

HYDROELECTRIC PROJECT IN KINNAUR DISTRICT IN HIMACHAL PRADESH

Document Prepared By Himachal Baspa Power Company Ltd

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1 PROJECT DETAILS

1.1 Summary Description of the Project

The Government of India and the Government of Himachal Pradesh (GOHP) have identified the Sutlej River as an important source of hydropower and have initiated hydroelectric projects along Sutlej and its tributaries. The Sutlej River rises in the Tibetan Plateau, passes via steep valleys and gorges through the Himalayan Mountains and foothills and meets the Arabian Sea across the plains of Northern India and Pakistan. The Karcham-Wangtoo Hydroelectric Project (KWHEP) forms a part of an overall plan of development of the Sutlej river basin hydropower potential proposed by the GOHP. The project is was initially executed by Jaypee Karcham Hydro Corporation Limited (JKHCL), a special purpose vehicle formed by the promoter group Jaiprakash Associates Limited (JAL). From 01/09/2015 onwards, the Himachal Baspa Power Company Ltd has owned the power plant and thus new owner is acting as project proponent for the proposed project activity. The ownership transfer documents are being submitted to DOE for validation purpose.

Prior to the start of the project activity the existing demand in the Northern Region Grid was met through its existing fossil fuel based (coal, gas and diesel), nuclear, hydro and renewable energy based power plants

The project activity has been devised to alleviate acute shortage of electricity generation capacity in the Northern Region of India especially at the time of system peak load by developing a 4 X 250 MW renewable and versatile run of the river hydro power project at Karcham & Wangtoo on the river Satluj in Himachal Pradesh. The project activity envisages a 98 m high concrete gravity diversion dam at Karcham; power intakes and 4 underground desilting chambers to exclude all particles above 0.2 mm size; 10.48 m diameter and 17 km long head race tunnel; an underground power house complex at Wangtoo to generate 4 X 250 MW power and 1.3 km long tail race tunnel to discharge the water back into river Satluj. The project activity will provide 4463.88 GWh (90% dependable energy) per annum of renewable energy and provide 1000 MW peaking power throughout the year. In doing so, it will delay the necessity of construction of either a coal or gas or oil fired thermal power plant of similar capacity to supply to the primarily fossil fuel based regional grid, leading to reduction of Carbon Dioxide (CO₂) emissions in the atmosphere. The installed capacity of the Northern region (as on 31.03.2007) is 36359.43 MW. Almost 59% of the total installed capacity is constituted by thermal installations including coal, gas and diesel based generating stations. For the financial year 2006-07, there has been 8.51%¹ increase in energy demand from the previous year and a capacity shortage of about 15.46 % has been recorded. The annual energy shortage in the grid has been about 60.54 MU/day i.e. 10.91%² and a peaking shortage of 15.5 % during the year 2006-07. Thus electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources to meet the power shortages.

¹ <http://nrpc.gov.in/Reports/ar06-07/Chapter2/Annex2.3.pdf>

² NRPC Annual Report 2006-07 - .Page 3 of <http://nrpc.gov.in/Reports/ar06-07/Chapter2/Annex2.1.pdf>

This is a new hydroelectric project, with a small reservoir of area 588400 m² having a power density of 1699.52 W/m². Construction work at project site has started from 18th November 2005 and the project activity is expected to start generation of power from August 2011.

1.2 Sectoral Scope and Project Type

Project type: Renewable energy projects

Sectoral Scope: 1- Energy Industries (renewable/non-renewable sources).

1.3 Project Proponent

Organization name	Himachal Baspa Power Company Ltd.
Contact person	Mr Rajarshi Bera
Title	Sr. Manager (Tech)
Address	Sholtu, Himachal Pradesh, India
Telephone	-
Email	rajarshi.bera@jsw.in

1.4 Other Entities Involved in the Project

Organization name	EKI Energy Services Limited
Role in the project	Project Consultant
Contact person	Ramkrishna Patil
Title	General Manager-Operations
Address	EnKing Embassy, Office no 201, Plot 48, Scheme 78, Part 2, Vijay Nagar, Indore- 452010, Madhya Pradesh, India
Telephone	+91 9096562065
Email	ramkrishna.patil@enkingint.org

1.5 Project Start Date

The 1st unit of 250 MW got commissioned on 26/05/2011, the second unit on 23/06/2011, third unit on 08/09/2011 and the project got fully commissioned, i.e. the fourth unit got commissioned on 13/09/2011. The start date of the project activity is the earliest date of commissioning of the plant unit involved in the project activity i.e. 26/05/2011, which is the commissioning date for unit-1.

