



**CDM Project Activity Registration  
and Validation Report Form**  
*(By submitting this form, designated operational entity confirms  
that the proposed CDM project activity meets all validation and  
registration requirements and thereby requests its registration)*

**Section 1: Request for registration**

<b>Name of the designated operational entity (DOE) submitting this form</b>	Det Norske Veritas Certification Ltd. (DNV)
<b>Title of the proposed CDM project activity (Section A.2 of the attached CDM-PDD) submitted for registration</b>	Lihir Geothermal Power Project
<b>Project participants (Name(s))</b>	Lihir Gold Ltd
<b>Sector in which project activity falls</b>	Sectoral scope 1: Energy industries
<b>Is the proposed project activity a small-scale activity?</b>	<u>Yes</u> / <u>No</u> (underline as applicable)

**Section 2: Validation report**

<b>List of documents to be attached to this validation report (please check mark):</b>	
<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The CDM-PDD of the project activity</li> <li><input checked="" type="checkbox"/> An explanation by the submitting designated operational entity of how it has taken due account of comments on validation requirements received, in accordance with the CDM modalities and procedures, from Parties, stakeholders and UNFCCC accredited non-governmental organizations; (Note: Included in DNV's Validation Report (DNV Report No. 2006-0235, rev. 02))</li> <li><input checked="" type="checkbox"/> The written approval of voluntary participation from the designated national authority of each Party involved, including confirmation by the host Party that the project activity assists it in achieving sustainable development: <ul style="list-style-type: none"> <li>○ DNA of Papua New Guinea: Department of National Planning and Rural Development: Letter of approval for the Lihir Geothermal Power Project, 2 December 2005</li> </ul> </li> <li><input checked="" type="checkbox"/> Other documents, including any validation protocol used in the validation <ul style="list-style-type: none"> <li>○ DNV's Validation Report (DNV Report No. 2006-0235, rev. 02), including a validation protocol and a list of persons interviewed by DNV during the validation process and including an explanation of how DNV has taken due account of comments on validation requirements received.</li> </ul> </li> <li><input checked="" type="checkbox"/> Information on when and how the above validation report is made publicly available.</li> <li><input checked="" type="checkbox"/> Banking information on the payment of the non-reimbursable registration fee</li> <li><input checked="" type="checkbox"/> A statement signed by all project participants stipulating the modalities of communicating with the Executive Board and the secretariat in particular with regard to instructions regarding allocations of CERs at issuance.</li> </ul>	

### **Executive Summary and Introduction, including**

- **Description of the proposed CDM project activity**
- **Scope of validation process (include all documentation that has been reviewed and name persons that have been interviewed as part of the validation, as applicable)**
- **DOE Validation team (list of all persons involved in the validation, describing functions assumed in the validation)**

The project consists of the development and operation of a geothermal power station and is located within the Lihir Gold Mine site on Lihir Island, which is situated in the Bismarck Archipelago, Papua New Guinea. The selected site is in an active geothermal area, and the geothermal power station will have a final net capacity of 52.8MW in 2007. The project was developed in two phases, with 31.7MW installed in 2005 and a further 21.1MW installed in 2006. The geothermal project is partially replacing an existing HFO fuelled power station with capacity of approximately 70MW. It is anticipated that the emission reductions as a result of this level of generation will be approximately 278,904 tonnes CO<sub>2</sub>e per year based on the ex ante determination of the grid emission factor of 0.678 tonnes CO<sub>2</sub>e/MWh.

The validation scope is an independent and objective review of the Project Design Document (PDD). The PDD was reviewed against the criteria stated in Article 12 of the Kyoto Protocol criteria for the CDM, the CDM modalities and procedures as agreed in the Marrakech Accords and relevant decision by the CDM Executive Board. The validation team has, based on the recommendation in the IETA/PCF Validation and Verification Manual, and employed a risk-based approach, focusing on the identification of significant risks for the project implementation and the generation of CERs.

