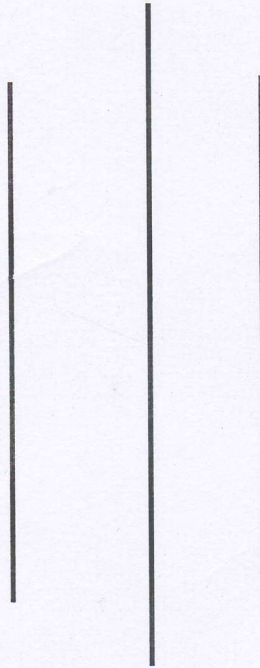




Nepal Investment Summit-2024



Government of Nepal
Ministry of Energy, Water Resources and Irrigation
Department of Electricity Development



Request for Expression of Interest (EOI)

for

Project Name: Humla Karnali Hydropower Project

Location: Humla, Nepal

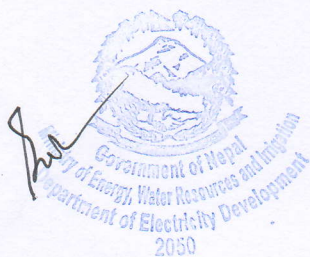
EOI No.: NIS2024/DOED/EOI-03

EOI Issue Date: 28th April 2024



ABBREVIATIONS

DOED	Department of Electricity Development
EOI	Expression of Interest
GoN	Government of Nepal
MoEWRI	Ministry of Energy Water Resources and Irrigation
NIS	Nepal Investment Summit
OIBN	Office of the Investment Board Nepal
PPP	Public-Private Partnership
RFP	Request for Proposal



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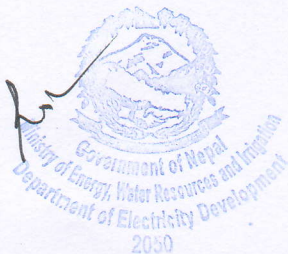
1 BRIEF DESCRIPTION

Investment Board Nepal is a high-powered agency chaired by Rt. Hon. Prime Minister established as a nodal agency for Public Private Partnership (PPP) and investment promotion in Nepal. Since its establishment, IBN has played an instrumental role in implementing transformative infrastructure projects fundamental to bolstering socio-economic development of the country. IBN has provided investment approvals – for both Public-Private-Partnership and direct private investment projects. Being guided by the Long-term Vision (2043), the 15th Plan and other subsequent policies of the Government of Nepal; and international commitments such as Sustainable Development Goals, IBN has been developing credible and bankable projects to garner investment.

The Third Nepal Investment Summit is scheduled for 28th & 29th April 2024. The main objective of the Summit is to promote Nepal as a promising investment destination and to attract domestic and foreign direct investment in various sectors in Nepal. The summit is expected to bring together prominent national and international speakers, dignitaries, sector specific experts and high-level government officials. During the Summit, various projects shall also be showcased to existing and new investors and developers.

A rigorous exercise has been undertaken to collect, evaluate, screen, and prepare projects for solicitation through EoI, market sounding, and other projects in pipeline. This expression of interest is issued at the NIS 2024 as per the Clause 16 of the Public Private Partnership and Investment Regulation 2077. The summit will also be an opportune venue for developers to meet potential investors for equity and debt portions in projects.

DOED is responsible for assisting the Ministry in implementation of overall government policies related to power/electricity sector. The major functions of the Department are to ensure transparency of regulatory framework, accommodate, promote and facilitate private sector's participation in power sector by providing "One Window" service and license to power projects. DoED has a provision of project bank for the projects studied by itself. Department intends to develop these projects under PPP model by selecting a developer through the competitive bidding. For Nepal Investment Summit-2024, the Department in close coordination with Ministry and OIBN, has selected some projects for solicitation. Among them, Humla Karnali Hydropower Project is also one of them. Humla Karnali Hydropower Project of capacity 61.02 MW is identified at Humla Karnali River as an attractive hydropower project. Humla Karnali Hydropower Project (HKHPP) is located in Humla district of the Karnali Province of Nepal. The project components of HKHPP are located in Namkha Rural Municipality. The headworks lies about 2.2 kms upstream of the confluence of the Bumuchhiya Khola with the Humla Karnali River. The approximate longitude and latitude of the proposed headworks area is 81°32' 7.82"E and 30°05' 43.53"N respectively and that of the powerhouse site is 81°35' 56.29"E and 30°03' 43.97"N respectively. The project area is not connected with any vehicular road from Nepal side. However, Hilsa-Simikot road section has been built from the Tibet Autonomous Region border crossing at Hilsa. The project area can be accessed through Simikot, the headquarter of Humla District, which is to be accessed from Kathmandu by about 1-hour flight to Nepalgunj followed by another 50-minute flight to Simikot or 601 km drive to Surkhet followed by 50-minute flight to Simikot. The feasibility and environmental study of the project has already been completed.



