

Tariff Petition for determination of the Tariff for the Financial Year 2015-16, approval of estimates for FY 2014-15 and truing up for the previous Period of FY 2012-13 to 2013-14.

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**BEFORE THE HON'BLE DELHI ELECTRICITY REGULATORY COMMISSION**

**Petition No:**

**IN THE MATTER OF** Filing of Tariff Petition under section 62 of the Electricity Act, 2003 for determination of Generation Tariff for the Financial Year 2015-16 , approval of estimates for FY 2014-15 and truing up for the previous Period of FY 2012-13 to 2013-14

**AND**

**IN THE MATTER OF** **Indraprastha Power Generation Company Limited**  
Regd. Office "Himadri", Rajghat Power House Complex,  
New Delhi – 110 002  
**PETITIONER**

THE APPLICANT ABOVE NAMED RESPECTFULLY SUBMITS

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## Chapter 1 : Background

This Chapter deals with the background for this Petition.

### 1.1 Introduction

The Electricity Act, 2003 was notified on 10<sup>th</sup> June, 2003 repealing the Indian Electricity Act-1910, the Electricity (Supply) Act, 1948 and the E.R.C. Act, 1998. Among the tariff related provisions, the State Electricity Regulatory Commission (SERC) has to be guided by National Electricity Policy, National Tariff Policy and Central Electricity Regulatory Commission (CERC). As per Section 86 (1)(a) of the Electricity Act, the State Commission shall discharge the function of determining the tariff for generation, supply, transmission and wheeling of electricity, wholesale, bulk or retail as the case may be within the state. The generation, transmission and distribution tariff have to be determined separately.

The Section 61 of the Electricity Act, 2003 provides as under in respect of Tariff Regulations:

***“The Appropriate Commission shall, subject to the provisions of this Act, specify the terms and conditions for the determination of tariff, and in doing so, shall be guided by the following, namely:-***

***(a) the principles and methodologies specified by the Central Commission for determination of the tariff applicable to generating companies and transmission licensees;***

***(b) the generation, transmission, distribution and supply of electricity are conducted on commercial principles;***

***(c) the factors which would encourage competition, efficiency, economical use of the resources, good performance and optimum investments;***

***(d) safeguarding of consumers' interest and at the same time, recovery of the cost of electricity in a reasonable manner;***

***(e) the principles rewarding efficiency in performance;***

***(f) multi year tariff principles;***

***(g) that the tariff progressively reflects the cost of supply of electricity and also, reduces cross-subsidies in the manner specified by the Appropriate Commission;***

***(h) the promotion of co-generation and generation of electricity from renewable sources of energy;***

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***(i) the National Electricity Policy and tariff policy:***

***Provided that the terms and conditions for determination of tariff under the Electricity (Supply) Act, 1948, the Electricity Regulatory Commission Act, 1998 and the enactments specified in the Schedule as they stood immediately before the appointed date, shall continue to apply for a period of one year or until the terms and conditions for tariff are specified under this section, whichever is earlier."***

The Delhi Electricity Regulatory Commission (hereinafter referred as "Commission") has notified "Delhi Electricity Regulatory Commission (Terms and Conditions for Determination of Generation Tariff ) Regulations, 2011" on 02.12.2011, specifying the terms and conditions for determination of tariff for the control period FY 2012-13 to FY 2014-15. Hon'ble Commission has further extended the principles of MYT control period FY 2012-13 to 2014-15 to the next FY 2015-16.

Petitioner is submitting this petition for approval of the Aggregate Revenue Requirement (ARR) for the Control Period from FY 2015-16 and truing up for the previous years of current MYT from FY 2012-13 to FY 2013-14 and approval of revised estimate for 2014-15. The petitioner has sought certain relaxations in parameters as specified in the MYT Regulations. It is prayed that the Hon'ble Commission may kindly invoke its power of relaxation wherever requested in the petition.

Petitioner is filing this petition without prejudice to its right to challenge the "Delhi Electricity Regulatory Commission (Terms and Conditions for Determination of Generation Tariff) Regulations, 2011" and petitioner in fact have challenged certain provisions of above regulation in Hon'ble High Court of Delhi wide writ petition 2903 Of 2013. The matter is under process of hearing by Delhi High Court.

## **1.2 Brief Company Profile**

"Indraprastha Power Generation Company Limited" (IPGCL) is a Government Company engaged in Power Generation and is wholly owned by the Government of National Capital Territory of Delhi. Pursuant to the provisions of the Delhi Electricity Reforms Act, 2000, the Government of National Capital Territory of Delhi undertook the reform and restructuring of the erstwhile Delhi Vidut Board (DVB),

which was implemented through a statutory transfer scheme. The Transfer Scheme provided for unbundling of the functions of Delhi Vidyut Board and the transfer of existing transmission assets of DVB to Delhi Transco Limited and distribution assets to three Distribution Companies. Further, all the assets, liabilities, rights and interest of DVB in the Indraprastha Power Station, Rajghat Power House and Gas Turbine Power Station were transferred to IPGCL.

The Indraprastha Power Generation Company Limited (IPGCL) has three power plants out of which two are operational power plants and one other closed plant is under disposal, as per under mentioned details:

1. Rajghat Power House (RPH) has a total capacity of 135 MW with two units of 67.5 MW each using coal as primary fuel. The station was set up in the year 1989-90. In view of environment constraints, the station is proposed to be closed down in the near future.
2. Gas Turbine Power Station (GTPS) with a total capacity of 270 MW having six gas turbines of 30 MW each, using NG/RLNG as fuel and three Waste Heat Recovery Steam Turbines of de-rated capacity of 30 MW each. The gas Turbines of the station were set up in the year 1985-86 to meet the peak load demand of Delhi. The station was retrofitted with Steam Turbines in the year 1996.
3. Indraprastha Power Station (IP) had a total capacity of 247.5 MW with three units of 62.5 MW each and one unit of 60 MW capacity using coal as fuel. The station was closed down on 31.12.2009.

## Chapter 2 : Submissions

This Chapter deals with the modality of making submissions to the Hon'ble Commission in support of the Prayers.

### 2.1 Submission Plan

IPGCL proposes to make submissions to the Hon'ble Commission in support of this Petition as under:

- Operational Parameters
- Financial Parameters
- Capital Expenditure Plan
- Prayer

Detailed submissions on each of the above are made in the Chapters to follow.

### 2.2 Brief of Submissions

Petitioner hereby seeks the approval of the Hon'ble Commission for the generation tariffs, operational and financial parameters for its generating stations with certain relaxation in current MYT Regulations as well as MYT Regulations, 2011 for control period FY 2012-13 to FY 2014-15 and extended period of 2015-16. It is submitted that the detailed reasons and justifications for not meeting the operational norms in regard to auxiliary power consumption, availability, station heat rate and O&M costs have been given in the petition. The petitioner has also drawn the attention of the Hon'ble Commission in its earlier submissions, on the difficulties faced by it in meeting the norms. Accordingly, the reasons for deviations are beyond the control of the petitioner. Petitioner therefore requests the Hon'ble Commission to give due considerations to the following facts while evaluating the present tariff petition:

- Stations of IPGCL being relatively old in age cannot achieve the approved technical and financial performance parameters. Rajghat Power House is proposed to be closed down in the near future. Affect of age on the performance parameters of the power stations has been well recognized by various Regulatory Commissions including CERC. CEA has also recognized un-avoidable affect of age on the performance of the generating stations and has recommended liberal norms in line with the actual performance while approving the station parameters for any aged plant. CEA

further recognizes that the operation efficiency or heat rate and other performance parameters of a Thermal Power Station depends on a number of factors which can be broadly classified as under:-

- a) Technology and equipment
- b) Ambient Conditions
- c) Fuel Quality
- d) Plant operation and maintenance practices.
- e) Unit Sizes

Further, the National Tariff Policy provides that ***“in case where operations have been much below the norms for many previous years, the initial starting point in determining the revenue requirements and the improvement trajectories should be recognized at “relaxed” levels and not the “desired” levels”***

- The Petitioner further submits that IPGCL is already cutting corners on employee cost. As prayed in earlier petitions also that despite the fact that the Company has inherited sizeable number of employees, resulting in substantial wage bill for the Company, efforts have been made by the Company to optimize the manpower cost. In this pursuit, VRS was given to the 383 employees in 2003, 101 employees in FY 2007-08 and 328 employees in FY 2009-10.
- It is submitted that the salaries and other incentives paid by the company to its employees are at par with the other departments of Government of Delhi and it is legal binding on the company to follow the same as per the tripartite agreement with the workers. It is pertinent to mention that DA of the employees has increased substantially in past years due to high inflation rate. The DA on salaries of employees have now been increasing by 14% - 18% annually. Therefore, the petitioner requests the Commission to adopt a relaxed and realistic approach for the employee expenditure, keeping in view the obligation of the organization towards its employees.

- Petitioner is presently having 11 No of units with total installed capacity of 405 MW. The Repair & Maintenance expenditure would be relatively high due to the small size of the units and their poor condition at the time of takeover due to unbundling of DVB. The Repair & Maintenance will result into improved capacity utilization and further improve the operating parameters of the station.
- It is submitted that RPH is going to complete its useful life of 25 years in May, 2015. However total accumulated depreciation till date has been only 69%. The plant is to be depreciated up to 90% at the end of useful life. But plant is proposed to be closed down with Provision of Transmission and Evacuation facility near RPH to transmit and distribute power in Central Delhi. This was decided in a meeting chaired by Chief Secretary, GNCTD on 18.03.2014 to provide separate transmission line within 2 years. PGCIL (Power Grid Corporation of India Ltd.) has been entrusted to erect and Commission 400KV GIS (Gas Insulated Station) substation near RPH. The foundation stone of the same has been laid in December 2014 and project is to be completed in FY 2016-17. Therefore, it is anticipated that RPH will be closed down in FY 2016-17. Accordingly, in order to avoid burden of balance depreciation in the year 2016-17 only, the petitioner requests Honorable Commission to allow the remaining amount of depreciation up to the value of 90% during FY 2015-16 and FY 2016-17 proportionally. Similarly, GTPS has already completed its useful life of 25 years in 2011. However, the depreciation recovered by FY 2014-15, in line with Regulations, is not 70% of the asset value, even after operation of 29 years. Therefore, the Petitioner had requested in its petition for determination of tariff for FY 2012-13 to FY 2014-15 to consider and allow relaxation in the depreciation norms; and allow to recover the remaining depreciation up to 90% during FY 2012-13 to FY 2014-15. However, Commission has not considered the same while issuing tariff order for previous years of current MYT. Petitioner therefore, humbly requests Honorable Commission to allow recovery of balance of Depreciation up to 90% of book value during FY 2015-16 both for RPH and GTPS.

It is further to submit that in the MYT Tariff Regulation, 2011, the return on equity has been fixed at 14%. It is humbly submitted that the Honorable Commission has fixed the pretax base rate of 15.5% in draft Generation Tariff Regulation, 2011 in line with Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009. However, the Honorable Commission has reduced the rate of return on equity to 14% in the final "Delhi Electricity Regulatory Commission (Terms and Conditions for Determination of Generation Tariff) Regulations, 2011". Even other state Commissions such as Maharashtra Electricity Regulatory Commission has kept the rate of return on equity at 15.5% for generation. It is prayed that the norm of rate of return on equity may kindly be relaxed and increased to 15.5% from 14% in line with the CERC Regulations, 2009 and 2014. Further, Hon'ble Commission while issuing the tariff order for previous years of current MYT period has not grossed up the recoverable Income-tax though the recovery of income-tax from the beneficiary becomes the part of the sales hence the further income-tax is also levied on the base income-tax. Based on the same input Central Electricity Regulatory Commission has also allowed grossing up of Income-tax in its generation tariff regulation, 2009 for the period FY 2009-10 to 2013-14 and also in its generation tariff regulation 2014 for the period FY 2014-15 to 2018-19. The relevant extract of CERC generation tariff regulation, 2009 is reproduced as under "The relevant extract is as under:

*"(3) The rate of return on equity shall be computed by grossing up the base rate with the normal tax rate for the year 2008-09 applicable to the concerned generating company or the transmission licensee, as the case may be:*

*Provided that return on equity with respect to the actual tax rate applicable to the generating company or the transmission licensee, as the case may be, in line with the provisions of the relevant Finance Acts of the respective year during the tariff period shall be trued up separately for each year of the tariff period along with the tariff petition filed for the next tariff period.*

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

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

*Where t is the applicable tax rate in accordance with Clause (3) of this regulation.*

Further, CERC in its generation tariff regulation, 2014 has also grossed up the rate of return of income-tax, the relevant extract of the same is reproduced as under:

**“25. Tax on return on equity**

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

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

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

Where “t” is the effective tax rate in accordance with Clause (1) of this regulation and shall be calculated at the beginning of every financial year based on the estimated profit and tax to be paid estimated in line with the provisions of the relevant Finance Act applicable for that financial year to the company on pro-rata basis by excluding the income of non-generation or non-transmission business, as the case may be, and the corresponding tax thereon. In case of generating company or transmission licensee paying Minimum Alternate Tax (MAT), ‘t’ shall be considered as MAT rate including surcharge and cess.

**Illustration:-**

- (i) In case of the generating company or the transmission licensee paying Minimum Alternate Tax (MAT) @ 20.96% including surcharge and cess:  
Rate of return on equity =  $15.50 / (1-0.2096) = 19.610\%$
- (ii) In case of generating company or the transmission licensee paying normal corporate tax including surcharge and cess:
  - (a) Estimated Gross Income from generation or transmission business for FY 2014-15 is Rs.1000 Cr.
  - (b) Estimated Advance Tax for the year on above is Rs. 240 Crore.
  - (c) Effective Tax Rate for the year 2014-15 = Rs. 240 Crore / Rs.1000 Crore = 24%.
  - (d) Rate of Return on equity =  $15.50 / (1-0.24) = 20.395\%$ .

