

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

OFFICE ORDER

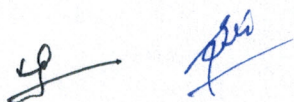
Directorate of Energy (DoE), Govt. of Himachal Pradesh, is pleased to accord Technical Concurrence (TC) to Tundah- II SHEP (24.00 MW) within allotted domain of El 1629.50 m to El 1403 m on Tundah nallah, a tributary of Ravi river in Ravi Basin, Distt. Chamba, Himachal Pradesh, allotted to "M/s Sai Engineering Foundation, Sai Bhawan, Sector 4, New Shimla- 171009 (H.P.)" at an estimated cost of Rs. 223.50 Crore (Rupees Two Hundred Twenty Three Crore and Fifty Lakh) only including Interest During Construction (IDC), Escalation, Financial Charges (FC) and LADF @ 1.50 % 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**, summary of financial package as considered by DoE, GoHP is enclosed at **Annex-II** and the Salient Features of the scheme are enclosed at **Annex-III**.
 - 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 & II**, 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 Concurrence.
 - c) Change in Indian law resulting in change in the cost.
2. The Concurrence is subject to the fulfillment 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 TC.
 - 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) 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) 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 the Independent Power Producer (IPP) i.e. "M/s Sai Engineering Foundation, Sai Bhawan, Sector 4, New Shimla- 171009 (H.P.)".
 - viii) No additional cost shall be allowed due to Resettlement & Rehabilitation (R&R) Plan.

- 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 Concurrence is subject to clearance of the project and Transmission Line by MoE&F from environmental and forests angle. The statutory and administrative clearances as per **Annex-IV** 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 IPP.
- 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 IPP on this account shall be paid by the IPP 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 endeavor 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 equipment as well as other electrical equipment to be provided by the IPP 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.
- xv) O&M charges for maintenance of inter connection facilities at the interconnection sub-station shall be paid by the IPP to HPSEBL/HPPTCL throughout the period, the IPP runs the project and the same shall be reviewed at the beginning of every financial year.
- xvi) The power from Tundah-II SHEP shall be evacuated by constructing dedicated 33 kV transmission line upto 33/220/400 kV Substation of HPPTCL at Lahal.
- xvii) 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.
- 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 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.
- 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 Center (SLDC) or Regional Load Dispatch Center (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 IPP in the PPA etc. apart from other standard conditions.
 - xxii) The Geological explorations as per CWC guidelines should be carried out before execution of the project and reports be submitted to DoE, GoHP.
 - xxiii) The observations of DoE, GoHP on the DPR and replies thereof shall form an integral part of the DPR.
 - xxiv) Minimum 15% release of water immediately downstream of diversion structure shall be ensured all the times including lean season as per HP Govt. Swaran Jayanti Energy Policy, 2021. The necessary monitoring equipment as per recommendations of the Pollution Control Board shall be installed by the IPP during execution of the project.
 - xxv) 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.
 - xxvi) 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.
 - xxvii) The proposed arrangement of laying Penstock with length 1458.50 m 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.
 - xxviii) LADC/LADF amount and activities shall be implemented as per HP Govt. Swaran Jayanti Energy Policy, 2021.
 - xxix) 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.
 - xxx) The Concurrence is based on the reports and data furnished by the IPP 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 IPP as per standard norms & manuals.
3. The project shall be completed within 36 months from the date of start of the construction work at site i.e. zero date.
 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 Concurrence 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 shall be submitted to the DoE, GoHP till the Commercial Operation of the plant.
9. The DoE, GoHP reserve the right to revoke the Concurrence, if the conditions stipulated above are not complied with to the satisfaction of the GoHP.

