BHAKRA BEAS MANAGEMENT BOARD

BSL (P) BBMB SUNDERNAGAR

Distt.- Mandi (H.P), Pin Code – 175019 Tel. : 01907-262233, E-mail : xenhcbdsnr@bbmb.nic.in

NOTICE INVITING EXPRESSION OF INTEREST(EoI)

EOI No. : BSL (P)/EoI/SHKT/01/2024

Expression of Interest is invited for evaluation of Hydro Kinetic Potential by installing the Hydro Kinetic Turbine with solar mounting and Battery Energy Storage System (BESS) for providing power on round the clock basis in the cutting reach of Sundernagar Hydel channel (total length of 1130 meters) on a pilot project basis. Generators involved in the field of generation and supply of power from indigenous technology based Hydrokinetic Energy Plants are invited for responses to the EOI.

For further details please visit the CPP portal website https://etenders.gov.in/eprocure/app OR BBMB website : **https://www.bbmb.gov.in.** Prospective parties may submit their 'Expression of Interest' through e-tender mode on https://etenders.gov.in/eprocure/app (CPP Portal).

EoI should be submitted latest by date **17-02-2025** till **15:00 hrs** and will be opened on **18-02-2025** at **15:00 hrs** in the office of Sr. Executive Engineer HC & BG Division BSL (P) BBMB Sundernagar, Distt. – Mandi (H.P)

Note : Pre-Submission meeting will be held on **07-02-2025** in Virtual Mode.

Sr. Executive Engineer,
H.C. & B.G. Division, BSL (P)
BBMB, Sundernagar-175019

BHAKRA BEAS MANAGEMENT BOARD

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Detailed Expression of Interest for evaluation of Hydro Kinetic Potential by installing the Hydro Kinetic Turbine with solar mounting and Battery Energy Storage System (BESS) for providing power on round the clock basis in the cutting reach of Sundernagar Hydel channel between RD-5890 meters to RD-7020 meters (total length of 1130 meters) on a pilot project basis.

EOI No.: BSL (P)/EoI/SHKT/01/2024

Date of Publishing	**: -**	**18-01-2025**
Pre-Submission Meeting	:-	**07-02-2025**
Final date for submission of EoI	: -	**17-02-2025** till **15:00 hrs**
Date of Opening of EoI	: -	**18-02-2025** at **15:00 hrs**

- **Objective for the Expression of Interest :**

BBMB is keen in addressing the challenges of increased power demands by supplementing the renewable power sources with power from all possible sources especially from hydrokinetic power potentials available with in hydel channel, irrigation canals of its Projects. BBMB envisage to explore the feasibility of installation of Hydro Kinetic Turbine along with Solar PV Panels in the Channel and Canals. Further, Battery Storage System is also planned so as to provide power on round the clock basis.

Before going in for implementation of the project in large scale, BBMB is interested to harness the kinetic hydro potential available with continuous discharge in Sundernagar Hydel Channel of BSL (P) Sundernagar through the use of state of art technology developed indigenously from prospective OEMs, Innovators and technologists.

Generators involved in the field of generation and supply of power from indigenous technology based Hydrokinetic Energy Plants are also eligible to participate in the EOI.

The interested bidders/applicants shall submit their Expression of Interest (EOI) in the requisite format. It may be noted that submission of EOI does not, in any way, constitute any kind of commitment on the part of BBMB to award the intended work to participating applicants.

- **Deliverable of the EoI**

Evaluation of Hydro Kinetic Potential by installing the Hydro Kinetic Turbine with solar mounting and Battery Energy Storage System (BESS) for providing power on the round the clock basis in the cutting reach of Sundernagar Hydel channel between RD-5890 meters to RD-7020 meters (total length of 1130 meters) on a pilot project basis.

- **Way forward after the EoI**

After the EOI the selected participants will be invited to participate in the bid for installation of Hydro Kinetic Project on the designated site with the identified potential on RESCO mode.

INFORMATION TO PARTICIPANTS

1. Background

Bhakra Beas management Board (popularly known as BBMB) is a trend setter organisation in Water Resources and Power Sector under the Ministry of Power, Govt. of India. BBMB has an installed capacity of 2954.73 MW - the third largest installed hydro power capacity in India and maintains some of the largest water reservoirs in the country such as Bhakra and Pong Dam reservoirs. BBMB also operates 98 Km. long water conductor system including channels & tunnels.

The Beas Satluj Link Project of BBMB i.e **BSL Project** comprises an earth-cum-rock-fill dam at Pandoh across River Beas, a spillway, a water conductor system to link River Beas with River Satluj through two long tunnels, a channel, and a power house at Slapper at the down-stream end of the system.