(3) The generating company or the transmission licensee, as the case may be, shall true up the grossed up rate of return on equity at the end of every financial year based on actual tax paid together with any additional tax demand including interest thereon, duly adjusted for any refund of tax including interest received from the income-tax authorities pertaining to the tariff period 2014-15 to 2018-19 on actual gross income of any financial year. However, penalty, if any, arising on account of delay in deposit or short deposit of tax amount shall not be claimed by the generating company or the transmission licensee as the case may be. Any under-recovery or over-recovery of grossed up rate on return on equity after truing up, shall be recovered or refunded to beneficiaries or the long term transmission customers/DICs as the case may be on year to year basis. "

It is further submitted that loan funds and Equity Funds of the Company being much less as compared to the new power plants of similar capacity, the amount of interest on loans and Return on Equity of the company are also much less as compared to the new power plants. Further petitioner has made certain capital additions from FY 2012-13 to FY 2014-15 and projected the capital additions for FY 2015-16. The Hon'ble Commission has already approved the Capital additions from FY 2012-13 to 2014-15. Besides, Company has incurred certain other capital

expenditure to meet the exigencies and for smooth operation of the Company. The Hon'ble Commission is requested to true- up the Capital additions made by the Company from FY 2012-13 to 2014-15 and approve the projections of capital additions for FY 2015-16.

- a. It is submitted that SLDC Delhi has been backing down the generation of the stations depending on the requirement of power in Delhi. The Gas Turbine Station consists of three blocks. SLDC Delhi has been giving instructions to back down the blocks partially, thus resulting in non optimization of fuel consumption and higher Heat Rate and Auxiliary Power Consumption. **Therefore, Hon'ble Commission is requested to direct SLDC Delhi to back down any of the complete block of the station only and not partially. Further, it is requested that frequent backing down should not be resorted by SLDC.**
- b. As submitted above, Rajghat Power Station is proposed to be closed down in near future. In view of its proposed closure, no major repair and maintenance activities are being undertaken in the station and only need based maintenance is being carried out by the petitioner to keep the plant operational. The petitioner is filing the tariff petition for Rajghat Power Station for further period of FY 2015-16, in view of uncertain date of its closure. The petitioner prays for allowing the relaxed norms to the level of actual norm achieved by the station as a fait- accompli.
- c. The Hon'ble Commission has extended the principles of MYT control period FY 2012-13 to 2014-15 to the next FY 2015-16. It is submitted that CERC has issued Central Electricity Regulatory Commission (Terms and Conditions of Tariff), Regulations, 2014. The Central Commission has modified number of parameters in the regulations. DERC MYT Regulations were framed in the year 2011 for the control period from FY 2012-13 to FY 2014-15. It may be appreciated that various circumstances and applicable principles

have now changed. Hence, the principles as mentioned in the MYT Regulations cannot be extended in Toto for the financial year 2015-16. Among the tariff related provisions, the State Electricity Regulatory Commission (SERC) has to be guided by National Electricity Policy, National Tariff Policy and CERC Regulations. It is submitted that the extension of the principles of MYT Regulations for FY 2015-16 is detrimental to the interest of the Company on number of aspects. It is prayed that the norms for FY 2015-16 may kindly be taken in line with new CERC Tariff Regulations 2014.

- d. The petitioner prays to the Hon'ble Commission to consider and relax the operational and financial parameters as requested in the petition as per clauses 7.5, 11.10, 11.14 of the MYT Regulations, 2011, in view of its practical difficulties which are beyond its control. The relevant clauses of the regulations are reproduced as under:

**Clauses of MYT Regulations, 2011**

***"7.5 The Commission may prescribe relaxed operational norms including the norms of Normative Annual Plant Availability Factor contained in these Regulations for a generating station, and these relaxed norms shall be applicable for determination of tariff for such generating station during the Control Period.***

***Power of Relaxation***

***11.10 The Commission may in public interest and for reason to be recorded in writing, relax any of the provision of these Regulations.***

***Power to Amend***

***11.14 The Commission, for reasons to be recorded in writing, may at any time vary, alter or modify any of the provision of these Regulations by amendment."***

## Chapter 3 : Estimation of Plant wise Variable & Fixed Cost

### 3.1 Estimation of Variable Cost

#### 3.1.1 Norms for Operation

Petitioner has taken into consideration actual performance parameters for FY 2012-13 to 2014-15 and based on these, petitioner has projected the parameters for FY 2015-16.

Petitioner requests the Hon'ble Commission to take lenient and practical view while truing up for the period FY 2012-13 to 2013-14, approval of revised estimates for FY 2014-15 and fixing the operational targets for Control Period FY 2015-16, considering the factors of technological obsolescence, aging of the stations and principles considered by Hon'ble CERC in its tariff regulation-2014 for MYT Year From FY 2014-15 to FY 2018-19.

#### Availability

The actual & proposed Availability parameters for various stations of IPGCL are summarized in the under mentioned table 1.

**Table 1: Availability (%)**

Generating Station	12-13	13-14	14-15 (Upto Dec.)	15-16 (Estimated)
Rajghat Power Station	66.94	65.77	61.12	75
Gas Turbine	84.22	86.94	66.11	80

#### **I.P. Station**

The station was more than 40 years old and has been closed down on 31.12.2009. Earlier, Petitioner has submitted true up petition for FY 2007-08 to 2011-12 for IP Stn. and the Commission vide its order dt. 31.07.2013 has trued up Rs.175.41 Cr. to be recovered by Petitioner due to approval of additional expenditure on various heads during the period by the Commission. However, Hon'ble Commission has not allowed to recover above amount from DISCOMs and have noted as under:

*"3.92 However, as discussed earlier the same shall be allowed to be recovered once all the assets of IP Stn. are disposed off and the final amount of realization from sale of assets including land gets firmed up.*

*3.93 The Petitioner is directed to inform the Commission once the IP Station is completely disposed off and submit the details of assets disposed off along with salvage value realized on account of sale of assets.*

*3.95 However, as discussed earlier the same shall be allowed to be recovered once all the assets of IP Station are disposed off and the final amount of realization from sale of assets including land gets firmed up."*

Further, as directed vide above order petitioner had submitted its reply vide letter No. IPGCL/Comml./IDRA/07-12/178 dt. 30.10.2013 and requested Hon'ble Commission not to link the recovery of above amount with final disposal of IP Stn. and the land due to following reasons:

1. The amount allowed by Hon'ble Commission after truing up is related to O&M expenses, depreciation, interest on loans, return on equity, interest on working capital allowed on account of relaxed norms considered for IP Station. Due to implementation of impact of various courts orders, actual operational conditions accepted and allowed by Hon'ble Commission in this regard. Therefore, Hon'ble Commission's decision to link above recovery with final asset disposal and land disposal is not justified.
2. The land was on a lease with notional lease rental. Therefore, no actual disposal / sale of the land is possible. The accumulated depreciation of the IP Station up to the date of closure as allowed by Hon'ble Commission was not up to 90% of depreciation of the original cost of the assets as allowed in MYT regulation, 2007. Accordingly, Petitioner has requested Hon'ble Commission to depreciate the assets up to 90% in FY 2009-10. However, the Commission did not allow depreciation up to 90% with the remarks as under :

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***"3.74 The Commission has further considered the impact of additional capitalization while computing depreciation. However, with regards to the Petitioner's claim of balance depreciation to the extent of 90% of the GFA value, the Commission is of the view that the issue shall be dealt with once the assets of IP Stn. gets disposed off. The commission has therefore only allowed depreciation by applying depreciation rates as specified in the DERC MYT Regulations, 2007 on the opening GFA for the year and on assets added during the year. Accordingly, the depreciation as approved by the Commission in its MYT Order dated December 14, 2007, as requested by the Petitioner and that allowed by the Commission."***

Since the additional information have already been submitted by petitioner in this regard, therefore, the petitioner requests the Hon'ble Commission not to link the recovery of Rs.175.41 Cr. With final disposal of assets and land of IP Stn and allow the petitioner to allow above amount along with additional cost due to trued up and further submission by petitioner vide its letter dt. 30.10.2013.

### **Rajghat Power House**

In case of RPH petitioner may like to submit that earlier the Hon'ble Commission has approved the availability of 70% for FY 2011-12. However, the Hon'ble Commission has fixed the target availability of 75% for FY 2012-13 to 2014-15 and extended period of 2015-16. It is submitted that the average availability during the control period is 64.61% which is much below the target availability during the period. Higher availability of 75% as fixed by the Hon'ble Commission during the present control period is not achievable and justified. Station is proposed to be closed down in near future and no major expenditure on R&M is being incurred. Only need based maintenance is being carried out for sustained operation of the machines. The fixing of higher targets is unrealistic and unjustified.

**In view of the above, the petitioner requests the Hon'ble Commission to relax and approve the availability of 70% for recovery of full fixed cost for FY 2012-13 to FY 2014-15 and extended period 2015-16.**

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### Gas Turbine Power Station

Petitioner submits that in MYT Regulations, 2011, target availability for the Control period FY 2012-13 to FY 2014-15 and extended period for FY 2015-16 has been fixed at 80%. However, the actual availability the actual availability achieved by the station during FY 2012-13 to 2014-15 is as under:

**Table 2 : Availability (%) of GTPS**

Financial Year	Availability (%)
2012-13	84.22
2013-14	86.94
2014-15(up to Dec.14)	66.11

Thus, average availability (%) achieved by the station during the Control period is around 79.09%. The availability of the station has been varying since its inception.

Further, it is submitted that Central Electricity Regulatory Commission has appreciated to recognize the life cycle of 15 years for Gas Turbines. The CERC has fixed the norm of 72% availability for similar station like Assam Gas based Station for the period FY 2014-15 to 2018-19 based on the average of actual availability achieved during the previous MYT period FY 2009-10 to 2013-14. It is further submitted that CERC while fixing the operational parameters has adopted the principle of average performance during previous MYT period and not the best of the parameters during that period. The petitioner would like to mention that the Gas Turbines of the station are more than 28 years old and no major Renovation and Modernization of the station has been undertaken so far. The Hon'ble Commission is requested to retain the normative availability of 70% for recovery of full fixed cost, based upon the principles adopted by CERC.

**In view of the above, Petitioner submits that it will make all out efforts to optimize the availability of the station. It submits that it will not claim any incentive as per the regulations upto the level of 80% availability, in case the Hon'ble Commission relaxes the availability norm to 70% for recovery of fixed cost.**

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**In view of the above, Petitioner requests the Hon'ble Commission to relax the target availability for the Gas Turbine Power Station and allow the availability as achieved during FY 2012-13, 2013-14 and 2014-15 and allow 70% target availability in FY 2015-16.**

### **Station Heat Rate**

The actual & proposed Station Heat Rate parameters for various stations of IPGCL are summarized in the under mentioned table 3.

**Table 3 : Station Heat Rates (kCal/kWh) for IPGCL Stations**

SHR (kCal/kWh)	2012-13	13-14	14-15	15-16
	Actual	Actual	Actual(up to Dec)	Estimated
Rajghat Power Station	3317	3381	3359	3248
GT Power Station (Combined Cycle)	2439	2416	2515	2500
GT Power Station (Open Cycle)	3449	3442	3507	3440

It is submitted that aging of the machines plays a major role, whereby the plants are not in a position to operate at its full rated capacity due to technical constraints which further affects the station heat rate as well as auxiliary power consumption. The actual SHR achieved by various stations of IPGCL vis-à-vis approved by Hon'ble Commission have been shown in the under mentioned Table 4.

**Table 4 : SHR (Approved vs. Actual)**

Generating Station	SHR (kCal/kWh) FY 2010-11			
	Approved	Actual		
		12-13	13-14	14-15(up to Dec)
Rajghat Power Station	3200	3317	3381	3359
Gas Turbine (Combined cycle)	2450	2439	2416	2515
Gas Turbine (Open Cycle)	3125	3449	3442	3507

**Rajghat Power House:**

The Hon'ble Commission has approved the station heat rate of 3200kCal/kWh which is below than the level achievable by the station.

It is submitted that CEA has recognized that the operation efficiency or heat rate and other performance parameters of a Thermal Power Station depends on a number of factors which can be broadly classified as under:-

- a) Technology and equipment
- b) Ambient Conditions
- c) Fuel Quality
- d) Plant operation and maintenance practices.
- e) Unit Sizes

The station was commissioned in the year 1989-90. The station is around 25years old. As submitted above, the station is to be closed down in the near future due to environmental concerns. Therefore, in the station no major R&M activities is being carried out and only need based maintenance is being carried out. Petitioner therefore requests Hon'ble Commission to allow additional Rs. 6.9833 lakh / MW / year separate compensation in addition to normal O&M in line with Clause 6.15 of the DERC Regulation, 2011, to meet out requirement of renovation & modernization expenditure for FY 2015-16.

Further, as per the instruction of Hon'ble Commission, the Performance Test to determine the Station Heat Rate of the Units was conducted by M/s CenPEEP, NTPC Limited. The Tests were conducted under the following conditions:

- a) Unit operation was kept steady for two hours prior to and during the tests.
- b) Tests conducted at rated load at nominal operating parameters to the extent possible
- c) No furnace soot blowers or air heater soot blowers were operated during the test.
- d) Main steam Pressure and Temperature were maintained as close as possible to the design values.
- e) Auxiliary PRDS steam flow was kept isolated for the unit being tested.

- f) Continuous blow down and intermittent blow down was kept isolated and not operated during the test.
- g) Unit1 HP heaters 1&2 were not in service during the tests due to suspected tube leakage. Unit 2 all FW Heaters were kept in service with normal drip cascading.
- h) No mill changeover was done during the test and the test is conducted without any oil support.
- i) Economizer hopper de-ashing was not done during the test.
- j) Bottom hopper de-ashing was done prior to the test stabilization period and thereafter immediately after the test.

The achieved unit heat rate is 3050 kCal/kWh for Unit#1 and 3220 kCal/kWh for Unit#2 under the above conditions. The average station heat rate computes to 3135 kCal/kWh in the above conditions.

