BEFORE THE JHARKHAND ELECTRICITY REGULATORY COMMISSION

CASE NO. _____of 2016

IN THE MATTER OF:

Petition for approval of Capital cost, True up 2014-15, APR of 2015-16 & MYT for 2016-17 onwards for 1X63MW (Stage 1) Coal Fired CFBC Thermal Power Project under Section 61 & 62 of the Electricity Act 2003.

AND

IN THE MATTER OF:

Inland Power Ltd …Petitioner

3A, Auckland Place

Kolkata - 700017

West Bengal, India

&

Jharkhand Urja Vikas Nigam Ltd. (JUVNL), Ranchi is the "Respondent" to the Petition.

Details of enclosures:

1. Annexure 1 – Chartered Accountant certificate certifying project capital cost with sources of funding
2. Annexure 2 – WPI details for increase of various costs
3. Annexure 3 – Bank loan details

4. Annexure 4 - Working capital details
5. Annexure 5 – Water bill details of IPL
6. Annexure 6 –Actual primary fuel usage summary
7. Annexure 7 – Board resolution dtd.11.08.2011 for investment in the project.
8. Annexure 8 – Summary of other CFBC plants where similar orders has been passed by the respective Commission
9. Annexure 9 – Submission of capital cost format as desired by the Commission in its order of May 2014
10. Annexure 10 – IPL annual accounts for the year FY 2014-15
11. Annexure 11 – MYT formats as per JSERC regulations
12. Annexure 12 – Sample bills for secondary oil bought
13. Annexure 13 – Delivery orders for primary fuel bought

Facts of the case:

1. Inland Power Limited signed a Memorandum of Understanding (MoU) with Government of Jharkhand to develop a 126 MW (+ 20%) (2x 63 MW) power project in October 2011.
2. Accordingly, IPL has setting up a 2x63 MW thermal power plant based on CFBC technology in two stages in Gola, District Ramgharh, Jharkhand. The commercial operation date of first unit of 63 MW is 21st May 2014.
3. As per the provisions of the MOU, the Government of Jharkhand or Distribution Licensees authorized by it will have the first right of claim on purchase up to 25% of power delivered to the system by the proposed power plant. Further, the MoU stipulates that out of the 25% under first right of refusal to the State, the rate of 12% share will be on variable cost.
4. Pursuant to the MoU signed between Government of Jharkhand and IPL, IPL signed a Power Purchase Agreement (hereinafter also referred to as "the PPA") with Jharkhand State Electricity Board (now Jharkhand Urja Vikash Nigam Limited or "JUVNL") on February 23, 2012 for supplying 35 MW of 63 MW from Stage 1 of the Project on long term basis. Subsequently, IPL signed a supplementary PPA with JSEB

(now JUVNL) on April 22, 2013 for purchase and sale of entire quantity of power to be generated from Unit 1 of 63MW inclusive of quantity mentioned in earlier Principal PPA.

5. JSERC on 27th May 2014 issued a tariff order, provisionally approving the tariff for the years FY 2014-15 and 2015-16 respectively based on the then Petition of Inland Power limited.
6. In this regard, IPL in accordance with the provisions of Section 62 of the Electricity Act, 2003 and under the JSERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2010 and JSERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2015 is submitting this Petition for approval of the Capital Cost, True-up of 2014-15, APR of 2015-16 and Multi –Year Tariff for supplying the regulated Contracted Capacity of 63 MW from stage 1 of the project to Jharkhand State Electricity Board (JSEB) for the Control Period from FY 2016-17 to FY 2020-21 based on the Power Purchase Agreement entered with JSEB (now JUVNL) dated 28th September, 2012 and a supplementary PPA signed on 22nd April 2013.

PRAYER TO THE HON'BLE COMMISSION

The Petitioner respectfully prays that the Hon'ble Commission may:

- Accept the petition for approval of Capital cost of the project, true-up of 2014-15 and APR of 2015-16
- Accept the petition for approval of tariff for the control period of 2016-17 to 2020-21 for power generated from IPL's power generation plant for sale to JSEB in the State of Jharkhand.
- Condone any inadvertent omissions/ errors/ rounding off differences/ shortcomings and permit IPL to add/ change/ modify this filing and make further submission as may be at a future date; and
- Pass such further and other orders, as the Hon'ble Commission may deem fit and proper, keeping in view the facts and circumstances of the case.

The Petitioner further declares that the subject matter of the petition has not been raised by the Petitioner before any other competent forum, and that no other competent forum is currently seized of the matter or has passed any orders in relation thereto.

Place:
Date:

On behalf of **Inland Power Limited**

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1. Background

1.1 Profile of Inland Power Limited

1.1.1 Inland Power Limited ("IPL") is promoted by the Inland Group which was founded in 1970s. IPL has been incorporated to expand the business interests of the Inland Group in the power sector. The Inland Group has major interests in logistics, Jewellery Exports, Tea Plantation and Bearings. Inland World Logistics Private Limited (IWLPL) is the flagship group company and is one of the premier logistics companies in India with more than 350 branches across India.

1.1.2 IPL had been originally incorporated on 22nd June, 1993 as a Private Limited Company and was subsequently converted to a Public Limited Company on 3rd April, 2008 as Inland Power Ltd. IPL has set up one unit of the project of 2x63 MW thermal power plant based on CFBC technology in two stages at Inland Nagar near Gola, District Ramgarh, Jharkhand as an Independent Power Plant (IPP). Stage one has commissioned its operation on 21st May 2014.

1.2 Project Summary

1.2.1 The project construction activities started on 20th December 2011 and the commercial operation of its stage 1 of 63MW unit was on 21st May 2014. The key milestones for the project are provided in the table below:

Table 1: Milestone table

Date	Key Milestones
18 Oct 2011	MoU between Govt of Jharkhand and JSEB for facilitation of project
5th Sept 2011	Coal linkage for 63 MW
Various dates	Land lease deed registered, land possession handed over and access to site was achieved.
3rd May 2010	Concurrence for water drawal from Water Resources Department, Government of Jharkhand

Date	Key Milestones
22nd Sept 2010	Clearance from State Pollution Control Board - NOC for construction obtained
12th Aug 2011	Achievement of financial closure
20th Dec 2011	Environmental clearances obtained from Ministry of Environment & Forest (MoEF)
23 Feb 2012	PPA for selling power to JSEB
22 April 2013	Supplementary to the PPA
21st May 2014	Start of Commercial Operation of 1st unit of 63 MW of the plant
27th May 2014	JSERC Tariff order

1.2.2 The Site for the project comprises of around 120 acres of land which has been acquired in the villages of Tonagatu, Bariatu and Biyang in district Ramgarh for setting up of the project. The project site is well connected by road and rail route. The land purchased by the company has been registered and mutated in the name of the company as Industrial land.

1.2.3 IPL has already received concurrence for water drawal from Water Resources Department, Government of Jharkhand for drawing water of total quantity of 4.50 MCM annually for 2 x 63 MW plant configuration from Senegarha Nullah (a tributary of Bhairvi river) and also from Bhairvi river itself. The water shall be pumped and fed to the project site through dedicated raw water pipelines.

1.2.4 The fuel for the plant is being procured from various sources available like:

- e – auction CIL coal
- Coal from JSMDC
- Coal from the forward auction
- Washery Rejects of CCL
- Rejects from Tata Steel limited
- Dolochar from the open market
- Coal from Open market

1.2.5 A Power Purchase Agreement (PPA) has been signed between IPL and JSEB (now JUVNL) on 23-Feb-2012 and further a supplementary to the PPA was signed on 22nd April 2013 whereby IPL will sell the entire capacity of 63 MW from 1st unit to JUVNL. Out of 63 MW JUVNL will purchase 12% at variable cost only and the balance at the tariff determined by JSERC.

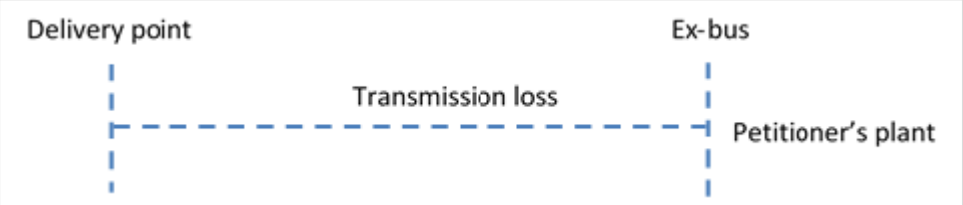
Table 2 : Details of Capacity supplied to JUVNL and tariff rational

Capacity to be supplied to JSEB		Tariff
1.	88 % of total actual power generation of Stage 1	Total Tariff (both Fixed Charge and Energy charge including FPA as approved by JSERC)
2.	12 % of total actual power generation of Stage 1	Variable cost (Energy Charge including FPA as approved by JSERC.)

1.2.6 The plant would evacuate power at 132 kV level to the nearest JUVNL sub-station at Sikidiri which would be the delivery point for sale of power to JUVNL. The 1 x 63 MW Project has been commenced from 21st May 2014.

1.2.1 The petitioner is also bearing transmission losses from the generation point at ex-bus to the delivery point at the Sikidiri substation. These transmission losses are due laws of physics and are uncontrollable in nature. The figure below depicts the same.

Figure 1: Transmission loss faced by the Petitioner



1.2.2 The key details of the power plant are provided in table below:

Table 3 : Project details

SN	Parameter	Details
1	Name of power station	Inland Coal fired CFBC Thermal Power Plant
2	Project Capacity	1 x 63 MW

SN	Parameter	Details
3	Location	Inland Nagar near Gola, District Ramgarh, Jharkhand
4	Nearest Railway site	Gola, 5 km from the project site
5	Nearby highway	Ramgarh Bypass, NH – 23 at a distance of 1 km.
6	Financial closure of the Project	12th Aug 2011
7	Fuel	Coal & Dolochar & coal rejects
8	Fuel supplier	Various sources
9	Water	Water Resources Department, Government of Jharkhand for drawing water of total quantity of 4.50 MCM annually
10	Commissioning Date	21st May 2014
11	JSERC Tariff order	27th May 2014

1.3 Technology

1.3.1 Circulating Fluidized Bed Combustion (CFBC) Technology have been used for the proposed project which is environmentally benign compared to conventional pulverized coal fired technology of similar capacity. The main advantage of this technology is that almost any type of fuel can be burned. However, as any type of fuel can be burned in a CFBC plant, the O&M costs are higher as compared to pulverised fuel fired power plants.

1.3.2 Fuels used in a CFBC plant are generally coal, coal rejects, dolochar, other rejects etc. As such type of fuel have a very high content of ash, the costs associated with ash collection, handling and disposal are higher as compared to other plants. Also, due to use of such fuels, CFBC boilers usually have been observed to have a longer stabilisation period, lower availability during initial few years and higher auxiliary consumption.

1.4 About the Petition

1.4.1 The Hon'ble Commission has provided vide notification dated 27th October 2010, JSERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2010 or "JSERC Regulations, 2010". The Regulations are applicable to the projects which are commissioned during the control period ending FY 2015-16.

1.4.2 The Hon'ble Commission has also provided vide notification dated 20th January 2016, JSERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2015 or "JSERC Regulations, 2015". The Regulations will be applicable for determining the Multi Year Tariffs (MYT) of the petitioner's plant for the control period starting FY 2016-17.

1.4.3 The Petitioner is seeking various approvals for its 1 x 63MW CFBC thermal power plant. The approvals sought by the Petitioner are approval of capital cost, true-up of the year 2014-15 from its CoD and Annual Performance Review of the year 2015-16 and approval of Multi-Year Tariff from FY 2016-17 to FY 2020-21.

1.4.4 Pursuant to the enactment of the Electricity Act, 2003 (EA 2003), as per Section 64 (1) of Act, a generating company intending to sell power to a Distribution Licensee is required to file an application for determination of tariff to the Appropriate Commission. As IPL is selling power to the JUVNL, the Appropriate Commission in this case is the Hon'ble Jharkhand State Electricity Regulatory Commission ("JSERC" or "Commission").

2. Capital cost approval

2.1 Capital Cost

2.1.1 The Hon'ble Commission in its Regulations titled "JSERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2010" (herewith mentioned at JSERC Regulations, 2010) has considered following principals for the determination of capital cost.

*"**7.3** Capital cost for a Project shall include:*

***(a)** the expenditure incurred or projected to be incurred, including interest during construction and financing charges, any gain or loss on account of foreign exchange risk variation during construction on the loan - (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed, - up to the date of commercial operation of the project, as admitted by the Commission, as admitted by the Commission after prudence check shall form the basis for determination of tariff; …*

***7.4** The capital cost admitted by the Commission after prudence check shall form the basis for determination of tariff:*

Provided that in case of the thermal generating station prudence check of capital cost may be carried out based on the benchmark norms to be specified by the Central Commission from time to time:

Provided further that in cases where benchmark norms have not been specified by the Central Commission, the Commission may specify the benchmark norms or allow the capital cost on the basis of a prudence check which shall include scrutiny of the reasonableness of the capital expenditure, financing plan, interest during construction,

use of efficient technology, cost over-run and time over-run, and such other matters as may be considered appropriate by the Commission for determination of tariff:…….."

