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OFFICE ORDER

HPSEB is pleased to accord Techno Economic Clearance (TEC) to Integrated Kashang HEP stage-II & stage-III (2x65 MW) in Sattu basin in Distt Kinnaur of Himachal Pradesh at an estimated cost (at bus bar) of Rs. 488.19 crore (Rupees Four hundred eighty eight crore and nineteen lacs) only at April 2003 price level including Interest During Construction (IDC), Financial Charges (FC) and LADC @ 1.5% with the following stipulations

1. i) The completed cost of the scheme shall not exceed the above cost except on account of the following
 - a. Interest During Construction (IDC) shall be as per actual not exceeding the amount as indicated at Annex-I unless revised by HP Govt./HPSEB while according concurrence under section 5 of Electricity Act, 2003 after review of financial package.
 - b. Change in rates of Indian taxes/duties such as excise duty, sales tax/VAT, custom duty and levy of any other taxes/duties subsequent to issue of Techno-Economic Clearance (TEC).
 - c. Change in Indian law resulting in change in cost.
- ii) The abstract of estimated cost approved by HPSEB is furnished at Annex-I, Summary of Financial package as considered by HPSEB is at Annex-II and the Salient Features of Scheme are at Annex-III.
2. The Techno-Economic Clearance (TEC) is subject to the fulfilment of the following conditions:-
 - i. The Completed Cost of Techno Economic Clearance shall not be re-opened due to the following
 - a. Non-acquisition of land.
 - b. Non-finalisation 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 TEC.
 - iii. Tariff shall be decided by the Central/State 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 design/execution.
 - vi. The Techno-Economic Clearance (TEC) is subject to clearances of project by MOE & F from environmental and forest angle. The statutory clearances as per Annexure-IV shall be obtained before execution/implementation of the project.
 - vii. Implementing Agency/Project Authority shall enter into an agreement with beneficiary States for absorbing power generated from the project.
 - viii. Implementing Agency/Project Authority shall obtain the forest clearance for the power evacuation line before commencement of the construction work.
 - ix. Implementing Agency/Project Authority shall construct the power evacuation line matching with the commissioning of the Generation units.
 - x. No additional cost shall be allowed due to Resettlement & Rehabilitation (R&R) Plan.
 - xi. Normal operation life of the hydro power plant shall be as per provision of CWC/CEA guidelines/CERC/HPSEB regulations.
 - xii. 15% release of water immediately downstream of diversion structure shall be ensured all the time including lean season as per HP Govt. Power Policy, 2006 and subsequent amendment/clarifications thereof.
 - xiii. LADC amount and activities shall be implemented as per HP Govt. Power Policy, 2006.

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- xiv The TEC is based on the reports and data furnished in the DPR and it is presumed that information furnished is accurate. The scrutiny does not cover the examination of the detailed design & working drawings of work components in regard to the structural, hydraulic and mechanical performance & safety which shall be ensured by the implementing Agency/Project Authority.
3. The project shall be completed within 48 months from the date of start of the project.
 4. a) Monthly Progress Report of the project shall be submitted to Monitoring Cell of HP Govt./HPSEB. Three (3) copies of the semi-annual physical progress report of the scheme and expenditure actually incurred, duly certified by statutory auditors shall be submitted to the HP Govt./HPSEB of the Commercial Operation of the plant.
b) Final Financial package and issue related to that shall be submitted to HP Govt./HPSEB.
 5. Monthly status of the project from the period of TEC to Financial closure/Investment decision shall be furnished to HP Govt./HPSEB.
 6. The completion cost of the scheme shall be submitted to HP Govt./HPSEB for approval as soon as possible after the commercial operation date (COD) of the plant but not later than three (3) months from the COD of the plant.
 7. The final concurrence of the HPSEB to the scheme under section 8 of Electricity Act, 2003 shall be considered by the Board on submission of Firm Financial Package (FFP) and tie-up of balance inputs/clearances by the Implementing Agency/Project Authority within a period of six month from the date of issue of TEC.
 8. In case the time gap between the Techno-Economic Clearance of the scheme and actual start of work on the project is three years or more, a fresh Techno-Economic Clearance shall be obtained from HP Govt./HPSEB before start of actual work.
 9. The HPSEB reserves the right to revoke the Techno-Economic Clearance, if the conditions stipulated in the TEC are not complied with to the satisfaction of the HPSEB.
 10. The Implementing Agency/Project Authority shall have to obtain clearance from CERC/HPSEB as per provision in the Electricity Act 2003.