BY ORDER OF THE GoHP

**Director,
Directorate of Energy, GoHP,
New Shimla-171009(HP)**

No. HPDoE/CE(Energy)/TC-Tundah- II/2022- 1391- 99

Dated: 20/5/2022

Copy for information and necessary action to the:

1. Addl. Chief Secretary (MPP & Power) to H.P. Govt., Shimla-171002 (HP).
2. Addl. Chief Secretary (NES) to H.P. Govt., Shimla-171002 (HP).
3. Secretary, Ministry of Non-Conventional Energy Sources (MNES), Block No.24,CGO Complex, Lodhi Road, New Delhi-110003.
4. Director, Environmental & Scientific Technologies, Narayan Villa, Near Wood Villa Palace, Shimla-171002 (HP).
5. Deputy Commissioner, Chamba, Himachal Pradesh – 176310 (HP).
6. General Manager, HPPTCL, Himfed Bhawan, Panjari, Below Old MLA Quarters, Shimla-171005 (HP).
7. Chief Engineer (SP), HPSEB Ltd, Uttam Bhawan, Dogra Lodge, Shimla-171004 (HP).
8. Chief Engineer (SO), HPSEB Ltd, Vidyut Bhawan, Shimla –171004 (HP).
- ✓ 9. M/s Sai Engineering Foundation, Sai Bhawan, Sector 4, New Shimla- 171009 (H.P.)

**Director,
Directorate of Energy, GoHP,
New Shimla-171009(HP).**

Y
AEE (TBC)

ANNEXURE-I


Tundah- II SHEP (24.00 MW) in District Chamba of Himachal Pradesh allotted to "M/s Sai Engineering Foundation, Sai Bhawan, Sector 4, New Shimla- 171009 (H.P.)".

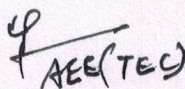
ABSTRACT OF COST ESTIMATE

Sr. No. (a)	Description of works	Amount (In Rs. lakh)	
1	Civil works i/c other Misc. Expenses	15251.28	} Price Level October, 2019
2.	Electro Mechanical works	3457.40	
2.	Transmission works	169.46	
	Sub Total (a)	18878.14	
(b)			
1.	Interest During Construction(IDC)	2656.58	
2.	Escalation	373.15	
3.	Financial Charges (FC)	111.73	
	Sub Total (b)	3141.46	
	Total (a+b)	22019.60	
(c)	LADC @1.50 % of (a+b)	330.29	
	Grand Total (a+b+c)	22349.89	

Say Rs. 223.50 crore

(Rupees Two Hundred Twenty Three Crore and Fifty Lakh Only)


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


AEE(TEC)



ANNEXURE-II

Tundah- II SHEP (24.00 MW) in District Chamba of Himachal Pradesh allotted to "M/s Sai Engineering Foundation, Sai Bhawan, Sector 4, New Shimla- 171009 (H.P.)"

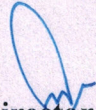
I. Tentative Financial Package

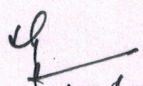
Debt : Equity - 70 : 30

Sr. No.	Description	Amount (In Rs. crore)
A	Debt. from Financial Institutions	156.45
B	Equity	67.05
	Total (Debt. + Equity)	223.50

II. Terms of Loan

Sr. No.	Item	Package
1.	Source of Debt.	Financial Institutions
2.	Loan Amount (in Rs. crore)	156.45
3.	Rate of Interest	11.50 %
4.	Repayment Period	15 Years


**Director,
Directorate of Energy, GoHP,
New Shimla-171009(HP).**


ABE(TEC)



Tundah- II SHEP (24.00 MW) in District Chamba of Himachal Pradesh allotted to "M/s Sai Engineering Foundation, Sai Bhawan, Sector 4, New Shimla- 171009 (H.P.)"