2.1.2 The capital expenditure for the IPL generating station has been considered as per the actual projected cost to be capitalized at the time of commercial operations. The total cost of the project works out to Rs. 369.81 Crores for 63 MW power project. The break-up of this capital cost is summarized in Table 4. As on CoD i.e. 21st May 2014 Rs 369.81 cr has been incurred on the stage 1 of the project. A Chartered Accountant certificate is attached in Annexure 1 for the incurrence of the said expenditure.

Table 4: Capital Cost for 1 x 63 MW power plant

Rs Cr

S No	Details	Estimate	Actuals	Variation	Variation (%)
1	Land	7.60	7.43	-0.17	-2%
2	Site development & Civil works	30.94	39.93	8.99	29%
3	Plant & Machinery	238.28	246.87	8.59	4%
4	Preliminary Expenses & Pre-operative Expenses	12.43	22.27	9.84	79%
5	Interest During Construction (IDC)	25.40	29.49	4.09	16%
6	Working capital margin	5.19	23.82	18.63	359%
	Total	**319.84**	**369.81**	**49.97**	16%

2.1.3 The Petitioner would like to submit that the increase in costs are due to various factors beyond the control of the Petitioner as almost all the input costs have gone up from when the project was envisaged (2009-10) and when the construction of the project was actually completed (2014-15). The Petitioner has summarised the various causes of increase in capital cost of the project. The format for submission of capital cost as desired by the Commission in its order of May 2014 is attached at Annexure 9.

2.1.4 As per the Ministry of labour and employment, GoI, the labour costs have seen an unprecedented increase of ~22% over the period from FY 2011-12 to FY 2014-15. Similarly, the basic metal prices have gone up by ~7% with machine tools and industrial machines seeing a rise of ~14% & ~7%

respectively over the period from FY 2011-12 to FY 2014-15. The WPI details of all these items is attached as Annexure 2.

2.1.5 These unprecedented increase in costs associated with the project has led to increase in cost of the power plant over the envisaged & provisionally approved costs. However, the Petitioner has ensured a robust project management and hence the costs have only raised by 16% even after such increase in various input costs. The item wise reasons for increase is discussed below.

2.1.6 **Land & site development and civil works**: Exact estimation of Civil works at the beginning of project is generally not possible. Normally variations in the quantity during actual execution are generally experienced. Thus, the increase in costs related to land and site development and civil works are due to various factors beyond the control of the Petitioner. For example, when the project was envisaged and approved, a timber based fencing or boundary of the proposed power plant was considered in the capital cost. However, to ensure the security of the power plant and security of manpower working in the power plant, a proper cemented boundary had to be constructed all around the power plant, which alone lead to an additional cost of Rs. 4.25 Crores. This was also necessary to avoids theft of material during the construction of the power plant and also during the operation of the power plant.

2.1.7 The Petitioner also submits RCC chimney is specialised construction using slip form construction and specialised manpower is required for the same with lot of experience and high wage rate. As mentioned above both the material and manpower costs took a quantum jump during the construction years and hence the costs associated with construction of chimney increased by around Rs. 1.69 cr.

2.1.8 Further, the boiler and chimney civil works were originally considered for Seismic zone 2 and drawings and costs were accordingly considered.

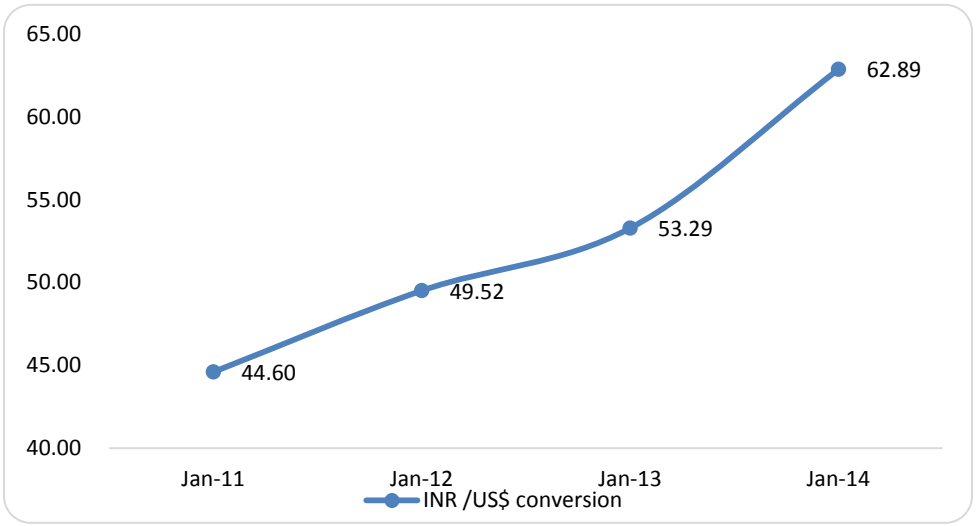
However, based on the insistence of the boiler manufacturer for providing guarantee on equipment, the plan was executed as per Seismic zone 3 which resulted in higher cost for both chimney and boiler civil works. This uncontrollable factor resulted in increase in piling, concrete and civil works of the power plant.

2.1.9 The above land and site developments costs include the cost for land, civil works for the plant, miscellaneous civil works like road etc. and Township & Colony. Further, the project was envisaged and the estimates for the project were taken in 2011, with prices of steel and cement for the year of 2011. However, at the time of project construction, prices of cement, steel, labour rates etc. went up by 15% - 20%, thereby increasing the total costs of civil works. Moreover, increase of price of stone chips, coal tar, bricks and other raw materials also attributed to the overall increase of cost. As almost all the input costs have gone up, the costs also shot-up.

2.1.10 **Plant and Machinery (P&M)** – The increase in costs related to Plant and machinery are due to various factors beyond the control of the Petitioner.

2.1.10.1 When the project was envisaged, the exchange rate of Indian rupee with the US dollar was considered to be ~ Rs. 44/US$. However, at the time of landing of the plants and machinery in the premises of the project, the exchange rate of Indian rupee with the US dollar was at around ~ Rs. 62/US$. This foreign currency fluctuation had an adverse impact on the costs of plants and machineries and as such this is a factor completely beyond the control of the petitioner. The exposure of the Petitioner was at US$ 97.40 lakhs considered at Rs. 44.07/ US$, while the actual outgo was Rs. 62.61/ US$. The dollar rate variation from FY 2011 to FY 2014 is shown in the table below:

Figure 2: INR/ US$ conversion rate from FY 11 to FY 14



2.1.10.2 t

itioner would like to further submits that the import duty increased from 21% to 24%, thus the difference between the effective duty at the time of estimate and actual duty was ~3.0%. This further increased the costs of plant and machinery to be installed in the power plant. This was due to the fact that the counter vailing duty increased from 10% to 12% over the years of FY 2011 to FY 2015 as per the Finance acts of the respective years having a cascading impact.

2.1.10.3 Steel, material and transport costs envisaged at the time of project initiation and at the time of actual payout were drastically different. The cost of almost all the plants and machinery went up. The basic metal prices have gone up by ~8% with machine tools and industrial machines seeing a rise of ~14% & ~7% respectively over the period from FY 2011-12 to FY 2014-15. Such a rise in these costs was not envisaged and this has led to the increase in the plant and machinery costs for the Petitioner.

2.1.11 **Interest During Construction** – The increase in Interest during construction are due to various factors beyond the control of the Petitioner. The interest

rates considered at the time of project approval was 12.75% and the same was approved by the Hon'ble Commission via its order on approval of provisional tariff for the years FY 2014-15 and FY 2015-16 in May 2014. However, the actual loan drawl was at the rate of around 14.25% because the base rates of the bank went up, an uncontrollable factor. Hence the IDC cost has increased. The bank certifications for the same are attached at Annexure 3.

2.1.12 **Preliminary and pre-operative expenses**– The increase in Preliminary and pre-operative expenses are due to various factors beyond the control of the Petitioner. Some examples of unforeseen costs are – Owner's engineer was paid Rs. 1.1 cr, lender's engineer cost increased to Rs. 28 Lakhs which was envisaged at Rs. 10 lakhs, Legal consultancy fees paid increased to Rs. 34 lakhs from envisage of Rs. 10 lakhs, Financial consultancy fees increased Rs. 1.58 cr from envisage of Rs. 1.0 cr, design charges for coal handling was Rs. 9 lakhs. Other consultancy charges not envisaged but paid by the Petitioner is about Rs. 1 cr. Insurance for the plant has also drastically increased from Rs. 24 lakhs to Rs. 1.6 crore. Rs. 5 cr was also spent on start-up fuel expenses which was envisaged Rs. 1.5 cr. Depreciation of the amount of Rs. 97 lakhs is considered, electricity charges of Rs. 53 lakhs was spent and difference in employees expenses shot up from Rs. 2.4 cr to Rs. 4.4 cr. Also, income from 'Infirm power' to the tune of Rs. 71 lakhs has been subtracted from the above.

2.1.13 Inspite of such uncontrollable increase in charges, the Petitioner has ensured a robust project management, which has led to overall costs increased by only 16%. Variation in costs are due to various factors beyond the control of the Petitioner. Overall, the Preliminary and pre-operative expenses have decreased and hence the Petitioner prays to the Hon'ble Commission to approve the same.

2.1.14 Working capital – The change in working capital is due to the requirements of the Petitioner for working capital. The working capital margin required by the Petitioner was of Rs. 23.82 cr from the banks and other working capital was taken by the Petitioner from time to time from other sources. Thus, this was a factor required by the Petitioner and the related documents for the same are attached in Annexure 4. Hence, the petitioner prays to the Hon'ble Commission to approve the above increase in costs.

2.1.15 In view of the above uncontrollable reasons for increase in capital cost of the project, the Petitioner requests the Hon'ble Commission to approve Rs. 369.81 Cr. as the capital expenditure for IPL's generating station. The Petitioner also prays to the Hon'be commission to consider this capital cost for the True-up for 2014-15 & APR for 2015-16 and MYT for 2016-17 onwards.

2.2 Financing of the Capital Cost

2.2.1 The Hon'ble Commission in its JSERC Regulations, 2010 has considered following principals for determination of Debt Equity Ratio.

"…Debt Equity Ratio

7.14 *For the project declared under commercial operation on or after 1.04.2011, if the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan:*

Provided that where equity deployed is less than 30% of capital cost, the actual equity shall be considered for determination of tariff: ……"

2.2.2 For financing of the above capital cost, the Petitioner has tied up with various Commercial banks for the debt and the balance amount has been considered as equity. The debt and equity amount considered towards funding of the capital expenditure is provided in table below:

2.2.3 The total debt on the project is estimated to be Rs. 274.49 Crore which is 75% of the total project cost. The balance Rs 92.04 Crore is funded through equity contribution. The debt-equity ratio of the project is 75:25.

Table 5: Debt equity ratio of the Project

Rs Cr.

	Approved	Actual
Capital Cost	319.84	369.81
Equity	92.40	92.40
Debt	227.44	277.77
Debt Equity Ratio	71 - 29	75 - 25

3. True-up of 2014-15 and APR of 2015-16

3.1 The Hon'ble Commission in its regulation has stated the following on true-up of various costs under the regulations. The same is as shown below:

"True Up during Control period

6.14 *The true up across various controllable parameters shall be conducted as per principles stated below: -*

a. any surplus and deficit on account of O&M expenses shall be to the account of the generating company and shall not be trued up in ARR; and

b. at the end of the control period –

i. the Commission shall review actual capital investment vis-à-vis approved capital investment.

ii. depreciation and financing cost, which includes cost of debt including working capital (interest), cost of equity (return) shall be trued up on the basis of actual/audited information and prudence check by the Commission.

6.15 *Notwithstanding anything contained in these Regulations, the gains or losses in the controllable items of ARR on account of force majeure factors shall be passed on as an additional charge or rebate in ARR over such period as may be laid down in the order of the Commission.*

Refund of Excess Amount

6.16 *If the Tariff already recovered is more than the Tariff determined after true up, the Generating Company shall refund to the Beneficiaries the excess amount so recovered along with simple interest at the rate equal to short term prime lending rate of State Bank of India as on 1st April of the respective Year.*

6.17 *Similarly, in case the Tariff already recovered is less than the Tariff determined after true up, the Generating Company shall recover from the Beneficiaries, the less recovered amount along with simple interest at the rate equal to short term prime lending rate of State Bank of India as on 1st April of the respective Year/Years subject to adhering to the timelines specified by the Commission for filling of True-up application. In case, it is found that the filling of True-up is delayed due to the reasons attributable to the Generating Company, the under recovery shall not bear any interest expenses.*

6.18 *The amount under-recovered or over-recovered, along with simple interest, shall be recovered or refunded by the Generating Company, in six equal monthly instalments starting within three months from the date of the tariff order issued by the Commission after the truing up exercise."*

3.2 The Hon'ble Commission in its regulations, 2010 has stated the following on review of various costs under the regulations. The same is as shown below:

"*Review at the end of the Control Period*

15.4 *Towards the end of the Control Period, the Commission shall seek to review if the implementation of the principles laid down in these Regulations has achieved*

their intended objectives. While doing this, the Commission shall take into account, among other things, the industry structure, sector requirements, consumer and other stakeholder expectations and Applicant's requirements at that point in time. Depending on the requirements of the sector to meet the objects of the Act, the Commission may revise the principles for the second Control Period.

