2009		
The form for fixing the modalities of communication will be submitted until finalisation of the validation.						
Documentation Provided by Project Participant:						
Not yet provided.						
Information Verified by Lead Assessor:						
Will be provided at later stage therefore could not be verified.						
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 15/06/2009		
CL Open						
Project Participant Response:				Date: 11/11/2009		
The duly signed MoC is provided						
Documentation Provided by Project Participant:						

The MoC dated 30/10/2009	
Information Verified by Lead Assessor:	
The MoC is consistent with Annex 1 of PDD	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 03/12/2009
The CL#02 is closed out as the MoC is consistent and appropriate.	
Acceptance and Close out by Lead Assessor:	Date: 03/12/2009

Date:	28/04/2009		Raised by:	Ashok Kumar Gautam		
Type:	CL	Number:	03		Reference:	A.3.2
Lead Assessor Comment:				Date: 28/04/2009		

Project Proponent
Need to clarify the contact person for one of the project participants (Ms Thanatda Visanyapong) since this name and same contacts appear for two different companies (Bangkok Greenpower Co. Ltd. & Central Waste Development Co. Ltd.) listed in the PDD. In addition to this, the DOE observed that the same person is also the representative for a third company (Dynamic Energy Co. Ltd.) in a webhosted PDD for another CDM project. (refer webhosted PDD for Chiang Mai available at <http://cdm.unfccc.int/Projects/Validation/DB/HTH6MAYAOFF3D0G9Y8STXOWOMRKL6SQ/view.html>.)
Sindicatum Carbon Capital Ltd. is a party in both the project in question. Please clarify.

Project Participant Response: **Date:** 26/06/2009
In response, it was identified that Bangkok Greenpower Co., Ltd and Central Wastewater Development Co., Ltd has given Power of Attorney ^{14,15/} to Ms Thanatda Visanyapong. The Central Wastewater Development Company Limited and were replaced by PS Natural Energy Co. Ltd. and Xentolar Holdings Ltd. for proposed project activity.

Documentation Provided by Project Participant:

50018_47 BKK East Power of attorney
50018_48 BKK East Power of attorney

Information Verified by Lead Assessor:

Central Wastewater Development Company Limited and Bangkok Greenpower Co Ltd. has given Power of Attorney to Ms Thanatda Visanyapong. The CWDCL is replaced by PS Natural Energy Co. Ltd. and Xentolar Holdings Ltd. for project activity.

Reasoning for not Acceptance or Acceptance and Close Out: **Date:** 02/09/2009
Please provide letter of voluntary withdrawal in line to EB30 para 41 for the project proponent listed in the PDD Version 01 webhosted and reason for change of Non Annex 1 participants from SCC to XHL. CL#03 Open.

Project Participant Response: **Date:** 02/09/2009
The letter of withdrawal from CWDCL is enclosed. Further the reasoning for change of Non Annex 1 project participants (SCC to XHL) is enclosed.

Documentation Provided by Project Participant:

Letter dated 02/09/2009 from CWDCL for voluntary withdrawal
Letter dated 17/06/2009 from XHL for change of PP from SCC to XHL.

Information Verified by Lead Assessor:

The information is verified and found OK

Reasoning for not Acceptance or Acceptance and Close Out: **Date:** 19/10/2009
The removal of CWDCL is accepted vide letter dated 02/09/2009. However, as per EB50 Annex49 para 7, 8, 9 by removal of SCC as PP, and understanding the DOE has contractual obligation with SCC only, re-webhosting will be required and contract after the termination of contract.
CL#03 Open

Project Participant Response: **Date:** 31/10/2009
The PDD has been revised to Version 05 and includes the name of SCC again as PP, and the contract with DOE is not yet terminated and still effective.

Documentation Provided by Project Participant:

PDD Version 05 dated 21/10/2009	
Information Verified by Lead Assessor:	
The information is verified and found OK	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 03/12/2009
It has been verified that CWDCL has been removed from the PDD Version 05 and introduction of XHL has been made in the PDD Version 05. Further, SCC has been re-introduced as the project proponent. The Letter of Approval for both non Annex 1 Party i.e. XHL and SCC is provided. Therefore, CL#03 is closed out.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 03/12/2009

Date:	27/04/2009	Raised by:	Ashok Kumar Gautam		
Type:	CAR	Number:	04	Reference:	
Lead Assessor Comment:				Date: 27/04/2009	
Geographical Coordinates of the Project Activity					
Regarding to the PDD, the geographical coordinates of the project activity is mentioned as 14° 03'58.52" N 99°56'45.21"E. However, the coordinate shown in the figure A.4.1.4 is 14° 04'02.29" N 99°56'46.65"E which is not matching, please justify.					
Project Participant Response:				Date: 18/05/2009	
The coordinate shown on the bottom left in figure A.4 (14° 04'02.29" N 99°56'46.65"E) is NOT the geographical coordinate of the project. It is the coordinate of the intersection point of the 2 diagonal lines drawing from the edges of the map given by Google Earth. The line specifies the intersection point coordinate has been deleted from the picture in the PDD.					
Project participants have appointed new geographical coordinate of the project activity to be 14° 3'50.62"N 99°56'50.96"E. The PDD has been revised accordingly					
Documentation Provided by Project Participant:					
PDD section A.4.1.4					
Information Verified by Lead Assessor:					
The coordinates are consistent.					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 15/06/2009	
In revised PDD the coordinates are found consistent therefore CAR#04 closed out.					
Acceptance and Close out by Lead Assessor:				Date: 15/06/2009	

Date:	28/04/2009		Raised by:	Ashok Kumar Gautam		
Type:	CL	Number:	05	Reference:	A.4.3	
Lead Assessor Comment:				Date: 28/04/2009		
<u>Project Participants Possess Ownership or Licenses</u> The documentary evidence support on project participant posse ownership or licenses which allow the implementation of the project at site is required to be provided. a) Implementation schedule for the project activity is required. Kindly provide the same. b) Consent to establish and other regulatory permission are needed for the project activity						
Project Participant Response:				Date:18/05/2009		

In parallel with validation process, project participants are currently in the application process to get various required permits from the authorized governmental bodies in Thailand. The licences in the process of application are; 1. Power Purchase Agreement (PPA) 2. Ministry of Industry License 3. Local Authority Construction License 4. Generating License (it can only be proceeded after the establishment of PPA and Ministry of Industry License)	
Documentation Provided by Project Participant:	
Not provided at this stage.	
Information Verified by Lead Assessor:	
Not yet verified. Will be verified once they are available from PP.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 15/06/2009
CL Open.	
Project Participant Response:	Date: 26/06/2009
The mentioned licenses have not been obtained yet. They will be obtained before the project starts as the requirement prior to the operation of the project. Project Participants would like to request to convert CL 05 into FAR	
Documentation Provided by Project Participant:	
50018_49 BKK East implementation schedule	
Information Verified by Lead Assessor:	
The implementation schedules is checked and found OK with expected commissioning date.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 04/07/2009 & 26/07/2009
Kindly provide the evidences that efforts are made to procure these licences. From the implementation schedule, it appears the PPA etc. will be issued to SCC. Please clarify, as SCC is no longer PP. Also it is not clear when the Gas Engines will be obtained (Purchase order, expected delivery) and when the LFG collection system as part of project activity is/will be initiated and commissioned.	
Project Participant Response:	Date: 04/08/2009

- a) For the evidences proving that efforts are made, project participant(s) have obtained:
- 1.1 Power Purchase Agreement (PPA) Letter of Approval (LoA) issued by the Provincial Electricity Authority (PEA)
 - 1.2 Thailand Board of Investment Approval and its application acknowledgement
- b) The implementation schedule has been revised. The project participant(s) have been changed. All the related documents and permits are and will be issued for related project participants of the project. Explanation on the changing of project participants is as follows: :
- a. The structure of the involvement between the parties has developed during the period from which documentation is being sought for validation – and in general correspondence the names have often been used interchangeably.
 - Sindicatum Carbon Capital is replaced by Xentolar generally through documentation – some historical documents will still refer to SCC, because these were written before the project commercial structure was fixed.
 - Sindicatum Carbon Capital continues to have a role in development and management of the project, including management of the CDM Cycle, through its Singapore subsidiary SCC South East Asia limited.
 - The project companies were formed during the development process and are: Zenith Green Energy (Bangkok West) Progress Energy Co., Ltd. (Bangkok West), Bangkok Greenpower (Bangkok East) PS Natural Energy Co., Ltd (Bangkok East) and Dynamic Energy (Chiangmai). All of these were originally represented by GRTE so, prior to their formation correspondence, reports, contracts etc may have referred to GRTE. These companies were not all formed at once, so some documentation refers selectively to them. Generally all contracts for equipment, the project loans, and permits are with these companies.
- c) The invoice of gas engine (GE Jenbacher J 320) is dated on 25 June 2009. The LFG collection system was initiated at 30 Oct 2008 by the activity of the completion of Gas Extraction System Design & Specification. It will be commissioned at 2 November 2009 by the activity of Connection of Gas Wells to Gas Collection Carrier Pipes System.

Documentation Provided by Project Participant:

- a)
- 1.1 50018_80 PPA LoA for Zenith and Bangkok Green
 - 1.2 50018_79 BOI Application Acknowledgement - Zenith and BKK Green
50018_82 BOI-EAST
- b)
- 50018_89 BKK East revised implementation schedule
 - 50018_81 Bangkok Green ProjCo2 Loan
- c) 50018_89 BKK East revised implementation schedule

Information Verified by Lead Assessor:

The provided documents were verified and found OK

Reasoning for not Acceptance or Acceptance and Close Out:

Date: 15/08/2009

The efforts are made by the project companies to obtain the requisite licences and permit. Further, it has been assessed that these requirements are necessary for project implementation but not necessarily at the time of validation. The invoice of gas engine is checked from the quoted letter and found OK. Therefore, CL#05 is converted to FAR#05 and shall be verified by another DOE at the time of first verification.