It is mentioned in the report that the average Heat Rate for the units would be higher than the Test Heat rate on account of following conditions:

- Parametric deviations (e.g. steam pressure & temperatures)
- Variation in coal quality
- Operation of soot blowers, Water/steam leakages, CBD/IBD operation
- Partial loading, unit startups/ shutdowns
- Changes in ambient operating conditions (Ambient temp. & CW inlet temp.)
- Deterioration in equipment performance between an overhaul to next overhaul

The copy of CenPEEP report has already been submitted to Hon'ble Commission during true up of previous MYT period. The Hon'ble Commission in its Order dated 26.08.2011 has analyzed the report prepared by NTPC-CenPEEP for performance test of the units of RPH. The station heat rate achieved by the Unit 1 and Unit 2 of the Rajghat Power House was 3049.8 kCal/kWh and 3220.1 kCal/kWh. The Hon'ble Commission has observed from the report that boiler efficiency of Unit No.2 was low on account of high moisture in fuel and loss due to carbon mono oxide, which are temporary phenomena due to improper burning of coal. Therefore, the

performance of the Unit No. 2 has been considered at the same level of Unit No.1 i.e 3049.8 kCal/kWh. The Hon'ble Commission has applied a margin of 5% only on site operating conditions on 3049.8 kCal/kWh and the station heat rate for the RPH was worked out to 3202 kCal/kWh. The Hon'ble Commission has accordingly restricted the station heat rate to 3200 kCal/kWh.

It is submitted that the Hon'ble Commission has considered the margin of 5% only. However, actual heat rate during FY 2012-13, 2013-14 has been more than as allowed by Hon'ble Commission due to following reasons:

1. Variation in percentage of make-up water due to frequent stop and start on account of backing down.
2. Variation in quality of coal.
3. Variation in cooling water temperature.
4. Variation in back pressure of steam turbine.
5. Frequent bottom ash cooling due to high ash content in the coal.
6. Increased frequency of boiler blow downs due to poor raw water quality.
7. Frequent changeover of mills due to poor conditions of mills.
8. Operation of soot blowers.
9. Leakage of water and steam due to ageing of pipes.

**The petitioner requests the Hon'ble Commission to true- up and allow the actual heat rate for Rajghat Power House for FY 2012-13 to 2014-15 and the proposed heat rate of 3248kCal/kWh for FY 2015-16.**

#### **Gas Turbine Power Station**

The Hon'ble Commission has approved the station heat rate of 2450 kCal/kWh in combined cycle operation and 3125kCal/kWh in open cycle mode for the Gas Turbine Power Station which is below the level achievable by the station. The heat

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rate achieved during FY 2012-13 to 2014-15 and proposed by the Station during FY 2015-16 is as under:

**Table 5 : Heat Rate of Gas Turbine Power Station**

Mode	12-13	13-14	14-15 ( up to Dec)	15-16 (Estimated)
Combined Cycle mode (kCal/kWh)	2439	2416	2515	2500
Open Cycle mode (kCal/kWh)	3449	3442	3507	3440

It is submitted that the turbines of the station are of 30 MW size and more than 25 years old. The STGs of IPGTPS were installed after retrofitting of waste Heat Recovery modules by M/s BHEL, after operation of GTs in open cycle mode for around 10 Years. It may be appreciated that retrofitting of the machines by any supplier other than by the supplier of GTs will have inherent problems.

The guaranteed heat rate in simple cycle mode is 11688 kJ/kWh on NCV at compressor inlet temperature of 15°C and atmospheric pressure of 1.019 BAR. The guaranteed heat rate at site conditions of 31.5°C is approximately 3188 Kcal/Kwh. Further, taking into account the correction factor of 5.70% on the guaranteed heat rate as recommended by the CEA, the corrected heat rate for simple cycle mode works out to 3370 kCal/kWh.

It is further submitted that CEA has also recommended technical standards on operational norms on Gas Turbine stations in their report of December, 2004. As per the recommendations, following simple cycle heat rate has been prescribed in reference to capacity of Gas Turbine applicable to IPGTPS.

**Table 6 : Recommendation of Heat Rate by CEA in 2004**

Capacity of GTs	Simple Cycle Heat rate (Kcal/Kwh)	
	Age less than 10 years	Age more than 10 years
Gas Turbines with Capacity less than 30 MW	3500	3550
Gas Turbines with capacity 30 MW or more but less than 100 MW	3200	3250

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CEA has also recognized that the operation efficiency or heat rate and other performance parameters of a Thermal Power Station depends on a number of factors which can be broadly classified as under:-

- a) Technology and equipment
- b) Ambient Conditions
- c) Fuel Quality
- d) Plant operation and maintenance practices.
- e) Unit Sizes

Further, the Central Electricity Regulatory Commission in its latest tariff regulation for FY 2014-19 has fixed a heat rate of 3440 Kcal/Kwh in simple cycle mode for similar Assam gas station of NEEPCO having capacity of 291 MW (6 Gas Turbines of 33.5 MW and 3 STG of 30 MW), even though the station was commissioned in 1995-98. Even under the CERC Tariff Regulations, 2004, the heat rate allowed for this station was at a higher level than as allowed by DERC. Further, the Hon'ble Commission in the tariff Order dated 26.08.2011 for determination of aggregate Revenue Requirement for FY 2011-12 in respect of GTPS has also observed that CERC has provided a heat rate of 3440kCal/kWh for Assam Kathal Guri gas based station. However, the Hon'ble Commission has not admitted the contention of the petitioner on the basis that the station is expected to run in combined cycle mode most of the time and open cycle operation is rare. It is submitted that the station runs in open cycle mode only as and when requisitioned by SLDC, Delhi. Further, CERC in its tariff regulation dt. 21.02.2014 had allowed 3440 kCal/Kwh for Assam GPS for FY 2014-15 to 2018-19. The operation of IPGTPS in open cycle mode during the last four years is as under:-

**Table 7 : Open cycle (%) certified by SLDC**

Year	Net Generation (MU)	Open cycle generation certified by SLDC (MU)	% Open Cycle
2012-13	1268.422	7.111766	0.56
2013-14	1006.792	5.140309	0.51
2014-15 (up to Dec.14)	695.562	10.906382	1.56

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There has been considerable open cycle operation in FY 2012-13 to 2014-15. Even though the operation of IPGTPS is less in open cycle mode, there is a direct loss of around 10% on recovery of fuel cost when operated in open cycle mode. This loss in absolute terms is on higher side. Station will endeavour to run in combined cycle mode but when operated in open cycle mode on the request of SLDC, the station may be allowed higher heat rate of 3440kCal/kWh.

**It is further submitted that two number of Gas Turbines were converted on Liquid Fuel. The Hon'ble Commission has allowed 2% excess heat rate over the allowed operative heat rate for newly set up gas turbine stations operating on liquid fuel. It is requested the Hon'ble Commission to consider and allow 2% excess heat rate over the allowed heat rate for operation on liquid fuel for even existing Gas Turbine Power Station.**

Station Heat Rate of IPGTPS is also on higher side due to frequent backing down during night time by SLDC, resulting in partial operation. The backing down of the station resulted in partial operation of the units. It is further submitted that there has been substantial gap between Availability and PLF of the station due to backing down. The lower PLF has adversely affected the heat rate of the station.

**Table 8 : Comparison of Availability & PLF for GTPS**

<b>Year</b>	<b>Availability (%)</b>	<b>PLF (%)</b>
<b>2012-13</b>	84.22	55.29
<b>2013-14</b>	86.94	44.01
<b>2014-15(up to Dec)</b>	66.11	40.48

It is very much evident that PLF has been on lower side as compared to availability which further affects the station heat rate and auxiliary power consumption of the station.

It is submitted that since, heat input is same for de-rated capacity of STGs, the combined cycle heat rate will be impacted and need to be revised accordingly.

The petitioner would like to mention that the Gas Turbines of the station are more than 28 years old and no major Renovation and Modernization of the station has been undertaken so far.

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**In view of the above, the Hon'ble Commission is requested to relax and true- up the actual heat rate achieved by the Station in Combined Cycle mode and Open cycle mode for the MYT period 2012-13 to 2014-15. It is further requested to allow the heat rates of 2500 kCal/kWh in combined cycle mode & 3440 kCal/kWh in open cycle mode for FY 2015-16.**

#### **Prayer in respect of Partial Backing Down of GTPS**

It is submitted that SLDC Delhi has been backing down the generation of the stations depending on the requirement of power in Delhi. IPGTPS consist of three blocks; each block consists of two Gas Turbines and one steam turbine. The capacity of each gas turbine is 30 MW and de-rated capacity of each steam turbine is also 30 MW. IPGTPS has been serving the dual purpose of base load as well as peaking load. Many times, SLDC Delhi has been giving instructions to back down the blocks partially, thus resulting in non optimization of fuel consumption. The variation of backing down is enormous depending upon the load curve during the day, change in weather conditions. This partial backing down of the blocks further increases the heat rate and auxiliary power consumption.

**Therefore, Hon'ble Commission is requested to direct SLDC Delhi to back down complete block of the station only. Further, it is requested that there should not be frequent backing down. The complete backing down of the block to some extent will help to control the heat rate and auxiliary Power consumption.**

#### **Summary**

The above mentioned reasons for higher heat rate of the stations are beyond the control of the petitioner and therefore, the petitioner requests the Commission to adopt more liberal approach.

The petitioner prays to the Hon'ble Commission to approve the SHR levels as proposed in this petition keeping in view:

- A) Old age and technology of the stations.
- B) Practical difficulty in achieving lower SHR, as reflected in various technical reports.

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C) Various Hon'ble ATE rulings, CEA guidelines and CERC regulations

It is also important to mention here that as per the report of CEA for technical standards for operations of the thermal plants (2004) the poor performance of the older units are due to various reasons attributable to basic design deficiencies, lack of appropriate R&M, aging, coal quality, deterioration etc,

### **Auxiliary Power Consumption**

The achieved parameter of the Auxiliary power Consumption by the stations of IPGCL during the control period FY 2012-13 to 2014-15 estimated parameter for FY 2015-16 are summarized in the under mentioned table 9.

**Table 9 : Auxiliary power Consumption (%) for IPGCL Stations**

Description	12-13	13-14	14-15 ( up to Dec)	15-16 (Estimated)
<b>Rajghat Power Station</b>	13.27	15.16	15.02	12.50
<b>GT Power Station</b>	3.01	3.28	3.59	3.59

### **Rajghat Power House**

It is submitted that the Hon'ble Commission has fixed the norm of 11.28% for the auxiliary power consumption of the station during the current MYT control period as well as in the next control period. The Auxiliary Power Consumption achieved by the Station during the control period FY 2012-13 to 2014-15 are summarized in under mentioned table 10.

**Table 10 : Auxiliary Power Consumption of Rajghat Power House**

	12-13	13-14	14-15(up to Dec)	15-16 (Estimated)
Auxiliary Power Consumption (%)	13.27	15.16	15.02	12.50

It is submitted that APC level has been fixed at 11.28% which is much below what can be practically achieved by the Station.

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**The CEA in its Report dated December, 2004 on 'Technical Standard on Operation Norms for Coal/Lignite fired Thermal Power Station' had recommended Auxiliary Power Consumption of 12% for smaller size units with cooling tower. The Rajghat Power House station having two units each of 67.5 MW with cooling towers was commissioned in the year 1989-90.**

It is further pertinent to mention that **Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 for the period FY 2009-14 in the regulation 26 (iv) (b) has approved an auxiliary consumption of 12% for Tanda Thermal Power Station having four units of 110 MW each. Further, Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 for the period FY 2014-19 in the regulation 36 (E) (b) (ii) has approved an auxiliary consumption of 12% for Tanda Thermal Power Station. The Hon'ble Commission has already approved the Auxiliary Power Consumption of 12% for FY 2006-07. Further, due to prolonged backing down, un-productive auxiliary consumption also increases percentage of total auxiliary consumption of the station. The percentage of auxiliary consumption as allowed for RPH relates to the time when backing down due to merit order dispatched was not in the practice and the actual auxiliary consumption of the station was related to actual running up of plants & equipments during generation from the station. However, due to present practice of frequent and prolonged backing downs the station heat rate has increased substantially. The Station is proposed to be closed down in near future. In view of the proposed closure, no major repair and maintenance work including bulk replacement of boiler tubes, could be carried out.**

**Accordingly, the petitioner requests the Hon'ble Commission to true- up the actual auxiliary power consumption as achieved by the station for the Control period from FY 2012-13 to 2014-15 and approve the 12.50% auxiliary power consumption for FY 2015-16.**

#### **Gas Turbine Power Station:**

The Auxiliary Power Consumption achieved by the Station during the control period FY 2012-13 to 2014-15 are summarized in under mentioned table 11.

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**Table 11 : Auxiliary Power Consumption of Gas Turbine Power Station**

	12-13	13-14	14-15( up Dec)	15-16 (Estimated)
Auxiliary Power Consumption (%)	3.02	3.28	3.59	3.59

The Gas Turbines of the station were commissioned in the year 1985-86 and the Waste Heat Recovery Units were retrofitted in the year 1995-96. The STGs of the station are not able to produce the rated output and hence the auxiliary power consumption of the station calculated in terms of percentage over the gross generation of the station increases.

It is further mentioned that due to less system demand, the generation of the station was backed down, resulting in partial operation of the units. **Further, due to prolonged backing down, un-productive auxiliary consumption also increases percentage of total auxiliary consumption of the station. The percentage of auxiliary consumption as allowed for GTPS relates to the time when backing down due to merit order dispatched was not in the practice and the actual auxiliary consumption of the station was related to actual running up of plants & equipments during generation from the station. However, due to present practice of frequent and prolonged backing downs the station auxiliary consumption has increased substantially. This is also evident from difference in availability and PLF of the station .** The year wise availability and PLF of the Station as certified by SLDC has been presented in the following table no 12:

**Table 12 : Comparison of Availability & PLF for GTPS**

Year	Availability (%)	PLF (%)
2012-13	84.22	55.29
2013-14	86.94	44.01
2014-15(up to Dec)	66.11	40.48

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PLF measures the actual generation of the station based upon the scheduled generation whereas the availability measures the capacity of the station to inject the power into the system.

