Validation Report

Report for:

PT Odira Energy Persada and
Sindicatum Carbon Capital Ltd.

Validation of CDM project for
Tambun LPG Associated Gas Recovery and Utilization Project

LRQA Reference	:	LRQ CDM 0008 Version 03
Date	:	13 December 2007
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1 Executive Summary

Lloyd's Register Quality Assurance Limited has been contracted by the Sindicatum Carbon Capital Ltd., representing the project participants (PP), to undertake validation of the proposed project activity "Tambun LPG Associated Gas Recovery and Utilization Project". The validation has been performed by document review based on the project design document Version 2 dated 2nd April 2007, follow-up interviews with the stakeholders and resolution of outstanding issues and issuance of the validation report.

The project intends to reduce greenhouse gas (GHG) emissions by recovery and utilization of gases produced associated with oil production activities at the Tambun and Pondok Tengah Oil Fields. The project activity is the construction of the processing and transport infrastructure to take gas, that would otherwise has been flared, to the main Cirebon to Cilegon pipeline and produce LPG, condensate and dry gas.

The fulfilment of the requirements as set forth in the Article 12 of the Kyoto Protocol of the United Nations Framework Convention on Climate Change (UNFCCC), the modalities and procedures for a CDM and relevant decisions of the Conference of the Parties serving as meeting of the Parties to the Kyoto Protocol (COP/MOP) and the Executive Board of the CDM (CDM-EB) has been evaluated and the conformance to the validation requirements were confirmed based on the given information. A risk based approach was taken to conduct the validation and corrective action requests (CARs) and clarifications (CLs) were raised for relevant actions by the PP.

The validation team is of the opinion that the proposed project activity as described in the project design document Version 3.12 dated 13 December 2007 meets all the relevant UNFCCC requirements for CDM as well as the host country's national requirements, and if implemented as designed is likely to achieve the emission reductions and contribute to the sustainable development of the host country. Therefore LRQA requests the registration of "Tambun LPG Associated Gas Recovery and Utilization Project" to the CDM Executive Board as a CDM project activity.

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Abbreviations

BBWM	PT. Bina Bangun Wibawa Mukti
BOT	Build-Operate-Transfer
BTU	British thermal unit
CARs	Corrective action requests
CDM	Clean Development Mechanism
CDM-EB	Executive Board of Clean Development Mechanism
CDM M&P	Modalities and procedures for a clean development mechanism
CER	Certified Emission Reduction
CH_4	Methane
CLs	Clarifications
COP/MOP	Conference of the Parties serving as meeting of the Parties to the Kyoto Protocol
DNA	Designated National Authority
EIA	Environmental impacts assessment
GHG	Greenhouse gas
IPCC	Intergovernmental panel on climate change
IRR	Internal rate of return
KP	Kyoto Protocol of the United Nations Framework Convention on Climate Change
LoA	Letter of approval
LPG	Liquefied Petroleum Gas
LR	Lloyd's Register
LRQA	Lloyd's Register Quality Assurance Limited
mmscf/mmscfd	Million metric square cubic feet / - per day
MoM	Minute of meeting
NGO	Non governmental organization
NPV	Net present value
OEP	PT Odira Energy Persada
PDD	Project design document
PP	Project participant
SCC	Sindicatum Carbon Capital Ltd.
SCF	Square cubic feet
Sm^3	Standard cubic meter
tCO_2	Ton of carbon dioxides
UNFCCC	United Nations Framework Convention on Climate Change
USEPA	The United States Environmental Protection Agency

2 Introduction

The project participant (PP) represented by Sindicatum Carbon Capital Ltd. has contracted with Lloyd's Register Quality Assurance Limited (LRQA) to undertake validation of the proposed project activity "Tambun LPG Associated Gas Recovery and Utilization Project". This report summarises the findings through the validation process that has been conducted on the validation requirements of the CDM.
The validation has been undertaken by the team formed of the qualified personnel of LRQA as follows.

Mr. Michiaki Chiba	LRQA GHG Unit	Team Leader, CDM Validator
Mr. Cholid Bafagih	LRQA Indonesia	Team Member, CDM Validator, Sector Expert
Mr. Prabodha C. Acharya	LRQA India	Technical Reviewer, CDM Validator
Dr. Anne-Marie Warris	LRQA GHG Unit	Final Reviewer/Decision Maker

Personnel being engaged in a CDM project validation are qualified based on the established procedures of LRQA to assure the resource requirements that satisfy all the requirements of competence criteria for an AE/DOE under CDM CDM-ACCR-06. LRQA is accredited/designated as an operational entity and holds the full responsibility on decision-making regarding the validation in accordance with the accreditation requirements of the CDM-EB. The certificate of appointment of the team personnel is attached to this report.

2.1 Objective

Validation is the process of an independent third party evaluation of a project activity against the requirements of the CDM as set out in the Article 12 of the Kyoto Protocol, the CDM M&P, the present annex, subsequent decisions made by the COP/MOP and CDM-EB, and the other rules applicable to the proposed project activity including the host country's legislation and its specific requirements for sustainable development on the basis of the PDD.

2.2 Scope

The scope of validation is an independent and objective review of the project design. Review of the PDD is conducted against the requirements of KP, the CDM M&P and relevant decisions of the COP/MOP and the CDM-EB. LRQA follows a risk-based approach in the validation focusing on the identification of significant risks for project implementation and generation of CERs. Validation is not meant to provide any consulting towards the PP, however, the corrective actions requests (CARs) and clarifications (CLs) might provide input for improvement of the project design. A validation conclusion shall become final subject to the decision maker's review and the review by the LRQA Ltd.

2.3 GHG Project Description

The purpose of the project activity is the recovery and utilization of gases produced as a by-product of oil production activities at the Tambun and Pondok Tengah Oil Fields. Tambun Oil Field is located about 40 km west of Jakarta in West Java Province. The field started production in 2003 at 4,000 barrels per day.

Associated gas was flared, initially at 6 to 7 mmscfd increasing to 12 to 15 mmscfd as oil production increased to 8,000 barrels per day in 2006. Pondok Tengah Oil Field has recently come on stream, at a faster rate than planned. Its wells are located 10 km north of Tambun Oil Field. The field is currently producing around 3,000 – 4,000 barrels per day. Associated gas flow is currently at around 5 mmscfd and is projected to increase to 25 mmscfd by the end of 2007.

The project activity is to construct the processing and transport infrastructure to take, gas that would otherwise have been flared, to the main Cirebon to Cilegon pipeline and produce LPG, condensate and dry gas. The scope of the project activity covers the gas from both Tambun and Pondok Tengah Oil Fields.

The project is developed as a CDM project activity participated by PT Odira Energy Persada (OEP) as the host country participant and Sindicatum Carbon Capital Ltd (SCC) as the investing country participant. Both Tambun and Pondok Tengah Oil Fields are owned by Pertamina E&P. The project development to recover and utilize the associated gas from Tambun Oil Field was agreed among Pertamina E&P, PT. Bina Bangun Wibawa Mukti (BBWM) and OEP. BBWM is a company owned by Bekasi Regency local government who owns the land for gas processing plant and pipeline. OEP is the contractor to develop and operate the gas processing and transporting facility based on build-operate-transfer (BOT) agreement. The project plant was originally designed to process the gas from Tambun Oil Field. Pondok Tengah Oil Field started production later but because it has not been equipped its own production facility, the oil is transported by the underground pipeline to Tambun. Under the situation, the associated gas from Pondok Tengah's oil is generated at Tambun and supplied to the project's processing plant being mixed with the gas from Tambun Oil Field. Pertamina E&P might consider establishing oil production as well as the gas processing facility in Pondok Tengah in the future while it is planning to contract off-taking and utilization of Pondok Tengah's gas for 2 years before the investment for the own processing facility takes place. Therefore, the estimated volume of associated gas for the project is based on the gas supply under the contract for Tambun's gas and 2 years of supply expected from Pondok Tengah. The average annual emission reduction is estimated as 390,893tCO_2e. The project activity is categorized in the sectoral scope 10 – Fugitive emissions from fuels.

