Annexure - I

Full Title of the project: Rampur Hydro Electric Project (412 MW)
File No.: ________________
Date of proposal: ________________

FORM - 'A'

Form for seeking prior approval under Section 2 of the proposals by the State Governments and other authorities

PART - I
(To be filled by user agency)

1. Project details:

(i) Short narrative of the proposal and Project/ Scheme for which the Forest Land is required

The Rampur Hydro Electric Project located in Northern Power region is conceived as a tailrace development of 1500 MW Nathpa Jhakri Hydro Power Station to tap the hydropower potential of river Satluj between Jhakri and Bayal village, the former being about 12 km upstream of Rampur town and the latter being about 15 km d/s of Rampur town. The scheme would harness a gross head of 138.7 m in an installation of 412 MW to generate 1946 MU of design, energy in 90% dependable year at Rs. 1.80 per unit (levelised) at Bus Bar. This tariff is with provision of 12% free power to Govt. of H.P.

The water coming out from the power house of Nathpa Jhakri Hydro Power Station after generation is diverted from tailrace outfall arrangement to 10.5 m dia HRT through Rampur Intake Structure. The various sites of the Project shall be approached by Project roads, which shall be connected to NH-22 running on the left bank or river. The nearest rail head (BG) is at Kalka and the nearest airport is at Shimla.

Scope of Work

The Rampur Hydro Electric Project envisages construction of

- A 15.1 km, 10.5m diameter circular, head race tunnel (HRT) terminating in a Surge Shaft. (The Intake structure has already been constructed in the outfall of Tail Race Tunnel from Nathpa Jhakri Hydro Power Station)
- A 162.5 m high and 38 m diameter Surge shaft.
- Three number Penstocks, 5.40 m diameter each.
- Surface Power House 136.0 m long, 23.5 m wide and 47.0 m high housing 6 nos. vertical Francis turbines of 68.67 MW each operating under a net head of 119.1 m.
- 32.22 m long Tail race channel of trapezoidal section 15.0 m x 25.0 m x 10 m to carry water from Power house, after generation, to river Satluj.
- The Power generated from the Project would be evacuated by LILO of 400 KV Jhakri-Nalagarh D/C line at Rampur.

F. Badiak
उप-महाप्रबंधक (सिविल एवं पर्यावरण)
रामपुर जल विद्युत परियोजना,
झाकड़ी-172201

(ii) Map showing the required forest land, boundary of adjoining forest on a 1:50000 scale map

The map of the additional forest land required (00-83-74 hac.) on a 1:50000 scale map is enclosed as Annexure-4.

(iii) Cost of the Project

The Project is estimated to cost Rs. 1926.23 crores including IDC at June, 2004 price level. The cost estimate of the Project was prepared by HPSEB at Dec. 2000 price level as per guidelines of CEA. This detailed cost estimate has already been submitted to CEA as Stage-1 activities. To bring the cost of June, 2004 price level the cost has been proportionately increased at the rate of 5% annual price escalation. The breakdown of the cost estimates (June, 2004) is given below:-

Name of Works:	**Cost (Rs. in crore)**
Civil works:	1093.70
E.M. Works:	560.31
Sub Total (Generation):	1654.01
Transmission works:	29.94
Total (Hard cost):	**1683.95**
IDC (on Generation component):	272.22
Grand Total (Generation + IDC):	**1926.23**

As indicated above, the Rampur HEP with an estimated cost or Rs. 1926.23 crores (including IDC of Rs. 272.22 crores) and design energy of 1946 MU in a 90% dependable year is proposed to be completed in a period of 6 years. The tariff has been worked out considering a debt-equity ratio of 70:30, 16% returns on equity & annual interest rate on loan at 10%. The tariff for first year and levelised tariff have been worked out at Rs. 2.23/Kwh and Rs. 1.80/Kwh respectively at Bus bar with provision of 12% free Power to Govt. of H.P. The tariff for first year and levelised tariff come out at Rs. 1.97/Kwh and Rs. 1.59/Kwh respectively at Bus Bar without free Power.

(iv) **Justification for locating the Project in Forest area**

The proposed Rampur Hydro Project is essentially a run-of-the-river Project developed as tailrace development of Nathpa Jhakri Hydro Power Station. The Project envisages construction of feeder tunnel, head race tunnel, open to sky Surge shaft, three numbers of partly underground Penstocks, a surface power house on the right bank of the river near Village Bayal.

Various proposals were considered, for harnessing available potential in Satluj River and keeping in view the layout and geology of all hydraulic structure, the proposed alignment is most viable and economical scheme based on the cost benefit studies. The different alternatives had been considered for project during the investigation stage.

The project also envisages construction of Steel Bridge on River Satluj for Bayal from Duttnagar in order to facilitate the construction activities and speedy completion of power house and other components of Rampur Hydro Electric Project for commissioning. This bridge over river Satluj has been planned to connect Bayal and Duttnagar village to facilitate connectivity with NH-22, which can save

F. Badaik
उपर-महाप्रबन्धक (आ० एवं प्रशा०)
रामपुर जल विद्युत परियोजना,
शोघी-172201

(ii) Map showing the required forest land, boundary of adjoining forest on a 1:50000 scale map

The map of the additional forest land required (00-83-74 hac.) on a 1:50000 scale map is enclosed as Annexure-4.

