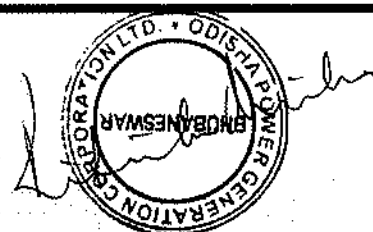


ODISHA POWER GENERATION CORPORATION LIMITED
BHUBANESWAR



**APPLICATION FOR APPROVAL OF
GENERATION TARIFF FOR FINANCIAL YEAR 2016-17
IN TERMS OF SECTION 62 & 86 OF THE ELECTRICITY
ACT, 2003 READ WITH APPROVED BULK POWER SUPPLY
AGREEMENT, RELATED PROVISIONS OF OERC (TERMS
AND CONDITIONS OF GENERATION TARIFF)
REGULATIONS, 2014 AND OERC (CONDUCT OF BUSINESS)
REGULATIONS, 2004**

DECEMBER, 2015





ODISHA POWER GENERATION CORPORATION LTD.

(A Government Company of the State of Odisha)

CIN : U40104OR1984SGC001429

Regd. Off. : Zone-A, 7th Floor, Fortune Towers, Chandrasekharpur, Bhubaneswar - 751023, Odisha

Ph. : 0674-2303765 - 66, Fax : 0674-2303755 / 56

Web : www.opgc.co.in,

Ref: OPGC Units 1 & 2 / Tariff filing 2016-17 /3622

5th December 2015

To

The Secretary

Odisha Electricity Regulatory Commission,

Bidyut Niyamak Bhawan,

Unit- VIII, Bhubaneswar- 751 012.

Sub: Authorisation of Mr. Ritwik Mishra, DGM (CMG) for filing of tariff petition

Sir,

This is to certify that Mr. Ritwik Mishra, functioning as Dy. General Manager, Corporate Monitoring Group, Odisha Power Generation Corporation Ltd., posted at the corporate office at Zone-A, 7th Floor, Fortune Towers, Chandrasekharpur, Bhubaneswar-751023, Odisha, India (Petitioner), is hereby authorised to file the petition for approval of generation tariff for the year 2016 – 17 and appear on behalf of the petitioner for the tariff hearing and order procedure before the OERC.

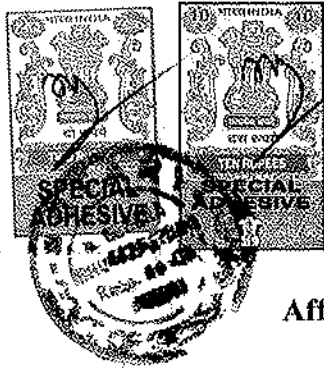
Thanking you,

Yours faithfully

(Indranil Dutta)

Managing Director

Odisha Power Generation Corporation Ltd
Bhubaneswar



5/12/15 08 DEC 2015

Affidavit

Nilamani Behera
NILAMANI BEHERA
NOTARY, BHUBANESWAR
GOVT. OF ORISSA (INDIA)
Reg. No. OH-12/2007

BEFORE THE ODISHA ELECTRICITY REGULATORY COMMISSION,
Bhubaneswar

File No.

Case No. _____ of 2015

IN THE MATTER OF: Application for approval of Generation Tariff for Odisha Power Generation Corporation Ltd. for FY 2016-17 under Section 62 & 86 of the Electricity Act, 2003 read with Approved Bulk Supply Agreement along with Supplemental Agreement (together referred to as the 'Amended PPA'), related provisions of OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2014 and OERC (Conduct of Business) Regulations, 2004.

AND

IN THE MATTER OF:

Odisha Power Generation Corporation Ltd. (OPGC),
Zone-A, 7th Floor,
Fortune Towers,
Chandrasekharpur, Bhubaneswar-751023

.....The Petitioner

I, Ritwik Mishra, son of Shri. Muralidhar Mishra, aged about 47 years, residing at Flat No. E/3, Brindavan Enclave, Khandagiri Bari, Bhubaneswar-751 030, do solemnly affirm and say as follows:

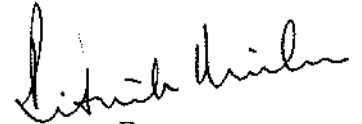
1. That I am a Deputy General Manager-Corporate Monitoring Group, of Odisha Power Generation Corporation Ltd. at its Corporate Office at Zone-A, 7th Floor, Fortune Towers Chandrasekharpur, Bhubaneswar-751023, the Petitioner in the above matter and am duly authorised by the competent authority of the said Petitioner to make this affidavit on its behalf.

Contd...



Ritwik Mishra

2. The statements made in paragraphs _____ of the Petition herein now shown to me are true to the best of my knowledge and statements made in paragraphs _____ are based on information and I believe them to be true.

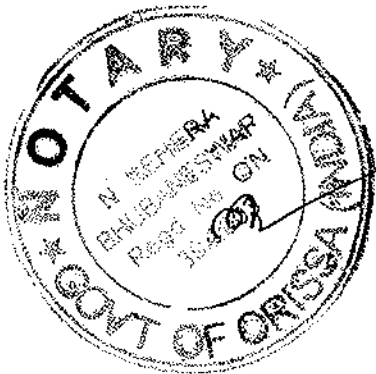

Deponent


Verification:

I, the deponent above named do hereby verify that the contents of my above affidavit are true to my knowledge; no part of it is false and nothing material has been concealed there from.

Verified at Bhubaneswar on the 5th day of December, 2015.


Deponent




NILAMANI BEHERA
NOTARY, BHUBANESWAR
GOVT. OF ORISSA (INDIA)
Regd. No-ON-39/2008

BEFORE THE ODISHA ELECTRICITY REGULATORY COMMISSION, ODISHA

CASE No. _____ of 2015

IN THE MATTER OF

Application for approval of Generation Tariff for Odisha Power Generation Corporation Ltd. for FY 2016-17 under Section 62 & 86 of the Electricity Act, 2003 read with approved Bulk Power Supply Agreement along with Supplemental Agreement (together referred as "Amended PPA"), related provisions of OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2014 and OERC (Conduct of Business) Regulations, 2004.

AND

**IN THE MATTER OF
THE APPLICANT**

Odisha Power Generation Corporation Ltd. (OPGC Ltd.),
Zone-A, 7th Floor, Fortune Towers, Chandrasekharpur,
Bhubaneswar-751023, Odisha, India (Petitioner)

**ODISHA POWER GENERATION CORPORATION LIMITED ("The Petitioner")
RESPECTFULLY SUBMITS AS FOLLOWS:**

Odisha Power Generation Corporation Limited (herein after referred as "OPGC" or "the Petitioner") is a company incorporated under the Companies Act, 1956 and having its registered office at Zone-A, 7th floor, Fortune Towers, Chandrasekharpur, Bhubaneswar, Odisha-751023.

GRIDCO Limited ("GRIDCO") had entered into Bulk Power Supply Agreement ("PPA") with OPGC dated August 13, 1996, for purchase of power from its Generating Units 1 & 2, having capacity of 420 MW (210 MW x 2) of IB Thermal Power Station. The said PPA came into force from January 1, 1995 and was approved by Government of Odisha in exercise of its power under Section 43A of the Electricity (Supply) Act, 1948.



OPGC, GRIDCO and Government of Odisha signed a Tripartite Agreement dated October 18, 1998 providing certain further amendments to existing PPA and other provisions including those concerning the establishment of Units 3 & 4 of IB Thermal Power Station by OPGC. Further, Escrow and Securitization Agreement dated November 30, 1998 was entered between OPGC, GRIDCO and Union Bank of India.

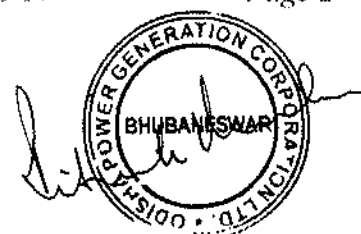
After resolving the disputes between the parties, OPGC and GRIDCO agreed to amend existing PPA and Tripartite agreement based on Government of Odisha Notification dated June 21, 2008. Accordingly, an agreement was signed on September 6, 2012 as Supplemental to the Tripartite Agreement executed on October 18, 1998 (together called "Amended Tripartite Agreement"). The Amended Tripartite Agreement has been made effective from October 12, 2009.

Subsequently, OPGC and GRIDCO signed an amendment to existing PPA on December 19, 2012 by amending certain clauses related to Plant Load Factor, Revision in tariff, etc. (together called the "Amended PPA"), which was retrospectively brought to effect from April 1, 2007.

Hon'ble OERC vide its Order dated April 27, 2015 approved the Amended PPA as under:

"11. Since the power purchase by GRIDCO from Unit 1 & 2 of Ib Thermal Power Station has been continuing as per mutual agreement without approved PPA and the Commission has approved the same in the ARR of GRIDCO for the concerned year there is no need to reopen the same as per the above Regulation. The parties should, therefore, settle the power purchase process for the period prior to implementation of the above Regulation taking into account the original PPA and its supplemental one as approved by us now."

Further, Hon'ble OERC in the said Order dated April, 27 2015 directed OPGC to file an application for determination of Generation Tariff, as per approved Amended PPA, for rest of the control period starting from FY 2016-17 onwards, since tariff for FY 2014-15 and FY 2015-16 has already been approved by Hon'ble OERC in ARR of GRIDCO. The relevant extract of the Order of the Hon'ble OERC is reproduced below:



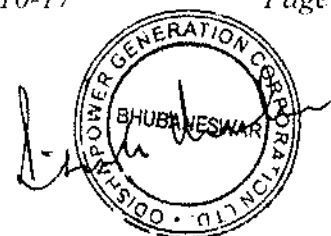
“13. Due to the above provision in the Regulation read with Regulation 7.13 of the same Regulations, OPGC shall make an application before the Commission as per the above approved PPA each year for determination of tariff for the rest of the control period starting from FY 2016-17 onwards since the tariff for the FY 2014-15 and 2015-16 has already been approved by the Commission in the ARR of GRIDCO for the said year basing on the submission of GRIDCO.”

In compliance to the above directions of the Hon'ble OERC, OPGC is filing the present application for Approval of Generation Tariff for FY 2016-17 under Section 62 and 86 of the Electricity Act, 2003 (“the Act”), approved Amended PPA and related provision of OERC (Terms and Conditions of Generation Tariff) Regulations, 2014 and OERC (Conduct of Business) Regulations, 2004, as amended from time to time.

Prayers to the Hon'ble OERC

OPGC respectfully prays that the Hon'ble OERC may:

- i. Accept the Application for Approval of Generation Tariff for Odisha Power Generation Corporation Ltd. for FY 2016-17 for supplying power to GRIDCO Ltd. from Units 1 & 2 of IB Thermal Power Station.
- ii. Approve the tariff, including annual fixed cost and variable charges, for supplying the power to GRIDCO Ltd. for FY 2016-17.
- iii. Approve the Year-end charges to be paid by GRIDCO Ltd. as per the provisions of Amended PPA signed between OPGC Ltd. and GRIDCO Ltd.
- iv. Approve Additional Capitalisation incurred by OPGC Ltd. during FY 2014-15 and FY 2015-16 and projected for FY 2016-17 and its recovery through tariff of FY 2016-17.
- v. Approve the recovery of upward and downward variation in fuel prices and calorific value including fuel mix through Fuel Price Adjustment as per the provisions of Amended PPA between OPGC Ltd. and GRIDCO Ltd.



- vi. Condone the delay in filing the Petition.
- vii. Condone any inadvertent omissions, errors, short comings and permit OPGC to add/ change/ modify/ alter this filing and make further submissions as may be required at a future date; and
- viii. Pass such other and further Orders as deemed fit and proper in the facts and circumstances of the case.

Bhubaneshwar
December 5, 2015

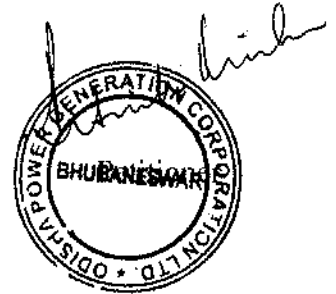
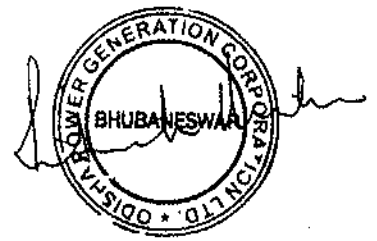


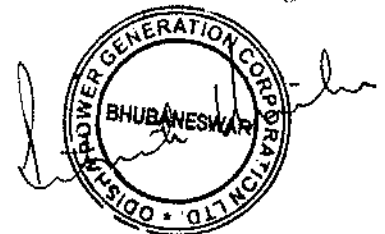
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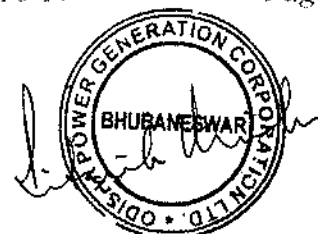
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Introduction

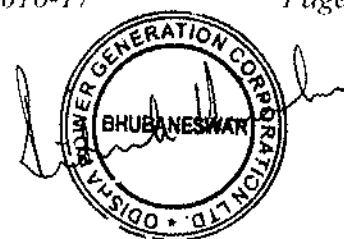
- 1.1 Odisha Power Generation Corporation Limited (herein after referred as “OPGC” or “the Petitioner”) is a company incorporated under the Companies Act, 1956 and having its registered office at Zone-A, 7th floor, Fortune Towers, Chandrasekharpur, Bhubaneswar, Odisha-751023.
- 1.2 GRIDCO Limited (“GRIDCO”) had entered into Bulk Power Supply Agreement (“PPA”) with OPGC dated August 13, 1996, for purchase of power from its Generating Units 1 & 2, having capacity of 420 MW (210 MW x 2) of IB Thermal Power Station. The said PPA came into force from January 1, 1995 and was approved by Government of Odisha in exercise of its power under Section 43A of the Electricity (Supply) Act, 1948.
- 1.3 OPGC, GRIDCO and Government of Odisha signed a Tripartite Agreement dated October 18, 1998 providing certain further amendments to existing PPA and other provisions including those concerning the establishment of Units 3 & 4 of IB Thermal Power Station by OPGC. Further, Escrow and Security Agreement dated November 30, 1998 was entered between OPGC, GRIDCO and Union Bank of India.
- 1.4 GRIDCO had approached the Hon’ble OERC for approval of the existing PPA in 2002. The jurisdiction of the Hon’ble OERC for approval of the existing PPA was challenged by OPGC before Hon’ble Orissa High Court, but was upheld by Hon’ble Orissa High Court. Further, aggrieved by this, OPGC filed a Special Leave Petition before Hon’ble Supreme Court. The proceedings of the Hon’ble OERC were stayed pursuant to an interim Order of the Hon’ble Supreme Court dated April 29, 2005.
- 1.5 Subsequently, certain disputes had arisen between the parties on issues arising from the terms of the PPA, Tripartite Agreement and other agreements between the Parties. In order to resolve these disputes, the parties entered into discussion and Government of Odisha constituted a Task Force vide Resolution No. 3895 dated May 7, 2007 for



resolving disputes regarding tariff and other related matters. Government of Odisha, based on the recommendations of Task Force, issued Notification No. 7216 dated June 21, 2008 for resolving all such disputes on terms and conditions contained therein in regard to Unit 1 & 2 and also in regard to setting up of Unit 3 & 4, as overall settlement of all such disputes.