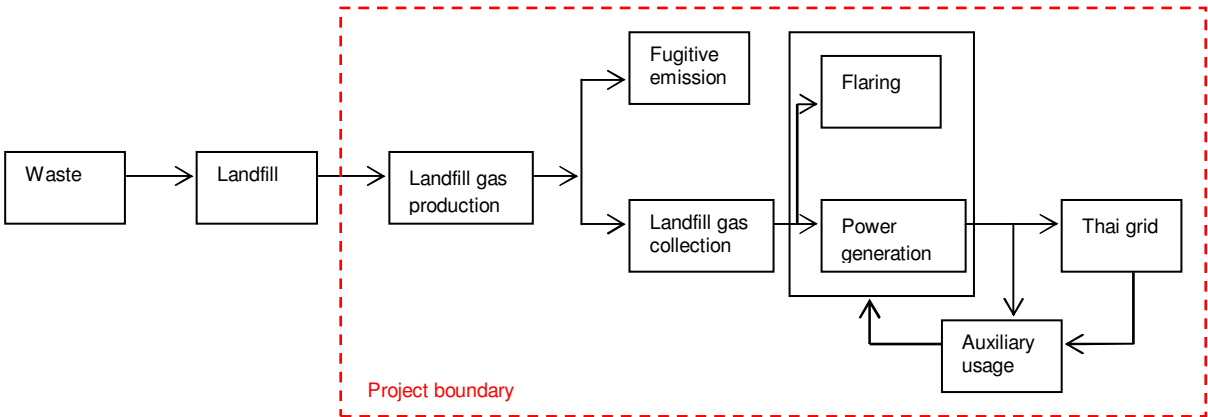
Acceptance and Close out by Lead Assessor:

Date: 15-08-2009

Date:	28/04/2009		Raised by:	Ashok Kumar Gautam		
Type:	CL	Number:	06		Reference:	A.5.1
Lead Assessor Comment:				Date: 28/04/2009		

Public Funding	
The proof of no public funding or Official Development Assistance (ODA) in this project activity and source of financial data of the project activity is to be submitted.	
Project Participant Response:	Date: 18/05/2009
The declaration of no public funding or Official Development Assistance (ODA) is available. It is submitted as the attachment of this response.	
Documentation Provided by Project Participant:	
BKK East 01. Letter from Xentolar Holdings including declarations by Xentolar Holdings and Bangkok Greenpower Co. Ltd., that no ODA is involved	
Information Verified by Lead Assessor:	
The above letter clearly indicates that there is no ODA involved in the project.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 15/06/2009
It is not clear how Xentolar Holdings is related with PP. Please submit documentary evidences for the same. CL Open	
Project Participant Response:	Date: 26/06/2009
Xentolar Holdings Limited has been incorporated as project participant. The incorporation allows Xentolar Holdings Limited to declare that no Official Development Assistance (ODA) is involved in the project. Xentolar Holdings Limited is a fund investment vehicle operating capacity in Cyprus. All fund investments are managed by the fund management company from Singapore. The indicated annex 1 non-host country for Xentolar Holdings Limited is United Kingdom (UK). UK DNA confirmed that they will issue a letter of an approval for a Cyprus based company.	
Documentation Provided by Project Participant:	
Revised PDD	
Information Verified by Lead Assessor:	
Xentolar Holdings Ltd. is now PP.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 03/07/2009
As Xentolar is project participant therefore, and undertaking by them is considered appropriate, further it has been discussed on site that there is no public funding involved in the project activity. CL#06 is closed out.	
Acceptance and Close out by Lead Assessor:	Date: 03/07/2009

Date:	28/04/2009	Raised by:	Ashok Kumar Gautam
Type:	CL	Number:	07
Reference:	B.1.4		
Lead Assessor Comment:		Date: 28/04/2009	
Choice and Applicability Please provide the technical data sheet for flaring mechanism and electricity generation proposed for the project activity			
Project Participant Response:		Date: 18/05/2009	
The technical data sheet for electricity generation set JGS 320 GS-L.L is available. It is provided by its manufacturer. The technical data sheet for flaring mechanism is available.			
Documentation Provided by Project Participant:			
BKK East 02. Generator set specification BKK East 03 Flare set specification			
Information Verified by Lead Assessor:			
Engine capacity as 1.063 MWe on page7/69 and Flare capacity as 2000 Nm3/h on page 1/17			
Reasoning for not Acceptance or Acceptance and Close Out:		Date: 15/06/2009	
The information in PDD is found consistent with provided documents therefore, CL#07 closed out.			
Acceptance and Close out by Lead Assessor:		Date: 15/06/2009	

Date:	28/04/2009	Raised by:	Ashok Kumar Gautam		
Type:	CL	Number:	08	Reference:	B.3.3
Lead Assessor Comment:			Date: 28/04/2009		
Project boundary & Identification of the Baseline Scenario					
a) The project boundary is not clear for depicted auxiliary usage and the direction of flow from Grid is not clear. Please provide an appropriate diagram for project activity b) Please substantiate that waste would have been dumped at the same site to rule transportation emissions out c) Please substantiate that there are no regulations or policies governing the release of LFG into the atmosphere as written in Sub-step 1b d) Please substantiate that feeding power from LFG to Grid is as per law and necessary documentary evidence for the designated electricity generation capacity.					
Project Participant Response:			Date: 18/05/2009		
a) The revised diagram of project activity & boundary  b)) The total amount of waste contracted as Employment Agreement no. SorNorRor. 54/2547 between Bangkok Metropolitan Administration and Group 79 Co., Ltd to transport and dispose of waste from Nhong-Kham waste disposal factory by sanitary landfill phase 2 is 7,269,651 ton for a period of 10 years. The waste would have been dumped in the same site, following the above agreement. c) The Thailand legislation governing operation of a landfill is the Public Health Act B.E.2535. It states that local administrative body has the authority to establish its own regulations regarding issuance of the license to operate the landfill. For the Bangkok East project, Tung Bua Sub-district Administrative Organization, the local administrative in whose area the landfill is located, currently has not set out any specific regulations relating to issuance of the license, including regulation or policy governing the release of LFG into the atmosphere. d) In Thailand, national laws regulating electricity generation do not interfere with the construction of power plants, either producing electricity for internal use or providing power to the grid. National Energy Policy Council (NEPC) on 4th September 2006, prescribes the increasing quantity of power purchase from Very Small Power Producer for generating electricity of renewable energy and primary commercial energy in Cogeneration System. It will raise non-conventional renewable energy such as LFG utilization to produce electricity.					
Documentation Provided by Project Participant:					
a) section B3 PDD b) BKK East 04 waste contract c) BKK East 05 Letters of Thung Bua_Correctness of Licences (3) d) BKK East 06 Announcement of Provincial Electricity Authority, http://www.pea.co.th/vspp/vspp/Announce.pdf					
Information Verified by Lead Assessor:					

a) The project boundary is found OK the revised PDD V2	
b) Under clause 1.1 the information is clear	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 15/06/2009
a) The revised PDD incorporates clear project boundary, which is accepted. OK	
b) The document is English translation, please provide the signed copy of this agreement in particular the section 1.1	
c) The information is in local language. An English translation of this letter is requested.	
d) The information is in local language. An English translation of this letter is requested.	
CL#08 is open due to point 'b', 'c' and 'd'	
Project Participant Response:	Date: 26/06/2009
b) The signed copy of the agreement is attached to this response and available as 50018_52 BKK East BMA Waste Tipping Agreement - Wasaduphan Turakit in Thai in the reference.	
c) The English translation of the Letters of Thung Bua_Correctness of Licences is attached to this response. It is available as 50016_6 BKK East 05.1 (translation) Letter of Thung Bua re license of group 79-English. Additionally, Public Health Act B.E.2535 is also attached. It is available as 50018_27 BKK East 05.2 Public Health Act B.E.2535 (English)	
d) The English translation of Announcement of Provincial Electricity Authority is attached to this response. It is available as 50018_50 BKK East Announcement of Provincial Electricity Authority	
Documentation Provided by Project Participant:	
b) 50018_52 BKK East BMA Waste Tipping Agreement - Wasaduphan Turakit	
c) 50018_26 BKK East 05.1 (translation) Letter of Thung Bua re Licence of Wasaduphan Turakit – English	
50018_27 BKK East 05.2 Public Health Act B.E.2535 (English)	
d) 50018_50 BKK East Announcement of Provincial Electricity Authority	
Information Verified by Lead Assessor:	
The waste tipping agreement has been verified and found that there are no mandatory requirements to burn the LFG. The quoted reference Public Health Act B.E.2535 also sets free the owner/operator of landfill sites for the usage of LFG and does not mandate the burning of LFG.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 03/07/2009
d) The policy announcements is regarding the cogeneration system as evident from S. No. 2,3,5,6. Please clarify how this announcement is relevant to Gas Engines, which will be installed in the project activity. (consider cogeneration system in policy announcement)	
CL#08 Open.	
Project Participant Response:	Date: 04/08/2009
The reference given for the 26/06/2009 validation protocol is wrong. The correct reference has been incorporated in this 3 rd response. The correct reference (050018_78 VSPP regulation), on page 2, section B point 2 sub point 2.3 states that the characteristic of power generating processes of Very Small Power Producers (VSPP) is electricity generated by the municipal waste.	
Documentation Provided by Project Participant:	
050018_78 VSPP regulation	
Information Verified by Lead Assessor:	
The VSPP regulation provided is verified and found OK.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 15/08/2009

It has been assessed that there are no regulations existing in Thailand that mandates the combustion/flaring of gas and energy from MSW/LFG is within the VSPP and is not constrained by any law. Furthermore, Government of Thailand rather gives an adder on such generation in order to make it attractive for investors or power producers. CL#08 is closed out.	
Acceptance and Close out by Lead Assessor:	Date: 15/08/2009