15.5 *The end of the first Control Period shall be the beginning of the second Control Period and the Generating Company shall follow the same procedure unless required otherwise by the Commission. The Commission shall analyse the performance of the generating company with respect to the targets set out at the beginning of the first Control Period and based on the actual performance, expected efficiency improvements and other factors prevalent, determine the initial values for the next Control Period."*

3.2.1 The following True-up is being petitioned before the Hon'ble Commission as per the JSERC regulations, 2010 and also the annual accounts for the year FY 15 are attached as annexure 10.

3.3 Fixed Cost of the Proposed Plant

3.3.1 The following components of fixed cost have been considered for trueing-up the tariff for the proposed Biomass based power plant:

- Capital Cost of the Project
- Return on Equity
- Interest on Long Term Loan
- Depreciation
- Interest on Working Capital
- Operation and Maintenance Expenses
- Cost of secondary fuel

3.3.2 For the computation of the fixed components, the Petitioner has considered the principles provided in the JSERC Regulations, 2010. These components have been discussed in detail in the following sections of the petition.

3.4 Return on Equity (RoE)

3.4.1 The Hon'ble Commission in its regulation has considered the pre-tax return on equity at 15.5% of equity capital and further grossed up with the applicable tax rate, with additional return of 0.5% if Project is completed within the timeline specified. The Regulation 7.16 & 7.18 of the JSERC Regulations, 2010 are reproduced below for reference.

*"**7.16** Return on equity shall be computed on pre-tax basis at the base rate of 15.50%, to be grossed up as per clause 7.17 of these Regulations.*

Provided that (i) return on equity with respect to the actual base rate applicable to the

Generating Company, in line with the performance of the respective generating

station for the respective year during the Transition period shall be trued up separately during True up for Transition Period (ii) return on equity with respect to the actual base rate applicable to the Generating Company, in line with the performance of the respective generating station for the respective year during the Control period shall be trued up separately for each year of the Control period along with the tariff petition filed for the next Control period.

Provided that in case of Projects commissioned on or after 1st April, 2011, an additional return of 0.5% shall be allowed if such Projects are completed within the timeline specified in Appendix-II to these Regulations:

***"7.18** Rate of return on equity shall be rounded off to three decimal points and be computed as per the formula given below:*

Rate of pre-tax return on equity = Base rate / (1-t)

Where 't' is the applicable tax rate in accordance with clause 7.17 of these Regulations"

3.4.2 As per Appendix II of the JSERC regulations, 2010, the completion time schedule shall be reckoned from the date of investment approval by the Board (of the Generating Company), up to the Date of Commercial Operation of the Units or Block of units. The same is reproduced below:

*"**Appendix-II: Timeline for completion of Projects***

(Refer to Clause 1.1 of the Regulation)

***1.** The completion time schedule shall be reckoned from the date of investment approval by the Board (of the Generating Company), up to the Date of Commercial Operation of the Units or Block of units.*

***2.** The time schedule has been indicated in months in the following paragraphs and tables:*

(i) Thermal Power Projects - Coal/Lignite Power Plant

Unit size 200/210/250/300/330 MW and 125 MW CFBC technology

(a) 33 months for Green Field Projects. Subsequent Units at an interval of 4 months each.

(b) 31 months for Extension Projects. Subsequent Units at an interval of 4 months each

Unit size 250 MW CFBC technology

(a) 36 months for Green Field Projects. Subsequent Units at an interval of 4 months each.

(b) 34 months for Extension Projects. Subsequent Units at an interval of 4 months each"

3.4.3 The Petitioner's board has accorded investment approval on 11th August 2011, for setting up of 126 MW CFBC plant. The CoD of the petitioner's first unit of the plant has been on 21st May 2014 i.e. within 36 months of the investment approval. Thus, the Petitioner is entitled to RoE at a rate of 16%.

3.4.4 The Petitioner has determined the return on equity (RoE) at a rate of 16% in accordance with the JSERC Regulations, 2010. Further, it is submitted that the RoE has been grossed up by the applicable MAT rate in order to account for the tax liability incurred during the ensuing period. Since the CoD of the project has been completed on 21st May 2014, the Petitioner has computed RoE on pro-rata basis for 2014-15 and for complete year of 2015-16.

Table 6 : Computation of Return on Equity

Rs Cr.

Particulars	FY 2014-15 Approved	FY 2014-15 Actuals	FY 2015-16 Approved	FY 2015-16 Actuals
Opening Equity (Rs. Cr.)	92.40	92.40	92.40	92.40
Addition / Withdrawl (Rs. Cr.)	-	-	-	-
Closing Equity (Rs. Cr.)	92.40	92.40	92.40	92.40
Average Equity Base (Rs. Cr.)	92.40	92.40	92.40	92.40
Rate of Return on Equity (%)	15.50%	16.00%	15.50%	16.00%
Applicable MAT Rate (%)	20.01%	20.01%	20.01%	20.39%
Gross RoE (%)	19.38%	20.00%	19.38%	20.10%
Return on Equity (Rs. Crore)	14.86	15.95	17.90	18.57

3.5 Interest on Loan Capital

3.5.1 The Hon'ble Commission in its Regulations, 2010 has considered principals as per 6.14 (b) (ii) of the regulations for true-up of Interest and Finance Charges.

3.5.2 The Petitioner has computed the Interest on long term Loan in line with the actual interest amount paid during the Control Period. The Petitioner has considered actual loan as detailed in the above section and the repayment the repayment shown is also the actual repayment. The source wise loan details are given in the MYT formats attached as Annexure 11. The table below summarizes the interest on loan for the Control Period.

Table 7: Computation of Interest on long term Loan

Rs Cr

Particulars	FY 2014-15 Approved	FY 2014-15 Actual	FY 2015-16 Approved	FY 2015-16 Actual
Opening Balance for long term Loans	227.44	253.95	214.24	247.92
Additions during the Year	-	0.09	-	0.18
Repayments during the Year	13.20	6.12	15.91	15.91
Closing Balance for long term Loans	214.24	247.92	198.33	232.19
Weighted Average interest rate (%)	12.75%	14.21%	12.75%	13.56%
Interest on Loan	**23.37**	**30.78**	**26.30**	**32.54**

3.6 Depreciation

3.6.1 The Hon'ble Commission in its Regulations, 2010 has considered following principals for determination of depreciation.

*"**7.28** Depreciation shall be calculated for each year of the tariff period, on the amount of Capital Cost of the assets admitted by the Commission;*

***7.31** Depreciation shall be calculated annually based on 'Straight Line Method' and at rates specified in Appendix-I to these Regulations for the assets of the generating station:"*

3.6.2 The Petitioner has considered the total capital cost as on scheduled COD as provided in the section on capital cost. The depreciation has been computed as per the depreciation rates provided in the Appendix-I of the JSERC Regulations, 2010. The MYT formats attached with the petition provide the details of calculation of depreciation based on the applicable rates and is attached as Annexure 11. The depreciation amount computed is provided in the table below:

Table 8: Computation of Depreciation

Rs Cr

Particulars	FY 2014-15 Approved	FY 2014-15 Actuals	FY 2015-16 Approved	FY 2015-16 Actuals
Opening Balance of Gross Fixed Assets (GFA)	319.84	5.27	306.64	335.18
Addition	-	343.54	-	-
Net Fixed Assets (GFA)	306.64	335.18	290.73	319.38
Depreciation	13.20	13.63	15.91	15.79
Avg. Depreciation Rate (%)	4.78%	4.52%	6.08%	5.49%

3.7 Interest on Working Capital

3.7.1 Working capital requirement has been computed as per the Regulation 7.34 of the JSERC Regulations 2010, for the non-pithead coal based thermal generating stations. The actual rate of interest has been considered for computing the interest on working capital, in line with Regulation 7.38 of the JSERC Regulations, 2010.

Table 9: Interest on Working Capital as computed

Rs Cr.

Particulars	Norms	FY 2014-15 Approved	FY 2014-15 as computed	FY 2015-16 Approved	FY 2015-16 computed
Coal	2 months	10.52	12.66	12.67	16.34
Secondary fuel oil	2 months	0.29	0.35	0.34	0.35
O&M Expenses	1 month	1.26	1.55	1.33	2.09
Maintenance Spares	20% of O&M Cost	2.51	3.71	3.20	5.02
Receivables	2 months	22.38	26.93	26.79	33.32
Working Capital Requirement	Rs Crore	36.96	45.20	44.34	57.12
Interest rate applicable	%	14.75	13.5	14.75	13.01
Interest on Working Capital	Rs Crore	5.45	5.27	6.54	7.43

3.7.2 The actual working capital of the Petitioner has increased significantly because of the fact that the JUVNL has not paid the Petitioner according to the bills raised by the Petitioner. The difference between actual and computed working capital is as shown in the table below:

Table 10: Actual working capital

Rs. cr

Particulars	FY 2014-15 computed	FY 2014-15 actual	FY 2015-16 computed	FY 2015-16 actual
Working capital	5.27	4.63	7.43	7.77

3.7.3 The working capital has been calculated on pro rata basis for FY 15 and for full year for FY 16. The working capital requirement has increased due to the fact that JUVNL has not paid the Petitioner according to the bills raised by the Petitioner. The Petitioner also would like to submit that the Hon'ble Commission vide its order in case no 26 of 2014 and 06 of 2016 has directed the respondent to make payments to the Petitioner based on the invoice raised. However, the respondent has to this date failed to clear the dues of the Petitioner. The details of the interest on working capital paid by the Petitioner is shown in the MYT formats attached as Annexure 11.

3.7.4 In view of the failure on part of the respondent to clear the dues of the Petitioner, the interest of working capital had increased drastically and uncontrollably and might increase further during the MYT period if the respondent fails to clear the dues of the Petitioner. Thus, the Petitioner prays to the Hon'ble Commission to approve the above working capital interest.

3.8 Operation and Maintenance Expenses (O&M Expense)

3.8.1 The Petitioner submits that the actual O&M expenses has varied from the number approved by the Hon'ble Commission. The approved and the actual numbers are shown in the table below.

Table 11 : Computation of O&M

Rs Cr.

Particulars	FY 2014-15 approved	FY 2014-15 Actual	FY 2015-16 approved	FY 2015-16 Actual
O&M Expense	12.57	18.56	16.01	25.12

3.8.2 This increase in O&M cost is due to increase in the costs related to handling and disposal of increased quantity of Ash produced. The quantity of ash being produced has significantly increased due to change in fuel mix.

3.8.3 The envisaged and approved fuel mix was 70% coal at GCV of 3200 kCal/Kg and 30% Dolochar at GCV of 1500 kCal/Kg. However, due to scarcity of fuel, the fuel mix has changed, to only 18% coal, 21% Dolochar and 62% coal rejects in FY 15 and 37% coal, 27% Dolochar and 36% coal rejects in FY 16. The average GCV has also deteriorated from approved GCV of 2690 to actual GCV of 2237 kCal/Kg in FY 15 and 2516 kCal/Kg in FY 16..

3.8.4 Thus, the petitioner's fuel mix has changed drastically and also the average GCV has decreased substantially, resulting in significant increase in Ash being produced and consequent increase in Ash handling charges. The table below shows approved and the actual fuel details for the Petitioner's plant.

Table 12: Approved and actual fuel details

Particulars	FY 2014-15 approved	FY 2014-15 Actual	FY 2015-16 approved	FY 2015-16 Actual
GCV of coal (Kcal/Kg)	3200	3,672	3200	3681
GCV of Dolochar (Kcal/Kg)	1500	1,025	1500	975
GCV of coal rejects (Kcal/Kg)	0	2,222	0	2456
Coal %	70%	18%	70%	37%
Dolochar %	30%	20%	30%	27%
Coal rejects %	0%	62%	0%	36%
Weighted average GCV of fuel	2690	2237	2690	2516

3.8.5 The Petitioner also submits that these O&M charges also include Water charges being paid by the Petitioner to the concerned state authorities for use of water in the power plant. The Petitioner has paid around Rs. 13.31 lakhs for the calendar year 2014 and around Rs. 30.51 lakhs for the calendar year 2015. Water related costs were not considered by the Hon'ble Commission while approving the O&M costs in its last order. The details for the water costs are attached as Annexure 5.

3.8.6 The Petitioner prays to the Hon'ble Commission to allow this uncontrollable increase in the O&M charges incurred due to costs related to handling and disposal of increased quantity of ash produced.

3.8.7 The Hon'ble APTEL in Appeal No. 244 of 2012 between DPSCL vs WBERC & others, at para 22 has clearly ruled that the variation in Ash handling charges maybe allowed due to any uncontrolled increase in the ash content of fuel and any increase in haulage of ash to the disposal area. The para 22 of the Appeal No. 244 of 2012 of the APTEL is reproduced below:

*"**22.** As far as Ash Handling expenses are concerned, the same are dependent mainly upon the quantity of ash handled which in turn is dependent upon actual quantity of coal consumption and ash content of coal and the distance of ash disposal area from the main plant. Therefore, while computing the Ash Handling charges, these factors have to be considered. Thus, while examining the Ash Handling expenses in APR/true up the State Commission can consider the actual quantity of coal vis-à-vis the estimated quantity of coal based on the target generation, any abnormal increase in the ash content of coal and any increase in haulage of ash to the disposal area due to change in disposal area during the year in question and accordingly allow variation in Ash Handling charges if deemed necessary."*

3.8.8 Thus, it is clear from the above judgement of the APTEL, that the variation in Ash handling charges maybe allowed due to any uncontrolled increase in the ash content of fuel and any increase in haulage of ash to the disposal area.

