

**Provisional Tariff Petition**  
**and**  
**Aggregate Revenue Requirement (ARR)**  
**For**  
**FY 2018-19**  
**For**  
**Chhabra Supercritical Thermal Power Station (CSCTPP) Stage – II**  
**Unit-5 (235 days)**  
**&**  
**Unit-6 (71 days)**

Submitted to

**Rajasthan Electricity Regulatory Commission**

**Jaipur**

**By**

**Rajasthan Rajya Vidyut Utpadan Nigam Limited**

**Vidyut Bhavan, Janpath, Jaipur**

**December - 2018**

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## DEFINITIONS

Act	The Electricity Act, 2003
Application	This anticipated ARR Petition for FY 18-19 for Unit-5 & 6 for Chhabra Stage-II of Rajasthan Rajya Vidyut Utpadan Nigam Limited, Jaipur
Auxiliary Consumption (Aux. Con.)	Auxiliary Consumption in relation to a period means the quantum of energy consumed by auxiliary equipments of the generating station or Unit and transformer losses within the generating station or Unit, and shall be expressed as a percentage of the sum of gross energy generated at the generator terminals of all the Units of the generating station
Availability	Availability shall have the same meaning as defined in the RERC Tariff Regulations 2014.
Distribution Company / Discoms	Discoms or Distribution Company shall mean a company engaged primarily in the business of distribution & supply of electricity in its area of supply including Jaipur Vidyut Vitran Nigam Ltd. (JVVN), Ajmer Vidyut Vitran Nigam Ltd. (AVVN) and Jodhpur Vidyut Vitran Nigam Ltd. (JdVVN).
Gross Calorific Value (GCV)	Gross Calorific Value in relation to a thermal power generating station means the heat produced in kCal by complete combustion of one kilogram of solid fuel or one litre of liquid fuel or one standard cubic meter of gaseous fuel, as the case may be.
Regulation	The Rajasthan Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff) Regulations, 2014
State	The State of Rajasthan.
Gross Station Heat Rate	Station Heat Rate (SHR) means the heat energy input in kCal required to generate one kWh of electrical energy at generator terminals.
Unit	Unit in relation to a thermal power generating station means electric generator, its prime mover, and auxiliaries and in relation to a combined cycle thermal generating station includes combustion turbine – generators, associated waste heat recovery boilers, connected steam turbine – generator and auxiliaries.

## Abbreviations

ARR	Aggregate Revenue Requirement
Ajmer Discom	Ajmer Vidyut Vitran Nigam Limited
CERC	Central Electricity Regulatory Commission
FY	Financial Year
FY – 19	Financial Year 2018-19
GCV	Gross Calorific Value
GFA	Gross Fixed Assets
Gol	Government of India
GoR	Government of Rajasthan
Jaipur Discom	Jaipur Vidyut Vitran Nigam Limited
Jodhpur Discom	Jodhpur Vidyut Vitran Nigam Limited
KWh	Kilo Watt Hour or Unit
MU	Million Units
MW	Megawatts
NRLDC	Northern Regional Load Despatch Centre
PLF	Plant Load Factor
PPA	Power Purchase Agreement
R&M	Repairs and Maintenance
RERC/ Commission	Rajasthan Electricity Regulatory Commission
RVUN	Rajasthan Rajya Vidyut Utpadan Nigam Limited
RVPN	Rajasthan Rajya Vidyut Prasaran Nigam Limited
Rs.	Indian Rupees
SHR	Station Heat Rate
Transfer Scheme	The Rajasthan Power Sector Reforms Transfer Scheme, 2000

### **Notes:**

#### **In this Petition:**

**All currency figures used in this Application, unless specifically stated otherwise, are in Rs Crs.**

**Capacity figures used in this Application, unless specifically stated otherwise, are in Megawatt (MW).**

**All energy unit figures used in this Application, unless specifically stated otherwise, are in Million Units (MU).**

## **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 had entered into a Power Purchase Agreement (PPA) with RVPN on 20th October 2001. As per the provisions of the PPA, the RVPN was responsible for purchase of all the generation from RVUN plants. The PPA was for the period upto 31.03.2003 with a provision to extend the same with mutual agreement.
- 1.3 From 1st April 2004 onwards, RVPN is no longer responsible for the bulk purchase of power in Rajasthan. The capacity allocated to RVPN from RVUN generating stations has been reallocated to the three Discoms (Jaipur, Ajmer and Jodhpur) in the ratio 40.08:27.23:23:32.69 (from Apr 2018) or as modified by competent authority from time to time. RVUN has entered into Long Term Power supply-Purchase Agreements (PPA) in respect of existing and future power projects for 25 Years with the three Discoms on 18.05.2010, 15.12.2010, 26.06.2015 **(Annexure-A)**.
- 1.4 The CSCTPP Unit 5 has achieved COD on 09.08.18. As per Clause 42 (5) of RERC Tariff Regulation 2014 RVUN is filing fresh petition based on actual capital expenditure incurred up to the date of commercial operation of the CSCTPP U # 5 duly certified by statutory auditors for approval of provisional capital cost, ARR & tariff for FY 2018-19 **(235 days)** for Unit# 5.
- 1.5 The CoD of Unit# 6 is likely to be achieved on 20.01.2019. RVUN is filing this petition as per clause 42(4) of 'RERC Regulations, 2014 for determination of provisional tariff in advance of the anticipated Date of Commercial Operation i.e. 20.01.2019, based on the capital expenditure actually incurred up to the date of COD of Unit # 5, duly certified by the Statutory Auditors for FY 2018-19 **(71 days)** for CSCTPP U # 6.



## **A2: BRIEF HISTORY**

- 2.1 The Board of Director in its 152<sup>nd</sup> meeting held on 31.12.2008 has accorded in principal approval for setting up of 2X660 MW Unit-5 & 6 Chhabra Supercritical Thermal Power Station by RVUN in state sector, the Minutes of meeting are available at **Annexure B**.
- 2.2 RVUN submitted a letter dated 06.01.2009 to Principal Secretary (Energy) for In-principal approval for setting up of additional CSCTPP Unit 5 & 6 (**Annexure-C**). The State Government vide letter dated 13.01.2009 (**Annexure-D**) accorded In-principal approval for setting up of 2X660 MW Unit-5 & 6 Chhabra Supercritical Thermal Power Station.
- 2.3 The Board of Director in its 153<sup>rd</sup> meeting held on dated 02.02.2009 has proposed to request the State Government for "Administrative" & "Financial" approval for setting up of 2X660 MW Unit-5&6 Chhabra Supercritical Thermal Power Station by RVUN in state sector, the Minutes of meeting are available at **Annexure - E**.
- 2.4 The State Government vide letter dated 02.03.2009 accorded "Administrative" & "Financial" approval for setting up of 2X660 MW Unit-5 & 6 Chhabra Supercritical Thermal Power Station having total project cost of Rs. 7920 Cr. for Unit 5 & 6, out of which the project cost for Unit 5 & 6 was Rs 3960 Cr. & Rs. 3960 Cr. The State Govt. has provided an equity support of Rs. 1584 Cr. (**Annexure-F**). Copy of DPR available at **Annexure-G**.
- 2.5 The said project cost of Rs. 7920 Cr for Phase II of CSCTPP Unit 5 & 6 has to be funded by equity support from GoR was Rs. 1584 Cr and balance was to be arranged as loan from financial institutions.
- 2.6 Initially, Power Finance Corp. (PFC) vide letter dated 13.01.2011 (Loan No. 07301025) sanctioned a loan of Rs.3794 Cr to RVUN for setting up of Unit 5 & 6 at Chhabra, District Baran, Rajasthan (**Annexure-H**). Another loan of Rs 2530 Cr for Unit 5 & 6 was sanctioned by Rural Electrification Corporation Limited (REC) vide letter dated 21.03.2011 (**Annexure -I**).
- 2.7 Further, the project cost was revised to Rs. 9550.27 Cr. from Rs. 7920 Cr. and this cost was approved by BOD in its 268<sup>th</sup> meeting held on dated 09.03.17 (Copy of MOM is enclosed at **Annexure- J1**). The State govt. vide letter dated 07.06.2017 has accorded in principle approval of the revised enhanced cost. Copy enclosed at **Annexure- J2**.
- 2.8 Due to implementation of revised emission norms issued by Ministry of Environment Forest & Climate Change GOI, ESP Up gradation, installations of FGD & De-NOx System is required which bears cost of approx. 1.03 Cr/Mw (total Rs. 1360Cr) This additional capital cost has been approved by BOD, RVUN in 275<sup>th</sup> meeting held on dated 13.11.17 (Copy of MOM enclosed at **Annexure K**). RVUN vide letter dated 15.12.17 (**Annexure L**) requested to State Govt. for additional equity support for amount mentioned in preceding para but State Govt. approval is still awaited.

- 2.9 Further, it is pertinent to mention that an additional amount of Rs. 1276.58 Cr. on account of sharing of cost of Parwan Dam by RVUN is proposed to be deposited with GoR for allocation of 45 Mcum water for CSCTPP U # 5 & 6 as demanded by CE, WRD, Kota vide letter D. 10421 dated 09.07.18 (**Annexure- O**).
- 2.10 Both the works mentioned at para 2.08 and 2.09 above will be executed as addition capitalization work with the approval of Hon'ble Commission.
- 2.11 Further, REC vide letter dated 23.11.17 (**Annexure M**) has sanctioned an additional loan amounting Rs. 1566.49 Cr. and PFC vide letter dated 06.11.17 (**Annexure N1**) sanctioned an additional loan amounting Rs. 2344.22 Cr towards cost overrun and installation of Pollution Control Equipments.
- 2.12 RVUN requested to REC for reduction of additional financial assistance for CSCTPP U # 5 & 6. Accordingly, REC has revised the sanctioned amount from Rs. 1566.49 Cr. to Rs. 937.69 Cr vide letter dated 22.06.18 (**Annexure N2**). Now the total loan amount from REC is Rs. 3467.69 Cr.
- 2.13 RVUN requested to PFC for sharing of enhanced sanction amount with REC in the ration of 60:40 (total debt amount) as done in the original sanction of the loan. Accordingly, PFC has revised the sanctioned amount from Rs. 2344.22 Cr. to Rs. 1406.53 Cr vide letter dated 25.06.18 (**Annexure N3**). Now the total loan amount from PFC is Rs. 5200.53 Cr.
- 2.14 RVUN has awarded the contract for CSCTPP U # 5 & 6 to M/s L&T on dated 29.05.13 with schedule completion period of 42 months & 45 months respectively from the date of issue of letter of Intent (LOI) i.e. 28.03.13. The scheduled date of COD of CSCTPP U # 5 & 6 was 27.09.16 & 27.12.16 respectively. The CSCTPP Unit 5 has achieved COD on 09.08.18 with a delay of 22 months 12 days from the scheduled COD.
- 2.15 The CSCTPP-Unit#5 was first synchronised on oil with Grid on 02.10.16 and coal firing was started on 25.02.17. A Committee to verify MRI for declaration of COD and to issue COD certificate of CSCTPP U # 5 was constituted by CE (RUVNL),Jaipur vide letter dated 11.04.17 and corrigendum letter dated 17.04.17. Copy enclosed as **Annexure- P1**. Notice to Discoms for declaring CoD was given on dated 02.08.18 (**Annexure- P2**). Trial run of unit started from 08:50 Hrs of dated 05.08.18 and completed full load operation (i.e. 660 MW) for 72 Hrs at 08:50 hrs of dated 08.08.18. Copy of MRI sheets and trial run completion certificate from committee is enclosed as **Annexure- P3**. After successful completion of 72 hrs trial run, RVUN vide letter D. 591 dated 09.08.18 (**Annexure -P4**) declared COD of CSCTPP Unit # 5 from 00:00 hrs dated 09.08.18.
- 2.16 RVUN has incurred capital expenditure of Rs. 8707.90 Cr. till 08.08.18 for CSCTPP U # 5 & 6 and the remaining cost of Rs. 1151.01 Cr. will be incurred during FY 2019-20.