A brief introductory description [Salient feature] of the projects is attached to this document.

2 BIDDING PROCESS SCHEDULE

The NIS 2024 Secretariat/OIBN shall endeavor to adhere to the following schedule to evaluate and shortlist from the EOI for the Request for Proposal.

EOI issue Date: 28th April 2024

Last date of submission of EOI: 2nd June 2024, 12:00PM (NST)

Opening of EOI Proposal: 2nd June 2024, 12:00PM (NST), at DoED Meeting Hall

Application Evaluation Result: 7th July 2024

Interested party(ies) can submit their EOI along with all necessary documents online at www.eoi.investinnepal.gov.np.

Contact Details:

Name of the Agency: Department of Electricity Development

Address: Sano Gaucharan, Kathmandu

Post Box No.: 2507

Phone No: (977-1-) 4534119, Fax: (977-1-) 5244257

Email address: info@doed.gov.np, Website: <https://www.doed.gov.np>

The department holds the right to cancel this Eoi process at any time.

3 PRE-QUALIFYING CRITERIA

The applicants must meet the following pre-qualifying criteria to be considered for further evaluation and shortlisting.

- a) Minimum of THREE years of experience of the applicant or lead partner (in case of JV/consortium) in Development of Hydropower Projects in Public Private Partnership (PPP) model.
- b) Must have completed development of at least one Hydropower Projects in past 5 years whose power capacity should not be less than 12.2 MW. (*Completed development projects means:*
 - (i) *For domestic developer, At least EM works-initiated projects; for which letter issued from DOED regarding the custom facilities is required,*
 - (ii) *For International Developer, project completion/operation certificate is required)*
- c) Net worth of the applicant or lead partner (in case of JV/consortium) should be equivalent to at least NPR 1468.3 Millions [or Equivalent USD, *Note: the exchange rate of date of issue of EOI Notice will be taken for currency conversion.*] as per the last fiscal year's audited balance sheet/report. In case of JV/Consortium, the net worth will be calculated based on the percentage share as mentioned in the JV agreement of MOU.



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4 APPLICATION PROCEDURE

The developer/investor who meets the above pre-qualifying criteria can make the application for the project. Following are the guidelines for the application procedure.

- a) Application can be made by a single entity or a group of entities (Consortium or JV) comprising up to three different companies/parties including a lead member
- b) A consortium/JV may fulfil the pre-qualifying criteria in a joint /cumulative manner, except for the number of years of work experience.
- c) A fee of NPR 150,000 shall be payable for each application (PPPIR 2077, Clause 17 (3)).
- d) The fee must be paid to the following account of DOED and the proof document (voucher) should be submitted along with EOI:

Bank Name: Rastriya Banijya Bank Limited, Teku Branch

Account Number: 1000200010000

Office Code: 308013501

Revenue Heading: 14229

Office Name: Department of Electricity Development (DOED)

Swift Code: RBBANPKA

- e) Please use "Company Name_Project Name" as the reference code for the payment made in the case of the online payment.
- f) After payment of the fee is made, the DOED shall assign an engagement manager and may provide additional documents or information relevant to the project (if available).
- g) Applicants should submit the EOI with all required documents by 2nd June 2024.
- h) The Government of Nepal (OIBN or MOEWRI or DOED or relevant government organization) shall review the proposal and ask additional information if required.
- i) The Government of Nepal shall shortlist the qualified applicants by 7th July 2024. The applicants will be notified accordingly.

5 CHECKLIST

The clause 17 of the PPPIR 2077 mentions that the interested investor shall acquire the request for expression of interest from the concerned agency or website and submit the documents as mentioned in the request for proposal document. Following documents and information should be submitted while submitting the EoI.