3.8.9 The Petitioner would like to further submit that the brick lining of the Boiler was replaced in the month of October 2014 and the boiler was subsequently recharged. This boiler brick relining has changed the boiler profile resulting in increased O&M costs for the Petitioner, and such increase O&M costs is likely to be incurred in the future years too.

3.8.10 In view of the above, the Petitioner again prays to the Hon'ble Commission to allow this uncontrollable increase in the O&M charges incurred due to uncontrollable increase in costs related to handling and disposal of increased quantity of ash produced.

3.9 Cost of secondary fuel oil

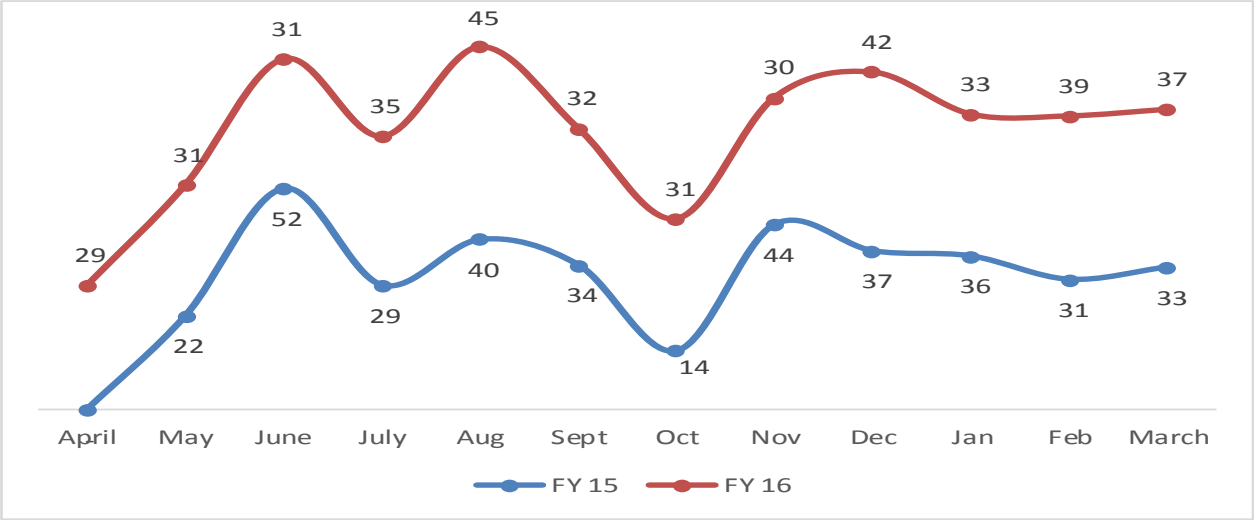
3.9.1 As per Regulation 8.2 of JSERC Regulations 2010, the cost of secondary fuel oil is to be considered in fixed charges. Accordingly, the Petitioner has considered the secondary fuel cost as part of fixed charges based on the computation provided below:

Table 13 : Computation of secondary fuel oil

Particulars	Unit	FY 2014-15 Approved	FY 2014-15 Actuals	2015-16 approved	2015-16 Actuals
Gross Units Generated	MUs	343.60	308.78	413.91	484.55
Calorific Value of Oil	Kcal/Litre	10,000	10,000	10,000	10,000
Specific Oil Consumption	ml/Kwh	1.00	1.20	1.00	0.86
Oil Consumption	Kl	343.60	371.91	413.91	416.16
Base Price of Oil	Rs / Kl	50,000	56,465	50,000	49,803
Cost of Secondary Fuel Oil	Rs Crore	**1.72**	**2.10**	**2.07**	**2.07**

3.9.2 The use of secondary oil in the year FY 2014-15 is high due to teething problems faced by the plant during the stabilizing period. The month on month diesel consumption for the years FY 15 & FY 16 is shown in the figure below:

Figure 3: Month-on-month Secondary fuel oil consumption in Kl



3.9.3 The Petitioner would like to further submit that the brick lining of the Boiler was replaced in the month of October 2014 and the boiler was subsequently recharged. This is the reason for decreased consumption of secondary oil in October and the subsequent increase in consumption from November 2014 onwards. The sample bills for secondary oil bought has been attached as Annexure 12.

3.10 Computed Fixed Cost during the Control Period

3.10.1 Based on the above discussed fixed components, the total fixed charges for generating station of IPL for FY 2013-14 to FY 2015-16 has been computed. The Hon'ble Commission is requested to approve the fixed charges as discussed in the table below:

Table 14 : Computation of Fixed cost

Rs Cr.

Particulars	Units	FY 2014-15 approved	FY 2014-15 Actuals	2015-16 approved	2015-16 Actuals
Depreciation	Rs Crore	13.20	13.63	15.91	15.79
Interest on Loan	Rs Crore	23.37	30.78	26.30	32.54
Return on Equity	Rs Crore	14.86	15.95	17.90	18.57
Interest on Working Capital	Rs Crore	5.45	4.63	6.54	7.77
O & M Expenses	Rs Crore	12.57	18.56	16.01	25.12
Secondary Oil Consumption	Rs Crore	1.72	2.10	2.07	2.07
Fixed cost as computed	Rs Crore	71.18	85.66	84.73	101.87

3.10.2 The recovery of capacity charges is to be done as per regulation 8.10 to 8.12 of the JSERC regulations, 2010. The same is extracted below for ready reference.

"Recovery of Capacity Charge

8.10 *The fixed cost of a thermal generating station shall be computed on annual basis, based on norms specified under these Regulations, and recovered on monthly basis under capacity charge. The total capacity charge payable for a generating station shall be shared by its Beneficiaries as per their respective percentage share / allocation in the capacity of the generating station.*

8.11 *Full Capacity Charges shall be recoverable at Normative Annual Plant Availability Factor (NAPAF) specified in clause 8.4, 8.6 of these Regulations. Recovery of Capacity Charges below the level of Normative Annual Plant Availability Factor (NAPAF) will be on a pro-rata basis. At zero availability, no Capacity Charges shall be payable.*

8.12 *The capacity charge (inclusive of incentive) payable to a thermal generating station for a calendar month shall be calculated in accordance with the following formulae :*

(a) Generating stations in commercial operation for less than ten (10) years on 1st April of the financial year:

= (AFC x (NDM / NDY) x (0.5 + 0.5 x PAFM / NAPAF) (in Rupees) ;

Provided that in case the plant availability factor achieved during a financial year (PAFY) is less than 70%, the total capacity charge for the year shall be restricted to:

=AFC x (0.5 + 35 / NAPAF) x (PAFY / 70) (in Rupees)

(b) For generating stations in commercial operation for ten (10) years or more on 1st April of the year:

= (AFC x NDM / NDY) x (PAFM / NAPAF) (in Rupees)

Where,

AFC - Annual fixed cost specified for the year, in Rupees;

NAPAF - Normative annual plant availability factor in percentage;

NDM - Number of days in the month;

NDY - Number of days in the year;

PAFM - Plant availability factor achieved during the month, in percent;

PAFY - Plant availability factor achieved during the year, in percent"

3.10.3 As the Plant Availability Factor (PAF) of the plant for the year FY 2014-15 is 67.60% which is less than 70%, the following formula is used as per regulation 8.12 (a) of the JERC regulations, 2010 for computation of fixed cost.

"**8.12…….**

Provided that in case the plant availability factor achieved during a financial year (PAFY) is less than 70%, the total capacity charge for the year shall be restricted to:

=AFC x (0.5 + 35 / NAPAF) x (PAFY / 70) (in Rupees)"

3.10.4 Similarly, the fixed cost for the year FY 2015-16 is computed at PAF of 91.42% with the help of the following formula as per regulation 8.12 (a) of the JSERC regulations. 2010.

> **"8.12** .....
>
> (a) Generating stations in commercial operation for less than ten (10) years on 1st April of the financial year:
>
> **= (AFC x (NDM / NDY) x (0.5 + 0.5 x PAFM / NAPAF) (in Rupees)**;"

3.10.5 The annual total fixed cost after PAF adjustment for the years FY 2014-15 and FY 2015-16 is calculated as per regulation 8.12 (a) of the JSERC regulations, 2010. The SLDC plant availability certificate is attached as annexure 7. The same as explained above is shown in the table below:

Table 15: Computation of fixed cost after PLF / PAF adjustment

Particulars	Units	FY 2014-15 Actuals	FY 2015-16 Actuals
Fixed cost as computed	Rs Crore	85.66	101.87
Fixed costafter PLF / PAF adjustment	Rs Crore	79.96	113.02

3.10.6 Further, the Petitioner submits that as per the provisions of MoU executed with Govt. of Jharkhand and PPA being executed with JSEB, IPL has to supply the power corresponding to 12% capacity to JSEB at Energy Charge and hence, the Annual Fixed Charges for Stage 1 are to be recovered from balance 88% of the net capacity.

4. Variable Cost for the Power Plant

4.1.1 The following components have been considered while determining the variable cost for tariff of the proposed power plant:

- Plant Availability Factor
- Gross Station Heat Rate
- Auxiliary Consumption
- Specific Oil Consumption
- Gross Calorific Value

4.2 Gross Station Heat Rate

4.2.1 The Hon'ble Commission had approved an SHR of 2902 kCal/kWh, while the actual SHR achieved is 3039 Kcal/kwh and 2931 Kcal/kwh in FY 15 and FY 16 respectively. The reasons for such deviation is that as the plant achieved commercial operation in May 2014, various teething problems and stabilization issues cropped in FY 15. This led to higher usage of secondary oil in the furnace to maintain the parameters of the power plant and to stabilize the flame. The approved and actual SHR numbers are shown below:

Table 16 : Computation of Station Heat Rate

Particulars	FY 2014-15 approved	FY 2014-15 Actuals	2015-16 approved	2015-16 Actuals
Station Heat Rate (Kcal/kWh)	2,902	3,039	2,902	2,931

4.2.2 Another uncontrollable issue that led to the use of higher secondary fuel oil in the furnace is the drastic change in the fuel mix for the petitioner's plant. The envisaged and approved fuel mix was 70% coal at GCV of 3200 kCal/Kg and 30% Dolochar at GCV of 1500 kCal/Kg. However, due to scarcity of fuel, the fuel mix has changed, to only 18% coal, 21% Dolochar and 62% coal rejects in FY 15 and 37% coal, 27% Dolochar and 36% coal rejects in FY 16.

4.2.3 The average GCV has also deteriorated from approved GCV of 2690 to actual GCV of 2237 kCal/Kg in FY 15 and 2516 kCal/Kg in FY 16. Thus, the petitioner's fuel mix has changed drastically and also the average GCV has decreased substantially, resulting in significant increase in oil usage. The table below shows approved and the actual fuel details for the Petitioner's plant.

Table 17: Approved and actual fuel details

Particulars	FY 2014-15 approved	FY 2014-15 Actual	FY 2015-16 approved	FY 2015-16 Actual
GCV of coal (Kcal/Kg)	3200	3,672	3200	3681
GCV of Dolochar (Kcal/Kg)	1500	1,025	1500	975
GCV of coal rejects (Kcal/Kg)	0	2,222	0	2456
Coal %	70%	18%	70%	37%
Dolochar %	30%	20%	30%	27%
Coal rejects %	0%	62%	0%	36%
Weighted average GCV of fuel	2690	2237	2690	2516

4.2.4 The higher use of secondary oil and low GCV fuel led to the boiler brick lining being washed away with the flue gas. Thus, more secondary oil was used after boiler brick relining was done which resulted in further increase of SHR.

4.2.5 Overall, the problems faced by the Petitioner are uncontrollable in nature like stabilization issues in FY 15, boiler brick relining & availability of only low GCV fuel etc. Thus, the Petitioner's prays to the Hon'ble Commission to approve SHR numbers on actuals.

4.3 Auxiliary Consumption

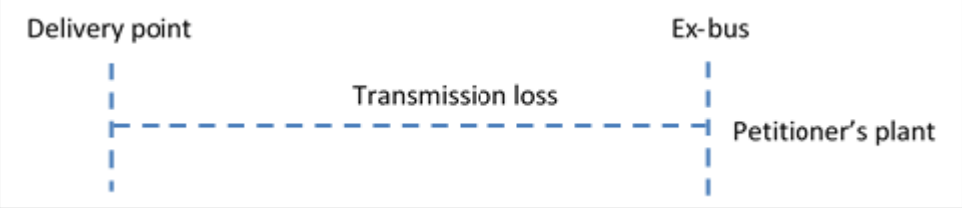
4.3.1 The auxiliary consumption has increased beyond the approved numbers due to stabilization issues, boiler brick relining and the transmission loss. The approved and actual number for auxiliary consumption are shown below.

Table 18: Auxiliary Consumption

Particulars	FY 2014-15 approved	FY 2014-15 Actuals	2015-16 approved	2015-16 Actuals
Auxiliary Consumption (%age)	10.50%	11.25%	10.50%	11.26%

4.3.2 The transmission loss being borne by the petitioner is from the generation point at ex-bus to the delivery point at the substation. This transmission losses are included by the Petitioner in the auxiliary consumption shown above. As these transmission losses are due laws of physics and are uncontrollable in nature, thus, the petitioner requests the commission to approve the same. The figure below depicts the same.