3 Methodology

3.1 Review of documents

The validation is performed primarily based on the review of the project design document (PDD) and the other supporting documentations. The PDD Version 2 dated 2nd April 2007 was initially reviewed and LRQA requested the PP to present the supporting information and documents related with the project design and such additional information and documents were also reviewed by LRQA. Through the process of the validation, the PDD and the supporting documents of the same were evaluated to confirm the actions taken by the PP to the CARs and CLs issued by LRQA. The documents reviewed by LRQA are listed in the Appendix B. LRQA reviewed the final version of the PDD version 3.12 dated 13 December

2007 to confirm that all changes agreed had been incorporated and no other changes had been made as compared to version 2 dated 2 April 2007.

3.2 Follow-up interviews

Follow-up interviews with the stakeholders and field survey were conducted to the parties and in the schedule as below.

11 April 2007	PT Odira Energy Persada Sindicatum Carbon Capital Ltd. Representatives of local community
12 April 2007	PT Odira Energy Persada Sindicatum Carbon Capital Ltd. State Ministry of Environment

The list of persons interviewed is shown in the Appendix C.

3.3 Resolution of clarification and corrective action requests

Findings identified in the process are indicated under the titles Corrective Action Requests (CARs) and Clarifications (CLs). CARs and CLs require the PP to take relevant actions. Criteria for judging items as CAR or CL are as follows:

Corrective Action Request (CAR):

1) Non-conformity to the laws and regulations of the host country
2) Non-conformance with the Kyoto Protocol, CDM M&P and the other relevant criteria
3) Items which would affect CER calculation significantly

Clarification (CL) Request:

1) Insufficient descriptions from the viewpoint of accuracy, reliability, completeness, consistency and other criteria.
2) Ambiguous and difficult-to-understand descriptions, as well as matters for which additional descriptions are desired.

The objective of this phase of the validation is to resolve CARs and CLs which need to be addressed for positive conclusion on the project design. The resolution of CARs and CLs raised by LRQA is to be reflected in the revised PDD and submitted to LRQA for validation conclusion.

3.4 Internal quality control

The technical review by a qualified person independent from the validation team was conducted on the draft validation report prior to the submission to the PP. After consideration of the corrective actions by the PP, the final validation report was reviewed by the technical reviewer and the authorized decision maker before requesting registration of the project activity.

4 Validation findings

The findings of the validation are stated in the following sections. The further detail of each finding is shown in the Validation Findings Log.

The findings are structured based on the main validation scopes as follows.

- Participation requirements
- General description
- Baseline methodology
- Emission reductions
- Monitoring methodology and monitoring plan
- Duration of the project activity / crediting period
- Environmental impacts
- Stakeholders' comments

4.1 Participation requirements

A CDM project shall be approved by the Parties involved.
The host Party of the proposed project is the Republic of Indonesia. Indonesia has ratified the Kyoto Protocol and the National Committee on CDM has been designated as the national authority for the CDM (DNA). The United Kingdom of Great Britain and Northern Ireland is the Annex-I Party. The United Kingdom has ratified the Kyoto Protocol and the Department of Environment, Food and Rural Affairs has been designated as the DNA.

CAR1
At the initial phase of the validation, it was noted that the project has not received the approval from the Parties involved. The CAR1 was issued.
The letter of approval (LoA) from the host country DNA was issued on 19 June 2007 and has been submitted to LRQA. The same from the investing country DNA was issued on 31 August 2007 and has been submitted to LRQA. Thus the CAR1 was closed out.

4.2 General description

The project activity is aiming at to recover and utilize the associated gas produced as a by-product of oil production activities at the Tambun and Pondok Tengah Oil Fields. Tambun Oil Field is located about 40 km west of Jakarta in West Java Province. The field started production in 2003 at 4,000 barrels per day. Associated gas was flared, initially at 6 to 7 mmscfd increasing to 12 to 15 mmscfd as oil production increased to 8,000 barrels per day in 2006. Pondok Tengah Oil Field has recently come on stream, at a faster rate than planned. Its wells are located 10 km north of Tambun Oil Field. The field is currently producing around 3,000 – 4,000 barrels per day. Associated gas flow is currently at around 5 mmscfd and is projected to increase to 25 mmscfd by the end of 2007.

The project activity is to construct the processing and transport infrastructure to take, gas that would otherwise have been flared, to the main Cirebon to Cilegon pipeline and produce LPG, condensate and dry gas. The scope of the project activity covers the gas from both Tambun and Pondok Tengah Oil Fields.

The project plant was originally designed to process the gas from Tambun Oil Field. Pondok Tengah Oil Field started production later but because it has not

been equipped its own production facility, the oil is transported by the underground pipeline to Tambun. Under the situation, the associated gas from Pondok Tengah's oil is generated at Tambun and supplied to the project's processing plant being mixed with the gas from Tambun Oil Field.

The contracts were signed for Tambun gas on 11th November 2004. The gas started flowing on 5th November 2005 and the LPG plant started operation on 27 December 2006.

Indonesia has been a large exporter of coal, crude oil, and natural gas in Asian region. But it currently falls at net oil importer due to the declining crude oil production as well as the rapid growth of demand from the domestic economy. Therefore, it is a high priority issue in the national policy to utilize domestic energy sources to displace the imported energy. The large gas reserves have been confirmed in Indonesia but not all of those reserves are commercially viable due to the quality of the gas and the distance to the market. Indonesia is also a large associated gas producing country but the gas has not been recovered nor utilized because it is less financially attractive and the most gas has been flared. Application of the CDM is to improve the financial balance that makes the investor be attracted to implementation of the flare reduction project in the country. The project activity will contribute to the sustainable development of Indonesia in reducing its reliance on the energy imports and improving the local and global air quality. In addition, the project activity has created employment opportunity to the local people and has introduced a program to help the community development. The project activity meets the sustainable development criteria set by the host country DNA and the contribution has been confirmed by the DNA in the LoA as aforementioned.

CL1
Validation team raised clarification of version No. of the PDD because the one received at the initial phase of the validation was numbered as Version 6 after Version 2 while the electronic file was numbered as Version 2.6. The PP corrected the version number of the PDD as Version 2.6 and the later versions were correctly presented. The CL was closed out.

4.3 Baseline methodology

The baseline for a CDM project is the scenario that reasonably represents the anthropogenic emissions by sources of GHGs that would occur in the absence of the proposed project activity.
The approved methodology AM0009 Version 02 "Recovery and utilization of gas from oil wells that would otherwise be flared" is applied to the project activity. The applicability criteria set in the methodology requires the project activity to substitute only the same type or higher carbon content fuels, is unlikely lead to an increase of fuel consumption and is mainly flared in the absence of the project activity. The relevant supporting information including the market information as listed in the Appendix-B has been presented by the PP for reviewing and it was confirmed that the project activity meets all the criteria. The project will recover and process the associated gas from oil wells and produce dry gas, LPG and condensate and the process and transport facility is gas based. The products are fed into the existing suppliers of the same products in the domestic market. Dry

gas may displace consumption of natural gas from other supply sources, fuel oil or coal. LPG and condensate will substitute the same products that would be supplied from oil refineries. It is unlikely scenario in Indonesia that the fuel substitution leads to an increase of fuel consumption in the domestic market with its energy importing status and the Government policy to reduce fuel subsidies. Only fraction of gas is used on-site while the most gas has been flared in the absence of the project activity. And the project's processing plant is fed gas from the oil fields covered by the project activity only.