2.17 The detailed break up of revised capital cost of CSCTPP unit 5&6, actual expenditure incurred as on 08.08.18 of CSCTPP unit 5 & 6 and cost to be incurred of CSCTPP unit 5 & 6, (Copy of Statutory auditor Certificate is enclosed as **Annexure- Q**) is shown in table below:

**Table 1: Total Estimated project cost of CSCTPP-Unit 5 & 6 (Rs in Cr)**

Sl. No	Description of Equipment/Material/ Works	Project Cost as per DPR	Revised Project Cost of unit 5&6 as on 13.11.17	capital expenditure incurred on unit 5&6 upto 31.03.17	capital expenditure incurred on unit 5&6 upto 08.08.18	Actual Expenditure of CTPP unit 5 upto 08.08.18	Actual Expenditure of CTPP unit 6 upto 08.08.18	Expenditure to be incurred at actual after dt. 08.08.18
1	EPC Contract	5833.81	5997.13	5185.68	5824.46	3302.23	2522.23	<b>172.67</b>
2	Consultancy Engg services	50.00	18.34	9.57	15.44	9.17	6.27	<b>2.90</b>
3	River Water System(Supply)	250.00	498.42	201.12	311.02	186.61	124.41	<b>187.40</b>
4	Town Ship (Field Hostel)		5.68	5.62	5.66	2.83	2.83	<b>0.02</b>
5	Intake Well		100.00		-	-	-	<b>100.00</b>
6	Lhasi Dam		58.93	47.00	59.40	29.70	29.70	-
7	Other Civil Work(railway siding)	50.00	252.00	5.56	80.56	48.34	32.22	<b>171.44</b>
8	Raising of height of Anicut		61.02	11.27	17.57	10.54	7.03	<b>43.45</b>
9	CSR activities		33.00	2.40	14.17	8.50	5.67	<b>18.83</b>
10	Upfront fee for coal Mines allotment		52.50	45.84	-	-	-	<b>52.50</b>
11	Land	8.80	56.11	52.36	56.07	28.04	28.04	<b>0.04</b>
12	Furniture for Administration building		2.00					<b>2.00</b>
13	work required as per NGT		3.75		-	-	-	<b>3.75</b>
14	Cost of boundary wall around fly ash silos for isolating it from plant area		0.80		-	-	-	<b>0.80</b>
15	Cost of road connecting from stage-I to stage-II main gate to with boundary wall		1.50		-	-	-	<b>1.50</b>
16	Other Capitalization (Estt. + Trans.)	167.52	167.85	40.85	90.07	48.17	41.90	<b>77.78</b>
17	Locomotives		18.00		-	-	-	<b>18.00</b>
18	Bulldozers		12.00	4.82	9.21	4.61	4.61	<b>2.79</b>

19	Truck, Lift, Oil, Filtration machine		15.00		-	-	-	15.00
20	IDC	1517.00	2000.00	1225.06	2179.42	1243.23	936.19	128.74
21	Finance Charges (loan process charge)	33.10	33.10		-	-	-	33.10
22	cost of fuel up to synchronization		100.00		29.20	29.20	-	70.80
23	Cost of const. power provided free of cost		63.15	8.34	15.65	9.39	6.26	47.50
	<b>Grand Total</b>	<b>7910.23</b>	<b>9550.27</b>	<b>6845.22</b>	<b>8707.90</b>	<b>4960.55</b>	<b>3747.35</b>	<b>1151.01</b>

2.18 The copies of all the orders placed for Unit-5&6 for main plant equipment, BOP, civil works and all other packages are listed below and enclosed as **Annexure R**:

S.N	Work Order No.	Name of Contractor	Detail of Work Order	Amount (Rs. in Cr.)
1	RVUN/SE (TD-I)/XEn (TD-V)/TNSCCH-03/D.423,424,425 Jaipur, dt. 29.05.13	M/s L & T, Vadodara	Work Order for total EPC basis (on shore supplies, off shore supplies, services, ETC & Civil Works	5688.72
2	RVUN/CE(Civil)/F./D.55, 56,57 dt. 08.05.15	M/s Zuberi Engineering Company, Jaipur	Work Order for design, Engineering, Manufacturing, Procurement and construction on turnkey basis of River Water system comprising of Civil Works, ETC & Supply	458.94
3	RVUN/DCE(TD-M)/TDM-II/F./D.2618 dt. 11.08.09	M/s TCE Consulting Engineers 2Ltd., Bangalore	Collection of data and preparation of DPR, Pre Contract award engineering including basic engineering, Review of detailed engineering by the EPC contract, Interface engineering	12.87
4	RVUN/CE(Civil)/F./D.336, 337,338 dt. 09.10.15	M/s Zuberi Engineering Company, Jaipur	Work Order for Assigning Additional Work of Civil Works, ETC & Supply of River Water system	37.38

2.19 The detailed reasons for increase in project cost from Rs. 7920 Cr to Rs. 10,910.27 Cr are as under:-

i) **Increase in Cost of EPC Contract for Supercritical Units – M/s L&T scope:-**

In the DPR the provision of cost head for EPC contract was kept as Rs. **5251.70 Cr** (excluding cost of work for Railway siding, River water Intake system, land and Colony civil & electrical works) whereas EPC contract for both units of supercritical project were awarded on M/s L&T through wide publicity in ICB route. The order were awarded with a total contract price of Rs. **5688.72 Cr** (INR 4697.92 Cr + US \$ 117.55 Million + JYen 5091.58 Million) with price adjustment upto +/- 20% on Supply, ETC and Civil works. The statutory variations, Exchange rate variations & new imposition of taxes & duties shall be payable at actual during currency of contract.

The reasons for increase in EPC contract value by **Rs. 437.02 Cr** is also due to increase in service tax @10.3% (at the time of preparation of DPR) to 12.36% at the time of award of EPC contract.

Original project cost as per DPR for EPC Contract	Rs. 5251.70 Cr
Approved order Value as per Work Order for EPC Contract	Rs. 5688.72 Cr
Increase in cost head for EPC Contract	Rs.437.02 Cr.

ii) **Increase in cost of land :-**

In the DPR the provision of cost head for Land acquisition for supercritical project was kept as Rs. **8.80 Cr** whereas the actual amount paid for acquisition of Govt. land / Private land is Rs. 52.3602 Cr in accordance with the award passed by LAO & SDO, Chhabra and approved by Energy Department. The expected cost of land to be paid towards revenue & forest land for River Water System is Rs. 3.75 Cr for which survey is under progress from Parwan dam and proposal for permission from forest department shall be submitted accordingly. Thus total amount paid/ to be paid against land acquisition works out as **Rs. 56.1102 Cr** which is higher by **47.31 Cr**.

Original project cost as per DPR	Rs. 8.8 Cr
Actual paid as per award passed by LAO & SDO, Chhabra	Rs. 52.36 Cr
Expected cost of land towards revenue & forest land in River Water System	Rs. 3.75 Cr
Total cost of land	Rs. 56.11 Cr
Increase in Cost head for land acquisition	Rs. 47.31 Cr.

iii) **Increase in Cost of Railway Siding Work :-**

In the DPR, the provision of cost head for Railway Siding Work for supercritical project was kept as Rs. **50 Cr** whereas as per draft DPR for Railway Siding works submitted by M/s RITES to Railway, the estimated cost of Rail Track link for 2x660MW Unit#5&6, was Rs.**252 cr**. As such cost on this head has been increased by Rs. **202 Cr**.

Original project cost as per DPR for EPC Contract	Rs. 50 Cr
Cost of Railway siding work as per RITES DPR	Rs. 252 Cr
Increase in cost head for EPC Contract	Rs.202 Cr.

iv) **Decrease in Cost of Township :-**

In the DPR, the provision of cost head for Township for supercritical project was kept as Rs. **10 Cr**. The order for field hostel amounting Rs. 5.68 cr has been awarded and orders for furnishing, catering & caretaking amounting to Rs. 1.33 Cr is under process in which prices bids have been opened. As such, cost on this head has been decreased by **Rs. 2.99Cr**.

Original project cost as per DPR for Township work	Rs. 10 Cr
Cost of Construction of Field Hostel with furnishing (order placed)	Rs. 7.01 Cr
Total cost of Township & Field Hostel	Rs. 7.01 Cr
Decrease in cost head for EPC Contract	Rs. 2.99 Cr.

v) **Increase in Cost of River Water Intake System Including Contingency Arrangement :-**

In the DPR, the provision of cost head for River Water Intake System for supercritical project was kept as Rs. **250 Cr**. At the inception of this project, 1236 mcft water required for these units was expected to be allocated from Parwan Dam but due to delay in taking up construction of Parwan Dam by water resource department (WRD), 300 mcft water was allocated from Lhasi Dam, 128 mcft from Parwati river by raising of existing anicuts height and remaining from Parwan Dam. Since construction of Parwan Dam will take considerable time, the remaining water requirement is expected to be temporarily allocated by raising of Akawad anicut at upstream of Parwan Dam.

The WRD vide their letter D. 2913 dated 01.01.16 intimated that shared cost of Lhasi Dam is Rs. 58.93 Cr out of which Rs. 47 cr. has been paid by RVUN upto 31.07.2016 and balance amount is still to be paid. For raising height of Anicuts at 7000 & 18000 meter

Parwati River, an amount of Rs. 3.50 Cr. has been paid to WRD as deposit work, upto 31.07.16 and balance of Rs. 17.52 Cr is to be paid. The estimated cost of Anicut at upstream of Parwan dam near Akawad village is expected to be about Rs. 40 Cr for which formal acceptance from WRD is to be received. As such approximate amount of Rs. 119.95 cr has been considered to be deposited with Water Resource Department to carryout above works.

An order for river water system for Lhasi & Parwan Dam has already been placed on M/s Zuberi Engineering Company, Jaipur on EPC basis amounting Rs. 458.94 Cr. An additional order for laying of pipe lines& supply of valves for pipe line from Baithali Balancing Reservoir & Parwati existing intake under contingency arrangement has also been placed on M/s Zuberi Engineering with an order value of Rs.37.38 Cr. & 0.60 Cr. respectively. Additional cost of Rs. 1.5 cr for supply of pipe sleeves at Road & Rail crossings is also likely to be incurred. An estimated cost of Rs. 100 Cr is likely to be expected for new intake well and pump house at River Parwati for which consultancy contract was awarded to M/s Consulting Engineering Group, Jaipur and technical specification for EPC contract for intake well and pump house is under finalisation. As such total orders awarded/ to be awarded for water conveying system works out to be Rs. 598.42 cr.

Thus total amount of Rs. 718.37 cr shall be required for river water system against approved DPR cost of Rs. 250 cr, as such, cost on this head has been increased by Rs. **468.37 Cr.**

Original project cost as per DPR for River Water Intake	Rs. 250 Cr
Cost towards WRD for Water Intake system	Rs. 119.95 Cr
Cost of works towards water conveying system in water intake system	Rs. 598.42 Cr
<b>Total Cost of Water Intake System</b>	<b>718.37 Cr</b>
Increase in cost head for EPC Contract	Rs. 468.37 Cr

vi) **Increase in Cost due to Other Capital Expenditure Not Included in DPR :-**

There are some new Guidelines from Govt/Regulatory Commission issued from time to time after preparation of DPR which are to be complied with during execution of work. Cost towards these expenses was not envisaged at the time of preparation of DPR. There is some requirement of Plant & Machinery also from Chhabra site which were not considered in EPC contractor's scope but are essential for smooth operation of the plant. The details are as under:-

S.No.	Description	Estimated Amount
1.	CSR Work	33.00 Cr. (1.76 Cr paid upto 31.12.15)
2.	Estimated cost of construction of road connecting from Stage-I main gate to Stage –II main gate with boundary wall, Work as per NGT Guidelines near Fly Ash Silo, boundary wall around Fly Ash silo for isolating it from plant area, furniture of Administrative and service building etc.	8.05 Cr.
3.	Cost of construction power (provided free of cost to M/s L&T) for construction purposes and power to be consumed for commissioning of Unit#5&6	63.15 Cr.
4.	Supply of 3 No. Locomotive	18 Cr.
5.	Supply of 6 Nos. Bulldozers	12 Cr.
6.	Other Misc. Items like Truck, lift, Ambulance, Oil filtration machine etc.	15 Cr.
7.	Upfront fee for coal mines allotment	52.50 Cr.
	Total	201.70 Cr.