- 1.6 Pursuant to above, OPGC and GRIDCO agreed to amend existing PPA and Tripartite agreement based on Government of Odisha Notification dated June 21, 2008. Accordingly, an agreement was signed on September 6, 2012 as Supplemental to the Tripartite agreement executed on October 18, 1998 (together called as "Amended Tripartite Agreement"). The Amended Tripartite Agreement has been made effective from October 12, 2009.
- 1.7 Subsequently, OPGC and GRIDCO signed an amendment to existing PPA on December 19, 2012 by amending certain clauses related to Plant Load Factor, Revision in tariff, etc. (together called the "Amended PPA"), which was retrospectively brought to effect from April 1, 2007.
- 1.8 With the execution of this agreement, the Parties have agreed that all pending differences have been settled and OPGC shall withdraw Special Leave Petition pending before Hon'ble Supreme Court. Further, Hon'ble Supreme Court vide its Order dated February 14, 2013 has dismissed Appeals as withdrawn by OPGC and in the said order Hon'ble Supreme Court has directed OPGC to file the Amended PPA before Hon'ble OERC and the Hon'ble OERC shall consider the same appropriately in accordance with law.
- 1.9 Hon'ble OERC vide its Order dated April 27, 2015 approved the Amended PPA as under:

"11. Since the power purchase by GRIDCO from Unit 1 & 2 of Ib Thermal Power Station has been continuing as per mutual agreement without approved PPA and the Commission has approved the same in the ARR of GRIDCO for the concerned



year there is no need to reopen the same as per the above Regulation. The parties should, therefore, settle the power purchase process for the period prior to implementation of the above Regulation taking into account the original PPA and its supplemental one as approved by us now."

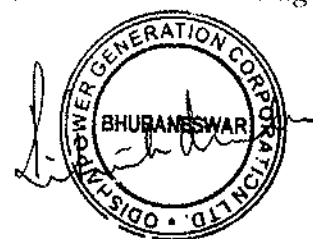
1.10 Further, Hon'ble OERC in the said Order dated April, 27 2015 directed OPGC to file an application for determination of Generation Tariff, as per approved Amended PPA, for rest of the control period starting from FY 2016-17 onwards since tariff for FY 2014-15 and FY 2015-16 has already been approved by Hon'ble OERC in ARR of GRIDCO. The relevant extract of the OERC Order is reproduced below:

"12. The Regulation 2.7 of OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2014 provides as follows:

"The existing generation plants of OHPC and OPGC may make an application as per the Format prescribed by the Commission for determination of tariff as per annual schedule, by November 30th of every year for determination of tariff in respect of the units of the generating station completed or projected to be completed within six months from the date of application.

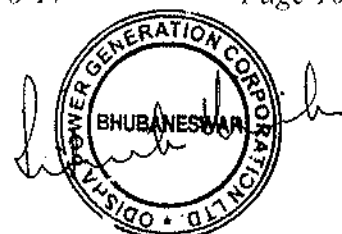
Provided that the OHPC and OPGC shall make an application as per the prescribed Format with necessary information and explanations, for determination of tariff based on capital expenditure incurred duly certified by the auditors or projected to be incurred up to the date of commercial operation and additional capital expenditure incurred duly certified by the auditors or projected to be incurred during the period for which application for determination of tariff is filed of the generating station:"

13. Due to the above provision in the Regulation read with Regulation 7.13 of the same Regulations, OPGC shall make an application before the Commission as per the above approved PPA each year for determination of tariff for the rest of the control period starting from FY 2016-17 onwards since the tariff for the FY 2014-15 and 2015-16 has already been approved by the Commission in the ARR of



GRIDCO for the said year basing on the submission of GRIDCO."

- 1.11 In compliance to the above directions of the Hon'ble OERC, OPGC is filing the present application for Approval of Generation Tariff for FY 2016-17 under Section 62 and 86 of the Electricity Act, 2003 ("the Act"), Amended PPA and related provision of OERC (Terms and Conditions of Generation Tariff) Regulations, 2014 and OERC (Conduct of Business) Regulations, 2004, as amended from time to time.
- 1.12 Regulation 2.7 of OERC Generation Tariff Regulations, 2014 requires to file application for determination of tariff before OERC by November 30th of every year. Since, OPGC is filing application of tariff for the first time, it has sought time extension for filing of application for Generation Tariff for FY 2016-17 vide letter dated November 28, 2015, which has been granted by OERC vide its letter dated December 1, 2015.

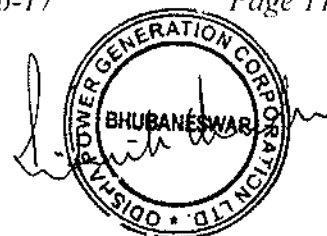


2 Overall Approach for Filing Petition

- 2.1 The Present Petition has been filed for determination of Generation Tariff for IB Thermal Power Station of OPGC Ltd., having installed capacity of 420 MW (2 x 210 MW- Unit 1 & 2), located at Banharpalli in District Jharsuguda.
- 2.2 The present Petition has been filed based on the following agreements entered between the parties:
- (a) Bulk Power Supply Agreement between OPGC and GRIDCO, dated August 13, 1996 and an agreement as Supplemental to Bulk Power Supply Agreement dated December 19, 2012. Both agreements were approved by Hon'ble OERC vide its Order dated April 27, 2015.
 - (b) Tripartite Agreement between OPGC, GRIDCO and Government of Odisha dated October 18, 1998 and an agreement as Supplemental to Tripartite Agreement dated September 6, 2012, which was approved by Hon'ble OERC vide its Order dated April 27, 2015.
 - (c) Escrow and Securitization Arrangement dated November 30, 1998 entered between OPGC, GRIDCO and Union Bank of India.

Odisha Electricity Regulatory Commission (Terms and Conditions for Determination of Generation Tariff) Regulations, 2014

- 2.3 The Hon'ble OERC notified the Terms & Conditions for Determination of Generation Tariff, Regulations, 2014 on September 8, 2014 in exercise of the powers conferred by Section 61 and Section 62 read with Section 181 of the Act. These Regulations are valid during the Period from FY 2014-15 to FY 2018-19.
- 2.4 Accordingly, the principles laid down in the above said Regulations have been followed, to the extent as applicable to OPGC, for preparation of the Petition for approval of Generation Tariff for FY 2016-17 for supplying the power to GRIDCO from Unit 1 & 2



of IB Thermal Power Station of OPGC.

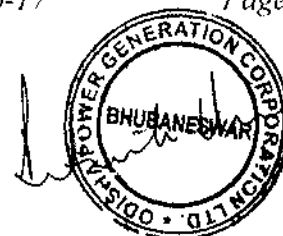
- 2.5 Further, the OERC Generation Tariff Regulations, 2014 provides guiding principles for tariff determination and tariff filing. In accordance with these Regulations, the existing plants of OPGC may make an application for determination of tariff as per annual schedule, by November 30th of every year for determination of tariff in respect of the units of the generating station completed. The relevant Part of the Regulations is reproduced below:

"2.7 The existing generation plants of OHPC and OPGC may make an application as per the Format prescribed by the Commission for determination of tariff as per annual schedule, by November 30th of every year for determination of tariff in respect of the units of the generating station completed or projected to be completed within six months from the date of application."

- 2.6 Generation Tariff Regulations, 2014 provides that tariff application shall be based on admitted capital cost including any additional capitalisation already admitted up to March 31, 2014 and estimated additional capital expenditure for the respective years for tariff period from FY 2014-15 to FY 2018-19.

- 2.7 In this regards, OPGC submits that, earlier it has not filed an application for determination of Generation tariff before Hon'ble OERC, pursuant to interim Order of Hon'ble Supreme Court dated April 29, 2005, which has stayed the proceedings before the Hon'ble OERC. However, the Hon'ble OERC, while approving the tariff for GRIDCO, in exercising its power under Section 86(1) (b) of the Act had determined the procurement price for GRIDCO for purchasing power from OPGC. The relevant extract of Order of Hon'ble OERC for determination of tariff for GRIDCO for FY 2013-14 dated March 20, 2013 is as under:

"86. Like the previous years, OPGC has not filed its ARR and Tariff application with the Commission for the year 2013-14. The Commission, vide its letter No.DIR (T)383/10/4579 dated 20.12.2012 had directed OPGC to file the amended PPA before the Commission for vetting as per the recommendation of the High Level

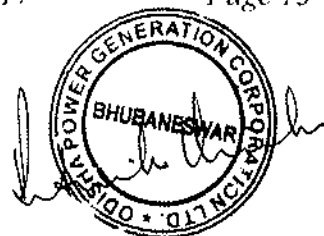


Task Force constituted by the Govt. of Odisha. In response to the above letter of the Commission, OPGC vide its letter No.3439 dated 22.12.2012 intimated that the amended PPA has been executed between OPGC and GRIDCO on 19.12.2012 after approval of the Govt. of Odisha and OPGC is taking steps for withdrawal of SLP pending before Hon'ble Supreme Court. Now the Commission observed that Hon'ble Apex Court vide its order dated 14.02.2013 has dismissed the said Civil Appeals No.4031 and 4032 of 2009 as withdrawn by OPGC-the Appellant. In the said order Hon'ble Apex Court has directed OPGC to file the amended PPA before OERC and the Commission shall consider the same appropriately in accordance with law.

87. Since the aforesaid Appeals of OPGC before the Hon'ble Apex Court were withdrawn much after the schedule date of filing of application i.e. 30.11.2012, it has not been possible to consider the same even if it submits the PPA and Tariff for our approval for FY 2013-14. Hence, the Commission shall consider the same, when it is filed before it.

88. In this piquant situation, the Commission has been invoking its power under Section 86 (1) (b) of the Electricity Act, 2003 and setting the procurement price of GRIDCO for purchasing power from OPGC. While thus setting the procurement price under Section 86(1)(b), the Commission has thought it prudent to provisionally apply the parameters of tariff-setting as per Section 61(a) and (b) of the Electricity Act, 2003 and proceed on the information made available to it by the other contracting party namely GRIDCO for calculating its fixed cost, variable charges and Year-end Charges. The Commission further directs that the bulk purchase price based on tariff now determined shall be applicable to sale of OPGC's power to GRIDCO under the single buyer model.

89. The Commission makes it clear that it is not entitled to set tariff suomotu in the absence of a tariff application from the generating Company (i.e. OPGC) under Section 64 (1) of the Act. If there is no application the existing tariff continues in force. OPGC has to make a tariff application under S.64(1) of the Electricity Act, 2003, supported by ARR and expected annual revenue, if it wants any change in the existing tariff for sale of electricity to consumers. Incidentally the tariff determined by the Commission could also become procurement price of GRIDCO. At present,



for want of tariff filings by OPGC, the Commission is merely determining the price at which GRIDCO is to purchase power from OPGC. Since no tariff is being set for OPGC for sale of power to consumers, the procurement price of GRIDCO could be much lower than what would have been the tariff of OPGC for sales to the consumers.” (emphasis added)

2.8 Also, original PPA and its Supplementary Agreement (Amended PPA), entered between OPGC and GRIDCO for supplying the power to GRIDCO from Unit 1 and 2 of IB Thermal Power Station of OPGC have been approved by Hon’ble OERC vide its Order dated April 27, 2015. Further, in said Order, Hon’ble OERC has directed as under:

*“13. Due to the above provision in the Regulation read with **Regulation 7.13 of the same Regulations**, OPGC shall make an application before the Commission as per the above approved PPA each year for determination of tariff for the rest of the control period starting from FY 2016-17 onwards” (emphasis added)*

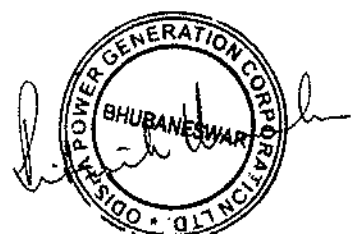
2.9 Further, Regulation 7.13 of OERC Generation Tariff Regulations, 2014 specifies as under:

“POWER TO RELAX

7.13 The Commission, for reasons to be recorded in writing, may relax any of the provisions of these regulations on its own motion or on an application made before it by an interested person.”

