



Telangana State Electricity Regulatory Commission

**5thFloor, Singareni Bhavan, Red Hills, Lakdi-ka-pul,
Hyderabad 500004.**

ORDER

ON

**DETERMINATION OF CAPITAL COST AND GENERATION
TARIFF FOR
2X600 MW THERMAL POWER PROJECT OF
THE SINGARENI COAL COLLIERIES COMPANY LTD.
FOR FY 2016-17 TO FY 2018-19**

19.06.2017

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LIST OF ABBREVIATIONS

AFC	Annual Fixed Charges
APTEL	Appellate Tribunal for Electricity
BHEL	Bharat Heavy Electricals Ltd.
BoP	Balance of Plant
BTG	Boiler, Turbine and Generator
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
COD	Commercial Operation Date
CSR	Corporate Social Responsibility
DPR	Detailed Project Report
EA 2003	Electricity Act, 2003
EPC	Engineering, Procurement and Construction
FC	Financing Charges
FSA	Fuel Supply Agreement
FY	Financial Year
GCV	Gross Calorific Value
GFA	Gross Fixed Assets
GoTS	Government of Telangana State
GSHR	Gross Station Heat Rate
ICB	International Competitive Bidding
kcal	kilo calories
kg	Kilogram
kWh	Kilo Watt hour
LD	Liquidated Damages
LoI	Letter of Intent
MMT	Million Metric Tonne
MoC	Ministry of Coal
MoP	Ministry of Power
MoU	Memorandum of Understanding
MSPGCL	Maharashtra State Power Generation Company Ltd.
MU	Million Units
MW	Mega Watt
NTPC	National Thermal Power Corporation
O&M	Operations and Maintenance
PLF	Plant Load Factor
PPA	Power Purchase Agreement
PFC	Power Finance Corporation
RoCE	Return on Capital Employed
REC	Rural Electrification Corporation
SCCL	Singareni Coal Collieries Company Ltd.
STPP	Super Thermal Power Project
TPP	Thermal Power Project
TSERC	Telangana State Electricity Regulatory Commission
TSGENCO	Telangana State Power Generation Corporation Ltd.
TSNPDCL	Northern Power Distribution Company of Telangana Ltd.
TSSPDCL	Southern Power Distribution Company of Telangana Ltd.
TSTRANSCO	Transmission Corporation of Telangana Ltd.

**TELANGANA STATE ELECTRICITY REGULATORY COMMISSION
HYDERABAD**

Present

Sri Ismail Ali Khan, Chairman

Sri H. Srinivasulu, Member

Dated 19.06.2017

O.P. No. 09 of 2016

The Singareni Collieries Company Ltd. (SCCL)

... Petitioner

Northern Power Distribution Company of Telangana Ltd. (TSNPDCL)

Southern Power Distribution Company of Telangana Ltd. (TSSPDCL)

... Respondents

The Singareni Collieries Company Ltd. (SCCL) has set up a 2x600 MW coal based thermal power generating station at Jaipur in Mancherial (erstwhile Adilabad) District. SCCL had entered into a Power Purchase Agreement (PPA) dated 18.01.2016 with the Northern Power Distribution Company of Telangana Ltd. (TSNPDCL) and the Southern Power Distribution Company of Telangana Ltd. (TSSPDCL) for sale of power from its 2x600 MW generating station for a period of 25 years at the tariff determined by the Telangana State Electricity Regulatory Commission (TSERC) under Section 62 of the Electricity Act, 2003. SCCL had filed the instant Petition for determination of Capital Cost and generation tariff for its 2x600 MW thermal generating station for the Control Period FY 2016-17 to FY 2018-19 u/s 61, 62, 64 and 86(1)(b) of the Electricity Act, 2003 read with relevant TSERC Guidelines and Regulations. Unit 1 of the Power Station has achieved COD on 25.09.2016 and Unit 2 has achieved COD on 02.12.2016. The Commission in exercise of the powers vested in it by the Electricity Act, 2003 and the Andhra Pradesh Electricity Regulatory Commission (Terms and Conditions for determination of tariff for supply of electricity by a generating company to a distribution licensee and purchase of electricity by distribution licensees) Regulation No. 1 of 2008 adopted by TSERC vide its Regulation No. 1 of 2014, and after taking into consideration all the submissions made by the Petitioner, all the suggestions and objections of the public, responses of the Petitioner, issues raised during the Public Hearing, and all other relevant material, issues the following Order.

ORDER

1. INTRODUCTION

1.1 BACKGROUND

1.1.1. SCCL is a coal mining company incorporated under the Companies Act, 1956 and owned by the Government of Telangana State, Government of India and private shareholders in the ratio of 51.096%, 48.902% and 0.002% respectively. SCCL has set up a 2x600 MW coal based thermal generating station at Jaipur in Mancherial (erstwhile Adilabad) District. SCCL had executed a PPA dated 18.01.2016 with TSNPDCL and TSSPDCL for sale of power from its 2x600 MW coal based thermal generating station for a period of 25 years at the generation tariff to be determined in accordance with the relevant Regulations of the Commission.

1.1.2. The instant Petition has been filed by SCCL for determination of Capital Cost and generation tariff for its 2x600 MW coal based thermal generating station for FY 2016-17 to FY 2018-19. SCCL, in its Petition has prayed as under:

- “
- a. *Consider the submissions made by SCCL on 1st February, 2016 for approval of the capital cost and tariff in subsequent submissions;*
 - b. *Allow SCCL to provide any additional information / clarifications pertaining to capital cost of the project;*
 - c. *Condone any inadvertent omissions/ errors/ shortcomings and permit SCCL to add/ change/ modify/ alter this filing and make further submissions as may be required at a future date;*
 - d. *Allow any other relied, Order or direction, which the Hon'ble Commission deems fit to be issued; and*
 - e. *Pass such further Orders, as the Hon'ble Commission may deem fit and appropriate, keeping in view the facts and circumstances of the Case.”*

1.2. REGULATORY PROVISIONS

1.2.1. Telangana State Electricity Regulatory Commission (herein referred to as TSERC or Commission) was constituted by the Government of Telangana in terms of the provisions of Schedule XII (C) (3) of the A.P. Reorganisation Act of 2014, read with Section 82 of the Electricity Act of 2003 vide G.O.Ms.No.3, (Energy) (Budget) Department Dt:26.07.2014.

1.2.2. This Commission having been established u/s 82(1) of the Electricity Act, 2003 (herein referred to as “the Act”) is required to exercise the powers and functions vested in it in

terms of Section 86 and Section 62(1) of the Act to determine the tariff for (1) Supply of electricity by a generating company to a Distribution Licensee (2) Transmission of electricity (3) Wheeling of electricity and (4) Retail Sale of Electricity as the case may be within the state of Telangana.

- 1.2.3. The Commission issued its first regulation, Regulation No. 1 of 2014, on 10.12.2014 (Adoption of Previously Subsisting Regulations, Decisions, Directions or Orders, Licenses and Practice of Directions). Clause 2 of the Regulation states as follows:

“All regulations, decisions, directions or orders, all the licences and practice directions issued by the erstwhile Andhra Pradesh Electricity Regulatory Commission (Regulatory Commission for States of Andhra Pradesh and Telangana) as in existence as on the date of the constitution of the Telangana State Electricity Regulatory Commission and in force, shall mutatis-mutandis apply in relation to the stakeholders in electricity in the State of Telangana including the Commission and shall continue to have effect until duly altered, repealed or amended, any of Regulation by the Commission with effect from the date of notification as per Notification issued by the Government of Telangana in G.O.Ms.No.3 Energy(Budget) Department, dt.26-07-2014 constituting the Commission.”

- 1.2.4. In accordance with the above Regulations, all the regulations framed by the erstwhile APERC will continue to apply for the state of Telangana, till further modification or repeal. The Andhra Pradesh Electricity Regulatory Commission (Terms and Conditions for determination of tariff for supply of electricity by a generating company to a distribution licensee and purchase of electricity by distribution licensees) Regulation No. 1 of 2008 adopted by TSERC vide its Regulation No. 1 of 2014 specifies the terms and conditions for determination of tariff for the generating companies supplying or intending to supply electricity to a Distribution Licensee. The Commission in this Order has determined the Capital Cost and generation tariff for SCCL TPP for FY 2016-17 to FY 2018-19 in accordance with the Regulation No. 1 of 2008 and adopted the CERC (Terms and Conditions of Tariff) Regulations, 2014 as the existing Regulations apply to a generating station having 500 MW capacity only.

1.3. ADMISSION OF THE PETITION AND REGULATORY PROCESS

- 1.3.1. The instant Petition filed by SCCL was scrutinized and found to be generally in order as required under the TSERC (Conduct of Business) Regulations, 2015 (Regulation No. 2 of 2015). The Commission admitted the Petition and the same was taken on record by assigning the Original Petition (O.P.) number 09 of 2016.

1.4. DATAGAPS AND PETITIONER'S RESPONSES

1.4.1. Based on the scrutiny of the instant Petition, the Commission vide its letter no. TSERC/Secy/DD(T-Eng)/F:T-7/16/D.No 339 dated 15.06.2016, letter no. TSERC/Secy/DD(T-Eng)/F:T-7/16/D.No 462 dated 04.08.2016 and letter no. TSERC/Secy/DD(IT)/F:T-7/17/D.No 933 dated 24.03.2017 sought further additional information from SCCL. SCCL vide its letter no. STPP/Tariff/ dated 14.07.2016, letter no. STPP/Tariff/ dated 24.08.2016 and letter no. STPP/Tariff/ dated 03.04.2017 submitted the additional information sought by the Commission. The additional information sought by the Commission can be grouped under the following heads:

- (i) Copies of contract agreements placed for major packages such as BTG and BoP.
- (ii) Details of competitive bidding process carried out for award of various packages.
- (iii) Board approvals at various levels of execution of the project.
- (iv) Justification for revised cost estimates.
- (v) Verification of actual expenditure incurred.
- (vi) Justification for increase in cost under various heads.
- (vii) Copies of audited accounts.
- (viii) Fuel related issues.

1.5. Site visit

1.5.1. The Commission designated a team comprising of the officials of the Commission for visiting the generating station of SCCL for ascertaining the physical progress of works. Accordingly, the designated team of officials had visited the generating station of SCCL from 26.09.2016 to 29.09.2016. The Commission had perused the findings of the team also in the determination of Capital Cost in this Order.

1.6. Interim Order

1.6.1. Pending the disposal of the instant Petition, after the COD of Unit 1 on 25.09.2016, SCCL has filed the I.A. No. 14 of 2016 in O.P. No. 09 of 2016 for grant of interim tariff. The Commission after hearing the parties on 28.11.2016, vide its Order dated 06.12.2016 approved the interim tariff of Rs. 3.26/kWh comprising of the Fixed Charges of Rs. 1.55/kWh and Variable Charges of Rs. 1.71/kWh. The Commission in the said Interim Order ruled that the above interim tariff shall be applicable upto 31.03.2017 or till passing of final Order in the instant Petition, whichever is earlier.

1.7. OVERVIEW OF THE STAKEHOLDER CONSULTATION PROCESS

1.7.1. In accordance with Section 64 of the Electricity Act, 2003, the Commission directed SCCL to publish its Petition in the abridged form to ensure due public participation.

The Public Notice was published in the newspapers inviting suggestions/objections from the stakeholders and public at large on 28.03.2017.

- 1.7.2. The copies of SCCL's Petition were made available at SCCL Office and on SCCL's website (www.scclmines.com). The copy of the Public Notice and the Petition were also available on the website of the Commission (www.tserc.gov.in) in downloadable format. The Public Notice specified that the comments, objections and suggestions may be filed along with the proof of service on SCCL. The Commission received objections/suggestions/comments from Five (5) stakeholders in writing on the instant Petition filed by SCCL. The list of stakeholders who submitted the written objections/suggestions/comments is provided in Appendix-1.
- 1.7.3. The Public Hearing in the matter was held on 26.04.2017 at 11:30 hrs. in the Commission's Office. The Commission ensured that the due process as contemplated under the law to ensure transparency and public participation was followed at every stage meticulously and adequate opportunity was given to all the persons concerned to file their say in the matter.

1.8. STRUCTURE OF THE ORDER

1.8.1. This Order is organized in the following manner:

- **Chapter 1 (this Chapter)** provides a background and the details of quasi-judicial regulatory process undertaken by the Commission.
- **Chapter 2** summarizes the interaction with Stakeholders including issues raised by Stakeholders, Petitioner's responses, and Commission's views thereon.
- **Chapter 3** details the Petitioners' Submissions, Commission's Analysis, Scrutiny and Conclusion on Capital Cost of SCCL TPP.
- **Chapter 4** details the Petitioners' Submissions, Commission's Analysis, Scrutiny and Conclusion on generation tariff for FY 2016-17 to FY 2018-19.

2. STAKEHOLDER CONSULTATION

The Commission has received Five (5) objections/ suggestions/ comments on SCCL's Petition for determination of the Capital Cost and generation tariff for its 2x600 MW coal based thermal generating station. The Commission has further obtained the replies from SCCL on the objections/ suggestions/ comments received from the stakeholders. To bring clarity, the objections raised by the stakeholders and the responses of the Petitioner have been grouped and summarized issue wise. It has been observed that the stakeholders provided their objections/ suggestions/ comments on the provisions of the PPA also. As the instant Petition is for determination of Capital Cost and generation tariff, the objections/ suggestions/ comments pertaining to determination of Capital Cost and generation tariff have been discussed in this Order. The objections/ suggestions/ comments pertaining to provisions of the PPA shall be considered during the approval of the PPA.

The Commission has taken note of all the objections/ suggestions/ comments of the Stakeholders raised in writing as well as submitted during the course of hearing and SCCL's responses to same. In case any objection/ suggestion/ comment is not specifically elaborated, it does not mean that the same has not been considered. In the subsequent Chapters of this Order, the Commission has kept in view the objections/ suggestions/ comments of the stakeholders and replies of the Petitioner in determination the Capital Cost and tariff.

2.1 APPLICABILITY OF REGULATIONS

Stakeholder's Comment

2.1.1 TSDISCOMs submitted that the APERC Regulation No. 1 of 2008 was issued in the year with its 1st Control Period upto 31.03.2009. Subsequently, the Regulations were made applicable to the 2nd Control Period from FY 2009-10 to FY 2013-14. With the formation of Telangana State, the Commission has adopted all the Regulations of the erstwhile APERC which were in force as on the date of constitution of the Commission i.e., 03.11.2014 until further modification. The applicability of Regulation No. 1 of 2008 was not extended for 3rd Control Period from FY 2014-15 to FY 2018-19. The Commission may issue appropriate orders in this regard.

SCCL's Response

2.1.2 SCCL submitted that the provisions of the APERC Regulation No. 1 of 2008 have been adopted as it is the Regulation in force for determination of the Capital Cost and Generation Tariff for its generating station.

Commission's Views

2.1.3 Clause 1(iv) of the Regulation No. 1 of 2008 stipulates as under:

“This Regulation shall come into force on the date of its publication in the Andhra Pradesh Gazette and shall remain in force unless amended, varied, altered or modified by the Commission.”

2.1.4 As reproduced above, the APERC Regulation No. 1 of 2008 has not provided any

limitation on its applicability upto a certain period of time. The erstwhile APERC, vide its Notification dated 01.02.2010 on fixation of the Control Period in respect of Regulation No. 1 of 2008, had only decided on the durations of the 1st Control Period and the 2nd Control Period for the applicability of the Regulation No. 1 of 2008. The erstwhile APERC vide the above stated Notification had nowhere limited the applicability of the Regulation No.1 of 2008 till the 2nd Control Period as interpreted by the DISCOMs. The interpretation of the DISCOMs on the applicability of the Regulation No. 1 of 2008 appears to be misplaced.

2.2 CAPITAL COST

2.2.1 Stakeholders submitted as follows:

- The original PPA was entered into between SCCL and four Discoms of the Undivided Andhra Pradesh on 29.09.2010. The Capital Cost approved by the Government of Undivided Andhra Pradesh on 03.09.2010 was a sum of Rs. 5685 Crore. Subsequently, the Government of Telangana State accorded approval on 25.04.2015 for revised Capital Cost of Rs. 7573.51 Crore.
- There has been a time gap of Thirty Three (33) months in seeking the approval for revised Capital Cost. While the revised DPR was submitted in June, 2013, there has been a delay of Twenty Two (22) months in seeking the approval of Government of Telangana State for the revised Capital Cost. This delay is not justified even after considering the execution of the amended and restated PPA after bifurcation of Andhra Pradesh and formation of Telangana State as the original PPA was entered into on 29.09.2010. On account of delay in entering into the PPA and fixation of time schedule for the completion of the project, payment of penalty by SCCL to TS Discoms for delay in completion of the project could have been avoided.
- As per the original PPA dated 29.09.2010, the project was scheduled to be completed in the first half of the year 2014. The delay in project execution resulted in increase of Capital Cost from Rs. 5685 Crore to Rs. 8250 Crore which is an increase of 31%. The projected Capital Cost of Rs. 8250 Crore works out to Rs. 6.875 Crore per MW which is high. As per Article 4.2.1 of the PPA, even the estimated Capital Cost of Rs. 8250 Crore is provisional.
- As per the Contract Agreement for BTG package awarded to BHEL, the commencement date was 11.11.2011 with a completion period of 39 months for Unit 1. Thus, the scheduled COD of Unit 1 was on 11.02.2015 but, SCCL has submitted the COD of Unit 1 as 1 March, 2016 i.e., a delay of 13 months.
- From the copy of letter dated 06.07.2015 to the Ministry of Coal submitted by SCCL, it may be observed that SCCL had informed that the synchronization was expected in October, 2015 and requested for Coal from September, 2015.