Figure 4: Transmission loss faced by the Petitioner



4.3.3 The Petitioner submits the recommendations of CEA to substantiate the claim for approval of higher auxiliary consumption than the approved figures. The 'Recommendations on Operation Norms for Thermal Power Stations for Tariff Period beginning 1st April, 2009', of CEA is reproduced below:

*"**14.6** The CFBC boilers involve higher auxiliary consumption due to higher pressure drops and consequently higher fan power as compared to the pulverized fuel fired units. Also, these units involve additional power consumption for lime stone handling, crushing and firing for control of SOX emissions. However, CFBC units do not require pulverizers as the fuel is fed in*

crushed form and thus there is a corresponding saving in the power consumption in pulverizers as compared to the pulverized fuel technology.

14.7 *NLC have asked for an additional AEC of 1% on account of CFBC boiler technology and additional 0.5% on account of uncertainty etc that may be faced as the CFBC units are being implemented by them for the first time and past operation data is not available. Thus they have asked for an AEC of 11% for TPS Expn II and 12% for Barsingsar TPS on account of additional AEC of 0.67% for cooling water pumping from a distant source (60 kms)*

An assessment of incremental auxiliary consumption for CFBC units has been made and it is found that the CFBC units entail higher auxiliary energy consumption of 0.7% to 1%. However, in the present case of NLC stations, the limestone is being procured in the powder form and consequently the power consumption for limestone crushing is eliminated and thus the incremental consumption should be on the lower side. Thus, an additional auxiliary energy consumption of 1.0% may be allowed to NLC stations with CFBC boilers."

4.3.4 It is evident from the above that the CEA's assessment was in regard to the CFBC technology and therefore the higher auxiliary consumption the generating station of IPL should also be allowed.

4.3.5 It is also to be noted that following Auxiliary Consumption has been allowed by various Commissions on CFBC technology:

1. In case of Raj West Power Limited, RERC has allowed an Auxiliary Consumption of 11.5%
2. In case of Gujarat Industries Power Company Ltd, GERC has allowed an Auxiliary Consumption of 12.5% for 3 years and 11.5% from 4th year
3. In case of Bajaj Energy Pvt Ltd, UPERC has allowed an Auxiliary Consumption of 11.5% during stabilization and 11% - post stabilization period.

4.3.6 The summary of other CFBC plants where similar orders has been passed by the respective Commission has been summarized at Annexure 8.

4.3.7 In view of the above, the Petitioner's prays to the Hon'ble commission to approve the increased auxiliary consumption.

4.4 Specific Oil Consumption

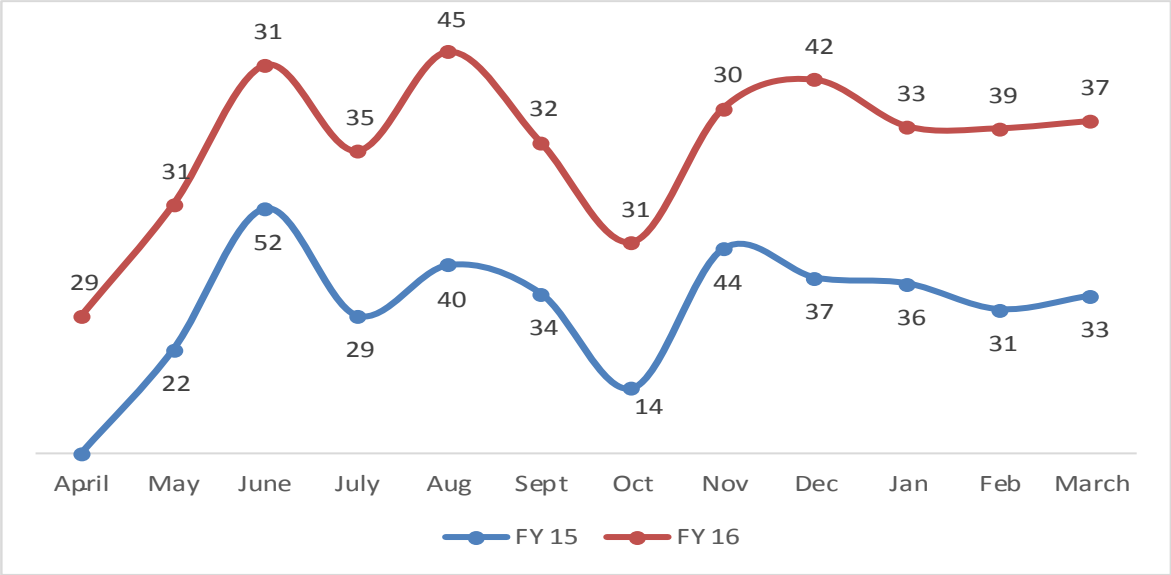
4.4.1 The Hon'ble commission has approved specific fuel oil consumption at 1 ml/kWh. However, there has been an increase in the consumption of secondary fuel due to stabilization issues in FY 15, boiler brick relining, availability of only low GCV fuel, change in fuel mix etc. Especially due to low GCV of fuel, more secondary fuel is required to stabilize the flame inside the boiler.

Table 19 : Specific Oil Consumption (ml/kWh)

Particulars	FY 2014-15 approved	FY 2014-15 Actuals	2015-16 approved	2015-16 Actuals
Specific Oil Consumption (ml/kWh)	1.00	1.20	1.00	0.86

4.4.1 The use of secondary oil in the year FY 2014-15 is high due to teething problems faced by the plant during the stabilizing period. The month on month diesel consumption for the years FY 15 & FY 16 is shown in the figure below:

Figure 5: Month-on-month Secondary fuel oil consumption in KL



4.4.2 The Petitioner would like to further submit that the brick lining of the Boiler was replaced in the month of October 2014 and the boiler was subsequently recharged. This is the reason for decreased consumption of secondary oil in October and the subsequent increase in consumption from November onwards.

4.4.3 The above listed reasons for increased consumption of secondary fuel are uncontrollable in nature for the Petitioner and thus the increased consumption of secondary fuel may be allowed by the Hon'ble Commission.

4.5 Fuel Price and Calorific Value

4.5.1 As IPL has no fuel linkage, it is procuring fuel from various sources available like:

- E –Auction CIL coal
- Coal from JSMDC
- Coal from the forward auctions
- Washery Rejects of CCL
- Rejects from Tata

- Dolochar from the open market
- Coal from open market

4.5.2 Based on the availability of coal input the blending ratio of coal, dolochar and coal rejects has changed significantly from the approved figures. The transil loss is shown zero as the price of fuel considered is inclusive of transit loss.

Table 20 : Fuel price

Particulars	FY 2014-15 Approved	FY 2014-15 Actuals	2015-16 Approved	2015-16 Actuals
GCV of Coal (Kcal/Kg)	3,200	3,672	3,200	3,681
GCV of Dolochar (Kcal/Kg)	1,500	1,025	1,500	975
GCV of Rejects (Kcal/Kg)	0	2222	0	2456
Price of Coal (Rs./Tonne)	2,100	3,617	2,100	2,823
Price of Dolochar (Rs./Tonne)	750	557	750	440
Price of Rejects (Rs./Tonne)	0	1,713	0	1,590
Blending ratio (%) Coal - Dolochar - Rejects	70:0:30	18:62:20	70:0:30	37:36:27
Transit Losses	0.80%	0.00%	0.80%	0.00%

4.5.3 The Petitioner submits that as can be seen from the table above, the primary fuel-mix, GCV of the primary fuel-mix and its price have significantly varied in actual than approved by the Commission. Sample bills for primary fuel bought are attached at annexure 13.

4.6 Computation of Variable Charge

4.6.1 As per the actual fuel cost discussed in the above paragraphs, the variable charge has been computed for the generating stations as provided in the table below. For 2014-15 the actual number have been taken from Commercial operation date and for 2015-16, the whole year's numbers are considered.

Table 21 : Computation of Variable Charge

Particulars	Units	FY 2014-15 approved	FY 2014-15 Actuals	2015-16 approved	2015-16 Actuals
Capacity	MW	63	63	63	63
PLF	%	75.00%	64.83%	75.00%	87.80%
Gross units generated	MU	343.60	308.78	413.91	484.55
Auxiliary consumption	%	10.50%	11.25%	10.50%	11.26%
Auxiliary consumption	MU	36.08	34.75	43.46	54.57
Net units Generated	MU	307.52	274.03	370.45	429.98
Station Heat Rate	Kcal / Kwh	2,901.62	3,039.00	2,901.62	2,931.20
Total Heat Required	Kcal	997,003	938,381	1,201,011	1,420,314
Calorific Value of Sec Fuel	Kcal/Litre	10000	10000	10000	10000
Specific oil consumption	ml/Kwh	1.00	1.20	1.00	0.86
Oil Consumption	Kilolitres	343.60	371.91	413.91	416.16
Heat generated by Sec fuel	Kcal/kWh	10	12	10	9
Heat Required from Coal	Kcal/kWh	2,891.62	3,026.95	2,891.62	2,922.61
Weighted average GCV of primary fuel	kCal/Kg.	2,690	2,237	2,690	2,516
Primary fuel Consumption	Tons	369356	417817	444934	562954
Annual cost of fuel per ton	Rs/ Ton	1709	1818	1709	1742
Cost of primary fuel	Rs Crore	63.11	75.95	76.02	98.05
Per unit Fuel Cost	Rs./kWh	2.05	2.77	2.05	2.28

4.6.2 The Petitioner requests the Hon'ble Commission to approve the variable charge of Rs. 2.79 per unit for FY 2014-15 and Rs. 2.30 per unit for FY 2015-16 as submitted above based on the actual numbers.

5. Summary of Submissions for true-up & APR for 2014-15 & 2015-16 respectively

5.1.1 The following section provides the summary of tariff submitted by the Petitioner for true-up and APR of the years FY 2014-15 & FY 2015-16 respectively.

5.1 Fixed Cost

5.1.1 A snap shot of the fixed cost as computed and after PLF / PAF adjustment for IPL during the true-up and APR years of FY 2014-15 & FY 2015-16 respectively is provided below:

Table 22 : Fixed Cost

Particulars	Units	FY 2014-15 approved	FY 2014-15 Actuals	2015-16 approved	2015-16 Actuals
Depreciation	Rs Crore	13.20	13.63	15.91	15.79
Interest on Loan	Rs Crore	23.37	30.78	26.30	32.54
Return on Equity	Rs Crore	14.86	15.95	17.90	18.57
Interest on Working Capital	Rs Crore	5.45	4.63	6.54	7.77
O & M Expenses	Rs Crore	12.57	18.56	16.01	25.12
Secondary Oil Consumption	Rs Crore	1.72	2.10	2.07	2.07
Fixed cost as computed	Rs Crore	71.18	85.66	84.73	101.87
Fixed cost after PLF / PAF adjustment	Rs Crore	**71.18**	**79.96**	**84.73**	**113.02**

5.1.2 As per the provisions of MoU executed with Govt. of Jharkhand and PPA executed with JUVNL, IPL has to supply the power corresponding to 12% capacity to JUVNL at Energy Charge and hence, the Annual Fixed Charges for stage 1 are to be recovered from balance 88% of the net capacity.

5.2 Variable Cost

5.2.1 A snap shot of the actual variable cost for IPL during the true-up and APR years of FY 2014-15 & FY 2015-16 respectively is provided below:

Table 23: Actual generation tariff for IPL

Particulars	Units	FY 2014-15 approved	FY 2014-15 Actuals	2015-16 approved	2015-16 Actuals
Capacity	MW	63.00	63.00	63.00	63.00
PLF	%	75.00%	64.83%	75.00%	87.80%
Gross units generated	MU	343.60	308.78	413.91	484.55
Auxiliary consumption	%	10.50%	11.25%	10.50%	11.26%
Auxiliary consumption	MU	36.08	34.75	43.46	54.57
Net units Generated	MU	307.52	274.03	370.45	429.98
Weighted average GCV of primary fuel	kCal/Kg.	2,690	2,237	2,690	2,516
Primary fuel Consumption	MT	369,356	417,817	444,934	562,954
Annual cost of fuel per ton	Rs/ MT	1,709	1,818	1,709	1,742
Cost of primary fuel	Rs Crore	63.11	75.95	76.02	98.05
Per unit Fuel Cost	Rs./kWh	2.05	2.77	2.05	2.28

5.3 Non-tariff income

5.3.1 The Petitioner submits that the following non-tariff income may be considered while approving the above costs.

Table 24: Non-tariff income for FY 14 and FY 16

S. No	Particulars	FY 2014 - 15	FY 2015 - 16
		Actual	Revised Estimate
A	**Income from Investment, Fixed & Call Deposits**		
1	Interest Income from Investments		
2	Interest on fixed deposits	**0.06**	**0.06**
3	Interest from Banks other than Fixed Deposits		
4	Interest on any other items		
	Sub-Total	**0.06**	**0.06**
B	**Other Non Tariff Income**	**10.85**	**0.08**
1	Interest on loans and Advances to staff	0	0
2	Gain (Loss) on Sale of Fixed Assets	**0**	**0**
3	Income/Fee/Collection against staff welfare activities	0	0
4	Revenue from surcharges for late payment	**2.26**	**8.82**
	Sub-Total	**13.11**	**8.9**
	Total	**13.17**	**8.96**

5.3.2 The Petitioner also would like to submit that the Hon'ble Commission vide its order in case no 26 of 2014 and 06 of 2016 has directed the respondent to make payments to the Petitioner based on the invoice raised. However, the respondent has to this date failed to clear the dues of the Petitioner. The respondent has also not cleared the dues of the Petitioner regarding the late payment surcharge.