This lower PLF has resulted into higher Auxiliary Power Consumption of the station. It is further submitted that Auxiliary Power Consumption in combined cycle mode is around 3.59% for FY 2014-15. Therefore, **the petitioner requests the Hon'ble Commission to true- up the actual auxiliary power consumption and allow the Auxiliary Power consumption of 3.59% in combined cycle mode for FY 2015-16.**

### 3.1.2 Gross Generation and Net Generation

Based on the Availability and Auxiliary Consumption, the Gross and Net Generation for Gas Turbine Power Station and Rajghat Power House during the Control Period FY 2012-13 to FY 2014-15 as per actual and for FY 2015-16 as projected are as per the under mentioned table :

**Table 13 : Gross and Net Generation**

<b>Rajghat Power Station</b>	<b>12-13</b>	<b>13-14</b>	<b>14-15( up to Dec 14)</b>	<b>15-16(Estimated)</b>
Capacity (MW)	135	135	135	135
Gross Generation(MU)	792.799	379.883	340.427	889.380
Auxiliary Consumption	13.27%	15.16%	15.02%	12.50%
Net Generation (MU)	687.577	322.301	289.282	778.208
<b>GT Power Station</b>	<b>12-13</b>	<b>13-14</b>	<b>14-15( up to Dec 14)</b>	<b>15-16(Estimated)</b>
Capacity (MW)	270	270	270	270
Gross Generation(MU)	1307.834	1040.949	721.429	1897.344
Auxiliary Consumption	3.01%	3.28%	3.59%	3.59%
Net Generation (MU)	1268.422	1006.792	695.562	1829.23
<b>Total IPGCL for Delhi</b>	<b>12-13</b>	<b>13-14</b>	<b>14-15( up to Dec 14)</b>	<b>15-16(Estimated)</b>
Gross Generation(MU)	2100.633	1420.832	1061.856	2786.724
Net Generation (MU)	1955.999	1329.093	984.844	2607.438

**The petitioner humbly requests the Commission to approve the gross and net generation for all the plants during the control period and the fixed cost be allowed to be recovered based on the above generation targets for FY 2015-16.**

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### **3.1.3 Variable Cost for proposed operational parameters**

The proposed variable cost for FY 2015-16 is based on the projected operational parameters, GCV and price of different fuels.

#### **Fuel Cost**

IPGCL plants can be broadly divided as:

- 1. Coal Based Plants:** Rajghat Power Stations
- 2. Gas Based Station:** GT Power Station

#### **Fuel Price**

IPGCL has considered weighted average price of fuels e.g. Coal, Oil and Gas prevailing during the three months of FY 2015-16 i.e. October to December, 2014 in line with the Regulations, 2011. These prices are kept constant for determination of fuel cost for FY 2015-16.

**1. Indigenous Coal/ Washed Coal:** The price of coal is dependent on the distance of the power station from the coal mines. Apart from above, the coal prices also vary from mine to mine depending upon the factors related to the mines, including grade of coal. IPGCL is using washed coal of less than 34% ash content as per the directive of the Hon'ble Supreme Court.

It is submitted that Govt. of India has decided to impose service tax of 3% on the freight charge of coal w.e.f. 01.04.2012. The freight charges constitute around 50% of the landed cost of coal. However, the service tax is not considered but it is requested to the Hon'ble Commission to consider the same.

It is further submitted that Ministry of Coal, Govt. of India has revised the coal prices w.e.f. 01.01.2012. Further, NCL has raised the bills for UP Forest transit fee as per following details :

- NCL has raised the bills of Rs.40,91,64,309.24 for UP forest transit fee (Rs.20,84,04,150.43 for RPH and Rs.20,07,60,158.81 for IP Stn.) for the period from 21.01.1999 to 31.03.2012.

2. IPGCL for its power Station RPH is procuring coal till date from NCL and for IP Stn. (closed on 31.12.2009) coal was procured from NCL.
3. As the claim of UP forest transit fee is a part of variable cost (fuel) the same is required to be claimed from the receptive distribution companies i.e. from Delhi Transco Ltd. For the period from 01.07.2002 to 31.03.2007 and from other DISCOMs i.e. BYPL, BRPL, TPDDL (then NDPL), HVPNL and NDMC from 01.04.2007 to 31.03.2012.

In this regard petitioner may like to submit that IPGCL is further taking up clarification from NCL in this regard. However if payable additional Liability in form of Duty as above will be payable by beneficiaries of IPGCL for Rajghat Power Station for above period.

### **3. Gas**

GT Power Station of IPGCL runs on the Natural Gas being supplied by GAIL and Liquid Fuel supplied by IOCL. The total (APM+PMT+LNG) allocation for GTPS was 1.44 MMSCMD which is sufficient to run six gas turbines. This allocation was reduced to 1.32 MMSCMD during the FY 2006-07. Out of the total allocation of 1.32 MMSCMD, the contracted quantity of R-LNG is 0.60 MMSCMD and balance i.e. 0.72 MMSCMD comes from APM and PMT and these quantities were further subject to daily cuts in the range of 15% depending on the availability. In view of non availability of sufficient gas, Hon'ble Commission has approved the conversion of two Gas Turbines on dual fuel system in FY 2008-09. MoP&NG has further allocated 0.23 MMSCMD non-APM ONGC gas whose supply has been commenced from mid October, 2011.

The Company has an agreement with GAIL for supply of 0.6 MMSCMD R-LNG. As per the agreement with GAIL, the contracted quantity is subject to Take or Pay clause. Accordingly, the Company is to bear the cost of this contracted quantity even if there is no off take of supply. IPGCL is also using spot R-LNG, subject to availability on take and pay basis.

One module of the station has been converted on liquid fuel. The quantum of open cycle generation calculated in terms of percentage is around 1.5% of the total generation of the station in FY 2012-13 to 2014-15. However, the fuel requirement for FY 2015-16 has been computed based upon the type of fuel and

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also the operation of module in combined cycle mode. This fuel consumption is projected on the heat rate of 2500kCal/kWh in combined cycle mode at the gross calorific value of 9695 kCal/SCM for gas and 8946kCal/ltr for liquid fuel.

### 3. Secondary oil

The cost of secondary fuel has been computed based upon the average price and GCV for the months of October to December, 2014 and no escalation has been provided. It is further submitted earlier Hon'ble Commission in its Regulation 2011, and tariff order for RPH for FY 2012-13 to 2014-15 had allowed to secondary fuel oil for RPH for FY 2012-13 to FY 2014-15 as under:

**Table 14 : Norms of Secondary Fuel allowed for RPH**

Parameters	2012-13	2013-14	2014-15
Secondary Fuel Oil (LDO) Consumption (ml/kWh)	1.50	1.50	1.50
Secondary Fuel Oil (LSHS) Consumption (gm/kWh)	3.75	3.75	3.75

The cost of the secondary fuel has been considered as part of fixed cost as per the Regulations, 2011 from FY 2012-13 to FY 2014-15. However, from November, 2011 petitioner is using only HSD in place of LDO and LSHS. The year wise consumption of the same during previous years of current MYT period is furnished as under :

**Table 15 : Actual Secondary Fuel consumption for RPH**

Parameters	2012-13	2013-14	2014-15
Secondary Fuel Oil (HSD) Consumption (ml/kWh)	3.74	5.93	3.23

Hon'ble Commission is therefore requested to allow recovery of HSD charges as secondary fuel as part of fixed charges as per Clause 7.1 (1) of MYT Regulation, 2011. The equivalent normative HSD calculated on weighted average heat content of per unit LDO, LSHS and HSD is 5.876 ml/kWh. The details of the GCV taken for individual fuel and equivalent HSD is tabulated in Table No. 16 as under :

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**Table 16 : Equivalent HSD in lieu of LDO and LSHS**

Sr. No	Secondary fuel used in RPH	Unit	GCV of Secondary fuel (Kcal/ltr, gm)	Sp. Cons. Allowed by Commission (Kcal/kWh)	Sp. HSD Con. Equivalent to LSHS & LDO (ml/kWh)
1	LSHS	MT	10360	3.75	
2	LDO	KL	9027	1.5	
3	HSD	KL	8916		5.876

Petitioner therefore request Hon'ble Commission to allow 5.876 ml/kWh of HSD in lieu of 1.5 ml/kWh LDO and 3.75 gm/kWh LSHS.

**Projected Fuel Cost**

Considering the Gross Generation of the plant, SHR of the station, Gross Calorific Value and the Fuel Prices as explained above, total Fuel cost for each of the station works out as under:

**Table 17 : Variable Cost for RPH  
(for FY 2012-13 to 2014-15 & extended period 2015-16)**

Description	12-13	13-14	14-15 (Upto Dec)	15-16 (Estimated)
Gross Generation (MU)	792.799	379.883	340.427	889.380
Net Generation (MU)	687.577	322.301	289.282	778.208
Coal Consumption (MT)	717153.01	346849.39	310241.72	784548.14
Cost per Tone of Coal(Rs/MT)	3095.82	3331.28	3460	3438
Secondary Oil Consumption- HSD(Kl)	2984.85	2254.56	1100.447	5226
Cost of HSD (Rs/Kl)			62058	61000
Total Cost of Fuel(Rs Crores)	222.02	115.54	107.32	273.00
<b>Variable Cost in Rs/kWh</b>	<b>3.23</b>	<b>3.58</b>	<b>3.61</b>	<b>3.51</b>

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**Table 18 : Variable Cost for GT Power Station**

Description	12-13	13-14	14-15	15-16 (Estimated)
Gross Generation(MU)	1307.834	1040.949	1892.160	1897.344
Net Generation (MU)	1268.422	1006.792	1824.231	1829.229
Gas Consumption				
APM (MMSCM)	182.395	170.780		
Rate/1000SCM	9456.561	10360.146		
Cost of APM Gas (Rs. Crore)	172.483	176.930		
NAPM (MMSCM)	50.709	42.037		
Rate/1000SCM	12961.31	13952.13		
Cost of NAPM Gas (Rs. Crore)	65.725	58.65		
PMT(MMSCM)	21.991	14.917		
Rate/1000 SCM	9418.184	10241.53		
Cost of PMT Gas (Rs. Crore)	20.712	15.277		
R-LNG (MMSCM)	72.497	35.107		
Rate/1000SCM)	24960.46	32339.78		
Cost for R-LNG (Rs.Crores)	180.955	113.54		
Spot R-LNG(MMSCM)	6.276	0		
Rate/1000SCM	39077.32	0		
Cost of Spot-RLNG (Rs. Crore)	24.526	0		
Total Gas Consumption (MMSCM)	333.868	262.841	487.92	489.26
Total Gas Cost (Rs. Crore)	464.40	364.395	680.07	681.93
HSD Consumption (kL)	89.72	20.44	176258	176740

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Rate Rs./kL	28903.38	28897.18	61000.00	61000.00
Cost of HSD (Rs. Crore)	0.25	0.06	1075.17	1078.11
Total Fuel Cost (Rs. Crore)	464.40	346.40	680.07	681.93
<b>Variable Cost in Rs/kwh</b>	<b>3.66</b>	<b>3.62</b>	<b>3.73</b>	<b>3.73</b>

**Note:** No consumption of liquid fuel has been considered in calculation of fuel charges in the above table from FY 2012-13 to FY 2014-15 and for FY 2015-16. However, the station will be required to stock the liquid fuel for contingency, therefore stock of 15 days of liquid fuel has been considered for calculation of Interest on Working Capital.

The copy of computation of variable cost for FY 2015-16 is enclosed as **Annexure-A** and **Annexure-B** for **RPH** and **GTPS** respectively.

The recovery of energy charges shall be in accordance with the formula specified in Generation Tariff Regulations, 2011 which is reproduced as under:

***“7.18 Energy charge rate (ECR) in Rupees per kWh on ex-power plant basis shall be determined to three decimal places in accordance with the following formulae :***

***(a) For coal based stations***

$$ECR = (GHR - SFC \times CVSF) \times LPPF \times 100 / \{CVPF \times (100 - AUX)\}$$

***(b) For gas and liquid fuel based stations***

$$ECR = GHR \times LPPF \times 100 / \{CVPF \times (100 - AUX)\}$$

***Where,***

***AUX = Normative auxiliary energy consumption in percentage.***

***CVPF = Gross calorific value of primary fuel as fired, in kCal per kg, per litre or per standard cubic metre, as applicable.***

***CVSF= Calorific value of secondary fuel, in kCal per ml.***

***ECR = Energy charge rate, in Rupees per kWh sent out.***

***GHR = Gross station heat rate, in kCal per kWh.***

***LPPF = Weighted average landed price of primary fuel, in Rupees per kg, per litre or per standard cubic metre, as applicable, during the month.***

***SFC= Specific fuel oil consumption in ml per kWh***

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**The Hon'ble Commission is requested to true- up the actual Station Heat Rate, Auxiliary Power Consumption, Fuel Consumption and Plant Availability Factor, use of HSD in lieu of LDO and LSHS as per the above submissions for RPH and GTP stations and also approve these parameters as submitted for FY 2012-13 to FY 2014-15 and extended period FY 2015-16.**

### **3.2 Estimation of Fixed Cost**

Total fixed cost for IPGCL for the period FY 2012-13, 2013-14 is based on actual audited accounts, FY 2014-15 is based on projections and for FY 2015-16 is based upon estimate.

