

**Application for
CAPITAL COST APPROVAL**

For

**Ramgarh Gas Thermal Power Project 160 MW STAGE III
(RGTPP-Extension)**

Submitted to

Rajasthan Electricity Regulatory Commission

Jaipur



By

Rajasthan Rajya Vidyut Utpadan Nigam Limited

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TABLE OF CONTENTS	
	PAGE NO.
A1:	BACKGROUND..... 3
A2:	INTRODUCTION 3
A3:	SALIENT FEATURE OF PETETION.....
	<ul style="list-style-type: none"> • Plant Capacity& Location 4 • Site Specific Features 4 • Fuel 4 • Beneficiaries 5 • Breakupof capital cost & financial package 5 • Commissioning scheduled. 6
A4:	RESPONDENTS 6
A5:	Prayer 6

ANNEXURE,S	
	PAGE NO
Annexure -I: Administrative and financial approval of State Govt.	A1 to A3
Annexure-II: PO to M/s BHEL	A4 to A5
Annexure-III: PO to M/s BHEL	A6 to A7
Annexure-IV: Minutes of 164 th BOD Meeting	A8 to A9

A1: BACKGROUND

- 1.1 Rajasthan Rajya Vidyut Utpadan Nigam Ltd (RVUN) was incorporated under the Companies Act 1956, as one of the five successor companies of erstwhile Rajasthan State Electricity Board (RSEB) to take over the electricity generation business in the state of Rajasthan. The existing power stations and those under commissioning in the state sector were transferred to RVUN as per the Rajasthan Power Sector Reforms Transfer Scheme, 2000 notified by State Government provisionally on 19th July 2000 and finally on 18th January 2002.
- 1.2 RVUN take up the work of this power project which will be an extension to the existing power station of 110.5 MW (i.e. 1 x 35.5 MW GTG + 1 x 37.5 MW GTG + 1 x 37.5 MW STG) in State sector, for which all statutory clearances including MOEF clearances are received. The required land is already available with RVUN, Gas Sales & Transportation Agreement signed with GAIL (India) Limited in July 2009.

A2: INTRODUCTION

- 2.1 The State Government vide letter dated 13.08.08 Accorded "Administrative" & "Financial" approval for setting up of 160 MW Gas based combined cycle power station as extension unit of Ramgarh Gas project having total project of Rs. 640 Crores (Annexure -I).
- 2.2 The order for Main Equipment has been placed on BHEL and composite package for Balance of Plant has been ordered on M/s Subhash project Ltd. Gas Turbine Unit is scheduled to be commissioned in 1st week of March 2011 and Steam Turbine unit 7 months thereafter i.e. October 2011(Annexure -II & III) and BOD of RVUN decision at Annexure-IV.

The estimated cost of various packages for Ramgarh (RGTPP – Extension Stage-III (1X110MW GT + 1X50 MW ST) is as under :

Table 1: Estimated project estimates (Rs. in Crore)

SN	Particulars	Ordered/LOI	Cost Cost
1	Main Equipment (Comprising of Steam Generator & Turbo)	M/s BHEL,D-2689 Dt.18.8.09	325.00
2	Balance of Plant	M/s Subhash project dt.29.3.10	209.5
3	Erection testing and commissioning of Main plant	M/s BHEL,D-2690 Dt.18.8.09	40.00
4	Interest During Construction		62.00
5	Misc.		3.50
		Total (Rs. in Crore)	640.00

A3: SALIENT FEATURES OF PETITION

- Plant Capacity & Location
- Site Specific Features
- Fuel
- Beneficiaries
- Breakup of capital cost & financial package
- Performance parameters & commissioning scheduled.
- Reference price level & estimate completion cost including foreign exchange component

3.1 Plant Capacity & Location

The total station extension capacity shall be 160 MW with 110 MW GTG + 50 MW STG. The project shall be executed through an EPC (Engineering, Procurement & Construction) contract for Main Plant Package & BOP. The procurement of Gas turbine generators, Steam turbine generators and Heat recovery steam generators has been kept within the scope of the BHEL (EPC).

Separate EPC Contractor for additional township shall undertake to execute all civil works pertaining to additional township and the civil works related to main plant and BOP shall be in the scope of BOP EPC contractor. Responsibility for overall site management shall rest with the concerned EPC contractor. All procurement work shall be undertaken by the respective EPC contractor.

The project is scheduled to be completed within 27 months.

SITE LOCATION

The site is located 5 Km before Ramgarh town, Jaisalmer-Ramgarh road in Jaisalmer district of Rajasthan, at a distance of about 60 km from the Jaisalmer. It is situated in arid zone of Western Thar Desert of India.

3.2 Site Specific Features

The land measuring about 796 Bighas for proposed power plant is allotted to RVUN (Erstwhile RSEB) by the colonization commission vide letter no. F.315/Raj/3P/91 dated 05.02.1991. For Stage III, Power Plant (160 MW capacity) expansion along with its associated auxiliaries, 220 KV outdoor switchyard and other facilities such as Pump house, sumps, Utility Buildings etc., about 27 acres area of land shall be required. As Stage III facilities shall occupy about 18 acres, remaining 9 acres shall be utilized for Green Belt Development.

3.3 FUEL System

The gas turbine shall also be designed for dual fuel firing in the ratio of 70% Natural gas and 30% HSD with all necessary microprocessor based control system with biasing arrangement.