The project activity encompasses the recovery of gas at 2 oil fields, the transportation of the recovered gas to the gas processing plant by pipeline and the production of dry gas, LPG and condensate in the gas processing plant. These products are distributed to end-users, substituting fossil fuels at end-users and thereby reducing GHG emissions. The main baseline emission is CO_2 emission from flaring of associated gas, CO_2 emissions through the recovery, transport and processing of gas and fugitive CH_4 emissions are considered as the project emissions and/or leakage emissions. The project boundary is set from Point A to Point B where the emission sources are under the control of the PP.

The identified baseline is flaring of associated gas. The quantity of CO_2 that would be released due to flaring in the baseline is determined as the total amount of carbon contained in the processed condensate, LPG and dry gas delivered to market, under the assumption that all of the carbon is oxidised to CO_2.

The additionality is addressed by following AM0009 Version 02. The latest tool for the demonstration and assessment of additionality Version 03 was also referenced by validator in the assessment.

The starting date for the project activity was 11th November 2004, when OEP signed the contract for the purchase of the gas from the Tambun field. This date, and the subsequent investment in the project activity, precedes the expected date of registration. Consequently, the validation team paid specific attention to the verification of the claim that CDM was considered prior to project commencement. The validation team confirmed that OEP had initiated discussion with a foreign CDM promoter in 2003, when OEP started considering participation in the project activity, and that OEP management decided to seek CDM support in July 2004, prior to making the decision and commitment to invest into the project in November 2004.

The delay in seeking the project's registration by the CDM-EB was due to the fact that OEP could not find a reliable partner to assist them in the CDM registration process. The starting date of the project activity (11 November 2004) is the date that the gas supply agreement was signed, at which point OEP were liable for the purchase of the gas. Even after the agreement was signed, OEP faced difficulties in securing finance with feasible conditions. It was only on 12 September 2005 that notification of credit approval from Bank Bukopin was finally received, which enabled OEP to finally issue a firm order for procurement of the main LPG plant on 5 July 2006. OEP management held both internal and external meetings to discuss how to gain the CDM related revenue that was crucial to support the weak financial position of the project activity.

LRQA has reviewed all the evidence including agreements, signed minutes of meetings (internal and with external advisors) and the letter from a bank as listed in Category A 9) to 18) of the Appendix B and interviewed the project participants. The crucial minute of meeting is dated 7th July 2004 and it is noted that this is one of a series of minutes of meetings documenting the progress of the company, pre-dating its involvement in the CDM.

LRQA hereby confirms that:
a) the decision to seek CDM support was made prior to the decision to invest;
b) the decision to seek CDM support was an important factor for the implementation of the project; and
c) these claims are credible and consistent.

The methodology requires the PP to identify alternative scenarios and evaluate Step1: legal aspects and Step 2: economic attractiveness.
The identified alternative scenarios for treatment of associated gas are as below.
Option 1: Release to the atmosphere at the oil production site (venting)
Option 2: Flaring at the oil production site
Option 3: On-site consumption
Option 4: Injection into the oil reservoir
Option 5: Recovery, transportation, processing and distribution to end-users
Option 6: Recovery and transportation to end-users without processing
The project activity is recovery and utilization of associated gas from the oil fields. The project developer, OEP, is a private company with its core business in oil and gas sector. The above identified alternative scenarios include options to the project developer as well as to Pertamina E&P as owner of the oil fields and considered appropriate.

There is no legal restriction in Indonesia except for Option 1. Only a fraction of associated gas is consumed by Pertamina E&P to produce electricity for oil production activity but there is no further demand and the Option 3. Increase of electricity generation using the excess gas is unlikely scenario. Option 4. Re-injection of gas into the oil reservoir for oil recovery enhancement is also unlikely. Water is used at Tambun Oil Field and Pondok Tengah is very new and it does not need injection of neither water nor gas for the purpose. Therefore, recovery and re-injecting gas to the reservoir is not a feasible option. Option 6. Transporting gas without processing is not a realistic option as it needs to remove liquid contents to meet the pipeline requirements.

Option 2. Flaring is the current practice and plausible as the baseline. It does not need any major investment nor face barriers to the implementation. Option 5. Recovery, transport and processing of gas is the project scenario.

IRR analysis was conducted to the project scenario in a transparent and conservative manner as presented in the PDD and it resulted in negative.
The investment analysis is based on the capital investment, feed gas cost and other operational and maintenance costs, and revenues from sale of products. The project plant has been constructed at the time of validation and the values for all the major items could be confirmed on the firm contracts already signed. The input values indicated in detail in the Appendix 1 to the PDD are confirmed as correct and the investment analysis is reliable. The evidences as listed in Category

A 9) to 12) and 15) to 18) of the Appendix B were reviewed and verified through a detailed evaluation and interviews with the project participants.

The associated gas supply contract from Tambun field is for 10 years. The volume of gas is forecasted to decrease and the contract only guaranteed the volume of gas supply for the first 6 years. The gas supply from Pondok Tengah field is not guaranteed by a firm contract. The project is based on a 10 year BOT contract with PT Bina Bangiun Wibawa Mukti (BBWM), a company owned by the local Government. At the end of 10 years the plant is transferred to BBWM free of charge. Therefore OEP's investment in the project needs to be paid back by the operating revenue during the 10 year period of the BOT Contract. The evidence as listed in Category A 9) to 12) and 15) to 18) of the Appendix B was reviewed and verified through a detailed evaluation and through interviews with the project participants.

The purchase price of associated gas and sales price of most of the lean gas are fixed in signed contracts. The validation team reviewed these contracts and can confirm that the gas price for Tambun field is fixed for the first 5 years and the remaining 5 years are to be agreed with Pertamina. It is rather difficult to accurately forecast future price of energy products. In a country like Indonesia where many commodity prices are fixed at the point of sale it is considered difficult to raise the sale price of products following any increase of the associated gas purchase price. Therefore it is not likely that OEP could easily pass on to its customers the cost of any increased price of associated gas purchase. To be conservative the IRR has been calculated using the contractual fixed prices for both feed gas and the products. The contract values are considered to be in a reasonable range when the validation team compared them with the indicated price of associated gas in the referenced World Bank's report at USD2-3/MMBTU against the commercial value of natural gas at USD5/MMBTU that already has established supply infrastructures. The evidence as listed in Category A 9) to 12) and Category B 6) of the Appendix B were reviewed and verified through the validation process.

The validation team evaluated the suitable hurdle rate for the type of investment in Indonesia and considered it to be greater than 10% considering the risk of investment without relevant financial supports. The project owner did not have a hurdle rate for this kind of investment, consequently three sources of hurdle rate were considered and the most conservative was taken. The three sources were:

1. The first source utilised an estimated interest rate for a project of this nature and added an appropriate margin for project profit. This was undertaken by utilising an estimated interest rate for a loan to the project activity of SIBOR + 4.5%. SIBOR at the time when the bank responded to the application for a loan by the project owner in September 2005 was 3.8% p.a., resulting in a loan rate of 8.3%. The profit element to be added to this rate (for a project undertaken by a private company) was determined by using the deposit interest rate for local currency in Indonesia as referenced to publicly available information of PT. Bank Negara Indonesia (BNI. The rate was between 6 to 8% p.a. The combined minimum acceptable rate of return for a debt funded investment would thus be around 14%, enabling a private company to repay the bank loan and to gain a reasonable level of profit.