SALIENT FEATURES

I.	Location			
	A	State	Himachal Pradesh	
	B	District	Chamba	
	C	Vicinity/Village	Bharmour	
	D	Proposal	Diversion Barrage is proposed across Tundah Nallah with Full Supply Level (FSL) at El 1629.50 m and Power house on left bank of Tundah Nallah at El. 1408 with Tail Race Outfall Level at El 1403.00 m.	
	E	Accessibility by : Road	45 km from Chamba, 176 km from Pathankot and 410 km from Shimla	
	F	Railway Line	Broad Gauge Line 176 km from Pathankot	
	G	Airport	Gaggal (Kangra), Pathankot (PB)	
II.	Geographical Coordinates		Barrage Site	Power House
	A	Latitude	32° 29' 49.20" N	32°28' 31.07" N
	B	Longitude	76° 28' 31.26"E	76° 27' 35.10" E
	C	SoI Toposheet	52 D/7	
Hydrology				
A	Stream/Nallah		Tundah Stream	
B	Tributary of/Basin		Tributary of Ravi River/Ravi basin	
C	Total Catchment area		265.00 Sq.Km (upto Diversion Barrage)	
D	Design Discharge		14.15 cumecs	
E	Design Flood		821.00 cumecs	
F	HFL	Barrage Site		Power House
		El 1627.00 m		El 1401.65 m
PROJECT COMPONENTS				
A	Diversion Structure			
	1	Type of Structure	R.C.C Barrage	
	2	Full Supply Level (FSL)	El 1625.00 m	
	3	Pond Level	El 1621.50 m	
	4	Average River Bed Level	El 1620.88 m	
	5	No. and Width of Barrage	1 no. , 25.00 m	
	6	Crest level of Barrage Bays	El 1625.00 m	

	7	No. and width of under Sluice Bay	2 no. , 4.00 m
	8	Crest level of under Sluice Bay	El 1621.00 m
	9	Thickness of pier	1.50 m
	10	Thickness of Divide Wall	1.50 m
	11	Vertical Lift Gate	2 no. , 4.00 m (W) x 3.33 m (H)
	12	Upstream Foundation Level (under sluice)	El 1618.00 m
	13	Downstream Foundation Level (under sluice)	El 1614.28 m
	14	Upstream Foundation Level (Barrage bay)	El 1618.00 m
	15	Downstream Foundation Level (Barrage bay)	El 1616.38 m
	16	Average Slope of River	1 in 10 m
	17	Length Upstream Floor	14.00 m
	18	Length Downstream Floor	45.50 m
	19	Over flow Section	25.00 m
	20	Design Discharge	14.15 cumecs plus flushing & overloading dis.
	B Intake Structure		
	1	Length	11.90 m
	2	Width	9.50 m
	3	Main inlet gate	2 no. , 4.00 m x 3.33 m
	4	Bed Level	El 1621.00 m
	5	Top Level	El 1629.80 m
	6	Design Discharge	14.15 cumecs plus flushing & overloading dis.
	C Power Channel (from Diversion Barrage upto Desilting Tank)		
	1	Shape/Type	Square, RCC Box Section
	2	Size	3.60 m x 3.60 m
	2	Length	225.089 m
	3	Design Discharge	14.15 cumecs plus flushing & overloading dis.
	4	Bed level at inlet	El 1621.773 m
	5	Bed level at outlet	El 1621.087 m
	6	Slope	1 in 500
	7	Velocity of flow	1.638 m/sec
	D De-silting Tank		
	1	Type	RCC Surfaced, Twin Hopper Type
	2	Size	80.00 m (L) x 16.20 m (W) x 8.00 m (ED)
	3	Max. Depth of Hopper end	10.10 m
	4	Full Supply Level (FSL)	El 1625.00 m
	5	Flow Through Velocity	0.162 m/sec
	6	Design Discharge	14.15 cumecs plus flushing & overloading dis.