As such there is an increase of Project Cost by Rs. **201.70 Cr.**

vii) **Additional Implication towards Revision in Service Tax & New Imposition of taxes**

During execution of contract, Govt. of India has revised rate of Service Tax from 12.36% to 14% and introduced new taxes as Swachha Bharat Cess @0.5% and Krishi Kalyan Cess @ 0.5% due to which an additional implication of Rs. 19 Cr has been estimated in EPC contract. Thus, there is an increase in Project cost by **Rs. 19 Cr.**

viii) **Reduction in Cost heads towards Exchange Rate Variation / Price Variation**

In the DPR, provision of Price Escalation during project execution of EPC contract was considered as Rs. 582.11 Cr. However, RVUN has paid price variation for EPC contract of Rs. 79.41 Cr. upto 31.07.2016 against the invoices raised by M/s L&T equivalent to INR 4053.91 Cr. Balance price variation expected to be payable is Rs. 140 Cr upto completion of EPC contract, considering 10% Price Variation on the balance invoices of Rs. 1400 Cr (excluding taxes & duties). Similarly, against exchange rate variation in USD & Japan Yen, a amount of Rs. 45 Cr upto 30.07.16 has been paid to M/s L&T and balance of Rs. 25 Cr upto completion of EPC contract is likely to be paid considering USD of Rs. 66/\$ & Yen of Rs. 0.62 /JYen. Thus total price escalation on account of exchange rate variation & price variation works out as Rs. 289.41 Cr against provision of DPR as Rs. 582.11 Cr. There is a net reduction in cost head amounting to Rs. **292.7 Cr.**



DPR provision against Price Escalation	Rs. 582.11 Cr
Price Variation paid/ to be paid in EPC contract	Rs. 219.41 Cr
Exchange Rate Variation paid/ to be paid in EPC contract	Rs. 70 Cr
Total Price Escalation	Rs. 289.41 Cr
Decrease in cost head for Price Escalation	Rs. 292.7 Cr

ix) **Reduction in Cost Heads Towards Preliminary Investigations**

In the DPR, provision of expenses towards preliminary investigation such as site survey, soil investigation & Oceanographic surveying was kept as Rs. 2 Cr whereas actual amount of Rs. 0.477 Cr was paid for the above work upto 31.07.2016 and estimated amount of Rs. 0.523 Cr is likely to be paid under contingency plan where geological investigation for intake well & pump house from Parwati River is to be carried out. Thus, amount paid / to be paid against above cost head works out as Rs. 1 Cr as against DPR provision of Rs. 2 Cr. There is a net reduction in project cost of Rs. 1 Cr.

DPR provision for Preliminary Investigations like site survey, soil investigation & Oceanographic surveying in project cost	Rs. 2 Cr
Preliminary Investigation Expenses paid/ to be paid	Rs. 1 Cr
Decrease in cost head for Preliminary Investigations	Rs. 1 Cr

x) **Increase in Cost Heads Towards Pre Operative Expenses**

In the DPR, provision of Pre operative expenses such as Consultancy Services for EPC contract, Railway Marshalling Yard, Contingency work of River Intake water system & Township etc. was kept as Rs. 50 Cr. The order for EPC Contract on M/s TCE amounting to Rs. 13.466 Cr, Railway Marshalling Yard on M/s RITES amounting Rs. 2.20 Cr Contingency work for River Intake water system on M/s Consulting Engineering Group, Jaipur amounting Rs. 0.44825 Cr and Township on M/s Gyan P. Mathur amounting to Rs. 1.2177 Cr has been placed. The expected expenditure towards additional site supervision for EPC contract for the enhanced contract duration is likely to be incurred amounting Rs. 1 Cr. Also, Estimated cost of fuel upto synchronization for light up, acid cleaning and steam blowing activities has been estimated as Rs. 100 Cr. Thus, total expenditure towards pre operative expenses including cost of fuel upto synchronization of unit works out as Rs.118.33 Cr as against DPR provision of Rs. 50 Cr. There is a net **increase** in cost head of Rs. **68.33 Cr**.

DPR Cost for Pre-Operative Expenses	Rs. 50 Cr
Actual orders placed for Consultancy services	Rs. 17.33 Cr
Expected cost of increase in Supervision charges in the EPC contract for enhanced contract duration	Rs. 1 Cr
Estimated cost of fuel upto synchronization for light up, Acid cleaning and steam blowing activities	Rs. 100 Cr
Total of Actual orders placed/ likely increase in supervision charges	Rs. 118.33 Cr
Increase in cost head for Pre Operative Expenses	Rs. 68.33 Cr

- xi) The provision of Cost Head in DPR towards physical contingency as Rs. 165.52 Cr and Finance charges as Rs. 33.1 Cr. There is no any revision in this head.

**Reason for increase in IDC**

- i) **Increase in Cost due to IDC because of Anticipated delay in Scheduled Completion Period for Unit 5&6**

RVUN has awarded the contract for CSCTPP U # 5 & 6 to M/s L&T on dated 29.05.15 with schedule completion period of 42 months & 45 months respectively from the date of issue of letter of Intent (LOI) i.e. 28.03.13. The scheduled date of COD of CSCTPP U # 5 & 6 was 27.09.16 & 27.12.16 respectively. The CSCTPP Unit 5 has achieved COD on 09.08.18 with a delay of 22 months 12 days from the scheduled COD.

In the DPR the provision of cost head for IDC was kept as Rs. 1517 Cr but due to various uncontrollable reasons explained in the para below. Therefore, it is anticipated that DPR provision of Rs. 1517 Cr may exceed by approx. 483 Cr.

IDC as per DPR	Rs. 1517 Cr
Estimated revised IDC value	Rs. 2000 Cr
Increase in cost head for EPC Contract	Rs. 483 Cr. (32% higher)

**Schedule time for COD of project**

Particulars	Months
As per DPR	45 for Unit #5 and 48 for Unit #6
AS per EPC order	42 for Unit #5 and 45 for Unit #6

2.20 The detailed reasons for delay in COD of the Units are as under:

**1. Delay due to land acquisition:**

RVUN has acquired land for CSCTPP Unit # 5 & 6 adjacent to CTPP U # 3 & 4. RVUN allotted total land 2871.05 Bhigha for CSCTPP U # 5 & 6. 2845.05 Bhigha land was acquired by RVUN and 26 Bhigha land was encroached by farmers and local person. They agitated so much and denied to vacate the land. Due to this the work of CSCTPP was hampered. In this regard SE (Civil) RVUN requested to SDM vide letter 11.06.14 to intervene in this matter and help RVUN to acquire the land. On site SDM, Patwari and RVUN officials tried to convince those peoples but they denied. After this Addl. District collector Bara requested to SP, Bara vide letter dated 11.06.14 to provide the police force to vacate the encroached land. But it could not be occupied due to farmer's agitation. Again Addl. District collector Bara requested to SP, Bara vide letter dated 30.06.14 to provide the additional police force to vacate the encroached land. Again RVUN requested District Collector Baran vide letter dated 23.08.14 to remove the encroachment on the power plant land and the SDM Chhabra also requested SP Baran vide letter dated 01.09.14 for the same. RVUN issued Notice on dated 09.09.14 to encroachers for vacating the land. Due to encroachment of this land the work at site was hampered. Finally land can be occupied by the RVUN. Due to the above mentioned circumstance RVUN could not acquire the land on time which causes delay in the progress of work of CSCTPP U # 5 & 6. RVUN made its all efforts but it was beyond control of RVUN. Total 03 Months delay occurred on this account. (Copy of all correspondence is attached as **Annexure- S**)

**2. Delay for Unit #6.due to Environmental Clearance:**

Further, RVUN vide letter dated 30.12.11 & 14.02.12 requested the Ministry of Environment and Forests (MoEF) for Environmental clearance of CSCTPP Unit # 5 & 6. MoEF vide letter dt. 23.05.2012 (Enclosed as **Annexure T1**) issued environmental clearance only for CSCTPP U#5 wherein MoEF mentioned that inclusion of the U#6 of CTPP in the Environmental Clearance shall be applied only after the project proponent submits the details of firm coal availability of the second unit(Unit#6) to the ministry because at the time of consideration of grant of EC for U # 5, the availability of coal was based on approved 10 Mtpa mining capacity and EC of 'Parsa East & Kanta Basan' coal blocks of RVUN.

Thereafter, a fresh NIT No. TNSCCH-03 was floated on dt. 07.06.12 for setting up 2x660 MW, Chhabra Supercritical TPP Unit 5&6. RVUN issued LOI dated 28.03.13 and detailed work order on Dt. 29.05.13 towards M/s L&T with scheduled commissioning of Unit 5 was 27.09.2016 and Unit#6 on Dtd 27.12.2016.

Further, it is submitted that NIT of Unit#6 was floated with Unit#5 because all the common auxiliaries of the units (i.e. water, coal & fuel handling, electrical, C&I, Ash

handling, air etc) are common for both the units. A separate system for each unit surely would be very costlier. Moreover, RVUN was assured to get early coal linkage vis a vis Environmental Clearance.

Simultaneously, RVUN approached MoC for firm coal linkage /allocation on Dt. 29.12.11 on which MoC advised for enhancing mining capacity from 10 Mtpa to 15 Mtpa. Accordingly, mining plan for 15 Mtpa was submitted to MoC for approval on Dtd. 16.02.12

RVUN persuaded hard for early approval of mining plan and MoC approved mining plan of 15 Mtpa of 'Parsa East & Kanta Basan' coal blocks on dated 19.11.2013 (enclosed as **Annexure T2**).

Immediately after MoC approved mining plan for 15 Mtpa, an application was submitted by RVUN before MoEF on dated 05.12.2013 for obtaining Environment Clearance of 2x660MW Chhabra supercritical Unit#6 based on above approved mining plan for 15 Mtpa which specifically mentioned FIRM availability of coal for Chhabra U # 6.

MOEF asked to comply EIA notification wherein it was essential to have Environment Clearance of coal block for enhanced mining capacity for obtaining EC for power project linked with this block.

Since grant of EC for 15 Mtpa and thereafter grant of EC for CTPP unit # 6 could have taken a long time. Till such time, the work of CTPP U # 6 had to remain under hold, which could incurred liability of interest on payment made for unit # 6 and any other claims.

Looking to above delay in EC and enhancement of project cost, RVUN submitted an alternative proposal to MoEF by giving following undertaking vide letter No. 169 dated 27.06.2014

'In case, EC for 15 Mtpa mining capacity of PEKB coal blocks is delayed, RVUN shall consider to use coal allocated to above 4 units of KTPS for Chhabra U # 6(660 MW)'. Since above 4 units has already lived their designed life, RVUN will consider to initiate action to obsolete these units''.

Ministry of Environment forest and climate change , Gol considered the undertaking and granted environmental clearance of second unit (U#6) of Chhabra Supercritical TPP vide letter no J-13012/15/2009-IA.II(T) dated 02.02.2015 (Copy enclosed as **Annexure T3**).

As soon as the Ministry of Environment, Forest and Climate Change issued Environment clearance for CSCTPP U # 6 vide letter dated 02.02.2015, the work of the Unit # 6 could be started with delay of 22 month 05 days. The delay in commencement of work was beyond the control of RVUN. Therefore, the scheduled completion period i.e. 45 months for Unit 6 has to be counted from 02.02.15. Accordingly, the scheduled date of CoD of Unit # 6 is 02.11.18. RVUN requests Hon'ble Commission to consider the above mentioned reason

which was beyond the control of RVUN and consider the scheduled date of COD is 02.11.18.

Further, it is pertinent to mention that Expert Appraisal Committee (EAC) on EIA of Thermal & Coal Mines of MoEF&CC, GoI considered the proposal regarding enhancement of mining capacity from 10MTPA to 15 MTPA in its 28th meeting held on 17-18 April,2018 and granted Environmental Clearance vide letter No J-11015/03/2008 –IA-II(M) dated 10.08.2018 for expansion of Parsa East & Kanta Basan Opencast Coal mines from 10 MTPA to 15 MTPA.

### 3. Delay in COD of Unit #5. :

#### (a) Due to acquisition of land:

CSCTPP Unit # 5 was synchronised on oil on 02.10.16 against scheduled on 26.06.2016 almost 3 month delay due to acquisition of land as already explained in para 2.20 (1).

