

DIRECTORATE OF ENERGY
GOVERNMENT OF HIMACHAL PRADESH
SHANTI BHAWAN, PHASE-III, SECTOR-VI, NEW SHIMLA-171009(H.P.)

OFFICE ORDER

Directorate of Energy(DOE), Government of Himachal Pradesh, is pleased to accord Techno Economic Clearance(TEC) to Ghator Top SHP(4.98 MW) on Ghator khad a tributary of Chirchind khad in Ravi basin, Distt. Chamba, Himachal Pradesh, allotted to "M/S Chamba Hydro Ventures, Hotel Alps, Dalhousie, Distt Chamba (HP)", at an estimated cost of Rs. 4051.00 lac (Rupees four thousand fifty one lac) only including Interest During Construction (IDC), Escalation, Financial Charges(FC) and LADC @ 1.00% of total project cost with the following stipulations:

- i) The completion cost shall not exceed the above cost except on account of the following:
 - a) Interest During Construction(IDC) and Financial Charges(FC) shall be as per actuals but not exceeding the amount as indicated at Annex-I, unless revised by DOE, GoHP while according concurrence under Section-8 of Indian Electricity Act 2003 after review of the financial package.
 - b) Change in rates of Indian taxes and duties such as Excise Duty, Sales Tax/VAT, Custom Duty and levy of any other taxes/duties subsequent to issue of Techno Economic Clearance.
 - c) Change in Indian law resulting in change in the cost.
 - ii) The abstract of the Estimated Cost approved by DOE, GoHP is furnished at Annex-I and the Salient Features of the scheme are at Annex-III.
2. The Techno-Economic Clearance(TEC) is subject to the fulfillment of the following conditions:
- i) Completed cost/Techno-Economic Clearance (TEC) shall not be re-opened due to the following:
 - a) Non acquisition of land.
 - b) Non- finalization of Power Purchase Agreement (PPA)
 - c) Delay in financial closure.
 - ii) The final financial arrangement shall not be inferior to the financing arrangement projected in the Detailed Project Report (DPR) for TEC.
 - iii) As proposed by the developer in the DPR, the project is viable by sale of power through Renewal Energy Certificate(REC) mechanism. The cost of the project cleared by the DOE, GoHP is indicative and shall have no binding on the regulator while fixing the tariff. The tariff of the project shall be regulated by the appropriate Electricity Regulatory Commission.
 - iv) The public issue expenses, if any, shall be reconsidered at the time of approval of completion cost based on documentary proof and in accordance with Security Exchange Board of India (SEBI) guidelines regarding regulation of public issue expenses.
 - v) Fulfillment of conditions stipulated in Central Electricity Authority (CEA)/Central Water Commission(CWC) guidelines in respect of civil works at the stage of detailed designs/execution.
 - vi) Any increase in the cost estimate due to design modifications and geological surprises would be absorbed by the Independent Power Producer (IPP) i.e. "M/S Chamba Hydro Ventures, Distt. Chamba (HP)".
 - vii) No additional cost shall be allowed due to Resettlement & Rehabilitation (R & R) Plan.
 - viii) Normal operation life of the hydro power plant shall be as per provisions of CWC/CEA guidelines or CERC/HPERC regulations.
 - ix) The statutory and administrative clearances as per Annex-II shall be obtained before execution/ implementation of the project.
 - ix) The interconnection point with the State grid and interconnection facilities at the