Natural Gas Availability

The primary fuel for the Stage III Project has been proposed to be Natural Gas which shall be made available by GAIL. M/s GAIL have assured to supply 0.20 MMSCMD gas for existing units and 0.75 MMSCMD gas for new 110 MW gas turbine/s. OIL, M/s. ONGC & M/s. Focus Energy have been exploring natural gas in Jaisalmer District. M/s. OIL & ONGC are already supplying 0.75 MMSCMD gas to existing power plant. M/s. OIL India will enhance the gas quantity from 0.70 MMSCMD to 0.90 MMSCMD from April 2010, so the existing power plant could be

operated on 70% capacity. GAIL has proposed initial supply of 0.2 MMSCMD start date not later than 15.04.2010 for existing plant and subsequent supply of 0.75 MMSCMD start date not later than 15.04.2011 for proposed plant.

GAIL will lay 100 Km long pipeline to transport the gas up to Ramgarh Power Plant. After that, it will be possible to run the existing power plant at full capacity. M/s Focus Energy & GAIL ensuring to supply the gas approx. 0.75 MMSCMD for proposed power plant also by April 2011. 'Gas Sales and Transmission Contract' signed between GAIL and RRVUNL dated 7th August 2009."

HSD

The capacity of the existing HSD storage tanks shall be enhanced so as to meet 30 days requirements at the rate of 30% of the GT MCR. Additional required quantity of HSD shall be sourced either from existing supplier or a long term agreement shall be entered into with another supplier.

WATER

The State irrigation department has allocated additional 5.4 cusec water, which will be sufficient for the proposed plant. For the Stage III, raw water shall be required only for Condenser Cooling of Steam Turbine, evaporative cooling system of Gas Turbines and for make-up water (DM Water) to HRSG and Other miscellaneous consumption. A total of 320 m³/ hour of Raw Water shall be required for Stage III.

3.4 POWER EVACUATION / Beneficiaries

The generated power shall be evacuated through 220 KV lines provided in the proposed switchyard. RVUN has entered into Long Term Power supply-Purchase Agreements (PPA) in respect of existing power projects for 25 Years with the three Discoms on 28.09.06 and for this power project(RGTPP Stage-III,160 MW) PPA is under process with which the three Discoms(i.e JVNL/AVNL/ Jd.VNL) Jaipur/ Ajmer/ Jodhpur

3.5 Breakup of capital cost & financial package

PROJECT COST ESTIMATE/

The cost of 160 MW CAPP, Ramgarh has been estimated as Rs.640 crores approximately including IDC and Financing cost at debt equity ratio of 80:20.

The State Government would provide 20 % equity i.e. Rs. 128 crores. The total cost has been estimated taking into account the cost of Construction Facilities, Civil, Structural and Architectural works, Plant & Machinery Installation, Testing & Commissioning charges, Design Engineering & Supervision charges, Over Heads & Establishment charges, Insurance, Audit & Accounts and Contingencies.

The cost of civil works has been computed on the basis of the prevailing market rates based on similar works executed at Dholpur Combined Cycle Power Project.

In respect of mechanical works, the cost of Gas Turbine & Steam Turbine packages has been based on the cost of Dholpur Gas Power Project with applicable escalation supplied by M/s BHEL.

The prices of mechanical packages are inclusive of spares, erection, testing & commissioning charges, excise duty, sales tax, freight & insurance charges.

IDC AND FINANCING COST

The Interest during Construction (IDC) and Financing cost has also been calculated at the rate of 11.75% per annum which works out to be Rs. 62.00 Crores. Thus the total project cost inclusive of interest charges during construction is estimated at RS.640 Crores only.

PHASING OF EXPENDITURES

The year wise tentative phasing of expenditure is estimated as under:

(Rupees in crores)

S. No.	Financial Year	State Equity	PFC/REC/Commercial Bank	Total
1	2009-10	25	120	145
2	2010-11	75	280	355
3	2011-12	28	112	140
	Total	128	512	640

SOURCE OF FUNDS

The project is proposed to be executed by arrangement of funds/borrowings from State Govt. & Commercial Banks as under:-

S. No.	Particulars	Amount (Rs. in crores)
1	State Govt. Equity (20%)	128
2	Loans from PFC/LIC/Commercial (80%)	512
	Total	640

COSTS PER MW INSTALLED

As per the estimated total project cost of Rs.640 crores including IDC, the cost per MW installed works out to be Rs 4.00 Crores / MW.

3.6 Commissioning scheduled.

Gas Turbine Unit is scheduled to be commissioned in 1st week of March 2011 and Steam Turbine unit 7 months thereafter i.e. October 2011.S

A4: RESPONDENTS:-

- 4.1 All the three Discom's (i.e JVNL/AVNL/ Jd.VNL) Jaipur/ Ajmer/ Jodhpur are respondents for the above petition.

A5: PRAYER

RVUN humbly requests the Hon'ble Commission to:

- ◆ In principal approval of Capital cost of 160MW Gas based Power Project at Ramgarh (RGTPP – Extension Stage-III (1X110MW GT + 1X50 MW ST)).
- ◆ And pass such other further orders as are deemed fit and proper in the facts and Circumstances of the case.

(S.K.Rajpurawala)
Chief Accounts Officer (W&M)

(S. S. Goyal)
Chief Engineer (PPC&F)

