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

**OFFICE ORDER**

Directorate of Energy (DoE), Government of Himachal Pradesh, is pleased to accord Technical Concurrence (TC) to Dhanwan SHEP (1.00 MW) within elevation range of El 1467.00 m to El 1360.00 m on Kangehar nallah, a tributary of Uhl River in Distt. Mandi, Himachal Pradesh allotted to "M/s Shivganga Hydel Power Project, House No. 73, Housing Board Colony, Daundhi, P.O. Nagchala, Tehsil Balh, Distt. Mandi- 175021 (HP)", at an estimated cost of Rs. 1082.00 lakh (Rupees One Thousand Eighty Two 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 Shivganga Hydel Power Project, House No. 73, Housing Board Colony, Daundhi, P.O. Nagchala, Tehsil Balh, Distt. Mandi- 175021 (HP)"
   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 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 power of Dhanwan SHEP (1.00 MW) can be evacuated through solid tap on 11 kV Sudhar feeder (at village Bhatchar) emanating form 33/11 kV tikken sub-station subject to the following conditions:-

1. The cost of 11 kV dedicated transmission line (from the power-house site to the solid tap) and the interconnection facilities shall be borne by the IPP.
2. No deemed generation shall be claimed by the IPP in case of breakdown on 11 kV feeder or 33/11 kV Tikken Sub-station.
3. HPSEBL shall have the right to avail shutdown on the sub-station or on the feeder as and when required to maintain the system.
4. Dedicated 11 kV feeder from the power house site to solid tap point shall be operated and maintained by the IPP.
5. Metering arrangement at interfacing point shall be at the cost of the IPP.
6. Modalities for sharing of losses in "off Peak load hours" between interfacing point and 33/11 kV Tikken Substation shall have to be devised between HPSEBL and the IPP.

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 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)



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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 tc 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 Feeder / Power pipe and Penstock with length 1136 m and 192.00 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.

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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 shall be submitted 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**

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

**No. DoE/CE(Energy)/TC-Dhanwan/2022-** 564-73 **Dated:** 21/04/2022

Copy for kind information and necessary action please, to the:-

1. The Addl. Chief Secretary (MPP & Power) to H.P. Govt., Shimla-171002.
2. The Addl. Chief Secretary (NES) to H.P. Govt., Shimla-171002.
3. The Secretary, Ministry of Non-Conventional Energy Sources (MNES), Block No.14,CGO Complex, Lodhi Road, New Delhi-110003.
4. The Director, Environmental & Scientific Technologies, Narayan Villa, Near Wood Villa Palace, Shimla-171002.
5. The Deputy Commissioner, Distt. Mandi, Himachal Pradesh – 175002.
6. The General Manager, HPPTCL, Himfed Bhawan, Panjari, Below Old MLA Quarters, Shimla-171005.
7. The Chief Engineer (SP), HPSEB Ltd, Uttam Bhawan, Dogra Lodge, Shimla-171004.
8. The Chief Engineer (SO), HPSEB Ltd, Vidyut Bhawan, Shimla –171004.
9. The Chief Executive Officer, Himurja, 8A-SDA Complex, Kasumpti, Shimla-171009.
10. M/s Shivganga Hydel Power Project, House No. 73, Housing Board Colony, Daundhi, P.O. Nagchala, Tehsil Balh, Distt. Mandi- 175021 (HP).