#### (b) Due to unexpected and uncertain reasons

##### i) Dislocation of CRH line & Jamming of RAPH A:

Coal firing of the unit was scheduled on 27.07.2016 as per L2 schedule. It was delayed as the commissioning of the unit#5 on oil got delayed on account of aforesaid reason and hence it was rescheduled after 3 months of oil commissioning. When the unit was being operated for first coal firing in end of Jan 17, malfunctioning of HP/ LP Bypass valve of HPSU took place which was unexpected causing **failure and dislocation of CRH line due to tremendous hammering** on 03.02.17. Due to this significant number of permanent hangers (fixed, flexible and snubbers) got completely damaged / broken. Due to failure of sequential hangers, hangers in cascading manner, at various places the line came down from its original elevation and fell upon the structural members line beams, bracing etc. At some locations, the line got shifted in lateral directions, some of the structural members for supporting the hangers also got severely damaged and at some places these even got broken. Major repairing / replacement work was carried out by M/s L &T. Correspondence with M/s L&T vide letter D.43 dated 07.02.17, TCE letter D. 54 dated 10.02.17 & RVUN letter D.47 dated 14.02.17 Data loggers of SER ( sequential event recorders) print out and photographs of the damaged line, hangers & supports are enclosed. (Delay due to CRH line dislocation is **22 days** from 03.02.17 to 24.02.17)

After attending the CRH problems, the unit was again lighted up and coal firing was achieved on 25.02.17. But on 05.03.17, unit had to be boxed up due **to jamming of Rotary Air Preheater (RAPH) 5A**. While unit was running at 530 MW, rotor of **RAPH 5A** suddenly jammed. Later, the radial & axial seal gaps were observed to be less & rotor expansion was found more than prescribed limits. Rotor got damaged due to interference between sector plates & radial seals were also damaged. **RAPH 5A** was repaired/ replaced and the total time

incurred on unit outage & maintenance took almost 26 days and unit # 5 was again synchronised on dated 31.03.17. After attending the RAPH problems, the unit was again lighted up and full load was achieved on 04.04.17. Total delay due to RAPH 5A jamming is **27 days** (from 05.03.17 to 31.03.17). (Supporting documents enclosed as **Annexure U**)

**ii) Delay due to Ash Handling System (AHP) :**

Major delay in achieving the COD of unit #5 is on the part of EPC contractor attributable on readiness of AHP for operation of unit is sustainable basis. The priority requirement of AHP for coal firing of unit #5 was commissioned in Jan-2017. But, upon coal firing in Feb-17 & full load achievement in Apr-17, it was observed that the evacuation of dry fly ash was not up to the mark & many a times number of ESP fields were by-passed because evacuation from the hoppers was not possible.

After achieving full load on dated 04.04.17, the unit could not be operated on sustained basis on account of huge accumulation of dry fly ash at ESP hoppers due to low evacuation capacity causing huge leakages at various locations of AHP system. So, after achieving the full load operation prior to commencement of Reliability Test Run (RTR) by M/s L&T was advised to carry out necessary corrective actions as to ensure trouble free & sustained operation of dry fly ash. But, unfortunately during RTR, also it was found that the AHP performance was not adequately reliable, and COD could not be declared until the performance of the system was proven reliable. RVUNL made number of correspondence with M/s L&T (Copy enclosed as **Annexure-V**), for making the system ready & smooth so that COD could be achieved

The issues and pending works & some modification in the system from ESP to ISH & ISH to Main Silos of the system were intimated to L&T along with detailed punch list required to be attended prior to final takeover/ COD of unit #5. Delay in COD on this account was of **69 days** i.e. from 22.04.17 to 30.06.17.

**iii) Delay due to TDBFP problems :**

In TDBFP, some technical problems occurred during the operation time to time due to some unexpected/ uncertain behaviour of the equipment and were resolved after attending design problems which are as follows:

**I-** In TDBFP-5A&B barring gear problem was being experienced & being run at about 10 rpm in place of designed value of 84 rpm. The behaviour of LP governing valve of both TD BFPs was not found proper and sudden increase of turbine RPM was observed repeatedly due to this improper behaviour the thrust pads & collar of TD-BFP –B got damaged. Improper behaviour of LP governing valve may cause damage in turbine as well as in the pump.

After attending some of the problems of AHP, the unit reliability run (of 30 days) was carried out from 02.07.17 to 07.08.17 with MDBFP & one TDBFP in service. Both TDBFP's could be kept in service with stable operation only after replacement of suction flow elements. Delay due to TDBFP operational problem i.e. Erratic

suction to elements to be replaced, barring gear problem, repeated tripping due to low suction steam pressure is **66 days** (from 07.08.17 to 12.10.17). Delay due to repeated failure of TDBFP thrust bearing on account of faulty suction flow element and severe hammering of TDBFP Recirculation line is **71 days** (from 27.11.17 to 05.02.18).

Repeated outages of TDBFP- 5A&B including damage of thrust bearing pads & collars (TDBFP- TDBFP 5B on dt. 27.10.17 & 17.11.17 and TDBFP 5A on dated 07.02.18 ) on account of defect in suction flow elements of TDBFPs. The suction flow elements shown incorrect / erratic operational behaviour causing instability of the equipment and also severe hammering of TDBFP recirculation line took place due to blockage in recirculation control valve which caused unit tripping during reliability run. It was observed design problem and decided to replace the part which could be replaced on 26 & 27 Feb 18 (i.e. delay occurred due to offshore procurement of flow elements from South Korea). (Supporting documents enclosed as **Annexure W**)

**iv) Delay due to Water Chemistry:**

Parameters of Raw Water(RW) & Circulating Water(CW) chlorination and DM water system were not being achieved beside making all efforts. Problems of breaking of Pipelines in DM plant , chocking of filters & breaking of Pipelines in chlorination systems were being faced time and again. Thus Some design modifications in chlorination system and DM water system were made to enable required parameters and Unit remained under shut down from 04.04.18 to 05.07.18 for attending major issues of water chemistry and RW & CW chlorination, However, delay due to the above was **92 days** (from 04.04.18 to 05.07.18) (Supporting documents enclosed as **Annexure X**)

Major issues were:-

- (1) The work of Rapid sand gravity filters (RGF) was slow on part of the contractor Non availability of RGF. Only four out of seven RGF were ready for service.
- (2) Chlorination
  - (a) Raw water chlorination:-
    - i) Improper & inadequate, Chemical Dosing System (i.e Liquid Chlorine, Alum & Polyelectrolyte), leading to Organic Fouling of Ion exchange(Cation/Anion) resins of DM plant resulting in deterioration of DM water quality parameters such as conductivity , pH, silica & Chlorides even up to Jan'18
    - ii) Raw water chlorination skid had numerous problems such as vacuum regulator & flow meters including frequent breakages of chlorination lines due to design defects. The chlorination skid was repaired, altered and again commissioned in June'18 with required Raw water chlorination flow@ 10 Kg/Hr.

- iii) A New Raw water chlorination skid was made available by M/s. L&T in May'18,
  - (b) CW Chlorination was commissioned on gas mode in April'17 which was insufficient to maintain the Circulating Water Chemistry. Commissioning on liquid mode is mandatory for required dosage, and smooth & safe operation.
- (3) DM Water Quality was not achieved due to improper chlorination, frequent chocking of Dual Media Filters (DMF) & Activated Carbon Filters (ACF), design defects of DM Clarifier and improper separation of Resins (during regeneration) due to lack of inert resin in Mixed bed Vessel, however modifications for providing Inert Resin in the Mixed beds of DM series was carried out on 27/07/18 which significantly improved the DM water quality. Conductivity improved to 0.12 - 0.15µS/cm as against earlier value of 0.9-1.5µS/cm, pH value also improved from 5.7 to 6.5.
- (a) Condensate Polishing Unit(CPU) was not being operated on design efficiency due to improper D M Water Quality at Mixed Bed Outlet.
  - (b) Non commissioning of the Ultra Filtration (UF) System in D.M Plant for control of Colloidal Silica.

2.21 The period of delay in commissioning of the project is summarised as under:

Particulars	Months	Reasons for delay attributed to
Delay due to land acquisition	03 months	GoR
Due to unexpected and uncertain reasons (i) Dislocation of CRH line & Jamming of RAPH A. – 27 days (ii) Delay due to Ash Handling System (AHP)- 69 days (iii) Delay due to TDBFP operational problems- 66 days Delay due to TDBFP Thrust Bearing problems-71 days (iv) Delay due to Water Chemistry-92 days	10 months 25 days	Contractor
Delay for Unit #6 due to Environmental Clearance	22 months 05 days	GoR and GoI

2.22 The above mentioned reasons were beyond the control of RVUN because certain equipments were made to modification / re-designing of the systems/ equipments. Therefore, RVUN request the Hon'ble Commission to consider the above reasons beyond the control of RVUN and allow the IDC as actually incurred.

2.23 With the above details, the fixed charges and variable charges have been calculated and accordingly, the ARR and Tariff petition for FY 2018-19 for Unit -5 & 6 has been prepared and is being submitted to the Hon'ble Commission.



### A3: GENERATION FORECAST OF CSCTPP-UNIT 5 & 6 FOR FY 2018-19

3.1 The installed capacity of CTPP-Unit#5 & 6 is 660 MW each. The actual date of COD of Unit # 5 is 09/08/2018 and anticipated date of COD of Unit 6 is 20/01/19. The estimated figures of Gross generation, PLF & net energy sale to three Discoms from CTPP-unit#5 & 6 for 2018-19 is as shown in table below:

**Table 2: Gross generation, PLF & Ex-bus energy sale from CTPP-Unit 5 for FY18**

S.No.	Particulars	Units	Unit 5 FY 18-19 (235 days)	Unit 6 FY 18-19 (71 days)
1.	Capacity	MW	660	660
2.	PLF	%	83%	83%
3.	Gross Generation	MU	3089.59	933.45
4.	Auxiliary Energy Consumption	%	5.25%	5.25%
5.	Auxiliary Energy Consumption	MU	162.20	49.01
6.	Net Generation	MU	2927.39	884.45

#### **FIXED CHARGES**

- Depreciation
- Interest on term Loans and Finance Charges
- Interest on Working Capital
- Operation & Maintenance Expenses
- Recovery of ARR & Tariff Petition Fees
- Insurance Charges

### A4: FIXED CHARGES OF CSCTPP-UNIT 5 & 6 FOR FY 2018-19

4.1 The details of various components of the fixed cost areas under: -

#### **Depreciation:-**

4.2 Depreciation of CSCTPP-Unit 5 & 6, for FY18-19 has been calculated based on the regulation No.22 of RERC Tariff Regulations 2014. Estimated figures of depreciation are summarised in Table below:

**Table 3 : Depreciation (Rs. in Cr)**

Particular	FY (2018-19)	FY (2018-19)
	Unit # 5 (235 days)	Unit # 6 (71days)
Depreciation	153.19	34.85

### Interest on Term Loans and Finance Charges:-

- 4.3 The loan-wise interest expenses have been worked-out and taken as part of fixed cost. Estimated figures of Interest on Loans and finance charges are summarised in Table below:

**Table 4: Interest on term Loans and Finance Charges (Rs. in Cr)**

Particular	FY (2018-19)	FY (2018-19)
	Unit # 5(235 days)	Unit # 6(71days)
Interest on term Loan & Finance charges	296.87	68.69

### Interest on Working Capital

- 4.4 The requirement of working capital loan has been computed as per norms defined under regulation 27 of RERC Tariff regulation 2014 and rate of interest has been taken equal to 250 basis points higher than the average Base Rate of State Bank of India prevalent during the first six months of the year previous to the relevant year. Estimated figures of Interest on Working Capital Loans are summarised in Table below:

**Table 5: Interest on working Capital (Rs. in Cr)**

Particular	FY (2018-19)	FY (2018-19)
	Unit # 5 (235 days)	Unit # 6 (71days)
Interest on Working Capital	19.64	1.67

### Operation & Maintenance Expenses

- 4.5 The Operation & Maintenance Expenses have been computed as per the norms prescribed in regulation 47 of RERC Tariff Regulation 2014. Estimated figures of O & M Expenses are summarised in Table below:

**Table 6: O & M Expenses (Rs. in Cr)**

Particular	FY (2018-19)	FY (2018-19)
	Unit # 5 (235 days)	Unit # 6 (71days)
O & M Expenses	77.24	23.34

### Recovery of ARR & Tariff Petition Fee

- 4.6 The Hon'ble Commission has allowed to pass through the fees levied for filling up of ARR & tariff petition, as expenses in the ARR. Accordingly, RVUN has claimed the fee for FY18 as under. The Commission may consider and allow the same. The ARR & Tariff Petition Fees are summarised in Table below:

**Table 7: Recovery of ARR & Tariff Petition (Rs. In Cr)**

Particular	FY (2018-19)	FY (2018-19)
	Unit # 5 (235 days)	Unit # 6 (71days)
ARR and Tariff petition fee	0.33	0.33

**Insurance Charges**

4.7 The insurance charges are claimed as per norms defined under regulation No.25 of RERC Tariff regulation 2014 which allows actual insurance charges or provision for contingency reserve up to 0.2% of average Net Fixed Assets for the year. Accordingly, the insurance charges have been claimed for FY 2018-19 are shown in the table below:

**Table 8: Insurance Charges (Rs. in Cr)**

Particular	FY (2018-19)	FY (2018-19)
	Unit # 5 (235 days)	Unit # 6 (71days)
Insurance Charges	6.19	1.44

**Return on Equity (ROE)**

4.8 The Return on Equity has been computed as per the norms prescribed under Regulation 20 of RERC Tariff Regulation 2014.