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- interconnection point shall be provided, operated and maintained at the cost of the IPP.
- x) The cost of providing and/or strengthening/addition, etc. of the system at and beyond the Interconnecting Sub-station which may also include the cost of replacement of switchgear/ protection and provision of shunt capacitors, strengthening of bus bars, apart from other works required at injection voltage level and other one or more successively higher voltages, civil works relocation of existing bays etc., shall be recovered by HPSEBL Ltd., as per the regulations of HPERC read with the clarifications/decisions by HPERC and/or any other competent authority as may be finally applicable. The share of IPP on this account shall be paid by the IPP to HPSEBL/HPPTCL as per the final decision of the competent authority.
 - xi) Whereas the HPSEBL/HPPTCL shall endeavor to provide the evacuation system at the earliest, the scheduled date for providing evacuation arrangements shall be spelt out in the PPAs on case to case basis inter-alia, keeping in view the time lines indicated in the relevant plan and approved by HPERC.
 - xii) The powerhouse generating equipment as well as other electrical equipment to be provided by the developer shall be compatible for parallel operation with the State grid after interfacing. The IPP shall be responsible for any loss of generation on this account.
 - xiii) O&M charges for maintenance of inter connection facilities at the interconnection sub station of HPSEBL/HPPTCL shall be paid by the IPP throughout the period, the IPP runs the project and the same shall be reviewed at the beginning of every financial year.
 - xiv) For evacuation of power the IPP shall interface this project with 33 KV switchyard of Chirchind SHP by constructing 33 kV line from Ghator Top to Chirchind SHP with 0.15 sq inch "WOLF" conductor on double structure to evacuate the power from Samwara (2.50MW) and Ghator-I(2.20MW) SHPs in joint mode. The cost joint evacuation arrangement shall be shared with other IPPs on proportionate basis.
 - xv) The project line shall be provided, operated and maintained by the IPP at his cost as per normal conditions after obtaining approval of HP Govt. under Section 68(1) of Electricity Act, 2003.
 - xvi) The above mentioned evacuation arrangements shall be subject to the HPERC approval of "Comprehensive area wise plan for augmenting and establishing of transmission/sub-transmission system for evacuation of power from small HEPs" which has already been submitted to HPERC. The Transmission/Distribution Licensee may however also evolve alternate system(s) depending on the site conditions and subsequent developments with the approval of HPERC.
 - xvii) The IPP shall develop operate and maintain the Project including the dedicated transmission system subject to compliance with the following:
 - a) Grid code and standards of grid connectivity.
 - b) Technical as well as Mechanical standards for construction of Electrical lines.
 - c) Norms of System Operation of the concerned State Load Dispatch Center (SLDC) or Regional Load Dispatch Center (RLDC).
 - d) Directions of the concerned SLDC or RLDC regarding operation of dedicated transmission line.
 - e) The IPP shall only be allowed to inject power in HP system with the undertaking that necessary action to provide tele-metering to SLDC shall be provided by them and specifications required to be got approved from the office of SE(SLDC), HP Load Despatch Society, Totu, Shimla from compatibility point of view with existing SCADA system.
 - xviii) The conditions on these lines shall have to be suitably included by the developer in the PPA etc. apart from other standard conditions.
 - xix) The observations of DOE, GoHP and replies thereof shall form an integral part of the DPR.
 - xx) Minimum 15% release of water immediately downstream of diversion structure shall be ensured all the times including lean season as per Power Policy of HP Govt., 2006 and subsequent amendments thereof. The necessary monitoring equipment as prescribed by

the Pollution Control Board for the same shall be installed by the IPP during execution of the project.

- xxi) LADCF/ADF amount and activities shall be implemented as per Power policy of HP Govt., 2006 and subsequent amendments thereof.
- xxii) The additional 1%(one percent) free power from the project shall be provided and earmarked for a Local Area Development Fund(LADF) as per HP Govt. Notification No. MPP 1(1) 2/2005 V dated 30.11.2009.
- xxiii) The TEC is based on the reports and data furnished by the IPP in the DPR and it is presumed that information furnished is correct and has been collected reliably after carrying out detailed field investigations and surveys under the supervision of competent personnel. The scrutiny of DPR does not cover the examination of the detailed designs & working drawings of project components in regard to their structural, hydraulic and mechanical performance & safety which shall be ensured by the project authority/IPP.
3. The project shall be completed within 30 months from the date of start of the construction work.
 4. The completion cost of the scheme shall be submitted to DOE, GoHP for approval within 3 months from the Commercial Operation Date (COD) of the plant.
 5. The Project Promoters/Project Authorities shall give free accessibility to the officers and staff of DOE, GoHP to have on the spot assessment of various aspects of the project.
 6. The firm financial package and tie-up of balance inputs/clearances shall be completed within the period as stipulated in the HP Govt. power Policy, 2006 and subsequent amendments thereof/Implementation Agreement.
 7. In case the time gap between the Techno-Economic Clearance of the scheme and actual start of work on the project is three years or more, a fresh Techno-Economic Clearance shall be obtained from DOE, GoHP before start of actual work.
 8. The DOE, GoHP reserve the right to revoke the concurrence if the conditions stipulated above are not complied with to the satisfaction of the DOE/GoHP.

