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

OFFICE ORDER

Directorate of Energy (DoE), Govt. of Himachal Pradesh, is pleased to accord Technical Concurrence (TC) to Thaltu Khorh-II SHEP (5.00 MW) within domain elevations of El 1725.50 m-El 1572.25 m against revised domain elevations of El 1725.50 m-El 1570.00 m (i.e. Weir to Tail race end point) on Thaltu Khorh nallah, a tributary of Uhl river in Beas basin, Distt. Mandi, Himachal Pradesh, allotted to "M/s Cliff Finvest (P) Ltd., 1-41, DLF Industrial Area, Phase-I, Faridabad-121003" at an estimated cost of Rs. 58.58 Crore (Rupees Fifty Eight Crore and Fifty Eight Lakh only) including Interest During Construction (IDC), Escalation, Financial Charges (FC) and Local Area Development Fund (LADF) @ 1% (one percent) of total project cost with the following stipulations:-

1.
   i) The abstract of the Estimated Cost approved by DoE, GoHP is enclosed at **Annex-I**, and the Salient Features of the scheme are enclosed at **Annex-II**.
   ii) 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 Goods and Service Tax (GST), Custom Duty and levy of any other taxes/duties subsequent to issue of Technical Concurrence (TC).
      c) Change in Indian law resulting in change in the cost.

2. The Technical Concurrence (TC) is subject to the fulfilment of the following conditions:
   i) Completed cost/Technical Concurrence (TC) 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 Concurrence.
   iii) 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) Fulfilment 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) In case, changes are made in design parameters during construction due to site conditions or otherwise, the same shall be intimated and got concurred from DoE, GoHP before implementation of such changes.
   vii) Any increase in the cost estimate due to design modifications and geological surprises would be absorbed by "M/s Cliff Finvest (P) Ltd., 1-41, DLF Industrial Area, Phase-I, Faridabad-121003".
   viii) No additional cost shall be allowed due to Resettlement & Rehabilitation (R&R) Plan.

For Cliff Finvest Pvt. Ltd.

Authorised Signatory

AEE(TC)

ix) Normal operation life of the hydro power plant shall be as per provisions of latest CWC/CEA guidelines or Central Electricity Regulatory Commission (CERC)/ Himachal Pradesh Electricity Regulatory Commission (HPERC) regulations.

x) The statutory and administrative clearances as per **Annex-III** shall be obtained before execution/ implementation of the project.

xi) For evacuation of power, the interconnection point with the State grid and interconnection facilities at the interconnection point shall be provided, operated and maintained at the cost of the Developer.

xii) The cost of providing and/or strengthening/additions 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/HPPTCL, 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 Developer on this account shall be paid by the Developer to Himachal Pradesh State Electricity Board Limited (HPSEBL)/ Himachal Pradesh Power Transmission Corporation Limited (HPPTCL) as per the final decision of the competent authority.

xiii) Whereas the HPSEBL/HPPTCL shall endeavour to provide the power 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.

xiv) The powerhouse generating equipments as well as other electrical equipments to be provided by the Developer shall be compatible for parallel operation with the State grid after interfacing. The Developer shall be responsible for any loss of generation on this account.

xv) O&M charges for maintenance of inter connection facilities at the interconnection sub-station shall be paid by the Developer to HPSEBL/HPPTCL throughout the period, the Developer runs the project and the same shall be reviewed at the beginning of every financial year.

xvi) The interconnection point of Thalutkhor Stage-I & II SHEPs (5.00 MW each) shall be at 1x3.15 MVA, 33/11 KV Tikken sub-station at 33 kV level subject to the following conditions:-

1. The power of Thalutkhor Stage-I & Stage-II SHEPs shall be evacuated in joint mode at 1x3.15 MVA, 33/11 KV Tikken sub-station.
2. This is an interim arrangement wherein the quantum of power of the two SHEPs to be evacuated shall be subject to the power capacity available in the 33 KV Tikken-Padhar (Gawali), 33 KV Padhar (Gawali)-Bassi and 33 kV Padhar (Gawali)-Bijni lines which shall be intimated by the field units of HPSEBL.
3. This interim arrangement shall become permanent after the strengthening and augmentation of 33 KV Tikken-Padhar (Gawali) and 33 kV Padhar (Gawali)-Bassi Lines.
4. The IPP shall bear the cost of 33KV dedicated line from the power-house site to 1x3.15 MVA, 33/11 KV Tikken sub-station and 33 kV bay at 33/11 kV Tikken sub-station along with interconnection facilities and allied works involved.