Date:	28/04/2009	Raised by:	Ashok Kumar Gautam		
Type:	CL	Number:	09	Reference:	B.4.4, C.1.4
Lead Assessor Comment:				Date: 28/04/2009	
<u>Starting Date and CDM Serious Consideration</u>					
a) As mentioned in section C.1.1 of the PDD, the starting date of the project activity is indicated as 01 November 2009. As this is future date kindly provide on what basis this has been considered as project starting date, in particular, with reference to EB41 paragraph 67.					
b) It is not clear what happened after the Feasibility study conducted in Dec 2007. Please provide the chronology of events from the feasibility study conducted in Dec 2007 till date. Also comment how the decision to proceed with validation of the project activity was conceived and by whom.					
b) Please substantiate as the project activity start date and crediting period start date have a gap of only 1 month, will it be possible to completely implement the project activity in this time span?					
Project Participant Response:				Date: 18/05/2009	

a) Taking into account the definition of starting date as the earliest date at implementation of a project activity begins, the starting date is 30 March 2009 which is the payment of THB 85,000,000 (eighty five million THB) from Barclay to Xentolar Holding Limited in favour of project participant Bangkok Greenpower Co Ltd for gas right payment

b) The chronology event is as follows:

Date	Description	Amount transacted	Evidence
Apr-08	Feasibility study done by Royal Haskoning		
Jun-08	Sindicatum began involvement.	Nil	
Jul-08	Closing to start 3 month due diligence	50 mil THB (refundable if project does not go ahead)	Security Deposit Agreement, Fee receipt for bank guarantee.
Aug-08	Due Diligence	Nil	
Sep-08	Due Diligence	Nil	
Oct-08	Due Diligence	Nil	
Nov-08	SCC Board Internal Approval - Conditional approval with conditions for renegotiations		
Dec-08	Commercial negotiations	Nil	
Jan-09	Commercial negotiations	Nil	
Feb-09	Commercial negotiations	Nil	
14 Mar 09	Submission for validation		
30 Mar 09	Financial closure of Bangkok East	THB 85,000,000	Bank transfer for Gas rights payment

There is no feasibility study conducted in December 2007. The decision to proceed to validation was conceived as the procedure in the CDM stages by the project participants

c) Since the starting date has been revised to 30 March 09, the gap between the starting date and the crediting period is no longer 1 month. 8 months gap shows the possibility to implement the project realistically in this time span.

Documentation Provided by Project Participant:

a) BKK East 07 starting date payment Greenpower

Information Verified by Lead Assessor:

As mentioned below

Reasoning for not Acceptance or Acceptance and Close Out: **Date:** 15/06/2009

- a) Kindly clarify the linkage between Xentolar Holdings Ltd. and PP.
- b) Please substantiate chronology with documentary evidences that can be validated
- c) Kindly provide the project implementation schedule to establish that crediting period start date is reasonable.
- d) Please include timing when PP decided/resolved to undertake the proposed project activity

CL#09 Open

Project Participant Response: **Date:** 26/06/2009

a) Xentolar Holdings Limited, which is investing in the project activity has now been added as project participant. Xentolar Holdings Limited is a fund investment vehicle operating capacity in Cyprus. All fund investments are managed by the fund management company from Singapore. The indicated annex 1 non-host country for Xentolar Holdings Limited is United Kingdom (UK) b) Documentary evidences that substantiate the chronology are: • Royal Haskoning Report dated April 2008 which is available as 50018_51 BKK East Royal Haskoning report • Due diligence done by project participant dated September 2008 which is available as 50018_04 SCC Due Diligence Report • DoE (SGS) has received the documents for validation on the respected date (14 Mar 2009) • payment of THB 85,000,000 (eighty five million THB) from Barclay to Xentolar Holding Limited in favour of project participant Bangkok Greenpower Co Ltd is available as 50018_29 BKK East 07 starting date payment Greenpower c) project implementation schedule is attached to this response and available as 50018_49 BKK East implementation schedule d) The timing when project participants decided to progress the proposed project activity is SCC Board Internal Approval - Conditional approval with conditions for renegotiations, dated in November 2008	
Documentation Provided by Project Participant:	
b) 50018_51 BKK East Royal Haskoning report 50018_04 SCC Due Diligence Report 50018_29 BKK East 07 starting date payment Greenpower c) 50018_49 BKK East implementation schedule	
Information Verified by Lead Assessor:	
As below	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 03/07/2009 & 26/07/2009
a) It is not clear for what purposed THB 50 million was paid by Xentolar and what is the fate of this money b) Due diligence is done by SCC but they are not PP any longer so response to b) second bullet is not appropriate. It is also not clear regarding the purpose of THB 85 million from the evidence. Please provide the documentary evidence that it is related to project activity c) OK d) The resolution is taken by SCC, which is no longer PP, in that regard, please demonstrate the project activity seriously considered CDM by PP. Further, it is not clear, how SCC took that decision and in what capacity. Please provide a clear outline regarding the project proponent CDM awareness, serious CDM consideration and parallel efforts to secure CDM, if applicable.	
Project Participant Response:	Date: 04/08/2009

Date	Description	Amount transacted	Evidence
Apr-08	Feasibility study done by Royal Haskoning		
Jun-08	Sindicatum began involvement.	Nil	Security Deposit Agreement, Fee receipt for bank guarantee.
Jul-08	Closing to start 3 month due diligence	50 mil THB	
Aug-08	Due Diligence	Nil	
Sep-08	Due Diligence	Nil	
Oct-08	Due Diligence	Nil	
Nov-08	SCC Board Internal Approval - Conditional approval with conditions for renegotiations		
Dec-08	Commercial negotiations	Nil	
Jan-09	Commercial negotiations	Nil	
Feb-09	Commercial negotiations	Nil	
14 Mar 09	Submission for validation		
30 Mar 09	Financial closure of Bangkok East	THB 85,000,000	
a) THB 50 was a non refundable security deposit that Xentolar paid to GRTE (a sister company to the project companies) to secure an exclusivity period during which Xentolar and Sindicatum Carbon Capital carried due diligence on all the Landfills to see if we wanted to invest in the projects (note that this covered was for both landfills). The exclusivity period lasted from late July until early November 2008 Xentolar did not proceed with the projects at the end of the exclusivity period, and there was a risk that the THB 50 million would been forfeited (in fact we disputed that we had been provided accurate information about the landfills, and claimed that the 50 should returned to Xentolar and Sindicatum Carbon Capital). Xentolar / Sindicatum Carbon Capital continued to negotiate with GRTE / Project companies and eventually reached agreement under which Xentolar invested in the projects and had its 50 million refunded to it. At the time the deposit agreement was made, Zenith was the project company for both Bangkok Kamphaeng Saen East and West.			
b) Due diligence is done on behalf of Sindicatum Carbon Capital. Due to commercial structuring, at that time, project participant(s) had not been changed. Explanation on the changing of project participants is as follows: • The structure of the involvement between the parties has developed during the period from which documentation is being sought for validation – and in general correspondence the names have often been used interchangeably. • Sindicatum Carbon Capital is replaced by Xentolar generally through documentation – some historical documents will still refer to SCC, because these were written before the project commercial structure was fixed. • Sindicatum Carbon Capital continues to have a role in development and management of the project, including management of the CDM Cycle, through its Singapore subsidiary SCC South East Asia limited.			

- The project companies were formed during the development process and are: Zenith Green Energy (Bangkok West) Progress Energy Co., Ltd. (Bangkok West), Bangkok Greenpower (Bangkok East) PS Natural Energy Co., Ltd (Bangkok East) and Dynamic Energy (Chiangmai). All of these were originally represented by GRTE so, prior to their formation correspondence, reports, contracts etc may have referred to GRTE. These companies were not all formed at once, so some documentation refers selectively to them. Generally all contracts for equipment, the project loans, permits are with these companies

The payment of THB 85 million outlined in table and dated 30 March 2009 is gas agreement payment. It is described in the Facility Agreement for THB 370,170,000 and Euro 880,000 Term Loan Facility in relation to a CDM Project between Bangkok Greenpower Company Limited as borrower and Xentolar Holdings Limited as Lender, dated 24 March 2009

d) The explanation of changing project participant(s) can be found in previous response (point b above). It is clear that Sindicatum Carbon Capital took decisions in the capacity of project participant because the commercial structure was not fixed. The PDD development and the validation process prior to the starting date are the demonstrations of serious consideration of CDM prior to the starting date.

Documentation Provided by Project Participant:

- a) 50018_86 Security Deposit Agreement
50018_87 50 mil THB Acknowledgement against Loan
- b) 50018_81 Bangkok Green ProjCo2 Loan page 44 (for payment of THB 85,000,000)

Information Verified by Lead Assessor:

The referred document for start date is found valid and appropriate.

Reasoning for not Acceptance or Acceptance and Close Out: **Date:** 03/12/2009

The project activity start date is found to be the earliest event as per EB41 para 67 and therefore accepted. It has been checked from the Bangkok Green ProjCo2 Loan page 44, which stipulates the payment condition. SCC is included as PP therefore study taken by them accepted. It has been demonstrated that project activity decision has been taken by PS Natural and Bangkok Greenpower, after the Loan has been sanctioned by Xentolar Holdings Ltd. Therefore, it is accepted and further the project activity start date is after the webhosting of the PDD, there is no need to investigate the prior CDM consideration in detail as it is a Greenfield project. CL#09 closed out.