Fixed cost calculations consist of the following items:

- a. Operation & Maintenance Expenses
- b. Interest on loan
- c. Depreciation
- d. Return on Equity
- e. Interest on Working Capital
- f. Cost of secondary fuel oil (for coal based stations only)
- g. Income Tax
- h. Special allowance in lieu of R&M or separate compensation allowance, wherever applicable

#### **3.2.1 Operation & Maintenance Expenses**

The Hon'ble Commission in its Generation Tariff Regulations, 2011 has considered the Operation and Maintenance expenses as under:

***“Operation and Maintenance Expenses***

***6.39 Normative Operation and Maintenance (O&M) expenses shall comprise the following:***

- (a) Salaries, wages, pension contribution and other employee costs;***
- (b) Administrative and General costs;***
- (c) Repairs and maintenance; and***
- (d) Other miscellaneous expenses.***

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**6.40 Existing Generating Stations: O&M expenses permissible towards ARR for each year of the Control Period shall be determined using the formula detailed below:**

$$O\&M_n = (R\&M_n + EMP_n + A\&G_n) * (1 - X_n)$$

*Where,*

$$R\&M_n = K * GFA_{n-1};$$

$$EMP_n + A\&G_n = (EMP_{n-1} + A\&G_{n-1}) * (INDX); \text{ and}$$

$$INDX = 0.55 * CPI + 0.45 * WPI$$

*EMP<sub>n</sub> - Employee Costs of the Licensee for the nth year;*

*A&G<sub>n</sub> - Administrative and General Costs of the Licensee for the nth year;*

*R&M<sub>n</sub> - Repair and Maintenance Costs of the Licensee for the nth year;*

*X<sub>n</sub> is an efficiency factor for nth year. Value of X<sub>n</sub> shall be determined by the Commission in the MYT Tariff order based on Applicant's filing, benchmarking, approved cost by the Commission in past and any other factor the Commission feels appropriate.*

*Where,*

*„K is a constant (could be expressed in %). Value of K for each year of the Control Period shall be determined by the Commission in the MYT Tariff order based on Applicant's filing, benchmarking, approved cost by the Commission in past and any other factor considered appropriate by the Commission;*

*INDX - Inflation Factor to be used for indexing. Value of INDX shall be a combination of the Consumer Price Index (CPI) and the Wholesale Price Index (WPI) for immediately preceding five years before the base year;”*

As per the above definition, the base Year is FY 2014-15 and the INDEX in the preceding five years has been computed as 8.85%. Earlier the petitioner has submitted the indexation value as 7.91% for base year FY 2011-12 as per following details :

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**Table 19 : Computation of INDEX for FY 2011-12 base year**

Financial Year	Wholesale Price Index		Consumer Price Index	
	Value	% Change	Value	% Change
FY 2005-06	104.5		117.01	
FY 2006-07	114.4	9.47%	125.0	6.83%
FY 2007-08	116.6	1.92%	133.0	6.40%
FY 2008-09	126.0	8.06%	145.0	9.02%
FY 2009-10	130.8	3.81%	163.0	12.41%
FY 2010-11	143.3	9.56%	180.0	10.43%
<b>Average</b>		<b>6.56%</b>		<b>9.02%</b>
<b>Weight age</b>		<b>0.45</b>		<b>0.55</b>
<b>INDEX</b>	<b>7.91%</b>			

**Table 20 : Computation of INDEX for FY 2014-15 base year**

	CPI	Change(%)	WPI	Change(%)
2008-09	144.83		126.02	
2009-10	162.75	12.37	130.81	3.80
2010-11	179.75	10.45	143.32	9.56
2011-12	194.83	8.39	156.13	8.94
2012-13	215.16	10.43	167.62	7.36
2013-14	236	9.69	177.64	5.98
Average		10.27		7.13
Projection				
2014-15	260.23	10.27	190.30	7.13
2015-16	286.94		203.87	
Esclation Index		8.85		

Thus, the index for base year FY 2014-15 has changed significantly to 8.85% as compared to 7.91% for base year FY 2011-12 taken for determining the tariff for FY 2012-13, 2013-14 and 2014-15.

O & M expenses comprise of Employees Expenses, Repairs and Maintenance, Administrative and General Expenses, Water Charges, etc. The O&M expenses for FY 2012-13 to FY 2013-14 are based on the audited accounts for these periods & for FY 2015-16 are based on estimates.

### **Employees Cost**

Employee expenses comprise of salaries, dearness and other allowances, ex-gratia, contribution towards terminal benefits, leave encashment, staff welfare expenses etc.

However, it is submitted that as per the transfer scheme, the terms and condition of service applicable to the erstwhile employees of Delhi Vidyut Board in the transferee company shall in no way be less favorable or inferior to that applicable to them immediately before the transfer. Their service shall continue to be governed by various rules and laws applicable to them prior to unbundling. The salaries of employees of the company are governed by FRSR structure. The company has to mandatory follow the salary structure as per the FRSR and it has no control over the same. Hence, the increase in dearness allowance has been at par with the increase in Pay & allowances of Government employees. The Government allows two installments of DA every year effective in July and January. Due to high inflation in the past, the DA increased in the range of 14% to 18% during previous years of current MYT period. The average increase in DA of salary of employees was 16.33%.

It is submitted that the headquarters of IPGCL & PPCL are common and the employees posted at headquarters are rendering services to both the companies. The common headquarters is helpful in economizing the expenses for both the companies as well as for providing better facilities. The expenses of employees posted at headquarters are allocated between IPGCL & PPCL in the ratio of 50:50. Further, in case of individual plants of a company same has been allocated in the ratio of installed capacity of the stations.

Petitioner submits to the Commission that any disallowance of employee expenses by the Commission would force IPGCL to borrow funds in order to finance the difference between actual employee cost incurred and Commission approved cost, which would result in significant burden on IPGCL resources, in turn affecting its functioning and development works, resulting in low level of generation.

The petitioner would like to pray to the Hon'ble Commission that salaries/employee cost should be considered as uncontrollable factor. The petitioner would not be in

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the position to disallow these increases as any non payment will be against law/policy.

The Petitioner further submits that IPGCL is already cutting corners on employee cost. As prayed in earlier petitions also that despite the fact that the Company was transferred with sizeable number of employees, resulting in substantial wage bill for the Company, efforts have been made by the Company to optimize the manpower cost. In this pursuit, VRS was given on number of occasions in the past. 383 employees in 2003, 101 employees in 2008 and 328 in 2010 were given VRS. It may be appreciated that the downsizing of manpower by way of any other mode cannot be done in present set-up. Further, the petitioner would like to highlight that the petitioner has not recruited any manpower in B, C, D category.

**Therefore, petitioner requests the Commission to adopt a relaxed and realistic approach for employee expenditure, keeping in view the obligation of the organization towards the employees.**

#### **Repair & Maintenance Cost**

These expenses include expenses on repairs and maintenance of Plant and Machinery, Building, Other Civil works, Hydraulic works, Vehicles, Furniture & Fixtures, Office equipment, etc.

The petitioner would like to reiterate that the R&M expenditure would be relatively high due to the small size of the units and due to old age of the stations. The R&M will result into improved capacity utilization and reliable operation of the station.

#### **Rajghat Power House**

The Unit 1& 2 of Rajghat Power House is under overhauling as per directive of DPCC conveyed to IPGCL vide letter No. F.No.DPCC/WMC-II/2014/T-13/2027 dt. 01.04.2014. The overhauling is to be completed before 01.04.2015. This will involve overhauling of ESP, Boiler, Turbine and Milling system, installation of EP IC Controller and online pollution control system. This overhauling will add up to further over O&M cost of the station and unavoidable capital expenditure to meet out environmental norms. The plant is proposed to be closed with Provision of Transmission and Evacuation facility near RPH to transmit and distribute power in Central Delhi. This was decided in meeting chaired by Chief Secretary, GNCTD on

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18.03.2014 to provide separate transmission line within 2 years before closure of RPH is affected. PGCIL (Power Grid Corporation of India Ltd.) has been entrusted to erect and Commission 400KV GIS (Gas Insulated Station) substation near RPH. The foundation stone of the same has been laid in December 2014 and project is to be completed in FY 2016-17. The petitioner, therefore, requests Hon'ble Commission to allow additional expenditure on account of above expenditure and capital expenditure as a special R&M as per Clause 6.15 of MYT Regulation, 2011.

#### **Gas Turbine Power Station**

It is submitted that in the case of GTPS, Repair and Maintenance expenses are varying on year to year basis because of cyclic nature of maintenance activities of Gas Turbines. Normally, Combustion Inspection is carried out after every 8000 hours, Hot Gas Path Inspection after operation of machines for 24000 hours and Major Inspection after every 48000Hours of Operation of Gas Turbines. In a cyclic period of six years gas turbine will undergo four Combustion Inspections, one Hot Gas Path Inspection, and one major Inspection. The station is having nine units (six Gas Turbines and three steam turbines). The repair and maintenance expenditure will vary on year to year depending on the type of inspection carried out in the machines.

It is further submitted that IPGTPS is having nine number of machines and the major inspection of one Gas Turbine costs around Rs. 12-15 Crore, Hot Gas Path Inspection of one Gas Turbine is around Rs. 6-7 Crore and cost of one Combustion Inspection is around Rs. 2-3 Crore. The petitioner would like to submit that in a cycle of six years, the average repair & maintenance expenditure of the station including various inspections of GTs from time to time, repair & maintenance of STGs, HRSGs, balance of plant, civil work and share of headquarters will be around Rs. 35 Crore.

#### **Special Repair & Maintenance**

##### **Rajghat Power House**

In this regard, petitioner may like to submit that RPH is anticipated to be closed down FY 16-17 or after completion of power evacuation facility near RPH being undertaken by M/s. PGCIL. The station is around 25 years old. The station is to be closed down in the near future due to environmental concerns. Therefore, in the

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station no major R&M activities is being carried out and only need based maintenance is being carried out. However, for smooth operation of the plant some plants & equipments of capital nature is required as per direction of Delhi Pollution Control Committee for installation of SPM control and stack monitoring system. The station was commissioned in the year 1989-90. Petitioner therefore requests Hon'ble Commission to allow additional Rs. 6.9833 lakh/MW/year separate compensation in addition to normal O&M in line with Clause 6.15 of the DERC Regulation, 2011, to meet out requirement of renovation & modernization expenditure for FY 2015-16. Further, petitioner requests Hon'ble Commission to allow separate compensation allowance of Rs. 0.65 lac / MW / year as per Clause No.6.44 of DERC MYT Regulation, 2011 to meet out additional expenditure to meet out expenditure on procurement of new assets of capital nature including in the nature of minor assets. The total expenditure for 2015-16 under Clauses 6.15 & 6.44 will be as under:

**Table 21 : Special allowances for RPH**

Particulars (Rs. Crores)	12-13	13-14	14-15	15-16 (Estimated)
Compensation as per Clause 6.15 on account of Renovation & Modernization	5.1861	5.4827	5.7963	6.1278
Compensation as per Clause 6.44 for acquiring new assets of capital nature.	0.8775	0.8775	0.8775	0.8775
<b>Total</b>	<b>6.0636</b>	<b>6.3602</b>	<b>6.6738</b>	<b>7.0053</b>

**Table 22 : Total R&M expenses for IPGCL**

Particulars (Rs. Crores)	12-13	13-14	14-15	15-16 (Estimated)
Rajghat Power Station	21.91	22.77	26.24	28.31
GT Power Station	32.20	15.74	16.05	17.47
<b>IPGCL (as a whole)</b>	<b>54.11</b>	<b>38.51</b>	<b>42.29</b>	<b>45.78</b>

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### **A&G Cost**

Administration expenses mainly comprise of security expenses on CISF, rent, insurance, telephone and other communication expenses, professional charges, conveyance and traveling allowances, etc.

Petitioner has estimated the A&G expenses for FY 2015-16 on the basis of expenditure incurred till Dec., 2014 and the A&G expenses for the FY 2015-16 has been projected with revised escalation of 8.85% as derived in accordance with the DERC Tariff Regulations, 2011.

#### **Security:**

IPGCL has deployed CISF for the security of its plants. Their manpower deployment and expenditure are as per their specified norms. Their pay structure is also governed by the Central Government rules. It is further submitted that GoI has imposed service tax w.e.f. 01<sup>st</sup> May, 2006 on security agency services through Finance Act. Ministry of Home Affairs has decided to charge service tax on the services provided by CISF w.e.f. 1<sup>st</sup> April, 2009 and service tax for the period prior to 01.04.2009 is not payable pending decision by GoI. The company is paying service tax of 10.3% additionally on the services provided by CISF. Accordingly, the expenditure on security has also increased substantially. Petitioner may further like to say that during FY 2012-13 to 14-15 the increase in Dearness Allowance (DA) of Central Govt. employees has been increased 14%, 18% & 17 % respectively for FY 12-13, 13-14, 14-15. This increase in DA is applicable to employees of the petitioner and CISF personnel. Hon'ble Commission is therefore to consider above increase in DA while deciding R&M of RPH and GTPS. Details of increase in DA is given in table as below. Further, 7<sup>th</sup> Pay Commission for Central Govt. Employees has already been formulated. The salary structure of CISF is determined in accordance with the recommendations of the Central Pay Commission. Therefore, 7<sup>th</sup> Pay Commission recommendations which are likely to be implemented in January, 2016 may have impact on expenses on account of deployment of CISF at the power stations of the petitioner.

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**Table 23 : Increase in DA of employees during FY 2012-13 to 2014-15**

Effective Dates	Increased DA	Total cumulative DA
1.1.2012	7%	65%
1.7.2012	7%	72%
1.1.2013	8%	80%
1.7.2013	10%	90%
1.1.2014	10%	100%
1.7.2014	7%	107%

**Water Charges and Property Tax:**

Barrage at ITO is being maintained by Haryana Irrigation Department for meeting the water requirements of IPGCL and its O&M expenses are shared/reimbursed by IPGCL. Besides this, water charges are also being paid to Delhi Jal Board for domestic and industrial water consumption in the form of water charges.

It is submitted that Taxes and duties including water Cess, property/service tax etc. has been reimbursed from the beneficiaries during the previous years of MYT Control period on actual basis. It is proposed to true-up the re-imbusement of the same for the FY 2012-13 to FY 2013-14 and approve revised estimate for FY 2014-15 and estimate for FY 2015-16.

**Insurance**

IPGCL has taken a policy for insurance of the plants. Company paid a premium of Rs.4.77 Crore for GTPS and Rs. 1.32 Crore for Rajghat Power House for procuring industrial risk policies during the FY 2014-15. Petitioner will incur an estimated expenditure of Rs 1.44 Crore and Rs 5.19 Crore for RPH & GTPS respectively in FY 2015-16.