Please note that the funding sources of the project activity also include equity investment from private sources and it is reasonable to consider that the equity investors would require equal as or higher rates of return than a bank which would increase the above hurdle rate. Additionally, the rate of return does not take into consideration the additional risks that the project developer faces, such as fluctuation of feed gas volume and quality, and market prices of the final products.

2. The second source utilised a hurdle rate of 10% as indicated as a typical value in AM0009 Version 02.
3. The third source utilised the World Bank GGFR Report which indicated NPV thresholds for investors to recover flare gas needing to be at around USD15mil.

Source 2 above (the 10% rate) is the most conservative of the three approaches and this 10% hurdle rate is considered by our validation team to be very conservative for this kind of investment in Indonesia.
The evidences as listed in Category A 14) and Category B 6) of the Appendix B were reviewed and qualitatively checked using the publicly available information.

The project participants conducted sensitivity analysis using variation of
1) the Capital cost – a reduction of up to 40%,
2) Feed gas price – a decrease of up to by 40%, and
3) Revenue – an increase of up to by 40%.

The sensitivity analysis can be found on Page 17 of the PDD and was reviewed in detail by the validation team. The IRR has been calculated using the values in the signed contracts (as above explained). Large variations from these values are unlikely to happen but have been considered by the project participants as a conservative assessment for the sensitivity analysis. Even by reducing the capital cost or feed gas price by 40% the IRR did not achieve the conservative hurdle rate of 10% (see the above). Only when about 40% increase of revenue is applied does the IRR exceed the hurdle rate, but the validation team consider it very unlikely that the sale price of products would increase significantly without a corresponding increase in the feed gas price. Therefore a 40% increase in sales price with no corresponding increase in gas purchase price is an unlikely scenario. The IRR is still below the hurdle rate even when the products price could be raised by more than 30% while the feed gas price could be maintained (also unlikely scenario). The validation team found that the additionality case presented by the project participants was consistently supported by the sensitivity analysis.

The LPG plant has a production capacity of 100 ton of LPG per day. 8.33 ton of LPG/mmscf is the maximum production rate based on 12 mmscfd feed gas input. If the LPG production is set at the maximum level of 100 tpd and 350 days a year for the first 5 years, the IRR increases to 7.43%. However, it is not realistic that the plant will run at its maximum capacity because this would assume that all of the incoming gas was sufficiently wet, and it was known that the quality of the gas will vary and become less wet as the fields mature. For this reason a more representative value of 60 tonnes per day (5 ton of LPG/mmscf) was used in the IRR analysis.
Even with the plant running at 100% capacity for the full length of the project (i.e 100 tonnes per day for the entire duration of the project), the IRR only just exceeds the conservative threshold at 11.5%. The sensitivity analysis in the PDD

includes an across the board increase in revenues from the process plant, which could arise from either an increase in price or an increase in production level or a combination of both. Only at its most extreme point (an increase of 40% across the board) did the project exceed the hurdle rate.

Therefore it is clear that even applying the maximum and highly optimistic scenario of 8.33 tonnes of LPG per mmscf does not alter the status of the financial barrier. LRQA requested clarification in the PDD and the revised PDD version 3.12 and the supporting calculation attached were verified.

The project activity with such low IRR cannot be considered as economically attractive without the additional revenue by selling of CERs and therefore is considered additional.
A firm ERPA has not been signed for the project activity while the CER price is assumed for the indicative estimation of impact to the project's IRR with revenue from the sale of CERs. The project participants estimated it based on their knowledge of the market price. Financial analysis for additionality demonstration was assessed based on the project's cash flow excluding the CER revenues according to the Additionality Tool Version 03 and the indicative estimation provided by the project participants using the assumed CER price does not affect the project's additionality.

Following CLs were raised by the validation team and addressed by the PP through the validation process.

CL2
Validation team requested the PP to clarify how the gas from Pondok Tengah oil field is included in the project activity. It was confirmed that in the absence of oil processing facilities at the new Pondok Tengah oil field, the oil extracted is sent to Tambun field by underground oil pipeline and mixed with the oil from Tambun field. Associated gas is therefore generated from the mixed oil at Tambun field. The clarification was given in the revised PDD.
The project activity covers associated gas captured from two oil fields, Tambun and Pondok Tengah. At the time of writing the PDD in early 2007 OEP had only signed a contract for the supply of gas from the Tambun field, dated 11 November 2004. No contract had been signed for the supply of gas from the second field, Pondok Tengah, at that time.
Meanwhile, the PP expects that a contract for off-taking of gas from Pondok Tengah for 2 years will be placed to the PP in the absence of investment either by Pertamina or other parties for recovery and utilization facilities at Pondok Tengah field. Related description in the PDD has also been amended to clarify this point. The estimated emission reductions by the project activity were increased to 390,893 tCO2 as the annual average with addition of estimated gas inflow from Pondok Tengah field and both additional revenue and costs were considered in the investment analysis. The CL was closed out.

CL3
Validation team raised clarification on the investment analysis. The investment costs required for the project were presented in different amounts by documents, for example, the BOT agreement, the MoMs, the letter from bank and the financial analysis. It included as cost items the processing fee but relevance of

inclusion of the item as project expenditures should be justified. Through the clarification process, the increase of investment costs was explained by PP and relevant evidences were presented. The operating expenditures have also been clarified and revised for the investment analysis. The amendment was reflected in the investment analysis as presented in the revised PDD and the sensitivity analysis showed consistent results with applied variation of the revenues and expenditures. CL3 was closed out.

CL4
The PDD stated that the venting of associated gas is prohibited by Indonesian Law. Clarification was requested because it is in fact restricted but not prohibited under the law. The PP clarified this point and the statement in the PDD was amended as relevant. It also clarified that the venting has not been practiced due to the safety concern. CL4 was closed out.

4.4 Emission reductions

Emission reductions are calculated as the difference between baseline and project emissions taking into account adjustments for leakage following the applied methodology by the equation below:

$ER_y = BL_y – PE_{CO2,gas,y} - PE_{CO2,otherfuels,y} - PE_{CH4.Plants,y} - L_y$ and
$L_y = PE_{CH4,pipeline,y} - PE_{CH4,pipelineaccident,y}$ as defined project boundary.

The estimated annual emission reductions ex-ante is 355,095tCO_2 for years 1 and 4-5, 682,202tCO_2 for years 2-3 with additional feed gas from Pondok Tengah field and 295,849tCO_2 for years 6-10. The annual average throughout the 10 years crediting period is 390,893tCO_2.

BL_y is calculated as below;

$BL_y = V_{A,y} \times W_{carbon,A,y} \times 44/12 \times 1/1000$

$V_{A,y}$ is obtained as the net volume of feed gas supplied to the processing plant site. The fraction of gas used for on-site energy generation or flared at the gas supplying oil fields is excluded and not affected by the project activity.

$PE_{CO2,gas,y}$ is determined based on a carbon mass balance between the monitoring points A and B in Figure 4 in the PDD. The project site is attached to the gas supply point and there is no other oil well to share the transportation facility with the project activity and the monitoring points Xi and C as described in the methodology are not needed. Therefore $PE_{CO2,gas,y}$ is calculated by;

$PE_{CO2,gas,y} = (M_{carbonA,y} - M_{carbonB,y}) \times 44/12 \times 1/1000$

The project activity is equiped with emergency diesel generators. $PE_{CO2,otherfuels,y}$ is calculated by;

$PE_{CO2,otherfuels,y} = 1/1000 \times \Sigma m_{fuel,y} \times NCV_{fuel} \times EF_{CO2,fuel}$

Fugitive CH_4 emissions from the processing plants are estimated using emission factors in 1995 Protocol for Equipment Leak Emission Estimates published by the USEPA and calculated by equation below;

$$PE_{CH4.Plants,y} = GWP_{CH4} \times 1/1000 \times \Sigma W_{CH4,stream} \times EF_{equipment} \times T_{equipment}$$

The necessary data for applying EPA approach above, namely 1) the number of each type of component in a unit, 2) the service each component is in, 3) the total organic compound and methane concentration of the stream and 4) the time period each component is in that service are all captured in the monitoring plan and procedures.