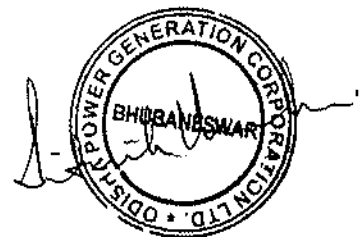
2.10 It is noted that Hon’ble OERC, by exercising its power under Regulation 7.13 of OERC Generation Tariff Regulations, 2014, directed OPGC to file an application as per approved Amended PPA. The said Amended PPA includes Capital Cost, Operational Performance Parameters, Principles for Tariff determination, Billing Mechanism etc. This implies that, while approving the Amended PPA, Hon’ble OERC has principally admitted the terms and conditions of Amended PPA.

2.11 Further, Hon’ble OERC in its Order dated April 27, 2015 for approval of Amended PPA held that the OPGC and GRIDCO should settle the power purchase process for the period



prior to implementation of OERC Generation Tariff Regulations, 2014 taking into account the original PPA and its Supplementary Agreement. Further, tariff for FY 2014-15 and FY 2015-16 for OPGC has already been approved by Hon'ble OERC, after scrutiny, in ARR of GRIDCO based on submissions of GRIDCO.

2.12 In view of the above, OPGC submits that the present Petition has been filed primarily based on the provisions of approved Amended PPA and other agreements as mentioned in Clause 2.2 of this Petition, which was approved by the Hon'ble OERC. Further, wherever there is no provision or lack of clarity in the agreement, in such cases the related provisions of OERC Generation Tariff Regulations, 2014 have been considered.



3 Generation Tariff for FY 2016-17

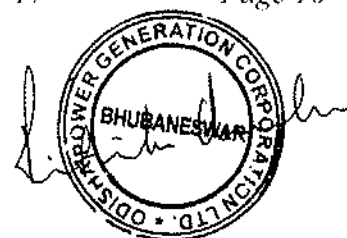
- 3.1 The Amended PPA and Regulation 4.1 of OERC Generation Tariff Regulations, 2014 specify that tariff for supply of electricity from thermal generating station shall comprise of two parts viz., Capacity Charges (for recovery of Annual Fixed Cost) and Energy charge.
- 3.2 This Section explains in detail the computation of Annual Fixed Cost, Energy charge and Year end charges as per the terms and conditions of Amended PPA.

Computation of Annual Fixed Cost

- 3.3 As per Clause 3.0 of Schedule II of the Amended PPA, the Annual Fixed Cost of OPGC shall consist of the following components:
- (a) Return on Equity;
 - (b) Interest on loan Capital;
 - (c) Depreciation;
 - (d) Interest on Working Capital;
 - (e) Operation and Maintenance Expenses.
- 3.4 The detailed computation of each of the above components of the Annual Fixed Cost is detailed in the subsequent paragraphs.

Capital Cost and additional capitalisation

- 3.5 OPGC submits that Units 1 & 2 of the IB Thermal Power Stations were commissioned prior to notification of the Generation Tariff Regulations, 2014. The Amended PPA signed between OPGC and GRIDCO has considered the Capital Cost of the Project as Rs. 1060 Crore. OPGC implied that while approving Amended PPA in Order dated April 27, 2015, Hon'ble OERC has principally admitted the capital cost of project and



considered accordingly. In view of this, OPGC has considered the capital cost of Rs. 1060 Crore for the purpose of computation of tariff for FY 2016-17.

3.6 Further, Clause 10.0 of Schedule II of original PPA stipulates as under

"10.0 LEVIES, TAXES, DUTIES, CESS, ETC:

The above tariff is exclusive of any statutory taxes, levies, duties, cess or any other kind of impositions whatsoever imposed/charged by any Government (Central/State) and/or any other local bodies/authorities on generation of electricity including auxiliary consumption or any other type of consumption, transmission, sale or on supply of power/energy and/or in respect of any of its installations associated with Generating Stations and/or Transmission System, Environmental Protection, Water, etc. However, electricity duty payable on energy drawn by OPGC, if any shall be payable by OPGC and reimbursed by GRIDCO."
(emphasis added)

3.7 Regulation 2.4 of OERC Generation Tariff Regulations, 2014 provides the additional capitalisation after cut-off date as under:

"3.4 The capital expenditure incurred or projected to be incurred, on the following counts after the cut-off date may, in its discretion, be admitted by the Commission, subject to prudence check:

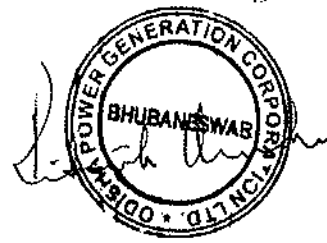
... ..

(b) Change in law

... ..

(d) Any additional works/services, which have become necessary for efficient and successful operation of a generating station but not included in the original capital cost"

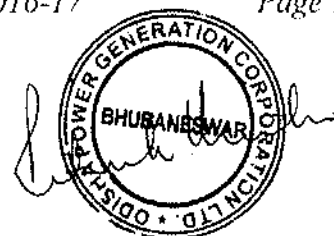
The above said regulation provides for the additional capitalisation after cut off date on account of any change in law and for efficient and successful operation of the generating station.



3.8 Further, OPGC submits that Central Pollution Control Board (CPCB) developed a Comprehensive Environmental Pollution Index (CEPI) in order to address Environmental pollution in industrial clusters. The objective is to identify the planning needs for abatement strategies for polluted clusters and eventually bringing down the impact of pollution to an acceptable level. Increasing value of CEPI indicates adverse impact on environment. Industrial clusters having aggregated CEPI score of 70 and above is considered as critically polluted cluster. As per CPCB, the calculated CEPI score of IB valley area is 74.0 and that of Jharsuguda is 73.34, which is beyond 70. IB Thermal Power Station is situated in this critically polluted industrial cluster of IB Valley-Jharsuguda area. State Pollution Control Board, Odisha prepared the action plan for abatement of pollution in critically polluted industrial cluster in IB valley area and vide its letter No. 3625 dated February 26, 2011 directed OPGC to submit its plans to comply the following action points:

Table 3-1: Action Plan for abatement of pollution in IB valley area

Sr. No	Action Plan	Issues being addressed
1	All Thermal Power Plants to install ESP/BF to meet the emission standard of 50mg/m ³ with one spare field <ul style="list-style-type: none"> Existing Plants Future Plants 	<ul style="list-style-type: none"> SPM & RPM in ambient air.
2	All lean slurry disposal system to be converted to HCSD (High Concentration slurry disposal) or Mine void filling.	<ul style="list-style-type: none"> Water(Cd & Hg) Land Requirement
3	Online monitoring with real time display facility to be installed	<ul style="list-style-type: none"> Real time monitoring of Particulate matter emissions
4	Create silo for a capacity of at least 2 to 3 days ash generation for its dry storage and subsequent utilization for cement and fly ash based products	<ul style="list-style-type: none"> Fly Ash utilization
5	Real time ambient air quality monitoring (SO ₂ , NO ₂ , CO, PM ₁₀ , PM ₂₅)	<ul style="list-style-type: none"> SPM, RPM, SO_x & NO_x.
6	All the thermal power plants shall adopt zero discharge.	<ul style="list-style-type: none"> Water scarcity & preventing water pollution



3.9 In order to comply with the above said action points, OPGC has prepared capital expenditure schemes. Out of these schemes, some of the capital schemes have been executed in the FY 2014-15 and FY 2015-16.

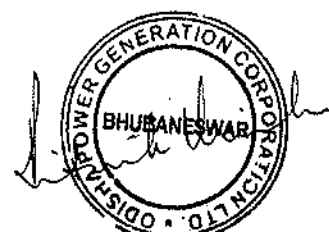
3.10 OPGC proposed the following capex schemes:

- a) **Electro Static Precipitator (ESP) Up-gardation:** In compliance to the stringent emission norm of 50mg/normal M³ stipulated by State Pollution Control Board vide their consent to operate, it was decided to add one more parallel pass having 6 fields with the existing passes including renovation of existing passes in both units. The same was approved in 160th Board of Directors meeting held on October 20, 2012, resolutions made vide letter No. 2856 dated October 28, 2012 and approval of award to BHEL was approved in 162nd Board of Directors meeting held on March 21, 2013. The job is being carried out by OEM (M/s Bharat Heavy Electricals Limited). Unit-1 new parallel pass has been commissioned and PG test is scheduled by the end of financial year 2015-16 after the completion of few defects and pending jobs in the forthcoming unit shutdown in February 2016. Unit-2 New parallel ESP is under construction and its PG test is scheduled in the month of March 2016.
- b) **Raising height for Ash Pond A, New Ash Pond C construction and HDPE lining of Ash Pond-C:** Both the units started functioning with ash disposal to pond-B. Ash Pond-B was completely exhausted and soil capping done. Since then Ash pond-A is in operation and after filling the design capacity of Ash pond-A, height of pond is increased by 3 meters in each phase. The separate project has been prepared for the same to increase the ash disposal capacity. Further, with current rate of ash disposal, the Ash pond-A will be exhausted by October 31, 2016. In context of this for running of plant and continuous discharge of ash slurry, new place is required. Hence a patch of land between Ash ponds-A & B has been acquired for new Ash pond-C. The Construction of new ash pond-C with HDPE lining work is under progress. The expenses towards the Ash Pond-C has already been capitalised in FY 2015-16. Further, in compliance with the consent to establish condition for Ash



pond-C, to prevent contamination of ground water due to leaching effect of ash pond water, HDPE lining was proposed as a preventive measure. This was considered in the design phase of construction of Ash pond-C and is proposed to be implemented in FY 2016-17, in order to make ash pond C ready for use.

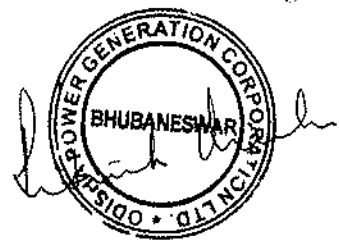
- c) **Zero Effluent Discharge:** As per consent condition to fulfil zero liquid effluent discharge and CEPI (Comprehensive Environmental Pollution Index) requirement, OPGC has to comply the requirement by constructing few recycling systems such as Cooling Tower Effluent Recycling System (RCC Sump, Recycling Pump, Pipelines , Electrical accessories, etc.), Coal Handling Plant effluent recycling (Sump, Recycling Pump & Pipeline, etc.), Fuel Oil Storage and Pump House area wash water and storm water oil separation and discharge system, Boiler area effluent recycling after oil separation (Pump, Pipelines etc.), Clarification plant sludge drying bed & recycling. Work on these systems are in progress and scheduled for putting in to operation in FY 2016-17.
- d) **Dry Fog Dust Suppression System:** At present, coal transportation from stockyard to the bunkers is done through belt conveyors system. This is one of the major sources of fugitive coal dust emission in the plant area. In order to contain the fugitive dust as per consent to operate condition, spraying of water on coal during conveying is done. This, however, affects the combustibility of coal, thus affecting the boiler efficiency. In order to address this issue, OPGC has decided to install Dry Fog Dust Suppression System in Coal conveying system, which will significantly reduce fugitive coal dust emission while improving the boiler efficiency.
- e) **MGR system renovation:** The Merry-go-round rail system was upgraded from 12 km to 18 km distance of railway corridor beyond Ubuda (six kilometre distance) for bringing imported Coal as per the instruction of GRIDCO.
- f) **Ambient Air Monitoring Systems:** Four numbers of ambient air monitoring



systems were installed at different locations inside the Plant and Colony campus for measuring particulate matter of sizes PM2.5 & PM10 and SO2 & NOx concentration in ambient air for checking the air quality with an objective to maintain these within permissible limits. This is an imposition from CPCB, SPCB & CEPI.

- g) **Dry Fly Ash handling system:** A dry fly ash handling system was installed as a part of consent to operate condition and as a part of MoEF fly ash notification. The system collects fly ash from ESP hoppers and condition the ash for transportation by trucks. The fly ash generated from the system is supplied to various off-takers as a part of ash utilisation process. The dry fly ash is also utilised for low land reclamation.
- h) **Effluent monitoring system and real time data transfer to SPCB & CPCB Servers:** This is an imposition from CPCB, SPCB & CEPI for effluent monitoring and online transmission of data from various monitoring systems namely (a) ambient air monitoring station (b) stack monitoring station and (c) effluent monitoring station.
- i) **Modification of Pressure Reducing and Distributed system (PRDS):** As a part performance improvement Capex, PRDS system has been modified for improving system reliability and heat rate of the Unit. The modified system also has lesser maintenance cost.
- j) **Protection relay upgrade for generator and other critical motors:** The earlier installed static relays of Turbine Generators and Motors have become obsolete. In order to improve reliability, the static relays are being upgraded with numeric relays.

3.11 IB Thermal Power Station has been in operation from last 20 years (since 1996). Being an old station, the Operational Performance parameters as specified in Amended PPA are applicable till date. In order to maintain the efficiency and operational performance of the



station, OPGC has been incurring capital expenses which are essential for operation of the Station.

3.12 OPGC has undertaken total capitalisation of Rs. 4.95 Crore in FY 2014-15 and Rs. 7.79 Crore in FY 2015-16 including capitalisation for statutory compliance and efficiency improvement. Further, OPGC has also proposed capitalisation of Rs. 82.91 Crore for FY 2016-17.