- SCCL submitted that the escalation in Capital Cost is due to increase in excise duty and service tax, increase in water pipeline length, and increase in IDC. Prudence check has to be carried out on the change in scope of work in the revised DPR, cost audit report and cost accounting records and impact on account of each revision for time over run on the Capital Cost.
- Prudence check has to be carried out on the process of competitive bidding adopted for awarding works, whether the delay was due to cancellation of tenders and reissue of tenders after engagement of the services of NTPC (consultancy wing), the drawal of loans and infusion of the same, reasons for the delay and their impact on the Capital Cost.
- SCCL has projected additional capital expenditure of Rs. 1095 Crore in FY 2016-17 and Rs. 80 Crore in FY 2017-18. The additional capital expenditure should not be considered for determining the Fixed Charges, till it is actually incurred and approved by the Commission.
- As per Article 1.6.4 of the PPA, the approved Capital Cost shall also include any additional works/services that became necessary for efficient and successful operation of the generating station, but not included in the original project cost as per TSERC Regulations from time to time. They expressed concern over the inclusion of cost which is not allowable as per the Regulations.
- The Capital Cost per MW claimed by SCCL is higher in comparison to the Capital Cost per MW of 800 MW super critical thermal generating station of TSGENCO being set up at Palvancha.
- The total debt tied up is more than the originally estimated Capital Cost.
- Around 14% of the estimated total Capital Cost is expected to be incurred after COD of Unit 2 which appears to be unusual.
- NTPC was selected for providing consultancy services. The basis on which NTPC was selected has not been submitted in the Petition. Also, the reasons for increase in cost of consultancy services from Rs. 11.80 Crore to Rs. 127 Crore has not been furnished in the Petition.
- The establishment cost has increased from Rs. 11.80 Crore to Rs. 70 Crore.
- The expenditure on start-up fuel increased from Rs. 12 Crore to Rs. 40 Crore. The expenditure on start-up fuel should have been recovered from the sale of infirm power. To that extent expenditure on start-up fuel cannot be considered as part of the Capital Cost.
- SCCL has claimed Rs. 22 Crore towards CSR. The expenditure towards Corporate Social Responsibility cannot be treated as part of the Capital Cost.

SCCL's Response

2.2.2 SCCL submitted that it had entered into the PPA with the DISCOMs of the Undivided Andhra Pradesh on 29.09.2010, which was submitted to the erstwhile APERC for approval. After the reorganization of the existing Andhra Pradesh into Telangana State and Andhra Pradesh, the amended and restated PPA was entered between SCCL and two TSDISCOMs on 18.01.2016.

2.2.3 With regards to the delay of Thirty Three (33) months in seeking the approval of the Revised Cost Estimates, SCCL submitted as follows:

- The project cost was approved based on original DPR.
- Considerable time is required for obtaining the necessary statutory clearances, selecting project engineering consultants, selecting EPC contractor, Price negotiation with EPC contractor, inviting Bids for BOP packages etc before finally awarding the projects.
- A revised estimate was made after awarding all the contracts as per the industry practice based on the actual scope of work.
- After revised estimates are prepared, approval was obtained from the Government of Telangana State, which took Twenty Two (22) months.

2.2.4 With regards to delay in project execution SCCL submitted as follows:

- The scheduled COD is dependent on the date of award of contract and not on date of entering into the PPA and approval of the Revised Cost Estimates.
- The Zero Date as per the BTG contract is 11.11.2011.
- The timeline specified for project completion in the CERC Tariff Regulations, 2014 for Greenfield project of 2x600 MW capacity is Fifty (50) months.
- The project completion time schedule of Forty Three (43) months was stipulated in the contract.
- The delay, if any, in project execution may be computed from Scheduled COD with reference to the normative construction period for 2x600 MW greenfield power project from the date of award of contract.
- The unforeseen technical problems/ snags during stabilization process (i.e. after the completion of the project) had occurred and the same was attended to. Such technical problems were beyond the control of SCCL and normally accepted for the projects of such magnitude.

2.2.5 With regards to the award of packages, SCCL submitted as follows:

- The BoP package was awarded based on international competitive bidding.
- Cancellation of tenders had not taken place.
- The delay in awarding the BOP package was due to verification of capabilities

of the bidders, mainly of foreign companies.

2.2.6 With regards to increase in the Capital Cost from the original estimates, SCCL submitted as follows:

- Pre award level DPR cost is only an estimate used for preliminary feasibility analysis and cannot be compared with the present day cost estimate. The estimated cost of Rs. 8250 Crore can be compared with the cost of Rs. 7573 Crore approved by the Government of Telangana State.
- The benchmark hard cost for a 2x600 MW greenfield power project works out to Rs. 5.54 Crore/MW considering the benchmark specified by the CERC (December, 2011 level) and escalated for the WPI increase as of June, 2016. Further, the benchmark project cost works out to be in the range of Rs. 6.70 Crore/MW to Rs. 7.14 Crore/MW considering the packages not covered in the CERC benchmark and IDC. The total estimated cost of SCCL TPP works out to Rs. 6.875 Crore/MW which is within the range of benchmark cost. Further, on comparison of the project cost of other similar projects like Barh STPP-I, NTPC Solapur STPP, NTPC Unchahar-IV etc., the Capital Cost of SCCL TPP is lower than the Capital Cost of such projects.
- The comparison of SCCL's Capital Cost with Capital Cost of 800 MW super critical thermal generating station of TSGENCO being set up at Palvancha is not appropriate as the said Unit is a brownfield project as opposed to the greenfield project of SCCL and the progress of works for the said Unit are only in the initial stages due to which the commissioning is unlikely to happen before July 2018. Further, as per the Annual Report of BHEL for FY 2014-15, the cost of BTG package for the said TSGENCO Unit is Rs. 3810 Crore which works out to Rs. 4.763 Crore/MW as opposed to the BTG Cost of Rs. 4.065 Crore/MW of SCCL TPP.
- The detailed reasons for time and cost overrun have been submitted in the Petition.
- All necessary cost records are maintained in its SAP and such records are subjected to audit by the Statutory Auditors and the Govt. Auditors. The comments of the auditor, if any, become an integral part of Annual Accounts which is a public document. SCCL being a government company is committed to maintain absolute integrity in accounting and record keeping. On completion of the project, cost audit shall be done and the cost audit report will be made available to beneficiaries.

2.2.7 With regards to the additional capitalisation, SCCL submitted as follows:

- The additional capitalisation claimed for FY 2016-17 and FY 2017-18 is in accordance with Clause 10.9 of the APERC Regulation No. 1 of 2008.

- The estimated additional capital expenditures are those expenditures which are likely to be capitalized after the date of commercial operation and are within the original scope of work.
- If the tariff is allowed without considering the projected additional capitalization, the tariff after truing up shall exceed approved tariff and with appropriate interest added to it, the same has the potential to produce undesirable tariff shock to the beneficiaries and the consumers of beneficiaries at large.

Commission's Views

2.2.8 APERC Regulation No. 1 of 2008 is applicable to generating units of 500 MW whereas the Petitioner's plant is 600 MW (each unit). Considering this aspect, the Commission follows the CERC Regulations. The instant Petition is for determination of the Capital Cost and tariff for newly commissioned 2x600 MW coal based thermal generating station of SCCL, for which the Commission has carried out the prudence check of Capital Cost. The scope of prudence check is to examine whether the Petitioner has been careful and vigilant in taking the decisions while executing the project. The prudence check of Capital Cost of the project has been undertaken in the light of the original estimates and revised estimates approved by SCCL's Board, justification given by SCCL in respect of any change in scope of items of work, reasons for increase in cost as compared to estimated cost, reasons for delay in project and process of awarding various contracts. As regards the comparison of Capital Cost with other projects, the Commission is of the view that such analysis is important to analyze the price trends, but such a comparison cannot be absolute in determining the prudence of cost incurred for a particular project as the cost of project varies from project to project depending on the ground realities and project specific features. The Commission has also examined the details of Contracts awarded while carrying out the prudence check of the Capital Cost. The prudence check carried out by the Commission in approving the Capital Cost of SCCL TPP is detailed in Chapter 3 of this Order.

2.2.9 The Petitioner in its submissions has termed the capital expenditure mandated to be incurred under the environmental clearance, towards CSR program, issued by MoEF as "CSR expenditure". The nomenclature given by the Petitioner is not appropriate. Hence, the Commission has termed the same as "Mandatory capital expenditure under MoEF clearance".

2.3 RAILWAY SIDING

2.3.1 Stakeholders submitted that the total estimated cost of Railway Siding is Rs. 280 Crore. SCCL, in its Petition, has claimed around 30% of the same in the Capital Cost

stating that SCCL being a coal mining company is eligible for grant towards 70% of the cost of Railway Siding, from the Ministry of Coal. As submitted by SCCL in its Petition, if the grant is not received from the Ministry of Coal, the capital cost shall be increased by a sum of Rs. 196 Crore.

SCCL's Response

2.3.2 SCCL being a mining company is eligible for assistance from the Coal conservation & Development Advisory Committee (CCDAC) upto 70% of the construction cost of railway siding. CCDAC has already approved Rs. 196 Crore for the aforesaid work. Claims for about Rs. 88 Crore have already been submitted to the Coal Controller out of which an amount of Rs. 36 Crore has been sanctioned thus far. Therefore the apprehension of additional Capital Cost lacks merit.

Commission's Views

2.3.3 The Commission has taken note of the submissions of SCCL in this regard. SCCL has claimed the cost of railway siding as additional capitalisation. The Commission's analysis on the allowable cost of railway siding has been detailed in Chapter 3 of this Order.

2.4 INCREASE IN CAPITAL COST DUE TO DELAY IN PROJECT EXECUTION

2.4.1 Stakeholders submitted as follows:

- The increase in Capital Cost due to delay in project execution should not be allowed.
- The CERC in its various Orders had disallowed the Capital Cost of the central sector generating stations on account of delay in project execution.

SCCL's Response

2.4.2 SCCL admitted that there has been a delay in project execution and the detailed reasons were submitted to the Commission. SCCL submitted that the Hon'ble ATE vide its Judgment dated 27.04.2011 in Appeal No. 72 of 2010 had laid down the principles of allowing the increase in Capital Cost due to delay in project execution and the same may be considered by the Commission.

Commission's Views

2.4.3 The Commission has analysed the reasons for delay along with the corresponding period submitted by SCCL and approved the IDC of the project in accordance with the principles laid out by Hon'ble ATE. The analysis of the Commission has been detailed in Chapter 3 of this Order.

2.5 FUEL (COAL) FOR POWER GENERATION

2.5.1 Stakeholders submitted as follows:

- Although SCCL had requested for allocation of coal from its own mines, the Ministry of Coal had allocated coal from Naini Coal Block in Odisha. Although SCCL had maintained that it would be able to supply coal to its generating

station without affecting the existing FSA/linkage quantity, Ministry of Coal had allocated coal from Odisha.

- SCCL requested the Ministry of Coal for tapering linkage for a quantum of 6.13 MMT per annum from its mines.
- The cost of coal transportation from Odisha is higher in comparison to the coal transportation cost from SCCL mines.
- The Government of Telangana State has ownership share of 51% in SCCL while the Government of India has 49% ownership share. It was stated by the Government of Telangana that SCCL has untapped coal deposits enough to meet the requirement of thermal power projects upto a total capacity of 10,000 MW.
- Efforts should be made for procuring the fuel linkage for the generating station from the SCCL mines as it would result in substantial reduction in Energy Charge.

2.5.2 TSDISCOMs submitted as follows:

- The development of Naini Coal Block in Odisha will take 3 to 4 years for producing coal for meeting the requirement of SCCL TPP.
- The transportation of coal from Odisha will contribute to increase in Energy Charge.
- SCCL should pursue the issue of coal allocation with the Ministry of Power under the mechanism of flexibility in utilization of domestic coal notified on 10.06.2016 to reduce the coal transportation cost.
- The Commission may direct SCCL to fix the transfer pricing of coal at arm's length as both the businesses of coal mining and power generation are under the same management.

SCCL's Response

2.5.3 SCCL has taken up the issue of coal linkage allocation for its generating station from SCCL mines before the Ministry of Coal, Government of India. MoC has presently allotted bridge linkage from SCCL mines for 3 years. SCCL submitted that the pricing of coal to SCCL TPP is as per the policy applicable to the bridge linkage customers.

Commission's Views

2.5.4 The Commission has noted the submissions in this regard. Currently, SCCL has been allotted Bridge Linkage for its thermal generating station by the Ministry of Coal for a period of 3 years from its own mines. SCCL should actively pursue the issue of coal allocation for its generating station with the Ministry of Coal so that the cumbersome task of transportation of coal from Odisha and associated losses in quantity and GCV could be mitigated by procuring coal from its own mines which are closer to its generating station.

2.6 NORMS OF OPERATION

2.6.1 TSDISCOMs and stakeholders submitted as follows:

- CERC has notified the operational norms for thermal generating stations for the Control Period from FY 2014-15 to FY 2018-19.
- The Target Availability for recovery of full Fixed Charges should be approved as 85% in place of 80% as per Article 4.2.5 (c) of the PPA.
- The Target Plant Load Factor for incentive should be approved as 85% in place of 80% as per Article 4.5 (a) of the PPA.
- The SHR should be approved as 2375 kcal/kWh.
- The Auxiliary Consumption should be approved as 5.25%.
- The Secondary Oil Consumption should be approved as 0.5 ml/kWh.
- The GCV of coal should be considered on 'as received' basis.

SCCL's Response

2.6.2 SCCL submitted that the norms of operation have been claimed in accordance with the APERC Regulation No. 1 of 2008.

Commission's Views

2.6.3 The provisions of Regulation No. 1 of 2008 were guided by the CERC (Terms and Conditions of Tariff) Regulations, 2004 and its First Amendment issued on 01.06.2006. Regulation No. 1 of 2008 provides for the adoption of any further amendments to the aforesaid CERC Regulations by means of a general or special order, with or without any modifications. As Regulation No. 1 of 2008 did not specify the norms of operation for Unit sizes of capacity of 600 MW and above, the Commission has adopted the norms of operation as specified in the CERC (Terms and Conditions of Tariff) Regulations, 2014 specified by the CERC for the Control Period FY 2014-15 to FY 2018-19.

2.7 TARIFF

2.7.1 Stakeholders submitted as follows:

- SCCL has proposed the Annual Fixed Charges of Rs. 1794.59 Crore, Rs. 1852.80 Crore and Rs. 1793.07 Crore for FY 2016-17, FY 2017-18 and FY 2018-19 respectively. SCCL has proposed the Energy Charge of Rs. 1.74/kWh, Rs. 1.81/kWh and Rs. 1.88/kWh for FY 2016-17, FY 2017-18 and FY 2018-19 respectively. The total tariff proposed by SCCL works out to Rs. 4.15/kWh, Rs. 4.19/kWh and Rs. 4.19/kWh for FY 2016-17, FY 2017-18 and FY 2018-19 respectively.
- The wheeling charges and transformation and transmission losses shall be additional to the proposed tariff.

- The details of evacuation arrangements and impact of wheeling charges, transformation and transmission losses need to be submitted.

SCCL's Response

2.7.2 SCCL submitted that it shall deliver power on ex-bus basis as per the terms and conditions in the PPA. The evacuation of power from ex-bus is under the scope of the beneficiaries in coordination with TSTRANSCO.

Commission's Views

2.7.3 The instant Order pertains to determination of the Capital Cost and generation tariff for the generating station of SCCL. The evacuation of power from the ex-bus of the generating station and the associated charges and losses shall be governed by the relevant provisions in the PPA and have no bearing on the generation tariff of SCCL.

2.8 DISCREPANCIES IN FIGURES

2.8.1 Stakeholders submitted that the cost of BTG package was submitted as Rs. 4120.96 Crore in Annexure 1 of the PPA while the same has been submitted as Rs. 4878 Crore in the Tariff filings.

SCCL's Response

2.8.2 SCCL submitted the figure of Rs. 4120.96 Crore for BTG cost as stated by the stakeholders is a derived figure which does not include the allocation of taxes & duties, freight & insurance etc. in the head of BTG package. The actual cost of various packages have been submitted to the Commission.

Commission's Views

2.8.3 The Commission finds the response of SCCL in the matter is in order.

3. CAPITAL COST OF SCCL TPP (2X600 MW)

3.1 BACKGROUND OF THE PROJECT

3.1.1 The Board of SCCL vide its minutes of meeting held on 19.07.2010 agreed in principle to the DPR of 2x600 MW coal based thermal power project at a capital cost of Rs. 5527 Crore. The Government of Undivided Andhra Pradesh, vide its letter dated 03.09.2010 had accorded the approval for setting up of 2x600 MW thermal power project in Jaipur Mandal in Mancherial (erstwhile Adilabad) District by SCCL with a capital cost of Rs. 5527 Crore (updated to Rs. 5685 Crore). SCCL had placed the order for Supply and Erection of Boiler Turbine Generator Package on BHEL vide its Notification of Award dated 11.11.2011.

3.1.2 The Board of SCCL in its minutes of meeting held on 30.07.2013 had considered the revised cost estimates of Rs. 7573.51 Crore and recommended for sanction of the

Government. The Government of Telangana State vide its letter dated 25.04.2015 accorded the approval for the revised cost estimates of Rs. 7573.51 Crore duly revising the earlier approval for Rs. 5685 Crore. As against the cost estimates of Rs. 7573.51 Crore, SCCL in its Petition has claimed the total Capital Cost of Rs. 8250 Crore. Subsequently, SCCL vide its submissions dated 24.08.2016 has revised the total Capital Cost to Rs. 8285.46 Crore and vide its submissions dated 03.04.2017 has further revised the total Capital Cost to Rs. 8540 Crore. The Commission observed that vide the minutes of meeting held on 16.10.2015, SCCL's Board has noted that the 2nd Revised Cost Estimates would be prepared by a competent agency and vetted by another agency with reference to the norms prescribed by the Commission and submitted to the Board for recommending to the State Government for approval. In reply to a specific query in this regard, SCCL submitted the 2nd Revised Cost Estimate is pending finalisation.

3.1.3 Unit 1 of SCCL TPP (2x600 MW) has achieved COD on 25.09.2016 and Unit 2 has achieved COD on 02.12.2016. Vide its submissions dated 03.04.2017, SCCL has submitted the audited Capital Cost as on COD of each Unit, the actual additional capitalisation in FY 2016-17 and expected or provisional additional capitalisation in FY 2016-17 and FY 2017-18.

3.1.4 The chronology of events from the investment approval of the Project are as follows:

Table 3-1: Chronology of events from investment approval

S. No.	Particulars	Date
1	Investment Approval by Government of Undivided Andhra Pradesh	03.09.2010
2	Environmental Clearance from Ministry of Environment & Forests	27.12.2010
3	Consent Order for Establishment by Andhra Pradesh Pollution Control Board	16.06.2011
4	Zero Date (LoI on BHEL for BTG package)	11.11.2011
5	LoI for BoP package	17.08.2013
6	Investment Approval by Government of Telangana State for Revised Cost Estimates	25.04.2015
7	COD of Unit 1	25.09.2016
8	COD of Unit 2	02.12.2016

3.2 PRUDENCE CHECK OF CAPITAL COST

3.2.1 Regulation 9 of the CERC (Terms and Conditions of Tariff) Regulations, 2014 specifies as under:

9. Capital Cost: (1) The Capital Cost as determined by the Commission after prudence check in accordance with this regulation shall form basis of

determination of tariff for existing and new projects.