xvii) The project line shall be provided, operated and maintained by the Developer at his cost as per normal conditions after obtaining approval of HP Govt. under Section 68(1) of Electricity Act, 2003.

xviii) The above mentioned evacuation arrangements shall be subject to the HPERC/CERC approval of "Comprehensive area wise plan for augmenting and establishing of transmission/sub-transmission system for evacuation of power from HEPs" which has already been submitted to HPERC. The Transmission/Distribution Licensee may however evolve alternate system(s) depending on the site conditions and subsequent

For Cliff Finvest Pvt. Ltd.

Authorised Signatory

developments with the approval of HPERC.

xix) The Developer 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 Centre (SLDC) or Regional Load Dispatch Centre (RLDC).
   d) Directions of the concerned SLDC or RLDC regarding operation of dedicated transmission line.
   e) The Developer will 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 SLDC, HP Load Dispatch Society, Shimla from compatibility point of view with existing Supervisory Control and Data Acquisition (SCADA) system.

xx) The Hydro generating units shall be capable of generating up to 110% of rated capacity (Subject to rated head being available) on continuous basis as per Sr. No 7 (Part-II) of Ministry of Power (Central Electricity Authority) notification No 12/X/STD (CONN) GM / CEA dated 15/10/2013 and subsequent amendments thereof.

xxi) The conditions on these lines shall have to be suitably included by the Developer in the PPA etc. apart from other standard conditions.

xxii) The observations of DoE, GoHP on the DPR and replies thereof shall form an integral part of the DPR.

xxiii) Minimum 15% release of water immediately downstream of diversion structure shall be ensured all the times including lean season as per prevailing GoHP notification. 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.

xxiv) The levels as specified and approved shall strictly be adhered to for construction of project, also the riparian distances within upstream and downstream projects as per allotment of projects or any other project specific directions / conditions shall be maintained.

xxv) The authenticity of benchmark considered for carrying out survey as ensured and intimated by IPP to DoE shall be the sole responsibility of the IPP.

xxvi) The proposed arrangement of laying connecting pipe, head race tunnel, penstock, branch penstocks & escape pipe with lengths 246 m, 1903 m, 224 m, 9.72 m each & 234 m respectively should be designed w.r.t. all necessary parameters of earth pressure/water pressure in empty/full condition, earthquake condition and with regard to all safety standards norms. The design should be vetted from an authorized & approved agency.

xxvii) LADC/LADF amount and activities shall be implemented as per HP Govt. Swaran Jayanti Energy Policy, 2021.

xxviii) The additional 1% (one percent) free power from the project shall be provided and earmarked for a Local Area Development Fund (LADF) as per the provision stipulated in the HP Govt. Swaran Jayanti Energy Policy, 2021 and subsequent amendments thereof, if any.

xxix) The TC is based on the reports and data furnished by the Developer in the DPR and the relevant information provided therein. 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 and also of their positioning and fixing at site. This shall be ensured by the Developer as per standard norms & manuals.

3. The project shall be completed within 24 months from the date of start of the construction work.

For Cliff Finvest Pvt. Ltd.

4. The completion cost of the scheme shall be submitted to DoE, GoHP 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 representatives of DoE, Himurja and other relevant Govt. Departments, Commissions etc. 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. Swaran Jayanti Energy Policy, 2021 and amendments thereof /Implementation Agreement (IA)/Supplementary Implementation Agreement (SIA).
7. In case the time gap between the Technical Concurrence (TC) of the scheme and actual start of work on the project is three years or more, a fresh Concurrence shall be obtained from DoE, GoHP before start of actual work.
8. The project developer shall submit monthly hydrological and meteorological data observed at the project site and monthly progress reports on the prescribed format along with expenditure actually incurred, duly certified by statutory auditors to the DoE, GoHP till the Commercial Operation of the plant.
9. The DoE, GoHP reserve the right to revoke the TC, if the conditions stipulated above are not complied with to the satisfaction of the GoHP.