**Enterprise Resource Planning (ERP) Expenditure**

Company has implemented the ERP system in the year 2009. The Hon'ble Commission has allowed additional expenditure on account of ERP for FY 2011-12. The expenditure on account of ERP has been submitted to DERC for FY 2012-13 to

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FY 2014-15 further based upon the Annual Maintenance Fee of SAP licensees and other hardware suppliers, support and training requirements etc, the actual expenditure for FY 2012-13 to FY 2013-14 and revised estimate for FY 2014-15 and estimate for FY 2015-16 are furnished as under :

**Table 24 : A&G Cost for IPGCL**

<b>Particulars (Rs. Crores)</b>	<b>12-13</b>	<b>13-14</b>	<b>14-15</b>	<b>15-16 (Estimated)</b>
Rajghat Power Station	8.23	9.32	9.37	10.20
GT Power Station	13.72	14.94	13.39	14.58
<b>IPGCL (as a whole)</b>	<b>21.95</b>	<b>24.26</b>	<b>22.76</b>	<b>24.78</b>

#### **Summary of O&M cost**

The units of IPGCL are small in size and are also old in age; hence it will require more man power for operation as well as higher Repair & Maintenance expenses. This fact has also been appreciated by CERC for allowing the higher O&M expenses for small size and old age plants.

It is submitted that Hon'ble Commission in its Order dated 26.08.2011 has revised the O&M expenses for RPH and GTPS. The revised O&M expenses are even lower than the base O&M expenses allowed by CERC for similar stations. It is further submitted that Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 for the period FY 2014 to 2019 in the regulation 29(c) has allowed O&M expenses @ Rs. 45.87 Lakh/ MW with an escalation of 6.30 %, for Talcher Thermal Power Station. The Talcher TPS comprising of installed Capacity of 470 MW (4x62.5 MW+ 2x110 MW). These units are of bigger size than Rajghat Power House. The same O&M computes to Rs. 61.9245 Crore for RPH for FY 2015-16.

CERC has allowed O&M expenses of Rs. 35.70 Lakh/MW for small gas turbine power generating stations with an escalation of 6.80%. GTPS is in operation for more than 25 years. The O&M expenses computes to Rs.96.39 Crores for GTPS with the new CERC norms for FY 2015-16. If the same is taken on the basis of Agartala Gas Station, the same O&M expenses for GTPS compute to Rs. 119.178 crores. A

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Comparison of O&M expenses allowed by CERC vis-à-vis DERC for FY 2015-16 is depicted in the following table.

**Table 25 : Comparison of O&M with CERC normative base for FY 2014-15**

Station	Installed Capacity (MW)	(CERC) (Rs. Lakh/MW)		Total O&M (Rs. Crore)		Allowed by DERC after Revision (Rs. Crore)	Difference (Rs. Crore)
		Base rate	Talchar / Agartala	Base rate	Talchar / Agartala		
<b>R.P.H.</b>	135	43.16	43.16	58.266	58.266	40.72	3.49
<b>GTPS</b>	270	33.43	41.31	90.261	111.537	50.74	11.09

It may be observed from above table that norm set by CERC for similar capacity and technology of the stations are much higher as compared to the norm fixed by DERC. Accordingly, the Commission is requested to adopt a liberal and more realistic view for O&M cost.

The comparison of O&M expenses Rs. Lakh/MW allowed vis-à-vis actual O&M expenses for GTPS is tabulated as under:

**Table 26 : Comparison of O&M Expenses allowed vis-à-vis Actual O&M**

FY	Actual	As per DERC*	(Rs. Lakh/MW)	
			As per CERC for small Gas Turbines	@ 8.85%
<b>2012-13</b>	31.17	27.06	27.06	29.45
<b>2013-14</b>	24.13	28.61	28.61	31.14
<b>2014-15</b>	23.67	30.24	33.43	32.92
<b>2015-16</b>			35.70	

It is further submitted that clause 6.41 of MYT Regulations, 2011 provides that O&M expenses for base year shall be determined based on latest accounting statements, estimates of the generating company for relevant years and other factors considered relevant.

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Summary of O&M cost work out by escalating revised O&M of FY 14-15, for FY 15-16 and previous years of current MYT period on actual basis is given as under :

**Table 27 : O&M Cost for IPGCL Power Plants**

Particulars (Rs. Crores)	12-13	13-14	14-15	15-16 (Estimated)
For RPH	73.67	72.69	76.21	82.70
For GTPS	84.18	65.15	63.92	69.58
<b>IPGCL (as a whole)</b>	<b>157.85</b>	<b>137.84</b>	<b>140.13</b>	<b>152.28</b>

Accordingly, petitioner requests the Hon'ble Commission to approve the O&M costs as per actual for FY 2012-13 to FY 2014-15 and as estimated for FY 2015-16.

### 3.2.2 Interest on Loan

Interest on loans depends on the outstanding loan, repayments, and applicable interest rates. Further, the capital additions funding also have a bearing on the interest cost.

#### Loan from Holding Company:

As per the Delhi Electricity Reforms (Transfer Scheme) Rules 2001, Rs. 210 Crore of unsecured loan was transferred to IPGCL as on July 1, 2002 and repayable to holding company. This loan has been bifurcated station wise, based on the gross fixed assets of the Company, as under:

**Table 28 : Loan Bifurcation for IPGCL Plants**

Power Stations	Rs. in Crore
Rajghat Power Station	16.26
GT Power Station	32.96
<b>Total</b>	<b>49.22</b>

#### Loan From Delhi Government

The Plan Funds Loan from Delhi Government were taken @ 13% interest in the FY 2002-03 & from FY 2003-04 and thereafter, the plan funds interest rate is @ 11.50%. A penal interest of 2.75% is payable in case of default in timely payment of interest on principal amount. The penal interest has been accounted in the ARR.

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IPGCL has made certain capital additions during the Control period FY 2012-13, 2013-14 to FY 2014-15. The same has been funded through internal accruals/ loan from GNCTD. As per Regulation, 70% of the capital additions have been considered to be funded through Loans. Accordingly, interest on this normative loan has been taken @ 11.50% per annum, as per the Regulations.

Accordingly, Petitioner requests the Hon'ble Commission to approve the Interest for FY 2012-13 to FY 2014-15 and extended period 2015-16 as proposed in the following table:

**Table 29 : Interest on Loan**

Particulars (Rs. Crores)	12-13	13-14	14-15	15-16 (Estimated)
For RPH	6.69	6.36	6.42	6.40
For GTPS	15.24	14.53	14.56	14.41
<b>IPGCL (as a whole)</b>	<b>21.93</b>	<b>20.89</b>	<b>20.98</b>	<b>20.81</b>

### 3.2.3 Depreciation

Depreciation is charged on the basis of straight-line method, on the fixed assets. The depreciation is based on the original cost, estimated life and residual life. The depreciation rates applied are as per the Regulation notified by the Hon'ble Commission for respective period.

It is submitted that petitioner in its submission on draft MYT Regulations has requested the Hon'ble Commission to amend the regulation 6.33 of MYT Regulations, 2011 in view of non recovery of 90% of depreciation value of fixed assets during the useful life of the station.

Petitioner further submits that RPH is going to complete its useful life of 25 years in May, 2015. The station will be able to recover the 70% of the depreciable value during the mid of FY 2014-15 only. Since the station has completed the major portion of useful life, the petitioner while submitting tariff petition for FY 2012-13 to FY 2014-15 had claimed the remaining amount of depreciation up to the value of 90% during FY 2012-13 to FY 2014-15. However, the same have not be allowed by Hon'ble Commission for previous years of current MYT period. Further, as detailed above, RPH is expected to be closed down in FY 2016-17. Hon'ble Commission is therefore again requested to consider accelerated depreciation for RPH during FY

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2015-16 and 2016-17 for balance percentage of depreciation to achieve 90% accumulated depreciation till closure of RPH in FY 2016-17.

In regard to GTPS, it is submitted that station has completed its useful life of 25 years in 2011. However, the depreciation to be recovered by FY 2014-15, in line with Regulations is not 70% of the asset value, even after operation of 28 years. It is therefore requested to consider and allow relaxation in the depreciation norms; and allow to recover the remaining depreciation upto 90% during FY 2012-13 to FY 2014-15 and extended period FY 2015-16.

Hon'ble Commission is therefore again requested to consider accelerated depreciation for RPH and GTPS during FY 2015-16 and allowed balance percentage of depreciation to achieve 90% accumulated depreciation.

Details of depreciation have been projected in Form 23 of the MYT petition on normal basis. The Hon'ble Commission is requested to approve the accelerated depreciation for the control period as requested above.

The Depreciation amount for the first control period FY 2012-13 to FY 2014-15 and projected depreciation for FY 2015-16 has been summarized as under:

**Table 30 : Depreciation of IPGCL Power Plants**

Particulars (Rs. Crores)	12-13	13-14	14-15	15-16 (Estimated)
For RPH	13.49	13.25	12.96	12.91
For GTPS	22.36	24.53	24.87	23.32
<b>IPGCL (as a whole)</b>	<b>35.85</b>	<b>37.78</b>	<b>37.83</b>	<b>36.23</b>

### 3.2.4 Return on Equity

The subscribed and paid up equity capital of IPGCL was fixed at Rs. 140 Crore as on July 1, 2002 in accordance with the Transfer Scheme. The total equity was bifurcated plant wise, on the basis of Gross Fixed Assets of the Company, as under:

**Table 31 : Equity Bifurcation for IPGCL Power Plants**

Power Stations	Rs.in Crore
IP Power Station	1.20
Rajghat Power Station	59.56
GT Power Station	79.24
<b>Total</b>	<b>140.00</b>

The Hon'ble Commission has fixed the pretax base rate of 15.5% in draft Generation Tariff Regulation in line with Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 for the period FY 2009-14. However, the Hon'ble Commission has reduced the rate of return on equity to 14% in the final Delhi Electricity Regulatory Commission (Terms and Conditions for Determination of Generation Tariff) Regulations, 2011.

It is submitted that the Hon'ble Commission has not considered the principles enumerated by Hon'ble Central Electricity Regulatory Commission for increasing rate of return on equity to 15.5% from existing 14%. Though, petitioner had requested the Hon'ble Commission to retain the norm of 15.5% based upon the principles followed by CERC. The extract of the submission of the petitioner as submitted during the finalization of MYT Regulation, 2011 is reproduced as under:

***"This is in reference to the meeting held in the office of Hon'ble Commission on 22.11.2011 in respect of draft MYT Regulations. The Hon'ble Commission has given the rate of return on equity at 15.5% in line with the CERC Regulations in draft MYT Generation Tariff Regulations. During the meeting, a comparison was made between the rate of return on equity of generating companies and distribution companies.***

***It is submitted that rate of return on equity as fixed by Hon'ble Commission in past were in line with the rate of return on equity fixed by CERC. Every business has its own risk and there can not be any comparison between the risks of two businesses. The generating companies are having much bigger risk as compared to distribution companies as any break-down affects the whole station while in distribution companies, there operation risk is limited to particular area/locality only.***

***In this regard, the attention of the Hon'ble Commission is drawn to the reasons stated by CERC for increase in return on equity. CERC in its statement of reasons for terms and conditions, Regulations, 2009. The reasons are reproduces as under:-***

***13.4 Section 61 (d) of the Electricity Act, 2003 provides that the Commission, while specifying the terms and conditions for the determination of tariff, shall be guided by the principle of 'safeguarding of consumers interest and at the***

*same time, recovery of cost of electricity in a reasonable manner'. Para 5(3)(a) of the Tariff Policy stipulates that:*

*'Balance needs to be maintained between the interests of consumers and the need for investments while laying down rate of return. Return should attract investments at par with, if not in preference to, other sectors so that the electricity sector is able to create adequate capacity. The rate of return should be such that it allows generation of reasonable surplus for growth of the sector'*

*13.5 The Commission has thus the mandate to fix a rate of return for equity that will not only attract investment and generate sufficient resources for further growth in the sector but also to take care of the consumers' interest. The interests of the consumers are taken care of in real sense only when quality power is made available for twenty four hours a day throughout the year. This could be achieved only through large capacity addition which in turn will require huge investment in the power sector. Considering the investment pattern of 70:30 debt-equity ratio, the utilities are required to build up sufficient internal accruals so that they are able to meet the target of investing at least 30% of capital cost in the form of equity. A higher investment in the form of equity also helps the entities in negotiating and availing loan at competitive terms and conditions.*

*13.6 The power sector in India during last few years has been able create a lot of enthusiasm amongst the investors and attract investment. In the last five years, there have been rapid developments in the equity market and debt market related to power sector in India. Various CPSUs and private entities working in power sector have entered into primary market to raise funds. The sector is at the take off stage at present and there is a need to ensure that the confidence evinced is sustained.*

*13.7 The rate of return on equity can be fixed by using any of the scientific model like dividend growth model, price/earning ratio, capital asset pricing model, risk premium model, etc or by linking to an appropriate benchmark with a mark up. As on date only few entities working in power sector in India have entered into primary market and that too, very recently. To calculate the rate of return by using a scientific model, one needs sufficient volume of related data for calculation of beta value, expected rate of return, P/E ratio,*

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*etc. Except a few companies such as NTPC, Reliance Energy, PGCIL etc, not many generating companies and transmission licensees particularly in the State Sector are listed in the Stock Exchange. As sufficient data in regard to the power sector, particularly scripts traded in the secondary market, are not available, the Commission does not favour to estimate the rate of return by using any of the scientific models.*

*13.8 The Commission also discussed the option of linking rate of return on equity to an appropriate benchmark with a mark up. The rate of return on equity may be linked to an appropriate benchmark like RBI Bank Rate, SBI PLR, Average PLR, 10 yr G-Securities Rate, etc. However, the Commission cannot remain oblivious of the realities of the debt market, more so of the fluctuations in interest rates as witnessed in recent past. The debt market in India is not yet stable. The Commission feels that unless the debt market stabilizes, it may not be feasible to arrive at an appropriate benchmark rate. This leads to difficulty in linking the rate of return to a benchmark with a mark up.*

