

THIRD MONITORING REPORT

DATED 7th August, 2008

FOR THE PERIOD

01ST MAY 2007 TO 30th JUNE 2008

“Babanpur, Killa and Sahoke Mini Hydroelectric Projects”

Kotla Hydro Power Private Limited

Reference No.UNFCCC00000329 - CDMP

Project Location:

**Kotla Branch Canal, District Sangrur,
Punjab, India**

Kotla Hydro Power Private Limited

B-37, Sector-1, Noida – 201301

Uttar Pradesh, India

Fax No. 91-0120-4621333

Current Status of the Project

Three Mini Hydroelectric Power projects aggregating to 3.75 MW at Babanpur, Killa and Sahoke on the Kotla Branch canal, District Sangrur, Punjab, India have been commissioned and operating successfully. Mini Hydroelectric Project at Babanpur (1MW) was commissioned in July 2004, Killa (1.75MW) was commissioned in November 2005 and Sahoke (1MW) was commissioned in October 2006.

The projects were completed with major equipment supplied by the suppliers as under:

Table 1: Project Details

| S.No. | MHP | Equipment | Qty | Supplier |
|-------|----------|---------------------------|-----|---|
| 1 | Babanpur | Turbine & its accessories | 2 | HPP Energy India Private Limited, New Delhi |
| | | Induction Generator | 2 | |
| 2 | Killa | Turbine & its accessories | 2 | Boving Fouress Limited, Bangalore |
| | | Synchronous Generator | 2 | |
| 3 | Sahoke | Turbine & its accessories | 1 | Boving Fouress Limited, Bangalore |
| | | Synchronous Generator | 1 | |

The promoters to the Company provided the entire equity and loan was funded by Indian Renewable Energy Development Agency Limited (IREDA).

The name of the Company has been changed from “Kotla Hydro Power Limited” to “Kotla Hydro Power Private Limited”. The fresh certificate of incorporation and

Host Country approval for the same has been received by the project activity. The records at CDM Registry with respect to the revised modalities of communication signed by all Project Participants have been updated.

During the present monitoring period i.e. 01st May 2007 to 30th June 2008, all the three (3) Plants exported net energy of 27.20 Million kWh.

Statement to What Extent the Project has been Implemented as Planned

The projects were completed as planned and described in the Project Design Document (PDD).

All the three schemes are in operation continuously (with outages – forced & planned) since commissioning. The project Babanpur started generation on 1st July 2004, Killa on 1st November 2005 and Sahoke on 31st October 2006.

The purpose of the projects is to generate electricity by utilizing water flowing through the existing canal system.

Monitoring Period

This is the third monitoring report associated with the project activity. The first monitoring report covered the period from 26th April 2003 to 31st March 2006 (Both days included) and the second monitoring report covered the period from 1st April 2006 to 30th April 2007 (Both days included) and the CERs for the same have already been issued.

The period covered in this monitoring report is from 1st May 2007 to 30th June 2008 (Both days included). This monitoring report does not cover any period of time covered by the previous monitoring report.

Sustainability – Economic and Social Well-being

The project activity has resulted in sustainable development in the region as follows:

1. Generating clean power by utilizing water has helped in eliminating an equivalent carbon dioxide, sulphur dioxide, nitrogen oxides, SPM *etc.* which would have been otherwise generated to produce electricity.
2. Power generation from a renewable source like water has helped to substitute & conserve considerable amount of finite, non-renewable energy resource (coal & natural gas).
3. Project activity has resulted in creation of direct and in-direct employment in the vicinity.
4. Additional economic benefits have accrued by creation of business opportunity for local stakeholders such as villagers, local shop owners, small contractors, schools, hospitals, etc.
5. Project Area has been lighted with road reflectors and flash lights 24 hours a day which has provided security for the local people commuting in odd hours.
6. Project activity has contributed its share in reducing the demand-supply gap in the power deficit state of Punjab.
7. Helped in Up-gradation of old rural grids and strengthening of country's rural electrification coverage.
8. Helped in strengthening of existing irrigation canals, bridges and roads by up-gradation of these structures.
9. Mechanical Trash racks and trash cleaning machines helped remove trash in the canal resulting in flow of clean water in the canal for irrigation and drinking purposes.
10. Project activity serves a small demonstrative project for clean renewable energy generation in the state. (As these projects are being the first private sector small hydropower projects in the state)
11. Project activity would also contribute to the state exchequer.