BY ORDER OF THE GoHP

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

No. DoE/CE (Energy)/TC-Thaltukhorh-II/2023- 1789-97 **Dated:** 30-05-2023

Copy for kind information to:-

1. The Secretary (MPP & Power, NES) to H.P. Govt., Shimla-171002.
2. The Secretary, Ministry of Non-Conventional Energy Sources (MNES), Block No.14, CGO Complex, Lodhi Road, New Delhi-110003.
3. The Director, Environmental & Scientific Technologies, Narayan Villa, Near Wood Villa Palace, Shimla-171002.
4. The Deputy Commissioner, Distt. Mandi, Himachal Pradesh – 175001.
5. The General Manager, HPPTCL, Himfed Bhawan, Panjari, Below Old MLA Quarters, Shimla-171005.
6. The Chief Engineer (SP), HPSEB Ltd, Uttam Bhawan, Dogra Lodge, Shimla-171004.
7. The Chief Engineer (SO), HPSEB Ltd, Vidyut Bhawan, Shimla –171004.
8. The Chief Executive Officer, Himurja, 8A-SDA Complex, Kasumpti, Shimla-171009.
9. M/s Cliff Finvest (P) Ltd., 1-41, DLF Industrial Area, Phase-I, Faridabad-121003.

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

4 AEE(TC)

For Cliff Finvest Pvt. Ltd.

Authorised Signatory

ANNEXURE-I

Thaltukhorh-II SHEP (5.00 MW) in Distt. Mandi of Himachal Pradesh allotted to "M/s Cliff Finvest (P) Ltd., 1-41, DLF Industrial Area, Phase-I, Faridabad-121003"

ABSTRACT OF COST ESTIMATE

Sr. No.	Description of work	Cost (Rs. in crore)	
a)			
i)	Civil works i/c other Misc. expenses	38.54	Price level
ii)	Electro Mechanical Work	14.86	January ,
iii)	Transmission Works	0.50	2022.
	Sub-total (a)	**53.90**	
b)			
i)	Interest During Construction (IDC)	3.26	
ii)	Escalation	0.63	
ii)	Financial Charges	0.21	
	Sub-total (b)	**4.10**	
	Total (a+b)	58.00	
c)	LADF @ 1.0% of (a+b)	**0.58**	
	Grand Total (a+b+c)	**58.58**	
	Say Rs.	**58.58**	**Crore**

(Rupees Fifty Eight Crore and Fifty Eight Lakh only)

AEE(Tc)

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

For Cliff Finvest Pvt. Ltd.

Authorised Signatory

Thaltukhorh-II SHEP (5.00 MW) in Distt. Mandi of Himachal Pradesh allotted to "M/s Cliff Finvest (P) Ltd., 1-41, DLF Industrial Area, Phase-I, Faridabad-121003"

SALIENT FEATURES

I	**LOCATION**		
	State	Himachal Pradesh	
	District/Tehsil	Mandi	
	River/Stream	Thaltu khorh Nallah, a tributary of Uhl river which is further a tributary of Beas River	
	Vicinity/ Proposal	Diversion weir site on Thaltu Khorh Nallah at El 1725.50 m near village Thaltu Khorh and Power house near Tikkan sub-station on left bank with Center line of turbine at El 1576.50 m & Tail Water Level at El 1572.25 m.	
	Accessibility By Road By Railway By Air	60 Km from Distt H/Q Mandi 257 km from Chandigarh 116 Km from Bhuntar (Kullu)	
	Geographical co-ordinates		
	• Longitude • Latitude	**Weir site** 76° 54' 17.72" E 31° 58' 44.82" N	**Power House site** 76° 53' 33.42" E 31° 57' 46.11" N
	SOI Topo sheet	52D/16	
II	**HYDROLOGY**		
	Name of stream/nallah	Thaltu khorh Nallah	
	Tributary of /Basin	Uhl River / Beas Basin	
	Catchment area upto diversion site	36.00 Sq km	
	Design Discharge	4.25 cumecs	
	Design flood Discharge	167.84 Cumecs	
	HFL	**Weir site** El 1728.51 m	**Power House site** El 1572.30 m
III	**PROJECT COMPONENTS**		
A.	**DIVERSION STRUCTURE**		
	Type	Rectangular type trench weir	
	Crest Level	El 1725.50 m	
	Full Supply Level	El 1725.00 m	
	Average Bed Level	El 1724.00 m	
	Size of weir	11.00 m Long, 3.00 m Wide	
	Slope	1 in 10	
	Design Discharge	4.25 cumecs plus flushing and overloading discharge.	

For Cliff Finvest Pvt. Ltd.