4.9 The Return on Equity (ROE) for FY 2018-19 are summarised in Table below:

**Table 9: Return on Equity (Rs. in Cr)**

Particular	FY (2018-19)	FY (2018-19)
	Unit # 5 (235 days)	Unit # 6 (71days)
Return on Equity	99.01	22.60

**Non-Tariff Income**

4.10 Estimated figures of Non Tariff Income for FY 2018-19 are summarised in Table below:

**Table 10: Non-Tariff Income (Rs. in Cr)**

Particular	FY (2018-19)	FY (2018-19)
	Unit # 5 (235 days)	Unit # 6 (71days)
Non-Tariff income	0.01	0.01

#### A5: ESTIMATED CAPACITY CHARGES OF CSCTPP UNIT 5 & 6 FOR FY 2018-19

5.1 The net fixed charges are computed in Table below:

**Table 11: Net Capacity Charges of CSCTPP Unit 5 & 6 for FY 19 (Rs. in Cr.)**

Particular	FY (2018-19)	
	Unit # 5	Unit # 6
<b>Fixed Charge</b>		
O & M Expenses	77.24	23.34
Depreciation	153.19	34.85
Interest on Term Loans & Fin. Charges	296.87	68.69
Interest on Working Capital Loans	19.64	1.67
Insurance Charges	6.19	1.44
Recovery of ARR & Tariff Petition Fees	0.33	0.33
ROE	99.01	22.60
<b>Total Fixed Charge</b>	<b>652.46</b>	152.92
Less: Non-Tariff Income	0.01	0.01
<b>Net Fixed Charge</b>	<b>652.45</b>	152.91

#### A6: VARIABLE CHARGES OF CSCTPP UNIT-5 & 6 FOR FY 2018-19

- 6.1 SHR of CSCTPP Unit-5 & 6 has been taken as 2211.51 kcal/kwh as approved by Hon'ble Commission in order dated 04.04.18.
- 6.2 The PLF has been considered as 83% as per RERC norms and Auxiliary consumption has been considered as 5.25% as approved by Hon'ble Commission in order dated 04.04.18.
- 6.3 The fuel requirement of CSCTPP U # 5 & 6 shall be fulfilled from Parsa, Parsa East and Kanta Basan & Kente Extension Coal Block allocated by Ministry of Coal through Govt. Dispensation Route dated 10.03.2015, 26.10.2015 (**Annexure Y**). Coal Mining and delivery agreement between RVUN and Rajasthan Collieries Limited dated 03.10.2013 and dated 24.05.16 is available at **Annexure- Z**.
- 6.4 For CSCTPP-Unit#5 & 6 fuel data has been taken based on the previous three months data of Unit 5, the GCV oil (HSD/LDO) has been taken as 9241.70 kcal/litres for HFO and 9781.18 kcal/litre for LDO, the prices of oil have also been taken as the weighted average price which comes out to be Rs. 37592.13/KL for HFO and Rs. 52385.51/KL for LDO for FY 19.
- 6.5 The GCV of Indian Coal has been considered as 4259.24 Kcal/Kg for FY 2018-19. The price has been taken as the Rs. 3969.56 Rs/MT for FY 2018-19.
- 6.6 The overall estimated figures of variable cost for the period under consideration, are summarised in Table below.

**Table 12: Variable Cost of CSCTPP-Unit 5 & 6 for FY 19 (Rs. in Cr)**

S.No.	Particulars	Units	Unit 5 FY 18-19	Unit 6 FY 18-19
1	Operational Parameters			
1.1	Total Capacity	MW	660	660
1.2	Availability	%	83%	83.00%
1.3	PLF	%	83%	83.00%
1.4	Gross Generation	MU	3089.59	933.45
1.5	Auxiliary Energy Consumption	%	5.25%	5.25%
1.6	Auxiliary Energy Consumption	MU	162.20	49.01
1.7	Net Generation	MU	2927.39	884.45
1.8	Heat Rate	kcal/kWh	2211.51	2211.51
2	Fuel Parameters (for each primary and secondary fuel)			
2.1	Gross Calorific Value			
2.1.1	Fuel 1 HFO	kcal/ltr	9781.18	9781.18
2.1.2	Fuel 2 LDO	kcal/ltr	9241.7	9241.7
2.1.3	Fuel 3 Coal	kcal/kg	4259.24	4259.24
2.2	Landed Fuel Price per unit (Please specify the fuel)			
2.2.1	Fuel 1 HFO	Rs/KL	37592.13	37592.13
2.2.2	Fuel 2 LDO	Rs/KL	52385.51	52385.51
2.2.3	Fuel 3 Coal	Rs/MT	3969.56	3969.56
3	Fuel Consumption and Heat Contribution (for each fuel separately)			
3.1	Specific Fuel Consumption			
3.1.1	Fuel 1 HFO	ml/kWh	0.45	0.45
3.1.2	Fuel 2 LDO	ml/kWh	0.05	0.05
3.1.3	Fuel 3 Coal	kg/kWh	0.52	0.52
3.2	Total Fuel Consumption			
3.2.1	Fuel 1 HFO	KL	1390.32	420.05
3.2.2	Fuel 2 LDO	KL	154.48	46.67
3.2.3	Fuel 3 Coal	MT	1600669.84	483606.63
3.3	Heat Content (each fuel separately)			
3.3.1	Fuel 1 HFO (2.1.1 x 3.1.1)	Million kcal	13598.93	4108.61
3.3.2	Fuel 2 LDO (2.1.2 x 3.1.2)	Million kcal	1427.65	431.33

S.No.	Particulars	Units	Unit 5 FY 18-19	Unit 6 FY 18-19
3.3.3	Fuel 3 Coal (2.1.3 x 3.1.3)	Million kcal	6817637.01	2059796.72
	Total Heat Content		6832663.60	2064336.66
4	Total Fuel Cost			
4.1.1	Fuel 1 HFO (2.2.1 x 3.2.1)	Rs Crore	5.23	1.58
4.1.2	Fuel 2 LDO (2.2.2 x 3.2.2)	Rs Crore	0.81	0.24
4.1.3	Fuel 3 Coal (2.2.3 x 3.2.3)	Rs Crore	635.40	191.97
	Total Fuel Cost	Rs Crore	641.43	193.79
6	Other Charges and Adjustments			
6.1.1	Other Charges (pl. specify details)	Rs Crore		
6.1.2	Other Adjustments (Pl. specify details)	Rs Crore		
	Total Other Charges and Adjustments	Rs Crore	0.00	
7	Total Cost (4+5+6)	Rs Crore	641.43	193.79
8	Cost of Generation per unit (at Generation Terminal) (7/1.4)	Rs/kWh	2.08	2.08
9	Energy Charge per unit (ex-bus) (7/1.7)			
9.1.1	Fuel 1 HFO	Rs/kWh	0.018	0.018
9.1.2	Fuel 2 LDO	Rs/kWh	0.003	0.003
9.1.3	Fuel 3 Coal	Rs/kWh	2.171	2.171
	Total---(9)	Rs/kWh	2.191	2.191

#### **A7: ESTIMATED AGGREGATE REVENUE REQUIREMENT OF CSCTPP-UNIT 5 & 6 FOR FY 2018-19**

7.1 The recovery Of ARR proposed for CSCTPP-unit#5 & 6 is summarised in table below:

**Table 12: ARR OF CTPP-UNIT 5 & 6 for FY 19 (Rs. in Cr)**

Parameter	FY (2018-19)	
	Unit # 5 (235 days)	Unit # 6 (71days)
Capacity Charges	652.45	152.91
Variable Cost	641.43	193.79
Aggregate Revenue Requirement	1293.88	346.70

**A8: ESTIMATED TARIFF OF UNIT-5 & 6 FOR FY 2018-19**

8.1 Total per unit charge in Rs. / kwh is given in given table below:-

**Table 13: TARIFF of CTPP UNIT 5 & 6 for FY19**

Particular	FY (2018-19)	FY (2018-19)
	Unit # 5 (235 days)	Unit # 6 (71days)
Ex-Bus Generation (MU)	2927.39	884.45
Capacity charges/Fixed charge Rs. In Crore)	652.45	152.91
Variable Cost (Rs. in Crore)	641.43	193.79
<b>Fixed cost (Rs/KWh sent out)</b>	2.229	1.729
<b>Variable Cost (Rs/KWh sent out)</b>	2.191	2.191
<b>Total cost (Rs/KWh sent out)</b>	4.420	3.920

**A9: FUEL COST ADJUSTMENT FORMULA**

9.1 The Commission in their Tariff Regulations, 2014 have provided a fuel cost adjustment formula for adjustment of tariff on account of fuel related costs of electricity generation to take care of any variation in the variable cost and the same is proposed to be recovered from Discoms.

**A10: RESPONDENTS:-**

10.1 All the three Discom's (i.e JVVNL/AVVNL/ Jd.VVNL) Jaipur/ Ajmer/ Jodhpur are respondents for the above petition.

**A11: PRAYER**

RVUN humbly requests the Hon'ble Commission to:

- ◆ Allow Interim/ Adhoc tariff for FY 2018-19 for billing to Discoms urgently.
- ◆ Approve of provisional Tariff for FY 2018-19 as per regulation 42 of RERC Regulation 2014 for Unit-5 & 6.
- ◆ Approve ARR for period FY 2018-19 for Chhabra Supercritical Unit 5 & 6.
- ◆ Allow provisional tariff for Unit #5 at earliest and for Unit # 6 immediately after actual COD as proposed in this petition till final tariff order is issued.
- ◆ And pass other further orders as are deemed fit and proper in the facts and circumstances of the case.

(Y. K. Upadhyay)  
Chief Accounts Officer (Comml., A/cs &  
Taxation and PPM-IT)  
RVUN, Jaipur.

(Ajay Kumar Saxena)  
Addl. Chief Engineer (PPMC&IT)  
RVUN, Jaipur.

**Form G 1.1**

## Summary of Tariff Proposal

Name of the Petitioner

'RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED

Name of the Power Station/Unit :

'Chhabra Super Thermal Power Station-Unit-5 & 6

(Rs. Crore)

S.No.	Particulars	Ref.of Form No	FY (2018-19)		Remark
			Unit # 5	Unit # 6	
1	2	3	4	5	6
<b>1</b>	<b>Capacity (Fixed) Charge</b>				
1.1	Depreciation	6.1	153.19	34.85	
1.2	Interest on term Loan & Finance charges	6.2	296.87	68.69	
1.3	Return on Equity	6.9	99.01	22.60	
1.4	Interest on Working Capital	6.11	19.64	1.67	
1.5	O & M Expenses	4.1	77.24	23.34	
1.6	Insurance Charges	6.12	6.19	1.44	
1.7	ARR and Tariff petition fee		0.33	0.33	
	Any other item (to be specified)				
1.6	Less: Non-Tariff income	3.2	0.01	0.01	
	<b>Total (1)- Capacity (Fixed Charges)</b>		652.45	152.91	
<b>2</b>	<b>Total- Energy (variable ) charges</b>		641.43	193.79	
<b>3</b>	<b>Units sold to Discoms (MU)</b>		2927.39	884.45	
<b>4</b>	<b>Rate of Fixed Charges. ( 1/3)</b>		2.23	1.73	
<b>5</b>	<b>Rate of Variable Charges.</b>		2.191	2.191	
5.1	Rate of Energy Charge from Primary Fuel (REC) <sub>p</sub>	5.3			
	(i) Coal/ Lignite		2.171	2.171	
	(ii) Imported Coal		0.00	0.00	
	(iii) Any Other fuel		0.00	0.00	
	Total 2.1		2.17	2.17	
5.2	Rate of Energy Charge from Secondary Fuel (REC) <sub>s</sub>	5.3	0.02	0.02	
5.3	Total-(2) Rate of Energy Charge ex-bus(REC) <sup>3A,3B,3C</sup>		4.42	3.92	



## Aggregate Revenue Requirement

Name of the Petitioner

'RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED

Name of the Power Station/Unit:

'Chhabra Super Thermal Power Station-Unit-5 &amp; 6

(Rs. Crore)