(2) *The Capital Cost of a new project shall include the following:*

(a) the expenditure incurred or projected to be incurred up to the date of commercial operation of the project;

(b) Interest during construction and financing charges, on the loans (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed;

(c) Increase in cost in contract packages as approved by the Commission;

(d) Interest during construction and incidental expenditure during construction as computed in accordance with Regulation 11 of these regulations;

(e) capitalised Initial spares subject to the ceiling rates specified in Regulation 13 of these regulations;

(f) expenditure on account of additional capitalization and de-capitalisation determined in accordance with Regulation 14 of these regulations;

(g) adjustment of revenue due to sale of infirm power in excess of fuel cost prior to the COD as specified under Regulation 18 of these regulations;
and

.....”

3.2.2 The instant Petition is for the determination of the Capital Cost and tariff for which the Commission is undertaking prudence check of the Capital Cost. The Hon'ble ATE in its Judgment dated 27.04.2011 in Appeal No. 72 of 2010 in Para 7.2 of its Judgment has explained the scope of prudence check as under:

“The capital cost has to be determined on the basis of actual expenditure incurred on completion of the project subject to prudence check by the State Commission. The dictionary meanings of the word ‘prudent’ are “sensible and careful when you make judgments and decisions and avoiding unnecessary risk”. The prudence check of the capital cost has to be looked into considering whether the Appellant has been careful in its judgments and decisions while executing the project or has been careful and vigilant in executing the project.”

3.2.3 Thus, the scope of prudence check is to examine that whether the petitioner has been careful and vigilant in taking the decisions while executing the project and prudence checking is distinct from according sanction to expenditure. The prudence check of Capital Cost of the project has been undertaken in the light of the original estimates and the revised estimates approved by SCCL's Board, justification given by SCCL in

respect of any change in scope of items of work, reasons for increase in cost as compared to estimated cost, reasons for delay in project and process of awarding various contracts. The Commission has also compared the approved cost of SCCL TPP with the benchmarks available and the Capital Cost of other similarly placed projects to ascertain the competitiveness of the Capital Cost of SCCL TPP.

3.2.4 The Commission asked SCCL to submit the copy of the latest Lenders Engineer's Report. In reply SCCL submitted that it is not in possession of any Engineer's report prepared by its lender.

3.2.5 The Capital Cost claimed by SCCL is shown in the Table given below:

Table 3-2: Capital Cost claimed by SCCL (Rs. Crore)

S. No.	Particulars	DPR - 2010	DPR - 2013	As filed in Petition	Revised submissions dtd. 24.08.2016	Revised submissions dtd. 03.04.2017		
		Total Cost				Total Cost	Upto COD of Unit 1	Upto COD of Unit 2
1	Land and Site Development	65.00	88.50	85.00	85.00	85.00	61.07	61.73
2	BTG Cost	3056.00	4071.78	4878.01	4878.00	4878.00	4749.95	4781.54
3	BoP Cost	1144.00	1457.42	1038.02	1037.92	1038.00	837.26	864.96
4	External Water Supply System	160.00	220.00	406.00	406.00	406.00	320.64	328.79
5	Raw Water Reservoir	57.86	58.00	67.00	67.00	67.00	42.93	43.17
6	Railway Siding	90.00	80.00	80.00	80.00	113.32	78.53	80.74
7	Other Works undertaken by SCCL							
	Additional 400 kV Bays	0.00	0.00	0.00	0.00	28.69	0.00	0.00
	Plant Roads & Culverts	25.00	21.00	20.00	20.00	20.00	11.44	11.44
	Coal transport roads	0.00	0.00	56.48	56.00	56.48	42.61	42.61
	Boundary Walls	13.50	19.00	17.00	17.00	17.19	16.58	16.94
	Gate complex, Security etc.	0.00	5.40	5.40	5.00	5.40	0.23	0.23
	Township	80.00	145.00	145.00	145.00	145.00	50.20	52.18
	Environmental Impact measures	3.00	5.00	5.00	5.00	5.00	0.74	0.79
	Mandatory capital expenditure under MoEF clearance	20.00	22.10	22.10	22.00	22.10	9.29	9.45
	Weigh Bridge, Fire Tender etc.	1.50	2.00	2.00	4.95	2.00	0.42	0.42
	Furniture & office automation	0.00	5.00	5.00	5.00	5.00	2.37	2.37
	Miscellaneous expenditure	0.00	5.00	5.00	5.00	5.00	3.25	3.48
	Sub-total (7)	143.00	229.50	282.98	284.95	311.86	137.13	139.91
8	Overheads	306.90	468.53	353.02	385.74	374.70	312.39	319.50
	Total Hard Cost	5022.76	6673.73	7190.03	7224.61	7273.88	6539.90	6620.34
9	IDC & FC	662.51	900.17	1060.00	1060.85	1266.34	1231.73	1264.34
10	Total Capital Cost	5685.27	7573.90	8250.03	8285.46	8540.22	7771.63	7884.68

3.2.6 Owing to consolidated funding of capital expenditure for both the Units, the Commission approves the Capital Cost as on COD of Unit 2, and thereafter the Capital Cost as on COD of Unit 1 has been arrived at by considering the proportion of Capital Cost as on COD of Unit 1 and as on COD of Unit 2 as claimed by SCCL. Further, the Commission has approved provisionally the additional capitalisation for FY 2016-17 (after COD of Unit 2) and FY 2018-19 limiting the total cost to the approved cost for each package.

3.2.7 The package wise prudence check carried out by the Commission is detailed in the paragraphs below.

3.3 LAND AND SITE DEVELOPMENT

SCCL's submissions

3.3.1 The cost of land and site development claimed by SCCL is as shown in the Table below:

Table 3-3: Cost of Land and Site development claimed by SCCL (Rs. Crore)

S. No.	Particulars	DPR - 2010	DPR - 2013	As filed in Petition	Revised submissions dtd. 24.08.2016	Revised submissions dtd. 03.04.2017		
		Total Capital Cost				Total Cost	Upto COD of Unit 1	Upto COD of Unit 2
1	Land for plant colony, ash dyke & corridors	50.00	59.00	59.00	59.00	59.00	39.70	40.36
2	Survey and Soil Investigation	15.00	1.00	1.00	1.00	1.00	0.02	0.02
3	Site development, enabling works including temporary sheds	0.00	28.50	25.00	25.00	25.00	21.35	21.35
	Total	65.00	88.50	85.00	85.00	85.00	61.07	61.73

3.3.2 As compared to the (DPR-2013) cost estimates of Rs. 88.50 Crore for land and site development, SCCL has claimed the total cost of Rs. 85 Crore of which the actual cost of Rs. 61.73 Crore has been incurred as of COD of Unit 2.

Commission's Analysis and Ruling

3.3.3 During the site visit, SCCL submitted the following regarding the land and site development:

- (i) Total land of 1983 acres has been acquired for the power project which includes all the facilities and systems i.e., township, ash dyke, reservoir, etc. within the boundary limits.
- (ii) Land required for railway siding is 100 acres which is under acquisition.

- (iii) For the External Water Supply System (2 TMC) from river Pranahita 13 acres of private land and 2.99 hectares of forest land are under acquisition.
- (iv) SCCL furnished the copy of overall plot plan for the power project.

3.3.4 In reply to a specific query of the Commission, SCCL submitted that the works for site development were awarded through e procurement. SCCL submitted the details of number of bids received for each work, contracts awarded, scope of work in each contract, the start date and the completion date of each contract and value of award of each contract.

3.3.5 The Commission has perused the submissions of SCCL regarding the cost of land and site development. After perusal of the submissions of SCCL, the Commission finds the cost of land and site development claimed by SCCL to be prudent and the same is within the cost estimates as per the DPR-2013. The Commission approves the actual cost of land and site development as on COD of Unit 2 as Rs. 61.73 Crore, the same being lower than the approved cost of Rs. 85 Crore. The cost of land and site development approved by the Commission is as shown in the Table below:

Table 3-4: Cost of land and site development as approved by the Commission (Rs. Crore)

S. No.	Particulars	SCCL submissions dtd. 03.04.2017		Approved	
		Total Cost	As of COD of Unit 2	Total Cost	Upto COD of Unit 2
1	Land for plant colony, ash dyke & corridors	59.00	40.36	59.00	40.36
2	Survey and Soil Investigation	1.00	0.02	1.00	0.02
3	Site development, enabling works including temporary sheds	25.00	21.35	25.00	21.35
	Total	85.00	61.73	85.00	61.73

3.4 BOILER, TURBINE & GENERATOR (BTG)

SCCL's submissions

3.4.1 The cost of BTG package claimed by SCCL is as shown in the Table below:

Table 3-5: Cost of BTG package claimed by SCCL (Rs. Crore)

S. No.	Particulars	DPR - 2010	DPR - 2013	As filed in Petition	Revised submissions dtd. 24.08.2016	Revised submissions dtd. 03.04.2017		
		Total Cost				Total Cost	Upto COD of Unit 1	Upto COD of Unit 2
1	BTG Cost	3056.00	4071.78	4878.01	4878.00	4878.00	4749.95	4781.54

- 3.4.2 As compared to the DPR-2013 cost estimates of Rs. 4071.78 Crore for BTG package, SCCL has claimed the total cost of Rs. 4878.00 Crore and the cost of Rs. 4781.54 Crore as of COD of Unit 2.
- 3.4.3 SCCL submitted that it has opted for BHEL for supply of equipment/Services for BTG package considering their operational experience in manufacturing of power generating equipment and services. SCCL submitted that the ordering cost of BTG package has increased from cost estimates of DPR-2010 due to cost escalation in the intervening period.
- 3.4.4 SCCL submitted the following regarding the award of BTG package:
- (i) An enquiry was floated on 13.08.2010 inviting BHEL offer for BTG package including associated civil works.
 - (ii) BHEL submitted the offer in September, 2010 for Rs. 4994 Crore.
 - (iii) After evaluation of offer and negotiations, the price was revised to Rs. 4072 Crore excluding price variation which is payable upto the actual date of supply/execution or schedule date as per the contract whichever is earlier.
 - (iv) Letter of Award was sent to BHEL on 11.11.2011.
 - (v) The impact of price variation on the cost of BTG package has resulted in an increase of Rs. 706 Crore.
 - (vi) Excise Duty and Service Tax which have been 10.3% at the time of placement of order increased to 12.36% w.e.f. 01.04.2012. The impact on account of increase in taxes on the cost of BTG package is Rs. 60.39 Crore. In addition, the impact of works contract tax on civil works of BTG is to the tune of Rs. 69.44 Crore.
 - (vii) Additional specifications, which are not generally included in standard packages offered by BHEL were included for increased reliability and efficiency in operations. Those additional specifications are (a) higher wall thickness of 0.6 mm of boiler special parts, (b) increase in reheat temperature to 568⁰C from standard value of 540⁰C, (c) special instruments like rotor flux monitoring, acromat thermocouples and, acoustic pyrometer, (e) 2 EOT cranes in place of standard 1 EOT crane, (f) type testing and (g) additional painting criteria for steam generator area systems and equipment.
- 3.4.5 SCCL submitted the copies of Contract Agreements entered into with BHEL for supply, erection and associated civil works of BTG package.

Commission's Analysis and Ruling

3.4.6 The Commission observed that the original cost estimates (DPR-2010) of SCCL TPP were approved based on the proposal that the BTG package was to be procured from BHEL. Accordingly, the BTG package was procured from BHEL on nomination basis at the ordering cost of Rs. 4071.78 Crore. The Commission directed SCCL to submit the rationale for award of BTG package on nomination basis and how the least cost principle was followed in the award of works. In reply, SCCL submitted the following on selection of BHEL for BTG package:

- (i) BHEL is the leading manufacturer of power generating equipment in India with a share of 72% of the country's total installed capacity.
- (ii) Majority of the power plants set up by NTPC, a leading power generating company in India have BHEL equipment which are performing well.
- (iii) BHEL is the only manufacturer of 600 MW Units in India and 21 Nos. of 600 MW Units were ordered on BHEL by government and private power generating companies.
- (iv) The 500 MW Units have been in operation for more than 20 years with proven design leading to a PLF of more than 96% with the lowest auxiliary consumption.
- (v) Operation, service and maintenance of imported power equipment are a matter of concern since the equipment is as per their National standards and engineering practices. Some of the private generating companies have cancelled their orders placed on foreign companies and placed orders on BHEL on nomination basis on quality and performance considerations.
- (vi) Accordingly, SCCL being a new entrant in power sector selected BHEL based on proven track record, reliability and quality considerations.

3.4.7 Regarding the evaluation of BHEL's offer, SCCL submitted the following:

- (i) The original price bid submitted by BHEL on 12.11.2010 was for Rs. 4193.99 Crore (exclusive of Type Test charges and Spares).
- (ii) The offer was evaluated by NTPC, SCCL's technical consultant and certain deviations were noticed in the technical specifications.
- (iii) Subsequently, BHEL has revised the offer price to Rs. 4993.88 Crore (inclusive of Type Test charges and spares).
- (iv) BHEL's offer was evaluated by making techno commercial comparisons with

(i) 2x500 MW Rihand TPP of NTPC, (ii) 1x600 MW Kakatiya TPP of TSGENCO and (iii) 2x660 MW Solapur TPP of NTPC. The BTG package of Rihand TPP was awarded to BHEL through ICB route, the BTG package of Kakatiya TPP was awarded to BHEL on nomination basis and the BTG package of Solapur TPP was awarded to BHEL through domestic competitive bidding.

- (v) The price negotiation with BHEL was carried out considering the derived prices from the above three projects. The subcommittee, constituted with Principal Secretary (Energy Dept.) as Chairman and members from State and Central Governments, evaluated and negotiated with BHEL for price reduction. As a result of price negotiations, the price was reduced to Rs. 4071.78 Crore and was subsequently approved by SCCL Board.

3.4.8 The increase in cost estimates of BTG Package from DPR-2010 estimates to ordering cost (considered in DPR-2013 estimates) is to the tune of Rs. 1016 Crore. The Commission sought substantiation for this increase in cost of BTG package. In reply, SCCL submitted the following:

Table 3-6: Substantiation for the increase in BTG cost from DPR-2010 estimates to ordering cost as submitted by SCCL

S. No.	Particulars	Amount (Rs. Crore)	SCCL submissions
1	Increase in price due to time gap between original DPR and BTG order	141.49	There has been a time gap of 6 months between the original DPR and BTG order. The price escalation on account of the same is to the tune of 4.63% considering the WPI and CPI inflation (60% WPI and 40% CPI)
2	Additional technical specifications from original DPR	149.19	SCCL submitted that the additional technical specifications were included to ensure better reliability and efficiency of boiler. SCCL submitted the copy of letter from BHEL dated 28.02.2011 in support of the increase in cost.
3	132 kV Switchyard for startup power	21.26	SCCL submitted that this was not considered in the original DPR. SCCL submitted the copy of letter from BHEL dated 04.03.2011 in support of increase in cost.
4	Power Transformers & associated civil works	96.85	SCCL submitted that the power transformer package was procured from BTG supplier, which is not generally the case, for smooth operation and to avoid interface problems.
5	400 kV Switchyard	61.21	SCCL submitted that 400 kV Switchyard was included in the BTG package, which is not generally the case.
6	Shifting of works from BoP to BTG	89.10	SCCL submitted that the shifting of works of interface points in CHP System from BoP to BTG was done to reduce interface hassles.

S. No.	Particulars	Amount (Rs. Crore)	SCCL submissions
7	Condensate Polishing Unit & associated civil works	25.52	SCCL submitted that the Condensate Polishing Unit was included in BTG package, which is not generally the case.
8	Increase in cost of spares	53.33	SCCL submitted that additional spares not envisaged in original DPR were procured.
9	Increase in Excise Duty due to time gap between original DPR and BTG order	60.39	SCCL submitted that the Excise Duty considered in the original DPR was 8.24% while the Excise Duty in September, 2010 was 10.3%.
	Total	698.34	

3.4.9 SCCL further submitted that it has made all the payments in INR only and hence the Foreign Exchange Rate Variation is embedded in the BTG contract price. SCCL submitted that the impact of the same cannot be ascertained since the material has been imported during different times over the span of the project. SCCL submitted that the cost, insurance and freight value of imports is around Rs. 780 Crore.

3.4.10 The Commission has perused the detailed submissions of SCCL. The ordering cost of BTG is more than the DPR-2010 estimates by Rs. 1016 Crore. Out of this amount, SCCL could substantiate for the increase of Rs. 698.34 Crore. From the documentary evidences submitted by SCCL for some of the components, the Commission finds that the corresponding amounts claimed by SCCL are prudent. The Commission finds that the scrutiny of BTG cost on standalone basis is not appropriate in this case as some of the works which are typically covered in BoP package have been shifted to BTG package. Hence, the Commission has compared the combined cost of BTG and BoP packages as shown below:

Table 3-7: Comparison of combined cost of BTG and BoP (Rs. Crore)

Particulars	DPR-2010	DPR-2013	Ordering Cost
BTG cost	3056.00	4071.78	4071.78
BoP Cost	1144.00	1457.42	973.02
Total	4200.00	5529.20	5044.80

3.4.11 Hence, the combined cost of BTG and BoP has increased from Rs. 4200.00 Crore as per DPR-2010 estimates to ordering cost of Rs. 5044.80 Crore. The Commission has compared the award price of combined cost of BTG and BoP of SCCL with other similarly placed generating stations like NTPC Tamil Nadu Energy Company Limited, Korba West TPP, Khaperkheda TPS Unit 5 and Bhusawal TPS Units 4 & 5. Upon such comparison, the Commission observes that the combined cost of BTG and BoP of SCCL TPP which works out to Rs. 4.61 Crore/MW is at par with the combined cost of similarly placed projects stated above for which the cost is in the range of Rs.

4.46 Crore/MW to Rs. 5.07 Crore/MW. Hence, the Commission finds it prudent to approve the increase in cost of BTG package from DPR-2010 cost estimates of Rs. 3056.00 Crore to ordering cost of Rs. 4071.78 Crore.