1. Notarized copy/ies of VAT/PAN registration certificate (for national developer) and official company registration certificate (for international developer).
2. Detailed profile of the developers/investors, including profile of senior management team, and annual report audited financial statements for at least past three years, latest tax clearance certificate.
3. In case of a consortium or JV an intent to form a JV or consortium, or consortium agreement or JV agreement or MoU.
4. Evidence of power of attorney.
5. Project concept, plan, and information on financial, economic, social, technical, and environmental feasibility.
6. Method of project implementation, project development modality and work schedule.
7. Business plan with basic financial statements
8. Financial arrangement and source of investment
9. Socio-economic contribution to Nepal
10. Expected support from GoN
11. All the documents need to be properly signed and stamped and sealed (in case of hard copy submitted).
Other relevant information, if any.



Attachment [Salient Features of the Project (Based on the Final Report from the Consultant)]

GENERAL	
Name of the Project	: Humla Karnali Hydropower Project
Name of River	: Karnali River
Type of Scheme	: Run-of-river
LOCATION AND ACCESSIBILITY	
Location	: Namkha Rural Municipality (formerly Muchu VDC), in Humla District of the Karnali Province of Nepal
Coordinate Boundary	: 30° 03' 12" N to 30° 06' 06" N 81° 31' 07" E to 81° 36' 05" E
Nearest Airport	: Simikot Airport
Nearest Road Access (Nearest Highway)	: Hilsa-Simikot Road section (of under construction Jamunaha- Hilsa Karnali Corridor)
ORGANIZATION	
Developer	: Department of Electricity Development (DoED), Ministry of Energy, Water Resources and Irrigation (MOEWRI), Government of Nepal (GoN)
Consultant	: JV of Hydro-Consult Engineering Limited-CEMAT & PNET
HYDROLOGY	
Catchment area at intake site	: 4430.66 km ²
Design discharge (45% exceedance)	: 44.50 m ³ /s
Average Annual Discharge	: 72.75 m ³ /s
Average Minimum Monthly Discharge	: 16.28 m ³ /s
Average Maximum Monthly Discharge	: 193.08 m ³ /s
Minimum environmental release; 10% of minimum flow	: 1.72 m ³ /s
Flood discharge for headworks design (100 years)	: 727 m ³ /s
Flood discharge for Powerhouse/tailrace design (100 years)	: 822 m ³ /s
GEOLOGY	



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Regional Geology	:	Project Area lies in the Higher Himalaya and few parts in the Tethys Himalaya, Far-Western Nepal Himalaya. High grade metamorphic rocks like augen gneiss, gneiss, migmatitic gneiss, schists and low-grade metamorphic rock like phyllite and quartzite are the main rock units found within the project area
Major Rock types in headworks	:	Left bank is composed of the bedrock of Banded Gneiss and Augen gneiss while right bank is covered by thin Colluvial slide
Major Rock types in waterways	:	Banded gneiss, Augen Gneiss with bands of Schist and Quartzite.
Major Rock types in powerhouse	:	Augen Gneiss
RIVER DIVERSION		
Type of River Diversion	:	Overflow Concrete Ogee Weir
Weir Crest Elevation	:	3066 masl
Weir Crest Length	:	Approximately 34 meters
Normal Water Level	:	3066 masl
Weir Crest Height	:	10 m
Length of Stilling Basin	:	42.80m
RIVER DIVERSION DURING CONSTRUCTION		
Construction Flood	:	1 in 20 dry year return period
Type of River Diversion	:	Coffer Dam
UNDERSLUICE		
Number of Bays	:	2
Dimension (B x H)	:	3m x 4m
Undersluice Invert level (masl)	:	3056.00 masl
Gate type	:	2 nos. Radial gates
INTAKE STRUCTURE		
Type	:	Side Intake
Size (H x B)	:	4.3m x 4.5m
Nos.	:	4
Intake Invert Level	:	3060.70 masl
Intake Sill Level	:	3065.00 masl
Gate Type	:	4 nos. vertical gate