(iii) Cost of the Project

The Project is estimated to cost Rs. 1926.23 crores including IDC at June, 2004 price level. The cost estimate of the Project was prepared by HPSEB at Dec. 2000 price level as per guidelines of CEA. This detailed cost estimate has already been submitted to CEA as Stage-1 activities. To bring the cost of June, 2004 price level the cost has been proportionately increased at the rate of 5% annual price escalation. The breakdown of the cost estimates (June, 2004) is given below:-

Name of Works:	**Cost (Rs. in crore)**
Civil works:	1093.70
E.M. Works:	560.31
Sub Total (Generation):	1654.01
Transmission works:	29.94
Total (Hard cost):	**1683.95**
IDC (on Generation component):	272.22
Grand Total (Generation + IDC):	**1926.23**

As indicated above, the Rampur HEP with an estimated cost or Rs. 1926.23 crores (including IDC of Rs. 272.22 crores) and design energy of 1946 MU in a 90% dependable year is proposed to be completed in a period of 6 years. The tariff has been worked out considering a debt-equity ratio of 70:30, 16% returns on equity & annual interest rate on loan at 10%. The tariff for first year and levelised tariff have been worked out at Rs. 2.23/Kwh and Rs. 1.80/Kwh respectively at Bus bar with provision of 12% free Power to Govt. of H.P. The tariff for first year and levelised tariff come out at Rs. 1.97/Kwh and Rs. 1.59/Kwh respectively at Bus Bar without free Power.

(iv) **Justification for locating the Project in Forest area**

The proposed Rampur Hydro Project is essentially a run-of-the-river Project developed as tailrace development of Nathpa Jhakri Hydro Power Station. The Project envisages construction of feeder tunnel, head race tunnel, open to sky Surge shaft, three numbers of partly underground Penstocks, a surface power house on the right bank of the river near Village Bayal.

Various proposals were considered, for harnessing available potential in Satluj River and keeping in view the layout and geology of all hydraulic structure, the proposed alignment is most viable and economical scheme based on the cost benefit studies. The different alternatives had been considered for project during the investigation stage.

The project also envisages construction of Steel Bridge on River Satluj for Bayal from Duttnagar in order to facilitate the construction activities and speedy completion of power house and other components of Rampur Hydro Electric Project for commissioning. This bridge over river Satluj has been planned to connect Bayal and Duttnagar village to facilitate connectivity with NH-22, which can save

F. Badaik
उपर-महाप्रबन्धक (आ० एवं प्रशा०)
रामपुर जल विद्युत परियोजना,
जाब्ली-172201

considerable time for transportation of material and machinery to the construction sites.

At the time of inception of bridge, the alignment of approach road to bridge was planned in such a way that the road was passing through the middle of SJVN Limited land, the alignment which was existing earlier also. However, considering the social responsibility and requests from local stakeholders to provide access to road and bridge, re-alignment of this approach road had to be done at the outer periphery of SJVN Limited land. Therefore, in this revision the land proposed for diversion is required in the general interest of local people. Moreover, there is no alternative no-Forest land is available for this purpose, therefore the proposed barren Forest land is essentially required for diversion. The certificate regarding no alternative non-Forest land from the concerned Deputy Commissioner is annexed as Annexure-8.

(v) **Cost benefit analysis**

Cost-benefit analysis is enclosed as Annexure-33.

(vi) **Employment likely to be generated**

Project is under construction stage.

2. **Purpose-wise break-up of the total land required**

Forest Land

Total land required	Surface area	Underground/ Notional area	Purpose
00-24-79 ha.	00-24-79 ha.	Nil	Road
00-02-40 ha.	00-02-40 ha.	Nil	Abutment of Bridge
00-56-55 ha.	00-56-55 ha.	Nil	River training and road protection works
00-83-74 ha.	**00-83-74 ha.**	**Nil**	**Total**

3. **Details of displacement of people/ Project Affected Families due to the Project, if any:**

(i) Number of Project Affected Families (approx.) = 142

(ii) Number of Schedule caste/ Schedule tribe families (approx.) = 41

(iii) Rehabilitation plan:

Rehabilitation plan of the Rampur Hydro Electric Project is part of the MoU signed with Govt. of H.P. and the approved copy of the same is enclosed as Annexure-30.

4. **Whether Clearance under Environment (Protection) Act, 1986 is required?**

No. Copy of Environment Clearance for Rampur Hydro Electric Project is enclosed as Annexure-27.

5. **Undertaking to bear the cost of raising and maintenance of Compensatory Afforestation and/ or penal compensatory afforestation as well as cost for protection and regeneration of Safety Zone, etc., as per the scheme prepared by State Govt.**

Undertaking to undertake Compensatory afforestation is enclosed as Annexure-11.

F. Badaik

6. **Details of Certificates/documents enclosed as required under the instructions.**

Sr. No.	Description.	Remarks
1.	Check List : Proposal for Diversion of Forest Land for non-forestry use under Forest (Conservation) Act, 1980	7 Set
2.	Revenue papers (Tatima and Jamabandi)	7 Set

Signature F. Badaik

(Name in block letters)

अपर-महाप्रबन्धक (कोल एवं प्रशा०)
राष्ट्रीय जल विद्युत परियोजना,

Designation

Address (of user agency)

Dated: -

Place: -

State serial No. of proposal _____