Leakage emissions are determined by calculation of $PE_{CH4,pipeline,y}$ and $PE_{CH4,pipelineaccident,y}$ as below;

$$PE_{CH4,pipeline,y} = GWP_{CH4} \times 1/1000 \times \Sigma W_{CH4,pipeline} \times EF_{pipeline} \times T_{equipment}$$

$$PE_{CH4,pipelineaccident,y} = GWP_{CH4} \times 1/1000 \times (V_{A,accident} + V_{remain,accident}) \times W_{CH4,pipeline,accident}$$

The project boundary is defined as the measuring point A to the measuring point B. The project site is attached to the gas supply source and the connecting internal pipelines are included in the project boundary. The dry gas is transported to the main Pertamina pipeline through the 35km access pipeline from the measuring point B. In order to make a conservative estimation of the emission reductions by the project activity, the PP counted the fugitive CH_4 emissions from the access pipeline outside of the project boundary as the leakage emissions.

Leakage emission by changes in CO_2 emissions due to the substitution of fuels at end-users is not considered by the PP. The result of market analysis conducted by the PP and the market information presented show the additional supply of fuels by the project activity will not cause additional fuel consumption and the fuels will not substitute other fuels with a lower carbon intensity. Demand for fuels and electricity in Indonesia is rapidly growing. The country has become oil importing country position and fossil fuels especially the domestic coal will continue to be the predominant energy sources for electricity generation in the country.

The emission reductions are estimated being correctly applied the baseline methodology. Following CLs are raised and all closed out through the validation process.

CL5
The volume of dry gas was indicated as 0.72 to the feed gas volume in Table 2 in the section B.5. of the PDD. The estimated volume of dry gas in B.6.3. was about 60% of wet gas while those in B.7.1. was 75% of wet gas input. Clarification was requested to the consistency of the figures. Furthermore, $W_{B,carbon,drygas,y}$ was estimated as the same value as $W_{A,carbon,y}$ at 3.273tCO_2/Sm^3 (see also CL8 below) even though the heating value of dry gas was assumed to be 1,225BTU/SCF against 1,591.9BTU/SCF of the wet gas. Some analysis results of the feed gas were available in Annex 3 of the PDD but the PP was requested to present analysis results of the dry gas to confirm the relevance of the assumption made for the ex-ante estimation.
The PP amended the rate of dry gas production to 0.8 to the wet gas input and $W_{A,carbon,y}$ and $W_{B,carbon,drygas,y}$ were amended to 3.1957kgCO_2/Sm^3 and 2.753kgCO_2/Sm^3 respectively based on the actual performance results since the commencement of the operation. The analysis results showed that dry gas had high heating value as 1,439BTU/SCF while feed gas from Pondok Tengah had only 1,240 BTU/SCF. According to the PP's explanation, the heating value of dry gas is expected to become lower after the processing plants have become fully operational. The gas from new Pondok Tengah field showed lower heating value while 1,591.9BTU/SCF was used for investment analysis for conservative estimate. The clarification by the PP was considered appropriate and the CL was closed out.

CL7
The emission factor of diesel was presented as 3.211tCO_2 per tonne based on the IPCC default values but UK inventory was indicated as the data source.
Clarification was requested and the revised PDD clarified and the data source of emission factor is now indicated as IPCC 2006. The CL was closed out.

CL9
The estimated volume of condensate production was indicated as 15,668 Sm^3 and that was explained to be converted to 8,491 t for years 1-5 and 7,075 t for years 6-10 by the density of 0.86 kg/lit in section B.7.1. of the PDD. The PP was requested to confirm whether the estimation was correct. The figures have been corrected in the revised PDD. The ex-ante estimate was provided based on 22.5bbl/mmscf production rate and the density of 0.667kg/l. The CL was closed out.

4.5 Monitoring methodology and monitoring plan

The monitoring plan is to provide in accordance with provisions of the approved monitoring methodology.

V_{Ay} is monitored by fiscally designed meters. There are 2 feed gas lines from Tambun field, 12" LP line and 4" HP bypass line. 4" bypass line is temporarily used when the capacity of the processing plants are limited and is to be shut-down. For years 2-3, 6" line from Pondok Tengah field is planned to be installed when the associated gas is produced in Pondok Tengah field. The meters are subject to annual calibration. $V_{B,drygas,y}$ is monitored by fiscally designed meter M01. The meter is subject to annual calibration. On-line live metering systems have been employed with manual data recording systems as back-up.
$M_{B,LPG,y}$ and $M_{B,condensate,y}$ are monitored by calibrated weighbridge and tanker respectively and adjusted by stock change.

$W_{A,carbon,y}$, $W_{B,carbon,drygas,y}$, $W_{B,carbon,LPG,y}$ and $W_{B,carbon,condensate,y}$ are taken by a gas chromatograph analysis by external laboratory based on ASTM standards.

All the other project emissions and leakage emissions monitoring are planned in accordance with the requirements of the monitoring methodology. The recorded data is processed to the monthly reports in the protected spreadsheets. The periodically archived monitoring data and the calibration records are stored until 2 years after the end of the crediting period.

The monitoring plan described the role and responsibility of the CDM Project Manager. Consistency checks and cross-checks are planned in the QA/QC procedures. Internal audit of the management system is planned periodically and at least once a year. The auditor will assess implementation of the monitoring and reporting procedures. Management Review meeting is held at least annually to review the effectiveness of the procedures and to implement necessary changes.

The monitoring plan follows the requirements of the applied monitoring methodology and considered appropriate. The following CLs were raised and addressed by the PP through the validation process.

CL6
Validation team requested the PP to clarify the monitoring systems. Section B.7.1. of the PDD indicated the metering points M1 and M3 for wet gas input and M2 and M4 for dry gas output. However, location of monitoring systems mentioned was not indicated in the Figure 2. It was stated in section B.6.1. that a carbon mass balance was conducted between points A, B and X in Figure 1 (4) but the points A and B were not marked in Figure 4 being supposed to be the right figure to be referred to.
The PDD was amended to clarify the points. The monitoring points are presented in Figure 4. Point A is defined to capture the feed gas inputs and Point B consists of delivery of the product dry gas, LPG and condensate. M02/03/04 is defined as the metering points for leakage emissions. The clarification is considered appropriate and the CL6 was closed out.

CL8
The data unit of $W_{A,carbon,y}$ and $W_{B,carbon,drygas,y}$ are indicated as tCO_2 per Sm^3 instead of kg-C/m3, and the data unit of $W_{B,carbon,LPG,y}$ and $W_{B,carbon,condensate,y}$ were indicated as tCO_2 per tonne instead of kg-C/kg in section B.7.1. of the PDD. The data unit of $W_{A,carbon,y}$ and $W_{B,carbon,drygas,y}$ are $kgCO_2/Sm^3$. The PP was requested to explain these. The PP uses weight unit based on CO_2 equivalent instead of C equivalent but the conversion has been correctly reflected in the calculation and it was confirmed that the same result can be obtained. The small discrepancy found in the original PDD was corrected in the revised PDD. The CL was closed out.