S.No.	Particulars	Reference Form	FY (2018-19)	FY (2018-19)	Remarks
			Unit # 5	Unit # 6	
1	2	3	4	5	6
<b>A</b>	<b>Receipts</b>				
1	Revenue from Sale of Power (Tariff income)	3.1	1293.88	346.70	
2	Non Tariff income	3.2	0.01	0.01	
3	Revenue Subsidies, Grants & Subvention from State Govt.		0.00	0.00	
	Total- (A)		1293.89	346.71	
<b>B</b>	<b>Expenditure</b>				
1	Variable Costs, including Fuel Cost	5.1	641.43	193.79	
2	Depreciation	6.1	153.19	34.85	
3	Interest on term Loan & Finance charges	6.2	296.87	68.69	
4	Return on Equity	6.9	99.01	22.60	
5	ARR and Tariff Petition Fee		0.33	0.33	
6	Interest on Working Capital	6.11	19.64	1.67	
7	O & M Expenses	4.1	77.24	23.34	
8	Insurance Charges	6.12	6.19	1.44	
9	Any other item (to be specified)				
<b>C</b>	<b>Total- (B) Expenditure</b>		1293.89	346.71	
<b>D</b>	<b>A.R.R. (C-A.2)</b>		1293.88	346.70	

<b>Plant Characteristics</b>			Form G 2.1
<b>Name of the Petitioner</b>		'RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED	
<b>Name of the Power Station/Unit:</b>		Chhabra Supercritical Thermal Power Station-Unit-5 & 6	
<b>Basic characteristics of the plant<sup>1</sup></b>	Super critical pressure, once through steam generator		
<b>Special Features of the Plant</b>			
<b>Site Specific Features<sup>2</sup></b>	Close cycle cooling system		
<b>Special Technological Features<sup>3</sup></b>			
<b>Environmental Regulation related features<sup>4</sup></b>	ESP		
<b>Any other special features</b>			
<b>Fuel Details<sup>5</sup></b>	Secondary Fuel	Alternate Fuels	
	HFO/LDO	NA	
<b>Details</b>	<b>Unit number</b>		
	5	6	& so on
Installed Capacity (IC)	660MW	660MW	
Date of Commercial Operation (COD)	09/08/2018	20/01/2019	
Type of cooling system <sup>6</sup>	Natural Draft Cooling-Tower(closed cycle)	Natural Draft Cooling-Tower(closed cycle)	
Type of Boiler Feed Pump <sup>7</sup>	Horizontal, Centrifugal Multistage Barrel Type Main Pum and Single casing, double suction, single stage, Horizontal/Radial Split Type Booster Pump	Multistage Barrel Type Main Pum and Single casing, double suction, single stage, Horizontal/Radial Split Type Booster Pump	
Pressure (kg/cm <sup>2</sup> )	321	321	
Temperature 0C			
-At Superheater Outlet	568	568	
-At Reheater Outlet	596	596	
<b>Turbine Cycle heat Rate(Kcal/ Kwh)</b>	1850	1850	
<b>Boiler Efficiency (%)</b>	86	86	
<b>Guaranteed Design Heat rate (kCal/kWh)<sup>8</sup></b>	2151.163	2151.163	Not Guranteed
<b>Conditions on which guaranteed</b>			
% MCR	100%STG MCR	100%STG MCR	
% Makeup	0% Make up	0% Make up	
Design Fuel	4000 Kcal/ Kg (GCV of Coal)	4000 Kcal/ Kg (GCV of Coal)	
Design cooling water Temperature	31	31	
Back Pressure			

<sup>1</sup> Describe the basic characteristics of the plant, e.g., in the case of a coal based plant whether it is a conventional steam generator or circulating fluidized bed combustion generator or sub-critical once through steam generator etc.

<sup>2</sup> Any site specific feature such as Merry-Go-Round, Vicinity to sea, Intake /makeup water systems etc. scrubbers etc. Specify

<sup>3</sup> Any Special Technological feature like Advanced class FA technology in Gas Turbines, etc.

<sup>4</sup> Environmental regulation related features like FGD, ESP etc.

<sup>5</sup> Coal or natural gas or naphtha or lignite etc.

<sup>6</sup> Closed circuit cooling, once through cooling, sea cooling etc.

<sup>7</sup> Motor driven, Steam turbine driven etc.

<sup>8</sup> In case guaranteed unit heat rate is not available then furnish the guaranteed turbine cycle heat rate and guaranteed boiler efficiency separately along with condition of guarantee.

**Form G 2.2**

Name of the Petitioner

**RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED**

Name of the Power Station :

**Chhabra Supercritical Thermal Power Station-Unit-5 & 6**

S. No.	Particulars	Units	FY (2018-19)		Remarks
			Unit # 5	Unit # 6	
1	2	3	4	5	6
<b>2</b>	<b>Operational Parameters - Thermal</b>				
2.1	Total Capacity	MW	<b>660</b>	<b>660</b>	
2.2	Availability	%	<b>83%</b>	<b>83%</b>	
2.3	Plant Load Factor	%	<b>83%</b>	<b>83%</b>	
2.4	Gross Generation	MU	<b>3089.59</b>	<b>933.45</b>	
2.5	Auxiliary Energy Consumption	%	<b>5.25%</b>	<b>5.25%</b>	
2.6	Auxiliary Energy Consumption	MU	<b>162.20</b>	<b>49.01</b>	
2.7	Net Generation	MU	<b>2927.39</b>	<b>884.45</b>	
2.6	Heat Rate	Kcal/Kwh)	<b>2211.51</b>	<b>2211.51</b>	

## Revenue from Sale of Power

Name of the Company  
Name of the Power Station :

RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED  
Chhabra Supercritical Thermal Power Station-Unit-5 & 6

Year (2018-19)  
Unit 5

Rs. Crore

S.No.	Particulars	Allocation (in % ) /contract demand	Unit Sold (M.U.)	% of total Unit Sold	Demand/fixed Charges @	Energy Charges @	Others, if any	Total (6+7+8)	Average' rate/kWh (paisa/kWh)	Remarks
1	2	3	4	5	6	7	8	9	10	11
A)	Revenue from sale of Electricity(as per approved tariff)									
1	Dist.Licensee/trader/ consumers									
(a)	JVVNL		1173.30	40.08%	261.50	257.09	0	518.59	441.99	
(b)	AVVNL		797.13	27.23%	177.66	174.66	0	352.32	441.99	
(c)	JDVVNL		956.96	32.69%	213.29	209.68	0	422.97	441.99	
2	Other recoveries		0	0	0	0	0	0	0	
6	Net revenue		2927.39		652.45	641.43		1293.88	441.99	

Unit 6

S.No.	Particulars	Allocation (in % ) /contract demand	Unit Sold (M.U.)	% of total Unit Sold	Demand/fixed Charges @	Energy Charges @	Others, if any	Total (6+7+8)	Average' rate/kWh (paisa/kWh)	Remarks
1	2	3	4	5	6	7	8	9	10	11
A)	Revenue from sale of Electricity(as per approved tariff)									
1	Dist.Licensee/trader/ consumers									
(a)	JVVNL		354.49	40.08%	61.29	77.67	0	138.96	392.00	
(b)	AVVNL		240.83	27.23%	41.64	52.77	0	94.41	392.00	
(c)	JDVVNL		289.13	32.69%	49.99	63.35	0	113.34	392.00	
2	Other recoveries		0	0	0	0	0	0		
6	Net revenue		884.45		152.91	193.79		346.70	392.00	

## NON-TARIFF INCOME

Name of the Petitioner

RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED

Name of the Power Station/ Unit:

Chhabra Supercritical Thermal Power Station-Unit-5 &amp; 6

Rs. Crore

S.No	Particulars	FY (2018-19)	FY (2018-19)	Remarks
		Unit # 5	Unit # 6	
1	2	3	4	5
	<b>Non-tariff income</b>			
i.	Interest on loans and advances to employees			
ii.	Interest on loans and advances to suppliers/contractors			
iii.	Interest and other income from investments and deposits			
iv.	Income from rent on land/building			
v.	Income from sale of scrap			
vi.	Interest on subvention received from govt.			
vii.	Net Income from sale of power to housing colony/ township for its staff			
viii.	Income from sale of ash/rejected coal			
ix.	Rebate for early payment			
x.	Income from advertisement			
xi.	Other miscellaneous receipts	0.01	0.01	
	<b>Total non-tariff income</b>	0.01	0.01	

## REVENUE SUBSIDIES &amp; GRANTS

Name of the Petitioner:

RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED

Name of the Power Station/Unit :

Chhabra Supercritical Thermal Power Station-Unit-5 &amp; 6

S. No.	Particulars	FY (2018-19)	FY (2018-19)	Remarks
		Unit # 5	Unit # 6	
1	2	3	4	5
A)	<b>Revenue Subsidies &amp; Grants</b>	<b>NA</b>		
1	Subvention from State Government towards sale of electricity			
2	State Govt. Grant against addl. Intt. Liability on Company			
3	Any Other item			
	<b>Total</b>			

## Capital Subsidies and Grants

Name of the Petitioner:

RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED

Name of the Power Station/Unit :

Chhabra Supercritical Thermal Power Station-Unit-5 &amp; 6

Rs. Crore

S. No.	Particulars	FY (2018-19)	FY (2018-19)	Remarks
		Unit # 5	Unit # 6	
1	2	3	4	5
A	Capital Cost	4960.55	3747.36	
	Subsidy towards cost of Capitals Asset	0	0	
	Grant towards cost of Capitals Assets	0	0	
	Receipts from State Govt. under any scheme as grant/subsidy	0	0	
	<b>Total</b>	4960.55	3747.36	

Form G 4.1

**O&M Expenses**

**Name of the Petitioner:** RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED  
**Name of the Station/Unit:** Chhabra Supercritical Thermal Power Station-Unit-5 & 6  
**(Rs. Crore)**

S.No.	Particulars	FY (2018-19)	FY (2018-19)
		Unit # 5	Unit # 6
1	2	3	4
1	O&M Expense norms (Rs. per MW)	0.18	0.18
2	Total Capacity in MW	660	660
3	O&M expense	77.24	23.34
4	Special O&M expense for Water pipe lines>50 km		
a	Details of Water pumping Stations beyond 50 K.M. from Water intake point		
b	<b><u>Pumping Station No.1 :-</u></b>		
b.1	Power consumption Cost		
b.2	Repair / Maintenance / Employee / other Cost		
b.3	Sub total (b)		
c	<b><u>Pumping Station No.2 :-</u></b>		
	and so on .....		
d	Total (4) Special O&M Expenses		
5	<b>Total O&amp;M expenses</b>	77.24	23.34