BY ORDER OF THE GoHP

Chief Engineer,
Directorate of Energy, GoHP,
New Shimla-171009(HP).

No. DOE/CE(Energy)/TEC-Ghator Top/2010-7672-30 Dated: 5/11/2010

Copy for information and necessary action to the:

1. Principal Secretary (MPP & Power) to H.P. Govt., Shimla-171002
2. Principal Secretary (NES) to H.P. Govt., Shimla-171002
3. Secretary, Ministry of Non-Conventional Energy Sources (MNES), Block No.14, CGO Complex, Lodhi Road, New Delhi-110003.
4. Director, Environmental & Scientific Technologies, Narayan Villa, Near Wood Villa Palace, Shimla-171002.
5. General Manager, HPPTCL, Borowalia House, Khalini, Shimla-171002.
6. Chief Engineer (SP), HPSEB Ltd, Vidyut Bhawan, Shimla-171004.
7. Chief Engineer(Commercial), HPSEB Ltd, Vidyut Bhawan, Shimla-171004.
8. Chief Executive Officer, Himurja, 8A-SDA Complex, Kasumpti, Shimla-171009.
9. M/S Chamba Hydro Ventures, Hotel Alps, Dalhousie, Distt Chamba (HP)..

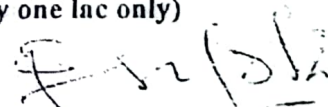
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Ghator Top SHP(4.98MW) in Distt Chamba of Himachal Pradesh allotted to "M/S Chamba Hydro Ventures, Hotel Alps, Dalhousie, Distt. Chamba (HP)"

ABSTRACT OF COST ESTIMATE

Sr. No.	Description of works	Amount (Rs. in lac)	
(a)			
1	Civil works i/c other Misc. Expenses	2328.76	Price Level March, 2011
2	Electro Mechanical works	1054.26	
3	Transmission works	125.00	
	Sub Total (a)	3508.02	
(b)			
1	Interest During Construction (IDC)	309.20	
2	Escalation	164.36	
3	Financial Charges(FC)	29.26	
	Sub Total (b)	502.82	
	Total (a+b)	4010.84	
(c)	LADC @ 1.00 % of (a+b)	40.11	
	GRAND TOTAL (a+b+c)	4050.95	
	Say Rs.	4051.00 lac	

(Rupees four thousand fifty one lac only)


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ANNEXURE-II

Ghator Top SIIP(4.98MW) in Distt Chamba of Himachal Pradesh allotted to "M/S Chamba Hydro Ventures, Hotel Alps, Dalhousie, Distt. Chamba (HP)"

LIST OF STATUTORY AND ADMINISTRATIVE CLEARANCES REQUIRED

Sr.No.	ITEM	AGENCY	REMARKS
1.	WATER ABAILABILITY	1. State Govt. 2. CWC	Interaction between State Govt. Deptt. & CWC required. Relevant Irrigation Act of the State & Central Water Commission.
2.	SEB CLEARANCE	1. SEB. 2. State Govt.	Section 44, E(S) Act, 1948 Repealed by Electricity Act 2003.
3.	POLLUTION CLEARANCE WATER AND AIR	State/Central Pollution Control Board	Water (Prevention & Control of Pollution) Act, 1974 Air (Prevention & Control Pollution) Act, 1981.
4	FOREST CLEARANCE	1. State Govt 2. Min.of E&F G.O.I.	Coordination with State Forest Deptt./ Min. of Environ. & Forest (MOE&F) regarding Forest (Conserva-tion) Act, 1980.
5	ENVIRONMENT & FOREST CLEARANCE	1. State Govt 2. Min.of E&F G.O.I.	As per item (3) & (4) and Govt. Policy in force.
6.	REGISTRATION	Registrar of Companies.	Under Indian Companies Act, 1950.
7.	REHABILITATION & RESETTLEMENT OF DISPLACED FAMILIES BY LAND ACQUISITION	1. State Govt 2. Min.of E&F G.O.I.	
8.	EQUIPMENT PROCUREMENT	DGTD,CCI& E	Import & Export Acts.