CL10
The section B.7.2. of the PDD stated that the commercial data including records of purchase raw gas, sales of products, etc. would be used to corroborate where appropriate. The methodology requires consistency check with commercial data as the QC/QA procedures and the PP is requested to clarify the consistency check is to be undertaken in the monitoring plan.

The consistency checks with IPCC GPG default values for overall calculation of fugitive CH_4 emissions and of measurement with operation data for monitoring of indicators required for CH_4 emissions from the pipeline when accidental event occurred that are requested in the methodology AM0009 were not clearly defined in the monitoring plan.
The procedures for consistency checks with commercial data and IPCC default values have been made clear and conforming to the requirements of the applied monitoring methodology as described in the revised PDD. The CL was closed out.

4.6 Duration of the project activity / crediting period

The project activity started the construction from 11 November 2004 and the operational lifetime is expected for 25 years. The PP selected the 10 years fixed crediting period. The processing plant facilities were newly constructed and the estimated operational lifetime is considered reasonable. The starting date of crediting period is indicated in the PDD on 1/12/2007 and it is to be after the date of project's registration as a CDM project activity.
No CAR or CL was issued to this section.

4.7 Environmental impacts

Under the Indonesian State Minister of Environment decree No. 17 year 2001, a small sized project is not required to submit a complete EIA. The project activity is only required to submit the simplified EIA. The Valid EIA has been approved on 4 March 2007.
The EIA and related legal environmental monitoring are also the requirements of DNA before giving the approval of the CDM project activity.

CAR 2
It was noted that the air emission from exhaust stack of the oil heating system had not been included in the environmental monitoring plan (UKL and UPL). The UKL and UPL approved have defined that the air emission should be monitored in six month frequency. The last monitoring was taken place in August 2006 and the PP was supposed to undertake the air emission monitoring in February 2007 that should include monitoring of aforementioned exhaust stack for oil heating system additionally installed.
The PP has presented inspection report of a third party laboratory that confirmed the inspection results meet the emission standards regulated by the host country Government. The actions taken by the PP are considered relevant and the CAR2 was closed out.

4.8 Stakeholders' comments

The comments by local stakeholders are to be invited in an open and transparent manner. A summary of the comments received is to be provided to the DOE together with a report indicating how due account was taken to the comments received.
The PP has identified the local stakeholders and sought the comments from the representative of local villagers and Bekasi community as well as NGO through the stakeholder consultation meeting. The project activity was considered to contribute in reducing local pollution as well as community development and the stakeholders were supportive to the project activity.

5 Comments by parties, stakeholders and NGOs

In accordance with the requirement of paragraph 40 of the CDM M&P, the PDD is to be made publicly available for 30 days subject to confidentiality provisions agreed with the PP and receive comments from Parties, stakeholders and UNFCCC accredited NGOs on the validation and registration requirements.
The PDD was made publicly available in accordance with the requirements of the procedure for the period of 05 April 2007 to 04 May 2007. No comment was received during this period.

6 Validation Opinion

LRQA has undertaken the validation of the proposed project activity "Tambun LPG Associated Gas Recovery and Utilization Project" based on the requirements of CDM as set out in the Article 12 of the Kyoto Protocol, the CDM M&P, the present annex, subsequent decisions made by the COP/MOP and CDM-EB, and the other rules applicable to the proposed project activity including the host country's legislation and its specific requirements for sustainable development.

Through the process of the validation, the validation team identified 2 CARs and 10 CLs. The PP has taken actions and submitted to LRQA the revised PDD Version 3.12 dated 13 December 2007 and the other supporting evidences.

The validation team is of the opinion that the proposed project activity meets all the relevant UNFCCC requirements for the CDM as well as the host country's national requirements, and if implemented as designed is likely to achieve the emission reductions and contribute to the sustainable development of the host country. Therefore LRQA requests the registration of "Tambun LPG Associated Gas Recovery and Utilization Project" to the CDM Executive Board as a CDM project activity.

7 Appendices

7.1 Appendix A: Letter of approval for the project by the host and investing country DNA

Letter from the National Committee on CDM of the Republic of Indonesia for host country approval to the project activity dated 19 June 2007
Letter from the International Climate Change Division, the Department for Environment, Food and Rural Affairs of the United Kingdom of Great Britain and Northern Ireland for approval of the project activity dated 31 August 2007

7.2 Appendix B: List of documents reviewed

Category A documents (Documents prepared by the PP)

1) The CDM-PDD for Tambun LPG Associated Gas Recovery and Utilization Project Version 3.12, 13th December 2007
2) The CDM-PDD for Tambun LPG Associated Gas Recovery and Utilization Project Version 3.11, 3rd September 2007
3) The CDM-PDD for Tambun LPG Associated Gas Recovery and Utilization Project Version 3.7, 3rd August 2007
4) The CDM-PDD for Tambun LPG Associated Gas Recovery and Utilization Project Version 3.5, 19th July 2007
5) The CDM-PDD for Tambun LPG Associated Gas Recovery and Utilization Project Version 3.0, 29th June 2007
6) The CDM-PDD for Tambun LPG Associated Gas Recovery and Utilization Project Version 2.6, 22nd April 2007
7) The CDM-PDD for Tambun LPG Associated Gas Recovery and Utilization Project Version 2, 2nd April 2007
8) The CDM-PDD for Tambun LPG Associated Gas Recovery and Utilization Project Version 1, 9th March 2007 (for quotation purpose only)
9) Agreement for Developing and Operating Tambun LPG Refinery No. 227/PKS/VII/BBWM/2004–012/PKS/OEP/2004 dated 30 July 2004
10) Agreement on Tambun Field Gas Trading No. 900/C00000/2004-S1-06/XI/PJBG/BBWM/2004 dated 11 November 2004
11) Agreement on Pondok Tengah Gas (Spot) Trading No. 378/EP0000/2007-S1 dated 13 April 2007
12) Agreement on sale of dry gas based on Pondok Tengah oil field
13) Minutes of Meeting dated July 7 2004, October 8 2004, July 8 2005, November 16 2005, March 15 2006, October 4 2006, December 7 2006, December 8 2006, January 10 2007, February 6 2007 PT. Odira Energy Persada
14) Notification of Credit Approval No. 6955/DKM/IX/2005 dated 12 September 2005 Bank Bukopin
15) Agreement on construction of gas compressor
16) Agreement on construction of Tambun LPG plant
17) Agreement on rental gas compressors

18) Manufacturer's estimate for new compressor dated 25 June 2007
19) Inspection Certificate for Orifice Plate, Orifice Gas Meter M-01, M-02, M-03 dated 13 November 2006 Directorate of Meteorology
20) Inspection Certificate for weighbridge dated 22 September 2006
21) Analysis reports for sampled dry gas based on Tambun feed gas and wet gat from Pondok Tengah field
22) Simplified EIA No. 2482/28.02/OMT/2005 on 4 March 2005
23) Inspection report for hot oil heater and flare stack dated 23 May 2007
24) Local Newspaper – Bekasiraya indopos on 6 March 2007 - announcement for public hearing
25) Minutes of stakeholder consultation meeting dated 8 March 2007

Category B documents (Other documents referenced)