*13.9 It may be noted that in the last five years there has been a rise in the interest rate. The Prime Lending Rate (PLR) of the public sector banks have increased during this period, as is seen from the table given below:*

<i>Year</i>	<i>PLR of Public Sector Banks (%)</i>
<i>March 2004</i>	<i>10.25-11.50</i>
<i>March 2005</i>	<i>10.25-11.25</i>
<i>March 2006</i>	<i>10.25-11.25</i>
<i>March 2007</i>	<i>12.25-12.75</i>
<i>March 2008</i>	<i>12.25-13.50</i>
<i>January 2009</i>	<i>12.00-14.00</i>

*The interest rate of 10-year Government securities has also increased from 5.1461% as on March 2004 to 7.1197% as on November 2008.*

*13.10 The Commission allowed rate of return on equity of 16% and 14% for the tariff period 2001-04 and 2004-09 respectively. The PLRs of State Bank of India during 2001 and 2004 were 11.50% and 10.25% respectively. But as on 1st January 2009, the PLR of State Bank of India is 12.25%. After considering*

***the rise in the PLR of the public sector banks, 10-year G-Sec, etc and also in order to help the entities to build up sufficient internal accruals for the purpose of investment in capacity addition and to ensure better cash flow, the Commission considered & deliberated to restore the rate of return at 16% as was existing prior to 1.4.2004. After consultations & deliberations it was decided to increase the base rate from 14% to 15.5% and an additional 0.5% for timely competition as explained below.***

Further, attention of Hon'ble Commission is drawn towards the Tariff Regulations issued by MERC on Return on Equity. The extract is as under:

***"32 Return on Equity Capital***

***32.1 Generation***

***32.1.1 Return on equity capital shall be computed on the equity capital determined in accordance with Regulation 30 at the rate of 15.5 per cent per annum in Indian Rupee terms:***

***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 Annexure-III:***

***Provided further that the additional return of 0.5% shall not be admissible if the project is not completed within the timeline specified above for reasons whatsoever.***

***32.2 Transmission Licensee and Distribution Licensee***

***32.2.1 Return on equity capital for the Transmission Licensee and Wires Business of Distribution Licensee shall be computed on the equity capital determined in accordance with Regulation 30 at the rate of 15.5 % per cent per annum, and for the Retail Supply of Electricity of Distribution Licensee, Return on equity capital shall be allowed a return at the rate of 17.5 % per cent per annum, in Indian Rupee terms, on the amount of equity capital determined in accordance with Regulation 30.***

**32.2.2 The return on equity capital shall be computed in the following manner:**

**(a) Return at the allowable rate as per this Regulation above, applied on the amount of equity capital at the commencement of the financial year; plus**

**(b) Return at the allowable rate as per this Regulation above, applied on 50 per cent of the equity capital portion of the allowable capital cost, for the investments put to use in transmission business or distribution business, calculated in accordance with Regulation 27, Regulation 28 and Regulation 29 above, for such financial year."**

It may be observed from above that MERC has allowed return on equity@15.5% on generation and 17.5% on Retail Supply of Electricity of Distribution Licensee.

It is submitted that the petitioner has made certain Capital additions. 30% equivalent amount of the capital additions during the Control period FY 2012-13 to FY 2014-15 and extended period FY 2015-16 has been considered for computation of ROE.

The petitioner has considered the Return on Equity @ 14% in the present petition as per the rate specified by Hon'ble Commission in its Generation Regulations-2011 for the respective period.

Further, the Hon'ble Commission has determined the Annual aggregate Revenue Requirement for FY 2012-13 to FY 2014-15 for the stations of IPGCL vide its Order dt. 13.07.2012. There seems to be an error on the face of record while computing the Income Tax as the part of Fixed Cost. During the previous MYT period from FY 2007-08 to FY 2011-12, income tax was not the part of Annual Fixed Cost as approved by the Hon'ble Commission but was recoverable separately. In the tariff order dt. 13.07.2012, the Hon'ble Commission has not grossed up the Income tax and simply determined the income tax by multiplying the income tax rate with return on equity component. The Hon'ble Commission in its Generation Tariff Regulations, 2011 has allowed the Return on Equity as 14% post tax. The grossing up is done because the recovery of income tax from the beneficiary becomes the part of sales and hence further income tax is also levied on the base income tax.

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Central Electricity Regulatory Commission has also allowed grossing up of Income-tax in its generation tariff regulation, 2009 for the period FY 2009-10 to 2013-14 and also in its generation tariff regulation 2014 for the period FY 2014-15 to 2018-19. The relevant extract of CERC generation tariff regulation, 2009 is reproduced as under "The relevant extract is as under:

*"(3) The rate of return on equity shall be computed by grossing up the base rate with the normal tax rate for the year 2008-09 applicable to the concerned generating company or the transmission licensee, as the case may be:*

*Provided that return on equity with respect to the actual tax rate applicable to the generating company or the transmission licensee, as the case may be, in line with the provisions of the relevant Finance Acts of the respective year during the tariff period shall be trued up separately for each year of the tariff period along with the tariff petition filed for the next tariff period.*

*(4) 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 (3) of this regulation.*

Further, CERC in its generation tariff regulation, 2014 has also grossed up the rate of return of income-tax, the relevant extract of the same is reproduced as under :

*"25. Tax on return on equity*

*(1)The base rate of return on equity as allowed by the commission under Regulation 24 shall be grossed up with the effective tax rate of the respective financial year. For this purpose, the effective tax rate shall be considered on the basis of actual tax paid in the respect of the financial year in line with the provisions of the Financial acts by the concerned generating company or the transmission Licensee, as the case may be. The actual tax income on other*

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income stream (i.e., income of non generation or non transmission business, as the case may be) shall not be considered for the calculation of "effective tax rate".

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

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

Where "t" is the effective tax rate in accordance with Clause (1) of this regulation and shall be calculated at the beginning of every financial year based on the estimated profit and tax to be paid estimated in line with the provisions of the relevant Finance Act applicable for that financial year to the company on pro-rata basis by excluding the income of non-generation or non-transmission business, as the case may be, and the corresponding tax thereon. In case of generating company or transmission licensee paying Minimum Alternate Tax (MAT), 't' shall be considered as MAT rate including surcharge and cess.

**Illustration:-**

- (i) In case of the generating company or the transmission licensee paying Minimum Alternate Tax (MAT) @ 20.96% including surcharge and cess:  
Rate of return on equity =  $15.50 / (1-0.2096) = 19.610\%$
- (ii) In case of generating company or the transmission licensee paying normal corporate tax including surcharge and cess:
  - (a) Estimated Gross Income from generation or transmission business for FY 2014-15 is Rs.1000 Cr.
  - (b) Estimated Advance Tax for the year on above is Rs. 240 Crore.
  - (c) Effective Tax Rate for the year 2014-15 = Rs. 240 Crore / Rs.1000 Crore = 24%.
  - (d) Rate of Return on equity =  $15.50 / (1-0.24) = 20.395\%$ .

(3) The generating company or the transmission licensee, as the case may be, shall true up the grossed up rate of return on equity at the end of every financial

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year based on actual tax paid together with any additional tax demand including interest thereon, duly adjusted for any refund of tax including interest received from the income-tax authorities pertaining to the tariff period 2014-15 to 2018-19 on actual gross income of any financial year. However, penalty, if any, arising on account of delay in deposit or short deposit of tax amount shall not be claimed by the generating company or the transmission licensee as the case may be. Any under-recovery or over-recovery of grossed up rate on return on equity after truing up, shall be recovered or refunded to beneficiaries or the long term transmission customers/DICs as the case may be on year to year basis. "

Accordingly revised tax rates with gross as per above provisions for GTPS will be as follows:

**Table 32 : grossed up Income tax for GTPS**

Particulars		FY 2012-13	FY 2013-14	FY 2014-15	FY 15-16 (Estimated)
Average Equity (Rs. Cr.) as approved by Hon'ble Commission	A	130.78	135.16	135.95	136.02
Base Rate of return on equity	B	14%	14%	14%	14%
Normal Income tax as considered by Hon'ble Commission	C	32.445%	33.99%	33.99%	33.99%
Gross up return on equity	D (B/(1-C))	20.72%	21.21%	21.21%	21.21%
Return on equity (Rs. Cr.)	E (AxD)	<b>27.10</b>	<b>28.67</b>	<b>28.83</b>	<b>28.85</b>
Base Return on Equity (Rs. Cr.)	F (AxB)	18.3092	18.9224	19.033	19.0428
Income tax component (Rs. Cr.)	G (E-F)	8.7908	9.7476	9.797	9.8072
Approved in Tariff Order (Rs. Cr.)	H (FxC)	5.42	5.42	5.42	--
Difference (Rs. Cr.)	I	3.3708	4.3276	4.377	9.8072

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Similarly for Rajghat Power House

**Table 33 : grossed up Income tax for RPH**

Particulars		FY 2012-13	FY 2013-14	FY 2014-15	FY 15-16 (Estimated)
Average Equity (Rs. Cr.) as approved by Hon'ble Commission	A	73.04	74.00	74.35	74.37
Base Rate of return on equity	B	14%	14%	14%	14%
Normal Income tax as considered by Hon'ble Commission	C	32.445%	33.99%	33.99%	33.99%
Gross up return on equity	D (B/(1-C))	20.72%	21.21%	21.21%	21.21%
Return on equity (Rs. Cr.)	E (AxD)	15.14	15.70	15.77	15.77
Base Return on Equity (Rs. Cr.)	F (AxB)	10.2256	10.36	10.4090	10.4118
Income tax component (Rs. Cr.)	G (E-F)	4.9144	5.34	5.41	5.3582
Approved in Tariff Order (Rs. Cr.)	H (FxC)	2.76	2.76	2.76	--
Difference (Rs. Cr.)	I	2.1544	2.58	2.65	5.3582

Accordingly Hon'ble Commission is prayed to rectify the error apparent on record and allow the Income Tax as under:

**Table 34 : grossed up Income tax for IPGCL**

Particulars	FY 2012-13	FY 2013-14	FY 2014-15
GTPS	27.10	28.67	28.83
RPH	15.14	15.70	15.77
IPGCL total	42.24	44.37	44.60

### 3.2.5 Interest on Working Capital

Interest on Working Capital has been computed as per the following norms:

- Cost of coal & secondary oil for 2 months
- Cost of Gas for 1 month
- Cost of liquid fuel for gas station for 1/2 month
- O&M expenses for 1 month

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- Receivables equivalent to 2 months average billing
- Maintenance Spares @ 30% of the O&M expenses for gas based plants and 20% for coal based plants ( for FY 2007-08 to FY 2011-12 @1% of project cost plus escalation as approved in Tariff Orders)

The petitioner has considered the generation of two Gas Turbines on liquid fuel and other four gas turbines on gas. Accordingly, the requirement of 15 days liquid fuel as per the Regulations has been considered for requirement of working capital for FY 2014-15 and extended period FY 2015-16.

The petitioner submits that the fuel cost has increased steeply since November, 2014. The Hon'ble Commission has determined the cost of fuel for 1 month and receivables equivalent of 2 months in working capital requirement based upon the initial gas price. This increase in prices of fuel had substantial impact on certain components considered in the computation of working capital and resultantly, the interest on working capital has considerably increased in comparison to the interest allowed by the Commission.

As per the clause 6.27 of Regulations, 2011, the cost of fuel for the purpose of computation of working capital requirement, shall be based on the fuel prices prevailing during the three months preceding the first month for which tariff is to be determined i.e. January to March, 2015. The petitioner for the purpose of submitting this ARR has considered the fuel prices prevailing during the month of October, 2014 to December, 2014. The petitioner will submit the desired data of fuel prices for January to March-2014 in due course and at the time of the purpose of determination of final tariff.

The rate of Interest for FY 2012-13 to FY 2014-15 has been computed in line with the Generation Tariff Regulations, 2011. The base Rate of State Bank of India is 10% w.e.f 07.11.2013. The rate of Interest for FY 2012-13 to FY 2014-15 is computed as 13.5% by additionally allowing 350 basis points on base rate of SBI. The interest on working capital during the Control period from FY 2012-13 to FY 2014-15 and extended period 2015-16 is summarized as under:

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**Table 35 : Interest on Working Capital**

Particulars (Rs. Crores)	12-13	13-14	14-15	15-16 (Estimated)
For RPH	16.33	11.39	19.67	20.11
For GTPS	24.13	19.31	51.77	52.28
<b>IPGCL (as a whole)</b>	<b>40.46</b>	<b>30.70</b>	<b>71.44</b>	<b>72.39</b>

Based on above, Hon'ble Commission is requested to true -up the Interest on Working Capital for the Control for FY 2012-13 to FY 2013-14 and approve revised estimate for FY 14-15 and for extended period 2015-16 on normative basis as submitted.

