

AGENDA FOR BOARD MEETING

REVISED COST ESTIMATE - III (RCE - III)

NATHPA JHAKRI POWER CORPORATION LTD.

NATHPA JHAKRI HYDEL PROJECT NEW SHIMLA

CONFIDENTIAL

BACKGROUND

INTER OFFICE MEMO

The execution of Nathpa Jhakri Hydro Electric Project (NJPHEP) is a

Electric Project (NJPHEP)

Ministry of Power

an estimated cost of Rs. 7600 crores including IDC of 10% and commissioning schedule from 2001 to May 2004.

To: AGM(F), Parwanoo

From: Co. Secretary Shimla

2) DGM(CP), Shimla

3) SM (Cont.), Shimla

However, because of a catastrophic flood in the night of August 1, 2001, the Nathpa Jhakri Hydro Electric Project (NJHEP) suffered a colossal loss to its infrastructure, equipment, construction as well as generation. The loss of a few human lives from its contractors and the loss of a few human lives along with the electro-mechanical equipments installed therein and under sections within the project.

Ref: NJPC/CS/98/BW2001

Date: 15.01.2002

Sub: Extracts of Minutes of 90<sup>th</sup> Board Meeting

The devastating floods of 2001, which destroyed and the 100% of NJHEP's construction work. As a result of dedicated efforts, the structure, the construction materials were restored. The power House was destroyed and the 100% of NJHEP's construction work was restored. I enclose extract of Agenda & Minutes of Item No. 9 - Revised Cost Estimate - III of NJHEP of 98<sup>th</sup> Meeting of the Board of Directors held on 27<sup>th</sup> December, 2001 for your necessary action and record please.

The 250 ton capacity EOT crane was made operational in May 2001 which helped to expedite the dismantling of damaged equipments and their detailed inspection.

(P.S.R. Murthy)

The pending technical and commercial issues pertaining to the suppliers of electro-mechanical generating equipments were resolved by effective negotiations resulting in advancing the post-flood commissioning schedule by one year.

As against the post-flood schedule of commissioning four Units in the year 2004 and the sixth Unit in 2005, it has now been made possible to commission all six Units progressively between September 2003 and July 2004. Further, it is being made to commission two Units in December 2003 and remaining four Units progressively by December 2004.

R.K. AGARWAL  
General Manager (C & SO)  
Santaj Jal Vidyut Nigam Ltd  
Sharma Niwas, New Delhi

AGENDA FOR 98<sup>th</sup> BOARD MEETING

ITEM NO. - 9

REVISED COST ESTIMATES - III (RCE - III)  
OF  
NATHPA JHAKRI HYDRO - ELECTRIC PROJECT.

BACKGROUND

The execution of Nathpa Jhakri Hydro-Electric Project (6x250 MW), in Himachal Pradesh was sanctioned by Govt. of India on May 10, 1999 for an estimated cost of Rs. 7666 crores including IDC of Rs. 1735 crores at Price Level of June 1990 and with commissioning schedule of December 2001 to March 2002.


However, because of a catastrophic flood in the river Salluj in the intervening night of August 1, 2000, Nathpa Jhakri Hydro-Electric Project (NJHEP) suffered a colossal loss to its infrastructure, equipment (construction as well as generating) and the loss of a few human lives from its contractors' workforce. The Power House alongwith the electro-mechanical equipments installed therein and under erection/awaiting erection were completely inundated.

The devastating floods of August 2000 had a very adverse impact on NJHEP's commissioning schedule and concomitantly the Project cost. As a result of dedicated efforts, the infrastructure, the construction machines were restored, the Power House cavern was dewatered and the Electro-mechanical equipment which had got submerged in the Powerhouse were cleaned of fine silt and debris. The construction work started picking up momentum after April 2001 as a result of decisions taken to resolve long-outstanding technical, organizational and other problems.

The 250 ton capacity EOT cranes were made operational in May 2001 which helped to expedite the dismantling of damaged equipments and their detailed inspection.