The following documents were reviewed:

Lihir Management Company Ltd: CDM PDD for the “Lihir Geothermal Power Project”, Version “undated” of February 2005, Version “undated” of August 2008 and Version No 2 of 7 November 2005

Lihir Management Company Ltd: Financial Analysis for the “Lihir Geothermal Power Project, version of February 2005 and August 2005

Lihir Gold Ltd: Environmental Inception Report, December 2004

Department of National Planning and Rural Development: Letter of approval for the Lihir Geothermal Power Project, 2 December 2005

CDM Executive Board: ACM0002 Consolidated methodology for grid connected electricity generation from renewable sources, Version 04, 28 November 2005.

CDM Executive Board: Tool for the demonstration and assessment of additionality, Version 02, 28 November 2005.

Department of Environment and Conservation: Environmental Performance Statement 14 April 2003

Department of Environment and Conservation: Approval of Environmental Inception Report, 10 February 2005

Det Norske Veritas (DNV) et al. for the World Bank and IETA, Validation and Verification Manual, at [www.vvmanual.info](http://www.vvmanual.info)

Lihir Gold Ltd: Annual Report 2003

International Energy Agency: World Energy Outlook 2002, 2003

Bank of Papua New Guinea: Statistics Update Vol 4 No 12, 11 Jun 2004

Australian Government – Export Finance and Insurance Corporation: Rating and Benchmarking PNG – The Numbers and Their Implications, Presentation to 20th Australia PNG Business Forum, Cairns, 28 March 2004

Lihir Gold Ltd Press Release: First Geothermal Power Station in PNG, 16 April 2003

Lihir Gold Ltd Press Release: Official Launch of the 6MW Geothermal Power Station, 27 April

2003

The following persons were interviewed:

Geoff Day - LMC - General Manager External Affairs and Sustainability Development  
 Michael Wiener – SMEC Australia  
 Stuart Sanke – LMC Engineering Manager  
 Phillip Matha – LMC PS Superintendent  
 Bernard Suruman – PNG Department of Environment and Conservation  
 Luke Kabariu – LMC (senior Lihir representative)

The validation team consisted of the following personnel:

Mr Simon Dawes                      DNV Sydney, Australia Team Leader, GHG auditor  
 Mr Michael Lehmann              DNV Oslo, Norway              Technical reviewer, Sector expert

For further details, please refer to the “Introduction” and “References” Sections of DNV’s Validation Report (DNV Report No. 2006-0235, rev. 02).

#### **Description of methodology for carrying out validation**

- **Review of CDM-PDD and additional documentation attached to it**
- **Assessment against CDM requirements (e.g. by use of a validation protocol)**
- **Report of findings by the DOE, e.g. by use of type of findings (e.g. corrective action requests, clarifications or observations). Please explain the way findings are “labelled” during validation.**
- **Include statements or assessments in the section “Conclusions, final comments and validation opinion” below.**

The validation consisted of the following three phases:

- i) a desk review of the project design, baseline and monitoring plan
- ii) follow-up interview with project stakeholders
- iii) the resolution of outstanding issues and the issuance of the validation report and opinion

The original and revised versions of the project design document (PDD) of the project were assessed. Additional background documents related to the project design and the baseline were also consulted.

On 22 February 2005 DNV performed interviews with LMC personnel and visited the Lihir mine site. A telephone interview was held with a senior Lihirian representative on 21 March 2005 and with a representative of the PNG DNA on 22 March 2005. The purpose of the interviews was to confirm the information on community consultation and environmental compliance found in the PDD.

In order to ensure transparency, a validation protocol has been customized for the project, according to the Validation and Verification Manual. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validation of the identified criteria.

Findings established during the validation can either be seen as a non- fulfilment of validation criteria or where a risk to the fulfilment of project objectives is identified. Such findings are termed Corrective Action Requests (CAR). The term Clarification may be used where additional information is needed to fully clarify an issue. The Corrective Action Requests and requests for Clarification raised by DNV were resolved through communication with the project participants. To guarantee the transparency of the validation process, the concerns raised by DNV and the response provided by the project participants are documented in Table 3 of the Validation Protocol in Appendix A of DNV’s Validation Report (DNV Report No. 2006-0235, rev. 02).

For further details, please refer to the “Methodology” Section of DNV’s Validation Report (DNV Report No. 2006-0235, rev. 02) and the IETA/PCF Validation and Verification Manual ([www.vvmanual.info](http://www.vvmanual.info)).