Chief Engineer(P&M),
HPSEB, Vidyut Bhawan,
Shimla-171004

Dated: 10.9.09

NO. HPSEB(Sectt)/401/TEC-Kashang

Copy of above is forwarded to the following for information and necessary action please

1. The Principal Secretary (Power) to the Govt. of HP, Shimla-2
2. The Director of Energy, Barowalia House, Khalini, Shimla.
3. The Managing Director, HPSEB, Himad Bhawan, Shimla-171005.
4. The Managing Director, HPSEB, Barowalia House, Khalini, Shimla.
5. The Chief Engineer (S&T), HPSEB, Shimla-4.
6. The Chief Engineer (Projects), HPSEB, Shimla-2 w.r. to his UO note no.
7. The CAO, HPSEB, Vidyut Bhawan, Shimla-4.
8. The Secretary, HPSEB, Shimla-4 alongwith copy of Memorandum approved by the WTM the Board by circulation.
9. The Adml Secretary cum PS/ Spt Sr. PS/Sr. PS to the Chairman and Members of HPSEB for kind information of the Worthy Chairmen/Members please

Chief Engineer(R&M),
HPSEB, Vidyut Bhawan,
Shimla-171004

Integrated Kashang HEP stage-II & stage-III, (2x65 MW), in Satluj basin in Distt Kinnaur of Himachal Pradesh.

ABSTRACT OF COST ESTIMATE

Sr.No.	Description of work	Amount (Rs. in Crore)	
(a)			
1.	Civil Works	303.18	} April, 2009 price level
2.	Electro-mechanical works	123.33	
	Sub Total (a)	426.51	
(b)			
1.	Interest during construction (IDC)	54.31	
2.	Financial charges	0.15	
	Sub Total (b)	54.47	
	Total (a + b)	480.98	
(c)	LADC @ 1.5% of (a+b)	7.21	
	Grand Total (a+b+c)	488.19	

(Rupees four hundred eighty eight crore and nineteen lac only)


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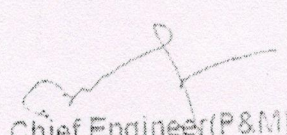
1. Tentative Financial Package

Debt: Equity = 70: 30

Sr. No.	Description	Amount (Rs. Crore)
A	Equity by HPSEB/HP Govt.	341.73
B	Debt from Financial Institution	146.46
	Total (Debt + Equity)	488.19

II Terms of Loan

Sr. No	Item	Package
1.	Source of Debt	PFC
2.	Loan Amt. (Rs.Crore)	341.73
3.	Interest rate	9.5 %
4.	Repayment period	15 Yrs.
5.	Moratorium Period	3 to 4 years


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SALIENT FEATURES OF THE SCHEME

Hydrology for Kerang Trench Weir

Catchment area	400 km ²
Average annual inflow	440 mcm
Average discharge	14 m ³ /s
Specific average discharge	35 l/s/ km ²
Minimum ecological water release in Kerang Khad	0.65 m ³ /s
Design flood (1 in 100)	315 m ³ /s

Intake (Trench Weir)

River	Kerang
Location	Near Lipoe village
Latitude	31° 39' 21.3"
Longitude	78° 21' 36.4"
Water inlet elevation	2872.00 m a.s.l
(Centerline of Trench weir + trash rack)	
Nominal discharge	22 m ³ /s
Dimension of trash rack opening (L x W)	15 m x 3 m
Dimension of trash rack units (L x W)	1 m x 3.3 m
Number of trash rack units	15

Control Structure

No. of Gates	1
Type	Fixed Wheel Type
Sill elevation	2868.6 m
Dimensions (m x W)	3.0 m x 2.65 m (Clear Opening)
Design Head	5.2 m

Shingle Excluder

No. of Gates	2
Type of Gate	Slide Type
Dimension (W x H)	1.5 m x 1.5 m (Clear Opening)
Design Head	7.17 m
Length of flushing duct	52 m
Size (W x H)	1.5 m x 2 m