1) Approved baseline and monitoring methodology AM0009/Version 02 "Recovery and Utilization of gas from oil wells that would otherwise be flared"
2) Approved baseline and monitoring methodology AM0037 Version 01 "Flare reduction and gas utilization at oil and gas processing facilities"
3) Tool for demonstration and assessment of additionality (Version 03)
4) Sustainable Development Criteria and Indicators National Commission for Clean Development Mechanism
5) Initial National Communication 27 October 1999 State Minister for the Environment, Republic of Indonesia
6) Indonesia Associated Gas Survey – Screening & Economic Analysis Report (Final) 25 October 2006 The World Bank/GGFR (Global Gas Flaring Reduction)
7) Petroleum Report Indonesia 2005-2006 June 2006 Embassy of the United States of America
8) Indonesia: Energy Highlights January 2007 Embassy of the United States
9) Indonesia Country Analysis Briefs January 2007 Energy Information Administration
10) The 6th Five-year Development Plan Bappenas
11) IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories
12) 2006 IPCC Guidelines for National Greenhouse Gas Inventories
13) Protocol for Equipment leak Emission Estimates EPA-453/R-95-017 November 1995 United States Environmental Protection Agency
14) Digest of United Kingdom Energy Statistics 2006
15) ISO6976 Natural gas – Calculation of calorific values, density, relative density and Wobbe index from composition
16) Gas Flaring Reduction Projects – Framework for Clean Development Mechanism (CDM) Baseline Methodologies April 2005 The World Bank/GGFR (Global Gas Flaring Reduction)

7.3 Appendix C: List of persons interviewed

PT. Odira Energy Persada
Mr. Triyatmo Atmodiharjo, Technical Director

State Ministry of Environment
Mr. Gunardi, Climate Change Division
Mr. Prasetyadi Utomo, Climate Change Division

Sindicatum Carbon Capital
Ms. Giulia Sartori, CDM Project Officer
Mr. Kirk Evans, Business Development Director
Mr. Erick Sumarlin Sanjaya Lin, Climate Change Officer

Local Community

Mr. H. Matroji, public figure leader
Mr. H. Saefulloh, district leader
Mr. H. Endang, public figure leader

7.4 Appendix D: How due account has been taken to the public input made to the validation

The PDD was made publicly available in accordance with the requirements of the procedure for the period of 05 April 2007 to 04 May 2007. No comment was received during the period.

7.5 Appendix E: Certificate of Appointment

Attached to this report.

7.6 Appendix F: Validation findings log

Attached to this report.

LRQA
Measure the Difference

Date: 3 September 2007

To whom it may concern,

Certificate of Appointment

Subject: Validation of Tambun LPG Associated Gas Recovery and Utilization Project

We hereby certify that the following personnel have engaged in the validation process has fully satisfied the competence requirements of the validation of the CDM project activity.

Name of Person	Assigned roles
Mr. Michiaki Chiba, LRQA GHG Unit	Team Leader, CDM Validator
Mr. Cholid Bafagih, LRQA Indonesia	Team Member, CDM Validator, Sector Expert
Mr. Prabodha C. Acharya, LRQA India	Technical Reviewer, CDM Validator
Dr. Anne-Marie Warris, LRQA GHG Unit	Final Reviewer/Decision Maker

Decision Maker

Dr. Anne-Marie Warris
Global Technical Manager Greenhouse Gas

CDM Validation Findings Log – Tambun LPG Associated Gas Recovery and Utilization Project
Version 4 – 3 September 2007

Grade 1	Status 2	Finding 3	Corrective action review 4	Process / aspect 5	Date 6	Reference 7	Clause 8
CAR	Closed	It was noted that the project has not received the approval from the Parties involved. The written approval shall be submitted before completion of the validation process.	The letter of approval from the host country DNA was issued and has been submitted to LRQA. Submission of the same from the investing country DNA is on pending. 02 Jul 07 The letter from the investing country DNA has been submitted. CAR1 was hence closed out. 3 Sep 07	Approval from Parties / PDD A.3.	25 Apr 07	CAR1	Para. 40 (a) CDM M&P
CAR	Closed	It was noted that the air emission from exhaust stack of the oil heating system has not been included in the environmental monitoring plan (UKL and UPL). The UKL and UPL approved have defined the air emission should be monitored in six month frequency. The last monitoring was taken place in August 2006 and the PP was supposed to undertake the air emission monitoring in February 2007 that should include monitoring of aforementioned exhaust stack for oil heating system additionally installed.	The PP has presented inspection report of a third party laboratory that confirmed the inspection result s meet the emission standards regulated by the host country Government. 02 Jul 07	Monitoring of environmental impacts / PDD D.1.	25 Apr 07	CAR2	Para. 53. (d) CDM M&P
CL	Closed	The version No. of the PDD was presented as Version 6 after the Version 2 that was looked unclear and clarification was requested.	The PP corrected the version No. as Version 2.6 and the later PDD versions were correctly presented. 02 Jul 07	Version No. of the PDD / PDD A.1.	25 Apr 07	CL1	A.1. of Guidelines for completing CDM-PDD

1. Grading of the finding * 2. New, Open, Closed 3. Description of the LRQA finding 4. Review by LRQA 5. Process, aspect, department or theme
6. Date of the finding 7. YYMM<Initials>seq.# 8. Clause of the applicable standard

* CAR – Corrective Action Request (1. Non-conformity to the laws and regulations of the host country, 2. Non-conformance with the Kyoto Protocol, Decision 17/CP.7 and the other relevant criteria; or 3. Items which would affect CER calculation significantly)
CL – Clarification Request (1. Insufficient descriptions from the viewpoint of accuracy, reliability, completeness, consistency and other criteria. 2. Ambiguous and difficult-to-understand descriptions, as well as matters for which additional descriptions are desired.)

Grade 1	Status 2	Finding 3	Corrective action review 4	Process / aspect 5	Date 6	Reference 7	Clause 8
CL	Closed	In the absence of oil processing facilities at the new Pondok Tengah oil field, the oil extracted is sent to Tambun field by underground oil pipeline and mixed with the oil from Tambun field. Associated gas is therefore generated from the mixed oil at Tambun field and the project is aiming at utilization of the gas collected at Tambun field. In section A.2. of the PDD, it mentions that the scope of the project activity includes all of the gas from Tambun and Pondok Tengah oil fields, and in section B.6.3. it stated that the supply from Pondok Tengah was not included at the stage. The PP clarified that the associated gas originated from the oil transported from Pondok Tengah field was likely supplied to the project tentatively only and no contractual agreement existed with Pertamina for supply of the part of associated gas that was why the possible additional feed gas input was not dependable for ex-ante estimation as well as the investment analysis. But the point needs to be clearly explained in the PDD.	It was clarified in the revised PDD. The PP has signed contract for utilization of associated gas from Tambun oil field only at the time of PDD writing. Meanwhile, the PP expects a contract for off-taking of gas from Pondok Tengah for 2 years will be placed to the PP in the absence of investment either by Pertamina or other parties for recovery and utilization facilities at Pondok Tengah field. Related description in the PDD has also been amended to clarify this point. 02 Jul 07	Project boundary / PDD A.2., A.4.3., B.3.	25 Apr 07	CL2	Para. 52. CDM M&P
CL	Closed	The investment costs required for the project were presented in different amounts by documents, for example, the BOT agreement, the MoMs, the letter from bank and the financial analysis. The difference between the amount considered for investment decision and the other amount should be explained including the difference of work scopes if any. The processing fee as agreed in the BOT contract was considered as the part of project revenues and it should be clearly separated from those counted as the cost items of the project activity.	The increase of investment costs was explained by the PP and evidences were presented. The operating expenditures were also clarified and amended for the investment analysis. The processing fee was removed from the analysis. The amendment was reflected in the investment analysis as presented in the revised PDD. The sensitivity analysis showed consistent results with applied variation of the revenues and expenditures. 02 Jul 07	Investment analysis / PDD B.5.	25 Apr 07	CL3	Para. 43. CDM M&P
CL	Closed	The PDD stated that the venting of associated gas was prohibited by Indonesian Law. It is in fact restricted but not prohibited under the law. Clarification was requested.	The explanation in the PDD regarding the legal requirement was amended. It also clarified that the venting has not been practiced due to the safety concern. 20 Jul 07	Alternative scenarios / PDD B.5.	25 Apr 07	CL4	Para. 45. (e) CDM M&P

1. Grading of the finding * 2. New, Open, Closed 3. Description of the LRQA finding 4. Review by LRQA 5. Process, aspect, department or theme
6. Date of the finding 7. YYMM<Initials>seq.# 8. Clause of the applicable standard

* CAR – Corrective Action Request (1. Non-conformity to the laws and regulations of the host country, 2. Non-conformance with the Kyoto Protocol, Decision 17/CP.7 and the other relevant criteria; or 3. Items which would affect CER calculation significantly)
CL – Clarification Request (1. Insufficient descriptions from the viewpoint of accuracy, reliability, completeness, consistency and other criteria. 2. Ambiguous and difficult-to-understand descriptions, as well as matters for which additional descriptions are desired.)