3.13 The additional Capitalisation proposed under this Petition for statutory compliance is summarised as under:

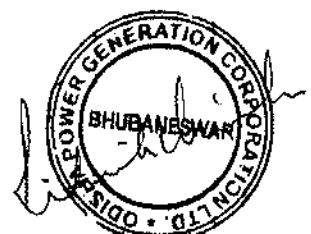
Table 3-2: Additional Capitalisation towards environmental stipulations (Rs. Crore)

Sr. No.	Particulars	Amount (Rs. Crore)
1.	Capitalisation done in FY 2015-16	
2.	Ambient monitoring system	1.13
3.	Effluent Monitoring system and real time data transfer	0.16
4.	Zero Effluent Discharge	0.60
5.	Total	1.89
6.	Projected Capitalisation in FY 2016-17	
7.	Electro Static Precipitator (ESP) up-gradation	47.00
8.	HDPE Lining in Ash Pond C	12.70
9.	Dry Fog Dust Suppression System	2.25
10.	Total	61.95
11.	Total Additional Capitalisation	63.84

3.14 The Capitalisation undertaken/proposed by OPGC for efficiency improvement is summarised as under:

Table 3-3: Additional Capitalisation for Efficiency Improvement (Rs. Crore)

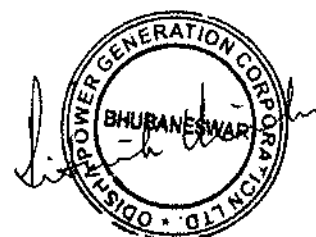
Sr. No.	Particulars	Amount (Rs. Crore)
1.	Capitalisation done in FY 2014-15	



Sr. No.	Particulars	Amount (Rs. Crore)
2.	Raising of height of Ash pond-A from RL 202 m to 205 m	4.95
3.	Total	4.95
4.	Capitalisation done in FY 2015-16	
5.	Modification of Pressure Reducing and Distributed System (PRDS)	3.40
6.	Up gradation of Electrical protection relay	0.50
7.	Ad line Installation	2.00
8.	Total	5.90
9.	Projected Capitalisation in FY 2016-17	
10.	Raising of height of Ash Pond A from RL 205 m to 208 m	4.58
11.	Construction of Ash Pond C	16.38
12.	Total	20.96
13.	Total Additional Capitalisation	31.81

3.15 As regards the recovery of such additional capitalisation, OPGC while submitting the tariff calculation to GRIDCO for FY 2015-16 has claimed such additional capitalisation as part of Year End charges for reimbursement, however, such additional capitalisation has not been considered by GRIDCO in its ARR for FY 2015-16 while submitting to the Hon'ble OERC. The Hon'ble OERC in its Tariff Order for GRIDCO for FY 2015-16 dated March 23, 2015 has also recognised the fact as under:

"232. Year-end Charges: In its application, GRIDCO has proposed the total year-end charges of OPGC to the tune of Rs.50.26 crore on account of water tax/cess, electricity duty, income tax, incentive, land rent/cess, Electrical Inspection Fees and SOC & MOC for SLDC. GRIDCO has mentioned that, this projection of Year End Charges for FY 2015-16 is as per the projection submitted by OPGC in its tentative tariff calculation sheet for FY 2015-16 to GRIDCO. However, the expenditures towards ESP,CHP,EPE, ash pond C with HDPE lining and Ash utilisation and ash utilisation expenses as projected by OPGC in its tariff calculation, have not been considered by GRIDCO as such expenditures are



subject to scrutiny after accordance of regulatory approval of amended PPA (of Unit #1 and #2) by the Commission” (emphasis added)

3.16 It is to be noted that the tariff calculated in the Amended PPA has not included the impact of such additional capitalisation. Regulation 2.4 of OERC Generation Tariff Regulation, 2014 provides for the additional capitalisation after cut off date. The capitalisation has to be undertaken in order to comply the direction of State Pollution Control Board and schemes which are essential for operation of the plant. OPGC submits that additional capitalisation proposed for FY 2016-17 will be fully financed from its reserves.

3.17 In light of this, OPGC, in the present Petition, has claimed additional capitalisation of Rs. 95.65 Crore on account of statutory compliance and efficiency improvement, separately, as part of Year end expenses, for reimbursement on actual basis.

3.18 OPGC humbly request the Hon`ble OERC to approve such additional capitalisation and its recovery through the tariff for FY 2016-17.

Debt: Equity Ratio

3.19 OPGC submits that project cost of Rs. 1060 Crore as approved in Amended PPA included equity of Rs. 450 Crore and Loan of Rs. 610 Crore. Hence, OPGC has considered actual debt:equity ratio, as approved in Amended PPA, for the purpose of determination of tariff for FY 2016-17.

3.20 Return on Equity

3.21 OPGC has considered the actual amount of equity of Rs. 450 Crore towards original Capital Cost for computation of Return on Equity.

3.22 The Clause 8.0 (10) of Schedule II of PPA provides the Return on Equity at the rate of 16%. Accordingly, OPGC submits the Return on Equity for FY 2016-17 as under:

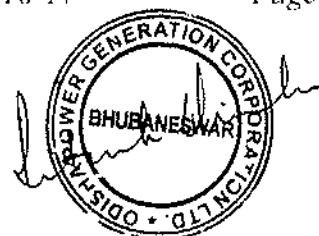


Table 3-4: Computation of Return on Equity for FY 2016-17 (Rs. Crore)

Sr. No.	Particulars	FY 2016-17
1.	Actual Equity for Station	450.00
2.	Rate of Return on Equity	16.00%
3.	Return on Equity	72.00

3.23 OPGC humbly request the Hon'ble OERC to approve the Return on Equity of Rs. 72.00 Crore for FY 2016-17.

Depreciation

3.24 OPGC submits that Clause 3.0 (a) of Schedule II of the Amended PPA provides that depreciation charges shall be equal to 7.5% of the Capital Cost during the year. Considering the depreciation charges computed as per the provisions of the Amended PPA, the assets of Generating Stations are fully depreciated by the financial year ending March 31, 2009.

3.25 In view of the above, OPGC does not submit any claim towards the depreciation for FY 2016-17.

Interest on Loan Capital

3.26 OPGC submits that Clause 8.0 (7) and (11) of Schedule II of the Amended PPA provides the loan amount of Rs. 610 Crore and interest on loan as per actuals. Considering the actual repayment made against the outstanding loan, OPGC submit that loan amount of Rs. 610 Crore has been fully repaid by financial year ending March 31, 2012. In view of the above, OPGC does not submit any claim towards the Interest on Loan Capital for FY 2016-17.

Interest on Working Capital

3.27 The Clause 3.0 (f) of Schedule II of the Amended PPA provides the Interest on working Capital as under:



"f) Interest on Working Capital will be worked out on the following basis on normative level of generation calculated at the rate of interest applicable to OPGC for its Working capital facility as on the fixed charge computation date

- i) Coal cost for 1.5 months*
- ii) Oil cost for 2 months*
- iii) O&M expenses for 1 month*
- iv) Receivables for 2 months "*

3.28 As regards the rate of interest, the above said clause stipulates the interest rate applicable to OPGC for its Working Capital facility. It is submitted that OPGC has been meeting its working capital requirement through internal accruals.

3.29 OPGC submits that OERC Generation Tariff Regulations, 2014 specify the interest rate for computation of Interest of Working Capital as under:

"4.26

Provided that for the existing generation plants of OHPC and OPGC the rate of interest on working capital shall be on normative basis and shall be equal to the SBI Base Rate plus 300 basis points as on 1st April of the year for which the application for determination of tariff is being made.

4.27 Interest on working capital shall be payable on normative basis notwithstanding that the generating company has not taken loan for working capital from any outside agency." (emphasis added)

3.30 As per the Regulations, the Interest on Working Capital is allowed on normative basis. OPGC has considered the rate of interest as per OERC Generation Tariff Regulations, 2014 as SBI Base Rate plus 300 basis points as on date of filing of Petition, assuming that the same SBI base rate will be continued till April 1, 2016.

3.31 Accordingly, OPGC submits the Interest on Working Capital for FY 2016-17 as under:



Table 3-5: Computation of Interest on Working Capital for FY 2016-17 (Rs. Crore)

Sr. No.	Particulars	FY 2016-17
1.	Cost of Coal for one and half months	33.83
2.	Cost of Secondary Fuel Oil for two month	5.45
3.	O&M Expenses for one month	10.00
4.	Receivables equivalent to two month	85.32
5.	Total Working Capital Requirement	134.60
6.	Interest Rate (SBI Base Rate + 300 basis points)%	12.30%
7.	Interest on Working Capital	16.56

3.32 OPGC humbly request the Hon'ble OERC to approve the Interest on Working Capital of Rs. 16.56 Crore for FY 2016-17.

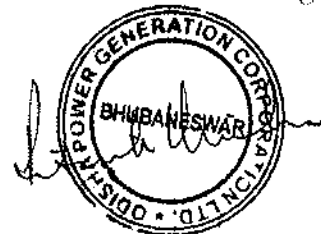
O&M Expenses

6.1. OPGC submits that Clause 3.0 (d) and (e) of Schedule II of the Amended PPA provides that O&M expenses for first year of operation at the rate of 2.5% of the capital cost considered at Rs.1030 crores and shall be escalated by 8% each year from April 1, 1996. It is further submitted that Hon'ble OERC while approving the fixed cost of OPGC in the ARR of GRIDCO has considered the escalation factor of 8%.

6.2. Accordingly, OPGC submits the O&M Expenses for FY 2016-17 after considering the escalation factor of 8% as per the methodology prescribed in Amended PPA as under:

Table 3-6: O&M Expenses for FY 2016-17 (Rs. Crore)

Sr. No.	Particulars		FY 2016-17
1.	Capital Cost of Project considered for O&M Expenses as per Amended PPA	a	1030.00
2.	O&M Expenses for first year @ 2.5% of Capital Cost	$b=a*2.5\%$	25.75
3.	Escalation rate	c	8.00%
4.	O&M Expenses	$d=b*((1+c)^20)$	120.02



3.33 OPGC humbly requests the Hon'ble OERC to approve O&M Expenses of Rs. 120.02 Crore for FY 2016-17.

Summary of Annual Fixed Cost

3.34 The Annual Fixed Cost proposed by OPGC for FY 2016-17 is summarised as under:

Table 3-7: Annual Fixed Cost for FY 2016-17 (Rs. Crore)

Sr. No.	Particulars	FY 2016-17
1.	Return on Equity	72.00
2.	Depreciation	0.00
3.	Interest on Loan Capital	0.00
4.	Interest on Working Capital	16.56
5.	O&M Expenses	120.02
6.	Total Annual Fixed Cost	208.58

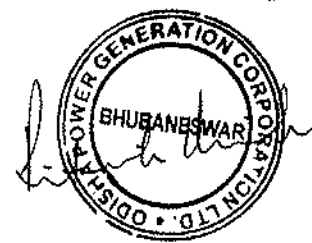
3.35 OPGC humbly request the Hon'ble OERC to approve Annual Fixed Cost of Rs. 208.58 Crore for FY 2016-17.

Operational Performance Parameters

3.36 OPGC has considered the following Operational Performance parameters as under:

- (a) Plant Load Factor (PLF)
- (b) Gross Station Heat Rate
- (c) Secondary Fuel Oil Consumption
- (d) Auxiliary Energy Consumption

3.37 OPGC in Amended PPA signed with GRIDCO has agreed upon operational performance parameters. OPGC for computation of Energy charge for FY 2016-17 has considered the operational performance parameters as per provisions of Amended PPA.



Plant Load Factor (PLF)

- 3.38 As per Clause 3.0 (g) of Schedule II of the Amended PPA, full fixed charges will be paid to OPGC subject to adjustment provided OPGC achieves Actual Net Availability (AAN) within normal operating range. Normative Net Availability shall be 68.49%.
- 3.39 As per Clause 3.0 (g) of Schedule II of the Amended PPA, the PLF for OPGC shall be 80% for computation of Incentive.
- 3.40 During FY 2016-17, OPGC has proposed minor annual overhauling schedule for Unit 2 for the period from April 5, 2016 to April 25, 2016, i.e., for 21 days. OPGC has projected the PLF for FY 2016-17 considering the weighted average PLF for last five years from FY 2011-12 to FY 2015-16 (upto November 2015) as under:

Table 3-8: Projected Gross Generation and PLF (%) for FY 2016-17

Sr. No.	Year	Gross Generation	PLF (%)
1.	FY 2011-12	2950.15	79.97%
2.	FY 2012-13	3181.59	86.48%
3.	FY 2013-14	2855.90	77.62%
4.	FY 2014-15	2798.92	76.07%
5.	FY 2015-16	2167.38	88.12%
6.	Weighted Average		81.46%

Accordingly, OPGC proposes the Gross Generation of 2996.97 MU at projected PLF of 81.46% for FY 2016-17.



Gross Station Heat Rate

3.41 OPGC proposes the Gross Station Heat Rate of 2500 kCal/kWh as per the provisions of the approved Amended PPA.

Secondary Fuel Oil Consumption

3.42 OPGC proposes Secondary Fuel Oil Consumption of 3.5 ml/kWh as per the provisions of the approved Amended PPA.

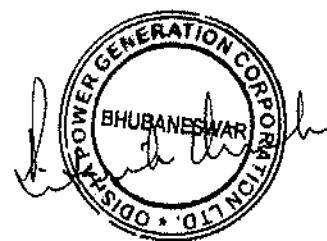
Auxiliary Consumption

3.43 The actual auxiliary consumption for FY 2014-15 is 10.55%. It is submitted that IB Thermal Power Station was planned for six units (6 x 210MW) since inception. The auxiliary power consumption has been higher since the inception of the units and reasons are attributed to (a) use of over capacity drives, (b) plant layout is not compact as the auxiliary equipment are spread across a huge area and (c) addition of additional auxiliary equipment for catering to the requirement of change in law condition. However, for tariff computation, OPGC proposes Auxiliary Consumption of 9.5% as per the provisions of the approved PPA, which is lower than the actual auxiliary consumption.

