

MONITORING REPORT

“Babanpur, Killa and Sahoke Mini Hydroelectric Projects”

Kotla Hydro Power Limited

Reference No.UNFCCC00000329 - CDMP

Project Site:

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

M/s Kotla Hydro Power Limited

B-37, Sector-1

Noida – 201301

Uttar Pradesh, India

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Current Status of the Project

There Mini Hydroelectric Power projects aggregating to 3.75 MW at Babanpur, Killa and Sahoke on the Kotla Branch canal, District Sangrur, Punjab, India are being set-up. Mini Hydroelectric project at Babanpur (1MW) was commissioned in July 2004 and at Killa (1.75MW) was commissioned in November 2005. The plants are operating successfully. The Mini Hydroelectric project at Sahoke (1MW) would be commissioned shortly. The contract for supply and commissioning for all equipment for the projects was given to reputed contractors as under:

S.No.	MHP	Equipment	Qty	Supplier
1	Babanpur	Turbine & its accessories	2	HPP Engineers India Pvt. Ltd., New Delhi
		Induction Generator	2	
2	Killa	Turbine & its accessories	2	Boving Fouress Limited, Bangalore
		Induction Generator	2	
3	Sahoke	Turbine & its accessories	1	Boving Fouress Limited, Bangalore
		Induction Generator	1	

The Company provided the entire equity and loan was taken from Indian Renewable Energy Development Agency Limited (IREDA).

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).

One of the schemes at Babanpur (1MW) is in operation continuously (with outages – forced & planned) since July 2004, Killa (1.75MW) is in operation since November 2005 and the Sahoke (1MW) is in the advance stages of commissioning. The purpose of the projects is to generate electricity by utilizing water flowing through the existing canal system.

Monitoring Period

The monitoring period is from 1.07.2004 to 31.03.2006 (Both days included)

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 would help 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, school, 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 helped in reducing the demand-supply gap in the power deficit state grid.
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, roads by u-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. Electronic energy meters were installed for measuring the gross power generation (export) as well as auxiliary power consumption (import) at the grid interconnection point for all 3 schemes.
- ii. Hourly data recording of the relevant parameters and also the recording of total energy generated for every 8 (eight) hours shift.
- iii. Daily readings were aggregated to monthly readings.
- iv. Monthly reports stating the gross auxiliary and net energy exported were prepared by shift-in-charge and verified by plant managers.
- v. Monthly joint meter readings are taken at interconnection point and certified by representatives of KHPL and the purchaser i.e. Punjab State Electricity Board (PSEB).
- vi. The joint meter readings are used to raise invoice for sale of net energy to PSEB.
- vii. The finance department cross checks the data provided by plant managers.

Month-wise data on net energy exported is given below:

S. No.	Month	Year	Net Power Exported (kwh)			
			Babanpur	Killa	Sahoke	Total
1	July	2004	332580	0	0	332580
2	August	2004	376320	0	0	376320
3	September	2004	224930	0	0	224930
4	October	2004	304180	0	0	304180
5	November	2004	471960	0	0	471960
6	December	2004	271070	0	0	271070
7	January	2005	209910	0	0	209910

8	February	2005	140060	0	0	140060
9	March	2005	383780	0	0	383780
10	April	2005	423450	0	0	423450
11	May	2005	470350	0	0	470350
12	June	2005	472910	0	0	472910
13	July	2005	390230	0	0	390230
14	August	2005	663910	0	0	663910
15	September	2005	360840	0	0	360840
16	October	2005	298620	3720	0	302340
17	November	2005	620550	363450	0	984000
18	December	2005	446110	228080	0	674190
19	January	2006	592340	662940	0	1255280
20	February	2006	669710	1041090	0	1710800
21	March	2006	293480	458680	0	752160
	TOTAL		8417290	2757960	0	11175250

Emission Reductions

Baseline Emissions:

Carbon Emission Factor as per the baseline adopted (kg CO₂/kWh) – 0.942

Net energy exported (kWh) – 11175250

Baseline emissions (ton CO₂) – 10527

Project Emissions: NIL

Emission Reductions:

Baseline emissions – Project emissions

= 10527 - NIL

= 10527

Measures to Ensure the Results/Uncertainty Analysis

The energy exported by each project of Kotla Hydro Power Limited (KHPL) was recorded from one independent main meter installed at the switchyard area of the respective project. Energy export and import given by main meter was used for arriving at the figures of net power exported.

In the event, the main meter is not in operation, then reading from a check meter installed at the grid substation of PSEB is used for raising the energy invoice. Till date the main meter only has been used for billing purposes.

The uncertainty level of the net energy exported by project activity is low. In the event, the main meter is not in operation, the project activity has provision of taking the reading from a check meter installed at the grid substation of PSEB, which would be further used for raising the energy invoice. However, till date the main meter only has been used for billing purposes.

The accuracy level of both the main and the check meter is high. The meters are electronic bidirectional trivector meters of accuracy class 0.5 with maximum uncertainty of ± 0.5 %. These 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.

At the time of installation of the meters, the accuracy and other parameters were checked thoroughly by the manufacturer i.e. L&T and a test report issued by L&T.

The accuracy of the meters gets automatically checked at the time of joint meter reading which is being taken every month by PSEB. Further, the meters are

being calibrated once in every six months by PSEB. PSEB officials visit the site and issue a challan in respect to the confirmation of the accuracy of the meters. The date of calibration and signature of PSEB official 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, PSEB official observes any fault in the meter, then the same is being replaced by the official and a spare tested meter is installed. The faulty meter is then sent to the Metering Equipment (ME) Laboratory, PSEB, Patiala wherein the same is tested and a test report is generated. The meter is again re-installed by the official at the site.

Roles and Responsibilities

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