3.4.12 As compared to the ordering cost of Rs. 4071.78 Crore, SCCL has claimed the completion cost of BTG package as Rs. 4878 Crore as shown in the Table given below:

Table 3-8: Completion cost of BTG package claimed by SCCL (Rs. Crore)

S. No.	Particulars	Ordering Cost	Completion Cost
A	Supply of Main Equipment		
	Basic	2532.59	2532.59
	Excise Duty	215.33	258.40
	CST	41.23	49.48
	VAT	35.00	35.72
	Sub-total	2824.15	2876.19
B	Freight for Main Equipment		
	Basic	68.25	68.25
	Service Tax	1.76	2.11
	Sub-total	70.01	70.36
C	Erection, Testing & Commissioning including insurance		
	Basic	351.79	351.79
	Service Tax	36.23	46.56
	Sub-total	388.02	398.35
D	Civil Works for main equipment, Switch yard etc.		
	Basic	585.86	585.86
	Service Tax	24.14	29.71
	WCT		30.78
	Sub-total	610.00	646.35
E	Type Test Charges	23.98	23.98
F	Mandatory Spares		
	Basic	129.49	129.49
	Excise Duty	13.34	14.20
	CST	2.18	2.35
	VAT	4.92	5.02
	Freight	5.55	5.55
	Service Tax	0.14	0.17
	Total	155.62	156.78
G	Price Variation		706.00
	Total BTG Cost	4071.78	4878.00

- 3.4.13 The increase in BTG cost from ordering cost to completion cost as claimed by SCCL is to the tune of Rs. 806.22 Crore. SCCL submitted that this increase is on account of increase in taxes and duties (Rs. 100.22 Crore) and price variation (Rs. 706 Crore). SCCL has submitted the documentary evidence substantiating the increase of Rs. 100.22 Crore on account of taxes and duties. Hence, the Commission finds it prudent to approve this increase of Rs. 100.22 Crore on account of increase in taxes and duties.
- 3.4.14 As regards the price variation, SCCL submitted that the price variation is payable upto date of supply/execution or schedule date whichever is earlier. The computations of price variation submitted by SCCL is as shown in the Table given below:

Table 3-9: Impact of price variation on BTG cost submitted by SCCL

Particulars	Amount without taxes (Rs. Crore)	Price Variation (%)	Price Variation (Rs. Crore)
Supply of material with a Price Variation Clause (PVC) with a cap @20%	2533	20%	507
Civil Works with PVC with a cap @ 20% of order value.	586	20%	117
Erection with PVC clause with no limit	352	23.50%	83
Freight	75	0%	0
Impact of PVC on BTG Package			706

- 3.4.15 SCCL submitted that the price variation clause did not have any impact because of time overrun as price variation was calculated upto scheduled CODs of Unit 1 and Unit 2.
- 3.4.16 The Commission observes that the BTG Contract specifies the Price Variation Formula linked to indices for ferrous metals, steel, cement etc. The base indices are linked to the indices of September, 2010. It has been observed that the WPI movement during the construction period of SCCL TPP has been higher than the base indices in September, 2010. Hence, the Commission finds merit in the claim of SCCL regarding the increase in cost due to price variation. In reply to a specific query of the Commission, SCCL submitted the sample copies of bills for Price Variation raised by BHEL. The Commission also observes that the price variation computations submitted by SCCL are in line with the conditions of Contracts with BHEL. Further, it is also observed that the price variation is computed till Scheduled COD of the Projects and hence the price variation does not include any additional costs due to time over-run. The Commission also observes the similar price variations in BHEL

Contracts upto Scheduled COD for other generating units such as Bhusawal Units 4 & 5, Khaperkheda Unit 5 of MSPGCL with Unit sizes of 500 MW. Hence, the Commission finds it prudent to approve the increase in cost of Rs. 706 Crore on account of price variation. However, **the Commission directs SCCL to submit the compilation of all the price variation bills along with its Petition for approval of generation tariff for the next Control Period.**

3.4.17 In light of the above analysis, the Commission approves the total cost of BTG package as Rs. 4878 Crore. Further, the Commission has approved the actual cost of BTG package as on COD of Unit 2 as Rs. 4781.54 Crore, the same being lower than the approved cost of Rs. 4878 Crore.

3.4.18 Further, in reply to a specific query of the Commission, SCCL submitted that the value of undischarged liabilities as on COD of Unit 2 under BTG package as Rs. 414.56 Crore. SCCL submitted that these liabilities shall be discharged in FY 2017-18. Accordingly, the Commission while approving the BTG cost as on COD of Unit 2 has deducted the undischarged liabilities. The Commission asked SCCL to submit the details of Liquidated Damages likely to be levied under the Contract. SCCL submitted that the details of Liquidated Damages can only be submitted once the contract is closed. The actual amount of Liquidated Damages shall be crystallized after the closure of contract after the Performance Guarantee Tests. On account of the above, the Commission, in this Order, has not considered the cost pertaining to the discharge of liabilities pending as on COD. The Commission shall consider the same after the finalization of the liability, in the approval of generation tariff for the next Control Period after prudence check of the information submitted by the Petitioner. **The Commission directs SCCL to submit the Performance Guarantee Test Reports after completion of the same along with the amount of Liquidated Damages, if levied any, along with its Tariff Petition for the next Control Period.**

3.4.19 The cost of BTG package approved by the Commission is as shown in the Table given below:

Table 3-10: Cost of BTG package approved by the Commission (Rs. Crore)

Particulars	SCCL submissions dtd. 03.04.2017		Approved	
	Total Cost	Upto COD of Unit 2	Total Cost	Upto COD of Unit 2
BTG Cost	4878.00	4781.54	4878.00	4781.54
Less: Undischarged Liabilities (UDL)		414.56	414.56	414.56
Net BTG Cost	4878.00	4366.98	4463.44	4366.98

3.5 BALANCE OF PLANT (BOP)

SCCL's submissions

3.5.1 The cost of BoP package claimed by SCCL is as shown in the Table given below:

Table 3-11: Cost of BoP package claimed by SCCL (Rs. Crore)

S. No.	Particulars	DPR - 2010	DPR - 2013	As filed in Petition	Revised submissions dtd. 24.08.2016	Revised submissions dtd. 03.04.2017		
		Total Cost				Total Cost	Upto COD of Unit 1	Upto COD of Unit 2
1	BoP Cost	1144.00	1457.42	1038.02	1037.92	1038.00	837.26	864.96

3.5.2 As compared to the (DPR-2013) cost estimates of Rs. 1457.42 Crore for BoP package, SCCL has claimed the total cost of Rs. 1038.00 Crore and the cost of Rs. 864.96 Crore upto COD of Unit 2.

3.5.3 SCCL submitted that the BoP package was awarded to M/s McNally Bharat Engineering Co. Ltd. pursuant to the International Competitive Bidding (ICB) at the award price of Rs. 973.02 Crore. SCCL submitted the copies of Contract Agreements entered into with M/s McNally Bharat Engineering Co. Ltd. on 17.08.2013 for supply, erection and associated civil works of BoP package. SCCL has also submitted the copy of Bid Evaluation Report for the award of BoP package.

3.5.4 SCCL submitted that the increase in cost of BoP package from ordering cost to the claimed cost is on account of price variation to the tune of Rs. 65 Crore. SCCL submitted the sample copies of bills raised for price variation.

Commission's Analysis and Ruling

3.5.5 As compared to the DPR-2013 cost estimates of Rs. 1457.42 Crore, SCCL, in its Petition, has claimed the total cost of Rs. 1038.00 Crore. The Commission also observes that the price variation claimed by SCCL is in line with the conditions of Contracts. Hence, the Commission finds it prudent to approve the increase in cost on account of price variation. However, **the Commission directs SCCL to submit the compilation of all the price variation bills along with its Petition for approval of generation tariff for the next Control Period.**

3.5.6 As the completion cost of BoP package claimed by SCCL is lower in comparison to the DPR-2013 cost estimates and in light of the analysis carried on the combined cost of BTG and BoP in the preceding paragraphs, the Commission finds it prudent to approve the total cost of BoP package as Rs. 1038.00 Crore. Further, the Commission has approved the actual cost of BoP package as on COD of Unit 2 as Rs. 864.96 Crore, the same being lower than the approved cost of Rs. 1038.00 Crore.

3.5.7 Further, in reply to a specific query of the Commission, SCCL submitted that the value of undischarged liabilities as on COD of Unit 2 under BoP package as Rs. 29.25 Crore. SCCL submitted that these liabilities shall be discharged in FY 2017-18. Accordingly, the Commission while approving the BoP cost as on COD of Unit 2 has deducted the undischarged liabilities. The Commission asked SCCL to submit the details of Liquidated Damages likely to be levied under the Contract. SCCL submitted that the details of Liquidated Damages can only be submitted once the contract is closed. The actual amount of Liquidated Damages shall be crystallized after the closure of contract after the Performance Guarantee Tests. On account of the above, the Commission, in this Order, has not considered the cost pertaining to the discharge of pending liabilities as on COD. The Commission shall consider the same after the finalization of the liability, in the approval of generation tariff for the next Control Period after prudence check of the information submitted by the Petitioner. **The Commission directs SCCL to submit the Performance Guarantee Test Reports after completion of the same along with the amount of Liquidated Damages, if any levied, along with its Tariff Petition for the next Control Period.**

3.5.8 The cost of BoP package approved by the Commission is as shown in the Table given below:

Table 3-12: Cost of BoP package approved by the Commission (Rs. Crore)

Particulars	SCCL submissions dtd. 03.04.2017		Approved	
	Total Cost	Upto COD of Unit 2	Total Cost	Upto COD of Unit 2
BoP Cost	1038.00	864.96	1038.00	864.96
Less: Undischarged Liabilities (UDL)		29.25	29.25	29.25
Net BoP Cost		835.71	1008.75	835.71

3.6 EXTERNAL WATER SUPPLY SYSTEM

SCCL's submissions

3.6.1 The cost of External Water Supply System claimed by SCCL is as shown in the Table given below:

Table 3-13: Cost of External Water Supply System claimed by SCCL (Rs. Crore)

S. No.	Particulars	DPR - 2010	DPR - 2013	As filed in Petition	Revised submissions dtd. 24.08.2016	Revised submissions dtd. 03.04.2017		
		Total Capital Cost				Total Cost	Upto COD of Unit 1	Upto COD of Unit 2
1	Water Supply Scheme for 1 TMC of water from Sripadasagar Yellampalli Irrigation Project	160.00	-	-	-	-	-	-
2	Water Supply Scheme for 1 TMC of water from River Godavari		220.00	86.00	86.00	86.00	79.86	83.48
3	Water Supply Scheme for 2 TMC of water from River Pranahita	-	320.00	320.00	320.00	240.78	245.31	
Total		160.00	220.00	406.00	406.00	406.00	320.64	328.79

3.6.2 As compared to the (DPR-2013) cost estimates of Rs. 220 Crore for External Water Supply System, SCCL has claimed the total cost of Rs. 406 Crore and the cost of Rs. 328.79 Crore as of COD of Unit 2.

3.6.3 The submissions of SCCL in this regard are as follows:

- (i) The originally envisaged sources of water were 1 TMC from River Godavari (8.75 km from the power plant) and 1 TMC from Sripadasagar Yellampalli Irrigation project (25 km from the power plant).
- (ii) SCCL submitted the copies of GOs dated 07.08.2008 (1 TMC from River Godavari) and 19.07.2010 (2 TMC from River Pranahita) regarding the water allocation.
- (iii) The tenders for 1 TMC water supply system from River Godavari were called for and the works awarded at a cost of Rs. 67.50 Crore. The total cost of the works was Rs. 86 Crore including VAT, Service Tax and Price Variation.
- (iv) Subsequently, the allocation of 1 TMC from Sripadasagar Yellampalli Irrigation project was changed to 2 TMC from River Pranahita (43.50 km from the power plant).
- (v) The tenders for 2 TMC water supply system from River Pranahita were called for on EPC turnkey basis and was awarded at a cost of Rs. 259.90 Crore on 18.08.2014. The total estimated cost of this scheme is Rs. 320 Crore including

- the taxes, escalation, electrical etc.
- (vi) Water availability from River Godavari is uncertain during drought periods and summer as observed in previous years. Further, due to several projects in the upstream portion, water availability from this scheme is uncertain during summer.
 - (vii) Water will be drawn from river Godavari as per the water availability and balance requirement will be met from river Pranahita when river Godavari dries.
 - (viii) The allocation from River Pranahita is for drawing water for 365 days.
 - (ix) The main reason for increase in cost of External Water Supply System is due to the drawal of 2 TMC water from River Pranahita which is about 43.50 km from the plant as against the distance of 23 km as envisaged in the DPR.
 - (x) SCCL submitted the details of number of bids received for each work, contracts awarded, scope of work under each contract, the start date and the completion date of each contract and value of award of each contract.

Commission's Analysis and Ruling

- 3.6.4 The Commission observed that as against the originally approved total water allocation of 2 TMC, the revised water allocation has been approved for 3 TMC. In reply to a specific query of the Commission, SCCL submitted that both the schemes shall be solely utilized for meeting the water requirement for the 2 Units of 600 MW at its generating station.
- 3.6.5 During the site visit, SCCL submitted that the 1 TMC water supply system which was commissioned on 21.10.2015 was in operation and the water requirement for the generating station was met from this scheme. SCCL also submitted that part of the land acquisition for the 2 TMC water supply scheme is in progress and the scheme would be completed in two months' time after the completion of land acquisition. Further, SCCL submitted that in case of delay in completion of 2 TMC water supply scheme, the water available from the 1 TMC scheme would be sufficient to meet the water requirement and for any additional water requirement, they shall approach the State Government.
- 3.6.6 The cost estimates in DPR-2010 have envisaged the External Water Supply System from a distance of 23 km at a cost of Rs. 160 Crore. The Contract for 1 TMC water supply scheme was awarded on 05.12.2011 at a cost of Rs. 67.50 Crore. The cost estimates in DPR-2013 have envisaged the 1 TMC scheme from River Godavari and 2 TMC scheme from River Pranahita at a cost of Rs. 220 Crore. The Commission observes that the cost of External Water Supply System claimed by SCCL is almost 200% of the cost estimates in the DPR-2013. The cost estimates in the DPR-2013 appears to be underestimated considering the award price of 1 TMC water supply

system for a distance of 8.75 km at a cost of Rs. 67.50 Crore. Hence, the cost estimates of DPR-2013 are not appropriate for comparison of the cost claimed by SCCL for External Water Supply System. As the works have been awarded pursuant to competitive bidding, the Commission finds it prudent to approve the total cost of External Water Supply System as Rs. 406 Crore as claimed by SCCL.

3.6.7 Further, as the 1 TMC water scheme from River Godavari has already been completed and is in operation, the Commission finds it prudent to approve the actual cost claimed by SCCL for this scheme. As regards the 2 TMC scheme from River Pranahita, the Commission observes that cost claimed by SCCL for this scheme as on COD of Unit 2 is approximately 77% of the total cost. In light of the submissions of SCCL during site visit and the actual expenditure incurred upto COD of Unit 2, the Commission finds it prudent to approve the cost of 2 TMC scheme as additional capitalisation in FY 2018-19.

3.6.8 The cost of External Water Supply System approved by the Commission is as shown in the Table given below:

Table 3-14: Cost of External Water Supply System approved by the Commission (Rs. Crore)

S. No.	Particulars	SCCL submissions dtd. 03.04.2017		Approved	
		Total Cost	Upto COD of Unit 2	Total Cost	Upto COD of Unit 2
1	Water Supply Scheme for 1 TMC of water from River Godavari	86.00	83.48	86.00	83.48
2	Water Supply Scheme for 2 TMC of water from River Pranahita	320.00	245.31	320.00	0.00
	Total	406.00	328.79	406.00	83.48

3.7 RAW WATER RESERVOIR

SCCL's submissions

3.7.1 The cost of Raw Water Reservoir claimed by SCCL is as shown in the Table given below:

Table 3-15: Cost of Raw Water Reservoir claimed by SCCL (Rs. Crore)

S. No.	Particulars	DPR - 2010	DPR - 2013	As filed in Petition	Revised submissions dtd. 24.08.2016	Revised submissions dtd. 03.04.2017		
		Total Cost				Total Cost	Upto COD of Unit 1	Upto COD of Unit 2
1	Raw Water Reservoir	57.86	58.00	67.00	67.00	67.00	42.93	43.17

3.7.2 As compared to the (DPR-2013) cost estimates of Rs. 58 Crore for Raw Water

Reservoir, SCCL has claimed the total cost of Rs. 67 Crore and the cost of Rs. 43.17 Crore upto COD of Unit 2.

3.7.3 The submissions of SCCL in this regard are as follows:

- (i) The initial contract awarded for execution of Raw Water Reservoir was cancelled due to the failure of the executing agency.
- (ii) The reservoir works were divided into two parts, one for 4 days capacity and the other for 11 days capacity and was awarded to two separate agencies.
- (iii) Due to the delay in this process, the cost has increased to Rs. 67 Crore.
- (iv) SCCL submitted the details of number of bids received for each work, contracts awarded, scope of work in each contract, the start date and the completion date of each contract and value of award of each contract.

Commission's Analysis and Ruling

3.7.4 The Commission has considered the submissions of SCCL. As the works have been awarded through competitive bidding, the Commission finds its prudent to approve the total cost of Raw Water Reservoir as Rs. 67 Crore, as claimed by SCCL. Further, the Commission has approved the actual cost of Raw Water Reservoir as on COD of Unit 2 as Rs. 43.17 Crore, the same being lower than the approved cost of Rs. 67 Crore.

3.7.5 The cost of Raw Water Reservoir approved by the Commission is as shown in the Table given below:

Table 3-16: Cost of Raw Water Reservoir approved by the Commission (Rs. Crore)

S. No.	Particulars	SCCL submissions dtd. 03.04.2017		Approved	
		Total Cost	Upto COD of Unit 2	Total Cost	Upto COD of Unit 2
1	Raw Water Reservoir	67.00	43.17	67.00	43.17

3.8 RAILWAY SIDING

SCCL's submissions

3.8.1 The cost of Railway Siding claimed by SCCL is as shown in the Table given below:

Table 3-17: Cost of Railway Siding claimed by SCCL (Rs. Crore)

S. No.	Particulars	DPR - 2010	DPR - 2013	As filed in Petition	Revised submissions dtd. 24.08.2016	Revised submissions dtd. 03.04.2017		
		Total Cost				Total Cost	Upto COD of Unit 1	Upto COD of Unit 2
1	Railway Siding	90.00	80.00	80.00	80.00	113.32	78.53	80.74

- 3.8.2 As compared to the (DPR-2013) cost estimates of Rs. 80 Crore for Railway Siding, SCCL has claimed the total cost of Rs. 113.32 Crore and the cost of Rs. 80.74 Crore upto COD of Unit 2.
- 3.8.3 The submissions of SCCL in this regard are as follows:
- (i) In-principle approval for the DPR was accorded by South Central Railways for straight length of the track line of 17.10 km and total length of 32.50 km.
 - (ii) RITES have been appointed as the Project Management Consultant for tendering and execution of the siding works.
 - (iii) The total estimated cost of railway siding is Rs. 276 Crore. SCCL being a coal company has applied to the Coal Controller, Ministry of Coal for funds to the tune of 70% of the cost of the railway siding. The fund created out of the Stowing Excise Duty of Rs. 10/MT is utilized for roads and railway lines, protective works, sand stowing operations etc. being developed in the mining areas for evacuation of coal. Normally, 70% of these works shall be paid to Coal Companies as a grant/assistance. Accordingly, SCCL, in its Petition, has claimed the cost of Railway Siding as Rs. 80 Crore which was subsequently revised to Rs. 113.32 Crore.
 - (iv) Any shortfall in funds from the Coal Controller on this account from that envisaged in the Petition shall be claimed subsequently.