Authorised Signatory

B	**SHINGLE FLUSHING ARRANGEMENT**	
	Type	Circular steel lined
	size	1000 mm diameter
	No. &size of shingle excluder gate	One no. of 1.00 m (W) × 1.00 m (H)
	length	41.00 m
	slope	1 in 50
	Invert level of inlet	El 1722.90 m
	Invert level of outlet	El 1722.08 m
	Type & thickness of steel linear	IS: 2002, grade-II and 8mm thick
C.	**INTAKE STRUCTURE & INTAKE PIPE**	
	Type	RCC gated structure
	Emergency gate at exit of trench weir	3.00 m (W)× 2.4 m (H)
	Nos. & Size of intake gate	One no. gate of size 1.8 m (W) ×1.8 m (H)
	No. of intake pipe	One
	Size of intake pipe	1.8 m diameter
	Length of intake pipe	112 m long
	Invert level of intake pipe at entrance	El 1724.10 m
	Average slope of intake pipe	1V:100H
	Discharge in intake pipe	4.25 cumecs plus flushing and overloading discharge
	Velocity in pipe	4.65m/s
	Type and thickness of steel linear	IS:2002, Grade-II and 8mm thick
D.	**DESILTING TANK**	
	Type	Surface De-silting Basin
	No and Size	1 No. & 40 m (L)×7 m (W), Height varying from 6.72m to 7.52m i/c free board
	Design discharge	4.25 cumecs plus flushing and overloading discharge
	Particle size to be excluded	0.20 mm and above
	Actual Flow through velocity	0.19 m/ sec
	Settling velocity	0.025 m/s
	Silt flushing pipe	800 mm dia. and 161m long
	Valve for flushing conduit	800 mm
	Full supply level	1723.78 m
E.	**COLLECTION POOL AFTER DESELTING BASIN**	
	Invert Level	El 1722.53 m
	Size of collection pool	10.00 m (L)× 7.00 m (W)× 2.97 m (H)
	Crest Level of spillover from de-silting basin to collection pool	El 1723.33 m
	Full Supply Level (FSL)	El 1723.78
	Elevation of cutout of overflow arrangement	El 1724.50
	Length of cutout for overflow	6.00 m

For Cliff Finvest Pvt. Ltd.

Authorised Signatory

	arrangement	
F.	**CONNECTING PIPE (FREE FLOW)**	
	No and flow type	One & free flow
	Size	1.80 m diameter circular steel lined
	Length	246.00 m
	Invert level of inlet	El 1722.73 m
	Invert level of outlet	El 1721.98 m
	Average slope	1V:324H
	Discharge	4.25 cumecs plus overloading discharge
	Velocity	2.8 m/sec.
	Type & thickness of steel liner	IS:2002, Grade-II and 8 mm thick
G.	**HEAD RACE TUNNEL (FREE FLOW)**	
	Type and size	Concrete & shotcrete lined, Arch-shaped 1.80 (W) × 2.25m (H) m finished
	Velocity at rated discharge	2.2 m/s
	Length	1903 m
	Design discharge	4.25 cumecs plus overloading
	Normal depth of flow on rated discharge	1.10m
	Average slope of tunnel	1V:380.60H
	Invert level at start	El 1721.98 m
	Invert level at exit	El 1716.98 m
H.	**ADIT-I (FOR HRT CONSTRUCTION)**	
	Type	D-shaped
	Size	105 m (L) x 2.50 m (W) x 2.50 m (H) Finished
I.	**FOREBAY TANK**	
	Type /Shape	RCC Rectangular tank
	Size	20 m (L) x 13.20 m (W) & height vary from 3.02 m to 7.60 m
	Storage time	3 Minutes
	Live storage Capacity	478.95 cum
	Full Supply Level (FSL)	El 1718.00 m
	MDDL in tank	El 1716.50 m
	Top level of Tank	El 1720.00 m
	Invert level	Varies from El 1716.98m to El 1712.40m
J.	**ESCAPE TANK**	
	Size	4.00 m (L) x 13.20 m (W) & height vary from 3.02 m to 7.60 m
	Inver Level	Vary from El 1716.98 to 1712.40 m
	Full Supply Level (FSL)	El 1718.00 m
K.	**PENSTOCK**	
	Type	Surface Steel Pipe
	Number/size of main penstock	One / 1200 mm dia.
	Length of main penstock	224 m
	Number of branches	*Two*
	Size of branch penstock	850 mm dia. each
	Length of branch penstocks	9.72 m each

For Cliff Flyvest Pvt. Ltd.