Obtained Parameters According to Monitoring Plan

For the project, following parameters were monitored on a continuous basis.

Energy:

- i. The Energy exported (kWh) and Energy imported (kWh) at the interconnection point have been measured from the electronic energy meters installed at the interconnection points at all 3 (three) project schemes.
- ii. The Net saleable energy has been calculated as a difference between energy exported and energy imported. It is based on monthly joint meter readings.
- iii. Monthly joint meter readings were taken at interconnection point and certified by representatives of Kotla Hydro Power Private Limited (KHPPL) and the purchaser i.e. Punjab State Electricity Board (PSEB).
- iv. The joint meter readings were used to raise invoice for sale of net energy to PSEB.
- v. The gross energy generated has been measured by the energy meters installed at the generation end on an hourly basis.
- vi. The auxiliary energy consumption has been measured by the auxiliary energy meters installed at the plant on an hourly basis.
- vii. The data of the aforesaid parameters are recorded on hourly basis which are summed into a daily reading.
- viii. The daily readings were aggregated to monthly readings.
- ix. Monthly reports stating the energy exported, energy imported, gross energy generated and auxiliary energy consumption were prepared by shift-in-charge and verified by plant managers.
- x. The finance department cross checked the data provided by plant managers.

The month-wise data on gross energy generated is given in Table 2 below:

Table 2: Gross Energy Generation (kWh)

| Billing Month | Year | Babanpur | Killa | Sahoke | Total |
|----------------------|-------------|-----------------|-----------------|----------------|-----------------|
| May | 2007 | 738939 | 1255625 | 869520 | 2864084 |
| Jun | 2007 | 456392 | 784407 | 608280 | 1849079 |
| Jul | 2007 | 637660 | 1098280 | 628150 | 2364090 |
| Aug | 2007 | 764241 | 1298750 | 854177 | 2917168 |
| Sep | 2007 | 699135 | 1194367 | 782506 | 2676008 |
| Oct | 2007 | 664279 | 1168268 | 498562 | 2331109 |
| Nov | 2007 | 522723 | 923370 | 573128 | 2019221 |
| Dec | 2007 | 561674 | 893170 | 689200 | 2144044 |
| Jan | 2008 | 153709 | 288898 | 288146 | 730753 |
| Feb | 2008 | 168047 | 255150 | 80174 | 503371 |
| Mar | 2008 | 778198 | 1357480 | 853150 | 2988828 |
| Apr | 2008 | 288730 | 505829 | 321422 | 1115981 |
| May | 2008 | 700362 | 1230250 | 782839 | 2713451 |
| Jun | 2008 | 221804 | 386312 | 271590 | 879706 |
| Total | | 7355893 | 12640156 | 8100844 | 28096893 |

The month-wise data on auxiliary energy consumption is given in Table 3 below:

Table 3: Auxiliary Energy Consumption

| Billing Month | Year | Babanpur | Killa | Sahoke | Total |
|----------------------|-------------|-----------------|--------------|---------------|--------------|
| May | 2007 | 30659 | 30915 | 25180 | 86754 |
| Jun | 2007 | 19192 | 20077 | 18320 | 57589 |
| Jul | 2007 | 27130 | 28970 | 21150 | 77250 |
| Aug | 2007 | 31331 | 32970 | 25077 | 89378 |

| Billing Month | Year | Babanpur | Killa | Sahoke | Total |
|----------------------|-------------|-----------------|---------------|---------------|---------------|
| Sep | 2007 | 28285 | 29877 | 23386 | 81548 |
| Oct | 2007 | 25209 | 26728 | 13822 | 65759 |
| Nov | 2007 | 19593 | 20770 | 16748 | 57111 |
| Dec | 2007 | 21264 | 21300 | 20860 | 63424 |
| Jan | 2008 | 6509 | 7498 | 10206 | 24213 |
| Feb | 2008 | 6237 | 6230 | 2314 | 14781 |
| Mar | 2008 | 28828 | 32610 | 22990 | 84428 |
| Apr | 2008 | 13380 | 14159 | 10722 | 38261 |
| May | 2008 | 27402 | 32410 | 22279 | 82091 |
| Jun | 2008 | 9954 | 11372 | 8670 | 29996 |
| Total | | 294973 | 315886 | 241724 | 852583 |

The gross energy generation data and auxiliary energy consumption data is not used for calculation of emission reductions since energy exported and energy imported data is available for the project activity.