Commission's Analysis and Ruling

- 3.8.4 The Commission observed that the Railway Siding works have been awarded to M/s RITES Ltd. on nomination basis. The Commission directed SCCL to submit the rationale for award of Railway Siding works on nomination basis and how the least cost principle was followed in the award of works. In reply, SCCL submitted the following on selection of RITES for Railway Siding works:
- (i) M/s RITES Ltd. is a Govt. of India enterprise mainly dealing with the construction of railway siding from the conception stage with a proven track record of delivering quality at optimal price.
 - (ii) Coal India Ltd. has entered into an MoU with RITES Ltd. for consultancy services for railway siding works.
 - (iii) M/s RITES Ltd. is very much conversant with the consultancy activities related to construction of railway siding like preparation of feasibility report, preparation of DPR, obtaining approvals of Railways for DPR, supervision of project execution.

- 3.8.5 Regarding the competitiveness of the award price, SCCL submitted that as per the MoU entered into by Coal India Ltd. with RITES, the fees for project management consultancy services is 8.5% of the awarded value or the final executed value whichever is lower while SCCL has awarded the consultancy works at 8.48% of the project cost.
- 3.8.6 SCCL in its revised submissions dated 03.04.2017 claimed the cost of railway siding as Rs. 113.32 Crore in FY 2016-17. Whereas during the Public Hearing, SCCL submitted that part of land required for railway siding is under acquisition and the railway siding works will be completed by March, 2018.
- 3.8.7 After perusal of the submissions in this regard, the Commission finds it prudent to approve the cost of Railway Siding as Rs. 80 Crore in FY 2018-19, as submitted by SCCL during the Public Hearing. The Commission shall take an appropriate view on allowing shortfall, if any, in funds from the Coal Controller on this account from that envisaged in this Order during the truing up of additional capitalisation.
- 3.8.8 The cost of Railway Siding approved by the Commission is as shown in the Table below:

Table 3-18: Cost of Railway Siding approved by the Commission (Rs. Crore)

S. No.	Particulars	SCCL submissions dtd. 03.04.2017		Approved	
		Total Cost	Upto COD of Unit 2	Total Cost	Upto COD of Unit 2
1	Railway Siding	113.32	80.74	80.00	0.00

3.9 OTHER WORKS UNDERTAKEN BY SCCL

SCCL's submissions

3.9.1 SCCL has claimed the cost of other works undertaken by it as shown in the Table given below:

Table 3-19: Cost of other works as submitted by SCCL (Rs. Crore)

S. No.	Particulars	DPR - 2010	DPR - 2013	As filed in Petition	Revised submissions dtd. 24.08.2016	Revised submissions dtd. 03.04.2017		
		Total Cost				Total Cost	Upto COD of Unit 1	Upto COD of Unit 2
	Other Works undertaken by SCCL							
1	Additional 400 kV Bays	0.00	0.00	0.00	0.00	28.69	0.00	0.00
2	Plant Roads & Culverts	25.00	21.00	20.00	20.00	20.00	11.44	11.44
3	Coal transport roads	0.00	0.00	56.48	56.00	56.48	42.61	42.61
4	Boundary Walls	13.50	19.00	17.00	17.00	17.19	16.58	16.94
5	Gate complex, Security etc.	0.00	5.40	5.40	5.00	5.40	0.23	0.23
6	Township	80.00	145.00	145.00	145.00	145.00	50.20	52.18
7	Environmental Impact measures	3.00	5.00	5.00	5.00	5.00	0.74	0.79
8	Mandatory capital expenditure under MoEF clearance	20.00	22.10	22.10	22.00	22.10	9.29	9.45
9	Weigh Bridge, Fire Tender etc.	1.50	2.00	2.00	4.95	2.00	0.42	0.42
10	Furniture & Office automation	0.00	5.00	5.00	5.00	5.00	2.37	2.37
11	Miscellaneous expenditure	0.00	5.00	5.00	5.00	5.00	3.25	3.48
	Total	143.00	229.50	282.98	284.95	311.86	137.13	139.91

3.9.2 As compared to the (DPR-2013) cost estimates of Rs. 229.50 Crore for other works, SCCL has claimed the total cost of Rs. 311.86 Crore and the actual cost of Rs. 139.91 Crore upto COD of Unit 2.

3.9.3 The submissions of SCCL in this regard are as follows:

- (i) With the delay in execution of railway line, alternate arrangements have been made to transport the coal by road by strengthening and widening NH 63 and other connecting roads. Accordingly the cost of Rs. 56.48 Crore has been claimed on this account.
- (ii) Provision has been made for Two (2) bed room quarters in place of a single bed room quarters as proposed in the original DPR. The escalation of rates over a period of Three (3) years has impacted the Capital Cost.

- (iii) SCCL submitted the details of number of bids received for each work, contracts awarded, scope of work under each contract, the start date and the completion date of each contract and value of award of each contract.

Commission's Analysis and Ruling

- 3.9.4 **Additional 400 kV Bays** – SCCL submitted that it has deposited an amount of Rs. 28.69 Crore with TSTRANSCO for construction of Two (2) nos. Bays for SCCL TPP-Nirmal 400 kV Line and Six (6) nos. 400 kV metering bays for alternate power evacuation. SCCL submitted the documentary evidence in this regard. SCCL has claimed this amount as additional capitalisation in FY 2016-17.
- 3.9.5 On a perusal of SCCL submissions in this regard, the Commission finds it prudent to approve the amount of Rs. 28.69 Crore towards the additional bays. The Commission approves the same in additional capitalisation for FY 2016-17.
- 3.9.6 **Plant Roads & Culverts** – The total cost of Rs. 20 Crore claimed by SCCL under this head is lower than the cost estimates of Rs. 21 Crore as per DPR-2013. Hence, the Commission finds it prudent to approve the total cost of Rs. 20 Crore for plant roads & culverts. Further the Commission approves the incurred cost as on COD of Unit 2 as Rs. 11.44 Crore, the same being lower than the approved total cost of Rs. 20 Crore.
- 3.9.7 **Coal transport roads** – The Commission observes that the cost towards this account was not included in the DPR estimates. The Commission directed SCCL to submit the cost benefit analysis of the cost incurred towards the coal transportation roads when it is already constructing railway siding. In reply, SCCL submitted the following:
- (i) The construction of railway siding is expected to take considerable time due to land acquisition issues which are beyond SCCL control.
 - (ii) As a contingency measure, roads were constructed from SCCL mines to avoid delay in project completion.
 - (iii) The project was ready for commercial operation before the completion of railway siding. The delay in project would increase the IDC by around Rs. 50 Crore per month.
- 3.9.8 During the site visit, SCCL submitted that it had obtained permissions from the National Highways and State R&B Department for transportation of coal required for the power plant by road. SCCL also furnished the documentary evidences regarding the payments made to the National Highways and State Government for strengthening of roads.

- 3.9.9 After perusal of the submissions of SCCL in this regard, the Commission finds it prudent to approve the cost towards coal transport roads. Accordingly, the Commission approves the total cost of Rs. 56.48 Crore towards coal transport roads. Further, the Commission approves the actual cost as of COD of Unit 2 as Rs. 42.61 Crore, the same being lower than the approved cost of Rs. 56.48 Crore.
- 3.9.10 **Boundary Walls** – The total cost of Rs. 17.19 Crore claimed by SCCL under this head is lower than the cost estimates of Rs. 19 Crore as per DPR-2013. Hence, the Commission finds it prudent to approve the total cost of Rs. 17.19 Crore for boundary walls. Further the Commission approves the actual cost as of COD of Unit 2 as Rs. 16.94 Crore, the same being lower than the approved cost of Rs. 17.19 Crore.
- 3.9.11 **Gate Complex, Security etc.** – The Commission observed that the cost incurred towards this account was not included in the DPR-2010 estimates. The total cost of Rs. 5.40 Crore claimed by SCCL under this head is the same as the cost estimates as per DPR-2013. Hence, the Commission finds it prudent to approve the total cost of Rs. 5.40 Crore for gate complex, security etc. Further the Commission approves the incurred cost as on COD of Unit 2 as Rs. 0.23 Crore, the same being lower than the approved cost of Rs. 5.40 Crore.
- 3.9.12 **Township** – In the DPR-2010, the cost of township was estimated as Rs. 80 Crore. Subsequently, the cost of township was revised to Rs. 145 Crore in DPR-2013. As compared to the (DPR-2010) cost estimates of Rs. 80.00 Crore for township, SCCL has claimed the total cost of Rs. 145 Crore and the actual cost of Rs. 52.18 Crore upto COD of Unit 2. During the site visit, SCCL submitted that the township is being constructed only for its employees working in the power plant and the staff of O&M contractor for whom it has to provide the accommodation. The Commission directed SCCL to submit the number of dwelling units and type (1/2/3 room) that were envisaged in the original DPR and that were actually constructed along with the cost of the same. In reply, SCCL submitted the following:

Table 3-20: Types of dwelling units as submitted by SCCL

DPR			Actual			1/2/3 Bed Room	Total Cost (Rs. Crore)
Housing type	Covered area (m ²)	No. of Units	Housing type	Covered area (m ²)	No. of Units		
A	50	350	MC	74.50	490	2 bed room	84.24
B	75	210	MB	98.50	192	2 bed room	51.88
C	140	140	MA	182.35	11	3 bed room	

- 3.9.13 After perusal of the SCCL submissions in this regard, the Commission does not find it prudent to approve the increase in cost of township due to change in scope. Hence, the Commission approves the total cost of township as Rs. 80.00 Crore, the same as estimated in the DPR-2010. Further the Commission approves the incurred cost as on COD of Unit 2 as Rs. 52.18 Crore, the same being lower than the approved cost of Rs. 80.00 Crore.
- 3.9.14 **Environmental impact measures** – The total cost of Rs. 5.00 Crore claimed by SCCL under this head is the same as the cost estimates as per DPR-2013. Hence, the Commission finds it prudent to approve the total cost of Rs. 5.00 Crore for environmental impact measures. Further the Commission approves the actual cost as on COD of Unit 2 as Rs. 0.79 Crore, the same being lower than the approved cost of Rs. 5.00 Crore.
- 3.9.15 **Mandatory capital expenditure under MoEF clearance** – From the copy of environmental clearance issued by MoEF, the Commission observed that the amount of Rs. 22.10 Crore has to be earmarked as one time capital cost of CSR programme. SCCL submitted that this expenditure has been incurred on facilities like providing of roads, drinking water, construction of school building etc. in the village of land losers and nearby villages.
- 3.9.16 After perusal of SCCL submissions in this regard, the Commission finds it prudent to approve the total cost of Rs. 22.10 Crore towards Mandatory capital expenditure under MoEF clearance. Further the Commission approves the incurred cost as on COD of Unit 2 as Rs. 9.45 Crore, the same being lower than the approved cost of Rs. 22.10 Crore.
- 3.9.17 **Weigh Bridge, Fire Tender etc.** - The total cost of Rs. 2.00 Crore claimed by SCCL under this head is the same as the cost estimates as per DPR-2013. Hence, the Commission finds it prudent to approve the total cost of Rs. 2.00 Crore for weigh bridge, fire tender etc. Further the Commission approves the incurred cost as on COD of Unit 2 as Rs. 0.42 Crore, the same being lower than the approved cost of Rs. 2.00 Crore.
- 3.9.18 **Furniture & Office automation** - The total cost of Rs. 5.00 Crore claimed by SCCL under this head is the same as per DPR-2013. Hence, the Commission finds it prudent to approve the total cost of Rs. 5.00 Crore towards furniture & office automation. Further the Commission approves the incurred cost as on COD of Unit 2 as Rs. 2.37 Crore, the same being lower than the approved cost of Rs. 5.00 Crore.
- 3.9.19 **Miscellaneous expenditure** - The total cost of Rs. 5.00 Crore claimed by SCCL under this head is the same as the cost estimates as per DPR-2013. Hence, the Commission finds it prudent to approve the total cost of Rs. 5.00 Crore for miscellaneous

expenditure. Further the Commission approves the actual cost as on COD of Unit 2 as Rs. 3.48 Crore, the same being lower than the approved cost of Rs. 5.00 Crore.

3.9.20 In light of the above analysis, the cost of other works undertaken by SCCL, approved by the Commission is as shown in the Table given below:

Table 3-21: Cost of other works approved by the Commission (Rs. Crore)

S. No.	Particulars	SCCL submissions dtd. 03.04.2017		Approved	
		Total Cost	Upto COD of Unit 2	Total Cost	Upto COD of Unit 2
	Other Works undertaken by SCCL				
1	Additional 400 kV Bays	28.69	0.00	28.69	0.00
2	Plant Roads & Culverts	20.00	11.44	20.00	11.44
3	Coal transport roads	56.48	42.61	56.48	42.61
4	Boundary Walls	17.19	16.94	17.19	16.94
5	Gate complex, Security etc.	5.40	0.23	5.40	0.23
6	Township	145.00	52.18	80.00	52.18
7	Environmental Impact measures	5.00	0.79	5.00	0.79
8	Mandatory capital expenditure under MoEF clearance	22.10	9.45	22.10	9.45
9	Weigh Bridge, Fire Tender etc.	2.00	0.42	2.00	0.42
10	Furniture & office automation	5.00	2.37	5.00	2.37
11	Miscellaneous expenditure	5.00	3.48	5.00	3.48
	Total	311.86	139.91	246.86	139.91

3.10 OVERHEADS

SCCL's submissions

3.10.1 SCCL has claimed the cost of overheads as shown in the Table given below:

Table 3-22: Cost of overheads claimed by SCCL (Rs. Crore)

S. No.	Particulars	DPR - 2010	DPR - 2013	As filed in Petition	Revised submissions dtd. 24.08.2016	Revised submissions dtd. 03.04.2017		
		Total Cost				Total Cost	Upto COD of Unit 1	Upto COD of Unit 2
1	Start-up Power & communication equipment	2.50	23.00	42.00	46.75	42.00	42.00	42.00
2	Construction Power	0.00	11.00	25.00	30.85	25.00	24.66	24.97
3	Start-up fuel	12.00	12.00	40.00	80.00	40.78	38.69	40.78
4	Operator training	1.50	1.50	1.50	2.00	1.50	0.00	0.00

S. No.	Particulars	DPR - 2010	DPR - 2013	As filed in Petition	Revised submissions dtd. 24.08.2016	Revised submissions dtd. 03.04.2017		
		Total Cost				Total Cost	Upto COD of Unit 1	Upto COD of Unit 2
5	Contingencies	141.55	155.98	47.52	3.00	47.52	11.32	11.32
6	Establishment Costs	11.80	16.00	70.00	96.14	70.00	69.80	69.80
7	Consultancy & Engg.	11.80	110.00	127.00	127.00	127.00	107.77	109.73
8	Development expenses	17.69	0.00	0.00	0.00	0.00	0.00	0.00
9	Margin Money	108.06	139.05	0.00	0.00	0.00	0.00	0.00
10	O&M Contract	0.00	0.00	0.00	0.00	20.90	18.15	20.90
	Total	306.90	468.53	353.02	385.74	374.70	312.39	319.50

3.10.2 As compared to the (DPR-2013) cost estimates of Rs. 468.53 Crore for overheads, SCCL has claimed the total cost of Rs. 374.40 Crore and the cost of Rs. 319.50 Crore as of COD of Unit 2.

3.10.3 The submissions of SCCL in this regard are as follows:

- (i) The cost of start-up power & communication equipment has increased to Rs. 42 Crore after considering the cost of laying of 132 kV line for a distance of 23 km from Mandamarri to project site and monthly power bills thereof.
- (ii) The cost of construction power has increased to Rs. 25 Crore considering the cost of monthly power bills for construction activities.
- (iii) Regarding the cost of consultancy & Engineering, SCCL submitted the following:
 - a. SCCL is a coal mining company that has ventured into power generation business.
 - b. M/s NTPC Ltd. is the largest power generation company in India with installed capacity of more than 32,000 MW and BHEL is the main equipment supplier for most of its generating stations. NTPC is very much conversant with the equipment supplied by BHEL and other related working modalities.
 - c. The services of NTPC have been utilized for pre & post award works including preparation of tender specifications for BTG and BoP, techno commercial evaluation of bids, pre-award discussions with BHEL, supervision of construction activities, inspection services and review of O&M manuals, testing and commissioning documents.
 - d. SCCL submitted the documentary evidence regarding the order

placed on M/s NTPC Ltd. for consultancy services.

- (iv) The establishment cost has increased on account of the following:
- About 100 employees including 60 executives were attending to the construction activities of SCCL TPP.
 - Vehicles for conveyance were deployed as required.
 - Engagement of contract labour.
 - Other revenue nature of works.
- (v) The cost of startup fuel has increased considering the actual consumption of LDO/HFO.
- (vi) The amount of Rs. 20.90 Crore was paid to the O&M contractor towards the operation and maintenance of the generating station before COD of Unit 2 and the same is capitalised in the cost as on COD. SCCL submitted the documentary evidence in this regard.

Commission's Analysis and Ruling

3.10.4 As compared to the (DPR-2013) cost estimates of Rs. 468.53 Crore for overheads, SCCL has claimed the total cost of Rs. 374.40 Crore. The Commission observed that although the total cost of overheads has decreased with respect to DPR-2013 estimated cost, the actual cost for most of the components comprising of the overheads has increased from the DPR estimates. The Commission sought detailed justification for increase in cost of each component comprising of the overheads from the DPR estimates. In reply, SCCL has not made any additional submissions other than what was already submitted in the Petition. In the absence of detailed justification for increase in cost of each component comprising of the overheads, the Commission finds it impractical to carry out the prudence check of the cost incurred under each component as such costs are site dependent. Hence, the Commission in place of carrying out the prudence check of each component decided to analyze the total overheads as a percentage of Hard Cost.