Siphon Spillway

Length	3.5 m
Discharging capacity	7 cumecs

Adit For Desanding Basin

Shape	O-Shaped
Size (W x H)	5 m x 6 m
Length	220 m

Desanding Arrangement

Number of Basins

Size (L x H x W)

Type

Nominal discharge through each basin

Size of Particle to be removed

2

140 m x 8.35 m x 9.0 m

Dufour type

10.5 m³/s

0.2 mm

Inlet Gate for De-sanding Arrangement

No. of Gates

Type

Sill elevation

Dimensions (H x W)

Design Head

1

Slide Type

2867.50 m

3.0 m x 2.65 m

(Clear opening)

4.0 m

Outlet Gate for De-sanding Arrangement

No. of Gates

Type

Sill elevation

Dimensions (H x W)

Design Head

1

Slide Type

2866.87 m

3.00 m x 2.65 m

(Clear opening)

4.63 m

Flushing System

Type

Size

Discharge per basin

No. of holes

Alt - 1

Alt - 2

Flushing duct with holes in the top slab

500 mm wide x

300 to 1200 mm high

1.35 m³/s

37 (1 of 270 mm dia and 36 of 60 mm dia)

23 (1 of 270 mm dia and 22 of 75 mm dia)

Flushing Tunnel

Size (W x H)

Length

1.5 m x 2.0 m

235 m

Link Tunnel

Excavated Shape

Finished Size (W x H)

Length

Velocity for nominal discharge

Slope

Nominal discharge

Lining type

Thickness

D- Shaped

3.5 x 4.5 m

6300 m

2.13 m/s

1 in 1025

18.3 m³/s

Cement Concrete Lining

200 mm

Estimated Cost (Indian Rupees)

Civil works

E & M works

Total basic cost (including 10% contingency cost)

303.10 Crores

123.33 Crores

426.51 Crores

Cost of transmission works included in DPR as per
information supplied by H.P.S.E.B.)

- a) Shunt capacitor bank system of 75% of the installed capacity
b) Project Share towards development of composite evacuation plan

1.20 Crores
18.68 Crores
19.88 Crores

Total

Construction Period
Construction Period

4 years

Power Benefits
90% dep. Energy

790.63 GWh

Completion cost of the Project

- a) Project cost including Transmission
Basic Cost of Project

415.81 Crores

Total Cost including Financing Charges & LADA Charges

488.19 Crores

Financial Aspects

Cost of generation + Average for 35 years per KWh at power house
bus bars, including IPW during 90% dependable year (Stage-I + K-K
Link & Stage-III)

Rs. 1.81 KWh

Chief Engineer (P&M),
HPSEB, Vidyut Bhawan,
Shimla-4.

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LIST OF STATUTORY CLEARANCES REQUIRED

Sr.No.	ITEM	AGENCY	REMARKS
1	WATER AVAILABILITY	1 State Govt 2 CWC	Interaction between State Govt Deptt & CWC required Relevant Irrigation Act of the State & Central Water Commission
2	SEE ACT 1948	1 HPSEB 2 State Govt	Section 41 E(S) Act 1948 Repealed by Electricity Act 2003
3	POLLUTION CLEARANCE WATER AND AIR	State/Central Pollution Control Board	Water (Prevention & Control of Pollution) Act, 1974 Air (Prevention & Control Pollution) Act, 1981
4	FOREST CLEARANCE	1 State Govt 2 Min of E&F G.O.I	Coordination with State Forest Deptt./ Min. of Environ. & Forest (MOE&F) regarding Forest (Conservation) Act, 1980
5	ENVIRONMENTAL FOREST CLEARANCE	1 State Govt 2 Min of E&F G.O.I	As per item (d) & (n) & Govt. Policy in force
6	REGISTRATION	Registrar of Companies	Under Indian Companies Act, 1950
7	REHABILITATION & RESETTLEMENT DISBURSEMENT PLAN & LAND ACQUISITION	1 State Govt 2 Min of E&F G.O.I	
8	EQUIP. PROCUREMENT	DGTD, GOI & e	Import & Export Acts

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Shimla-171004

Sander
DGM (Civil)-cum-HOP
Stage-II&III, Kashang HEP
HPPCL, Reckong Peo.

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