1.6 Project Crediting Period

The crediting period of the project activity is for 10 years which will be fixed in line with CDM crediting period.

Thus PP chosen the fixed crediting period from 01-01-2013 to 31-12-2022.

1.7 Project Scale and Estimated GHG Emission Reductions or Removals

The project falls under Large Project category since the emission reductions are more than 300,000 tCO₂ e per annum

Project Scale	
Project	-
Large project	✓

Year	Estimated GHG emission reductions or removals (tCO ₂ e)
Year 1	3,541,917
Year 2	3,541,917
Year 3	3,541,917
Year 4	3,541,917
Year 5	3,541,917
Year 6	3,541,917
Year 7	3,541,917
Year 8	3,541,917
Year 9	3,541,917
Year 10	3,541,917
Total estimated ERs	35,419,170
Total number of crediting years	10
Average annual ERs	3,541,917

1.8 Description of the Project Activity

Not Applicable as project is registered under CDM.

1.9 Project Location

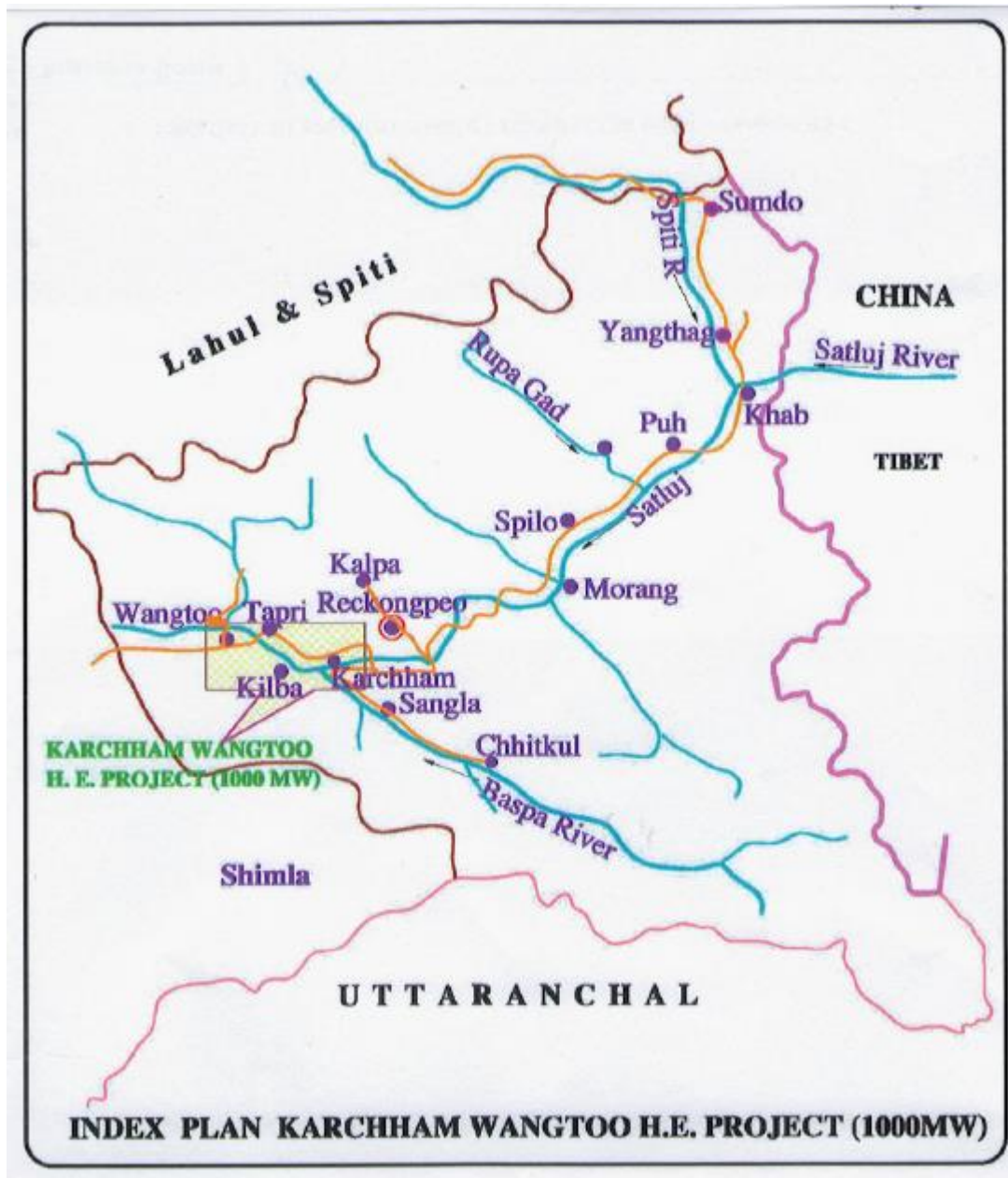
The project activity is located on the stretch of Satluj River between Karcham and Wangtoo in the District of Kinnaur of Himachal Pradesh. The geographic coordinates of the project area are the following:

