



UNFCCC Secretariat
 Martin-Luther-King-Strasse 8
 D-53153 Bonn
 Germany

DET NORSKE VERITAS
 CERTIFICATION AS
 Climate Change Services
 Veritasveien 1
 NO-1322 Høvik
 Norway
 Tel: +47-6757 9900
 Fax: +47-6757 9911
 http://www.dnv.com
 NO 945 748 931 MVA

Att: CDM Executive Board

Your ref.:
 CDM Ref 0009

Our ref.:
 MLEH/BLARA

Date:
 18 June 2008

**Response to requests to review
 “La Esperanza Hydroelectric Project” (0009)**

Dear Members of the CDM Executive Board,

We refer to the issue raised by the requests for review by three Board members regarding our request of issuance for project activity 0009 “La Esperanza Hydroelectric Project” and would like to provide our responses to the issue raised.

Comment

The PDD states that in Phase 1A, 1B and 2 the installed capacities will be 485 kW, 785 kW, and 11.5 MW, respectively. The DOE verified that the actual nameplate capacities for the respective phases are 500kW, 900 kW, and 11.5 MW while the monitoring report states that the installed capacities are 500kW, 1MW, and 12MW. Clarification is required as to the reason for these changes from the PDD and the inconsistencies in the description of the capacity.

DNV Response

The project activity was planned and built in three phases, as stated in the registered PDD. The following table compares the installed capacities as foreseen in the PDD, and observed after implementation:

	In operation	Installed capacity		
		<i>Registered PDD, dated on 8 August 2005</i>	<i>2nd verification and certification report</i>	<i>2nd monitoring report</i>
Powerhouse 1A	June 2003	485 kW	500 kW	500 kW
Powerhouse 1B	June 2004	785 kW	900 kW	1 MW
Powerhouse 2	January 2006	11.5 MW	11.5 MW	12 MW

It must be noted that the total installed capacity in any cases is below 15 MW.

The registered project design document:

It needs to be pointed out that the values stated in the registered PDD were estimated by the project participant taken into account assumptions such as:

- Head difference between the intake and the turbine.
- The size of the penstock assumed to be used.
- The distance of the penstock.
- Number of obstructions and bends in the penstock.

When the construction started and the detailed engineering analyzed the most efficient installation possible to minimize penstock losses, the project participant ordered the actual turbines and generators to be installed in the project.

The original operating contract between SERNA (Ministry of Environment and Natural Resources) and the project Participant was issued by applying these values.

As the approval by SERNA does not state values; the PP has included these values in the Power Purchase Agreement with ENEE.

Justification of the discrepancies in installed capacities in Phase 1A.

The actual installed cross flow turbine - generator - penstock has a rating of 485 kW at the design flow of 4 m³/sec. However, the purchased turbine has a nameplate rating of 500 kW. The manufacturing of a turbine of exactly 485 kW is not standard and in consequence the purchase of a 485 kW turbine would be more expensive. Therefore, it was decided to purchase a commercially available turbine and generator of 500 kW. This is the causes of the difference observed between the expected capacity stated in the PDD and the actually capacity installed. The actual operating parameter has shown that the project owner can operate continually at 485 kW and also up to 535 kW if the water is available and adequate ventilation is maintained.

The National Company of Electric Energy (ENEE) of Honduras has witnessed this turbine in operation and issued a commercial operating certification for 485 KW capacity. DNV was able to verify this by comparison with the Commercial Certification letter issued by ENEE on 29 July 2003, as well as the updated quote of the equipment (turbine/generator), issued by the supplier on 9 November 2001.

In summary, the PDD referred to the installed capacity as estimated during the design of the project, which was also confirmed by in the Commercial Certification letter.

Justification of the discrepancies in the installed capacity of Phase 1B

For Phase 1B of the project, it was estimated during the design phase that the installed capacity would be 785 kW. However, the project participant was able to gain some elevation difference and reduce penstock losses by making specific changes in the length and size of the penstock, and a minor relocation of the powerhouse. These changes were taken into the actual manufacture of the turbine and the nameplate capacity was modified to 900 kW according to the turbine rating by the manufacturer. The purchased *generator*, however, has a nameplate capacity of 1000 kW, since there are no generators of exactly 900 kW available on the market, and such a generator would in consequence be more expensive. It was therefore decided to purchase a commercially available generator of 1000 kW.

In summary, phase 1B has a turbine with a 900 kW nameplate rating and an electrical generator coupled to this turbine with a 1000 kW nameplate rating. DNV has also verified the quote of the equipment (turbine and generator) dated 26 January 2001.

ENEE has witnessed the turbine operating together with the phase 1A turbine and has issued a commercial operating certification letter for the so-called demonstrated capacity of 1233 kW for Phases 1A and 1B combined. The certification letter confirms that the phase 1B turbine together with phase 1A turbine can operate at 1,233 kW total, but that phase 1B is built to operate at 900 kW with 4 m³/sec of water available and even can operate up to 1000 kW using additional water. DNV was able to verify the same against the Commercial Certification issued by ENEE on 22 June 2004.

In summary, the PDD referred to the installed capacity as estimated during the design phase. The verification and certification report referred to the value stated for the Phase 1B turbine in the commercial operating certification, while the monitoring report referred to the nameplate of the generator.

Justification of the discrepancies of the installed capacity on the Phase 2

With regard to Phase 2 of the project, the installed capacity estimated in the registered PDD was 11.5 MW.

However, when the final detailed design was completed for the turbines, powerhouse and penstock the project design showed that at the design flow of 4 m³/sec each turbine could produce 6,145 kW for a total output of 12,290 kW. The turbine manufacturer then built the turbines to that specification, with a nameplate rating of 6,145 kW. The generators were specifically manufactured to be used with the turbines and with nameplate rating of 7700 kVA/6,150 kW. After installation and testing was completed it was shown that the turbines operated as designed at a total output of 12,300 kW.

DNV verified the installed capacity by inspection of the nameplates during the site visit to the plant.

ENEE witnessed the operation and provided the commercial operating certification at the contract amount as per the ENEE contract of 11,528 kW. DNV was able to verify the above by comparison with the Commercial Certification letter issued by ENEE on 6 November 2006, as well as the updated quote of the equipment (turbine/generator), issued by the supplier on 17 June 2004.

In summary, for Phase 2 of the project, the PDD referred to the estimated installed capacity of 11.5 MW. The verification and certification report referred to the capacity as confirmed in the commercial operating certification, at 11,528 kW, while the monitoring report referred to the nameplates of the turbine and generator.

We hope this provides a satisfactory explanation of the discrepancies with regard to the installed capacity of the three phases.

Yours faithfully
for DET NORSKE VERITAS CERTIFICATION AS



Michael Lehmann
Technical Director
Climate Change Service