3.10.5 The Commission observes that the overheads as a percentage of Hard Cost are as shown in the Table given below:

Table 3-23: Overheads as percentage of Hard Cost

Particulars	Units	DPR-2010	DPR-2013	Claimed by SCCL (Total Cost)	Claimed by SCCL as on COD of Unit 2
Hard Cost	Rs. Crore	5022.76	6673.73	7273.88	6176.43
Overheads	Rs. Crore	306.90	468.53	374.70	319.50
Overheads as % of Hard Cost	%	6.11%	7.02%	5.15%	5.17%

3.10.6 The Commission is of the considered view that an amount equal to 5% of the Hard Cost would be a fair and reasonable amount to be allowed for overheads considering the facts and circumstances of the project. Accordingly, the Commission approves the overheads as on COD of Unit 2 as Rs. 291.10 Crore. Further, the Commission approves the overheads in FY 2016-17 and FY 2018-19 to the extent of 5% of the additional capitalisation approved for the respective years.

3.10.7 The cost of overheads approved by the Commission is as shown in the Table given below:

Table 3-24: Cost of overheads approved by the Commission (Rs. Crore)

S. No.	Particulars	SCCL submissions dtd. 03.04.2017		Approved	
		Total Cost	Upto COD of Unit 2	Total Cost	Upto COD of Unit 2
1	Overheads	374.70	319.50	334.58	291.10

3.11 HARD COST

SCCL's submissions

3.11.1 The Hard Cost claimed by SCCL as shown in the Table given below:

Table 3-25: Hard Cost claimed by SCCL (Rs. Crore)

S. No.	Particulars	DPR - 2010	DPR - 2013	As filed in Petition	Revised submissions dtd. 24.08.2016	Revised submissions dtd. 03.04.2017		
		Total Cost				Total Cost	Upto COD of Unit 1	Upto COD of Unit 2
1	Land and Site Development	65.00	88.50	85.00	85.00	85.00	61.07	61.73
2	BTG Cost	3056.00	4071.78	4878.01	4878.00	4878.00	4335.39	4366.98
3	BoP Cost	1144.00	1457.42	1038.02	1037.92	1038.00	808.01	835.71
4	External Water Supply System	160.00	220.00	406.00	406.00	406.00	320.64	328.79
5	Raw Water Reservoir	57.86	58.00	67.00	67.00	67.00	42.93	43.17
6	Railway Siding	90.00	80.00	80.00	80.00	113.32	78.53	80.74
7	Other Works undertaken by SCCL							
	Additional 400 kV Bays	0.00	0.00	0.00	0.00	28.69	0.00	0.00
	Plant Roads & Culverts	25.00	21.00	20.00	20.00	20.00	11.44	11.44
	Coal transport roads	0.00	0.00	56.48	56.00	56.48	42.61	42.61
	Boundary Walls	13.50	19.00	17.00	17.00	17.19	16.58	16.94
	Gate complex, Security etc.	0.00	5.40	5.40	5.00	5.40	0.23	0.23
	Township	80.00	145.00	145.00	145.00	145.00	50.20	52.18
	Environmental Impact measures	3.00	5.00	5.00	5.00	5.00	0.74	0.79

S. No.	Particulars	DPR - 2010	DPR - 2013	As filed in Petition	Revised submissions dtd. 24.08.2016	Revised submissions dtd. 03.04.2017		
		Total Cost				Total Cost	Upto COD of Unit 1	Upto COD of Unit 2
	Mandatory capital expenditure under MoEF clearance	20.00	22.10	22.10	22.00	22.10	9.29	9.45
	Weigh Bridge, Fire Tender etc.	1.50	2.00	2.00	4.95	2.00	0.42	0.42
	Furniture & office automation	0.00	5.00	5.00	5.00	5.00	2.37	2.37
	Miscellaneous expenditure	0.00	5.00	5.00	5.00	5.00	3.25	3.48
	Sub-total (7)	143.00	229.50	282.98	284.95	311.86	137.13	139.91
8	Overheads	306.90	468.53	353.02	385.74	374.70	312.39	319.50
	Total Hard Cost	5022.76	6673.73	7190.03	7224.61	7273.88	6096.09	6176.53

Commission's Analysis and Ruling

3.11.2 Based on the above analysis, the Hard Cost approved by the Commission is as shown in the Table given below:

Table 3-26: Hard Cost approved by the Commission (Rs. Crore)

S. No.	Particulars	SCCL submissions dtd. 03.04.2017		Approved	
		Total Cost	Upto COD of Unit 2	Total Cost	Upto COD of Unit 2
1	Land and Site Development	85.00	61.73	85.00	61.73
2	BTG Cost	4878.00	4366.98	4463.44	4366.98
3	BoP Cost	1038.00	835.71	1008.75	835.71
4	External Water Supply System	406.00	328.79	406.00	83.48
5	Raw Water Reservoir	67.00	43.17	67.00	43.17
6	Railway Siding	113.32	80.74	80.00	0.00
7	Other Works undertaken by SCCL				
	Additional 400 kV Bays	28.69	0.00	28.69	0.00
	Plant Roads & Culverts	20.00	11.44	20.00	11.44
	Coal transport roads	56.48	42.61	56.48	42.61
	Boundary Walls	17.19	16.94	17.19	16.94
	Gate complex, Security etc.	5.40	0.23	5.40	0.23
	Township	145.00	52.18	80.00	52.18
	Environmental Impact measures	5.00	0.79	5.00	0.79
	Mandatory capital expenditure under MoEF clearance	22.10	9.45	22.10	9.45
	Weigh Bridge, Fire Tender etc.	2.00	0.42	2.00	0.42
	Furniture & office automation	5.00	2.37	5.00	2.37
	Miscellaneous expenditure	5.00	3.48	5.00	3.48
	Sub-total (7)	311.86	139.91	246.86	139.91
8	Overheads	374.70	319.50	334.58	291.10
	Total Hard Cost	7273.88	6176.53	6691.63	5822.08

3.11.3 The Commission has compared the approved Hard Cost of SCCL TPP with the benchmarks available and the Hard Cost of other similarly placed projects. The Commission finds that the approved Hard Cost of SCCL TPP is comparable with the approved Hard Cost of other similarly placed generating stations by the respective Electricity Regulatory Commissions.

3.12 TIME OVERRUN

Commission's Analysis and Ruling

3.12.1 The LoI was placed on BHEL on 11.11.2011 which is the Zero Date for the project. The schedule completion date as per the BTG Contract and the actual completion date are as follows:

Table 3-27: Scheduled completion date and actual completion date of the project

Particulars	Units	Unit 1	Unit 2
Zero Date	Date	11.11.2011	
COD (as per BTG contract)	Months	39	43
	Date	11.02.2015	11.06.2015
COD (Actual)	Months	58	60
	Date	25.09.2016	02.12.2016
Delay	Months	19	17

3.12.2 Hence, the total delay in project execution is Seventeen (17) months.

3.12.3 The Commission observes that the original investment approval for the project was accorded on 03.09.2010 and BHEL submitted its initial offer on 12.11.2010. However, the LoI on BHEL was issued on 11.11.2011. In this regard, the Commission sought the justification for delay in award of works. In reply, SCCL submitted the following:

- (i) The original offer submitted by BHEL was evaluated by NTPC, SCCL's technical consultant and deviations were noticed in BHEL's offer from the Notice Inviting Tender (NIT) specifications.
- (ii) After detailed analysis of BHEL's offer and several rounds of negotiations for cost reduction, the LoI was issued on 11.11.2011.

3.12.4 The Commission observes that the BoP Contract was entered into on 26.09.2013. In this regard, the Commission sought the justification for entering into BoP contract three years after the investment approval. In reply, SCCL submitted the following:

- (i) After awarding the BTG package in November, 2011 and obtaining necessary inputs from BTG vendor for finalization of technical scope of BoP package,

NIT for BoP package was published in December, 2011 through ICB.

- (ii) It took time for assessment of capacity and capability of some of the bidders (both foreign and domestic) and in resolving the techno commercial deviations.

3.12.5 The Commission observes that the BTG contract envisaged the completion schedule of Thirty Nine (39) months for Unit 1 and 43 months for Unit 2 from the Zero Date i.e., 11.11.2011. However, the Unit 1 has achieved COD on 25.09.2016 and Unit 2 on 02.12.2016. The Commission sought the detailed justification for the delay in project execution. In reply, SCCL submitted the following:

- (i) Delay in geotechnical investigation due to non-motorable roads, obstruction of work by land losers for higher compensation, separate compensation demand for mango plants, bore wells and also demand for permanent employment. On account of this delay, the civil works were delayed.
- (ii) Delay in construction of compound wall and approach road due to obstruction by land losers led to delay in starting of foundation works and erection works.
- (iii) State Bifurcation movement Sakala Janula Samme resulted in unavailability of labour, constrained movement of material and stoppage of works.
- (iv) Stoppage of work by land owners due to delay in handing over of compensation cheques by RDO.
- (v) Delay in construction activities of Boiler, TG and ESP due to non-availability of sand which was subsequently resolved with the intervention of the Government of Telangana State.
- (vi) Delay in construction activities of water pipeline at Shetpalli, Narsingapur and Gangipalli due to obstruction by land owners.
- (vii) Delay in construction of coal handling plant and ash handling plant due to heavy rainfall in FY 2013-14 and in September, 2014.
- (viii) Delay in structural works of Boiler and TG due to Hudhud cyclone in October, 2014 that impacted the steel supply from Visakhapatnam.
- (ix) Delay in BoP works due to poor financial health of the BoP contractor which was subsequently resolved with direct payments by SCCL to its vendors for material supply.

3.12.6 The Commission directed SCCL to submit the details of contract wise cost and time overrun in the specified template. In reply, SCCL submitted that it would submit the information sought by the Commission after the COD of the Units but has not submitted any such information.

3.12.7 The Commission directed SCCL to submit the actual L2 project schedule clearly highlighting the activities in which the delay occurred and the reason. In reply, SCCL submitted the following:

Table 3-28: Project completion schedule submitted by SCCL

Package	Zero Date	Schedule for Unit 1		Schedule for Unit 2	
		Months	Date	Months	Date
BTG	11.11.2011	39	11.02.2015	43	11.06.2015
BoP	17.08.2013	28	17.12.2015	32	17.04.2016
Project	11.11.2011	49	17.12.2015	53	17.04.2016

Table 3-29: Reasons for delay submitted by SCCL

S. No.	Milestone	Schedule	Actual	Difference	Reasons for delay
		Months	Months	Months	
	Zero Date	11.11.2011			
1	Basic Engineering	3	6	3	Stoppage of work by land losers for higher compensation
2	Commencement of Boiler Foundation	7	10	3	
3	Start of Boiler Erection	9	15	6	Stoppage of work by land losers demanding to leave road/path around the compound wall and construct road across the plant site for access to their fields.
4	Drum Lifting	15	22	7	
5	Commencement of TG erection	36	36	0	
6	Boiler Hydro Test (Drainable)	25	34	9	Delay in acquisition of land required for water pipeline.
7	Turbine Box-up	45	45	0	
8	Boiler Light-up	39	44	5	Heavy rainfall in September 2014 i.e., 295 mm against the normal rainfall of 170 mm.
9	Turbine oil flushing completion	45	47	2	
10	Turbine on Barring Gear	45	49	4	
11	Steam Blowing completion &	45	50	5	

S. No.	Milestone	Schedule	Actual	Difference	Reasons for delay
		Months	Months	Months	
	safety valve floating				
12	Synchronization with coal firing (commissioning)	47	52	5	Delay due to Hud Hud Cyclone in October, 2014 which impacted the BoP material supply.
13	Full load operation	49	52	3	
14	Completion of facilities & Trial Operation (COD)	49	57	8	

3.12.8 From the above tables, it is understood that SCCL has computed the schedule completion period from the Zero Date as per the BTG contract to the completion date as per the BoP contract. The Commission finds that this method is incorrect as the schedule completion period has to be considered as per the BTG contract which is the main contract and the timelines as per the BTG schedule includes the timelines of BoP schedule within itself.

3.12.9 It has been observed that the implementation schedules of the BTG contract and the BoP contract are incongruent as discussed below:

- (i) The Zero Date as per the BTG contract is 11.11.2011.
- (ii) As per the BTG schedule, the ordering of BoP was to be completed by Twenty Three (23) months from the Zero Date (11.11.2011) i.e., by 11.10.2013. The LoI for BoP package was issued on 17.08.2013. Therefore, there is no delay in placing order for BoP package.
- (iii) As per the BTG schedule the COD of Unit 2 was to be achieved in Forty Three (43) months from Zero Date (11.11.2011) i.e., by 11.06.2015. The completion time (for supplies) as per the BoP schedule is Thirty Two (32) months from the respective Zero Date i.e., 17.04.2016. Hence, it is evident that although the BoP order was placed in time as per the BTG schedule, the timelines in BoP contract have not been agreed upon considering the commissioning schedule as per the BTG contract.

3.12.10 The Commission further observes that although SCCL had stated many reasons for delay, in replies to the Commission's queries, many of those reasons are not reflected in the activity wise delay submitted subsequently.

3.12.11 Based on the perusal of the SCCL's submissions regarding the delay in project execution, the Commission decides as under:

- (i) The Commission finds it prudent to condone the delay of 2 months due to

delay on account of stoppage of work by land losers.

- (ii) The delay due to reasons like financial crisis of the contractor etc. are well within the control of Contractors of SCCL and hence not condonable.
- (iii) SCCL stated that the delay due to heavy rainfall during September, 2014 (295 mm against normal rainfall of 170 mm) caused delay of 5 months. As per the rainfall data available in the website of IMD, the rainfall in Adilabad District in the month of September during the past 5 years from 2010 to 2014 was as follows: 299 mm, 150 mm, 250 mm, 168 mm, 222 mm. From the past data, it is evident that the rainfall of 295 mm as quoted by SCCL is not a situation that never occurred and hence, the delay on this account is not condonable.
- (iv) SCCL stated that the delay due to cyclone in October 2014 was 5 months as the steel supplies from Vishakhapatnam were affected. As per the BTG Contract, the supplies were to be completed by October, 2014. The Commission finds it prudent to condone the delay of 3 months on this account.
- (v) Hence, out of the total delay of 17 months, the Commission finds it prudent to condone the delay of 5 months. The Commission has accordingly, approves the increase in IDC due to the delay of 5 months as detailed in the subsequent paragraphs.

3.13 INTEREST DURING CONSTRUCTION (IDC) & FINANCING CHARGES (FC)

SCCL's submissions

3.13.1 The IDC and FC claimed by SCCL as shown in the Table given below:

Table 3-30: IDC and FC claimed by SCCL (Rs. Crore)

S. No.	Particulars	DPR - 2010	DPR - 2013	As filed in Petition	Revised submissions dtd. 24.08.2016	Revised submissions dtd. 03.04.2017		
		Total Capital Cost				Total Cost	Upto COD of Unit 1	Upto COD of Unit 2
1	IDC	650.76	884.57	1058.00	1058.85	1264.34	1231.73	1264.34
2	FC	11.75	15.60	2.00	2.00	2.00	0.00	0.00
	Total	662.51	900.17	1060.00	1060.85	1266.34	1231.73	1264.34

3.13.2 The submissions of SCCL in this regard are as follows:

- (i) The capital structure of the project is built up of 70% debt and 30% equity.

- (ii) Debt of Rs. 3980 Crore has been taken from Power Finance Corporation at the interest rate of 11.40% (Loan 1).
- (iii) Debt of Rs. 1320 Crore has been taken from PFC-REC Consortium at an interest rate of 9.49% (Loan 2).
- (iv) The total loan amount drawn as on COD of Unit 2 is as Rs. 3980 Crore from Loan 1 and Rs. 121.22 Crore from Loan 2.
- (v) SCCL submitted the copies of loan agreements.

Commission's Analysis and Ruling

3.13.3 In reply to a specific query of the Commission, SCCL submitted the computations of IDC along with phasing of expenditure during each quarter along with the applicable interest rates.

3.13.4 The Commission has computed the IDC under two scenarios as shown below:

Table 3-31: Scenarios considered for computing IDC

Particulars	Scenario 1	Scenario 2
	Base Case IDC	Actual IDC
Hard Cost as on COD	Rs. 5822.08 Crore (as approved by the Commission)	Rs. 5822.08 Crore (as approved by the Commission)
Quarter wise phasing of expenditure (%)	As per the DPR	Actual
Debt: Equity Ratio for each Quarter	70:30 (As per the DPR)	Actual
Rate of Interest on Loan for each Quarter	Actual	Actual

3.13.5 The purpose of Base Case IDC is to determine the impact of time overrun on IDC, i.e., to determine the difference in IDC had the Project been completed within the stipulated time as per the DPR, and the actual IDC incurred for the actual time taken for completion. While doing so, it is prudent to consider the Hard Cost upto COD for the computations of Base Case IDC. In this regard, Hon'ble ATE in its Judgment in Appeal No. 72 of 2010 ruled as under:

“7.4. The delay in execution of a generating project could occur due to following reasons:

i) due to factors entirely attributable to the generating company, e.g., imprudence in selecting the contractors/suppliers and in executing contractual agreements including terms and conditions of the contracts, delay in award of contracts, delay in providing inputs like making land available to the contractors, delay in payments to contractors/suppliers as per the terms of contract, mismanagement

of finances, slackness in project management like improper co-ordination between the various contractors, etc.

ii) due to factors beyond the control of the generating company e.g. delay caused due to force majeure like natural calamity or any other reasons which clearly establish, beyond any doubt, that there has been no imprudence on the part of the generating company in executing the project.

iii) situation not covered by (i) & (ii) above.

In our opinion in the first case the entire cost due to time over run has to be borne by the generating company. However, the Liquidated Damages (LDs) and insurance proceeds on account of delay, if any, received by the generating company could be retained by the generating company. In the second case the generating company could be given benefit of the additional cost incurred due to time over-run. However, the consumers should get full benefit of the LDs recovered from the contractors/suppliers of the generating company and the insurance proceeds, if any, to reduce the capital cost. In the third case the additional cost due to time overrun including the LDs and insurance proceeds could be shared between the generating company and the consumer. It would also be prudent to consider the delay with respect to some benchmarks rather than depending on the provisions of the contract between the generating company and its contractors/suppliers. If the time schedule is taken as per the terms of the contract, this may result in imprudent time schedule not in accordance with good industry practices.”

“8.6 We agree with the State Commission that the infusion of debt & equity has to be more or less on pari passu basis as per normative debt equity ratio. However, the increase in IDC due to time over run has to be allowed only according to the principles laid down in para 7.4 above. Accordingly, the State Commission is directed to re-determine the IDC for the actual period of commissioning of the project and then work out the excess IDC for the period of time over run on a pro rata basis and limit the disallowance to 50% of the same on account of excess IDC. This question is answered accordingly.”