Latitude - 31°30'50" - 31°32'10" N

Longitude - 78°11'15" - 78°01'05" E

Nearest broad gauge railway station is Kalka under Northern Railway which is 290 kms from the project site. The nearest airport to the project site is Shimla, which is 210 km from Karcham Wangtoo site. The airport is connected to the project site by a paved road. The location is further depicted in the following map:





1.10 Conditions Prior to Project Initiation

This is a Greenfield project. In the Pre- project scenario the equivalent amount of electricity delivered to the grid by the project activity, would have otherwise been generated by the operation of grid-connected fossil fuel based power plants and by the addition of new generation sources.

As the project activity is the installation of a new grid-connected hydro power plant/unit, as per ACM0002, Version 12.1.0, the baseline scenario is the following:

Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system” (Version 02) described step wise in CDM registered PDD.

Please refer CDM registered PDD. The web link for the same is mentioned below:

<https://cdm.unfccc.int/Projects/DB/RWTUV1310469729.49/view>

1.11 Compliance with Laws, Statutes and Other Regulatory Frameworks

Not Applicable.

1.12 Ownership and Other Programs

1.12.1 Project Ownership

For the ownership details of the project any of the following may be referred to:

1. Project transfer ownership document
2. Invoices raised by PP for net electricity export

1.12.2 Emissions Trading Programs and Other Binding Limits

India is Non-annex1 country and there is no compliance with an emission trading program or to meet binding limits on GHG emissions for this project activity. The project is registered under CDM and UNFCCC (Registration ID 4993³). The project is also approved by the DNA and a copy of the approval is also submitted to the DOE. Project Proponent has submitted undertaking that they will not claim same GHG emission reductions of the project from CDM and VCS. PP would not use net GHG emission reductions by the projects for compliance with emission trading program to meet binding limits on GHG emissions.

1.12.3 Other Forms of Environmental Credit

Project has been registration with UNFCCC under Clean Development Mechanism program. Registration reference number is 4993⁴. Project Proponent has submitted undertaking for not availing other forms of environmental credit for the same crediting period under consideration.

1.12.4 Participation under Other GHG Programs

Project has been registration with UNFCCC under Clean Development Mechanism program, Registration reference number is 4993⁵. PP also submitted undertaking for Project neither has

³ <https://cdm.unfccc.int/Projects/DB/RWTUV1310469729.49/view>

⁴ <https://cdm.unfccc.int/Projects/DB/RWTUV1310469729.49/view>

⁵ <https://cdm.unfccc.int/Projects/DB/RWTUV1310469729.49/view>

not intends to generate any form of GHG related environmental credit for GHG emission reductions or removals claimed under the VCS program.

1.12.5 Projects Rejected by Other GHG Programs

Not Applicable. The Project is not rejected by other GHG programs.