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

**ANNEXURE-I**

**Dhanwan SHEP (1.00 MW) in Distt. Mandi of Himachal Pradesh allotted to "M/s Shivganga Hydel Power Project, House No. 73, Housing Board Colony, Daundhi, P.O. Nagchala, Tehsil Balh, Distt. Mandi- 175021 (HP)."**

## ABSTRACT OF COST ESTIMATE

| Sr.No. | Description of work | Cost ( Rs. in lakh) | |
|---|---|---|---|
| (a) | | | |
| i) | Civil works i/c other Misc. expenses | 650.42 | Price level March, 2021 |
| ii) | Electro Mechanical Work | 319.93 | |
| iii) | Transmission Works | 20.40 | |
| | **Sub-total (a)** | **990.75** | |
| (b) | | | |
| i) | Interest During Construction (IDC) | 50.07 | |
| ii) | Escalation | 19.81 | |
| iii) | Financial Charges | 10.06 | |
| | **Sub-total (b)** | **79.94** | |
| | **Total (a+b)** | **1070.69** | |
| (c) | LADC @ 1.0% of (a+b) | 10.71 | |
| | **Grand Total (a+b+c)** | **1081.40** | |
| | **Say ₹** | **1082.00 Lakh** | |

**(Rupees One Thousand Eighty Two Lakh Only)**

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

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**ANNEXURE-II**

**Dhanwan SHEP (1.00 MW) in Distt. Mandi of Himachal Pradesh allotted to "M/s Shivganga Hydel Power Project, House No. 73, Housing Board Colony, Daundhi, P.O. Nagchala, Tehsil Balh, Distt. Mandi- 175021 (HP)."**

## SALIENT FEATURES

| | | |
|---|---|---|
| **I.** | **LOCATION** | |
| | State | Himachal Pradesh |
| | District | Mandi |
| | Village | Dhanwan |
| | Stream/ Khad | Kangehar Nallah/Uhl khad |
| | Proposal | Diversion Weir of Dhanwan SHEP at El 1467m and Surface Power House site on left bank of Kangehar nallah at El 1362.50 m with Mini. Tail Water Level El 1360.17m |
| | Accessibility | |
| | By Road | 50 km from Mandi-Padhar-Balh-Dhanwan |
| | By Rail | Narrow Gauge Line at Joginder Nagar |
| | By Air | 110 km from Bhuntar Airport |

**Geographical Coordinates**

| | **Longitude** | **Latitude** |
|---|---|---|
| • Weir | 76$^0$-56'-9.05"E | 31$^o$-55'-1.76" N |
| • Power House | 76$^o$-55'-41.56" E | 31$^o$-54'-35.98" N |

| | |
|---|---|
| SOI Topo sheet | 53A/13 |
| **II. HYDROLOGY** | |
| Khad/River | Kangehar Nallah/Uhl khad |
| Tributary | Tributary of Beas Basin |
| Catchment area at diversion site | 22.20 Sq. km. |
| Design discharge | 1.25cumecs |
| Design flood | 132.96cumecs |

| | **Diversion Weir** | **Power House** |
|---|---|---|
| HFL | El 1470.00 m | El 1355.50 m |

| | |
|---|---|
| **III. PROJECT COMPONENTS:-** | |
| **A. DIVERSION STRUCTURE/INTAKE** | |
| Type | RCC Trench Type Weir |
| Size | 10.00 m (L) x 11.00 m (W) having 1.30 m Trench width. |
| Depth | 4.10 m depth at start and 5.50 m depth at end |
| Design discharge | 1.25 cumecs plus flushing and overloading discharge |
| Crest level at weir | El 1466.72 m |
| Bed Level | El 1465.30 m |

| | |
|---|---|
| Bed Slope | 1 in 14.29 |
| Size of Intake | 5.00m (L) x 2.30 m (W) x 2.00 m (H) |
| Top Level of Intake | 1466.60 m |

Water Conductor System (From Intake Tank to D-Tank)

| | |
|---|---|
| Type | Circular Pipe |
| Size | 1.00 m ϕ, 6mm thickness |
| Length | 55.00 m |
| Slope | 1 in 250 m |
| Design discharge | 1.25cumecs plus flushing and overloading discharge |
| Velocity | 2.28 m/sec |
| Bed level at end | 1464.88 m |
| FSL | 1465.85 m |