**Explanation by the submitting designated operational entity of how it has taken due account of comments on validation requirements received, in accordance with the CDM modalities and procedures, from Parties, stakeholders and UNFCCC accredited non-governmental organizations;**

- **Description of how and when the PDD was made publicly available**
- **Description of how comments were received and made publicly available**
- **Explanation of how due account has been taken of comments received**
- **Compilation of all comments received (Identify the submitter)**

The PDD of August 2005 (applying ACM0002) was made publicly available on DNV’s climate change website ([www.dnv.com/certification/climatechange](http://www.dnv.com/certification/climatechange)) and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 23 August 2005 and 21 September 2005. No comments were received.

Also the earlier PDD of February 2005 (applying AM0019) was made publicly available on DNV’s climate change website and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 26 February 2005 and 28 March 2005. No comments were received in this call either.

#### **Conclusions, final comments and validation opinion**

- **Provide conclusions on each requirement under paragraph 37 of the CDM modalities and procedures, describing how these requirements have been met. This shall include assessments and findings (e.g. corrective action requests, clarifications or observations) in relation to each requirement, including a confirmation that all issues raised have been addressed to the satisfaction of the DOE.**
- **Final comments and validation opinion**

Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the “Lihir Geothermal Power Project” in Papua New Guinea. The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism (CDM) as well as criteria given to provide for consistent project operations, monitoring and reporting.

The review of the project design document and the subsequent follow-up interviews have provided DNV with sufficient evidence to determine the fulfilment of stated criteria.

The objective of the project activity was to establish a new geothermal power plant with 52.8 MW of installed net capacity using geothermal energy from the Luise caldera released during mining operations at the Lihir Gold Mine. It supplies power to the Lihir Gold Mine and a small local grid.

The only project participant is Lihir Gold Ltd. The host Party Papua New Guinea meets all relevant participation requirements. No participating Annex I Party was identified for the project. The DNA of Papua New Guinea has provided written approval of voluntary participation.

By promoting renewable energy, the project is in line with the current sustainable development priorities of Papua New Guinea. The DNA of Papua New Guinea confirmed that the project assists in achieving sustainable development.

The project applies the approved consolidated baseline methodology ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”. The

baseline methodology has been correctly applied and the assumptions made for the selected baseline scenario are sound. The selected baseline scenario is the installation of a conventional power plant using fossil fuel, which is the existing installation. It is sufficiently demonstrated that the project is not a likely baseline scenario and that emission reductions attributable to the project are thus additional.

By displacing fossil fuel based electricity with electricity generated from a renewable source, the project will result in emission reductions that are real, measurable and will give long-term benefits to the mitigation of climate change. The emission reductions forecast stated in the PDD is a likely estimate.

The monitoring methodology ACM0002 has been correctly applied. The monitoring plan provides for monitoring of the indicators necessary for the ex-post determination of project emissions. The combined margin emission coefficient is fixed for the crediting period of the project.

Local stakeholders' comments were consulted and comments received were taken into account in the project design. Comments by Parties, stakeholders and NGOs were also invited via the UNFCCC web-site. No comments were received.

In summary, it is DNV's opinion that the project, as described in the project design document of 7 November 2005, meets all relevant UNFCCC requirements for the CDM and correctly applies the approved baseline and monitoring methodology ACM0002. Hence, DNV requests the registration of the "Lihir Geothermal Power Project" in Papua New Guinea as a CDM project activity.

For further details, please refer to the "Validation Findings" Section and Table 1 of the Validation Protocol in Appendix A of DNV's Validation Report (DNV Report No. 2006-0235, rev. 02).

The DOE declares herewith that in undertaking the validation of this proposed CDM project activity it has no financial interest related to the proposed CDM project activity and that undertaking such a validation does not constitute a conflict of interest which is incompatible with the role of a DOE under the CDM.

By submitting this validation report, the DOE confirms that all validation requirements are met.

Name of authorized officer signing for the DOE Michael Lehmann

Date and signature for the DOE

24 March 2006

*Michael Lehmann*

**Section below to be filled by UNFCCC secretariat**

Date when the form is received at UNFCCC secretariat

Date at which the registration fee has been received

Date at which registration shall be deemed final

Date of request for review, if applicable

Date and number of registration

Date

Number