Pandoh Dam across river Beas is a diversion dam located 21 km from Mandi town (Himachal Pradesh) on the Mandi-Kulu road. The dam is about 61 m (200 ft) high above the river bed level & 76 m (250 ft) above the deepest foundation level. The length of the dam at the crest is about 255 m (836 ft) with a crest width of 12.2 m (40 ft). Diverted water from Pandoh dam is carried through Pandoh Baggi Tunnel (PBT) of 7.62 m (25 ft) finished diameter over a distance of about 13 km upto Baggi Control works.

Sundernagar Hydel Channel which takes off from Baggi Control works and outfalls into Sundernagar Balancing Reservoir is 11.80 km long and have discharge capacity of 254.85 Cumecs.

2. Scope of Work:

Scope of work of the EoI includes the following:

a) Evaluation of Hydro Kinetic Potential by installing the Hydro Kinetic Turbine with solar mounting and Battery Energy Storage System (BESS) for providing power on the round the clock basis in the cutting reach of Sundernagar Hydel channel between RD-5890 meters to RD-7020 meters (total length of 1130 meters) on a pilot project basis.
b) The bidder should evaluate the hydrological and hydraulic data of the canal including the sediment characteristics and behaviour of sediments on the machine over a longer period of time by analysing minimum of 10 years of available data.
c) To access the technical feasibility of the project by including the selection of suitable hydro kinetic technology with a proven track record having TRL factor of minimum of 7.
d) To study the economical viability of the project including the estimated cost and benefits.
e) To study the regulatory framework governing Hydro Kinetic Projects in the country.

3. Outcomes of the EoI

i. The consultant should submit the inception report outlining the approach methodology and the timeline for the assignment within 45 days after the acceptance and confirmation by BBMB.
ii. Pre Submission meeting- A pre-submission meeting will be held at Chandigarh/Site/Virtual Mode on the date communicated by BBMB preferably within 30 days of receipt of inception report.
iii. The consultant should submit a final report within 60 days of the pre-submission meeting by outlining the findings and recommendations.

4. Site Information and Data :

Sundernagar Hydel channel is 11.80 km long having discharge capacity of 254.85 cumecs (i.e 9000 Cusecs) in the head reach up to silt ejector at RD 1365 mtr and thereafter 240.72 cumecs (8500 Cusecs). The channel with a bed width of 9.45 m, depth 6.26/5.85 m, side slope 1.5 H : 1.0 V and water surface slope of 1 in 6666. Un-reinforced concrete lining has been provided throughout the length of channel, except over cross drainage works where reinforced concrete lining has been provided.

The Channel traverses through heavy cutting and filling zones along its alignment and it is intended to install Pilot Project in cutting reaches of the channel. The cutting reaches of the channel are as under :

Cutting reaches of Sundernagar Hydel Channel	
RD of Hydel Channel	**Length of Cutting reach (m)**
0 m to 500 m	500
900 m to 1560 m	660
2000 m to 2370 m	370
2770 m to 3190 m	420
3620 m to 3600 m	280
3750m to 4100 m	350
4200 m to 4330 m	130
5120 m to 5600 m	480
5890 m to 7020 m	1130
7420 m to 7820 m	400
7985 m to 8220 m	235
8260 m to 8850 m	590
8885 m to 9700 m	815
9810 m to 10550 m	740
11500 m to 11800 m	300
Total (Mtr)	**7400**

5. Salient Features of Sundernagar Hydel Channel :

Length of Hydel Channel	11.80 Km
No. Cross drainage works	17 (01 no. super passage & 16 no. aqueducts)
Width of channel at bottom	31 ft
F.S.L depth	20.53 ft to 19.54 ft
Free Board	4 ft to 3 ft
Side slope (inner side)	1.5:1
Width of Channel at top	112 ft
Perimeter of Channel	126.14 ft
Max. Discharge capacity	9000 Cusecs upto Silt Ejector and 8500 Cusecs d/s of Silt Ejector
Bed slope	0.15% (1 in 6666)
Max. flow velocity	6.05 ft/sec
Channel side and bed lining	Cement concrete lining laid in panels
Size of C.C panels in Bed	4.57 m x 4.724 m (thickness = 102 mm
Size of C.C Panels in sides	4.57 m x 4.57 m (thickness = 125 mm)
No. of Long joints	7 Nos. (2 Nos. on each side and 3 Nos. in Bed)