3.44 The Operational Performance parameters as proposed by OPGC are summarised as under:

Table 3-9: Operational Performance Parameters for FY 2016-17

Sr. No.	Particulars	Unit	FY 2016-17
1.	Plant Load Factor	%	81.46%
2.	Gross Generation	MU	2996.97
3.	Auxiliary Consumption	%	9.50%
4.	Net Generation	MU	2712.25
5.	Station Heat Rate	kcal/ kWh	2500
6.	Specific Fuel Consumption	ml/ kWh	3.50



Fuel Cost

3.45 At present, OPGC is meeting its requirement of Coal for Unit 1 and 2 from existing arrangement from Mahanadi Coal Fields Limited (“MCL”). OPGC proposes to meet its Coal requirement for FY 2016-17 from existing sources. Further, OPGC has not envisaged use of imported coal in FY 2016-17.

3.46 OPGC submits that Ministry of Environment and Forest (MoEF), Government of India, vide its Notification dated January 2, 2014 directed to use raw or blended or beneficiated coal with ash content not exceeding 34%, on quarterly average basis. The relevant extract is as under:

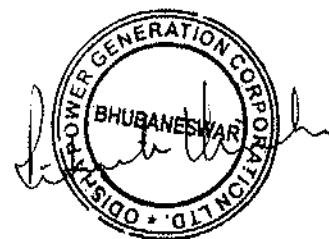
“2. In the Environment (Protection) Rules, 1986, in rule 3, for sub-rule (8), the following sub-rule shall be substituted, namely :—

“(8) With effect from the date specified hereunder, the following coal based thermal power plants shall be supplied with, and shall use, raw or blended or beneficiated coal with ash content not exceeding thirty-four per cent, on quarterly average basis, namely :—

(a) a stand-alone thermal power plant (of any capacity), or a captive thermal power plant of installed capacity of 100 MW or above, located beyond 1000 kilometres from the pit-head or, in an urban area or an ecologically sensitive area or a critically polluted industrial area, irrespective of its distance from the pit-head, except a pit-head power plant, with immediate effect; (emphasis added)

3.47 Since, IB Thermal Power Station is situated in the critically polluted industrial area of IB Valley-Jharsuguda area, the above said notification of MoEF is applicable to OPGC. After taking the cognizance of MoEF Notification, State Pollution Control Board, Odisha vide its letter dated May 2, 2015 has also directed OPGC to comply with the MoEF Notification.

3.48 As regards the quality of Coal supplied to OPGC, it is submitted that average ash content of coal supplied during FY 2014-15 was 38.67% and 40.15% for the period from January



2015 to March 2015. Hence, in order to comply with MoEF Notification, OPGC has been following up with MCL for supply of beneficiated coal with ash content not exceeding 34%. It has been understood that MCL's washeries are coming by end of FY 2016-17 and price of such coal shall be applicable as per notifications of MCL.

3.49 In view of the above, it is noted the supply of beneficiated coal is likely to be commenced by the end of FY 2016-17. Hence, in the present Petition, OPGC has not considered the requirement of beneficiated coal in FY 2016-17. However, OPGC requests the Hon'ble OERC to allow the use of beneficiated coal, in order to comply MoEF notification dated February 2, 2014, as and when it commences in FY 2016-17 and impact of price of such coal shall be allowed accordingly through Fuel Price adjustment mechanism.

3.50 Clause 7.0 of Schedule II of the existing PPA provides the computation of Fuel Cost. As per this clause, Gross Calorific Value and Price of Coal and Oil shall be considered as delivered to the Power Station. Further, Regulation 4.34 of OERC Generation Tariff Regulations, 2014 also specifies that the landed price of coal includes the following:

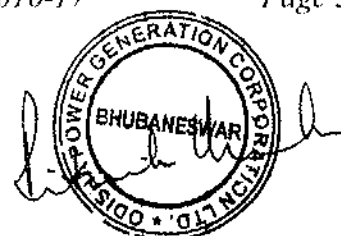
"The landed cost of fuel for the month shall include price of fuel corresponding to the grade and quality of fuel inclusive of royalty, taxes and duties as applicable, transportation cost by rail / road or any other means and for the purpose of computation of energy charge and in case of coal/lignite shall be arrived at after considering normative transit and handling losses as percentage of the quantity of coal or lignite dispatched by the coal or lignite supply company during the month as given below :

Pithead generating stations: 0.2%

Non-pithead generating stations: 0.8%

Provided that in case of imported coal, the transit and handling losses shall be 0.2%."

3.51 For computation of the landed cost of fuel, OPGC has relied on the provisions of the Amended PPA and Regulation 4.34 as cited above. OPGC has considered the latest



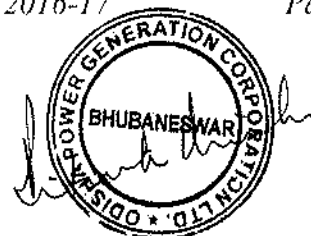
available actual weighted average price of Coal and Oil (for September 2015) as computed on the basis of opening stock and purchase during the month, as shown in the following table. LDO has been used for the operation of the plant, no actual purchase were made towards FO, however, for computation of weighted average price of FO has been considered based on quotes received from supplier for the quantity equivalent to LDO.

Table 3-10: Computation of Weighted Average price for Coal and Oil

Sl. No.	Particulars	Quantity (MT for Coal and kL for Oil)	Amount (Rs.)
	Coal		
1	Opening Balance for Sept 2015	1,12,158	12,90,39,077
2	Purchase during Sept 2015	2,74,742	31,65,60,266
3	Weighted Average Price (Rs./MT)	1151.72	
	LDO		
4	Opening Balance for August 2015	400	1,95,10,009
5	Purchase during August 2015	155	63,61,423
6	Weighted Average Price (Rs./kL)	46648.98	
	FO		
7	Opening Balance for August 2015	400	1,40,04,874
8	Purchase during August 2015	155	46,42,479
9	Weighted Average Price (Rs./kL)	33623.13	

3.52 OPGC submits that for computing the landed price of coal, it has considered the basic price, royalty, excise duty, clean energy cess, VAT and entry tax. It is submitted that the transportation of coal from loading point located at mine to unloading point at the station for the span of about 11 km is handled by OPGC by rail transport. Hence, only fuel cost of Rs. 4.17 /MT pertaining to operation of Merry-Go-Round system (MGR) has been added, computed based on the actual fuel cost of Rs. 99,74,997/- for purchase quantity of 2439477 MT. OPGC has not considered O&M expenses of MGR under fuel cost since it has already been covered under fixed cost.

3.53 Further, it has been observed that there is loss in quantity of coal during the transportation of coal. Though transportation of coal from mine to station is handled by



OPGC, these losses are not within the control of OPGC to the extent of the following reasons:

- a) Seasonal variation changes the moisture content of the coal during the transportation.
- b) Weighing of coal at two different locations having different calibration of weighing machines lead to an error in quantities.
- c) During the unloading, small quantities of coal get stuck at the edges of the transport wagons due to moisture.

3.54 The actual loss in the quantity of coal for the past period is shown as under:

Table 3-11: Loss in quantity of coal

Year	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15
Quantity (MT)	8378.19	3822.21	33914.85	11950.62
Loss (%)	0.33%	0.14%	1.30%	0.49%

3.55 In view of the above, for considering the impact of above in the price of coal, OPGC has considered the loss in quantity of coal of 0.38% based on weighted average from FY 2011-12 to FY 2014-15, excluding FY 2013-14.

3.56 After considering the impact of fuel cost of MGR and loss in coal quantity, the weighted average price of coal has been computed as Rs. 1160.20/MT. These prices of Coal and Oil have been escalated by escalation factor of 6% (Actual growth in price from September 2014 to March 2015) to arrive at Price of coal and Oil as on April 1, 2016. The price of Oil has been considered as weighted average price of FO and LDO in ratio of 90:10. Further, OPGC has considered weighted average Gross Calorific Value of Coal for the period from October 2014 to September 2015 (12 months). Gross Calorific value of Oil has been considered as 10,000 kCal/litre. GCV and Price of Coal and Oil considered for tariff computation is summarised below:

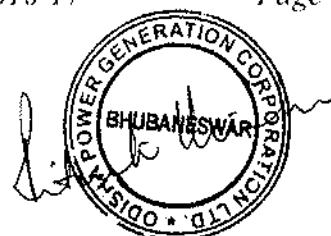


Table 3-12: Price and Gross Calorific Value of Coal and Oil

Sl. No.	Source of Coal	Projected as on April 1, 2016
1	Price of Coal (Rs. /MT)	1232.56
2	Price of Secondary Oil (Rs./kL)	37100.90
3	Gross Calorific Value of Coal (kCal/kg)	2828.92
4	Gross Calorific value of Secondary Oil (kCal/kg)	10000.00

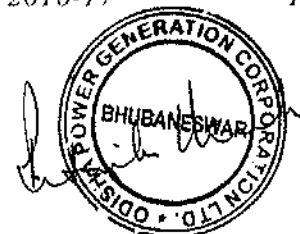
Energy Charges

3.57 OPGC has computed Energy Charge for FY 2016-17 as per Clause 7.0 of Schedule II of the Amended PPA. The computation of Energy Charge for FY 2016-17 is given in the Tables below:

Table 3-13: Computation of Energy Charge for 2016-17

Particulars	Unit	FY 2016-17
Auxiliary Consumption	%	9.50%
Gross Station Heat Rate	kCal/kWh	2500.00
GCV of Coal	kCal/kg	2828.92
GCV of Oil	kCal/kg	10000.00
Specific Coal Consumption	kg /kWh	0.87
Specific Oil Consumption	ml/kWh	3.50
Price of Coal	Rs. / MT	1232.56
Price of Secondary Oil	Rs. / MT	37100.90
Variable Charge for Coal	Rs./kWh	1.187
Variable Charge for Oil	Rs./kWh	0.143
Energy Charge	Rs./kWh	1.330

3.58 OPGC humbly request the Hon'ble OERC to approve Energy Charge of Rs 1.330/kWh for FY 2016-17.



Year End Charges

3.59 Apart from the Annual Fixed Cost and Energy Charge, OPGC proposes the Year end charges as per the provisions of the Amended PPA, which comprises of Incentive, Electricity duty reimbursement, rent and cess, SOC and MOC paid to SLDC, Establishment fund to EPRC, Water tax and Cess, Electricity Inspection fees, Ash Utilisation Expenses, Income tax and Fuel Adjustment Charges. OPGC submits the details of these charges in subsequent paragraphs.

3.60 **Incentive:** As per Clause 4.0 of Schedule II of the Amended PPA, incentive shall be paid to OPGC by GRIDCO where the actual PLF in any financial year exceeds 80%. Accordingly, OPGC proposes the Incentive for FY 2016-17 as under:

Table 3-14: Incentive for 2016-17

Particulars		FY 2016-17
Proposed Plant Load factor (%)	A	81.46%
Normative Availability for computation of incentive (%)	B	80.00%
Actual Equity subject to maximum of 30% of capital cost of the project (Rs. Crore)	C	318.00
Incentive (Rs. Crore)	$d=0.35*c*(a-b)/100$	1.62

3.61 **Electricity Duty:** OPGC proposes the electricity duty at Rs. 0.30 per unit on 9% auxiliary consumption of generation at 81.46% of PLF as per the provisions of the Amended PPA as under:

Table 3-15: Electricity Duty for 2016-17

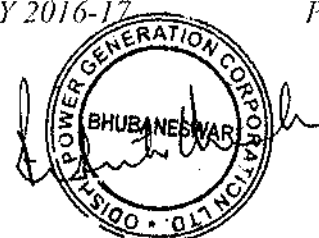
Particulars	FY 2016-17
Gross Generation at 81.46% of PLF (MU)	2996.97
Auxiliary Consumption at 9% (MU)	269.73
Electricity Duty at Rs. 0.30 per unit (Rs. Crore)	8.09



- 3.62 **Water Cess and Water Charges:** OPGC proposes the Water Cess of Rs. 6.95 Crore and Water Charges of Rs. 0.13 Crore, combined as Rs. 7.09 Crore, which is same as actually incurred in FY 2014-15.
- 3.63 **Tax and cess on land:** OPGC proposes the tax and cess on land of Rs. 0.22 Crore, which is same as actually incurred in FY 2014-15.
- 3.64 **Electricity Inspection Fees:** OPGC proposes the electricity inspection fees of Rs. 0.1678 Crore which is same as actually incurred in FY 2014-15.
- 3.65 **System Operation Charges and Market Operation Charges for SLDC:** OPGC proposes the same amount of Rs. 0.38 Crore towards charges to be paid to SLDC for SOC and MOC as determined by Hon'ble OERC in its Order dated March 23, 2015 at Rs. 8969.64 per MW.
- 3.66 **ERPC Charges:** OPGC proposes the ERPC charges of Rs. 0.16 Crore which is same as actually incurred in FY 2014-15.
- 3.67 **Income Tax:** As per the PPA, income tax shall be reimbursed to OPGC at actual. OPGC proposes the claim of Rs. 37.07 Crore towards Income tax payment same as of FY 2014-15 on provisional basis, however, the Income Tax will be billed based on actual payment made.