Power Generation:

Month-wise data on Net Energy Exported for the monitoring period is given in Table 4 below:

As per the Project Design Document, Emission reductions are to be calculated based on the energy exported to the grid minus energy imported from the grid during shut-down and start-ups by the power plant.

Table 4: Net Energy Exported (kWh)

| Billing Month | Year | Energy Exported to Grid | | | | Energy Imported from Grid | | | | Net Energy Exported |
|---------------|------|-------------------------|-----------------|----------------|-----------------|---------------------------|--------------|--------------|--------------|---------------------|
| | | Babanpur | Killa | Sahoke | Total | Babanpur | Killa | Sahoke | Total | |
| May | 2007 | 708280 | 1224710 | 844340 | 2777330 | 160 | 70 | 100 | 330 | 2777000 |
| Jun | 2007 | 437200 | 764330 | 589960 | 1791490 | 1260 | 1440 | 880 | 3580 | 1787910 |
| Jul | 2007 | 610530 | 1069310 | 607000 | 2286840 | 130 | 20 | 80 | 230 | 2286610 |
| Aug | 2007 | 732910 | 1265780 | 829100 | 2827790 | 120 | 50 | 60 | 230 | 2827560 |
| Sep | 2007 | 670850 | 1164490 | 759120 | 2594460 | 220 | 120 | 20 | 360 | 2594100 |
| Oct | 2007 | 639070 | 1141540 | 484740 | 2265350 | 60 | 50 | 1560 | 1670 | 2263680 |
| Nov | 2007 | 503130 | 902600 | 556380 | 1962110 | 930 | 1160 | 1180 | 3270 | 1958840 |
| Dec | 2007 | 540410 | 871870 | 668340 | 2080620 | 390 | 950 | 800 | 2140 | 2078480 |
| Jan | 2008 | 147200 | 281400 | 277940 | 706540 | 2970 | 3950 | 2460 | 9380 | 697160 |
| Feb | 2008 | 161810 | 248920 | 77860 | 488590 | 3160 | 4860 | 3920 | 11940 | 476650 |
| Mar | 2008 | 749370 | 1324870 | 830160 | 2904400 | 60 | 30 | 40 | 130 | 2904270 |
| Apr | 2008 | 275350 | 491670 | 310700 | 1077720 | 1070 | 1280 | 1720 | 4070 | 1073650 |
| May | 2008 | 672960 | 1197840 | 760560 | 2631360 | 150 | 150 | 300 | 600 | 2630760 |
| Jun | 2008 | 211850 | 374940 | 262920 | 849710 | 2810 | 3770 | 2180 | 8760 | 840950 |
| Total | | 7060920 | 12324270 | 7859120 | 27244310 | 13490 | 17900 | 15300 | 46690 | 27197620 |

Emission Reductions

Baseline Emissions

| Sn | Description | Formula | Unit | Value |
|----|--|-----------------------|---------------------------|--------------------|
| A | Energy exported to the Grid | | kWh | 27244310.00 |
| B | Energy imported from the Grid | | kWh | 46690.00 |
| C | Net Energy Exported based on maximum inaccuracy specification of the meters | C=A-B | kWh | 27197620.00 |
| D | Carbon Emission Factor as per the baseline adopted | | kg CO ₂ /kWh | 0.942 |
| E | Baseline Emissions | E=(C*D) / 1000 | ton CO₂ | 25620.16 |

Baseline Emissions : **25620.16**
Project Emissions : NIL
Emission Reductions : **Baseline emissions – Project emissions**
 = 25620.16 - NIL
 = **25620 tCO₂**

Measures to Ensure the Results/Uncertainty Analysis

As per the Power Purchase Agreement (PPA), the energy exported to Punjab State Electricity Board (PSEB) is recorded from two independent set of meters – Main Meters and Check Meters. Reading of Main Meter is used for arriving at the figures of power exported after deducting auxiliary power.

In the event, the Main Meter is not in operation, then reading from Check Meter installed at the grid substation of PSEB is used for billing. Till date the main meter only has been used for billing purposes.