- 3.13.6 From the above, it is amply clear that the Hon’ble ATE stipulated the treatment of extra IDC on account of the delay under three scenarios. In such a case, the extra IDC needs to be computed considering the impact of the delay in the commissioning of the Project only (i.e., period of construction under Base Case and in the actual Case). Hence, the Commission has re-computed the Base Case IDC considering the approved Hard Cost upto COD. As regards the Debt Equity ratio for computation of Base Case

IDC, the Commission has considered 70:30 as per the DPR and initially the Project was envisaged to be funded as per this ratio. The Commission has considered the actual interest rates and proportion of loan amount drawn as submitted by SCCL.

- 3.13.7 As discussed in the preceding paragraphs, the Commission has held that out of the delay of 17 months, the delay of 5 months is condonable. Hence, the Commission has allowed the increase in IDC for the condoned delay of 5 months as shown in the Table given below:

Table 3-32: IDC approved by the Commission

Particulars	Units	Approved
IDC considering the actual schedule	Rs. Crore	1206.75
IDC considering the original schedule	Rs. Crore	749.00
Increase in IDC	Rs. Crore	457.75
Scheduled COD as per BTG Contract	Date	11-Jun-15
Actual COD	Date	02-Dec-16
Total delay	Months	17
Condonable Delay	Months	5
Approved increase in IDC	Rs. Crore	134.63
Approved IDC	Rs. Crore	883.63

- 3.13.8 As against the IDC of Rs. 1264.34 Crore claimed by SCCL, the Commission has approves the IDC of Rs. 883.63 Crore.

- 3.13.9 SCCL has claimed the financing charges of Rs. 2 Crore in the additional capitalisation for FY 2017-18. The financing charges after COD cannot be considered as a part of capital cost and hence, the Commission has not approved the same.

3.14 CAPITAL COST

SCCL's submissions

- 3.14.1 The Capital Cost claimed by SCCL is as shown in the Table given below:

Table 3-33: Capital Cost claimed by SCCL (Rs. Crore)

S. No.	Particulars	DPR - 2010	DPR - 2013	As filed in Petition	Revised submissions dtd. 24.08.2016	Revised submissions dtd. 03.04.2017		
		Total Capital Cost				Total Cost	Upto COD of Unit 1	Upto COD of Unit 2
1	Hard Cost	5022.76	6673.73	7190.03	7224.61	7273.88	6096.09	6176.53
2	IDC & FC	662.51	900.17	1060.00	1060.85	1266.34	1231.73	1264.34
	Total	5685.27	7573.90	8250.03	8285.46	8540.22	7327.82	7440.87

Commission's Analysis and Ruling

3.14.2 The total Capital Cost approved by the Commission is as shown in the Table below:

Table 3-34: Capital Cost approved by the Commission (Rs. Crore)

S. No.	Particulars	SCCL submissions dtd. 03.04.2017		Approved	
		Total Cost	Upto COD of Unit 2	Total Cost	Upto COD of Unit 2
1	Hard Cost	7273.88	6176.53	6691.63	5822.08
2	IDC & FC	1266.34	1264.34	883.63	883.63
	Total	8540.22	7440.87	7575.26	6705.71

3.14.3 The Commission has arrived at the Capital Cost as on COD of Unit 1 considering the proportion of Capital Cost claimed by SCCL as on COD of Unit 1 (for tariff computations) out of the Capital Cost claimed as on COD of Unit 2 as shown below:

Table 3-35: Capital Cost as on COD of each Unit approved by the Commission (Rs. Crore)

Particulars	As on COD of Unit 1		As on COD of Unit 2	
	SCCL	Approved	SCCL	Approved
Capital Cost	3885.82	3501.90	7440.87	6705.71

3.14.4 On a perusal of the information available in the public domain, the Commission finds that the approved Capital Cost of SCCL TPP is comparable with the approved Capital Cost of other similarly placed generating stations by the respective Electricity Regulatory Commissions.

3.15 ADDITIONAL CAPITALISATION (PROVISIONAL)

SCCL's submissions

3.15.1 The additional capitalisation claimed by SCCL is as shown in the Table given below:

Table 3-36: Additional capitalisation claimed by SCCL (Rs. Crore)

S. No.	Particulars	FY 2016-17		FY 2017-18	
		As filed in Petition	Revised submissions dtd. 03.04.2017	As filed in Petition	Revised submissions dtd. 03.04.2017
1	Land and Site Development	5.10	7.44	11.90	15.83
2	BTG Cost	133.50	27.72	0.00	68.74
3	BoP Cost	123.41	30.32	18.61	142.72
4	External Water Supply System	321.33	12.48	3.10	64.73
5	Raw Water Reservoir	7.80	5.05	15.86	18.78

S. No.	Particulars	FY 2016-17		FY 2017-18	
		As filed in Petition	Revised submissions dtd. 03.04.2017	As filed in Petition	Revised submissions dtd. 03.04.2017
6	Railway Siding	0.00	32.58	80.00	0.00
7	Other Works undertaken by SCCL				
	Additional 400 kV Bays	0.00	28.69	0.00	0.00
	Plant Roads & Culverts	2.25	0.27	5.25	8.29
	Coal transport roads	4.80	1.50	11.20	12.37
	Boundary Walls	0.00	0.25	0.00	0.00
	Gate complex, Security etc.	1.28	0.20	2.98	4.97
	Township	28.80	13.54	67.20	79.28
	Environmental Impact measures	1.14	0.18	2.66	4.03
	Mandatory capital expenditure under MoEF clearance	2.50	0.60	9.90	12.05
	Weigh Bridge, Fire Tender etc.	1.28	0.00	2.98	1.58
	Furniture & office automation	1.50	0.00	1.04	2.63
	Miscellaneous expenditure	0.00	0.33	0.00	1.19
	Sub-total (7)	43.54	45.56	103.20	126.39
8	Overheads				
	Construction Power		0.00		0.03
	Start-up fuel		0.00		0.00
	Operator training		0.00		1.50
	Contingencies		2.00		34.20
	Establishment Costs		0.20		0.00
	Consultancy & Engg.		4.32		12.95
	Development expenses		0.00		0.00
	Margin Money		0.00		0.00
	O&M Contract		0.00		0.00
	Sub-total (8)	0.00	6.52	0.00	48.68
9	Discharge of liabilities as on COD of Unit 2				448.54
10	Financing charges				2.00
	Total	634.68	167.67	232.67	936.41

Commission's Analysis and Ruling

3.15.2 The Commission observes that the additional capitalisation claimed by SCCL is towards deferred works within the original scope of work. The approach adopted by the Commission in approving the additional capitalisation is as under:

- (i) The Commission has approved the package wise additional capitalisation based on the claim of SCCL subject to the total cost for the respective package is within the approved cost, provisionally.
- (ii) The Commission has approved the overheads in the additional capitalisation limiting the same to 5% of the approved additional capitalisation for the respective years.
- (iii) As discussed in the preceding paragraph, the Commission has not considered the finance charges in the additional capitalisation.

3.15.3 The additional capitalisation provisionally approved by the Commission is as shown in the Table given below:

Table 3-37: Additional Capitalisation provisionally approved by the Commission (Rs. Crore)

S. No.	Particulars	FY 2016-17		FY 2017-18		FY 2018-19	
		SCCL submissions dtd. 03.04.2017	Approved	SCCL submissions dtd. 03.04.2017	Approved	SCCL submissions dtd. 03.04.2017	Approved
1	Land and Site Development	7.44	7.44	15.83	0.00	0.00	15.83
2	BTG Cost	27.72	27.72	68.74	0.00	0.00	68.74
3	BoP Cost	30.32	30.32	142.72	0.00	0.00	142.72
4	External Water Supply System	12.48	2.52	64.73	0.00	0.00	320.00
5	Raw Water Reservoir	5.05	5.05	18.78	0.00	0.00	18.78
6	Railway Siding	32.58	0.00	0.00	0.00	0.00	80.00
7	Other Works undertaken by SCCL						
	Additional 400 kV Bays	28.69	28.69	0.00	0.00	0.00	0.00
	Plant Roads & Culverts	0.27	0.27	8.29	0.00	0.00	8.29
	Coal transport roads	1.50	1.50	12.37	0.00	0.00	12.37
	Boundary Walls	0.25	0.25	0.00	0.00	0.00	0.00
	Gate complex, Security etc.	0.20	0.20	4.97	0.00	0.00	4.97
	Township	13.54	13.54	79.28	0.00	0.00	14.28
	Environmental Impact measures	0.18	0.18	4.03	0.00	0.00	4.03
	Mandatory capital expenditure under MoEF clearance	0.60	0.60	12.05	0.00	0.00	12.05
	Weigh Bridge, Fire Tender etc.	0.00	0.00	1.58	0.00	0.00	1.58
	Furniture & office automation	0.00	0.00	2.63	0.00	0.00	2.63
	Miscellaneous expenditure	0.33	0.33	1.19	0.00	0.00	1.19
	Sub-total (7)	45.56	45.56	126.39	0.00	0.00	61.39
8	Overheads						
	Construction Power	0.00		0.03			
	Start-up fuel	0.00		0.00			
	Operator training	0.00		1.50			
	Contingencies	2.00		34.20			
	Establishment Costs	0.20		0.00			
	Consultancy & Engg.	4.32		12.95			
	Development expenses	0.00		0.00			
	Margin Money	0.00		0.00			
	O&M Contract	0.00		0.00			
	Sub-total (8)	6.52	6.24	48.68	0.00	0.00	37.23
9	Discharge of liabilities as on COD of Unit 2			448.54	0.00	0.00	0.00
10	Financing charges			2.00	0.00	0.00	0.00
	Total	167.67	124.85	936.41	0.00	0.00	744.69

3.16 ASSET CLASS WISE GFA

Commission's Analysis and Ruling

3.16.1 The Commission approves the asset class wise GFA considering the approved Capital Cost and apportioning the same under each asset class considering the asset class wise GFA claimed by SCCL. The asset class wise GFA approved by the Commission is as under:

Table 3-38: Asset class wise GFA approved by the Commission (Rs. Crore)

Particulars	Total Capital Cost	
	SCCL	Approved
Land	85.00	85.00
Plant & Machinery	7597.49	6730.42
Building & civil works	476.52	422.13
Transformers & substation equipment	182.82	161.95
Batteries	7.55	6.69
Overhead Lines	60.02	53.17
Air conditioning plants	49.37	43.74
Office equipment	8.65	7.66
Other assets	72.81	64.50
Total	8540.22	7575.26

3.17 INITIAL SPARES

Commission's Analysis and Ruling

3.17.1 Regulation 13 of the CERC (Terms and Conditions of Tariff) Regulations, 2014 specifies the ceiling norm of initial spares as 4.0% of the cost of Plant and Machinery. In reply to a specific query of the Commission, SCCL submitted the total amount of spares included in the capital cost as Rs. 168.40 Crore. The Commission observes that the spares of Rs. 168.40 Crore amounts to 2.50% of the GFA of Rs. 6730.42 Crore under the asset class Plant & Machinery. Hence, the total spares are well within the ceiling limit.

3.18 MEANS OF FINANCE

SCCL's submissions

3.18.1 SCCL submitted that the actual Debt Equity ratio as on COD of Unit 2 is 62:38. However, SCCL has considered the Debt Equity ratio of 70:30 for tariff purposes.

Commission's Analysis and Ruling

3.18.2 The actual debt equity ratio as on COD of Unit 2 is 62:38. In accordance with Regulation 19 of the CERC (Terms and Conditions of Tariff) Regulations, 2014, the

Commission has considered the Debt Equity ratio of 70:30 for tariff purposes.

3.18.3 The debt and equity approved by the Commission is as shown in the Table given below:

Table 3-39: Debt and Equity approved by the Commission

Particulars	Units	SCCL	Approved
Total Capital Cost	Rs. Crore	8540.22	7575.26
Gross Loan	%	70%	70%
	Rs. Crore	5978.15	5302.68
Equity	%	30%	30%
	Rs. Crore	2562.07	2272.58

4. GENERATION TARIFF OF SCCL TPP (2X600 MW)

4.1 GENERATION TARIFF

4.1.1 The tariff for sale of electricity by a generating company to a distribution licensee comprises of two parts a) Annual Fixed Charges and b) Energy Charges.

4.2 SCCL'S SUBMISSIONS

4.2.1 SCCL has claimed the generation tariff for its generating station in accordance with the Regulation No. 1 of 2008.

4.2.2 SCCL, in its Petition has submitted the Annual Fixed Charges and Energy Charges for FY 2016-17 to FY 2018-19 considering the COD of Unit 1 as March, 2016 and COD of Unit 2 as April, 2016. Subsequently, during the Public Hearing, SCCL has submitted the revised claim of Annual Fixed Charges and Energy Charges for FY 2016-17 to FY 2018-19 considering the actual CODs of the Units and audited Capital Cost as on COD.

4.2.3 The Annual Fixed Charges of a thermal generating station consist of recovery of the following:

- a. Return on Capital Employed (RoCE);
- b. Depreciation;
- c. O&M Expenses;
- d. Income Tax as per actuals;

4.3 RETURN ON CAPITAL EMPLOYED (ROCE)

SCCL's submissions

4.3.1 SCCL submitted that RoCE has been computed in accordance with the Regulation No. 1 of 2008. The submissions of SCCL in this regard are as follows:

- (i) The original capital cost for each year has been considered as the average of the opening and closing GFA for the respective year.
- (ii) The accumulated depreciation has been considered by arriving at the cumulative depreciation till the preceding year.
- (iii) The working capital requirement has been computed in accordance with Clause 12.4 of the Regulation No. 1 of 2014.
- (iv) Based on the above, the Regulated Rate Base (RRB) has been arrived at.
- (v) The normative debt equity ratio has been considered as 70:30.

- (vi) The rate of interest on long term loan has been considered as the weighted average of the interest rates of the actual loans. Accordingly, the rate of interest on long term loan has been considered as 10.93%, 10.64% and 10.48% for FY 2016-17, FY 2017-18 and FY 2018-19 respectively. The same has been considered as cost of debt in the computation of RoCE.
- (vii) The rate of Return on Equity has been considered as 15.50%.
- (viii) The Regulated Rate Base has been multiplied by the Weighted Average Cost of Capital for arriving at the Return on Capital Employed for each year.

4.3.2 The Return on Capital Employed claimed by SCCL is as shown in the Table given below:

Table 4-1: Return on Capital Employed claimed by SCCL (Rs. Crore)

Particulars	FY 2016-17		FY 2017-18	FY 2018-19
	From COD of Unit 1 till COD of Unit 2	From COD of Unit 2 till 31.03.2017		
Original Capital Cost	3886	7855	8052	8540
Less:				
Accumulated Depreciation	0	-53	-243	-852
Add:				
Working Capital	19	98	782	785
Regulated Rate Base	3961	8013	8836	8473
Debt to Equity Ratio	70:30	70:30	70:30	70:30
Cost of Debt	10.93%	10.93%	10.64%	10.48%
Return on Equity	15.50%	15.50%	15.50%	15.50%
WACC	12.31%	12.34%	12.39%	12.30%
RoCE	90	322	1095	1042

4.4 DEPRECIATION

SCCL's submissions

4.4.1 SCCL submitted that depreciation has been computed in accordance with the Regulation No. 1 of 2008. The submissions of SCCL in this regard are as follows:

- (i) The depreciation has been computed annually based on straight line method at the rates prescribed in the Ministry of Power (MoP) Notification dated 21.03.1994.
- (ii) The depreciation has been computed by applying the rates of depreciation on the average GFA for the year.

4.4.2 The depreciation claimed by SCCL is as shown in the Table given below:

Table 4-2: Depreciation claimed by SCCL (Rs. Crore)

Particulars	FY 2016-17		FY 2017-18	FY 2018-19
	From COD of Unit 1 till COD of Unit 2	From COD of Unit 2 till 31.03.2017		
Depreciation	53.31	189.39	609.15	637.40

4.5 O&M EXPENSES

SCCL's submissions

4.5.1 SCCL submitted that O&M expenses have been computed in accordance with the Regulation No. 1 of 2008. The submissions of SCCL in this regard are as follows:

- (i) The normative O&M expenses of Rs. 10.12 Lakh/MW specified for FY 2006-07 for Unit size of 500 MW has been escalated by the specified annual escalation rate of 4% to arrive at the normative O&M expenses for FY 2016-17. The normative O&M expenses have been annually escalated by 4% to arrive at the normative O&M expenses for FY 2017-18 and FY 2018-19. Accordingly, the normative O&M expenses have been computed as Rs. 14.98 Lakh/MW, Rs. 15.58 Lakh/MW and Rs. 16.20 Lakh/MW for FY 2016-17, FY 2017-18 and FY 2018-19 respectively.

4.5.2 The O&M expenses claimed by SCCL is as shown in the Table given below:

Table 4-3: O&M expenses claimed by SCCL (Rs. Crore)

Particulars	FY 2016-17		FY 2017-18	FY 2018-19
	From COD of Unit 1 till COD of Unit 2	From COD of Unit 2 till 31.03.2017		
O&M expenses	16.50	58.61	186.95	194.43

4.5.3 Based on the above, the Annual Fixed Charges claimed by SCCL are as shown in the Table given below:

Table 4-4: Annual Fixed Charges claimed by SCCL (Rs. Crore)

Particulars	FY 2016-17		FY 2017-18	FY 2018-19
	From COD of Unit 1 till COD of Unit 2	From COD of Unit 2 till 31.03.2017		
Annual Fixed Charges				
Return on Capital Employed (RoCE)	89.54	322.33	1094.53	1042.31
Depreciation	53.31	189.39	609.15	637.40
O&M expenses	16.50	58.61	186.95	194.43
Annual Fixed Charges	159.35	570.33	1890.63	1874.14

4.6 APPROACH FOR TARIFF DETERMINATION

Commission's Analysis and Ruling

4.6.1 The erstwhile APERC had issued the Regulation No. 1 of 2008 specifying the terms and conditions for determination of tariff for supply of electricity by a generating company to a distribution licensee and purchase of electricity by distribution licensees. Consequent upon formation of the Telangana State and constitution of TSERC, vide its Regulation No. 1 of 2014, the Commission had adopted the Regulations issued by the erstwhile APERC as in existence as on the date of constitution of TSERC.

4.6.2 Clause 10 of the Regulation No. 1 of 2008 specifies as under:

"10 TARIFF DETERMINATION

Tariffs under this Part shall be determined in accordance with the norms specified herein, guided by the principles and methodologies specified in CERC (Terms and Conditions of Tariff) Regulations 2004 as originally issued and amended by CERC (Terms and Conditions of Tariff) (First Amendment) Regulations, 2006, issued on 1st June, 2006 vide No. L-7/25/(5)/2003 –CERC; any further amendments thereto shall be applicable on their adoption by the Commission, by means of a general or special order, with or without any modifications:

Provided that the norms or operation specified in this Regulation shall not preclude the generating company and the distribution licensee from agreeing upon improved norms of operation and in such a case, such improved norms shall be applicable for determination of tariff.