6. Monthly Average Discharge Data of last 10 years Sundernagar Hydel Channel :

Discharges in Sundernagar hydel channel is governed by Beas Inflows and water demand for power generation from Dehar Power House. During monsoon season, Sundernagar hydel Channel flows with its maximum designed capacity of 8500 Cusecs which during lean season i.e. from December to February months of the year reduces upto 1200 cusecs

Months	**Average discharge (Cumec)**
July	240.72
Aug	240.72
Sept	230.80
Oct	141.0
Nov	85.0
Dec	46.60
Jan	34.0
Feb	51.90
March	87.70
April	148.10
May	207.50
June	220.50

Discharges in Sundernagar Hydel channel is governed by Beas Inflows and water demand for power generation from Dehar Power House. During monsoon season, Sundernagar Hydel Channel flows with its maximum designed capacity of 8500 Cusecs which during lean season i.e. from December to February months of the year reduces to average 1200 cusecs.

7. Sedimentation details of the last ten years is attached as Annexure-I

8. Constraints:

Depending upon the availability of discharges during lean season, there may be constraints for maintaining required minimum velocity for Hydrokinetic Energy Turbine machines. During monsoon season, due to frequent events of cloud burst in upper catchment basin of Beas River results flash flood inflows in Pandoh dam reservoir carrying very high sediments and trash of uprooted trees and wooden logs. This heavy sediment water with trash of wooden logs and trees enters into Sundernagar hydel Channel through Pandoh Baggi Tunnel which may hamper the operation of turbine machines.

9. Evaluation Criteria:

The prospective agencies shall be evaluated based on the defined qualification criteria. The prospective bidder must conform to the qualification criteria given below and shall attach proof of documents for each of the qualifying requirements. Bids without adequate supporting documents shall be treated as non-responsive.

10.1 Qualification Criteria

Total 60 Marks

Criteria	Proofs to be produced	Max. Marks
The agency should have been in the business of providing similar kind of technological Services in India for a period of at least **three or more years** as on 31.03.2024. The agency should be a private/public limited company with proven track record in designing / consultancy services such as Pre-feasibility Report, Detailed Project Report and research services of hydrokinetic turbines or other similar technologies.	Company incorporation certificate to be produced as proof. Minimum Three years experience will earn 8 marks. One proof of previous work of similar nature will fetch 4 marks and every additional work will fetch 4 marks subject to maximum of 12 marks.	**20**

Definition of Similar Technology : Hydro kinetic turbine (HKT)/Surface Hydro Kinetic Turbine (SKHT) capable to harness hydrokinetic energy using velocity of water (Velocity driven turbine with zero head) without deploying any kind of permanent civil structure for diversion , pondage/ storage of water in a running stream.		
Total average turn over the agency shall be more than 50 lakhs over the last three years. The agency should be a dedicated technology company with dependable credentials and service history. For agencies with multiple service verticals, 50% of their total turnover should be from renewable energy projects.	Memorandum of association of the company, audited Balance Sheet and P&L for the relevant financial years and unaudited Balance Sheet and P&L for last three years, both the documents to be notarized. Turnover of above 50% in renewable energy vertical will fetch 10 marks and every further 10% will earn 2 marks subject to a maximum of 10 marks.	**20**
The agency should have an office in India, and should have at least facility for customisation, testing, assembly of hydrokinetic equipment and spare parts availability (in case of international tie-ups) and a team of expert professionals to manage it. The agency must offer technology certified at TRL level 7 or above by a recognised government authority, ensuring its commercial readiness. The core team designated for this assignment by the agency should have atleast two Masters in engineering in Civil/Mechanical/ Electrical/ Electronics or equivalent and having minimum practical experience of 3 years in the area of hydrokinetic energy/renewable energy in the field of design/ operations/installations/ construction with proven track record.	i. Documents to establish company's presence in India; such as lease deed or office ownership documents (6 marks). ii. TRL -7 will fetch 4 marks TRL-8 will fetch 6 marks TRL-9 will fetch 8 marks and iii. Credentials of team of professionals 3 marks for each professional subject to maximum of 6 marks.	**20**

10.2 Minimum Qualifying marks for evaluation:- The participants have to obtained minimum of 30 marks out of 60.

11. Submission of EoI

Interested agencies are required to submit the response with the complete information in all respects along with enclosed format (Refer Schedule-**I, II, III**).