Ash Utilisation expenses:

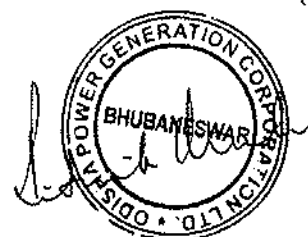
- 3.68 Ministry of Environment & Forest (MoEF), Government of India vide its Notification dated November 3, 2009 has directed to utilize 100% of total yearly ash generation by November 3, 2014, which is applicable to OPGC. Even though OPGC has been working with top priority to meet its Ash Utilization target by exploring various means of ash utilization, but unfortunately the target remained far from reach due to availability of limited opportunity. At present, OPGC achieved 20% utilization only which does not



comply with the MoEF Notification. Now, State Pollution Control Board, Odisha, and MoEF have been directing OPGC to take extra initiative to bring improvement in ash utilization. Some of the recent orders and directions issued from different enforcing authorities are as under:

- a) Government of Odisha formed a High Level Committee headed by Chief Secretary to increase ash utilization since this is a major environmental concern. The Committee has decided that Thermal Power Plants above 100 MW capacity are required to supply free ash within 100 km radius or to provide subsidy of Rs.150/- per tonne of fly ash to all ash brick plants and to all construction agencies using fly ash.
- b) State Pollution Control Board, Odisha vide their letter no. 1314/Ind-IV-PCP-FARC-01, dated January 20, 2015 directed OPGC to provide free transport of ash up to 100 km radius or provide a subsidy of Rs.150/- per tonne of ash to all the fly ash brick, tile or other fly ash based construction material manufacturing units and for use in road making. Subsequently, State Pollution Control Board, Odisha put special condition in the Consent to Operate of OPGC for FY 2015-16 to transport ash to the ash utilization points up to 100 km distance from IB Thermal Power Station on free of cost.

3.69 In this regard, OPGC has worked out various options to increase the utilisation of ash. The fly ash generated may be utilized in the field of construction of National Highway, Ash brick manufacturing, cement manufacturing, Asbestos manufacturing etc. Hence, ash needs to be provided to their location. It is proposed to extend subsidy at Rs. 150/MT to all ash off takers. Further, one of the methods of ash utilization is to fill the low lying area. Also, there is also option of utilisation of ash for manufacturing ash bricks & collection of dry ash from silo for various uses. Hence, there needs to be awareness through advertisement for ash utilization. Accordingly, OPGC proposes the ash utilisation expenses of Rs. 3.50 Crore for FY 2016-17.



Fuel Price Adjustment Charges

3.70 The Clause 9.0 of Schedule II of the Amended PPA provides the mechanism for monthly fuel price adjustment for variation in price of fuel and gross calorific value of fuel against the base price and gross calorific value considered for computation of tariff. Based on the mechanism provided in the existing PPA, OPGC has estimated the Fuel Price Adjustments Charges by considering the 12% escalation in the fuel price during the FY 2016-17 as under:

Table 3-16: Fuel Price Adjustment Charges for 2016-17

Sr. No.	Particulars		FY 2016-17
1.	Net Generation	MU	2712..25
	Coal		
2.	Price of Coal as on April 1, 2016	Rs./MT	1232.56
3.	GCV of Coal (base)	kCal/kg	2828.92
4.	Estimated Price of Coal as on March 31, 2017	Rs./kCal	1380.36
5.	Gross Station Heat Rate for Coal	kCal/kWh	2465.00
6.	Coal Price Adjustment	Paise/kWh	14.24
	Oil		
7.	Price of Oil as on April 1, 2016	Rs./kL	37100.90
8.	GCV of Oil (base)	kCal/litre	10000.00
9.	Estimated Price of Oil as on March 31, 2017	Rs./kL	41553.01
10.	Gross Station Heat Rate for Oil	kCal/kWh	35.00
11.	Oil Price Adjustment	Paise/kWh	1.72
12.	Fuel Price Adjustment	Rs. Crore	43.29



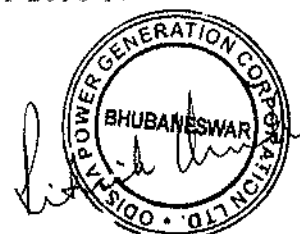
3.71 OPGC submits the above said Fuel price adjustment charges are on provisional basis, however the monthly fuel price adjustment shall be computed based on actual fuel price and gross calorific value for Coal and Oil, delivered to the station during the month and total impact for 1st 6 months and balance months thereafter. OPGC humbly request the Hon'ble OERC to approve the recovery of such variation in fuel prices and gross calorific value through Fuel Price Adjustment charges as per the terms and conditions of Amended PPA.

3.72 Apart from the above charges, OPGC, as per the terms and conditions of Amended PPA, is entitled to recover such additional charges from GRIDCO such as Boiler Inspection Fee, Factory Licence Fee, Stamping Fee of Water Flow Meter, Calibration Fee for Energy meter, Stamping Fee for test weight and in motion weigh bridge, Registration Fee for new fire tender, Coal Storage Licence Fee, Road Tax and Fitness Fee, VHF Licence Fee, etc. OPGC submits that these charges will be recovered during the year as and when it is incurred. IOPGC humbly request the Hon'ble OERC to approve the recovery of these charges as and when it is incurred in future.

3.73 The Year-end charges proposed by OPGC are summarised in the following table:

Table 3-17: Year End Charges for 2016-17 (Rs. Crore)

Sr. No.	Particulars	FY 2016-17
1.	Incentive	1.62
2.	Electricity Duty	8.09
3.	Water Cess and Water Charges	7.09
4.	Tax and Cess on land	0.22
5.	Electricity Inspection Fees	0.17
6.	SOC and MOC for SLDC	0.38
7.	ERPC Charges	0.16
8.	Income Tax	37.07



Sr. No.	Particulars	FY 2016-17
9.	Ash Utilisation expenses	3.50
10.	Fuel Price Adjustment Charges	43.29
11.	Recovery of ARR and Tariff Petition Fees	0.21
12.	Sub-total of Year End Charges	101.80
13.	Reimbursement of Additional Capitalisation	95.65
14.	Grand Total	197.45

3.74 OPGC humbly request the Hon'ble OERC to approve Year End Charges of Rs. 101.80 Crore and Reimbursement of Additional Capitalisation of Rs. 95.65 Crore for FY 2016-17.

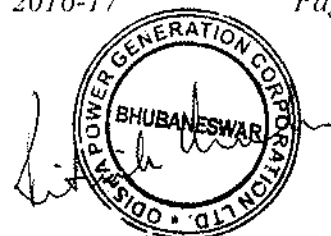
Summary of Generation Tariff for FY 2016-17

3.75 The summary of Generation Tariff proposed for FY 2016-17 is as under:

Table 3-18: Generation Tariff for 2016-17

Sr. No.	Particulars	FY 2016-17	
		Rs. Crore	Rs./kWh
1.	Annual Fixed Cost	208.58	0.769
2.	Energy Charges	360.79	1.330
3.	Tariff for Sale of Power	569.37	2.099
4.	Year End Charges excluding additional capitalisation	101.80	0.375
5.	Reimbursement of Additional Capitalisation	95.65	0.353
6.	Total Tariff for Sale of Power	766.81	2.827

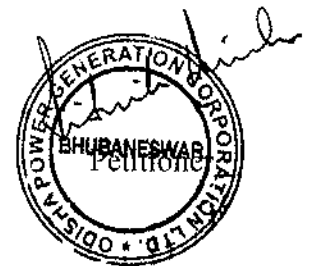
OPGC humbly request the Hon'ble OERC to approve Generation tariff for FY 2016-17 as mentioned in the above table and recovery of the tariff from GRIDCO as per the terms and conditions of Amended PPA.



4 Prayers

OPGC respectfully prays that the Hon'ble OERC may:

- i) Accept the Application for Approval of Generation Tariff for Odisha Power Generation Corporation Ltd. for FY 2016-17 for supplying power to GRIDCO Ltd. from Units 1 & 2 of IB Thermal Power Station.
- ii) Approve the tariff, including annual fixed cost and variable charges, for supplying the power to GRIDCO Ltd. for FY 2016-17.
- iii) Approve the Year-end charges to be paid by GRIDCO Ltd. as per the provisions of Amended PPA signed between OPGC Ltd. and GRIDCO Ltd.
- iv) Approve Additional Capitalisation incurred by OPGC Ltd. during FY 2014-15 and FY 2015-16 and projected for FY 2016-17 and its recovery through tariff of FY 2016-17.
- v) Approve the recovery of upward and downward variation in fuel prices and calorific value including fuel mix through Fuel Price Adjustment as per the provisions of Amended PPA between OPGC Ltd. and GRIDCO Ltd.
- vi) Condone the delay in filing the Petition
- vii) Condone any inadvertent omissions, errors, short comings and permit APNRL to add/ change/ modify/ alter this filing and make further submissions as may be required at a future date; and
- viii) Pass such other and further Orders as deemed fit and proper in the facts and circumstances of the case.



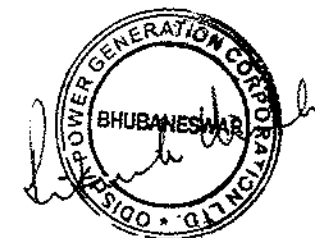
Bhubaneshwar

December 5, 2015

Checklist of Forms and other information/ documents for tariff filing for

Name of Utility / Company

Form No.	Title of Tariff Filing Form	Tick
Form 1.1	Summary of Tariff Proposal(Thermal)	√
Form 1.2	Summary of Tariff Proposal(Hydro)	NA
Form 2.1	Plant Characteristics	√
Form 2.2	Details of COD, Type of hydro station, Capacity Index, Primary energy rate	NA
Form 2.3	Salient Features of Hydroelectric Project	NA
Form 3.1	Planned & Forced Outages	√
Form 4.1	Revenue from Sale of Power (Previous year actual)	√
Form 5.1	Non Tariff Income	√
Form 6.1	O&M Expenses	√
Form 6.2	Fixed Assets and Depreciation	√
Form 6.3	Calculation of Interest on Loans	√
Form 6.4	Calculation of Interest on Working Capital Loan	√
Form 7.1 (C)	Details/Information to be Submitted in respect of Fuel for Computation of Energy Charges for FPA(Coal)	√
Form 7.1 (O)	Details/Information to be Submitted in respect of Fuel for Computation of Energy Charges for FPA(Oil)	√
Form 7.2	Energy Charges for Thermal Generation	√
Form 8.1	Break-up of Capital Cost for Coal based projects	NA
Form 8.2	Break up of Capital cost for hydro power generating station	NA
Form 8.3	Break up of Capital Cost for Plant & Equipment(Hydro)	NA
Form 8.4	Statement of Additional Capitalisation after COD	√
Form 8.5	IDC Planned and actual	NA
Form 8.6	Details of Foreign loans / Equity	NA
Form 8.7	Deign energy and peaking capability (monthwise)- ROR with Pondage/Storage type new stations	NA
Form 8.8	Deign energy and MW Continuous (monthwise)- ROR type new stations	NA
Form 9	Year End Charges	√
NA- Not Applicable		
Other Information/ Documents		
Sl. No.	Information/Document	Tick
1	Certificate of incorporation, Certificate for Commencement of Business, Memorandum of Association, & Articles of Association (For New Station setup by a company making tariff application for the first time to OERC)	NA
2	Stationwise and Corporate audited Balance Sheet and Profit & Loss Accounts with all the Schedules & annexures on COD of the Station or the new station for the relevant years.	√
3	Copies of relevant loan Agreements	NA
4	Copies of the approval of Competent Authority for the Capital Cost and Financial package.	NA
5	Copies of the Equity participation agreements and necessary approval for the foreign equity.	NA
7	Copies of the BPSA/PPA with the beneficiaries, if any	√
8	Detailed note giving reasons for time and cost over run, if applicable.	NA
9	Details of SBI Base rate taken for calculation	√
10	Any other relevant information, in any to be specified	√



Form 1.1

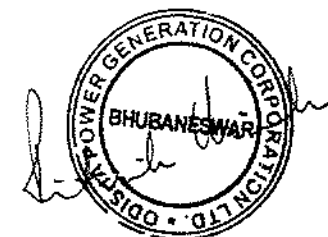
Summary of Tariff Proposal (Generation Thermal)

Name of the Utility / Company : Odisha Power Generation Corporation Limited

Name of the Thermal Power Station: IB Thermal Power Station

(Rs. In Crore)

S.No.	Particulars	Reference	2016-17
			4
1	2	3	
A	Fixed Charge		
1	O & M Expenses	Form 6.1	120.02
2	Depreciation	Form 6.2	0.00
3	Interest on Term Loans & Fin. Charges	Form 6.3	0.00
4	Interest on Working Capital Loans	Form 6.4	16.56
5	Recovery of ARR & Tariff Petition Fees*(included in Year End Charges)		0.00
6	Return on Equity		72.00
7	Total Fixed Charge		208.58
8	Less: Non-Tariff Income	Form 5.1	0.00
9	Net Fixed Charge		208.58
B	Variable Cost	Form 7.2	360.79
C	Year End Charges excluding additional capitalisation	Form 9	101.80
D	Reimbursement of Additional Capitalisation	Form 9	95.65
D	Total Cost		766.81
D	Unit Sold to Discoms in MU	Form 7.2	2712.25
E	Rate of Fixed Charge(Paisa/kwh)		76.90
F	Rate of Variable Charge(Paisa/kwh)	Form 7.2	133.02
G	Rate of Sale of Energy (Paisa./kwh)		209.92
H	Rate of Year End Charges (paisa/kWh)		37.53
I	Reimbursement of Additional Capitalisation (paisa/kWh)		35.27
J	Total Rate of Sale of Energy (Paisa./kwh)		282.72



Plant Characteristics (Generation)

Name of the Utility / Company : Odisha Power Generation Corporation Limited

FORM 2.1

Name of the Thermal Power Station: IB Thermal Power Station

Basic characteristics of the plant ¹	420 MW subcritical once through steam generaor		
Special Features of the Plant			
Site Specific Features ²	MGR of 7 Km, Intake channel from Mahanadi Coalfields Limited		
Special Technological Features ³			
Environmental Regulation related features ⁴	ESP upgradation work completed in one unit and under constuction for other Unit		
Any other special features			
Fuel Details ⁵	Primary Fuel	Secondary Fuel	Alternate Fuels
	COAL	LDO& HFO	
Details	Module number or Unit number		
1	2	5	8
	Unit # 1	Unit # 2	Unit # 3
Installed Capacity (IC) MW	210	210	NA
Date of Commercial Operation (COD)	1996	1997	NA
Type of cooling system ⁶	Closed Circuit Cooling		
Type of Boiler Feed Pump ⁷	Motor Driven		
Pressure (kg/cm ²)			
Temperature 0C			
-At Superheater Outlet			
-At Reheater Outlet			
Guaranteed Design Heat rate (kCal/kWh) ⁸			
Conditions on which guaranteed			
% MCR			
% Makeup			
Design Fuel			
Design cooling water Temperature			
Back Pressure			

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

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

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

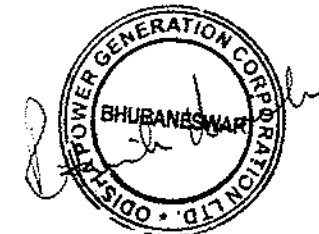
⁴ Environmental regulation related features like FGD, ESP etc.