	7	Particle size to be removed	0.15 mm and above
	8	Silt Flushing Gate	1.10 m x 1.50 m
	9	Bed level at inlet	El 1621.087 m
	10	Bed level at outlet	El 1621.370 m
	E Head Race/Power Tunnel (from D-Tank upto Aqueduct)		
	1	Shape	D Shaped tunnel
	2	Length	222.03 m
	3	Size of Tunnel	3.15 m Ø
	4	Design Discharge	14.15 cumecs plus overloading dis.
	5	Slope	1 in 500
	6	Velocity of flow	1.598 m/sec
	7	Lining Material/Thickness	M-25/150 mm
	8	Bed level at inlet	El 1621.37 m
	9	Bed level at outlet	El 1620.00 m
	F AQUEDUCT		
	1	Shape/Material	Circular, IS 2062 Gr-C Steel
	2	Diameter and Thickness	2500 mm Ø, 20.00 mm
	3	Length of Aqueduct	36.00 m
	4	Bed Slope	1 in 500
	5	Level at inlet	El 1620.00 m
	6	Level at outlet	El 1619.928 m
	G Head Race/Power Tunnel (from Aqueduct upto Surge Shaft)		
	1	Shape	D Shaped tunnel
	2	Length	1010.53 m
	3	Size of Tunnel	2.80 m Ø
	4	Design Discharge	14.15 cumecs plus overloading dis.
	5	Slope	1 in 500
	6	Velocity of flow	2.022 m/sec
	7	Lining Material	M-25
	8	Bed level at inlet	El 1619.928 m
	9	Bed level at outlet	El 1617.907 m
	10	Number of Adits	Two
	11	Shape	D-Shaped Tunnel
	12	Size of each adit	2.80 m x 2.80 m
	13	Slope	1 in 200
	14	Length	Adit I- 106.59 m, Adit II- 120.33 m
	H Surge shaft		
	1	Type/Shape	Underground, Circular Tank
	2	Size	9.00 m dia., 18.00 m height
	3	Top level	El 1634.00 m
	4	Maxm. Up surge Level	El 1633.00 m


	5	Water Level at No Load	El 1625.00 m
	6	Water Level at Full Load	El 1621.00 m
	7	Min. Draw Down Level (MDDL)	El 1617.50 m
	8	Minm. Surge Level	El 1616.00 m
	9	Bed Level	El 1611.00 m
	10	Diameter of penstock protection valve	2500 mm Ø
	I Penstock		
	1	Type	Underground steel penstock inside D shaped Tunnel
	2	Number of penstocks/Size	One/2500 mm internal Ø
	3	Size of penstock Tunnel	2.80 m x 2.80 m
	3	Length	1458.50 m
	4	Plate thickness of steel liner	Varies from 10 mm to 26 mm
	5	Material of steel liner	ASTM 516 Grade 70 steel
	6	Design discharge	14.15 cumecs plus overloading dis.
	7	Number of Branch penstocks	Two
	8	Size of Branch penstocks	1.65 m Ø , 26.00 mm thick (each)
	9	Number/Size of MIV	One, 1350 mm Ø
	10	Vertical Drop Shaft	103.00 m Height before Bifurcation near PH
	J Power House		
	1	Type	Underground Power House
	2	Installed Capacity	24.00 MW (2 units of 12 MW each)
	3	Size	35.10 m (L) x 12.00 m (W) x 19.96 m (H)
	4	Design Head at Normal Operating Level	207.06 m
	5	Net head	202.35 m
	6	C/L of turbine in power house	El 1408.00 m
	7	Power house Crane	60 MT/5 MT EOT
	8	Machine Floor Level	El 1407.10 m
	K Turbine (s)		
	1	Type	Horizontal shaft Francis turbine
	2	Number	Two
	3	Rated Capacity	12000 KW each
	4	Normal speed	750 rpm
	L Generator (s)		
	1	Type	Brushless Synchronous
	2	Number	Two

4

4

	3	Rated Capacity	12000 KW each
	4	Power Factor	0.85 lag
	5	Frequency	50 Hz.
	6	Normal speed	750 rpm
	7	Generation Voltage	11 kV
	9	Continuous Overloading	10 %
M Tail Race			
	1	Shape/Type	D- Shaped/RCC Tunnel
	2	Size	3.00 m x 3.00 m
	3	Length	190.60 m
	4	Bed Slope	1 in 60
	5	Tail Race Outfall Level	El 1403.00 m
	6	Min. Tail Water Level	El 1409.44 m
IV. Energy and Cost of Generation			
	a	Annual Design Energy in 75% Dependable Year	119.54 MU (At 95% plant availability)
	b	Levellised Tariff for 40 years	Rs. 4.50/KWH
V.		Construction Period	36 months


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


 F.A.E.E (T.E.S)




ANNEXURE-IV

Tundah- II SHEP (24.00 MW) in District Chamba of Himachal Pradesh allotted to "M/s Sai Engineering Foundation, Sai Bhawan, Sector 4, New Shimla- 171009 (H.P.)"

LIST OF 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.


Director,
Directorate of Energy, GoHP,
New Shimla-171009(HP)