Following Documents to be submitted along with the EoI (certified copy):

1. Brief write up about the Company/ Promoters/LLP Profile/ Firm/Consortium (In case of consortium, the bidder should submit the consortium Agreement between the consortium partners)
2. Self-certified copies of educational qualification
3. A brief statement of proposed plan
4. At least one proof of previous work of similar nature with satisfactory completion report from the client.
5. Certified balance Sheet and Profit & Loss Statement for the last three financial year .
6. Certificate from Chartered Accountant regarding 50% of more turnover of above 50% in renewable energy vertical during last three financial years.
7. Technological readiness level certificate issued by a recognised government authority, ensuring its commercial readiness.
8. Copy of latest GST Return
9. PAN Card Copy
10. Self-Certification stating that the Company/ LLP/Firm or its Subsidiaries / Individual/ Associates are not Debarred / Blacklisted by any Central / State Governments, Government Departments, Government Bodies or PSUs.
11. Copy of MOA and AOA/ Partnership deed and certificate of incorporation/ registration in case of firms.
12. The Applicant should submit a Power of Attorney/Board Resolution/notarial document authorizing the signatory of the application to commit the Applicant.
13. Any other detail which the Applicant Company/ Firms feels relevant in this regard.

Prospective parties may submit their 'Expression of Interest' duly signed by the authorised signatory along with relevant details as sought in the data sheets shall be submitted through e-tender mode on https://etenders.gov.in/eprocure/app (CPP Portal). No hard copy of EOI shall be acceptable. The EOI shall be submitted latest by date **17-02-2025** till **15:00 hrs**.

Note : Pre-submission meeting will be held on **07-02-2025** in Virtual Mode. All interested parties may discuss and clarify their queries in the pre-submission meeting. For the timing of pre-submission meeting, Parties may contact Sr. Executive Engineer HC & BG Division BSL (P) BBMB Sundernagar either telephonically or through email. No further queries will be entertained after pre-submission meeting.

The EoI will be **opened** at **15:00 hrs** on dated **18-02-2025** in the office of Sr. Executive Engineer HC & BG Division BSL (P) BBMB Sundernagar, Distt. – Mandi (H.P)

12. Other conditions

Prospective respondent (Applicants) to this EoI acknowledges and agrees that:

i) BBMB has issued this document for Expression of Interest with the best intention to explore the market for eligible and interested bidders and has no compulsions to enter into definitive contractual agreements. This EoI does not guarantee conversion of this EoI into any definitive contractual agreements.

ii) It is also agreed that BBMB in its sole discretion, may reject any and all proposals made by respondents, may change the conditions relating to the EoI or cancel this EoI at any time without assigning any reason.

iii) Prospective respondent(s) acknowledge and agree that response to the EoI is purely voluntary action on their part and for any expenditure on this account shall be borne by the respondent(s).

iv) The Interested Applicant / Agency is advised to visit and examine the site where the work is to be executed and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the EoI and entering into a contract for execution of the facilities. The costs of visiting the site shall be borne by the Applicant / Agency fully.

v) Interested Applicants/ Agencies shall have to abide by the guidelines of the Central Government and State Government and ensure compliance, in case of award. All applicable safety norms in general shall be followed by the interested Applicants / Agencies while site visit, handling, transportation and unloading, erection, testing etc. at designated point as per the requirement, in case of award.

vi) The applicants in submission of their applications to this EoI and during execution and performance of the work are required to ensure compliance with the provisions of the public procurement (Preference to Make in India) order 2017 amended on 16 September 2020 issued by Department for Promotion of Industry and Internal trade (Make in India Policy) and Order (No. 11/05/2018 Coord) dated 29 July 2020 as amended by Order (No. 11/05/2018 Coord) dated 17 September 2020 issued by Ministry of Power.

vii) The applicant should certify their compliance to “Restrictions on Procurement from a bidder of a country which shares land border with India”, as per F No. 6/18/2019-PPD dated 23 July 2020 of Ministry of Finance, Department of Expenditure Order (Public Procurement No.1). Submission of EoI shall be considered as applicant confirmation that he has read and understood the “restrictions on procurement from a bidder of a country which shares a land border with India” and its EoI is in compliance with this clause.

viii) BBMB invites eligible applicants to indicate their interest in providing the services as above. Interested applicants must provide information indicating that they are qualified to for the above mentioned scope & conditions in Schedule-I, II, III or any other relevant information which they consider important for their qualification.

ix) BBMB will have no obligation or liability to the respondent(s) in the event of cancellation of EoI.

x) For any clarification, prospective parties are requested to contact on following address :

Sr. Executive Engineer

HC & BG Division BSL (P)
BBMB Sundernagar Distt.- Mandi (H.P)
Mob. No. 9418026403
Email to xenhcbdsnr@bbmb.gov.in

Note:

- All future corrigenda / addenda / amendments and clarifications to the invitation of EoI, if any, shall be hosted on www.bbmb.gov.in and https://etenders.gov.in/eprocure/app websites only. Applicants are therefore advised to keep themselves updated with all such amendments.