**Special allowance in lieu of R&M for Rajghat Power House**

The Hon'ble Commission in MYT Regulations, 2011 has allowed special Repair & Maintenance allowance for coal based stations as under:

***“6.14 The generating company in case of thermal generating station, may, in its discretion, avail of a special allowance either for a Unit or a group of Units as compensation for meeting the requirement of expenses including Renovation and Modernization beyond the Useful life of the generating station or a Unit thereof, and in such an event revision of the capital cost shall not be considered and the applicable operational norms shall not be relaxed but the special allowance shall be included in the annual fixed cost.***

***Provided also that such option shall not be available for a generating station or unit for which renovation and modernization has been undertaken and the expenditure has been admitted by the Commission before commencement of these Regulations, or for a generating station or unit which is in a depleted condition or operating under relaxed operational and performance norms.***

***6.15 A generating company (coal-based thermal generating station) on opting for the alternative in the clause 6.14 of these Regulations, shall be allowed special allowance@ Rs. 5.91 lakh/MW/year in 2012-13 and thereafter escalated @ 5.72% every year during the Control Period 2012-15, unit-wise from the next financial year from the respective date of the completion of useful***

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***life with reference to the date of commercial operation of the respective unit of generating station:***

***Provided that in respect of a unit in commercial operation for more than 25 years as on 1.4.2012, this allowance shall be admissible from the year 2012-13.”***

The Unit No. 2 and Unit no.1 of Rajghat Power House were commissioned in January, 1990 and May 1990 respectively. It is submitted that the unit No.2 has completed its useful life of 25 years by December, 2014. The petitioner in its earlier submission in tariff petition for FY 12-13 to 14-15 has requested Hon'ble Commission a Special allowance @ Rs. 6.61 lakh per annum for FY 2014-15 as per clause 6.15 of MYT 2011 Regulation. Further, petitioner requests Hon'ble Commission to approve a Special allowance @ Rs. 6.9881 lakh per annum for FY 2015-16 equivalent to Rs. 9.4339 Crore on account of special allowance on Renovation & Modernization (R&M). In this regard, petitioner may like to submit that RPH is anticipated to be closed down FY 16-17 or after completion of power evacuation facility near RPH being undertaken by M/s. PGCIL, therefore, petitioner is not carrying out any capital expenditure. However, for smooth operation of the plant some plants & equipments of capital nature is required. Petitioner therefore requests Hon'ble Commission to allow additional Rs. 6.9833 lakh/MW/year separate compensation for FY 2015-16. Further, petitioner requests Hon'ble Commission to allow separate compensation allowance of Rs. 0.65 lac / MW / year as per Clause No.6.44 of DERC MYT Regulation, 2011 to meet out additional expenditure on procurement of new assets of capital nature including in the nature of minor assets. As DPCC/CPCB instruction is to install continuous stack monitoring system (CSEM) for measurement of PM, NOX, SO<sub>2</sub>. The System is to be installed not later than 31st march 2015. No compliance of the same will lead to withdrawn of consent to operate. In order to comply with the provisions IPGCL have submitted a Bank Guarantee of Rs 26.00 Lacs, failing which DPCC will forfeit the BG.

To bring down the emission from chimney below the level of 150 mg/NM<sup>3</sup>, BHEL have suggested various measures i.e. increase of physical size and number of ESP fields/installation of new bigger size ESP/conversion of one ESP pass as Bag filter etc., requiring unit shutdown of approx. 9-12 months with an estimated cost of

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several crores. These options are not being exercised considering the limited life span of plant / long shutdown as well as due to the involved cost and anticipated closure.

Therefore after studying various schemes as given in BHEL's feasibility report, petitioner has decided to get overhauled the ESP system along with installation of up-graded version of ESP controllers & rapping system. This has been planned for Unit-2 and shall be implemented during fourth quarter of 2014-15 itself. Up graded version of controllers (SRECA-II) is being ordered to BHEL, which along with overhauling of ESP, boiler & other related works will enable to achieve <150 mg/NM<sup>3</sup>. Cost involved is 161 lacs per Unit. Overhauling of Unit-2 ESP along with Boiler & TG has already been commenced & shall be completed by the end of March, 2015.

Petitioner therefore requests hon,ble commission to allow following expenditure under Clauses 6.15 & 6.44 of MYT 2011 regulation :

**Table 36 : Special allowances for RPH**

Particulars (Rs. Crores)	12-13	13-14	14-15	15-16 (Estimated)
Compensation as per Clause 6.15 on account of Renovation & Modernization	5.1861	5.4827	5.7963	6.1278
Compensation as per Clause 6.44 for acquiring new assets of capital nature.	0.8775	0.8775	0.8775	0.8775
<b>Total</b>	<b>6.0636</b>	<b>6.3602</b>	<b>6.6738</b>	<b>7.0053</b>

### 3.2.6 Summary of Fixed Cost

The total Fixed Cost<sup>1</sup> for the control period for the FY 2012-13 to FY 2014-15 and extended period FY 2015-16 is summarized as under:

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**Table 37 : Total Fixed Cost for Rajghat Power House**

Particulars (Rs. Crores)	12-13	13-14	14-15	15-16 (Estimated)
O&M Expenses	73.67	72.69	76.21	82.70
Depreciation	13.49	13.25	12.96	12.91
Interest Charges	6.69	6.36	6.42	6.40
Return on Equity	15.14	15.70	15.77	15.77
Interest on Working Capital	16.33	11.39	19.67	20.11
Secondary Fuel Oil	13.06	13.44	31.79	31.88
Income Tax	4.91	5.33	5.36	5.36
<b>Total Fixed Cost</b>	<b>143.28</b>	<b>138.15</b>	<b>168.18</b>	<b>175.13</b>
<b>Net Generation (MU)</b>	<b>687.577</b>	<b>322.301</b>	<b>753.908</b>	<b>778.208</b>
<b>Fixed Cost/Unit (Rs/kWh)</b>	<b>2.084</b>	<b>4.286</b>	<b>2.231</b>	<b>2.250</b>

**Table 38 : Total Fixed Cost for Gas Turbine Power Station**

Particulars (Rs. Crores)	12-13	13-14	14-15	15-16 (Estimated)
O&M Expenses	84.18	65.15	63.92	69.58
Depreciation	22.36	24.53	24.87	23.32
Interest Charges	15.24	14.53	14.56	14.41
Return on Equity	27.10	28.67	28.83	28.85
Interest on Working Capital	24.13	19.31	51.77	52.28
Income Tax	8.79	9.74	9.80	9.81
<b>Total Fixed Cost</b>	<b>181.80</b>	<b>161.94</b>	<b>193.75</b>	<b>198.24</b>
<b>Net Generation (MU)</b>	<b>1268.422</b>	<b>1006.792</b>	<b>1824.231</b>	<b>1829.230</b>
<b>Fixed Cost/Unit (Rs/kWh)</b>	<b>1.433</b>	<b>1.608</b>	<b>1.062</b>	<b>1.084</b>

**Table 39 : Fixed Cost per Unit RPH & GT Stations**

Particulars Rs./kwh	12-13	13-14	14-15	15-16 (Estimated)
<b>RPH</b>	<b>2.084</b>	<b>4.286</b>	<b>2.231</b>	<b>2.250</b>
<b>GTPS</b>	<b>1.433</b>	<b>1.608</b>	<b>1.062</b>	<b>1.084</b>

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The Performa giving details of above as per DERC format are enclosed as **Annexure-C** and **Annexure-D** for **RPH** and **GTPS** respectively.

The petitioner would like to pray to the Hon'ble Commission to true up the cost and parameters from FY 2012-13 to FY 2013-14 based on the actual performance and approve as proposed for FY 2014-15 and FY 2015-16. The submissions for the deviation of various parameters and costs have been detailed out in the petition and are beyond the control of the petitioner.

## Chapter 4: Capital Expenditure

### 4. Capital Expenditure

This Chapter deals with the various Capital Expenditure during the MYT control period FY 2012-13 to FY 2014-15 and extended period 2015-16.

In this regard, Petitioner may like to submit that RPH and GTPS are designated consumers under PAT Scheme of Bureau of Energy Efficiency, Ministry of Power, GOI, Notification on 30<sup>th</sup> March, 2012. The PAT framework has been developed considering the legal requirement under EC Act, 2010. The PAT scheme is involved in Order to incentivize industry to achieve better energy efficiency improvement than their specified SEC improvement targets in a cost effective manner. BEE, the nodal agency for implementation of PAT had given target to RPH power station of petitioner to reduce its net specific heat rate (NSHR) from average heat rat of 4011 to 3766 Kcal/kWh during 2012-13 to 2014-15 and Gas Turbine Power Station of petitioner to reduce its net specific heat rate (NSHR) from average heat rat of 2815 to 2649 Kcal/kWh during 2012-13 to 2014-15 . This has been computed for average annual net generation of 696 MU in case of RPH and 1308 MU in case of GTPS. Earlier, the petitioner had submitted energy efficiency improvement scheme of the GTPS station of the petitioner. The schemes undertaken for energy efficiency improvement are capital in nature. Due to implementation of above schemes at GTPS station petitioner was able to achieve target TOE (Tones of Oil Equivalent) during FY 2012-13, however, during FY 13-14 and 14-15 due to backing down and partial operation on instruction of SLDC the heat rate and auxiliary have increased substantially. In case of RPH due to envisaged closure during previous years of MYT period no capex scheme were proposed and only need based O&M was taken up. BEE have also denied to exclude the station from PAT Scheme. In case, station runs in FY 15-16 and 16-17 i.e. first 2 years of next PAT cycle of FY 15-16, 16-17, & 17-18 petitioner needs to implement energy saving schemes to achieve the target set by BEE for the period. Therefore, the Petitioner had to frame some action plan for energy efficiency improvement during next PAT cycle before notification for next PAT cycle. The schemes approved for GTPS

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has been considered to be funded through the debt and equity of 70:30 ratio for calculating the fixed cost. It is to further inform that Hon,ble Commission had approved certain capex Schemes in FY 2012-13, 2013-14, FY 2014-15 or prior period of FY 2007-8 to 2010-11 for GTPS . The most of the schemes has already been implemented, however some of the Schemes as detailed below would spill over to FY 2015-16. There is no Capex Scheme proposed for GTPS for FY 2015-16.

**Table 40 : Capital Expenditure for GT Station**

Sr No	Description (Rs. In lakh)	2015-16	Remarks
1	Standby 7.50 MVA Auxiliary Transformer	60.00	
2	Renovation/ up-gradation of 66kV Breakers	60.00	
3	Replacement of halon Gas and Renovation of fire fighting System/Equipments	150.00	
4	Renovation of exhaust Plenum insulation of three GTs for efficiency Improvement	375.00	Implementation completed in GT#3&4 and in progress in GT#2
5	Energy conservation Initiatives –BFP speed control/capacity review etc for APC reduction	200.00	Procurement under progress
6	<b>SWAS System Renovation</b>	<b>50.00</b>	<b>Under process</b>
7	<b>Procurement of Steam Turbine rotor/Guide Blades carrier /inner casing /steam glands for steam Turbine</b>	<b>1664.19</b>	<b>With Hon,ble Commission for approval</b>
8	<b>Replacement of 27 Nos. of Steel Gates at Yamuna Barrage</b>	<b>600.00</b>	<b>'A'</b>

(A) Further, the scheme for replacement of ITO Barrage Gates was approved in MYT period 2007 to 2011 to replace 27 Nos. of gates of Yamuna Barrage as the gates were erected & commissioned more than 40 years back by Haryana Irrigation Deptt. The raw water to RPH & GTPS is drawn through intake channel of this barrage. In order to maintain a particular level of water in the river these gates are required to be operated as per requirement from time to time. These gates have outlived their lives due to toxic / acidic nature of raw water. Therefore, Hon'ble Commission has approved to replace these gates for total capital cost of Rs.6.00 Cr. during FY 2007 to 2011. Out of 27 gates only 14 gates have been replaced during 2007 to 2011-12 and 5 gates have been planned during MYT 2012 to 2014 and remaining 8 Nos. of gates are planned to be replaced in FY 2015-16 &

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2016-17. Out of this total cost Rs.468.00 lacs have already been incurred till FY 2014-15 and Rs.200.00 lacs will be required for replacing 8 Nos. of gates in phased manner during 2015 to 2017. The details of expenditure incurred and proposed to be incurred are summarized as under :

**Table 41 : Capital Expenditure schemes for ITO Barrage**

S.No.	MYT period / FY	No. of gates replaced	Actual Expr. (Rs. In Cr.)
1	2007 - 12	14	3.48
2	2012 - 15	5	1.19
3	2015 -16	4	1.00
4	2016 - 17	4	1.00
	<b>TOTAL</b>	<b>27</b>	<b>6.67</b>

Hon'ble Commission is, therefore schemes at Sl.No.1 to 7 and for scheme at Sl. No.8 to spill over in FY 2015-16 and to approve balance ITO Barrage Gate replacement with additional cost of Rs.67 lacs over and above already approved cost of Rs.600 lacs in FY 2015-16 & 2016-17.

## Chapter 5: Prayer

### 5. Prayer

IPGCL respectfully prays to the Hon'ble Commission;

- To admit this petition.
- To true up the expenditure for the Control Period from FY 2012-13 to FY 2013-14 based on the actual performance of IPGCL plants and to approve the tariff for FY 15-16 and revised estimate for FY 14-15.
- To relax the operational, technical and financial norms and parameters defined in the Regulation under clause 7.5, 11.10, 11.14 of the MYT Regulations, 2011.
- To approve the operational and financial parameters as proposed for FY 15-16.
- To Approve special R&M for RPH as per Clause 6.14 & 6.15 of Regulation, 2011 as prayed.
- To approve spill over of capex Schemes of GTPS during FY 2015-16.
- To approve the Station operating parameters viz. actual Auxilliary Power Consumption, Station Heat Rate, Specific Oil Consumption, actual availability during Control Period from FY 2012-13 and 2013-14.
- To approve proposed O&M cost.
- To relax the norm of depreciation and approve the depreciation as proposed for FY 2012-13 to FY 2014-15 and extended period 15-16.
- To relax the norm of Return on Equity and increase the Return on Equity from 14% to 15.5% in line with the CERC Tariff Regulations, 2009.

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- To true- up the capital additions for FY 2012-13 to FY 2014-15.
- To allow taxes, property tax, cess, etc as pass through on actual basis for FY 2012-13 to FY 2014-15 and FY 15-16.
- To allow the recovery of trued up amount of Rs.175.41 Cr. without linking it to final disposal material and land for I.P. Station.
- To finally true up the expenditure allowed vide true up order dt. 31.07.2013 for FY 2007-08 to 2011-12 for RPH and GTPS.
- To grant any other relief as Hon'ble Commission may consider appropriate. The petitioner craves leave of the Hon'ble Commission to allow further submissions, addition and alteration to this Petition as may be necessitating from time to time.
- Pass any other order as Hon'ble Commission may deem fit and appropriate under the circumstances of the case and in the interest of justice.

**(JAGDISH KUMAR),  
DIRECTOR (TECHNICAL)  
INDRAPRASTHA POWER GENERATION COMPANY LIMITED  
PETITIONER**