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## 1. Background

### 1.1 Indraprastha Power Generation Company Limited

The Indraprastha Power Generation Company Limited (IPGCL) has three (3) plants as detailed below;

1. Indraprastha Power Station (IP) with 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.
2. Rajghat Power House (RPH) with a total capacity of 135 MW with two units of 67.5 MW each using coal as fuel.
3. Gas Turbine Power Station (GTPS) with a total capacity of 282 MW having six gas turbines of 30 MW each using CNG/LNG as fuel and three steam turbines of 34 MW each.

### 1.2 Transfer Scheme

Pursuant to the provisions of the Delhi Electricity Reform Act, 2000 (hereinafter referred to as 'DERA') the Government of National Capital Territory of Delhi (hereinafter referred to as 'Government') notified the Delhi Electricity Reform (Transfer Scheme) Rules, 2001 (hereinafter referred to as 'Transfer Scheme') on November 20, 2001. The Transfer Scheme provided for unbundling of the functions of Delhi Vidyut Board (hereinafter referred to as "DVB") and the transfer of existing transmission assets of DVB to Delhi Transco Limited (formerly known as Delhi Power Supply Company Limited and hereinafter referred to as 'TRANSCO') and the existing distribution assets to three Distribution Companies (hereinafter collectively referred to as 'DISCOMs'). Further, all the assets, liabilities, rights and interest of DVB in the Indraprastha, Rajghat and Gas Turbine Power Stations were transferred to IPGCL.

### 1.3 Enactment of Electricity Act, 2003

The Electricity Act, 2003, (hereinafter referred to as ‘EA 2003’), enacted in June 2003 repealed the Indian Electricity Act, 1910, the Electricity (Supply) Act, 1948 and the Electricity Regulatory Commissions Act, 1998. It provides for increased competition in the sector by facilitating open access (permission to use the existing power transfer facilities) for transmission and distribution, power trading, and also allows setting up of captive power plants without any restriction. Further, Section 86 (1) (a) of the EA 2003, vests the responsibility of determination of tariff with the Commission – the relevant portion of this Section is as follows;

*“ The State Commission shall discharge the following function namely –*

*(a) determine the tariff for generation, supply, transmission and wheeling of electricity, whole sale, bulk or retail, as the case may be within the state: ... ”.*

#### **Procedure envisaged in the EA 2003 for Tariff Order**

Section 64 of the EA 2003, specifies the procedure to be followed for issuance of a tariff order. Sub-sections (1) and (3) of this Section of EA 2003 state as follows:

Sub-section (1): *“An application for determination of tariff under section 62 shall be made by a generating Company or licensee in such manner and accompanied by such fee, as may be determined by regulations”.*

Subsection (3): *“The Appropriate Commission, shall within one hundred and twenty days from receipt of application under sub-section (1) and after considering all suggestions and objections received from the public:*

*(a) issue a tariff order accepting the application with such modifications or such conditions as may be specified in that order;*

*(b) reject the application for reasons to be recorded in writing if such application is not in accordance with the provisions of this Act and the rules and regulations made there under or the provisions of any other law for the time being in force:*

*PROVIDED that an applicant shall be given a reasonable opportunity of being heard before rejecting his application.”*

#### **1.4 About the Commission**

The Delhi Electricity Regulatory Commission (hereinafter referred to as ‘Commission’) was constituted by the Government on March 3, 1999 and it became operational from December 10, 1999. In its journey from inception till date, the Commission has issued twenty (20) Tariff Orders and notified thirteen (13) Regulations apart from discharging its other statutory functions.

##### **1.4.1 Functions of the Commission**

Major functions assigned to the Commission under the DERA are as follows:

- to determine the tariff for electricity, wholesale, bulk, grid or retail and for the use of the transmission facilities
- to regulate power purchase, transmission, distribution, sale and supply
- to promote competition, efficiency and economy in the activities of the electricity industry in the National Capital Territory of Delhi
- to aid and advise the Government on power policy
- to collect and publish data and forecasts
- to regulate the assets and properties so as to safeguard the public interest
- to issue licenses for transmission, bulk supply, distribution or supply of electricity
- to regulate the working of the licensees
- to adjudicate upon the disputes and differences between licensees

Major functions assigned to the Commission under the EA 2003 are as follows:

- determine the tariff for generation, supply, transmission and wheeling of electricity, wholesale, bulk or retail, as the case may be, within the State:
- regulate electricity purchase and procurement process of distribution licensees including the price at which electricity shall be procured from the generating

companies or licensees or from other sources through agreements for purchase of power for distribution and supply within the State;

- facilitate intra-state transmission and wheeling of electricity;
- issue licences to persons seeking to act as transmission licensees, distribution licensees and electricity traders with respect to their operations within the State;
- promote cogeneration and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee;
- adjudicate upon the disputes between the licensees, and generating companies and to refer any dispute for arbitration;
- levy fee for the purposes of this Act;
- specify State Grid Code consistent with the Grid Code specified under clause (h) of sub-section (1) of section 79;
- specify or enforce standards with respect to quality, continuity and reliability of service by licensees;
- fix the trading margin in the intra-State trading of electricity, if considered, necessary; and
- discharge such other functions as may be assigned to it under this Act.