5.3.3 IPL requests the Hon'ble Commission to approve the tariff for supply of Regulated Capacity to JUVNL as summarised in the Table above for the true-up and APR years of FY 2014-15 & FY 2015-16.

6. Multi Year Tariff for FY 17 to FY 21

6.1 MYT regulations, 2015

6.1.1 The Hon'ble Commission has provided vide notification dated 20th January 2016, JSERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2015 or "JSERC Regulations, 2015". The Regulations will be applicable for determining the Multi Year Tariffs (MYT) of the petitioner's plant for the control period starting FY 2016-17. Based on the above mentioned JSERC Regulations, 2015, the Petitioner has projected the tariff for the control period starting FY 2016-17.

6.2 Debt Equity ratio

6.2.1 The Hon'ble Commission in its Regulations, 2016 has considered following principals for determination of Debt Equity Ratio.

"…Debt Equity Ratio

7.13 In case of the generating station declared under commercial operation prior to 1st April 2016, debt-equity ratio allowed by the Commission for determination of Tariff for the period ending 31st March 2016 shall be considered for determination of tariff.

During the control period, debt-equity ratio allowed by the Commission for determination of Tariff for the period ending 31st March 2017 shall be considered for determination of tariff…."

6.2.2 For financing of the above capital cost, the Petitioner has tied up with various Commercial banks for the debt and the balance amount has been considered as equity. The debt and equity amount considered towards funding of the capital expenditure is provided in table below:

6.2.3 The total debt on the project is Rs 277.44 Crore which is 75% of the total project cost. The balance Rs. 92.04 Crore is funded through equity contribution. The debt-equity ratio of the project is 75:25.

Table 25: Debt Equity of the project in Rs. Cr as on CoD

	Approved	Actual
Capital Cost	319.84	369.81
Equity	92.40	92.40
Debt	227.44	277.77
Debt Equity Ratio	71 - 29	75 - 25

6.2.4 However, the Petitioner plans to raise the equity upto Rs. 100 cr in the power plant project from second quarter of FY 2016-17 and there will be consequent increase in equity for unit one of the project from second quarter of FY 2016-17. The Petitioner plans to take up the issue with IPL Board within the first quarter of FY 2016-17 and the certificate for the same shall be provided to the Commission during the true-up of the relevant years.

6.2.5 In view of the above, the debt equity ratio will change from second quarter of FY 2016-17and the RoE for 2016-17 has been taken at old equity for 3 months and at increased equity for 9 months. The table below shows the debt equity ratio.

Table 26: Debt Equity of the project in Rs. cr for MYT control period

	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Capital Cost	369.81	369.81	369.81	369.81	369.81
Avg Equity	94.90	97.40	97.40	97.40	97.40
Debt	274.91	272.41	272.41	272.41	272.41
Debt Equity Ratio	74 - 26	73 - 27	73 - 27	73 - 27	73 - 27

6.3 Return on Equity (RoE)

6.3.1 The Hon'ble Commission in its regulation has considered the pre-tax return on equity at 15.5% of capital cost. As per Regulation 7.16 of the JSERC Regulations, 2016.

*"**7.15** Return on equity shall be computed in rupee terms, on the equity base determined in accordance with clause 7.13 and 7.14 of these Regulations.*

***7.16** Return on equity shall be computed on pre-tax basis at the base rate of 15.50% for thermal generating stations, and run of the river hydro generating station, and at the base rate of 16.50% for the storage type hydro generating stations including pumped storage hydro generating stations and run of river generating station with pondage, to be grossed up as per clause 7.17 of these Regulations.*

……

***7.18** Rate of return on equity shall be rounded off to three decimal points and be computed as per the formula given below:*

Rate of pre-tax return on equity = Base rate / (1-t)

Where 't' is the applicable tax rate in accordance with clause 7.17 of these Regulations."

6.3.2 The Petitioner has determined the return on equity (RoE) at the rate of 16% as the Petitioner's plant achieved its CoD with the timelines provided in the JSERC regulations, 2010. Further, the RoE has been grossed up by the current applicable MAT rate in order to account for the tax liability incurred during the period.

Table 27: Computation of RoE for FY 17 to FY 21

Rs Cr.

Particulars	FY 2015-16 Actuals	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Opening Equity (Rs. Cr.)	92.40	92.4	97.4	97.4	97.4	97.4
Addition / Subtraction (Rs. Cr.)	0	5.00	0.00	0.00	0.00	0.00
Closing Equity (Rs. Cr.)	92.40	97.4	97.4	97.4	97.4	97.4
Average Equity Base (Rs. Cr.)	92.40	94.9	97.4	97.4	97.4	97.4
Rate of Return on Equity (%)	16.00%	16.00%	16.00%	16.00%	16.00%	16.00%
Applicable MAT Rate (%)	20.39%	20.39%	20.39%	20.39%	20.39%	20.39%
Gross RoE (%)	20.10%	20.10%	20.10%	20.10%	20.10%	20.10%
Return on Equity (Rs. Crore)	18.57	19.32	19.58	19.58	19.58	19.58

6.4 Interest on Loan Capital

6.4.1 The Hon'ble Commission in its Regulations, 2016 has considered following principals for determination of Interest and Finance Charges.

*"**7.19** The loans arrived at in the manner indicated in clause 7.13 and 7.14 of these Regulations shall be considered as gross normative loan for calculation of interest on loan.*

…….

***7.21** The repayment for any year during the Tariff Period shall be deemed to be equal to the depreciation allowed for that Year.*

***7.22** Notwithstanding any moratorium period availed by the Generating Company, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the annual depreciation allowed.*

***7.23** The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year applicable to the Project:…*

***7.24** The interest on loan shall be calculated on the normative average loan of the year by applying the weighted average rate of interest……."*

6.4.2 The Petitioner has computed the Interest on long term Loan in line with the actual interest amount projected during the MYT Control Period. The Petitioner has considered loan outstanding as on March 31st, 2016 as detailed in the above section of financing of capital expenditure while the repayment has been considered equal to the computed depreciation.

6.4.3 Weighted average of the actual interest rate of outstanding loans i.e. 12.25% has been considered for projecting the interest on loan. The table below summarizes the computation of interest on loan for the Control Period.

Table 28: Computation of Interest on long term Loan for FY 17 to FY 21

Rs Cr.

Particulars	FY 2015-16 Actuals	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Opening Balance for long term Loans	247.92	232.19	216.40	200.60	184.81	169.02
Additions during the Year	0.18	-	-	-	-	-
Repayments during the Year	15.91	15.79	15.79	15.79	15.79	15.79
Closing Balance for long term Loans	232.19	216.40	200.60	184.81	169.02	153.22
Weighted Average interest rate (%)	13.56%	12.78%	12.78%	12.78%	12.78%	12.78%
Interest on Loan	32.54	28.67	26.65	24.63	22.61	20.59

6.5 Depreciation

6.5.1 The Hon'ble Commission in its Regulations, 2016 has considered following principals for determination of depreciation.

> *"**7.28** Depreciation shall be calculated for each year of the tariff period, on the amount of Capital Cost of the assets admitted by the Commission;*
>
> ***7.29** The salvage value of the asset shall be considered as 10% and depreciation shall be allowed upto maximum of 90% of the capital cost of the asset.*
>
> *……*
>
> ***7.31** Depreciation shall be calculated annually based on 'Straight Line Method' and at rates specified in Appendix-I to these Regulations for the assets of the generating station:"*

6.5.2 The Petitioner has considered the total capital cost as on scheduled COD as provided in the section on capital cost. The depreciation has been computed

as per the depreciation rates provided in the Appendix-I of the JSERC Regulations, 2016. The details of calculation of depreciation based on the applicable rates are provided in the formats attached as Annexure 11. The depreciation amount computed is provided in the table below:

Table 29: Computation of Depreciation for FY 17 to FY 21

Rs Cr.

Particulars	FY 2015-16 Actuals	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Opening Balance of Gross Fixed Assets (GFA)	335.18	319.38	303.59	287.80	272.00	256.21
Additional Capitalization	0	0	0	0	0	0
Net Fixed Assets (GFA)	**319.38**	**303.59**	**287.80**	**272.00**	**256.21**	**240.41**
Depreciation	15.79	15.79	15.79	15.79	15.79	15.79
Avg. Depreciation Rate (%)	4.95%	5.20%	5.49%	5.81%	6.16%	6.57%

6.6 Interest on Working Capital

6.6.1 Working capital requirement has been worked out as per the Regulation 7.38 of the JSERC Regulations 2016, for the non-pithead coal based thermal generating stations. The Regulation 7.38 of the JSERC Regulations 2016 is reproduced below for easy reference.

"Interest on working Capital

7.38 *Rate of interest on working capital shall be on normative basis and shall be considered as the bank rate as on 01.04.2016 or as on 1st April of the year during the tariff period 2016-17 to 2020-21 in which the generating station or a unit thereof, is declared under commercial operation, whichever is later.*

Provided that the rate of interest on working capital shall be trued up on the basis of actual bank rate as on 1st April of the respective year at the time of true up for that year.

7.39 *The interest on working capital shall be payable on normative basis notwithstanding that the generating company has not taken working capital loan from any outside agency or has exceeded the working capital loan based on the normative figures"*

6.6.2 The bank rate as defined regulations 2.1 (8) of the JSERC Regulations 2016 is reproduced below for easy reference

"8) *"**Bank Rate**" means the base rate of interest as specified by the State Bank of India from time to time or any replacement thereof for the time being in effect plus 350 basis points;"*

6.6.3 For computation of interest on working capital for the MYT control period, the bank rate has been calculated as on 1st April 2016, which comes out to be 12.80% and the same has been used.

Table 30: Computation of Interest on Working Capital for FY 17 to FY 21

Rs Cr.

Particulars	Norms	FY 2015-16 Actuals	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Coal	2 months	16.34	15.01	15.01	15.01	15.01	15.01
Secondary fuel oil	2 months	0.35	0.38	0.38	0.38	0.38	0.38
O&M Expenses	1 month	2.09	2.22	2.37	2.51	2.67	2.84
Maintenance Spares	20% of O&M Cost	5.02	5.34	5.68	6.03	6.41	6.82
Receivables	2 months	33.32	31.63	31.63	31.60	31.59	31.61
Working Capital Requirement	Rs Crore	57.12	54.59	55.06	55.54	56.07	56.65
Interest rate applicable	%	13.01	12.80%	12.80%	12.80%	12.80%	12.80%
Interest on Working Capital	Rs Crore	7.43	6.99	7.05	7.11	7.18	7.25

6.7 Operation and Maintenance Expenses (O&M Expense)

6.7.1 As per Regulation 44 of JSERC Regulations, normative O&M expense would be applicable for generating companies, as reproduced below

*"**7.44** The O&M expenses (in Rs. lakhs/ MW) permissible towards determination of tariff for Coal and Lignite fired (including those based on CFBC technology) shall be as follows:*

Table 31: O&M norms specified by the Commission for the MYT control period

Year	200/210/250 MW sets	300/330/350 MW sets	500 MW sets	500 MW & above sets
2016-17	27.00	22.54	18.08	16.27
2017-18	28.70	23.96	19.22	17.30
2018-19	30.51	25.47	20.43	18.38
2019-20	32.43	27.07	21.72	19.54
2020-21	34.48	28.78	23.08	20.77

6.7.2 However, the Petitioner envisages to incur high O&M costs than approved by the Hon'ble Commission for the MYT control period. The Petitioner has taken an escalation of 6.30% on actual figures of O&M of FY 2015-16. Similar escalation has been taken by the Hon'ble Commission for the approved O&M charges for the MYT control period. The table below shows the proposed O&M charges for the MYT control period.

Table 32: Computation of O&M for FY 17 to FY 21

Particulars	FY 2015-16 Actuals	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Proposed O&M Expense (Rs. Crore)	25.12	26.70	28.38	30.17	32.07	34.09

6.7.1 This increase in O&M cost is due to increase in the costs related to handling and disposal of increased quantity of Ash produced. The quantity of ash being produced has significantly increased due to change in fuel mix.

6.7.2 As discussed above in True-up and annual performance review of O&M costs for FY 15 & FY 16, there has been considerable change in the envisaged and approved fuel. Overall, the petitioner's fuel mix has changed drastically and also the average GCV has decreased substantially, resulting in significant

increase in Ash being produced and consequent increase in Ash handling charges.

6.7.3 The Petitioner also submits that these proposed O&M charges also include Water charges that will be paid by the Petitioner to the concerned state authorities for use of water in the power plant.

6.7.4 The Hon'ble APTEL in Appeal No. 244 of 2012 between DPSCL vs WBERC & others, at para 22 has clearly ruled that the variation in Ash handling charges maybe allowed due to any uncontrolled increase in the ash content of fuel and any increase in haulage of ash to the disposal area. The para 22 of the Appeal No. 244 of 2012 of the APTEL is reproduced below:

*"**22.** As far as Ash Handling expenses are concerned, the same are dependent mainly upon the quantity of ash handled which in turn is dependent upon actual quantity of coal consumption and ash content of coal and the distance of ash disposal area from the main plant. Therefore, while computing the Ash Handling charges, these factors have to be considered. Thus, while examining the Ash Handling expenses in APR/true up the State Commission can consider the actual quantity of coal vis-à-vis the estimated quantity of coal based on the target generation, any abnormal increase in the ash content of coal and any increase in haulage of ash to the disposal area due to change in disposal area during the year in question and accordingly allow variation in Ash Handling charges if deemed necessary."*

6.7.5 Thus, it is clear from the above judgement of the APTEL, that the variation in Ash handling charges maybe allowed due to any uncontrolled increase in the ash content of fuel and any increase in ash handling charges.

