

KABELI -3 HYDROPOWER PROJECT

SALIENT FEATURES

SN	FEATURES	CHARACTERISTICS
GENERAL		
1	Name of the Project	Kabeli -3 Hydropower Project
2	Sector	Hydropower
3	Type	Run of River, 21.93 MW Installed Capacity
4	Gross Head	374.1 m
5	Net rated Head	355.5 m
6	Installed Capacity	21.93 MW
7	Average Annual Energy after Outage	130.09 GWh

PROJECT LOCATION

1	Province	Province 1
2	Project Location	Zone: Mechi District : Taplejung
3	Project Area	Latitudes : 27°21'41"N to 27°25'08"N Longitudes : 87°50'58" E to 87°53'24"E Intake Location : At the Boundary of Mamamkhe & Kheban VDCs Immediately upstream from the undersluice, lies about 7.8km upstream of the confluence of Tawa Khola and Kabeli Khola Powerhouse Location : At the Jhorpul, Dovan of Pedan VDC upstream of the confluence of Tawa Khola and Kabeli Khola

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TECHNICAL COMPONENTS

1	Hydrology	Catchment Area : 196.48 km ² Mean Annual Discharge : 11.87 cumecs Design Discharge (at 40%PoE) : 7.30 cumecs Riparian Release : 0.21 cumecs Design Flood Discharge : 1347.7 cumecs Average Annual Precipitation : 204.9 mm
2	Weir	Type of Weir : Ungated Ogee Shaped Concrete gravity structure Length of Weir : 25.0 m Crest Elevation : 1364 masl Spillway type : Ogee Shaped Under-sluice Opening (W X H) : 3m X 2.5m (2 Nos.) Under-sluice Crest Level: 1361.00 masl
3	Intake	Type of Intake : Side intake, orifice type Nos of Opening : 2 Size of Intake (W x H) : 4.0m X 1.2m Intake Sill Level : 1362.50 masl Length of Gravel Trap : 10 m Width of Gravel Trap (Avg.) : 5 m Overall depth : 3.3 m Particle size to be trapped : > 1 mm Flushing Channel (W x H) : 1 m X 0.5 m
4	Settling Basin	Type : Surface Dimension (L x B x H) : 64 m x 8.5 m x 5 m Inlet Transition Length : 32 m Particle Size to be settled : 0.2 mm Trapping Efficiency : 90%
5	Headrace Tunnel	Type : Inverted D-shaped Size : 2.6 m 2.6 m Length : 5500.8 m
6	Surge Shaft	Type : Rectangular Effective Depth : 3 m Diameter (Or size) : 57.5 m x 20 m
7	Penstock Pipe	Type: Steel penstock Internal Diameter : 1.6m and 1.0m after bifurcation Length : 686 m Steel Thickness : Ranges from 11mm to 34mm

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8	Powerhouse	<p>Tailrace Type: Rectangular, Covered, concrete lined Tailrace Length : 1027 m Size (W x D) : 2.4m X 1.7m Tailrace Water Level : 997.31 masl</p>
8	Turbine and Accessories	<p>Turbine Type : Pelton Number : 2 nos. Rated Output Capacity per unit : 11.34 Turbine Axis Level : 1002.00 masl Net Head : 350.75 Discharge per Unit : 3.65 m³/s Efficiency : 90 % Governor : Digital type</p> <hr/> <p>Generator Type : A.C Synchronous hydro-generators 3 ph, salient pole, vertical shaft Rated Output Capacity per Unit : 11 MW Power Factor : 0.85 Voltage : 11 kV Frequency : 50 Hz No of Units : 2 nos. Excitation System : Static excitation systems Efficiency : 97%</p> <hr/> <p>Transformer Type : Single phase Step-up transformers Rated Capacity : 12.94 MVA Voltage Ratio : 11/132 kV No of Units : 2 Efficiency : 99%</p>
9	Transmission line	<p>Voltage Level : 132 KV, single circuit Length : 18.35 km Conductor Type : ACSR "BEAR" From: Switchyard To : Amarpur Substation near Babahang</p>

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INDICATIVE FINANCIALS

1	Total Project Cost	39.9 Million USD
2	Project IRR	19.45%
3	Equity IRR	31.48%

CONTACT DETAILS

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