Clear opening of trash rack	: 75 mm
GRAVEL TRAP AND GRAVEL FLUSHING	
Type	: Hopper Flushing Type
Nos.	: 4
Size (LxB)	: 9.5m x 4.5m
Depth of Hopper	: 2.30m
Settling Criteria	: 5mm particle to be trapped
Size of Flushing Canal (LxBxH)	: 50m x 1.8m x3.5m
Bed Slope of Flushing Culvert	: 1 in 50m
APPROACH TUNNEL	
Type	: Inverted D Shaped, Pressurized
Number	: 3
Diameter	: 3m
Length of longest tunnel	: 176.86 m
SETTLING BASIN	
Type	: Double Hopper Bottom, Underground
No. of Bays	: 3
Particle size to be settled	: 0.2mm
Design Settling efficiency (%)	: 100% (Camp Efficiency)
Inlet Transition	: 26.40m
Size (LxB)	: 100 m x 12.3 m (each bay)
Water Depth	: 8.16m
Depth of Hopper	: 2.96m
Longitudinal Slope (V:H)	: 1:40
DESANDER OUTLET	
Number of Central Orifice	: 1
Height of Orifice	: 2.80m
Width of Orifice	: 2.00m
Number of Side Orifices	: 2
Height of Orifice	: 2.80m
Width of Orifice	: 1.70m



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FLUSHING TUNNEL	
Diameter of Flushing Tunnel	: 3.5m
Length of Flushing Tunnel	: 218.93m
HEADRACE TUNNEL	
Type	: D Shaped tunnel, Pressurized
Length	: 6941.65 m
Excavation Diameter	: 5.50 m
Finish Diameter	Varying from 5.40m to 5.10m w.r.t. rock class
Support Type	
Class I	: 3 m long 20mm dia. Spot bolting +5 cm plain shotcrete
Class II	: 3 m long 20mm dia. pattern bolting @1.8*1.8m spacing from c/c +5 cm srf shotcrete
Class III	: 3 m long 20mm dia. pattern bolting @1.6*1.6m spacing from c/c +7.5 cm plain shotcrete
Class IV	: 3 m long 20mm dia. pattern bolting @1.4*1.4m spacing from c/c +10 cm srf shotcrete
Class V	: 3 m long 20mm dia. pattern bolting @1.2*1.2m spacing from c/c +15 cm srf shotcrete, ISMB 150*75 rib at the spacing of 1.5 m
Class VI	: 3 m long 20mm dia. pattern bolting @1.0*1.0 m spacing from c/c +20 cm srf shotcrete, ISMB 150*75 rib at the spacing of 1.0 m
SURGE TANK	
Type	: Simple Cylindrical Type
Internal Diameter	: 10m
Height	: 67.00 m
Invert Level	: 3028.00 masl
Up surge level (masl)	: 3091.87 masl
Down surge level (masl)	: 3036.66 masl
Top level of Surge Tank (masl)	: 3095.00 masl
Support type	
Class I	: 4.0 m long 20mm dia. Spot bolting +5 cm plain shotcrete
Class II	: 4.0 m long 20mm dia. pattern bolting @ 2.3*2.3 m spacing from c/c +5 cm srf shotcrete



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Class III	:	4.0 m long 20mm dia. pattern bolting @1.8*1.8m spacing from c/c +7.5 cm plain shotcrete
Class IV	:	4.0 m long 20mm dia. pattern bolting @1.6*1.6m spacing from c/c +10 cm srf shotcrete
Class V	:	4.0 m long 20mm dia. pattern bolting @1.4*1.4m spacing from c/c +15 cm srf shotcrete, ISMB 150*75 rib at the spacing of 1.5 m
Class VI	:	4.0 m long 20mm dia. pattern bolting @1.2*1.2m spacing from c/c +20 cm srf shotcrete, ISMB 150*75 rib at the spacing of 1.0 m
Class VII	:	4.0 m long 20mm dia. pattern bolting @1.0*1.0m spacing from c/c +25 cm srf shotcrete, ISMB 150*75 rib at the spacing of 0.7 m
PENSTOCK		
Type	:	Surface
Material	:	IS 2062: 2011 E350 BR Ultimate Tensile Stress-490 N/mm ² Yield Stress-350 N/mm ²
Total Length	:	491.36 m
Diameter	:	3.50 m
Thickness	:	14mm to 36mm
Number of Anchor Blocks	:	7
POWERHOUSE		
Type	:	Surface
Plan Dimension (L x B x H, m)	:	53m x 15.6m x37.7m
Machine floor level (masl)	:	2899.78 masl
Minimum foundation level (masl)	:	2892.90 masl
Foundation type:	:	Machine foundation
TAILRACE CULVERT		
Type	:	Box Culvert
No. of culverts	:	2
Size (B x H)	:	3.50 m x 3.6 m
Length	:	24.84 m
Minimum tail water level	:	2901.68 masl