**B. DESILTING ARRANGEMENT**

| | |
|---|---|
| Type/Shape | RCC rectangular Hopper type |
| Size | 25.00 m (L) x 4.00 m (W) |
| Depth | 3.80 m (including freeboard) |
| Design Discharge | 1.25 cumecs plus flushing and overloading discharge |
| Particle size to be removed | 0.25 mm |
| Flow velocity | 0.22 m/sec |
| FSL of De-silting tank | El±1465.85 m |
| Dia of Flushing Pipe | 800 mm ϕ |
| Type of Flushing Pipe | Circular MS Pipe |

**C. FEEDER/POWER PIPE (Desiliting Tank to Forebay )**

| | |
|---|---|
| Type | Circular Pipe |
| Size | 1.00m ϕ, 6 mm thickness |
| Length | 1136.00 m |
| Slope | 1 in 400 m |
| Design discharge | 1.25 cumecs plus overloading discharge |
| Velocity | 1.80 m/sec |
| FSL at end | 1463.01 m |
| Bed Level | 1462.02 m |

**D. FOREBAY TANK**

| | |
|---|---|
| Type/Shape | RCC Rectangular Tank |
| Size | 12.00 m (L) x 8.00 m (W) x 6.00 m (D) i/c 1.10 m freeboard |
| Design Discharge | 1.25 cumecs plus overloading discharge |
| Live Storage capacity | 172.80 |
| Peaking time | 2 minutes |
| Top Level | El 1464.11 m |
| FSL | El 1463.01 m |
| MDDL | El 1461.21 m |
| Bed Level | El 1458.11 m |

**E. PENSTOCK**

| | |
|---|---|
| Type/Shape | Circular/Steel |
| Number /size of main penstock | One/ 700 mm ϕ |
| Length of main penstock | 192.00 m |
| Plate Thickness | Varies from 8 mm to 10 mm |

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| | |
|---|---|
| Velocity | 3.57 m/sec |
| Material of steel liner | ISI-2062 steel |
| Number of branches | 2 No. |
| Size of branch penstock | 500 mm ϕ |
| Length of branch penstock | 10.00 m (each) |
| Velocity of branch penstock | 0.87 m/sec |

**F. POWER HOUSE**

| | |
|---|---|
| Type | Surface Power House |
| Size | 20.00 m (L) x 12.00 m (W) x 10.00 m (D) |
| C/L of Jet | El 1362.50 m |
| Installed Capacity | 2 x 500 kW |
| Gross Head | 99.91 m |
| Net Head | 95.80 m |
| Power House Crane | 10/2 Tonne |

**TURBINE**

| | |
|---|---|
| Type of Turbine | Horizontal Francis turbine |
| Number | 2 No. |
| Rated capacity | 500 kW each |
| Rated Speed | 600 rpm |

**GENERATOR**

| | |
|---|---|
| Type | Synchronous |
| Number | 2 No. |
| Rated capacity | 500 kW each |
| Power Factor | 0.85 lag |
| Rated Voltage | 3.3/11KV |
| Rated Frequency | 50 Hz |
| Rated Speed | 600 rpm |
| Overloading Capacity | 10% |

**G. TAIL RACE**

| | |
|---|---|
| Type/Shape | RCC Rectangular Channel |
| Size | 1.20 m (W) x 1.20 m (D) |
| Length | 40.00 m |
| Slope | 1 in 300 |
| Mini. Tail Water Level | El 1360.17 m |

**H.** Construction Period — 24 months

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

**ANNEXURE-III**

**Dhanwan SHEP (1.00 MW) in Distt. Mandi of Himachal Pradesh allotted to "M/s Shivganga Hydel Power Project, House No. 73, Housing Board Colony, Daundhi, P.O. Nagchala, Tehsil Balh, Distt. Mandi- 175021 (HP)."**

**LIST STATUTORY AND ADMINISTRATIVE CLEARANCES REQUIRED**

| Sr. No. | ITEM | AGENCY | REMARKS |
|---|---|---|---|
| 1. | WATER AVAILABILITY | 1. State Govt.<br>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.<br>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.<br>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<br>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<br>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).**