The pending technical and commercial issues pertaining to the suppliers of electro-mechanical generating equipments were resolved by effective negotiations resulting in advancing the post-flood commissioning schedule by one year.

As against the post-flood schedule of commissioning one Unit in December 2003, four Units in the year 2004 and the sixth Unit in March 2005, it has now been made possible to commission all the six Units progressively between September 2003 and July 2004. Further efforts are being made to commission two Units in December 2002 and the remaining four Units progressively by December 2003.

  
R.K. AGARWAL  
General Manager (C & SO)  
Salluj Jal Vidyut Nigam Ltd.  
Shama Niwas, New Shimla-171009



## NECESSITY

The earlier GOI approval was valid for commissioning the Project by March 2002. Thus, the funds for the construction of the Project are available only till this time. Since it is now planned to commission the Units progressively beyond the approved scheduled period of March 2002, this will have a major impact on the Project cost on account of substantial hike in Interest during Construction, Inflationary impact of upward movement of Prices, Quantity variation, Unforeseen and Additional Works, EOT and DRB claims, etc. It is hence necessary that a realistic assessment of the Revised Cost of the Project be made and the funding for this additional cost is tied up. This has necessitated preparation of the Revised DPR and Revised Cost Estimates - III at September 2001 Price Level and at Cost to Completion.

## PROJECT COST, FUNDING PLAN AND TARIFF

The total revised cost of the Project at September 2001 Price Level has been estimated as Rs. 9083 crore, in comparison to the earlier approved cost of Rs. 7666 crore at June 1998 Price Level. The details are as hereunder :

### Project Cost

(Rs. in crores)

Sr. No.	Description-	Approved Cost (RCE-II) June 1998 Price Level	Revised Cost (RCE-III) Sep, 2001 Price Level
A	Major Civil Works	3680	3986
B	Gales & Hoists	118	142
C	Electro-Mechanical Works	1292	1633
D	Infrastructure Works	358	490
E	Establishment	401	598
F	Interest During Construction	1735	2259
G	Other Financing Charges	82	0
	Less - sale of Infirm Power	0	-25
	Grand Total	7666	9083

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R.K. ASARWAL  
General Manager (C & SO)  
Salluj Jal Vidyut Nigam Ltd.  
Sharma Niwas, New Shimla-171009

R.K. Asarwal

## Funding Pattern

(Rs. in crores)

Sr. No.	Description	Approved Cost (RCE-II) June 1990 Price Level	Revised Cost (RCE-III) Sep, 2001 Price Level
A	Equity from GOI / GOHP	3833	4542
B	IBRD Loan	1638	1538
C	Buyer's Credit	1056	767
D	PFC Loan	1118	1118
E	Funding Gap	21	1118
	Grand Total	7666	9083

The comparative statement of Costs and Funding Pattern shown above are at certain fixed Price Levels only, as per the requirement of Govt. of India / Planning Commission.

The further details of Cost of Project, Phasing of Funds and Sources of Funds both at fixed Price Level and at Cost to Completion are given in Annexures - I, II & III respectively.

To bridge the Funding gap of Rs. 1118 crores at September 2001 Price Level (Rs. 1161 crore at Cost to Completion), a further financing of around Rs. 500 crore may be considered through PFC for which in-principle approval is already available. This would be beneficial only when interest subsidy @ 4% under Accelerated Generation and Supply Programme (AG&SP) of GOI is agreed to be continued till commissioning of all the Units. The balance amount can also be considered either through borrowing from any Commercial Bank / Financial Institution or by floating Bonds for subscription in the Market.

The Revised DPR is based on foreign exchange values prevailing on September 28, 2001 (September 29 & 30 being weekend holidays and hence foreign exchange rates not notified).

A statement of Variance analysis for the cost overrun is given at Annexure - IV and the reasons for the Variations are further elaborated at Annexure - V.