5.1

5.1

Energy Charges for Thermal Generation					Form G 5.3
Name of the Petitioner:		RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED			
Name of the Power Station/Unit:		Chhabra Super Thermal Power Station-Unit-5 & 6			
S.No.	Particulars	Units	Unit 5 FY 18-19	Unit 6 FY 18-19	Remarks
<b>1</b>	<b>Operational Parameters</b>				
1.1	Total Capacity	MW	660	660	
1.2	Availability	%	83%	83.00%	
1.3	PLF	%	83%	83.00%	
1.4	Gross Generation	MU	3089.59	933.45	
1.5	Auxiliary Energy Consumption	%	5.25%	5.25%	
1.6	Auxiliary Energy Consumption	MU	162.20	49.01	
1.7	Net Generation	MU	2927.39	884.45	
1.8	Heat Rate	kcal/kWh	2211.51	2211.51	
<b>2</b>	<b>Fuel Parameters (for each primary and secondary fuel)</b>				
<b>2.1</b>	<b>Gross Calorific Value</b>				
2.1.1	Fuel 1 HFO	kcal/ltr	9781.18	9781.18	
2.1.2	Fuel 2 LDO	kcal/ltr	9241.7	9241.7	
2.1.3	Fuel 3 Coal	kcal/kg	4259.24	4259.24	
2.2	Landed Fuel Price per unit (Please specify the fuel)				
2.2.1	Fuel 1 HFO	Rs/KL	37592.13	37592.13	
2.2.2	Fuel 2 LDO	Rs/KL	52385.51	52385.51	
2.2.3	Fuel 3 Coal	Rs/MT	3969.56	3969.56	
<b>3</b>	<b>Fuel Consumption and Heat Contribution (for each fuel separately)</b>				
3.1	Specific Fuel Consumption				
3.1.1	Fuel 1 HFO	ml/kWh	0.45	0.45	
3.1.2	Fuel 2 LDO	ml/kWh	0.05	0.05	
3.1.3	Fuel 3 Coal	kg/kWh	0.52	0.52	
3.2	Total Fuel Consumption				
3.2.1	Fuel 1 HFO	KL	1390.32	420.05	
3.2.2	Fuel 2 LDO	KL	154.48	46.67	
3.2.3	Fuel 3 Coal	MT	1600669.84	483606.63	
<b>3.3</b>	<b>Heat Content (each fuel separately)</b>				
3.3.1	Fuel 1 HFO (2.1.1 x 3.1.1)	Million kcal	13598.93	4108.61	
3.3.2	Fuel 2 LDO (2.1.2 x 3.1.2)	Million kcal	1427.65	431.33	
3.3.3	Fuel 3 Coal (2.1.3 x 3.1.3)	Million kcal	6817637.01	2059796.72	
	Total Heat Content		6832663.60	2064336.66	
<b>4</b>	<b>Total Fuel Cost</b>				
4.1.1	Fuel 1 HFO (2.2.1 x 3.2.1)	Rs Crore	5.23	1.58	
4.1.2	Fuel 2 LDO (2.2.2 x 3.2.2)	Rs Crore	0.81	0.24	
4.1.3	Fuel 3 Coal (2.2.3 x 3.2.3)	Rs Crore	635.40	191.97	
	<b>Total Fuel Cost</b>	Rs Crore	641.43	193.79	
<b>6</b>	<b>Other Charges and Adjustments</b>				
6.1.1	Other Charges (pl. specify details)	Rs Crore			
6.1.2	Other Adjustments (Pl. specify details)	Rs Crore			
	<b>Total Other Charges and Adjustments</b>	Rs Crore	0.00		
<b>7</b>	<b>Total Cost (4+5+6)</b>	Rs Crore	641.43	193.79	
<b>8</b>	<b>Cost of Generation per unit (at Generation Terminal) (7/1.4)</b>	Rs/kWh	2.08	2.08	
<b>9</b>	<b>Energy Charge per unit (ex-bus) (7/1.7)</b>				
9.1.1	Fuel 1 HFO	Rs/kWh	0.018	0.018	
9.1.2	Fuel 2 LDO	Rs/kWh	0.003	0.003	
9.1.3	Fuel 3 Coal	Rs/kWh	2.171	2.171	
	<b>Total---(9)</b>	Rs/kWh	<b>2.191</b>	<b>2.191</b>	

## Fixed assets &amp; provisions for depreciation

Name of the Petitioner

RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED

Name of the Power Station :

Chhabra Supercritical Thermal Power Station-Unit-5 &amp; 6

## Unit 5

Year (2018-2019) upto 08.08.18

(Figures in Rs Crore)

S. No.	Particular	Rate of depreciation %	Gross fixed assets				Provisions for depreciation				Net fixed assets at the beginning of the year	Net Fixed Asset at the end of the year
			At the beginning of the year	Additions during the year up to COD dated 8.8.18	Adjustment & deducitons	At the end of the year as on 8.8.18	Cumulative upto the beginning of the year	Additions during the year for 235 days	Adjustment during the year	Cumulative at the end of the year		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Land & land rights	0.00	0.00	38.36	0.00	38.36	0.00	0.00	0.00	0.00	0.00	38.36
2	Building & Civil works of Power plant	3.34	0.00	1128.78	0.00	1128.78	0.00	24.27	0.00	24.27	0.00	1104.51
3	Hydraulic works	5.28	0.00	537.20	0.00	537.20	0.00	18.26	0.00	18.26	0.00	518.94
4	Other Civil Works	3.34	0.00	3.86	0.00	3.86	0.00	0.08	0.00	0.08	0.00	3.78
5	Plant & machinery including sub-station equipments	5.28	0.00	3213.46	0.00	3213.46	0.00	109.24	0.00	109.24	0.00	3104.22
6	Line & Cable Networks	5.28	0.00	37.62	0.00	37.62	0.00	1.28	0.00	1.28	0.00	36.34
7	Vehicles	6.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	Furniture & fixtures	6.33	0.00	1.17	0.00	1.17	0.00	0.05	0.00	0.05	0.00	1.12
9	Office Equipments	6.33	0.00	0.10	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.10
10	Exp Under ESP Upgradation	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	Intangible Assets (Upfront fees)	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total (1) to (11)</b>		<b>0.00</b>	<b>4960.55</b>	<b>0.00</b>	<b>4960.55</b>	<b>0.00</b>	<b>153.19</b>	<b>0.00</b>	<b>153.19</b>	<b>0.00</b>	<b>4807.36</b>

## Unit 6

Year (2018-2019) upto 09.08.18

(Figures in Rs Crore)

S. No.	Particular	Rate of depreciation %	Gross fixed assets				Provisions for depreciation				Net fixed assets at the beginning of the year	Net Fixed Asset at the end of the year
			At the beginning of the year	Additions during the year up to 8.08.18	Adjustment & deducitons	At the end of the year up to 8.8.18	Cumulative upto the beginning of the year	Additions during the year for 71 days	Adjustment during the year	Cumulative at the end of the year		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Land & land rights	0.00	0.00	38.36	0.00	38.36	0.00	0.00	0.00	0.00	0.00	38.36
2	Building & Civil works of Power plant	3.34	0.00	855.56	0.00	855.56	0.00	5.56	0.00	5.56	0.00	850.00
3	Hydraulic works	5.28	0.00	393.70	0.00	393.70	0.00	4.04	0.00	4.04	0.00	389.66
4	Other Civil Works	3.34	0.00	3.74	0.00	3.74	0.00	0.02	0.00	0.02	0.00	3.72
5	Plant & machinery including sub-station equipments	5.28	0.00	2426.39	0.00	2426.39	0.00	24.92	0.00	24.92	0.00	2401.47
6	Line & Cable Networks	5.28	0.00	28.74	0.00	28.74	0.00	0.30	0.00	0.30	0.00	28.44
7	Vehicles	6.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	Furniture & fixtures	6.33	0.00	0.78	0.00	0.78	0.00	0.01	0.00	0.01	0.00	0.77
9	Office Equipments	6.33	0.00	0.09	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.09
10	Exp Under ESP Upgradation	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	Intangible Assets (Upfront fees)	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total (1) to (11)</b>		<b>0.00</b>	<b>3747.36</b>	<b>0.00</b>	<b>3747.36</b>	<b>0.00</b>	<b>34.85</b>	<b>0.00</b>	<b>34.85</b>	<b>0.00</b>	<b>3712.51</b>

## LOAN REPAYMENT &amp; INTREST LIABILITY

Name of the Petitioner RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED  
 Name of the Power Station : Chhabra Supercritical Thermal Power Station-Unit-5 & 6

Unit 5			Year (2018-19)						Rs. Crore		Year (2018-19)						Rs. Crore			
S. No.	Source (loan)	Currency	Opening Balance	Anticipated Receipts	Anticipated Repayment	Interest rate		Closing Balance	Average Rate of Interest#	Liability of Interest during the year	Financial charges	Total interest & finance charges	Less: Interest charges capitalised	Net interest & finance charges	Loan swapped during the Year					
						Fixed	Floating								Domestic loan	Foreign loan	old Interest rate	New Interest rate		
1	2	2A	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
	Term Loan from PFC and REC		0.00	3968.44	153.19			3815.25	11.85%	461.10	0.00	296.87		296.87						

Unit 6			Year (2018-19)						Rs. Crore		Year (2018-19)						Rs. Crore			
S. No.	Source (loan)	Currency	Opening Balance	Anticipated Receipts	Anticipated Repayment	Interest rate		Closing Balance	Average Rate of Interest#	Liability of Interest during the year	Financial charges	Total interest & finance charges	Less: Interest charges capitalised	Net interest & finance charges	Loan swapped during the Year					
						Fixed	Floating								Domestic loan	Foreign loan	old Interest rate	New Interest rate		
1	2	2A	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
	Term Loan from PFC and REC		0.00	2997.89	34.85			2963.03	11.85%	353.12	0.00	68.69		68.69						

Form G 6.3

Details of Project Specific Loans

Name of the Petitioner RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED  
 Name of the Power Station Chhabra Supercritical Thermal Power Station-Unit-5 & 6  
 Commercial Operation Date U#5 09.08.2018 & U#6 20.01.2019

Rs. Crore

Particulars	FY 2009-10		FY 2010-11		FY 2011-12		FY 2012-13		FY 2013-14		FY 2014-15		FY 2015-16		FY 2016-17		FY 2017-18		FY 2018-19 (upto july 18)	
	Package1	Package2	Package1	Package2	Package1	Package2	Package1	Package2	Package1	Package2	Package1	Package2	Package1	Package2	Package1	Package2	Package1	Package2	Package1	Package2
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Source of Loan	PFC	REC	PFC	REC	PFC	REC	PFC	REC	PFC	REC	PFC	REC	PFC	REC	PFC	REC	PFC	REC	PFC	REC
Currency	Rupees	Rupees	Rupees	Rupees	Rupees	Rupees	Rupees	Rupees	Rupees	Rupees	Rupees	Rupees	Rupees	Rupees	Rupees	Rupees	Rupees	Rupees	Rupees	Rupees
Total Amount of Loan sanctioned	0	0	3794	2530	3794	2530	3794	2530	3794	2530	3794	2530	3794	2530	3794	2530	5200.53	3467.69	5200.53	3467.69
Amount of Gross Loan drawn upto previous year/during current/ensuing year/COD	0	0	0	0	0	0	0	0	770.59	50	1541.17	438.08	3227.66	1069.17	3670.73	2336.63	3794.01	2424.61	4373.33	2530.00
Interest Type	Floating	Floating	Floating	Floating	Floating	Floating	Floating	Floating	Floating	Floating	Floating	Floating	Floating	Floating	Floating	Floating	Floating	Floating	Floating	Floating
Fixed Interest Rate, if applicable																				
Base Rate, if Floating Interest <sup>7</sup>																				
Margin, if Floating Interest <sup>8</sup>																				
Are there any Caps/Floor <sup>9</sup>																				
If above is yes,specify caps/floor																				
Moratorium Period <sup>10</sup>																				
Moratorium effective from																				
Repayment Period <sup>11</sup>																				
Repayment effective from	31.03.19	15.01.21																		
Repayment Frequency <sup>12</sup>	Quarterly																			
Repayment Instalment <sup>13,14</sup>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Base Exchange Rate <sup>16</sup>																				

## Consolidated report on additions to Fixed Assets during the year

Name of the Petitioner

RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED

Name of the Power Station :

Chhabra Supercritical Thermal Power Station-Unit-5 &amp; 6

(Rs. in crores)

S.No.	Asset Description	Asset Code	FY 2018-19							FY 2018-19						
			Unit # 5							Unit # 6						
			Cost	Interest (IDC)	Finance Charges	Pre-Operative expenses	Exchange fluctuations	Total	Date of commissioning	Cost	Interest (IDC)	Finance Charges	Pre-Operative expenses	Exchange fluctuations	Total	Date of commissioning
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Land & land rights		28.83	9.52				38.35		28.66	9.7				38.36	
2	Building & Civil works of Power plant		848.47	280.31				1128.78		639.17	216.39				855.56	
3	Hydraulic works		403.80	133.4				537.20		294.12	99.57				393.69	
4	Other Civil Works		2.91	0.95				3.86		2.79	0.95				3.74	
5	Plant & machinery including sub-station equipments		2404.07	809.38				3213.46		1824.30	602.09				2426.39	
6	Line & Cable Networks		28.28	9.34				37.62		21.47	7.27				28.74	
7	Vehicles		0.00	0				0.00		0.00	0				0.00	
8	Furniture & fixtures		0.88	0.29				1.17		0.58	0.2				0.78	
9	Office Equipments		0.07	0.03				0.10		0.07	0.02				0.09	
10	Exp Under ESP Upgradation		0.00	0				0.00		0.00	0				0.00	
11	Intangible Assets (Upfront fees)		0.00	0				0.00		0.00	0				0.00	
	Total (1) to (11)		3717.31	1243.22				4960.55		2811.16	936.19				3747.35	

**Form G 6.5**

**Abstract of Capital Cost Estimates and Schedule of Commissioning for the New projects**

Name of the Petitioner : RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED  
 Name of the Power Station : Chhabra Supercritical Thermal Power Station-Unit-5 & 6  
 New Projects  
 Capital Cost Estimates 10910.27