⁵ Coal, oil etc.

⁶ Closed circuit cooling, once through cooling, sea cooling etc.

⁷ Motor driven, Steam turbine driven etc.

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



Planned & Forced Outages

Name of the Utility / Company : Odisha Power Generation Corporation Limited

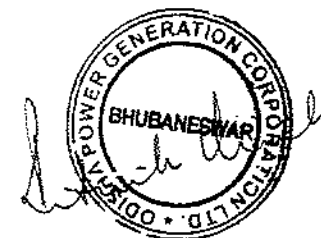
FORM-3.1

Name of the Thermal Power Station: IB Thermal Power Station

Year Ending March 2017

(Rs. In Crore)

S.No.	Particulars	Reference	Control Period as per OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2014
			2016-17
	1	2	9
	1	Unit 1	
	A.	Planned Outages	
		No of days of outage	0
		Number of Outage	-
		Reasons for Outage	-
	B.	Forced Outages	
		No of days of outage	0
		Number of Outage	-
		Reasons for Outage	-
	2	Unit 2	
	A	Planned Outages	
		No of days of outage	21
		Number of Outage	1
		Reasons for Outage	Minor Annual Overhauling
	B	Forced Outages	
		No of days of outage	0
		Number of Outage	-
		Reasons for Outage	-



Revenue from Sale of Power (2016-17 Estimated)

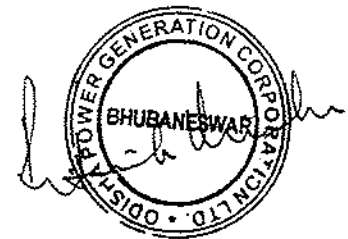
Name of the Utility / Company : Odisha Power Generation Corporation Limited

FORM-4.1

Name of the Thermal Power Station: IB Thermal Power Station

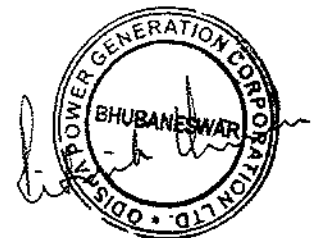
Year Ending March 2017

Sl. No.	Particulars	Reference	Allocation	Unit Sold	% of total	Demand/ Fixed Charges	Energy Charges	Fuel & cost adjustment charges	Year End Charge	Total	Average Rate (paisa/kWh)
			(in %)/ contract demand								
1	2	3	4	5	6	7	8	9	10	11=7+8+9+10	12
1	Revenue from sale of Electricity (as per proposed tariff)		100%	2712.25	100%	208.58	360.79	43.29	58.50	671.16	247.46
1.1	GRIDCO		100%	2712.25	1.00	208.58	360.79	43.29	58.50	671.16	247.46
5	Net revenue					208.58	360.79	43.29	58.50	671.16	247.46



Non-Tariff Income			
Name of the Utility / Company : Odisha Power Generation Corporation Limited		FORM-5.1	
Name of the Thermal Power Station: IB Thermal Power Station		Year Ending March 2017	
S.No.	Particulars	Reference	2016-17
			3
	1	2	3
A)	Other Non tariff income		
1	Int. on loans and advances to employees		0
2	Int. and other income from investments and deposits		0
3	Income from sale of scrap		0
4	Int. on subvention received from govt.		0
5	Income from sale of power to its staff		0
6	Income from sale of ash		0
7	Miscellaneous receipts		0
	Total		0.00

* Non-Tariff income is not applicable as per Bulk Supply Agreement signed between OPGC and GRIDCO



O&M Expenses

Name of the Utility / Company : Odisha Power Generation Corporation Limited

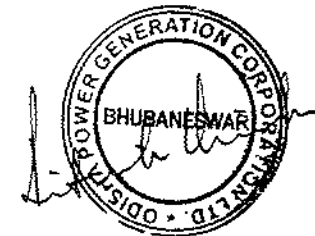
FORM 6.1

Name of the Thermal Power Station: IB Thermal Power Station

S.No.	Particulars	Units	2016-17
1	O&M Expnese norms for Unit (per MW)	Rs. Cr.	-
2	No of Units	No.	2
3	O&M expense in Rs. Cr	Rs. Cr.	120.02
4	Allocation of corporate O&M Expense %	%	0.000
5	Allocation of corporate O&M Expense in Rs. Cr	Rs. Cr.	0.000
6	Total O&M expense	Rs. Cr.	120.02

O&M Expenses Computation for OPGC

S.No.	Particulars	Units	2016-17
1	Capital Cost of Project considered for O&M Expenses as per Amended PPA	Rs. Cr.	1030.000
2	O&M Expenses for first year @ 2.5% of Capital Cost	Rs. Cr.	25.75
3	Escalation rate	%	8%
4	O&M Expenses	Rs. Cr.	120.02



FORM- 6.3

Calculation of Interest on Loans

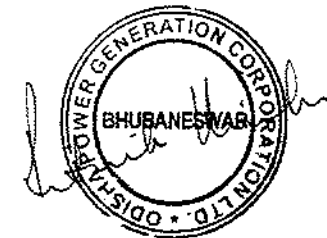
Name of the Utility / Company : Odisha Power Generation Corporation Limited

Name of the Thermal Power Station: IB Thermal Power Station

(Rs. in Crore)

Sl. No	Particulars	2016-17
1	2	3
A	Total Loan	
1	Gross loan - Opening	610
2	Cumulative repayments of Loans upto previous year	610
3	Net loan - Opening	0
4	Receipts during the year	0
5	Repayment during the year	0
6	Net loan - Closing	0
7	Average Net Loan	0
8	Rate of Interest on Loan	0
9	Interest on loan	0
10	Add : Finance Charges	0
11	Less: Interest During Construction	0
12	Total Interest on Loan	0

¹ In case of Foreign Loans, the calculations in Indian Rupees is to be furnished. However, the calculations in Original currency is also to be furnished seperately in the same form.



FORM-6.4

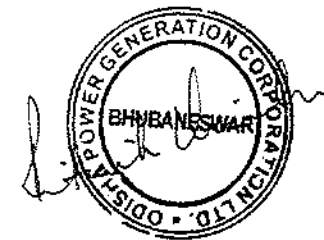
Calculation of Interest on Working Capital Loan

Name of the Utility / Company: Odisha Power Generation Corporation Limited

Name of the Thermal Power Station: IB Thermal Power Station

(Rs. In Crore)

Sl. No.	Particulars	Norms considered	2016-17
1	Coal Cost (Non pit head)	-	0.00
2	Coal Cost (Pit head)	1.5 months	33.83
3	Sec.Fuel Oil	2 months	5.45
4	Liquid Fuel Stock	-	0.00
5	O & M expenses	1 month	10.00
6	Maintenance Spares	-	0.00
7	Recievables	2 months	85.32
8	Working capital Loan Requirement		134.61
9	Rate of Interest		12.30%
10	Interest on Working Capital		16.56



Details/Information to be Submitted in respect of Fuel for Computation of Energy Charges for FPA

FORM 7.1 (C)

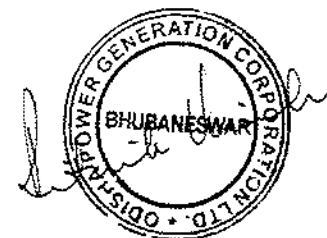
Name of the Utility / Company : Odisha Power Generation Corporation Limited

Name of the Thermal Power Station: IB Thermal Power Station

S.No	Month	Unit	Jul-15	Aug-15	Sep-15
			Domestic coal	Domestic coal	Domestic coal
1	2	3	4	6	8
1	Quantity of coal in stock at the beginning of the month	(MMT)	1,76,953	1,44,033	1,12,158
2	Quantity of Coal supplied by Coal Company	(MMT)	1,79,385	2,22,086	2,74,742
3	Adjustment (+/-) in quantity supplied made by Coal Company for diversion of wagons etc.	(MMT)	-	-	-
4	Coal supplied by Coal Company (2+3)	(MMT)	1,79,385	2,22,086	2,74,742
5	Normative Transit & Handling Losses (For coal based Projects)	(MMT)	-	-	-
6	Net coal Supplied (4-5)	(MMT)	1,79,385	2,22,086	2,74,742
7	Total coal (Receipts & Opening Stock) (1)+(6)	(MMT)	3,56,338	3,66,119	3,86,899
8	coal burnt/consumed	(MMT)	2,12,305	2,53,961	2,39,700
9	Coal in stock at the end of the month	(MMT)	1,44,033	1,12,158	1,47,199
10	Value of coal in stock (Landed cost of 1)	(Rs.)	2023,50,960	1653,35,016	1290,39,077
11	Amount charged by the Coal Company	(Rs.)	2066,89,109	255890146	3165,60,266
12	Adjustment (+/-) in amount charged made by Coal Company	(Rs.)	-	-	-
13	Total amount Charged (11+12)	(Rs.)	2066,89,109	2558,90,146	3165,60,266
14	Transportation charges by rail/ship/road transport	(Rs.)	-	-	-
15	Adjustment (+/-) in amount charged made by Railways/Transport Company	(Rs.)	-	-	-
16	Demurrage Charges, if any	(Rs.)	-	-	-
17	Cost of diesel in transporting coal through MGR system, if applicable	(Rs.)	-	-	-
18	Total Transportation Charges (14+/-15+16+17)	(Rs.)	-	-	-
19	Total amount Charged for coal supplied including Transportation (13+18)	(Rs.)	2066,89,109	2558,90,146	3165,60,266
20	Average cost of coal (Opening stock + receipts) (19+10)/7	(Rs/MMT)	1,147.90	1,150.52	1,151.72
21	Cost of coal in stock at the end of the month (20)x(9)	(Rs.)	1653,35,016	1290,39,077	1695,32,192
22	Weighted average GCV of coal as fired	(kCal/Kg)	2,827	2,552	2,702

Price of Coal

Particulars	Spetember 2015
Average cost of coal (Opening stock + receipts) (19+10)/7	1,151.72
Cost of diesel in transporting coal through MGR system	4.17
Loss in Quantity of Coal	0.38%
Weighted Average Price (Rs./MT)	1160.29
Escalation factor	6%
Estimated Price of Coal as on April 1, 2016	1232.56



Details/Information to be Submitted in respect of Fuel for Computation of Energy Charges for FPA

Name of the Utility / Company : _____

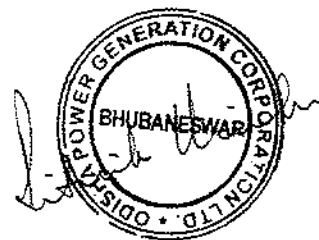
FORM-7.1 (O)