1.13 Additional Information Relevant to the Project

Eligibility Criteria

The project does not fall under AFOLU category, hence not applicable.

Leakage Management

Project does not involve any leakage emissions other than methodology requirement for hydro power project. Hence there are no any extra Leakage Management Plan and risk mitigation measures are required.

Commercially Sensitive Information

There is no any commercially sensitive information has been excluded from the public version of the project description. There is no commercially sensitive information accounted for the determination of baseline, net GHG removals and for demonstration of additionality for the present project activity.

Sustainable Development

Ministry of Environment and Forests, Govt. of India has stipulated following indicators for sustainable development in the interim approval guidelines for CDM projects:

Social well-being:

The project activity would raise the medium term employment opportunities for the local people during construction phase. Further on continuous basis, employment opportunities would be available for local inhabitants during life time of the project for operation and maintenance of the project. The project activity will support the northern regional grid for sustained and quality supply of power for the local community. It will involve interalia construction of a 10+2 grade school, an industrial training institute, a 40 bedded hospital besides up-gradation of existing roads and bridges in the hilly terrain which would uplift the social life of the surrounding villages.

Economic well-being:

The northern grid is facing acute shortage of electrical power and thereby, stunting the economic growth of the region. The project activity will be a move towards bridging the gap in supply and demand. During construction and operation phases of the project, employment would be generated for the local population. Further, the business opportunities are enhanced by the project activity for local stakeholders such as consultants, suppliers, manufacturers, contractors

etc during the implementation phase. The project activity would contribute to the economic well being in the region over its entire life time.

Environmental well-being:

The project activity utilizes hydro resource for generating electricity which otherwise would have been generated through alternate fossil fuel based power plants, thereby contributing to reduction in specific emissions (emissions of pollutant/unit of energy generated) including GHG emissions.

Furthermore, as hydro power projects produce no end products in the form of solid waste (ash etc.) during operation, they address the problem of solid waste disposal encountered by most other sources of power. A comprehensive catchment area treatment plan has been formulated comprising of plantation, construction of check walls, pasture improvement etc.

Technological well-being:

The project activity envisages installation of high efficiency turbines and generators and the power will be transmitted at high voltage to ensure low losses. Moreover, the technology being used is well established, most updated and environmentally safe.

Thus, the project activity contributes to the sustainable development of the country.

Further Information

There are no information or incidents that will have bearing on the eligibility of the project, the net GHG emission reductions or removals, or the quantification of the project's net GHG emission reductions or removals.

2 APPLICATION OF METHODOLOGY**2.1 Title and Reference of Methodology**

Not Applicable

2.2 Applicability of Methodology

Not Applicable.

2.3 Project Boundary

Not Applicable.

2.4 Baseline Scenario

Not Applicable as project is registered under CDM.

Please refer to section B.4 of the PDD of UNFCCC registered CDM project with Ref No: 4993. The web link for the same is given below:

<https://cdm.unfccc.int/Projects/DB/RWTUV1310469729.49/view>

2.5 Additionality

Not Applicable as project is registered under CDM.

Please refer to section B.5 of the PDD of UNFCCC registered CDM project with Ref No: 4993. The web link for the same is given below:

<https://cdm.unfccc.int/Projects/DB/RWTUV1310469729.49/view>

2.6 Methodology Deviations

The project activity does not involve any methodology deviations. Hence this section is not applicable.

3 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

3.1 Baseline Emissions

Not Applicable.

3.2 Project Emissions

Not Applicable.

3.3 Leakage

Not Applicable.

3.4 Net GHG Emission Reductions and Removals

Not Applicable.

4 MONITORING

4.1 Data and Parameters Available at Validation

Not Applicable.

4.2 Data and Parameters Monitored

Not Applicable.

4.3 Monitoring Plan

Not Applicable.

5 SAFEGUARDS**5.1 No Net Harm**

Not Applicable.

5.2 Environmental Impact

Not Applicable.

5.3 Local Stakeholder Consultation

Not Applicable.

5.4 Public Comments

Not Applicable.

APPENDIX X: <TITLE OF APPENDIX>

Not Applicable.