10.1 Tariff in respect of a generating station under this Regulation shall be determined Stage-wise, Unit-wise or for the whole generating station. The terms and conditions for determination of tariff for generating stations specified in this Part shall apply in like manner to Stages or Units, as the case may be, as to generating stations.”

- 4.6.3 From the above, it is amply clear that the Regulation No. 1 of 2008 provides for the adoption of amendments to CERC (Terms and Conditions of Tariff) Regulations, 2004 by means of a general or special order, with or without modifications. The Regulations issued by CERC currently in force for determination of tariff of a generating company are CERC (Terms and Conditions of Tariff) Regulations, 2014 which are applicable for the Control Period from FY 2014-15 to FY 2018-19.
- 4.6.4 The Commission now discusses on the issue of whether the adoption of the CERC (Terms and Conditions of Tariff) Regulations, 2014 is required and if so, to what extent. The norms of operation of a thermal generating station comprise of Availability, PLF, Auxiliary Consumption, Station Heat Rate, Secondary Fuel Oil Consumption and Transit Loss. The norms of operation specified in the Regulation No. 1 of 2008 were guided by the empirical studies conducted by the CERC for its Terms and Conditions of Tariff Regulations, 2004. Many technological advancements have taken place since then which have been taken into consideration by CERC in the issue of its Tariff Regulations for thermal generating companies subsequently. The order of BTG package was placed by SCCL on 11.11.2011. The Commission does not find it prudent to consider the norms of operation specified based on the technology in a period much prior to the placement of BTG package of SCCL for tariff determination in the instant case.
- 4.6.5 In light of the above discussion, the Commission has considered the norms of operation as specified in the CERC (Terms and Conditions of Tariff) Regulations, 2014 for determination of Energy Charges for SCCL TPP in the instant case. Further, for determination of Annual Fixed Charges, the Commission has considered the components of Annual Fixed Charges as specified in the CERC (Terms and Conditions of Tariff) Regulations, 2014.
- 4.6.6 In accordance with Regulation 21 of the CERC (Terms and Conditions of Tariff) Regulations, 2014, the Annual Fixed Charges of a thermal generating station consist of recovery of the following:
- a. Return on Equity (RoE);
 - b. Interest on Loan
 - c. Depreciation;

- d. Interest on working capital; and
- e. Operation and maintenance Expenses;

4.7 RETURN ON EQUITY

Commission's Analysis and Ruling

- 4.7.1 Regulations 24 & 25 of the CERC (Terms and Conditions of Tariff) Regulations, 2014 specifies as under:

"24. Return on Equity:

(2) Return on equity shall be computed at the base rate of 15.50% for thermal generating stations.....

25. Tax on Return on Equity:

(1) The base rate of return on equity as allowed by the Commission under Regulation 24 shall be grossed up with the effective tax rate of the respective financial year. For this purpose, the effective tax rate shall be considered on the basis of actual tax paid in the respect of the financial year in line with the provisions of the relevant Finance Acts by the concerned generating company or the transmission licensee, as the case may be. The actual tax income on other income stream (i.e., income of non generation or non transmission business, as the case may be) shall not be considered for the calculation of "effective tax rate".

(2) Rate of return on equity shall be rounded off to three decimal places and shall be computed as per the formula given below:

$$\text{Rate of pre-tax return on equity} = \text{Base rate} / (1-t)$$

*Where "t" is the effective tax rate in accordance with Clause (1) of this regulation and shall be calculated at the beginning of every financial year based on the estimated profit and tax to be paid estimated in line with the provisions of the relevant Finance Act applicable for that financial year to the company on pro-rata basis by excluding the income of non-generation or non-transmission business, as the case may be, and the corresponding tax thereon. In case of generating company or transmission licensee paying Minimum Alternate Tax (MAT), "t" shall be considered as MAT rate including surcharge and cess.
....."*

4.7.2 The Commission approves the Return on Equity considering the approved Equity Base. The Commission, for the purpose of this Order, has considered the MAT Rate of 21.34% for grossing up the base rate of RoE of 15.50%. The actual tax rate in accordance with the above stated Regulation shall be considered at the time of truing up for the respective year. The Return on Equity approved by the Commission is below:

Table 4-5: Return on Equity approved by the Commission (Rs. Crore)

Particulars	FY 2016-17		FY 2017-18	FY 2018-19
	From COD of Unit 1 till COD of Unit 2	From COD of Unit 2 till 31.03.2017		
Opening Equity	1050.57	2011.71	2049.17	2049.17
Addition	0.00	37.46	0.00	223.41
Closing Equity	1050.57	2049.17	2049.17	2272.58
Rate of RoE	15.50%	15.50%	15.50%	15.50%
Tax Rate	21.34%	21.34%	21.34%	21.34%
Grossed up rate of RoE	19.71%	19.71%	19.71%	19.71%
RoE	38.57	131.54	403.79	425.80

4.8 INTEREST ON LOAN

Commission's Analysis and Ruling

4.8.1 Regulation 26 of the CERC (Terms and Conditions of Tariff) Regulations, 2014 specifies as under:

“26. Interest on loan capital:

(1) The loans arrived at in the manner indicated in regulation 19 shall be considered as gross normative loan for calculation of interest on loan.

.....

(3) The repayment for each of the year of the tariff period 2014-19 shall be deemed to be equal to the depreciation allowed for the corresponding year/period.....

(4) Notwithstanding any moratorium period availed by the generating company or the transmission licensee, as the case may be, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the depreciation allowed for the year or part of the year.

(5) *The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio.....*

(6) *The interest on loan shall be calculated on the normative average loan of the year by applying the weighted average rate of interest.*

.....”

4.8.2 The Commission approves the interest on loan in accordance with the CERC (Terms and Conditions of Tariff) Regulations, 2014. The loan capital corresponding to the approved capital cost has been considered for computing the interest on loan. The allowable depreciation for the year has been considered as the normative repayment for the year. The weighted average interest rate of the actual loan portfolio has been considered as the rate of interest. The interest on loan has been calculated on the normative average loan for the year by applying the weighted average rate of interest.

Table 4-6: Interest on loan approved by the Commission (Rs. Crore)

Particulars	FY 2016-17		FY 2017-18	FY 2018-19
	From COD of Unit 1 till COD of Unit 2	From COD of Unit 2 till 31.03.2017		
Opening Loan	2451.33	4660.86	4635.30	4288.69
Addition	0.00	87.40	0.00	521.29
Repayment	33.14	112.96	346.61	365.29
Closing Loan	2418.19	4635.30	4288.69	4444.69
Interest rate	10.78%	10.78%	9.21%	9.21%
Interest	48.91	164.78	410.83	402.06

4.9 DEPRECIATION

Commission’s Analysis and Ruling

4.9.1 Regulation 27 of the CERC (Terms and Conditions of Tariff) Regulations, 2014 specifies as under:

“27. Depreciation: (1) Depreciation shall be computed from the date of commercial operation of a generating station or unit thereof.....

(2) The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission. In case of multiple units of a generating

station or multiple elements of transmission system, weighted average life for the generating station of the transmission system shall be applied. Depreciation shall be chargeable from the first year of commercial operation. In case of commercial operation of the asset for part of the year, depreciation shall be charged on pro rata basis.

.....
 (5) Depreciation shall be calculated annually based on Straight Line Method and at rates specified in **Appendix-II** to these regulations for the assets of the generating station and transmission system:

.....”

- 4.9.2 The Commission approves the depreciation in accordance with the CERC (Terms and Conditions of Tariff) Regulations, 2014 considering the approved asset base and the specified rates of depreciation. The depreciation approved by the Commission is as shown in the Table given below:

Table 4-7: Depreciation approved by the Commission (Rs. Crore)

Particulars	FY 2016-17		FY 2017-18	FY 2018-19
	From COD of Unit 1 till COD of Unit 2	From COD of Unit 2 till 31.03.2017		
Depreciation	33.14	112.96	346.61	365.29

4.10 INTEREST ON WORKING CAPITAL

Commission's Analysis and Ruling

- 4.10.1 Regulation 28 of the CERC (Terms and Conditions of Tariff) Regulations, 2014 specifies as under:

28. Interest on Working Capital: (1) The working capital shall cover:

(a) Coal-based/lignite-fired thermal generating stations

(i) Cost of coal or lignite and limestone towards stock, if applicable, for 15 days for pit-head generating stations and 30 days for non-pit-head generating stations for generation corresponding to the normative annual plant availability factor or the maximum coal/lignite stock storage capacity whichever is lower;

(ii) Cost of coal or lignite and limestone for 30 days for generation corresponding to the normative annual plant availability factor;

(iii) Cost of secondary fuel oil for two months for generation corresponding to the normative annual plant availability factor, and in case of use of more than one secondary fuel oil, cost of fuel oil stock for the main secondary fuel oil;

(iv) Maintenance spares @ 20% of operation and maintenance expenses specified in regulation 29;

(v) Receivables equivalent to two months of capacity charges and energy charges for sale of electricity calculated on the normative annual plant availability factor; and

(vi) Operation and maintenance expenses for one month.

.....

(3) Rate of interest on working capital shall be on normative basis and shall be considered as the bank rate as on 1.4.2014 or as on 1st April of the year during the tariff period 2014-15 to 2018-19 in which the generating station or a unit thereof or the transmission system including communication system or element thereof, as the case may be, is declared under commercial operation, whichever is later.

(4) Interest on working capital shall be payable on normative basis notwithstanding that the generating company or the transmission licensee has not taken loan for working capital from any outside agency. ”

4.10.2 The Commission approves interest on working capital in accordance with the CERC (Terms and Conditions of Tariff) Regulations, 2014. The interest on working capital approved by the Commission is as shown in the Table given below:

Table 4-8: Interest on working capital approved by the Commission (Rs. Crore)

Particulars	FY 2016-17		FY 2017-18	FY 2018-19
	From COD of Unit 1 till COD of Unit 2	From COD of Unit 2 till 31.03.2017		
Cost of Coal	117.64	235.28	235.28	235.28
Cost of secondary fuel oil	1.29	2.58	2.58	2.58
O&M expenses	8.14	16.27	17.30	18.38
Maintenance spares	3.64	12.84	41.52	44.11
Receivables	251.25	494.13	482.63	490.35
Total Working Capital	381.96	761.10	779.31	790.70
Rate of IoWC	12.80%	12.80%	12.80%	12.80%
Interest on Working Capital	9.11	32.03	99.75	101.21

4.11 OPERATION AND MAINTENANCE (O&M) EXPENSES

Commission's Analysis and Ruling

4.11.1 Regulation 29(1) of the CERC (Terms and Conditions of Tariff) Regulations, 2014 specifies the normative O&M expenses of Rs. 16.27 lakh/MW, Rs. 17.30 lakh/MW and Rs. 18.38 lakh/MW for FY 2016-17, FY 2017-18 and FY 2018-19 respectively. The Commission approves the O&M expenses considering the normative O&M expenses as specified in the CERC (Terms and Conditions of Tariff) Regulations, 2014. The O&M expenses approved by the Commission is as shown in the Table given below:

Table 4-9: O&M expenses approved by the Commission (Rs. Crore)

Particulars	Units	FY 2016-17		FY 2017-18	FY 2018-19
		From COD of Unit 1 till COD of Unit 2	From COD of Unit 2 till 31.03.2017		
Installed Capacity	MW	600	1200	1200	1200
Normative O&M expenses	Rs. Lakh/MW	16.27	16.27	17.30	18.38
Normative O&M expenses	Rs. Crore	18.19	64.19	207.60	220.56

4.12 ANNUAL FIXED CHARGES

Commission's Analysis and Ruling

4.12.1 Based on the above, the Annual Fixed Charges approved by the Commission is as shown in the Table given below:

Table 4-10: Annual Fixed Charges approved by the Commission (Rs. Crore)

Particulars	FY 2016-17		FY 2017-18	FY 2018-19
	From COD of Unit 1 till COD of Unit 2	From COD of Unit 2 till 31.03.2017		
Return on Equity	38.57	131.54	403.79	425.80
Interest on Loan	48.91	164.78	410.83	402.06
Depreciation	33.14	112.96	346.61	365.29
Interest on Working Capital	9.11	32.03	99.75	101.21
O&M expenses	18.19	64.19	207.60	220.56
AFC	147.91	505.50	1468.58	1514.92

4.13 NORMS OF OPERATION

Commission's Analysis and Ruling

- 4.13.1 The norms of operation of a thermal generating station comprise of Availability, PLF, Auxiliary Consumption, Station Heat Rate, Secondary Fuel Oil Consumption and Transit Loss.
- 4.13.2 SCCL has proposed the norms of operation as specified in the Regulation No. 1 of 2008. As discussed in the preceding paragraphs, the Commission has considered the norms of operation as specified in the CERC (Terms and Conditions of Tariff) Regulations, 2014 in the determination of Energy Charges for SCCL TPP.
- 4.13.3 In reply to a specific query of the Commission, SCCL submitted the guaranteed technical parameters. The Commission has determined the normative GSHR for SCCL TPP in accordance with the CERC (Terms and Conditions of Tariff) Regulations, 2014 as shown in the Table given below:

Table 4-11: Normative SHR approved by the Commission

Particulars	Units	Legend	Value
Pressure Rating	kg/cm ²	A	170
SHT/RHT	°C	B	537/565
Type of Boiler Feed Pump		C	Turbine Driven
Maximum Turbine Cycle Heat Rate as per CERC Tariff Regulations, 2014	kcal/kWh	D	1935
Minimum Boiler Efficiency as per CERC Tariff Regulations, 2014	%	E	86%
Guaranteed Turbine Cycle Heat Rate (@ 100% unit load) (as submitted by SCCL)	kcal/kWh	F	1927.1
Guaranteed Boiler Efficiency (@ 100% unit load) (as submitted by SCCL)	%	G	87.41%
Design Heat Rate	kcal/kWh	$H=F \div G$	2204.67
Maximum Design Heat Rate as per CERC Tariff Regulations, 2014	kcal/kWh	I	2250.00
Allowable Design Heat Rate	kcal/kWh	J=minimum of H and I	2204.67
Allowable Gross Station Heat Rate (1.045xDesign Heat Rate)	kcal/kWh	$K=1.045 \times J$	2303.88

4.13.4 The norms of operation approved by the Commission are as shown in the Table given below:

Table 4-12: Norms of operation approved by the Commission

Particulars	Units	Claimed by SCCL	Approved
Target Availability for recovery of full Fixed Charges	%	80.00%	85.00%
Target PLF for incentive*	%	80.00%	85.00%
Auxiliary Consumption	%	7.50%	5.75%**
Gross Station Heat Rate	kcal/kWh	2450.00	2303.88
Secondary Fuel Oil Consumption	ml/kWh	2.00	0.50
Transit Loss (non-pithead)	%	0.80%	0.80%
GCV of Coal (for tariff purposes)		As fired basis	As received basis

*Incentive shall be in accordance with CERC (Terms and Conditions of Tariff) Regulations, 2014

**5.25% + 0.50% for induced draft cooling tower

4.14 RATE OF ENERGY CHARGE

Commission's Analysis and Ruling

4.14.1 In reply to a specific query of the Commission, SCCL has submitted the actual GCV and landed prices of coal and secondary fuel oil for the months of December, 2016, January, 2017 and February, 2017. The tentative Energy Charge computed by the Commission is annexed at Appendix-2.

4.14.2 The variation in price or heat values of fuels from that considered in the computation of Rate of Energy Charge shall be subject to adjustment in accordance with Clause 13.1(b) of the Regulation No. 1 of 2008.

4.15 APPROVED TARIFF

4.15.1 Based on the above, the Generation Tariff determined by the Commission for SCCL TPP is as shown in the Table given below:

Table 4-13: Generation Tariff approved by the Commission

Particulars	FY 2016-17				FY 2017-18		FY 2018-19	
	Claimed by SCCL		Approved		Claimed by SCCL	Approved	Claimed by SCCL	Approved
	From COD of Unit 1 till COD of Unit 2	From COD of Unit 2 till 31.03.2017	From COD of Unit 1 till COD of Unit 2	From COD of Unit 2 till 31.03.2017				
Net Generation (MU)	725	2557	784	2769	7779	8421	7779	8421
Annual Fixed Charges (Rs. Crore)	159.35	570.33	147.91	505.50	1890.63	1468.58	1874.14	1514.92
Annual Fixed Charges per unit (Rs./kWh)	2.23	2.25	1.89	1.83	2.43	1.74	2.41	1.80

- 4.15.2 The billing and payment of Annual Fixed Charges and Energy Charges shall be in accordance with the Regulation No. 1 of 2008.
- 4.15.3 The tariff approved by the Commission in this Order shall be effective from 01.06.2017. The Commission directs the Petitioner to bill/adjust the difference in tariff approved by the Commission in this Order and tariff charged as approved earlier in the Interim Order by the Commission for the period from COD of Unit 1 till the issue of this Order in the next month's bill.

This Order is signed on the 19th day of June 2017.

**Sd/-
H. SRINIVASULU
MEMBER**

**Sd/-
ISMAIL ALI KHAN
CHAIRMAN**

APPENDIX-1

List of stakeholders who submitted written objections/ suggestions/ comments

S. No.	Name of the Stakeholder
1	Northern Power Distribution Company of Telangana Ltd. & Southern Power Distribution Company of Telangana Ltd.
2	Sri. M. Venugopala Rao, Senior Journalist and Convener of Centre for Power Studies, Hyderabad
3	Sri. M. Thimma Reddy, Convenor, People's Monitoring Group on Electricity Regulation, Hyderabad
4	Sri D. Narasimha Reddy, Hyderabad
5	Sri M. Sridhar Reddy, Bharatiya Kisan Sangh, Hyderabad

APPENDIX-2

Tentative Energy Charge computed by the Commission

Particulars	Units	Energy Charges	
		Claimed by SCCL	Approved
Normative Auxiliary Energy Consumption	%	7.50%	5.75%
Gross Station Heat Rate	kcal/kWh	2450	2303.88
Normative Secondary Fuel oil consumption	ml/kWh	2.00	0.50
Calorific Value of Secondary Fuel	kcal/ml	10	10
Landed Price of Secondary Fuel	Rs./ml	0.04	0.03
Wt. Avg. Gross Calorific Value of Coal	kcal/kg	4113*	4130**
Landed Price of Coal	Rs./kg	2.86	2.84
Specific Coal Consumption	kg/kWh	0.59	0.56
Rate of Energy Charge	Rs./kWh	1.91	1.69

*As Fired GCV; **As Received GCV