Gross power generation, auxiliary consumption, energy exported and energy imported are being recorded daily and the same is being verified by Plant Incharge. Since the hourly data logging is carried out along with daily reporting, the uncertainty level of the monitored data used for calculating emission reductions is low. The accuracy of the meters gets further automatically checked at the time of joint meter reading which is being taken every month by PSEB.

The following table indicates the details of Main Meter including their accuracy levels and calibration dates, Gross energy generation meter and Auxiliary energy meter for all three plants:

Table 4: Details of Trivector Meter, Generator Panel Meter and Auxiliary Meter

| Description | Babanpur | Killa | Sahoke |
|-------------|--|--|--|
| Type | Electronic Bidirectional Trivector Meter | Electronic Bidirectional Trivector Meter | Electronic Bidirectional Trivector Meter |
| S.No. | 5271088 | 4223074 | 4223078 |

| | | | |
|--|---|---|---|
| Capacity; C.T. Ratio | 100/5 A; 100/5 A; M.F – 1 | 200/5 A; 200/5 A; M.F - 1 | 100/5 A; 200/5 A; M.F – 2 |
| Accuracy level | (±) 0.50% | (±) 0.50% | (±) 0.50% |
| Make | L&T | L&T | L&T |
| Date of Calibration | 09/05/2008 | 09/05/2008 | 09/05/2008 |
| Calibration Authority | PSEB Meter Mobile Testing Squad (MMTS), Patiala | PSEB Meter Mobile Testing Squad (MMTS), Patiala | PSEB Meter Mobile Testing Squad (MMTS), Patiala |
| Accuracy Level observed during calibration | (+) 0.14% | (+) 0.07% | (+) 0.06% |
| Gross Energy Generation Meter | | | |
| Model | Unit 1&2: 244-InWW | Unit 1: 882-332 Unit 2: TM 7400 | 882-332 |
| Make | Unit 1&2: Rish Integra 2000 | Unit 1: Minsun Unit 2: Elecon Measurement (P) Ltd. | Minsun |
| Serial No | Unit 1: 12/04/2288 Unit 2 : 04-01-1300A | Unit 1: 6851019 Unit 2 : 23653 TMD 107 | 68B0511 |
| Accuracy Level observed during calibration | (±) 1.00% | (±) 1.00% | (±) 1.00% |
| Auxiliary Energy Meter | | | |
| Model | 24-INWW | EM 6400 | EM 6400 |

| | | | |
|--|----------------------|-----------------|----------------|
| Make | Rishabh Integra 2000 | Enercon | Enercon |
| Serial No | 04/01/1302 | 57343/1598-3804 | 54760/977-3004 |
| Accuracy Level observed during calibration | (±) 1.00% | (±) 1.00% | (±) 1.00% |

No change has taken place in the Main Meter(s) installed at Babanpur, Killa and Sahoke since second verification.

Installation of Meters:

The Trivector meters have been installed in a temper proof strong steel compartment sealed at every open end. These compartments are again being kept under a completely closed & locked Meter Room made of RCC. The area where the meter room is located is completely fenced and protected by a barbed wire.

Calibration of Meters:

At the time of installation of the meters, the accuracy and other parameters are checked thoroughly by the manufacturer i.e. L&T and a test report is issued by L&T. The Trivector Meters are also checked for accuracy by PSEB Metering Equipment (ME) Laboratory, Patiala before installation at the site. The Meters which are within the permissible accuracy limits are jointly sealed by 2 officers of the rank of Sr. XEN (One from Sr. Ex. Engr., ME Division, Patiala and second from Sr. Ex. Engr., MMTS, Patiala).

Calibration of the Meters already in operation is carried out at site by PSEB Meter Mobile Testing Squad (MMTS), Patiala. The MMTS officer visits the site and issue a challan in respect to the confirmation of the accuracy of the meters. The date of calibration and signature of officer is indicated on the challan. These challans are laminated by a cellophane material and pasted as a seal on to the Meter Box itself.

In the event, the officer observes any fault in the meter, then the same is being replaced by the officer and a spare tested meter is installed. The faulty meter is then sent to the PSEB Metering Equipment (ME) Laboratory, Patiala wherein the same is tested and a test report is generated. The meter is again reinstalled by the engineer at the site.

Roles and Responsibilities

KHPPL was the sole agency responsible for implementation and monitoring plan given above.