Acceptance and Close out by Lead Assessor: **Date:** 03/12/2009

Date:	28/04/2009		Raised by:	Ashok Kumar Gautam		
Type:	CL	Number:	10		Reference:	B.4.5
Lead Assessor Comment:				Date: 28/04/2009		

<u>Spreadsheet of Financial Calculations</u> a) The timing of serious CDM consideration is not known yet. Please provide the same to check the consistencies of the financial assumptions in terms of timings b) Kindly provide the reference for considered Risk Free Rate and its appropriates to the project activity c) How the values have been derived for Market Risk Premium and Country Risk Premium, please provide the exact basis of computation or reference d) Kindly provide the reference for considered Size Premium, Gearing ratio (Debt and Equity) e) It is not clear which ratio is considered for the project activity 65:35 or 75:25 (E:D). Please clarify f) The source information for Borrowing rate and Tax rate considered in spreadsheet g) Please provide the source of unlevered beta considered as 0.95, refer exact source of information or the computation methodology h) Please substantiate this model is a standard accounting practice for derivation of WACC i) The documentary evidence for tax and non tax period. j) Please justify how the NPV calculation are reasonably consistent with project activity lifetime k) Please provide the basis for expenditure considered for sensitivity analysis, documentary evidence for the base case expenditure and its breakup	
Project Participant Response: The explanation on the changing of project participants is as follows: • The structure of the involvement between the parties has developed during the period from which documentation is being sought for validation – and in general correspondence the names have often been used interchangeably. • Sindicatum Carbon Capital is replaced by Xentolar generally through documentation – some historical documents will still refer to SCC, because these were written before the project commercial structure was fixed. • Sindicatum Carbon Capital continues to have a role in development and management of the project, including management of the CDM Cycle, through its Singapore subsidiary SCC South East Asia limited. • The project companies were formed during the development process and are: Zenith Green Energy (Bangkok West) Progress Energy Co., Ltd. (Bangkok West), Bangkok Greenpower (Bangkok East) PS Natural Energy Co., Ltd (Bangkok East) and Dynamic Energy (Chiangmai). All of these were originally represented by GRTE so, prior to their formation correspondence, reports, contracts etc may have referred to GRTE. These companies were not all formed at once, so some documentation refers selectively to them. Generally all contracts for equipment, the project loans, permits are with these companies It is clear that Sindicatum Carbon Capital took decisions in the capacity of project participant because the commercial structure was not fixed. The PDD development and the validation process prior to the starting date are the demonstrations of serious consideration of CDM prior to the starting date.	Date: 04/08/2009
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 06/12/2009

With regard to EB51 para 68 (subsidies derived from E- policies) the given responses to item k above raise a further issue: While taking out gas right fees from the financial additionality discussion according to EB51, annex 58 (Guidance on the Assessment of Investment Analysis) in further revisions of the PDD following the one which was made publicly available at the start of the validation, the project participants also subtracted a renewable adder (THB 2.5/kWh) available for the proposed project activity which is valid for 7 years from date of commissioning. The project participants referred to an E- Policy of the host country, Thailand, according annex 3 of EB22, when taking out this adder. The project participants are requested to provide a justification why this renewable adder can be considered as E-Policy, which enables its consideration during the baseline identification. CL#10 Open	
Project Participant Response:	Date: 14/12/2009
In order to address these concerns we decided to revise the PDD once again by switching to a barrier analysis which is applied in compliance with the GUIDELINES FOR OBJECTIVE DEMONSTRATION AND ASSESSMENT OF BARRIERS version 1.0 published only recently in Annex 13 to EB 50. When identifying the possible scenarios according to step 1 of the applied methodology only two scenarios which were remaining, i.e. the continuation of the current situation (release of methane to the atmosphere) and the project implemented without CDM, it is also necessary to realize to which entity these scenarios are applicable. The original PDD used the perspective of the final investor, Sindicatum Carbon Capital (SCC) or its subsidiaries respectively when discussion the financial additionality. Considering the guidance given by the new guideline, it is now demonstrated that SCC is a company purely dedicated to CDM activities and hence not related to the scenario of project implementation without CDM. Also the other local project participants are newly built entities which have been set up only for the purpose of realising this activity under the CDM. For correcting this aspect it is necessary taking up the perspective of the only entity that could have performed the project without CDM, the landfill operator, Wasaduphan. There was a verifiable investment barrier to Wasaduphan, which would have prevented the project activity being developed and implemented. Only by using the contractual opportunity to transfer the rights to collect and utilize the gas and the right to claim CERs it has been possible to attract the project participants as investors in this emission reduction activity. More details are provided within the final PDD.	
Documentation Provided by Project Participant:	
a. revised PDD, 050016 Kamphaeng Saen East PDD vers 7 dated 23/12/2009. b. financial statement Wasaduphan c. financial statement Group 15	
Information Verified by Lead Assessor:	
It has been verified that the retained earnings of the companies Wasaduphan and Group 15 are not sufficient to meet the expected project cost.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 11/01/2010
- Kindly provide the incorporation certificates of the project participants (in host country) and the parent companies managing landfills are engaged for last 20 years in the business of Landfill operation as indicated in the revised PDD dated 23/12/2009. - Please provide clearly the relevant text/section in the Loan Agreement with separately with each host project participants that loan by lender XHL has been disbursed considering CDM benefits (in line to EB 50 Annex13 para 9). Please provide the ERPA signed for the project activity with indication of relevant section earmarking the transfer of expected CERs. The Loan Agreement, as above, indicates the linkage to ERPA please categorically indicate how it is linked with pre-payment of CERs, if any. - While demonstrating EB50 Annex 13 para 4, please indicate if the provided documents and translated financial results of project participant's parent companies are depicted as confidential. If so, please consider the EB48 Annex 60 para 9 (e) Ensure that information marked as confidential or proprietary which has been submitted does not relate to the determination of additionality or the baseline;	

- Please indicate if the provided financial results of the above companies can be cross checked with a third party document or published information (e.g. company's website) or any other.
- Please demonstrate compliance with Additionality Tool Step 3
"If the CDM does not alleviate the identified barriers that prevent the proposed project activity from occurring, then the project activity is not additional" in accordance with EB50 Annex 13 para 5 by clearly referencing the information along with evidences.
- Please explain how Additionality Tool 5.2 (Sub step 3a second bullet) is demonstrated, "No private capital is available from domestic or international capital markets due to real or perceived risks associated with investment in the country where the proposed CDM project activity is to be implemented, as demonstrated by the credit rating of the country or other country investments reports of reputed origin."
- The webhosted PDD (and till Version 05) contained Investment Analysis (Step 2) as means to demonstrate the Additionality of the proposed CDM project activity. Please explain how the approach taken now in the recent version of PDD (Version 06) to demonstrate Additionality using Step 3 was also valid at the time of project start date and why it was not included in the webhosted PDD.

CL#10 open

Project Participant Response:

Date: 14/01/2010

- The incorporation certificates for the host country project participants, Bangkok Greenpower (parent company Central Wastewater Development) and Zenith Green Energy (associate company Siampower) and their related parent or associate companies (Central Wastewater Development and Siampower) are provided to the DOE. Although, the incorporation documents of the landfill operator (which is not a project participant) are not available, the BMA Agreement confirms the fact that the landfill owner has been engaged in the business of landfill operation since 2004. This is further supported by the fact that Wasaduphan owns the Kamphaeng Saen East site. Landfill operation is Wasaduphan's main business and this can be verified by checking the audited accounts for Wasaduphan (see Ref: Certified Public Accounts 2007,2008 Wassaduphan Turakij, which show the income from waste tipping.
- The Loan Facility Agreement and ERPA refer to each other (see definitions in the Bangkok Greenpower/Xentolar ERPA and Loan agreement documents provided to the DOE). The two agreements are linked through cross defaults (which bind them together i.e. if there is a default under the ERPA it creates a default under the Facility Agreement - see definition of Default in the ERPA). The ERPA clause 5.2 includes a "Set Off" by which money due to the seller (Bangkok Greenpower) for CERs sold can be used to satisfy obligations by the Seller to pay the buyer (Xentolar) any amount due under a related agreement (in this case the Loan Facility Agreement). See Clause 5.2.5, page 10 of the Bangkok Greenpower ERPA document provided in the evidence pack. This clearly shows how the loan is linked to the CDM benefits, for which CERs will be used to repay money for the loan.
- We provide documents demonstrating
 - the verified investment costs,
 - relevant sections of ERPA and Loan Agreement (blackening out all other sections)
 - audited financial results of local companies, which are anyway available at www.dbd.go.th (Department of Business Development, Ministry of Commerce)
 to be used in the registration process.
- Please refer to the webpage given under the bullet point above.
- As required under the referenced section it is necessary to demonstrate in an objective way how the CDM alleviates each of the identified barriers to a level that the project is not prevented anymore from occurring by any of the barriers. As shown within the PDD the attraction of foreign capital coming 100 % from other sources than Wasaduphan finally resulted in successful set-up of this project. This was only enabled through CDM allowing an investor to pay revenues to the Wasaduphan in form of gas right payments, while fully financing the project activity.

- The landfill operator Wasaduphan as well as subsequent gas right owners are not able to divert any material cash flow to new investments of the magnitude required for this kind of project. This is even valid for small shares of the required investment, i.e. 20 % of the total investment which can be considered as lowest threshold for own equity shares for banks when financing industrial investments. The audited financial statements show for Wasaduphan available does not have cash and deposits available for investment. . .
- As the analysis in PDD ver 06 describes, the barriers have been valid for the landfill operator from the outset of landfilling activities and were present at the time of the starting date of the project activity. Earlier versions of the PDD did not include this barrier for at least 2 reasons: a) there was no current guidance available on what evidence was acceptable to prove the presence of a barrier and b) the additionality tool clearly states that PPs can follow step 2 and / or step 3 to prove additionality. At the time of the earlier versions, step 2 appeared to be easier to prove. We changed the approach after considering that, including the potential E- incentives, the project would have been potentially attractive for a financially capable landfill operator in Thailand. Not excluding the potential E- policy would demonstrate a reasonable revenue, but only under the condition that the landfill gas operator themselves develop this project (without being in this business) and secures the investment by the use of a material share of own capital.

Documentation Provided by Project Participant:

Facility Agreement (Loan Agreement) between Xentolar and BGCL
ERPA between Xentolar and BGCL
Audited Financial Sheets for Wasaduphan for year 2006, 2007 and 2008
Audited Financial Sheets for Group 15 for 2007 and 2008
Incorporation certificates for PS Natural Energy Co. Ltd. and BGCL

Information Verified by Lead Assessor:

As below

Reasoning for not Acceptance or Acceptance and Close Out:

Date: 20/01/2010

It has been verified that Wasaduphan do not have sufficient fund, to the magnitude of the project activity from the audited financial sheets for year 2006, 2007 and 2008. Further, it has been assessed the no company involved in the project activity, from host country, has sufficient funds e.g. Group 15.