### Tariff

Based on the Revised Cost Estimate of the Project at September, 2001 Price Level, the cost of generation and rates of sale of energy have been re-worked. The average weighted cost of generation at Bus Bar after allowing 12% free power to GOHP works out to Rs. 1.27 per kwh in a 90% dependable year. The average weighted rate of sale of energy at Bus Bar, after allowing 12% free power to GOHP and 16% return on equity works out to Rs. 2.99 per kwh in a 90% dependable year.

R.K. AGARWAL  
General Manager (G & SO)  
Satluj Jal Vidyut Nigam Ltd.  
Sharma Niwas, New Shimla-171002

The financial data of the Project has been analysed for a period of 35 years i.e. equivalent to the assumed useful life of the Project. The Internal Rate of Return of the Project works out to 16.22%. The Tariff details are given in Annexure - VI.

### REVISED COMMISSIONING SCHEDULE

The first Unit of the Project is now anticipated to be commissioned by September 2003 with the subsequent commissioning of all the other Units by July 2004. The proposed revised commissioning schedule of NJHEP is as below :

Water availability for commissioning	:	August 2003
Commissioning of Unit 5	:	September 2003
Commissioning of Unit 6	:	November 2003
Commissioning of Unit 4	:	December 2003
Commissioning of Unit 3	:	February 2004
Commissioning of Unit 2	:	May 2004
Commissioning of Unit 1	:	July 2004


A bar chart depicting the above Revised Commissioning Schedule is enclosed at Annexure - VII.

Further efforts are being made to commission two Units in December 2002 and the remaining four Units progressively by December 2003. A copy of Executive Summary along with tentative revised cost estimate is enclosed at Annex - VIII,

### RECOMMENDATION

In the light of the circumstances explained above, BOD is requested to consider and accord post-facto approval for submission of the Revised Detail Project Report along with Revised Cost Estimates of Rs. 9083 crore at September 2001 Price Level and the Revised Commissioning Schedule to various Authorities for taking the requisite approvals.

cost estimate

  
R.K. AGARWAL  
General Manager (C & SO)  
Sardar Jal Vidyut Nigam Ltd.  
Sharma Niwas, New Shimla-171009



EXTRACT OF MINUTES OF 98TH MEETING OF THE  
BOARD OF DIRECTORS HELD ON 27.12.2001

ITEM NO. 9

REVISED COST ESTIMATES - III OF NATHPA JHAKRI HYDRO ELECTRIC  
PROJECT

The Board was informed that the NJPP was sanctioned by Govt. of India in May 1999 for an estimated cost of Rs.7666 crores at June 1998 price level with commissioning schedule of December 2001 to March 2002. However, due to catastrophic flood in August 2000, the project suffered a colossal loss in different work sites requiring reconstruction and delaying the above commissioning schedule. As this has major impact on the project cost and also there being other factors contributing the increase in the costs, it has become necessary for preparation of the RCE-III. The revised cost has been estimated at Rs.9083 crores at September 2001 price level and cost to completion of Rs. 9169 crores. The Board was further informed of the funding pattern, funding gap, tariff etc.

R.K. AGRAWAL  
General Manager (C & SO)  
Satluj Jal Vidyut Nigam Ltd.  
Sharma Niwas, New Shimla-171009

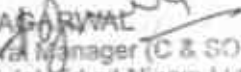
*R.K. Agrawal*

Referring to the revised commissioning schedule, it was informed to the Board that commissioning is planned from September 2003 for first unit and progressively commissioning last unit in July 2004. However, the internal targets are to commission two units in December 2002 and for this purpose PERT chart and computerised prima vera were already prepared and all the resources were already positioned to achieve the internal targets.

The Board also noted the suggestion of changing the Debt-Equity ratio of the Project in the pattern applicable to IPPs and also the suggestions to approach the Government of India to ascertain the feasibility. However, considering the present status of project and the lengthy process involved in which the outcome is uncertain. It was decided to continue in the project with existing Debt-Equity ratio of 1:1

As regards ECBs., the board observed that D(F) may identify alternative sources so as to reduce the interest burden.

Thereafter, the Board approved the submission of the RCE-III for securing requisite approvals.

  
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General Manager (C & SO)  
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