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SALIENT FEATURES

1. LOCATION

State	Himachal Pradesh
District/Tehsil	Chamba/Bharmour
Villages	Ghator, Badhar, Chatrari, Durghatti.
Proposed	Weir site on Ghator khad at EL. + 2735m and Power house on right bank at EL. + 2080 m near village Ghator.
Access Road	45 km from Chamba on Chamba - Bharmour State Highway upto Durghatti. Further a metalled road has been constructed upto the Chatrari village at 3 km distance and another road is under construction upto the Ghator village.
Rail	Nearest BG station at Pathankot (Punjab).
Airport	Nearest airport is at Gaggal in Kangra.
Geographical co-ordinates	Weir Site Power House Site
Latitude	32° - 22' - 33" N 32° - 23' - 56" N
Longitude	76° - 23' - 02" E 76° - 23' - 01" E
SOL topo sheet	52 - D/7

2. HYDROLOGY AND CLIMATE

Name of khad	Ghator khad
Tributary of/Basin	Chirchind khad/Ravi basin
Catchment area upto diversion site	12.00 sq km
Snow Catchment Area	7.00 sq km
Average Yield (MCM)	25.87 (MCM)
Maximum / Minimum Yield	34.99 / 16.05 (MCM)
Average annual rainfall	935.13 to 1154.72 mm at Chamba.
Design discharge	0.96 cumecs
Design Flood	128.00 cumecs
Maximum temperature	30° C
Minimum temperature	-10° C

3. PROJECT COMPONENTS

3.1 DIVERSION WEIR

Type	Drop type Trench Weir
River bed level	EL ± 2735.00 m
Size	10.00 m long x 1.50 m wide

3.2 CONVEYANCE CHANNEL

Type	Box type
Size	0.80 m x 0.90 m
Length	45.00 m
Slope	1 in 150

3.3 DESILTING ARRANGEMENT

Type	Underground, Conventional Hopper Type
Size	22.00 m x 4.00 m x 1.84 m (effective)
Particle size to be excluded	All particles down to 0.20 mm size.
Flushing discharge	0.30 cumecs

Size of silt flushing pipe	600 mm dia
3.4 WATER CONDUCTOR SYSTEM (Head Race Tunnel)	
Type	D Shaped tunnel
Size	1.80m x 2.10 m
Length	545.00 m
Slope	1 in 800
Design discharge	0.96 cumecs
Velocity	1.02 m/sec.
3.5 FOREBAY	
Type	Surface
Size	17.00 m x 5.00 m x 2.00 m(effective)
FRL	EL± 2733.47 m
MDDL	EL± 2731.46 m
C/L of penstock at forebay intake	EL± 2730.00 m
3.6 PENSTOCK	
Type	Circular, Surface steel penstock
Size	One number 600 mm dia.
Thickness	Varying between 8 mm to 24 mm.
Length	1550.00 m
Velocity	4.04 m/sec.
Number of branches	Three
Size of branch penstock	450 mm dia. Each
3.7 POWER HOUSE	
Type	Surface
Location	Right bank of Ghator khad at EL± 2080m
Installed capacity	4.98 MW(3 units of 1.66 MW each)
Size of power house	36.00 m x 11.50 m x 12.50 m
Gross Head	653.47 m
Net head	625.00 m
Max. Tail water level	EL ± 2080.00 m
Min. Tail water level	EL ± 2078.50 m
Turbine(s)	Horizontal shaft Pelton
• Type	Three
• Number	1729.17 kW each
• Rated output	
Generator(s)	Horizontal shaft Synchronous
• Type	two
• Number	1660 KW each
• Capacity	0.9 lag
• Power factor	3.3 kV
• Rated voltage	50 Hz.
• Frequency	20 %
• Overload capacity	
3.8 TAIL RACE	
Type	cut and Cover channel
Size	1.20 m x 1.50 m
Length	15 m

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