Board of Director/ Agency approving the Capital cost estimates:	7920	9550.27	10910.27	12186.85			
Date of approval of the Capital cost estimates:	02.02.2009	09.03.2017	13.11.2018	Expected			
	<b>Present Day Cost</b>			<b>Completed Cost</b>			
Price level of approved estimates	As on 08.08.18			As on Scheduled COD of the Station			
Foreign Exchange rate considered for the Capital cost estimates							
<b>Capital Cost excluding IDC &amp; FC</b>							
Foreign Component, if any (In Million US \$ or the relevant Currency)		0					
Domestic Component (Rs. Cr.)		6528.47					
<b>Capital cost excluding IDC &amp; FC (Rs. Cr)</b>		6528.47					
<b>IDC &amp; FC</b>							
Foreign Component, if any (In Million US \$ or the relevant Currency)		0					
Domestic Component (Rs. Cr.)		2,179.41					
<b>Total IDC &amp; FC (Rs.Cr.)</b>		2179.41					
Rate of taxes & duties considered							
<b>Capital cost Including IDC &amp; FC</b>							
Foreign Component, if any (In Million US \$ or the relevant Currency)		0					
Domestic Component (Rs. Cr.)		8707.88					
<b>Capital cost Including IDC &amp; FC (Rs. Cr)</b>		8707.88					
<b>Schedule of Commissioning</b>							
COD of Unit-5/6	09.08.2018/ 20.01.2019						



## Break-up of Capital Cost for Coal / Lignite / gas / liquid fuel based projects

Name of the Petitioner:

RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED

Name of the Power Station :

Chhabra Supercritical Thermal Power Station-Unit-5 &amp; 6

Break Down	Cost in Rs. Crores					Rs. Crore.		Admitted Cost (Rs. Cr.)
	As per Estimates for unit 5&6	Amount Booked as on 08.08.18 for unit 5&6	Actual Expenditure as on as on 08.08.18 for unit 5	Actual Expenditure as on as on 08.08.18 for unit 6	Liabilities/Provisions	Variation (Rs. Cr.)	Reasons for Variation	
2	4	5	6	7	8	9	10	11
EPC Contract	5997.13	5824.46	3302.23	2,522.23	172.67			
Consultancy Engg services	18.34	15.44	9.17	6.27	2.90			
other consultancy	0	0	0.00	-	-			
River Water System(Supply)	339.51	222.85	133.71	89.14	116.66			
0	37.38	33.93	20.36	13.57	3.45			
0	45.68	26.73	16.04	10.69	18.95			
0	44.08	27.51	16.51	11.00	16.57			
0	31.77	0	0.00	-	31.77			
Town Ship	5.68	5.66	2.83	2.83	0.02			
Intake Well	100	0	0.00	-	100.00			
Lhasi Dam	58.93	59.4	29.70	29.70	-			
Other Civil Work(railway siding)	252	80.56	48.34	32.22	171.44			
Raising of height of Anicut	61.02	17.57	10.54	7.03	43.45			
CSR activities	33	14.17	8.50	5.67	18.83			
Licence fee for coal Mines allotement	52.5	0	0.00	-	52.50			
Land	56.11	56.07	28.04	28.04	0.04			
Furniture for Administration	2	0	0.00	-	2.00			
work required as per NGT	3.75	0	0.00	-	3.75			
cost of boundary wall around fly ash silos FOR ISOLATING IT FROM	0.8	0	0.00	-	0.80			
cost of road connecting from stage-I to stage-II main gate to with boundry wall	1.5	0	0.00	-	1.50			
Others capitalisation( Estt.+ Trans.)	0.14	0.14	0.07	0.07	-			
0	1.61	1.42	0.85	0.57	0.19			
0	166.1	88.51	47.25	41.26	77.59			
Locomotives	18	0	0.00	-	18.00			
Buildozers	12	9.21	4.61	4.61	2.79			
Truck, Lift, Oil, Filtration machine	15	0	0.00	-	15.00			
IDC	2000	2179.42	1243.23	936.19	128.74			
Finance Charges(loop process charge)	33.1	0	0.00	-	33.10			
cost of fuel up to synchronization	100	29.2	29.20	-	70.80			
Cost of const. power provided free of cost	63.15	15.65	9.39	6.26	47.50			
0	0	0	0.00	-	-			
TOTAL	9550.28	8707.9	4960.55	3,747.35	1,151.01			



## Form G 6.8

Draw Down Schedule for Calculation of IDC &amp; Financing Charges (year wise from commencement of works to COD)

Name of the Petitioner: RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED

Name of the Power Station: Chhabra Supercritical Thermal Power Station-Unit-5 &amp; 6

Rs. Crore

S.No.	Draw Down	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19 (upto 08.08.18)
	Particulars	Amount in Indian Rupee	Amount in Indian Rupee	Amount in Indian Rupee	Amount in Indian Rupee	Amount in Indian Rupee	Amount in Indian Rupee	Amount in Indian Rupee	Amount in Indian Rupee	Amount in Indian Rupee	Amount in Indian Rupee
1	2	3	4	5	6	7	8	9	10	11	12
<b>1</b>	<b>Loans</b>										
<b>1.1</b>	<b>Indian Loans</b>										
<b>1.1.1</b>	<b>Indian Loan 1 (PFC)</b>										
	Draw down Amount	0	0	0	0	770.59	770.58	1686.49	443.06	123.28	579.32
	IDC		2342.4								
	Financing charges										
	Total drawn amount	0	0.00	0.00	0.00	770.59	1541.17	3227.66	3670.73	3794.01	4373.33
<b>1.1.2</b>	<b>Indian Loan 2 (REC)</b>										
	Draw down Amount	0	0	0	0	50	388.08	631.09	1267.46	87.98	105.39
	IDC										
	Financing charges										
	Total drawn amount	0	0.00	0.00	0.00	50.00	438.08	1069.17	2336.63	2424.61	2530.00
<b>1.1</b>	<b>Total Indian Loans</b>										
	Draw down Amount	0.00	0.00	0.00	0.00	820.59	1158.66	2317.57	1710.52	211.26	684.71
	IDC	0.00	0.00	0.00	0.00	62.10	170.33	371.34	621.29	715.00	239.36
	Financing charges										
<b>1</b>	<b>Total of Loans drawn</b>										
	IDC	0.00	0.00	0.00	0.00	62.10	232.43	603.77	1225.06	1940.06	2179.42
	Financing charges										
<b>2</b>	<b>Equity</b>										
<b>2.1</b>	<b>Indian equity drawn</b>	40	50	60	190	225	500	300	694.08	296.28	154
	<b>Total equity deployed</b>	40	90.00	150.00	340.00	565.00	1065.00	1365.00	2059.08	2355.36	2509.36

**RETURN ON EQUITY**

Name of the Petitioner:

RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED

Name of the Power Station :

Chhabra Supercritical Thermal Power Station-Unit-5 &amp; 6

Rs. Crore

S.No.	Particulars	Reference	FY (2018-19)		Remarks
			Unit 5	Unit 6	
1	2	3	8		9
1	Equity at the beginning of the year		0	0	
2	Capitalisation		4960.55	3747.36	
3	Equity portion of capitalisation		992.11	749.47	
4	Equity at the end of the year		992.11	749.47	
	<b>Return Computation</b>				
5	Return on Equity at the beginning of the year	15.5%*(1)	0	0	
6	Return on Equity portion of capitalisation (on pro-rata basis)	15.5%*(3)/(n/12)	99.01	22.60	
7	<b>Total Return on Equity</b>	(5)+(6)	99.01	22.60	

**Note:**

Station-wise RoE (or basis of allocation for each Station) has to be provided

## Statement of Additional Capitalisation after COD and Details for Financing

Name of the Petitioner:

'RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED

Name of the Power Station

'Chhabra Super Thermal Power Station-Unit-5 &amp; 6

COD

09.08.2018

(Rs. Crore)

S.No.	Work/Equipment added after COD up to Cut off Date / Beyond Cut off Date	Amount Capitalised / Proposed to be capitalised	Justification	Regulations under which such additional capitalisation has been claimed	Source of Finance					Admitted Cost <sup>1</sup>
					Loan 1	Loan 2 and so on	Total Loan	Equity	Internal Sources or Others (mention details)	
1	Land & land rights									
1A	Hydraulic works									
2	Building & Civil works of Power plant									
3	Plant & machinery including sub-station equipments									
4	Communication equipment									
5	Vehicles									
6	Furniture & fixtures									
7	Office Equipments									
8	Capital spares									
9	IT Equipments									
10	IT/ SCADA Software									
11	Any other items									
	<b>Total (1) to (11)</b>									
Total										

<sup>1</sup> In case the project has been completed and any tariff notification(s) has already been issued in the past by GOI, give the cost as admitted for the purpose of tariff notification already issued by (Name of the authority) (Enclose copy of the tariff Order)

**Note:**

1 Fill the form in chronological order year wise along with detailed justification clearly bring out the necessity and the benefits accruing to the beneficiaries.

2 In case initial spares are purchased along with any equipment, then the cost of such spares should be indicated separately. e.g. Rotor - 50 Crs. Initial spares- 5 Crs.

**Form 6.11****Interest on Working Capital**

Name of the Petitioner

'RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED

Name of the Power Station

'Chhabra Super Thermal Power Station-Unit-5 &amp; 6

Rs. Crore

S. No.	Particulars	FY (2018-19)	FY (2018-19)
		Unit 5	Unit 6
1	2	3	4
1	Fuel Stock (one and half month)	79.42	24.00
2	Secondary fuel stock (two months)	1.01	0.30
3	O & M expenses (one month)	6.44	1.94
4	Maintenance Spares (@20% of O&M expenses)	15.45	4.67
5	Receivables (one and half month)	161.74	43.34
6	limestone, if applicable (as per norms)		
	<b>Total Working Capital</b>	<b>264.05</b>	<b>74.25</b>
	Rate of Interest (as per norms)	11.55%	11.55%
	<b>Interest on Working Capital</b>	<b>19.64</b>	<b>1.67</b>

**Insurance Expenses**

Name of the Petitioner:

'RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED

Name of the Power Station :

'Chhabra Super Thermal Power Station-Unit-5 &amp; 6

Rs. Crore

S. No.	Particulars	FY (2018-19)	FY (2018-19)	Remarks
		Unit 5	Unit 6	
1	2	3	4	5
	<b>Insurance Expenses</b>			
a)	Provision made/ proposed for the year	6.19	1.44	
b)	Actual insurance expenses incurred			
c)	Average Net Fixed Assets	2403.68	1856.25	

**Form G 6.13**

**Tax on R.O.E.**

**Name of the Petitioner:**

**Name of the Power Station :**

**Rs.**

S. No.	Particulars	FY (2018-19)		Remarks
		Unit 5	Unit 6	
1	2	3	4	5
A)	<b>Advance Tax assessed &amp; deposited on-----</b>	<b>NA</b>		
a)	for Quarter I & deposited on 15 th June.			
b)	for Quarter II & deposited on 15 th Sept.			
c)	for Quarter III & deposited on 15 th Dec.			
d)	for Quarter IV & deposited on 15 th March.			
	Total---(A)			
B)	Deffered tax liability before 01.04.2009			

Note:- Tax calculated should be only for the generation business and should not include income from any other income streame like efficiency gain & incentive etc.



Form G 7.1

**Proposed improvement in performance**

Name of the Petitioner

RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED

Name of the Power Station :

Chhabra Supercritical Thermal Power Station-Unit-5 & 6

Rs. Crore

S.No.	Particulars	Unit 5	Unit 6				Remarks
		2018-19	2018-19	n+3	n+4	n+5	
		(Anticipated)					
1	2	3	4	5	6	7	8
1	Plant load factor	83%	83%				
2	Auxiliary consumption	5.25%	5.25%				
3	Specific fuel consumption						
(I)	coal, kg / kWh	0.52	0.52				
ii)	gas, SCM / kWh						
(iii)	oil, ml / kwh	0.5	0.5				
(iv)	Limestone kg / kWh						
(v)	any other fuel						
4	Station heat rate, kcal / kwh	2211.51	2211.51				
5	Annual Maitenance shut down days						
6	Forced / planned shut down except annual shut down						
(I)	number / year						
(ii)	cumulative duration, hours / year						
7	Fly ash utilisation, %						
8	Other bye product utilisation(give list)						
9	Outstanding dues, days of receivables						
10	Availability	83.00%	83.00%				

Note:-1. Remarks to indicate manner in which performance parameters reflected in the tariff proposal

2.list is illustrative