6.7.6 The Petitioner would like to further submit that the brick lining of the Boiler was replaced in the month of October 2014 and the boiler was subsequently recharged. This boiler brick relining has changed the boiler profile resulting

in increased O&M costs for the Petitioner, and such increased O&M costs are also included in the above proposed O&M costs.

6.7.7 In view of the above, the Petitioner again prays to the Hon'ble Commission to approve this proposed increase in the O&M charges due to uncontrollable increase in costs related to handling and disposal of increased quantity of ash produced.

6.8 Computed Fixed Cost during the Control Period

6.8.1 Based on the above discussed fixed components, the total fixed charges for generating station of IPL for FY 2016-17 to FY 2020-21 has been computed. The Hon'ble Commission is requested to approve the fixed charges as projected in the table below:

Table 33: Computation of the total fixed cost for FY 17 to FY 21

Rs Cr.

Particulars	FY 2015-16 Actuals	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Depreciation	15.79	15.79	15.79	15.79	15.79	15.79
Interest on Loan	32.54	28.67	26.65	24.63	22.61	20.59
Return on Equity	18.57	19.32	19.58	19.58	19.58	19.58
Interest on Working Capital	7.43	6.99	7.05	7.11	7.18	7.25
O & M Expenses	25.12	26.70	28.38	30.17	32.07	34.09
Secondary fuel oil	2.07	-	-	-	-	-
Total Fixed Cost	**101.53**	**97.47**	**97.45**	**97.28**	**97.23**	**97.30**

6.8.1 As per the provisions of MoU executed with Govt. of Jharkhand and PPA being executed with JSEB, IPL has to supply the power corresponding to 12% capacity to JSEB at Energy Charge and hence, the Annual Fixed Charges for Stage 1 are to be recovered from balance 88% of the net capacity.

6.9 Variable Cost for the Power Plant

6.9.1 The following components have been considered while determining the variable cost for tariff of the proposed power plant:

- Plant Availability Factor
- Gross Station Heat Rate
- Auxiliary Consumption
- Specific Oil Consumption
- Gross Calorific Value

6.9.2 The following section provides the detailed basis of projection of various technical parameters for the estimation of variable cost as proposed by the Petitioner.

6.9.3 The Petitioner would like to submit that the JSERC Regulations. 2016 do not provide the normative PLF for the petitioner's plant. The Petitioner's submits that higher PLF was achieved in FY 16 as the plant was new and hence there was no need for annual shut down. However, the Petitioner has planned 1 month annual maintenance shut down for the MYT control period to prolong the life of the plant.

6.9.4 Hence, the Petitioner plans to run its power plant at 90% PLF for 11 months in a year followed by 1 month annual maintenance shut down for the MYT control period. In line with the above, the Petitioner proposes PLF of 82.50% for the MYT control period. The table below shows the proposed PLF for the MYT control period.

Table 34: Plant Availability Factor (%) for FY 17 to FY 21

Particulars	FY 2015-16 Actuals	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Plant Load Factor (%age)	87.80%	82.50%	82.50%	82.50%	82.50%	82.50%

6.9.5 The Petitioner would like to further submit that the relaxation of PLF for CFBC boilers is provided in CERC Tariff Regulations 2009-14. The extract of the same is reproduced below:

*"**26.(i)**. Normative Annual Plant Availability Factor (NAPAF)….*

***(f)** Lignite-fired Generating Stations using Circulatory Fluidized Bed Combustion (CFBC) Technology –*

1. First three years from COD – 75%

2. From next year after completion of 3 years of COD – 80%"

6.9.6 The reasons for this relaxation are further elaborated in the Statement of Objects and Reasons for CERC Tariff Regulations (2009-14).

*"**28.6** ……With regard to lignite fired stations using CFBC technology are concerned, we found that the availability in initial years was of the order of 76% in case of surat lignite fired station and gradually picked up thereafter. In view of this we are providing for a norm of 75% during first three years of COD and thereafter, retaining a norm of 80%. In respect of the new lignite power stations with PF Boilers, availability norms have been combined with the coal power fire stations at 85%"*

6.9.7 It is further submitted that in various other States also, such relaxation in PLF has been provided for CFBC boilers. For instance, in Rajasthan, as per RERC Tariff Regulations, 2009 PLF for CFBC Plants is gradually increased to 80% during a period of five years –

*"**46.1.** Target Availability for recovery of full Capacity (Fixed) charges for thermal power stations … (a)*

…

(iii) Lignite fired thermal power stations using CFBC technology:

For the first year of operation 70%

For second year of operation 72.5%

For third year of operation 75.0%

For fourth year of operation 77.5%

Fifth year and onwards 80.0%"

6.9.8 It is pertinent to note that APTEL in its judgement on "Appeal No. 182 of 2010" has clarified that the relaxation in PLF for CFBC will be applicable to both coal based and lignite based Stations as the relaxation is for the technology being used, not the fuel.

6.9.9 The summary of other CFBC plants where similar orders has been passed by the respective Commission has been summarized at Annexure 8.

6.9.10 The Petitioner also submits that for the previous years of 2014-15 and 2015-16, it has been seen that the respondent ask the Petitioner to backs down its plant during off peak hours. This results in the Petitioner's PLF being lower than its PAF. However, for the MYT control period the Petitioner is hopeful that the Petitioner would not be asked to back down its generation as the price proposed for the MYT control period is very competitive.

6.9.11 Therefore, the Petitioner requests the Honourable Commission to approve the Plant Load Factor (PLF) for its Generating Station for the MYT control period as proposed by the Petitioner.

6.10 Gross Station Heat Rate

6.10.1 The Petitioner submits that the actual SHR for FY 15 was 3039 Kcal/kWh and for FY 16 it was around 2931 Kcal/kWh. In line with the above actual numbers, the Petitioner proposes the same SHR of 2931 Kcal/kWh for the MYT control period.

Table 35: SHR for FY 17 to FY 21

Particulars	FY 2015-16 Actuals	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Station Heat Rate (Kcal/kWh)	2,931	2,931	2,931	2,931	2,931	2,931

6.10.2 The use of higher secondary fuel oil in the furnace and the drastic change in the fuel mix than envisaged are the result of the increase in SHR. This increase in actual SHR is as explained in detail in the True-up & APR part of the petition.

6.11 Auxiliary Consumption

6.11.1 The actual auxiliary consumption was to the tune of 11.26% for FY 16 and around 11.25% for FY 15. In line with the actual auxiliary consumption of the Petitioner's plant, the Petitioner proposes an auxiliary consumption of 11.50% for FY 17 to FY 21.

Table 36: Auxiliary consumption for FY 17 to FY 21

Particulars	FY 2015-16 Actuals	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Auxiliary Consumption (%age)	11.26%	11.50%	11.50%	11.50%	11.50%	11.50%

6.11.2 It is submitted that the actual recommendations of CEA have been used by the Petitioner to propose the auxiliary consumption. The 'Recommendations on Operation Norms for Thermal Power Stations for Tariff Period beginning 1st April, 2009', of CEA is reproduced below:

*"**14.6** The CFBC boilers involve higher auxiliary consumption due to higher pressure drops and consequently higher fan power as compared to the pulverized fuel fired units. Also, these units involve additional power consumption for lime stone handling, crushing and firing for control of SOX emissions. However, CFBC units do not require pulverizers as the fuel is fed in crushed form and thus there is a corresponding saving in the power consumption in pulverizers as compared to the pulverized fuel technology.*

***14.7** NLC have asked for an additional AEC of 1% on account of CFBC boiler technology and additional 0.5% on account of uncertainty etc that may be faced as the CFBC units are being implemented by them for the first time and past operation data is not available. Thus they have asked for an AEC of 11% for TPS Expn II and 12% for Barsingsar TPS on account of additional AEC of 0.67% for cooling water pumping from a distant source (60 kms)*

An assessment of incremental auxiliary consumption for CFBC units has been made and it is found that the CFBC units entail higher auxiliary energy consumption of 0.7% to 1%. However, in the present case of NLC stations, the limestone is being procured in the powder form and consequently the power consumption for limestone crushing is eliminated and thus the incremental consumption should be on the lower side. Thus, an additional auxiliary energy consumption of 1.0% may be allowed to NLC stations with CFBC boilers."

6.11.3 It is evident from the above that the CEA's assessment was in regard to the CFBC technology and therefore the auxiliary consumption norms of Lignite based CFBC may also be made applicable to the generating station of IPL.

6.11.4 It is also to be noted that following Auxiliary Consumption has been allowed by various Commissions on CFBC technology:

1. In case of Raj West Power Limited, RERC has allowed an Auxiliary Consumption of 11.5%
2. In case of Gujarat Industries Power Company Ltd, GERC has allowed an Auxiliary Consumption of 12.5% for 3 years and 11.5% from 4th year
3. In case of Bajaj Energy Pvt Ltd, UPERC has allowed an Auxiliary Consumption of 11.5% during stabilization and 11% - post stabilization period.

6.11.5 The summary of other CFBC plants where similar orders has been passed by the respective Commission has been summarized at Annexure 8.

6.11.6 The Petitioner also submits that the respondent is charging the Petitioner 'Temporary tariff' for import power being drawn by the Petitioner. It may be noted that a tariff is applied to a 'consumer' and the petitioner is a generating company as per the EA, 2003 and not a 'consumer'. Hence, the pray to the Hon'ble Commission to direct the respondent to net-off the power required for re-start of the Petitioner's plant with the power supplied by the Petitioner. The Hon'ble ATE in its judgement in appeal no 166 of 2010 has made it clear, the extract of the same is shown below:

***"44** Startup Power has not been defined in the Electricity Act 2003 or in the Rules and Regulations framed there under. It has also not been defined in the repealed Acts viz., Indian Electricity Act 1910, Electricity (Supply) Act 1948 and Electricity Regulatory Commission Act 1998. Thus we have to go by its general meaning. In general parlance, word 'Startup' means to start any machine or motor. In terms of electricity, Startup Power is power required to start any machine. Thus Startup Power is power required to start a generator. Next question is why it is required. Thermal generating units, (to some extent large hydro generating units also) have many auxiliaries, such as water feed pump, coal milling units, draft pumps etc.,. These auxiliaries operate on electrical power and are essentially required to run before generating unit starts*

producing power of its own. These auxiliaries would draw power from grid till unit start producing power and is synchronized with the grid. Once unit is synchronized, requirement of 'startup power' vanishes. Thus 'startup power' is required only when all the generating units in a generating station are under shutdown and first unit is required to startup. Once any one unit in a generating station is synchronized, power generated by the running unit is used to startup other units. Period of requirement of startup would vary from few minutes to few hours depending upon the size of unit.

45 Above discussion shows that requirement of startup power is essential for every generating station and is very limited both.

……

***II.** Question no 2: Whether a generating company can also be termed as a consumer only because it would be drawing 'startup power' from grid occasionally?*

Our answer is this: A generator requiring 'startup up power' from the grid occasionally cannot be termed as a consumer."

6.11.7 Therefore the Petitioner request the Honourable Commission to approve an auxiliary consumption of 11.50%, as proposed by the Petitioner and direct the respondent to net-off the import power required by the Petitioner.

6.12 Cost of secondary fuel oil and specific fuel oil consumption

6.12.1 As per Regulation 8.3 (b) of JSERC Regulations 2016, the cost of secondary fuel oil is to be considered in energy charges. Also, as per 8.6 (e) of JSERC Regulations 2016 specific fuel oil Consumption for Coal based generating stations should be 1.0 ml/kWh. Accordingly, the Petitioner has proposed the secondary fuel cost as part of energy charges based on the computation provided below:

Table 37: Computation of cost of secondary fuel for FY 17 to FY 21

Rs Cr.

Particulars	Unit	FY 2015-16 Actuals	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Gross Units Generated	MUs	485	455	455	455	455	455
Calorific Value of Oil	Kcal/Litre	10,000	10,000	10,000	10,000	10,000.00	10,000.00
Specific Oil Consumption	ml/Kwh	0.86	1.00	1.00	1.00	1.00	1.00
Oil Consumption	kL	416	455	455	455	455	455
Base Price of Oil	Rs / kL	49,803	50000	50000	50000	50000	50000
Cost of Secondary Fuel Oil	Rs Crore	2.07	2.28	2.28	2.28	2.28	2.28

6.12.2 As per regulation 8.6(e) of JSERC regulations, 2016, the specific fuel oil consumption for coal based generating stations is 1.0 ml/kWh. Though this regulation is for coal based generating stations, the Petitioner proposes the same be applied to the Petitioner's plant.