Therefore, Facility Agreement and ERPA has been signed between Xentolar Holdings and BGCL, which earmarks under the clause 5.2 that CERs may be used to pay for the loan as 'Set Off'. It is noteworthy to mention that Xentolar Holdings has not only provided 100% loan, unlike any financial institution, considering the income from CERs and evident by the fact the entered into ERPA same day i.e. 24/03/2009.

Therefore, it has been established that there was credible barrier existing to the project activity which has been alleviated by first securing the 100% finance and on the terms of CERs. However, the revenue from electricity sales may also be used to make the prepayments.

CL#10 is closed out.

Acceptance and Close out by Lead Assessor:

Date: 20/01/2010

Date:	28/04/2009		Raised by:	Ashok Kumar Gautam		
Type:	CAR	Number:	11		Reference:	B.5.6, B.11.2
Lead Assessor Comment:				Date: 28/04/2009		
Common Practice Analysis						
e) <u>The documentary reference included in Sub – step 4a shall be provided (marked as 4 & 5)</u>						
f) <u>The statements includes in the section are not quantitative and does not provide clear picture of other activities similar to the project activity. Please substantiate further.</u>						
g) <u>The outcome of Sub –step 4b are not detailed enough for particularly other projects referred in this section. Please substantiate further.</u>						
h) <u>The inclusion of CDM projects in this section is not required</u>						
Project Participant Response:				Date: 18/05/2009		

- a) The PDD has been revised accordingly as follows: In Thailand, no other projects that are operational and that are similar to the proposed project activity, taking into account a broadly similar technology, similar scale and take place in a comparable environment with respect to regulatory framework, investment climate, access to technology and access to financing. Journal of the Air and Waste Management vol. 58 page 634 states "However, LFG utilization in Thailand is currently at a very infant stage. Only one sanitary landfill where MSW from Bangkok is being disposed is under the process of examining its gas recovery project" which is the Kasetsart University research project funded by King Rama IX Chaipattana Foundation. The foundation allocates 1 million baht to support the research project.
- b) The PDD has been revised accordingly as follows: In Thailand, no other projects that are operational and that are similar to the proposed project activity, taking into account a broadly similar technology, similar scale and take place in a comparable environment with respect to regulatory framework, investment climate, access to technology and access to financing. Journal of the Air and Waste Management vol. 58 page 634 states "However, LFG utilization in Thailand is currently at a very infant stage. Only one sanitary landfill where MSW from Bangkok is being disposed is under the process of examining its gas recovery project" which is the Kasetsart University research project funded by King Rama IX Chaipattana Foundation. The foundation allocates 1 million baht to support the research project.
- c) The PDD has been revised accordingly as follows: No similar activities are widely observed and commonly carried out in a comparable environment with respect to access of financing. The Kasetsart University research project to extract, capture and utilize the LFG is funded 1 million Bath by King Rama IX Chaipattana Foundation. It delivers into a conclusion that similar project can be developed under the assistance of donor.
- d) The inclusion of CDM project in sub-step 4 b has been deleted

Documentation Provided by Project Participant:

- a) & b) BKK East 08 Journal Air & Waste Manage. Assoc. 58 page 629–635
BKK East 09 King Rama 9 Chaipattana foundation funding on LFG, available at
<http://www.phtnet.org/news51/view-news.asp?nID=521> cited in
<http://www.thairath.co.th/news.php?section=agriculture&content=101801>
- c) BKK East 09 King Rama 9 Chaipattana foundation funding on LFG, available at
<http://www.phtnet.org/news51/view-news.asp?nID=521> cited in
<http://www.thairath.co.th/news.php?section=agriculture&content=101801>

Information Verified by Lead Assessor:

- a) The information verified from source on page 634 available at <http://www.phtnet.org/news51/view-news.asp?nID=521>

Reasoning for not Acceptance or Acceptance and Close Out:

Date: 15/06/2009

<http://www.thairath.co.th/news.php?section=agriculture&content=101801> is not found. Please provide appropriate link.
CAR#11 open

Project Participant Response:

Date: 26/06/2009

- a) The newspaper article that reports Kasetsart University research project funded by King Rama IX Chaipattana Foundation is available as 50018_53 Thairath_20080825. Its English translation is available as 50018_54 (translation) Research Fund from King

Documentation Provided by Project Participant:

50018_53 Thairath_20080825
50018_54 (translation) Research Fund from King

Information Verified by Lead Assessor:

The information provided has been checked with the help of local assessor and found correct

Reasoning for not Acceptance or Acceptance and Close Out:

Date: 31/07/2009

It has been assessed that there are no similar project activities occurring in Thailand and the one which is occurring is funded by King Rama IX through donations. Therefore, CAR is closed out.

Acceptance and Close out by Lead Assessor:				Date: 31/07/2009	
Date:	28/04/2009		Raised by:	Ashok Kumar Gautam	
Type:	CL	Number:	12	Reference:	B.6.1
Lead Assessor Comment:				Date: 28/04/2009	
Emission Reductions					
a) Kindly substantiate the basis of concluding that MD _{BL,y} is 0% and there are no contractual or regulatory requirements that specify LFG to be destroyed in the PDD (refer page 21).					
b) In the determination of MD _{flared,y} the density of methane (D _{CH4}) and LFG _{flared,y} do not appear to be consistent (consider reference Temperature). Please correct or clarify.					
c) In the determination of MD _{electricity,y} the density of methane (D _{CH4}) and LFG _{electricity,y} do not appear to be consistent (consider reference Temperature). Please correct or clarify.					
Project Participant Response:				Date: 18/05/2009	
a) The Thailand legislation governing operation of a landfill is the Public Health Act B.E.2535. It states that local administrative body has the authority to establish its own regulations regarding issuance of the license to operate the landfill. For the Bangkok East project, Tung Bua Sub-district Administrative Organisation, the local administrative in whose area the landfill is located, currently has not set out any specific regulations relating to issuance of the license.					
b) Referring to reference number 5 of ACM0001 version 10 page 9 ,determination of MD _{flared,y} , the density of methane (D _{CH4}) and LFG _{flared,y} are assumed at standard temperature and pressure (0 degree Celsius and 1,013 bar). The density of methane (D _{CH4}) is 0.0007168 tCH ₄ /m ³ CH ₄ at standard temperature & pressure.					
c) Referring to reference number 5 of ACM0001 version 10 page 9, determination of MD _{electricity,y} , the density of methane (D _{CH4}) and LFG _{electricity,y} are assumed at standard temperature and pressure (0 degree Celsius and 1,013 bar). The density of methane (D _{CH4}) is 0.0007168 tCH ₄ /m ³ CH ₄ at standard temperature & pressure					
Documentation Provided by Project Participant:					
a) BKK East 05 Letters of Thung Bua_Correctness of Licences (3)					
b) reference number 5 of ACM0001 version 10 page 9					
c) reference number 5 of ACM0001 version 10 page 9					
Information Verified by Lead Assessor:					
As below.					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 15/06/2009	
a) Kindly provide the referred document in English translation. Further, please provide documentary evidence issued to Landfill operators/owners depicting terms and conditions to operate.					
b) and c) OK					
CL#12 open					
Project Participant Response:				Date: 26/06/2009	
a) The English translation of the Letters of Thung Bua_Correctness of Licences is attached to this response. It is available as 50018_56 BKK East Letter of Thung Bua re Licence of Wasaduphan Turakit - English As mandated by Public Health Act B.E 2535, Thung Bua Sub-District Organization has the authority to regulate the landfill operation of Kamphaeng Saen. As can be observed in the licence. Thung Bua Sub-District Organization does not regulate the flaring of the landfill gas. Also in practice, since the landfill operation started in 2005, flaring has not been employed. Additionally, Public Health Act B.E.2535 is also attached. It is available as 50018_55 BKK East Public Health Act B.E.2535 (English) We furthermore added a due diligence report from a Third Party confirming that there is no contractual requirement to destroy any methane.					
Documentation Provided by Project Participant:					
50018_56 BKK East Letter of Thung Bua re Licence of Wasaduphan Turakit – English					
50018_55 BKK East Public Health Act B.E.2535 (English)					
50018_77 BGP Legal opinion					

Information Verified by Lead Assessor:	
As below	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 31/07/2009
It has been ascertained that there are no legal requirements to combust LFG generated from the landfill for security or any other reason and it is also not a pre-requisite to obtain such license as per Public Health Act BE2535. Further, the letters of Thung Bua was examined to review the correctness towards this point and found OK. It has also been assessed from a third party legal opinion that no such requirements exists in the country that require mandatory combustion of LFG generated from landfill sites. It was also assessed during site visit that there is no flaring mechanism existing in the baseline situation and only venting pipes were installed. Therefore, CL#12 is closed out.	
Acceptance and Close out by Lead Assessor:	Date: 31/07/2009

Date:	28/04/2009	Raised by:	Ashok Kumar Gautam		
Type:	CAR	Number:	13	Reference:	B.7.2
Lead Assessor Comment:				Date: 28/04/2009	
<u>Ex-ante Data and Parameters Used</u>					
a) The template of parameter is not in line with PDD template as it excludes Value of data, Justification of data applied. b) It is not clear how the 'regulatory requirements to capture and flare landfill gas' will be monitoring through the book referred. Please clarify. c) The documentary evidence for the considered density of methane as part of D_{CH_4} d) The determination of $CEF_{elect, BL, y}$ is not clear/legible at several places in the Annex 3					
Project Participant Response:				Date: 18/05/2009	
a) The PDD has been revised accordingly to apply PDD template with value of data and justification of data applied. b) The PDD has been revised accordingly. The source of data used for monitoring of "regulatory requirements to capture and flare landfill gas" is the current version of Thailand government regulation on municipal solid waste and landfill c) As per reference number 5 ACM0001 version 10 page 9, the density of methane is is 0.0007168 tCH₄/m³ CH₄ at standard temperature & pressure d) The determination of $CEF_{elect, BL, y}$ in the PDD has been revised					

Documentation Provided by Project Participant:	
a) PDD section B.6.2 & B.7.1 b) PDD section B.6.2 page 26 c) reference number 5 ACM0001 version 10 page 9 d) PDD annex 3	