Name of the Thermal Power Station: _____

S.NO	PARTICULARS	Unit	Jul-15		Aug-15		Sep-15	
			LDO	FO	LDO	FO	LDO	FO
1	Quantity of Sec. Fuel oil(FO, HSD,LDO) in stock at the begning of the month	KL	510.606	510.606	400.10	400.098	545.78	545.778
2	Quantity of Sec. Fuel oil(FO, HSD,LDO) supplied by company	KL	26	26.000	154.500	154.500	0	0.000
3	Adjustment (+/-) in quantity of Sec. Fuel oil(FO, HSD,LDO) supplied by company	KL	0.00	0.000	0.00	0.000	0.00	0.000
4	Gross Oil(FO, HSD,LDO) supplied by company(2+3)	KL	26.00	26.000	154.50	154.500	0.00	0.000
5	Normative/Transit Loss	KL	0.00	0.000	0.00	0.000	0.00	0.000
6	Net Oil(FO, HSD,LDO) supplied by company(4-5)	KL	26.00	26.000	154.50	154.500	0.00	0.000
7	Total oil receipt & in stock (1+6)	KL	536.606	536.606	554.598	554.598	545.778	545.778
8	Total Oil Consumed	KL	136.508	136.508	8.820	8.820	87.939	87.939
9	Oil in stock at the end of month	KL	400.10	400.098	545.78	545.778	457.84	457.839
10	Value of oil in stock (Landed cost of l)	RS	249,47,626	178,99,583	195,10,008.53	140,04,865.36	254,59,987.52	183,50,788.16
11	Amount charged by company	RS	12,18,932.00	8,83,552	63,61,423.00	46,42,479	-	-
12	Adjustment (+/-) in Amount charged by company	RS	0.00	0.00	0.00	0.00	0.00	0.00
13	Total amount charged(11+12)	RS	1218932.00	883551.84	6361423.00	4642479.19	0.00	0.00
14	Transportation charges	RS	0.00	0.00	0.00	0.00	0.00	0.00
15	Adjustment (+/-) in Transportation charges	RS	0.00	0.00	0.00	0.00	0.00	0.00
16	Demurrage charges if any	RS	0.00	0.00	0.00	0.00	0.00	0.00
17	Cost of diesel in transporting oil through MGR System if applicable	RS	0.00	0.00	0.00	0.00	0.00	0.00
18	Total Transportation charges(14+15+16+17)	RS	0.00	0.00	0.00	0.00	0.00	0.00
19	Total amount charged for oil including Transportation(13+18)	RS	1218932.00	883551.84	6361423.00	4642479.19	0.00	0.00
20	Avarage cost of oil(in stock+receipt)	RS	48763.07	35003.59	46648.98	33623.17	46648.98	33623.13
21	Cost of Oil in stock at the end of month	RS	195,10,008.53	140,04,865.36	254,59,987.52	183,50,788.16	213,57,722.79	153,93,981.63
22	WTG AVG GCV of oil fired	(Kcal/tr)	10000	10000	10000	10000	10000	10000

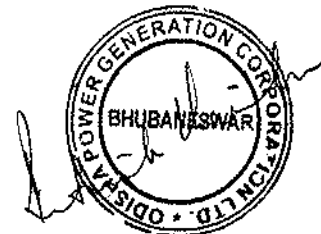
Price of Oil

Particulars		Sep-15
Wt. Average Cost of LDO	Rs./KL	46648.98
Wt. Average Cost of FO	Rs./KL	33623.13
Wt. Average Cost of Oil (90:10::FO:LDO)	Rs./KL	34925.72
Escalation factor		6%
Estimated Price of Oil as on April 1, 2016	Rs./KL	37100.90



Energy Charges for Thermal Generation			
Name of the Utility / Company : Odisha Power Generation Corporation Limited		FORM-7.2	
Name of the Thermal Power Station: IB Thermal Power Station			
Year Ending March 2017			
Particulars	Units	Reference	2016-17
Operational Parameter			
Number of Units			2
Upto 250 MW			2
More than 250 MW			0
Total Capacity	MW		420
Availability	%		97.12%
PLF	%		81.46%
Gross Generation	MU		2996.97
Auxiliary Energy Consumption	%		9.50%
Auxiliary Energy Consumption	MU		284.71
Net Generation	MU		2712.25
Heat Rate	kcal/kwh		2500.00
Fly Ash Utilization	%		
Other By product utilization (with List)	%		
Fuel Parameters			
Calorific Value for Different Fuels			
Domestic Coal -MCL	kcal/Kg		2828.92
Secondary Fuel Oil	kcal/Ltr.	From 7.1 (C)	10000.00
Landed Fuel Price for different fuels			
Domestic Coal -MCL	Rs/MT	From 7.1 (C)	1232.56
Secondary Fuel Oil	Rs/KL	From 7.1 (O)	37100.90
Specific Fuel Consumption			
Domestic Coal -MCL	Kg/kWh		0.87
Secondary Fuel Oil	ml/kWh		3.50
Total Fuel Consumption			
Domestic Coal -MCL	MT		2611423.82
Secondary Fuel Oil	KL		10489.38
Heat Content (each fuel separately)			
Domestic Coal -MCL	Million kcal		7387518.99
Secondary Fuel Oil	Million kcal		104893.78
Total Fuel Cost			
Domestic Coal -MCL.	Rs Crore		321.87
Secondary Fuel Oil	Rs Crore		38.92
Total fuel Cost			360.79
Other Charges and Adjustments			
Other Charges FOR WATER CESS & WATER CONSUMPTION*	Rs Crore	As per actual	0.00
Other Adjustments	Rs Crore		0.00
Total Cost	Rs Crore		360.79
Cost of Generation per unit (Coal +oil+water)			1.204
Energy Charges per unit			1.330

* Separately considered under Year End Charges



Statement of Additional Capitalisation after COD

Name of the Utility / Company : Odisha Power Generation Corporation Limited

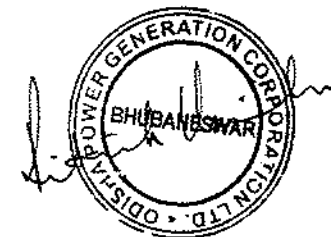
FORM-8.4

Name of the Thermal Power Station: IB Thermal Power Station

Cost in Rs. Crores

Sl.No.	Year	Work/Equipment added after COD up to Cut off Date / Beyond Cut off Date ¹	Amount Capitalised / Proposed to be capitalised	Justification*	Admitted Cost ²
(1)	(2)	(3)	(4)	(5)	(6)
1	FY 2014-15				
1.1		Raising of height to increase the capacity of ASH pond-A from RL 202 mtr to 205 Mtr.	4.95		
1.2		Total	4.95		
2	FY 2015-16				
2.1		Ambicnt monitoring system	1.13		
2.2		Effluent Monitoring system and real time data transfer	0.16		
2.3		Modification of PRDS SYSTEM	3.4		
2.4		Up gradation of Electrical protection relay	0.5		
2.5		Ad line Installation	2		
2.6		Zero Effluent Discharge	0.60		
2.7		Total	7.79		
3	FY 2016-17				
3.1		Electro Static Precipitator (ESP) up gradation	47.00		
3.2		Raising of height to increase the capacity of Ash pond-A from RL 205 mtr to 208 Mtr.Ash pond height raising	4.58		
3.3		New Ash Pond "C" construction	16.38		
3.4		HDPE Lining for Ash Pond-C	12.70		
3.5		Dry Fog Dust Suppression System	2.25		
3.6		Total	82.91		
4	Grand Total		95.65		

*Justification of the Capitalisation has been submitted in the Petition



FORM- 9

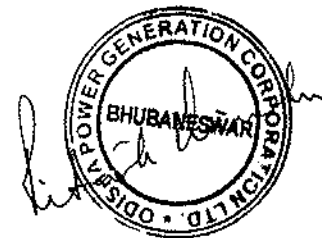
Year End Charges

Name of the Utility / Company : Odisha Power Generation Corpora

Name of the Thermal Power Station: IB Thermal Power Station

(Rs. in Crore)

Sl. No	Particulars	2016-17
1	2	3
1	Incentive	1.62
2	Electricity Duty	8.09
3	Water Cess and Water Charges	7.09
4	Tax and Cess on land	0.22
5	Electricity Inspection Fees	0.17
6	SOC and MOC for SLDC	0.38
7	ERPC Charges	0.16
8	Income Tax	37.07
9	Ash Utilisation expenses	3.50
10	Fuel Adjustment Charges	43.29
11	Recovery of ARR and Tariff Petition Fees	0.21
12	Sub-total	101.80
13	Additional Capitalisation as reimbursement	95.65
14	Grand Total	197.45



FORM-10

Price and GCV of Fuel

Name of the Utility / Company : Odisha Power Generation Corporation Limited

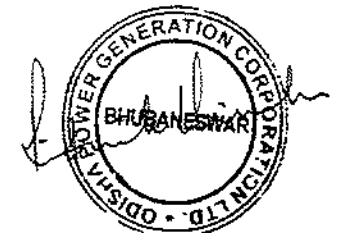
Name of the Thermal Power Station: IB Thermal Power Station

FY 2014-15

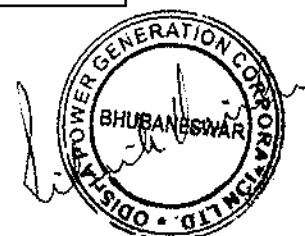
S.No.	Month	Coal			LDO			FO		
		Consumption (MT)	Price (Rs./MT)	GCV (kCal/Kg)	Consumption (kL)	Price (Rs./kL)	GCV(kCal/litre)	Consumption (kL)	Price (Rs./kL)	GCV(kCal/litre)
1	Apr-14	255293.00	995.99	2629.00	36.55	66968.48	10000.00	36.55	51539.57	10000.00
2	May-14	241837.00	990.63	2880.00	92.99	66968.48	10000.00	92.99	51539.57	10000.00
3	Jun-14	216112.00	989.69	2952.00	129.96	67642.74	10000.00	129.96	50297.35	10000.00
4	Jul-14	218996.00	1009.45	3173.00	169.07	67422.30	10000.00	169.07	50057.31	10000.00
5	Aug-14	228128.00	1027.48	2934.00	5.58	66917.31	10000.00	5.58	49535.43	10000.00
6	Sep-14	99037.00	1031.55	2759.00	124.23	65790.84	10000.00	124.23	48624.60	10000.00
7	Oct-14	208702.00	1037.12	2972.00	344.97	65325.12	10000.00	344.97	48350.38	10000.00
8	Nov-14	209501.00	1039.80	3020.00	8.54	63373.26	10000.00	8.54	46355.47	10000.00
9	Dec-14	92695.00	1040.61	3154.00	0.00	63373.26	10000.00	0.00	46355.47	10000.00
10	Jan-15	157518.00	1041.21	2956.00	270.31	60431.17	10000.00	270.31	43822.36	10000.00
11	Feb-15	133778.00	1041.68	2910.00	285.94	54572.44	10000.00	285.94	38537.89	10000.00
12	Mar-15	271640.62	1095.80	2792.00	150.20	50609.36	10000.00	150.20	34650.44	10000.00

FY 2015-16 (First Half)

S.No.	Month	Coal			LDO			FO		
		Consumption (MT)	Price (Rs./MT)	GCV (kCal/Kg)	Consumption (kL)	Price (Rs./kL)	GCV(kCal/litre)	Consumption (kL)	Price (Rs./kL)	GCV(kCal/litre)
13	Apr-15	237789.00	1124.53	2825.00	133.03	50609.07	10000.00	133.03	34650.44	10000.00
14	May-15	223277.00	1136.57	2787.00	285.67	49452.32	10000.00	285.67	34600.75	10000.00
15	Jun-15	241583.00	1143.53	2790.00	86.65	48858.86	10000.00	86.65	35055.50	10000.00
16	Jul-15	212305.00	1147.90	2827.00	136.51	48763.07	10000.00	136.51	35003.52	10000.00
17	Aug-15	253961.00	1150.52	2552.00	8.82	46648.98	10000.00	8.82	33623.13	10000.00
18	Sep-15	239700.00	1151.72	2702.00	87.94	46648.98	10000.00	87.94	33623.13	10000.00



Appendix-B		
Depreciation Schedule		
Sl. No.	Asset Particulars	Depreciation Rate (Salvage Value=10%)
A	Land under full ownership	0%
B	Land under lease	
a	for investment in the land	3.34%
b	For cost of clearing the site	3.34%
c	Land for reservoir in case of hydro generating station	3.34%
C	Assets purchased new	
a	Pl & Machinery in generating stations	
(i)	Hydro electric	5.28%
(ii)	Steam electric NHRB & waste heat recovery boilers	5.28%
(iii)	Diesel electric and gas plant	5.28%
b	Cooling towers & circulating water systems	5.28%
c	Hydraulic works forming part of the Hydro-	
(i)	Dams, Spillways, Weirs, Canals, Reinforced concrete flumes and syphons	5.28%
(ii)	Reinforced concrete pipelines and surge tanks, steel pipelines, sluice gates, steel surge tanks, hydraulic control valves and hydraulic works	5.28%
d	Building & Civil Engineering works of a	
(i)	Offices and showrooms	3.34%
(ii)	Containing thermo-electric generating plant	3.34%
(iii)	Containing hydro-electric generating plant	3.34%
(iv)	Temporary erections such as wooden structures	100.00%
(v)	Roads other than Kutchra roads	3.34%
(vi)	Others	3.34%
e	Transformers, Kiosk, sub-station equipment & other fixed apparatus (including plant	
(i)	Transformers including foundations having rating of 100 KVA and over	5.28%
(ii)	Others	5.28%
f	Switchgear including cable connections	5.28%
g	Lightning arrestor	
(i)	Station type	5.28%
(ii)	Pole type	5.28%
(iii)	Synchronous condenser	5.28%
h	Batteries	
(i)	Underground cable including joint boxes and disconnected boxes	5.28%
(ii)	Cable duct system	5.28%
i	Overhead lines including cable support	
(i)	Lines on fabricated steel operating at terminal voltages higher than 66 KV	5.28%
(ii)	Lines on steel supports operating at terminal voltages higher than 13.2 KV but not exceeding 66 KV	5.28%



(iii)	Lines on steel on reinforced concrete support	5.28%
(iv)	Lines on treated wood support	5.28%
j	Meters	5.28%
k	Self propelled vehicles	9.50%
l	Air Conditioning Plants	
(i)	Static	5.28%
(ii)	Portable	9.50%
m(i)	Office furniture and furnishing	6.33%
(ii)	Office equipment	6.33%
(iii)	Internal wiring including fittings and apparatus	6.33%
(iv)	Street Light fittings	5.28%
n	Apparatus let on hire	
(i)	Other than motors	9.50%
(ii)	Motors	6.33%
o	Communication equipment	
(i)	Radio and high frequency carrier system	6.33%
(ii)	Telephone lines and telephones	6.33%
p	I. T equipments	15.00%
q	Any other assets not covered above	5.28%