Table 38: Specific fuel oil consumption for FY 17 to FY 21

Particulars	FY 2015-16 Actuals	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Specific oil Consumption (ml/kWh)	0.86	1.00	1.00	1.00	1.00	1.00

6.12.3 Therefore the Petitioner request the Honourable Commission to approve a specific oil consumption of 1.00 ml/kWh.

6.13 Fuel Price and Calorific Value

6.13.1 As IPL doesn't have any fuel linkage, it's procuring fuel from various sources like:

- E –Auction CIL coal
- Coal from JSMDC
- Coal from forward auctions
- Washery Rejects of CCL
- Rejects from Tata
- Dolochar from the open market
- Coal from Open market

6.13.2 However, IPL is trying to get a coal linkage from CIL, and it expects to get a coal linkage very soon. The Petitioner further submits that CIL has recently reduced the coal prices by 10%-40% for higher grade linkage coal and CIL also plans to conduct various large scale e-auctions to liquidate its coal stocks. Hence, IPL envisages increase in use of coal in primary fuel mix and increase in GCV of the fuel purchased.

6.13.3 The petitioner proposes decreased use of coal rejects for the MYT control period so that the ash produced is less and the Petitioner may be able to control its ash handling expenses. The fuel price and GCV of the fuel sources and the fuel mix as proposed by IPL is shown in the table below.

Table 39: Fuel price details for FY 17 to FY 21

Rs Cr.

Particulars	FY 2015-16 Actuals	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Gross Calorific Value of Coal (Kcal/Kg)	3,681	3,781	3,781	3,781	3,781	3,781
GCV of Dolochar	975	1,075	1,075	1,075	1,075	1,075
GCV of coal rejects	2,456	2,556	2,556	2,556	2,556	2,556
Price of Coal (Rs./Tonne)	2,823	2,750	2,750	2,750	2,750	2,750
Price of Dolochar (Rs./Tonne)	440	440	440	440	440	440
Price of coal rejects (Rs./Tonne)	1,590	1,590	1,590	1,590	1,590	1,590
Blending ratio (%age) Coal - Dolochar - Coal rejects	37:36:27	50:23:27	50:23:27	50:23:27	50:23:27	50:23:27
Transit Losses	0.00%	0.80%	0.80%	0.80%	0.80%	0.80%

6.13.4 Based on the availability of fuel, the blending ratio & price of primary fuel might change. In such a scenario, the Petitioner has not proposed any escalation in primary fuel prices for the control period as the same is recoverable as Fuel Price Adjustment on monthly basis, as per Regulation 8.22 of JSERC Regulations, 2015.

6.13.5 Transit losses for the year 2015-16 is 0.81%. The same is not reflected in the table above as the transit loss for the year 2015-16 is already included in the Rates of Fuel mentioned in the above table.

6.14 Computation of Variable Charge

6.14.1 As per the technical assumptions and fuel cost discussed in the above paragraphs, the variable charge has been computed for the generating stations as provided in table below.

Table 40: Computation of Variable Charge for FY 17 to FY 21

Particulars	Units	FY 2015-16 Actuals	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Capacity	MW	63	63	63	63	63	63
PLF	%	87.80%	82.50%	82.50%	82.50%	82.50%	82.50%
Gross units generated	MU	484.55	455.30	455.30	455.30	455.30	455.30
Auxiliary consumption	%	11.26%	11.50%	11.50%	11.50%	11.50%	11.50%
Auxiliary consumption	MU	54.57	52.36	52.36	52.36	52.36	52.36
Net units Generated	MU	429.98	402.94	402.94	402.94	402.94	402.94
Station Heat Rate	Kcal/ Kwh	2,931	2,931	2,931	2,931	2,931	2,931
Total Heat Required	Kcal	1420314	1334579	1334579	1334579	1334579	1334579
Calorific Value of Sec Fuel	Kcal/Litre	10000	10000	10000	10000	10000	10000
Specific oil consumption	ml/Kwh	0.86	1.00	1.00	1.00	1.00	1.00
Oil Consumption	Kilolitres	416	455	455	455	455	455
Heat generated by Sec fuel	Kcal/kWh	8.59	10.00	10.00	10.00	10.00	10.00
Heat Required from primary fuel	Kcal/kWh	2,923	2921	2921	2921	2921	2921
Weighted average GCV of primary fuel	kCal/Kg.	2,516	2,769	2,769	2,769	2,769	2,769
Primary fuel Consumption	MT	562,954	480,391	2,921	2,921	2,921	2,921
Annual cost of primary fuel per ton	Rs/ MT	1,741.68	1,874.55	1,874.55	1,874.55	1,874.55	1,874.55
Cost of primary fuel	Rs Crore	98.05	90.05	90.05	90.05	90.05	90.05
Cost of secondary fuel	Rs Crore	-	2.28	2.28	2.28	2.28	2.28
Per unit Fuel Cost	Rs./kWh	2.28	2.29	2.29	2.29	2.29	2.29

6.14.2 The Petitioner requests the Hon'ble Commission to approve the per unit variable charge for FY 2016-17 to FY 2020-21 as proposed in the table above.

7. Summary of Submissions for MYT 2016-17 to 2020-21

7.1.1 The following section provides summary of Tariff proposed by the Petitioner for the control period starting from FY 2016-17 to FY 2020-21.

7.2 Fixed Cost

7.2.1 A snap shot of the fixed cost for IPL for the control period is provided below:

Table 41: Fixed cost for FY 17 to FY 21

Total Proposed Generation Tariff	Units	FY 2015-16 Actuals	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Depreciation	Rs Crore	15.79	15.79	15.79	15.79	15.79	15.79
Interest on Loan	Rs Crore	32.54	28.67	26.65	24.63	22.61	20.59
Return on Equity	Rs Crore	18.57	19.32	19.58	19.58	19.58	19.58
Interest on Working Capital	Rs Crore	7.43	6.99	7.05	7.11	7.18	7.25
O & M Expenses	Rs Crore	25.12	26.70	28.38	30.17	32.07	34.09
Cost of Secondary Fuel Oil	Rs Crore	2.07	-	-	-	-	-
Total Fixed Cost	**Rs Crore**	**101.53**	**97.47**	**97.45**	**97.28**	**97.23**	**97.30**

7.2.2 As per the provisions of MoU executed with Govt. of Jharkhand and PPA being executed with JUVNL, IPL has to supply the power corresponding to 12% capacity to JUVNL at Energy Charge and hence, the Annual Fixed Charges for stage 1 are to be recovered from balance 88% of the net capacity.

7.3 Variable Cost

7.3.1 A summary of the proposed generation tariff for IPL during the three year period is provided below:

Table 42: Summary of Variable cost for FY 17 to FY 21

Particulars	Units	FY 2015-16 Actuals	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Capacity	MW	63.00	63.00	63.00	63.00	63.00	63.00
PLF	%	87.80%	82.50%	82.50%	82.50%	82.50%	82.50%
Gross units generated	MU	484.55	455.30	455.30	455.30	455.30	455.30
Auxiliary consumption	%	10.50%	11.25%	10.50%	11.26%	11.26%	11.26%
Auxiliary consumption	MU	50.88	51.24	47.81	51.28	51.28	51.28
Net units Generated	MU	433.67	404.06	407.49	404.03	404.03	404.03
Weighted average GCV of primary fuel	kCal/Kg.	2,516	2,769	2,769	2,769	2,769	2,769
Primary fuel Consumption	MT	562,954	480,391	2,921	2,921	2,921	2,921
Annual cost of fuel per ton	Rs/ MT	1,742	1,875	1,875	1,875	1,875	1,875
Cost of primary fuel	Rs Crore	98.05	90.05	90.05	90.05	90.05	90.05
Cost of secondary fuel	Rs Crore	-	2.28	2.28	2.28	2.28	2.28
Per unit Fuel Cost	Rs./kWh	2.28	2.29	2.29	2.29	2.29	2.29

7.3.2 IPL requests the Hon'ble Commission to approve the tariff for supply of Regulated Capacity to JUVNL as summarised in the Table above.

8. Conclusion

8.1.1 In accordance with provisions of MoU with Government of Jharkhand (GoJ) and PPA being executed with JUVNL, IPL will supply 63 MW gross capacity out of which 12% i.e. 7.56 MW will supplied at variable cost and the balance will be supplied at total Tariff (both fixed and variable charge) as approved by Hon'ble JSERC.

8.1.2 Accordingly, the tariff for true-up and APR of for the years 2014-15 and 2015-16 respectively for supply of Regulated Capacity to JUVNL for the years 2014-15 and 2015-16 is summarised in the Table below:

Table 43: Tariff for Regulated Capacity for JUVNL for FY 15 to FY 16

Tariff for Regulated Capacity for JUVNL	Unit	FY 2014-15 approved	FY 2014-15 Actuals	2015-16 approved	2015-16 Actuals
Fixed charges	**Rs. Cr.**	**71.18**	**79.96**	**84.73**	**113.02**
Rate of Energy Charges	**Rs./kWh**	**2.05**	**2.77**	**2.05**	**2.28**

8.1.3 Accordingly, the tariff for supply of Regulated Capacity to JUVNL for the Control Period FY 17 to FY 21 is summarised in the Table below:

Table 44 : Tariff for Regulated Capacity for JUVNL for FY 17 to FY 21

Tariff for Regulated Capacity for JUVNL	Unit	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Fixed charges for MYT period	**Rs. Cr.**	**97.47**	**97.45**	**97.28**	**97.23**	**97.30**
Rate of Energy Charges	**Rs./kWh**	**2.29**	**2.29**	**2.29**	**2.29**	**2.29**

8.1.4 Overall, the Petitioner prays to the Hon'ble Commission to approve the actual numbers for the True-up year of FY 2014-15 and APR of FY 2015-16 and also the approve the proposed figures for MYT control period.

9. ANNEXURES

Annexure 1 - Chartered Accountant certificate certifying project capital cost sources of funding

Annexure 2 – WPI details for increase of various costs

Annexure 2.1 – RBI Labour 2011-12

Annexure 2.2 – RBI Labour 2013-14

Annexure 2.3 – RBI WPI 2009-10

Annexure 2.4 – RBI WPI 2011-12

Annexure 2.5 – RBI WPI 2014-15

Annexure 3 – Unsecured loan and Bank loan details

Annexure 3.1 - Unsecured Loan

Annexure 3.2 – Sanction and Acceptance Letter of Bank of Baroda

Annexure 3.3 – Sanction and Acceptance Letter of State Bank of Bikaner and Jaipur

Annexure 3.4 – Sanction and Acceptance Letter of State Bank of India

Annexure 3.5 – Sanction and Acceptance Letter of State Bank of Patiala

Annexure 4 - Bank document stating Working capital margin required by banks

Annexure 4.1 – Working Capital Sanction of SBI

Annexure 4.2 - Working Capital Sanction of Bank of Baroda

Annexure 4.3 - Working Capital Sanction of State Bank of Patiala

Annexure 4.4 - Working Capital Sanction of State Bank of India (Revised)

Annexure 4.5 – Working Capital Sanction of Sate Bank of Patiala (Revised)

Annexure 4.6 - Working Capital Sanction of Bank of Baroda (Revised)

Annexure 5 - Water bill details of IPL

Annexure 6 – Actual primary fuel usage summary

Annexure 7 - Board resolution dtd.11.08.2011 for investment in the project.

Annexure 8 - Summary of other CFBC plants where similar orders has been passed by the respective Commission

A summary of the other CFBC players where similar orders has been passed by the respective Commission is summarised below for reference:

Parameter	RERC	GERC	UPERC
Type	Lignite based	Lignite based	Coal based
Entity	Raj West Power Ltd	Gujarat Industries Power Company Ltd	Bajaj Energy Pvt Ltd
Capacity per unit	8 x 135 MW	2 x 250 MW	2 x 45 MW
SHR	2300 Kcal/kWh with adjustment factor for moisture factor	Gross Station Heat Rate as 1.07 x 2300 Kcal/kWh (7% is correction factor recommended by CEA for other Gujarat plants)	3000 kcal/ kwh during stabilization period 2900 kcal/ kwh for domestic coal and 2800 kcal/kwh for imported coal
Availability	70%, 72.5%, 75%., 77.5% and 80% from 5th year	75% for 3 years and 80% from 4 th year	65%,70%, 75%, 77.5%, 80%
Aux. Consumption	11.5%	12.5% for 3 years and 11.5% from 4th year	11.5% during stabilization pd 11% - post stabilization

Annexure 9 - Submission of capital cost as desired by the Commission in its order of May 2014

Annexure 10 - IPL annual accounts for the year FY 2014-15

Annexure 11 – MYT formats as per JSERC regulations

Annexure 12: The sample bills for secondary oil bought

Annexure 13– Delivery orders for primary fuel bought

Annexure 13.1 – Delivery order of JSMDC on 22.08.2015

Annexure 13.2 - Delivery order of JSMDC on 23.08.2014

Annexure 13.3 - Delivery order of JSMDC on 08.09.2015

Annexure 13.4 – e-auction coal rejects 30.08.2014

Annexure 13.5 - e-auction coal rejects 22.09.2015

Annexure 13.6 - e-auction coal rejects 28.01.2015

Annexure 13.7 - e-auction coal rejects 31.05.2014

Annexure 13.8 – Tata coal rejects 2014

Annexure 13.9 – Sikni Coal Transportation 2014-15

Annexure 13.10 – Tata Ghato Transportation 2014-15

Annexure 13.11 – Tata GhatoTransportation 2015-16

Annexure 13.12 – Shashi Bhushan Transportation 2014-15

Annexure 13.13 - Shashi Bhushan Transportation2015-16

Annexure 13.14 – Amjad Hussain Transportation 2014-15

Annexure 13.15 – Amjad Transportation 15-16

Annexure 13.16 – Anindita Steel Ltd – Dola char 14-15

Annexure 13.17 – Anindita Steel Ltd – Dola char15-16