Information Verified by Lead Assessor:	
Revised PDD	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 15/06/2009
The issues are resolved in revised PDD. Therefore, CAR#13 closed.	
Acceptance and Close out by Lead Assessor:	Date: 26/06/2009

Date:	28/04/2009	Raised by:	Ashok Kumar Gautam		
Type:	CL	Number:	14	Reference:	B.8.1
Lead Assessor Comment:				Date: 28/04/2009	

<u>Ex ante calculation of ERs</u> a) Justification for the amount of tipping for Landfill between 320,322 tonnes/year to 755,007 tonnes/year. b) Kindly provide the source of information for waste characterization sampling conducted by PP on 28/08/2008 c) The justification for considering the fraction of methane captured as 80% d) The justification for considering the flare efficiency as 90% e) The justification for considering the consumption of methane as 263 m³/hour for 1.063 MW single generator set. f) The justification for considering the generator set efficiency as 0.408 g) The justification for including the text in the PDD, that actual generator set may differ from those assumed to make an ex-ante estimate of emissions. Please clarify why it will not be considered change in project design later, if registered. Also, explain how it will not affect the revenue associated with project if the actually installed generator sets are more efficient. h) The basis for considering project emission as mentioned in the Table 9	
Project Participant Response:	Date: 18/05/2009
a) 320,322 tonnes/year to 755,007 tonnes/year is the waste tipping rate for Bangkok East. The waste amount contracted is 6,880,460 ton for East site which served as basis for the investment decision. b) Project Participants conducted the waste characterization sampling by itself. The result is presented in the Due Diligence result. c) Project participants has developed its own proprietary LFG collection system for its projects in Asia. It incorporates a number of design concepts to maximize collection efficiency including: • Large diameter collection pipe with high ratio perforation to solid section • Enhanced waste to LFG collection infrastructure contact area • Significant upside open void collection area • Design incorporated allows for an even pressure distribution along the collection pipe • High degree of control of materials and installation to minimize lost void • Collection system designed to be highly flexible allowing installation as required regardless of site or climatic conditions (no installation delay) Project participants believe to be able to achieve and maintain a collection efficiency of 80%. The figure is important and consistently used in the investment analysis. d) The ex-ante calculation is designated to have the same efficiency level (90%) as the implementation of project activity. It will apply enclosed non continuous monitoring for the flare. The "Tool to determine project emissions from flaring gases containing methane" Version 01 requires 90% flaring efficiency for enclosed non continuous monitoring. e) Methane consumption rate of 263 m³/hour is a conservative approach in the financial additionality argument. The derivation calculation from the JGS 320 GS-L.L specification comes into 266 m³/hour f) Referring to the generator set JGS 320 GS-L.L specification, the electrical efficiency is 40% g) The actual proposed gen-set result in highest profitability and hence this estimation is conservative. Other constellations, which might be selected are also requiring CDM revenues as they are economically less attractive compared to the presented one as referenced at Genset tender return comparison reference h) ACM0001 version 10 requires the calculation of PE_{EC,y} (Emissions from consumption of electricity in the project scenario). Project participant assumes emissions from the consumption of electricity arise when there is no on-site generation, for example during fault conditions and planned maintenance, and grid power is imported to supply on-site demand. The emissions arising from this consumption are estimated by assuming that the on-site demand is equal to the auxiliary power consumed when the generators are operating and that import occurs from auxiliary use as the flares that have boosters with motor and chiller. For ex-ante calculation, it is assumed as 5%. EL_{import} has been incorporated as parameter to monitor.	

Documentation Provided by Project Participant:	
a) BKK East 10 waste tipping rate BKK East 04 Waste Contract b) BKK East 11 Due Diligence Report v03 d) "Tool to determine project emissions from flaring gases containing methane" Version 01 e) & f) BKK East 02 generator set specification g) BKK East 12 Genset Tender Return Comparison h) BKK East 13 LFG model v02	
Information Verified by Lead Assessor:	
As mentioned below in detail	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 15/06/2009
a) Please clarify exactly where the reported figures of waste/year are mentioned in contract and basis of values in spreadsheet. b) As they have been done by PP, in order to avoid any bias, can these figures be compared with external sources? c) Please provide documentary evidence for the same and how it is comparable with contemporary techniques otherwise available to PP d) OK e) Is there a reason to keep 263 m3/h over rated 266 m3/h for Gas Engine? f) OK g) Is the comparison between comparable output? h) OK - CL#14 open	
Project Participant Response:	Date: 26/06/2009

- a) The reported figure in the waste contract is the total amount waste contracted of 6,880,460 ton. It is available at clause 1 of the waste contract. This is the quotation taken from waste contract clause 1:

“for remunerations at the rate of Baht 435.00 (Baht four hundred and thirty five only) per ton of waste which has been transported for tipping, for a period of 10 years (ten years) and/or within the remuneration cap of Baht 2,993,000,000.00 (Baht two thousand nine hundred and ninety three million only), inclusive of VAT, as well as other taxes, and all other expenses, whichever is earlier”

The total amount of waste figure of 6,880,460 ton comes from the division of total remuneration cap Baht 2,993,000,000 by remuneration cap Baht 435 per ton waste. As the waste has been tipped since 2005, for the year 2005, 2006, 2007 and 2008, the waste figure/year is taken from the tipping record. The remaining year follows the rest of waste based on average 2005-2008 daily tipping rate. Year 2012 shows larger amount since it consist of 366 days/yea, while others consist of 365 days/year. The result is shown in the table below. The complete spreadsheet is available as 50018_31 BKK East 10 waste tipping rate in the reference

year	Ton waste/year
2005	687,613
2006	666,376
2007	728,702
2008	755,007
2009	744,080
2010	744,080
2011	744,080
2012	746,119
2013	744,080
2014	320,322
total	6,880,460

- b) Royal Haskoning Report (please see reference of response to CL 9b) as the feasibility study reports the following waste composition:

Table 2.3: Assumed waste composition of Kamphaeng Saen Landfill

Component	Wet weight (%)
1. Food	37.37
2. Garden trimming	9.6
3. Paper	14.74
4. Plastic	22.11
5. Textile	11.48
6. Rubber	1.1
7. Glass	0.34
8. Metal	0
9. Bone	2.57
10. Stone/ceramic	0
11. Others	0.69
Total	100

* source: Joint Graduate School of Energy and Environment, King Mongkut's University of Technology Thonburi.

Royal Haskoning report does not provide any details of how the waste characterization was carried out since it quotes another reference (Joint Graduate School of Energy & Environment, King Mongkut's University of Technology Thonburi). Therefore the project participant undertook its own waste characterization research. The result is presented in 50018_04 SCC Due Diligence Report

c) Xentolar Holdings Limited. as a project participant has reviewed the actual measured site data from its other operational sites against the predicted outputs from the "Tool to determine methane emission avoided from disposal of waste at solid waste disposal site" version 4 (assuming 80% collection efficiency). Whilst this data is commercially sensitive, the project participant can confirm that the results support the model assumptions (80% collection efficiency) in terms of gas collection efficiency using its proprietary collection system. The collection efficiency will have no impact on CERs as emission reduction will be anyway monitored according to the actual figures. e) The emission reduction figures in the PDD have been changed to accommodate 266 m³/hour methane consumption rate. g) The proposed JE Jenbacher 1.063 MW generator set has lower operational & maintenance cost per kWh than other option (highlighted in yellow in reference 50018_32 BKK East 12 Genset Tender Return Comparison). The lower cost of operation & maintenance in the comparison between those two criteria has brought clear conclusion that JE Jenbacher 1.063 MW generator set is the preferable one.	
Documentation Provided by Project Participant:	
a) 50018_24 BKK East 04 Waste contract 50018_31 BKK East 10 waste tipping rate b) 50018_04 SCC Due Diligence Report 50018_51 BKK East Royal Haskoning report g) 50018_32 BKK East 12 Genset Tender Return Comparison	
Information Verified by Lead Assessor:	
Revised PDD	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 15/06/2009
b) In ER nappies are included in textile as per study, so they can not be called zero. The inert is not classified, it is only that it is not fitting in others, therefore, Please make sure the plastic/rubber petc are not zero, because inert may contain them. The percentage of paper in MSW is 4% in PP case where as in Royal report it is 14%. Please justify this variation. g) The results in the spreadsheet are not linked with other cells. CL#14 open.	
Project Participant Response:	Date: 04/08/2009

b)	ER model has been revised accordingly. Nappies are included in textile in the waste characterization (available at due diligence result 050018 SCC Due Diligence Result). Rubber, plastic, metal and glass are classified as inert. The fractions of them have been deleted from the ER model 50018_BKK_E_Revised_Gas_Model_for_FAM_v07. v08 accommodates the revision. Considering the important waste characterization figure as the basis for investment analysis, project participant(s) conducted the waste characterization sampling as a part of the due diligence. It is done by following the IPCC 2006 Guidelines for National Greenhouse Gas Inventories, Chapter 2 - waste generation, composition and management data. The result shows 4% fraction of paper. Royal Haskoning report does not mention the guideline and procedure of its waste characterization sampling. Therefore more trust is given to more recent due diligence study which shows the lower figure for paper content. This might cause the variation on percentage of paper.				
g)	The result in the spreadsheet (reference 50018_32 BKK East 12 Genset Tender Return Comparison) shows that the proposed JE Jenbacher 1.063 MW generator set has lower operational & maintenance cost per kWh than other option, Deutz TCG2020v20 (highlighted in yellow). The lower cost of operation & maintenance in the comparison has brought clear conclusion that JE Jenbacher 1.063 MW generator set is the preferable one. The operation & maintenance cost outlined in the spreadsheet mentioned above is derived from the following explanation: The Pro2 50016_84 O& M cost reference shows the 5 year O&M rate at Eur 12.05 per Operational hour. For 40,000hours this is Eur 482,000 per engine. The Deutz 1.7MW engine at full output for 40,000 hours will generate 68,000,000kWh. Therefore this equates to Eur 0.007088/kWh. At an exchange rate of 0.985 this = 0.699 penny/kWh. For GE Jenbacher (ItalThai) Preventative maintenance quote of 307THB per operational hour. One year the engine will run 8000 hours – therefore cost = 8000x307=2,456,000THB. In one year at full output the engine will achieve – 8000x1063=8,504,000kWh Therefore cost of preventative maintenance = 0.2888THB per kWh Or at 51THB to the £ gives 0.00566£/kWh or 5.66penny/kWh				
Documentation Provided by Project Participant:					
	c) 50018_BKK_E_Revised_Gas_Model_for_FAM_V08 g) 50018_32 BKK East 12 Genset Tender Return Comparison 50018_85 O& M cost 50018_88 Long Term Parts Delivery Agreement ItalThai_131108				
Information Verified by Lead Assessor:					
Revised Gas Model Genset Tender Return Comparison O&M cost Long Term Parts Delivery Agreement					
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 15/06/2009				
It has been assessed that requested points have been satisfactorily responded as referred above and found consistent with the data source. The issues are resolved in revised PDD. Therefore, CL#14 closed.					
Acceptance and Close out by Lead Assessor:	Date: 15/06/2009				
Date:	28/04/2009	Raised by:	Ashok Kumar Gautam		
Type:	CAR	Number:	15	Reference:	B.12.3
Lead Assessor Comment:			Date: 28/04/2009		