- The EOI will be **opened** at **15:00 hrs** on dated **18-02-2025** in the office of Sr. Executive Engineer HC & BG Division BSL (P) BBMB Sundernagar, Distt. – Mandi (H.P)

Schedule -I

Details of the Bidder

Sl. No.	Parameters		Details (may separate sheets)
i.	**Name of the Company and address**		
ii.	Country where the company is registered		
iii.	Whether the company is Govt. firm / Private owned		
iv.	Status of the Company: a) Whether registered under the Companies Act 1956 / the Companies Act 2013 b) If not, other details (like sole proprietorship firm/partnership firm etc)		
iv.	Nature /Origin /Status /Recognition of Technology options and Operational Requirements of Proposed Technology		
v.	Whether OEM/Innovator/Technologist		
vi.	Kindly provide details and experience certificates of (i) Preparation of DPR (ii) Assessment of potential of Hydro Kinetic Energy (HKE) (iii) Development/Installation of Micro/Mini/Small Hydro power plants or other renewable energy projects.		
	Specify the period (in months) for completion of above said work	Assessment of potential	
		Preparation of DPR and commercial model for tapping Hydrokinetic Energy at Sundernagar Hydel Channel (SNHC)	
		Pilot Installation of Hydrokinetic-Solar hybrid Project at SNHC	
		Total period (in months) of Complete Work	
vii.	* Expected Generation Cost * Expected PPA/Tariff * Timeline for Plant Execution * Nature of plant (Type of power plant) * PLF Details * Land requirement * Grid requirements * Environmental Impact		

viii.	Indicative tariff (Rs/kWh at State Utility grid), along with copy of the draft PPA. Applicant may indicate that this information may be kept confidential, if they wish to do so	
	Name and Designation of the contact person	
	Address	
	Mobile Number	
	E-Mail Address	
	Any other relevant information	

Place: Date:

Name :

In the Capacity of:

Signed:

Duly authorized to sign the application for and on behalf of:

(Seal of the company)

Schedule-II

Details of Technology and Commercial Model Proposed by the Applicant / Agency

1.	Details of technology and commercial model	Details enclosed as …….
2.	Technical literature/brochure/leaflets related to the offered technology	Details enclosed as …….

Note: If BBMB requires, applicant/agency may be call for presentation/discussion on the technology and commercial model Proposed.

Place: Date:

Name :

In the Capacity of:

Signed:

Duly authorized to sign the application for and on behalf of:

(Seal of the company)

Schedule-III

(EXPERIENCE)

Sl. No	Project name and its description	Project location	Installed capacity	Type of Machine	Commissioning date	Remarks

Note: Please attach Client's Certificates/Other relevant certificates.

Place: Date:

Name :

In the Capacity of:

Signed:

Duly authorized to sign the application for and on behalf of:

(Seal of the company)

Annexure-I

Sedimentation details of the last ten years

(Max. Average Silt observed (**in PPM**) in Sundernagar Hydel Channel during Rainy Season)

Year	July				August				September			
	Coarse Silt (0.2mm above)	Medium Silt (0.075mm to 0.2mm)	Fine Silt (Below 0.75mm)	Total Silt (C+M+F)	Coarse Silt(0.2mm above)	Medium Silt(0.075mm to 0.2mm	Fine Silt(Below 0.75mm)	Total Silt (C+M+F)	Coarse Silt(0.2mm above)	Medium Silt (0.075mm to 0.2mm	Fine Silt(Below 0.75mm)	Total Silt (C+M+F)
2015	80	198	2909	3187	48	100	1243	1391	4	9	377	390
2016	78	523	1462	2063	236	1322	2806	4364	14	53	675	742
2017	343	747	1746	2836	566	857	1268	2691	21	33	721	775
2018	408	1354	2138	3900	78	869	3455	4402	5430	9118	12024	26572
2019	21	35	703	759	2652	3143	5926	11721	15	31	395	441
2020	25	58	964	1047	137	491	3035	3663	11	19	336	366
2021	88	225	3454	3767	24	40	971	1035	773	1176	2670	4619
2022	2411	1569	3946	7926	838	934	3199	4971	23	77	1261	1361
2023	1945	2390	13298	17633	3312	8552	27915	39779	245	528	577	1350
2024	7754	4263	7344	19361	33847	11355	22961	68163	138	294	1609	2041