Authorised Signatory

	Material of Steel liner	IS 2002 Grade II steel
	Plate Thickness	Varies from 8 mm to 14 mm
	Velocity of main pipe	3.76 m/sec.
	Velocity of branch pipe	3.76 m/sec.
L.	**ESCAPE PIPE**	
	Type	Surface
	Number	One
	Length	234 m
	Size	1.00 m diameter for an initial upstream length of 17.60 m, beyond that 0.80 m diameter and 216.40 m long upto energy dissipation tank
	No. of Anchor Blocks	8 Nos.
	Flow through velocity	Free flow upto 216 m upstream length and thereafter flow will be pressurized
	Type of steel liner	IS:2002, Grade-II
	Thickness of steel liner	8 mm
M.	**ENERGY DISSIPATION TANK**	
	Size	8.00 m (L) x 4.00 m (W) x 4.00 m (H)
	Top level	El 1587.25
	Invert level	El 1583.25 m
N.	**ESCAPE CHANNEL**	
	Size	3.0 m (W) x 1.5 m (H)
	Length	14.65 m
O.	**POWER HOUSE**	
	Type	Surface Power House
	Installed Capacity	5.00 MW (2 x 2.50 MW)
	Size of Power House	28 m (L) x 14.50 m (W) x 14 m (H)
	Gross Head	141.50 m
	Rated Net Head	138.00 m
	Min. Net Head	137.50m
	Max. Net Head	141.30m
	C/L of Turbine jet	El 1576.50 m
	C/L of unit penstock	El 1575.50 m
	Service bay level	El 1578.00m
	Powerhouse Crane	EOT crane 40/10 ton
	Turbines	
	• Type	Horizontal shaft Pelton Turbine
	• Number of units	Two
	• Rated Output	2500 KW each
	• Unit rated speed	272.70 rpm
	• Overloading	10%
	Generator	
	• Type	Horizontal shaft Synchronous Generator
	• Number of units	Two
	• Rated Output	2500 KW each
	• Power Factor	0.85 lag

For Cliff Finvest Pvt. Ltd.

Authorised Signatory

	• Voltage	6.6 KV
	• Frequency	50 Hz
P	**Tailrace Channel**	
	Type	RCC Rectangular
	No. of channel	One common tail race channel
	Length of channel	64.75 m
	Size	3.00 m (W)x 1.80 m (H)
	Tail Water level (TWL)	El 1572.25 m
Q	**Switchyard**	
	Type	Surface Switchyard
	Area	30.00 m x 15.00 m
R	Gross Annual Energy Generation in 75% dependable year	25.97 MU
S	Construction period	24 months

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

AEE (Tech)

For Cliff Finvest Pvt. Ltd.

Authorised Signatory

ANNEXURE-III

Thaltukhorh-II SHEP (5.00 MW) in Distt. Mandi of Himachal Pradesh allotted to "M/s Cliff Finvest (P) Ltd., 1-41, DLF Industrial Area, Phase-I, Faridabad-121003"

LIST STATUTORY AND ADMINISTRATIVE CLEARANCES REQUIRED

Sr.No.	ITEM	AGENCY	REMARKS
1.	WATER AVAILABILITY	1. State Govt. 2. CWC	Interaction with State Govt. Deptt. & CWC required. Relevant Irrigation Act of the State & Central Water Commission to be implemented.
2.	HPSEBL CLEARANCE	1. HPSEBL. 2. State Govt.	As per Indian Electricity Act, 2003.
3.	POLLUTION CLEARANCE WATER AND AIR	State/Central Pollution Control Board	Water (Prevention & Control of Pollution) Act, 1974 Air (Prevention & Control of Pollution) Act, 1981.
4.	FOREST CLEARANCE	1. State Govt. 2. MoEF & CC, GoI.	Coordination with State Forest Deptt./ Min. of Environment & Forest (MoEF & CC) regarding Forest (Conservation) Act, 1980.
5.	ENVIRONMENT & FOREST CLEARANCE	1. State Govt 2. MoEF & CC, GoI.	As per item (3) & (4) and Latest 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. MoEF & CC, GoI.	
8.	EQUIPMENT PROCUREMENT	Directorate General of Foreign Trade (DGFT)	As per Import & Export Acts.

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

AEE (TC)

For Cliff Finvest Pvt. Ltd.

Authorised Signatory