<u>Data and parameter monitored</u>	
a) It is not clear what kind of monitoring equipments, their accuracy class will be installed in the project activity for LFG monitoring and Electricity consumed or generated. Please clarify. b) As the monitoring equipments are not seen on the site the positioning of meters can not be ascertained. Please clarify. c) The monitored parameters do not clearly define the frequency of calibration or calibration plan. Please clarify. d) It is not clear if T (units missing) and P for landfill gas will be monitored or not. Please clarify. e) It is not clear how EF_{LFG} will be monitored directly as this is net amount of electricity generated. How the auxiliary consumption, if any for power generation would be factored? Please clarify. f) The QA/QC for operation hours of energy plant are left blank. Please justify. g) It is not clear why thermocouple used for T_{flare} should be replaced or calibrated every year.	
Project Participant Response:	Date: 18/05/2009
a) The PDD has been revised accordingly. The proposed flow meter for LFG monitoring will work on the differential pressure measurement principle with associated differential pressure gauge having an accuracy of $\pm 0.5\%$. The specification of the electricity meter will be determined by the power grid company at the time of established grid connection and will comply with the underlying national regulations. b) The PDD has been revised accordingly. The positioning of monitoring equipment has been incorporated c) The PDD has been revised accordingly. The frequency of calibration & calibration plan have been incorporated. If required, specific information will be available prior to verification because the specific equipment is not determined yet. d) Parameter T and P for landfill gas are already specified as the parameters to monitor in PDD. Units are already specified in each table in PDD e) As explained in the PDD, EL_{LFG} is continuously measured on sub-station connecting generators to the grid. Therefore, it monitors the net electricity exported to the grid. It will have to be deducted by the auxiliary consumption. No project emission arises from the generation of electricity by the project that is consumed by auxiliary use. f) The PDD has been revised accordingly. The QA/QC for operation hours of energy plant is "The run meter will be calibrated according to the manufacturer's specifications & subject to a regular maintenance in accordance to manufacturer's recommendation" g) "Tool to determine project emission from flaring gases containing methane" version 1 page 14 requires the replacement or calibration of thermocouple every year. The PDD has accommodated the replacement or calibration as "according to the manufacturer's specifications & subject to a regular maintenance in accordance to manufacturer's recommendation".	
Documentation Provided by Project Participant:	
a) PDD section B.7.1 b) PDD section B.7.1 c) PDD section B.7.1 d) PDD section B.7.1 e) PDD section B.7.1 f) PDD section B.7.1 g) PDD section B.7.1 "Tool to determine project emission from flaring gases containing methane" version 1 page 14	
Information Verified by Lead Assessor:	

As below	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 15/06/2009
As some other issues pertaining to position of meters etc can not be validated at this stage this is converted into FAR as it may not be requirement for registration. For other points, the revised PDD has been checked and found consistent. It is ascertained that the project activity has included parameters, which are required by the methodology specific to this project and sufficiently provides information how the data shall be monitored. Therefore CAR#15 has been converted to FAR#15 for point 'b'. For other elements the CAR#15 is closed.	
Acceptance and Close out by Lead Assessor:	Date: 15/06/2009

Date:	28/04/2009	Raised by:	Ashok Kumar Gautam		
Type:	CL	Number:	16	Reference:	B.13.4
Lead Assessor Comment:				Date: 28/04/2009	
<u>Monitoring Plan</u> Please provide the supporting documents of initial training and maintenance program related to CDM project activity					
Project Participant Response:				Date: 18/05/2009	
Training plan is already developed and available. Maintenance program will be conducted according to manufacturer's specification for every equipment.					
Documentation Provided by Project Participant:					
BKK East 14 Training Plan					
Information Verified by Lead Assessor:					
As below					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 15/06/2009	
It has been assessed, through the Training Plan, provide by the PP that sufficient training procedures are envisaged in order to assist the operation of equipments and CDM monitoring. Therefore, CL#16 closed out.					
Acceptance and Close out by Lead Assessor:				Date: 15/06/2009	

Date:	28/04/2009	Raised by:	Ashok Kumar Gautam		
Type:	CAR	Number:	17	Reference:	B.14.1, C.1.2
Lead Assessor Comment:				Date: 28/04/2009	
<u>Format of PDD Guidelines</u> The information provided in the PDD section C is not in line with the format of PDD Guidelines (EB41 Annex 12), please correct.					
a) The table for indication of projected emission reductions under section B.6.4 is not correctly applied as the total emission of all years of the first crediting period in tonnes of CO₂e has not mentioned in the last row of the table. b) The table used in data available during validation is not as per the PDD template and excludes value applied and justification of value applied. c) Date of completion of baseline study is addressed as 13 March 2009. This is not following the format of PDD Guidelines as DD/MM/YYYY, please correct. d) A renewable crediting period of year starting on 1 December 2009 is selected which the assumed crediting time is reasonable define. However, the format of starting date is not following the format of PDD Guidelines as DD/MM/YYYY, please correct.					
Project Participant Response:				Date: 18/05/2009	

[Note to PP: Insert your Response to SGS Finding here]					
a) The PDD has been revised accordingly. Total emission of all years of first crediting period has been mentioned in the last row of the table b) The PDD has been revised accordingly. All the table in the PDD has been revised to include "value applied" and its justification c) The PDD has been revised accordingly. The date format has been changed d) The PDD has been revised accordingly. The date format has been changed					
Documentation Provided by Project Participant:					
a) PDD section B.6.4 b) PDD section B.6.2 and B.7.1 c) PDD section B.8 d) PDD section C					
Information Verified by Lead Assessor:					
The corrections are incorporated in revised PDD					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 15/06/2009	
All the above points have been incorporated in the revised PDD therefore, CAR#17 closed out.					
Acceptance and Close out by Lead Assessor:				Date: 15/06/2009	

Date:	28/04/2009	Raised by:	Ashok Kumar Gautam		
Type:	CL	Number:	18	Reference:	C.1.1
Lead Assessor Comment:				Date: 28/04/2009	
<u>Project's Starting Date and Operational Lifetime</u>					
a) The operational lifetime of the project is expected as 21 years. Proof for the operational lifetime of project activity / key components is required to be checked from comparable projects or project technologies or feasibility study. b) Evidence is required to be submitted that the technology used would not be changed during the crediting period.					
Project Participant Response:				Date: 18/05/2009	
a) Since the generator set needs to have a major refurbishment after a certain operational period (approximately 60000 hours), refurbishment cost will be budgeted (as reflected in additionalilty investment analysis) to achieve 21 years operational life time. b) The actual generator set may differ from those assumed to make an ex-ante estimate of emissions since it will refer to the efficiencies and costs of alternative engines. At this moment, project participants have selected for optimum cost/efficiency. The additionality investment analysis will have the same conclusion as higher efficiency generator set goes with higher cost.					
Documentation Provided by Project Participant:					
No response					
Information Verified by Lead Assessor:					
Not verified					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 15/06/2009	
Please respond completely with evidences. CL#18 open					
Project Participant Response:				Date: 26/06/2009	

a) The official JE Jenbacher service agreement brochure (available as 50018_44 BKK East 21 JE Jenbacher service agreement brochure), states on page 2: "Major overhauls: due at 60,000 operating hours for all gas types, either carried out in the Jenbacher repair center as an engine/generator set overhaul or in a replacement procedure with a short block/long block engine. After the major overhaul, the engines can run for additional 60,000 operating hours". The overhaul cost is reflected in the investment analysis every 60,000 hours to achieve 21 years life time. b) As described in the response of CL 14g above, the technology would not be changed during crediting period since the proposed JE Jenbacher 1.063 MW generator set has lower operational & maintenance cost per kWh than other option (highlighted in yellow in reference 50018_32 BKK East 12 Genset Tender Return Comparison). The lower cost of operation & maintenance in the comparison between those two criteria has brought clear conclusion that project participant will not change the generator set. For the piping collection system, it would not be changed during crediting period since it will be buried under the waste tipped.	
Documentation Provided by Project Participant:	
a) 50018_44 BKK East 21 JE Jenbacher service agreement brochure b) 50018_32 BKK East 12 Genset Tender Return Comparison	
Information Verified by Lead Assessor:	
The corrections are incorporated in revised PDD	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 03/07/2009
The lifetime taken is reasonable in the opinion of sectoral expert and back the long term part delivery agreement. Therefore, CL#18 closed.	
Acceptance and Close out by Lead Assessor:	Date: 03/07/2009