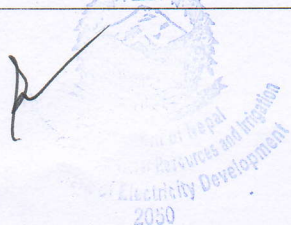
Normal tail water level	: 2904.00 masl
Invert level of tailrace at outlet	: 2900.97 masl
TURBINE	
Type	: Vertical Axis Francis Turbine
Number of Units	: 3
Gross Head	: 162m
Maximum Head	: 160.90m
Minimum Head	: 156.51m
Rated net Head/ Design Head	: 156.51m
Discharge per Unit	: 14.83m ³ /s
Turbine Axis Elevation	: 2899.42masl
Turbine Efficiency	: 93%
GOVERNOR	
Type	: Digital Electronic with PID type
GENERATOR	
Type of Generators	: Three Phase Salient Pole, Synchronous generator
Capacity	: 23.702 MVA
Number of units	: 3 (Three)
Power factor	: 0.85
Generating Output Voltage	: 11 kV
Frequency	: 50 Hz
Cooling	: Totally Enclosed Water to Air Cooling (TEWAC)
Efficiency	: 97%
Synchronous Speed	: 600 RPM
TRANSFORMER	
Type	: Outdoor, oil immersed, ONAN
Number of Phases	: Three (3)
Number of Unit	: 3
Rating	: 24MVA
Rated Voltage	: Primary side – 12 kV and Secondary Side -145 kV
Frequency	: 50Hz



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Vector Group Reference	: YNd11
SWITCHYARD	
Type	: Outdoor
Dimensions (L x B)	: 70m x 40m
TRANSMISSION LINE	
Transmission Voltage	: 132 kV
Length	: 31.6km
Connection Point (Location)	: Switchyard of Humla Karnali Cascade (914 MW)
POWER AND ENERGY	
Gross Head	: 162 m
Net Head	: 156.51 m
Installed Capacity	: 61.02 MW
Dry Season Energy	: 142.90 GWh
Wet Season Energy	: 247.39 GWh
Total Annual Energy	: 390.29 GWh
ACCESS ROAD	
From Simikot to Yangar	: About 33 km
From nearest road section at Yangar to Powerhouse and Surge Area	: About 4.46 km (District Rural Road- Hill – 5.25m Roadway width)
From Yangar to Tumkot	: About 14 km
From nearest road section at Tumkot to Headworks option I Area	: About 2.63 km (District Rural Road- Hill – 5.25m Roadway width)
Access road from nearest road section to Adit Tunnel I Portal	: About 1.84 km (District Rural Road- Hill – 5.25m Roadway width)
Access road from nearest road section to Adit Tunnel II Portal	: About 2.13 km (District Rural Road- Hill – 5.25m Roadway width)
FINANCIAL PARAMETERS	
Total cost of project	: NRs. 14,683,058,919.65
Cost per kW	: 240,626.32
Total project duration after construction	: 31 years from the day of operation
Debt, equity ratio	: 70:30



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Dry energy rate	: NRs. 8.40/kWh
Wet energy rate	: NRs. 4.80/kWh
Benefit/Cost (B/C) ratio on project	: 1.17
Internal Rate of Return (IRR) on project	: 11.77%
Benefit/Cost (B/C) ratio on equity	: 1.36
Internal Rate of Return (IRR) on equity	: 12.06%
Payback Period	: 11 years
ECONOMIC PARAMETERS	
Total cost of project considered for economic analysis	: NRs. 13,330,891,878.66
Benefit/Cost (B/C) ratio on project	: 1.41
Internal Rate of Return (IRR) on project	: 13.76%
Benefit/Cost (B/C) ratio on equity	: 1.98
Internal Rate of Return (IRR) on equity	: 14.93%