Grade 1	Status 2	Finding 3	Corrective action review 4	Process / aspect 5	Date 6	Reference 7	Clause 8
CL	Closed	The volume of dry gas was indicated as 0.72mmscfd in Table 2 in the section B.5. of the PDD. It was understood the rate of dry gas production was assumed as 0.72mmscf / mmscf of wet gas input. The estimated volume of dry gas in B.6.3. was presented about 60% of wet gas while those in B.7.1. was 75% of wet gas input. Clarification was requested. Furthermore, W_B,carbon,drygas,y was estimated as the same value as W_A,carbon,y at 3.273tCO2/Sm3 (see also CL8 below) even though the heating value of dry gas was assumed to be 1,225BTU/SCF against 1,591.9BTU/SCF of the wet gas. Some analysis results of the feed gas were available in Annex 3 of the PDD, but the PP was requested to present analysis results of the dry gas to confirm the relevance of the assumption made for the ex-ante estimation.	The PP amended the rate of dry gas production to 0.8 to the wet gas input and W_A,carbon,y and W_B,carbon,drygas,y were amended to 3.1957kgCO2/Sm3 and 2.753kgCO2/Sm3 respectively based on the actual performance results since the commencement of the plant operation. The analysis results showed that dry gas had high heating value as 1,439BTU/SCF while feed gas from Pondok Tengah had only 1,240 BTU/SCF. According to the PP's explanation, the heating value of dry gas is expected to become lower after the processing plants have become fully operational. The gas from new Pondok Tengah field showed lower heating value while 1,591.9BTU/SCF is used for investment analysis for conservative estimate. The clarification by the PP was considered appropriate and the CL was closed out. 20 Jul 07	Estimation of project emissions / PDD B.6.3., B.7.1.	25 Apr 07	CL5	Para. 53. (a) CDM M&P
CL	Closed	Section B.7.1. of the PDD indicated the metering points M1 and M3 for wet gas input and M2 and M4 for dry gas output. However, location of monitoring systems mentioned was not indicated in the Figure 2. It was mentioned in section B.6.1. that a carbon mass balance was conducted between points A, B and X in Figure 1. but the points A and B were not marked in Figure 4 being supposed to be the right figure to be referred to.	The PDD was amended to clarify the points. The monitoring points were presented in Figure 4. Point A was defined to capture the feed gas inputs and Point B consisted of delivery of the product dry gas, LPG and condensate. M02/03/04 were defined as the metering points for leakage emissions. The clarification was considered appropriate and the CL6 was closed out. 20 Jul 07	Monitoring plan / A.4.3., B.6.1., B.7.1.	25 Apr 07	CL6	Para. 53. (a), (b) CDM M&P
CL	Closed	The emission factor of diesel was defined as 3.211tCO2 per tonne based on the IPCC default values. But UK inventory was indicated as the data source. Clarification was requested.	The revised PDD clarified the emission factor applied and IPCC 2006 guideline was correctly referenced. 02 Jul 07	Emission factors / PDD B.6.2.	25 Apr 07	CL7	Para. 53. (a) CDM M&P
CL	Closed	The data unit of W_A,carbon,y and W_B,carbon,drygas,y were indicated as tCO2 per Sm3 instead of kg-C/m3, and the data unit of W_B,carbon,LPG,y and W_B,carbon,condensate,y were indicated as tCO2 per tonne instead of kg-C/kg in section B.7.1. of the PDD. The data unit of W_A,carbon,y and W_B,carbon,drygas,y are kgCO2/Sm3. The PP was requested to explain these.	The PP used weight unit based on CO2 equivalent instead of C equivalent but the conversion has been correctly reflected in the calculation and it was confirmed that the same result can be obtained. The small discrepancy found in the original PDD was corrected in the revised PDD. 02 Jul 07	Monitoring plan / B.6.3., B.7.1.	25 Apr 07	CL8	Para. 53. (a), (b) CDM M&P

1. Grading of the finding * 2. New, Open, Closed 3. Description of the LRQA finding 4. Review by LRQA 5. Process, aspect, department or theme
6. Date of the finding 7. YYMM<Initials>seq.# 8. Clause of the applicable standard

* CAR – Corrective Action Request (1. Non-conformity to the laws and regulations of the host country, 2. Non-conformance with the Kyoto Protocol, Decision 17/CP.7 and the other relevant criteria; or 3. Items which would affect CER calculation significantly)
CL – Clarification Request (1. Insufficient descriptions from the viewpoint of accuracy, reliability, completeness, consistency and other criteria. 2. Ambiguous and difficult-to-understand descriptions, as well as matters for which additional descriptions are desired.)

Grade 1	Status 2	Finding 3	Corrective action review 4	Process / aspect 5	Date 6	Reference 7	Clause 8
CL	Closed	The estimated volume of condensate production was indicated as 15,668 Sm3 and that was explained to be converted to 8,491 t for years 1-5 and 7,075 t for years 6-10 by the density of 0.86 kg/lit in section B.7.1. of the PDD. The PP was requested to confirm the estimation was correct.	The figures were corrected in the revised PDD and consistency of values used for ex-ante estimation was confirmed. 02 Jul 07	Monitoring plan / B.6.3., B.7.1.	25 Apr 07	CL9	Para. 53. (a), (b) CDM M&P
CL	Closed	The section B.7.2. of the PDD stated that the commercial data including records of purchase raw gas, sales of products, etc. would be used to corroborate where appropriate. The methodology requires consistency check with commercial data as the QC/QA procedures and the PP was requested to clarify the consistency check is to be undertaken in the monitoring plan. The consistency checks with IPCC GPG default values for overall calculation of fugitive CH4 emissions and of measurement with operation data for monitoring of indicators required for CH4 emissions from the pipeline when accidental event occurred that are requested in the methodology AM0009 were not clearly defined in the monitoring plan.	The procedures for consistency checks with commercial data and IPCC default values have been made clear and conforming to the requirements of the applied monitoring methodology as described in the revised PDD. 02 Jul 07	QA/QC procedures / PDD B.7.1., B.7.2.	25 Apr 07	CL10	Para. 53. (e) CDM M&P

1. Grading of the finding * 2. New, Open, Closed 3. Description of the LRQA finding 4. Review by LRQA 5. Process, aspect, department or theme
6. Date of the finding 7. YYMM<Initials>seq.# 8. Clause of the applicable standard

* CAR – Corrective Action Request (1. Non-conformity to the laws and regulations of the host country, 2. Non-conformance with the Kyoto Protocol, Decision 17/CP.7 and the other relevant criteria; or 3. Items which would affect CER calculation significantly)
CL – Clarification Request (1. Insufficient descriptions from the viewpoint of accuracy, reliability, completeness, consistency and other criteria. 2. Ambiguous and difficult-to-understand descriptions, as well as matters for which additional descriptions are desired.)