Date:	28/04/2009	Raised by:	Ashok Kumar Gautam
Type:	CL	Number:	19
		Reference:	D.1.1, D.1.3
Lead Assessor Comment:		Date: 28/04/2009	
<u>Environmental Impact Assessment</u>			
d) IEE is required for project activity to obtain LoA and submit a copy of IEE and this requirement e) Is this complying with the requirement of DNA? If yes, provide documentary evidence f) Please substantiate that EIA is not required for landfill projects (gas flaring) and power generation of less than 10 MW			
Project Participant Response:		Date: 18/05/2009	
a) & b) Complying to the requirement of DNA, IEE is required to obtain LoA. All requirements to obtain LoA are stated in http://www.tgo.or.th/index.php?option=com_content&task=view&id=32&Itemid=29 c) The government of Thailand regulation that substantiate EIA is not required for power generation less than 10 MW is The Prescription of Types and Sizes of Projects or Activities of Government, State Enterprise and Private Sector that Requires EIA, established by Ministry of Science, Technology and Environment.			
Documentation Provided by Project Participant:			
a) & b) BKK East 15 EIA requirement to get LOA. It is accessible at http://www.tgo.or.th/index.php?option=com_content&task=view&id=32&Itemid=29 c) BKK East 16 EIA is not required for power plant less than 10M. It is accessible in http://www.onep.go.th/content/pr/ministry_announcement01.htm, http://www.onep.go.th/eia/T_data/T_size.html			
Information Verified by Lead Assessor:			

It has been crosschecked from the quoted website that IEE is only required for the project activity and EIA is not required. Further EIA is only required when the power generation for a company exceeds 10 MW. In the project activity there are two host companies thereby the project activity for each project participant will remain under 10MW therefore not requiring EIA.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 03/07/2009
Kindly provide a copy of IEE for the project activity. CL#19 open.	
Project Participant Response:	Date: 04/08/2009
The copy of IEE is incorporated as evidence of this response	
Documentation Provided by Project Participant:	
50018_84 BKK East IEE	
Information Verified by Lead Assessor:	
The IEE has been examined and there are no serious impacts associated with the project activity as the requisite measures are taken into account e.g. Leachate management etc.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 15/08/2009
The copy of IEE establishes that the project activity contributes to the environmental development under the controlled situation by contemplating appropriate measures in place. Upon confirmation that project activity is contributing to environmental development, CL#19 has been closed out.	
Acceptance and Close out by Lead Assessor:	Date: 15/08/2009

Date:	28/04/2009	Raised by:	Ashok Kumar Gautam		
Type:	CL	Number:	20	Reference:	D.1.5
Lead Assessor Comment:				Date: 28/04/2009	
Stakeholder Comments					
g) What media was used to invite stakeholders, it is not mentioned in the PDD					
h) How stakeholders were identified, they are not mentioned in PDD					
i) Meeting minutes of stakeholder consultation process, documentary evidence of the same is requested					
j) Summary of issues/comments by stakeholders, the source of information put in the PDD					
k) It is written that project will generate 36-40 MW according to calculation, and each company will generate 8 MW, initially 5 MW. Please justify.					
l) How the resolution of the comments provided.					
Project Participant Response:				Date: 18/05/2009	
a) Beside direct invitation to the identified stakeholders, public announcement was made on the local newspaper named as Ban Muang Biweekly year 7 number 95.					
b) The identification of stakeholder was based on the representativeness of people that might be affected by the project. The identified stakeholders are representatives of the government, local officials, NGOs, academic institutions, members of the local community living in the project area and others					
c) & d) Documentary evidence summary and information source is available in the comprehensive report submitted to Thailand DNA in order to obtain LoA. The document is available.					
e) Mistake/ incorrect info on the generation capacity were given during the stakeholder consultation. It should be below 10 MW					
f) Most of the participants (70.31%) understand that the project will have no negative impact on environment, social and public health. Therefore, no follow up required since the resolution of the comments received gives positive response.					
Documentation Provided by Project Participant:					
a) BKK East 17 Newspaper Announcement for stakeholder consultation					
c) & d) BKK East 18 Stakeholder consultation report to TGO					
Information Verified by Lead Assessor:					

The news paper article have been seen and found OK with the help of local assessor The summary of stakeholder consultation process is examined through the comprehensive report, which was also submitted to Thailand DNA for LoA. The typographical error is corrected in revised PDD. There are no pending queries that are un-resolved and overall impression, based on the personal interview at the project site, indicates that project activity overall has positive impact.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 15/06/2009
The local stakeholder consultation process is found appropriate and it is stated that comments raised during the process have been taken into account. There are no serious concerns expressed towards the project activity. Therefore CL#20 is closed out.	
Acceptance and Close out by Lead Assessor:	Date: 15/06/2009

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Annex 4: Team Members Statements of Competency

Statement of Competence

Name: Gautam, Ashok

Status

- Lead Assessor	☒	- Expert	☒
- Assessor	☒	- Financial Expert	☐
- Local Assessor	☐	- Technical Reviewer	☐

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	☒
<i>Sub scope(s): Biomass based Thermal/ Electricity Utilization</i>	
2. Energy Distribution	☐
<i>Sub scope(s):</i>	
3. Energy Demand	☐
<i>Sub scope(s):</i>	
4. Manufacturing	☐
<i>Sub scope(s):</i>	
5. Chemical Industry	☐
<i>Sub scope(s):</i>	
6. Construction	☐
<i>Sub scope(s):</i>	
7. Transport	☐
<i>Sub scope(s):</i>	
8. Mining/Mineral Production	☐
<i>Sub scope(s):</i>	
9. Metal Production	☐
<i>Sub scope(s):</i>	
10. Fugitive Emissions from Fuels (solid, oil and gas)	☐
<i>Sub scope(s):</i>	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	☐
<i>Sub scope(s):</i>	
12. Solvent Use	☐
<i>Sub scope(s):</i>	
13. Waste Handling and Disposal	☒
<i>Sub scope(s): Landfill gas, Wastewater and sludge treatment, Composting</i>	
14. Afforestation and Reforestation	☐
<i>Sub scope(s):</i>	
15. Agriculture	☐
<i>Sub scope(s):</i>	

Approved Member of Staff by:

Siddharth Yadav

Date:

16/12/2009

Statement of Competence

Name: Mahawar, Abhishek

Status

- Lead Assessor		- Expert	
- Assessor	x	- Financial Expert	x
- Local Assessor	Indi a	- Technical Reviewer	

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	☐
<i>Sub scope(s):</i>	
2. Energy Distribution	☐
<i>Sub scope(s):</i>	
3. Energy Demand	☐
<i>Sub scope(s):</i>	
4. Manufacturing	☐
<i>Sub scope(s):</i>	
5. Chemical Industry	☐
<i>Sub scope(s):</i>	
6. Construction	☐
<i>Sub scope(s):</i>	
7. Transport	☐
<i>Sub scope(s):</i>	
8. Mining/Mineral Production	☐
<i>Sub scope(s):</i>	
9. Metal Production	☐
<i>Sub scope(s):</i>	
10. Fugitive Emissions from Fuels (solid, oil and gas)	☐
<i>Sub scope(s):</i>	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	☐
<i>Sub scope(s):</i>	
12. Solvent Use	☐
<i>Sub scope(s):</i>	
13. Waste Handling and Disposal	☐
<i>Sub scope(s):</i>	
14. Afforestation and Reforestation	☐
<i>Sub scope(s):</i>	
15. Agriculture	☐
<i>Sub scope(s):</i>	

Approved Member of Staff by:

Siddharth Yadav

Date:

12/11/2009

Statement of Competence

Name: Thunsiri, Nattarin

Status

- Lead Assessor		- Expert	
- Assessor	x	- Financial Expert	
- Local Assessor	Thailand	- Technical Reviewer	

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	
<i>Sub scope(s):</i>	
2. Energy Distribution	
<i>Sub scope(s):</i>	
3. Energy Demand	
<i>Sub scope(s):</i>	
4. Manufacturing	
<i>Sub scope(s):</i>	
5. Chemical Industry	
<i>Sub scope(s):</i>	
6. Construction	
<i>Sub scope(s):</i>	
7. Transport	
<i>Sub scope(s):</i>	
8. Mining/Mineral Production	
<i>Sub scope(s):</i>	
9. Metal Production	
<i>Sub scope(s):</i>	
10. Fugitive Emissions from Fuels (solid, oil and gas)	
<i>Sub scope(s):</i>	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	
<i>Sub scope(s):</i>	
12. Solvent Use	
<i>Sub scope(s):</i>	
13. Waste Handling and Disposal	
<i>Sub scope(s):</i>	
14. Afforestation and Reforestation	
<i>Sub scope(s):</i>	
15. Agriculture	
<i>Sub scope(s):</i>	

Approved Member of Staff by: Siddharth Yadav Date: 27 November 2009

Statement of Competence

Name: Singh, Kaviraj

Status

- Lead Assessor	☐	- Expert	☒
- Assessor	☐	- Financial Expert	☐
- Local Assessor	☐	- Technical Reviewer	☒

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	☐
<i>Sub scope(s):</i>	
2. Energy Distribution	☐
<i>Sub scope(s):</i>	
3. Energy Demand	☐
<i>Sub scope(s):</i>	
4. Manufacturing	☐
<i>Sub scope(s):</i>	
5. Chemical Industry	☐
<i>Sub scope(s):</i>	
6. Construction	☐
<i>Sub scope(s):</i>	
7. Transport	☐
<i>Sub scope(s):</i>	
8. Mining/Mineral Production	☐
<i>Sub scope(s):</i>	
9. Metal Production	☐
<i>Sub scope(s):</i>	
10. Fugitive Emissions from Fuels (solid, oil and gas)	☐
<i>Sub scope(s):</i>	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	☐
<i>Sub scope(s):</i>	
12. Solvent Use	☐
<i>Sub scope(s):</i>	
13. Waste Handling and Disposal	☒
<i>Sub scope(s): Landfill gas, Wastewater and sludge treatment, Composting</i>	
14. Afforestation and Reforestation	☐
<i>Sub scope(s):</i>	
15. Agriculture	☐
<i>Sub scope(s):</i>	

Approved Member of Staff by:

Siddharth Yadav

Date:

05/10/2009