## **1.5 Process of Tariff Determination**

### **1.5.1 ARR & Tariff filing for FY 2006-07**

#### **1.5.1.1 Filing of petitions**

The Petitioner (IPGCL) filed its Petition for approval of ARR and determination of Tariff for FY 2006-07, on December 19, 2005.

#### **1.5.1.2 Interactions with the Petitioner**

The filing of the Petitions was followed by a series of interactions, both written and oral, wherein, the Commission sought additional information/clarification and

justifications on various issues critical for admissibility of the petitions. The Petitioner submitted its response on the issues raised through separate submissions on March 31, 2006. The petition was finally admitted by the Commission on 30<sup>th</sup> March 2006.

## **1.5.2 Public Notice and response from stakeholders**

### ***1.5.2.1 Publicity given to the Proposal***

The Petitioner brought out a Public Notice on April 7, 2006 indicating the salient features of their Petition, and inviting responses from the consumers and other stakeholders. The Commission also brought out a Public Notice on April 11, 2006 indicating the salient features of all the Petitions for FY 2006-07, inviting responses from the consumers and other stakeholders on the Petitions submitted by North Delhi Power Limited (NDPL), BSES Rajdhani Power Limited (BRPL), BSES Yamuna Power Limited (BYPL), Delhi Transco Limited (TRANSCO), IPGCL and Pragati Power Corporation Limited (PPCL), in accordance with the provisions of the Delhi Electricity Regulatory Commission Comprehensive (Conduct of Business) Regulations, 2001. The Public Notice was published in several dailies such as:

- The Hindustan Times ,The Times of India and Indian Express in English;
- Hindustan in Hindi; and
- Daily Milap in Urdu.

A copy of the Public Notice in English, Hindi and Urdu is enclosed as Annexure 1a-1, 1a-2, 1a-3, 1-b, and 1-c, respectively.

A detailed copy of the Petition was also made available for purchase from the respective head-office of the Companies on working day from April 7, 2006 onwards, between 11 A.M. and 4 P.M. on payment of Rs. 100/-. The Public Notice specified the deadline of April 24, 2006 for the receipt of responses/objections from the stakeholders which was subsequently extended till May 10, 2006. The complete copy of the Petition was also put up on the website of the Commission, and the website of the Petitioner.

In the past, the Commission had received requests that the Commission may extend help to the consumers in understanding the ARR Petitions and also help them in filing their comments in this regard. The Commission had considered the request on merits and accordingly for this year the services of three Joint Directors of the Commission were made available to the consumers to extend necessary assistance. The services of officers of the Commission were available to all the interested stakeholders for discussion on ARR Petition and related matters between 3 P.M. to 5 P.M. on all working days from April 12, 2006 to May 10, 2006. This was duly highlighted in the Public Notices brought out by the Commission on April 11, 2006 and April 24, 2006.

### **1.5.3 Public Hearing**

The Commission received five objections in all. A detailed list of the respondents is attached with this Order as Annexure 2. The Commission forwarded the objections to the Petitioner for submission of comments to the Commission with a copy to the Respondent. The Petitioner filed its responses to the comments/objections of the stakeholders by May 22, 2006. The Commission conducted the Public Hearing for the Generation Companies on May 22, 2006 in the afternoon session. All the stakeholders who had submitted responses/objections on the ARR Petitions were invited to express their views in the matter.

### **1.5.4 Post admission interactions**

#### ***1.5.4.1 Discussions during technical sessions and presentation by the Petitioner***

After admission of the ARR Petition, the Commission held further technical sessions with the concerned staff of the Petitioner to seek additional information and clarifications. The Commission held various meetings and sought further details on project cost, proposed additional capitalization, station heat rate, plant operation, the depreciation schedule, loan repayment, working capital, and apportionment of Corporate Office expenses.



#### 1.5.4.2 *Petitioner's responses to queries raised by the Commission*

In response to the queries of the Commission, the Petitioner made additional submissions on April 21, April 28, May 16, May 30 and June 5, 2006. The Petitioner also submitted the Provisional Annual Accounts for FY 2005-06 on April 21, 2006.

#### 1.6 **Summary of the Petition**

A snapshot of the ARR and Tariff Petition submitted by the Petitioner is provided in the Table 1.1.

**Table 1.1: Summary of ARR and Tariff of the Petitioner for FY 2006-07**

Particulars	Units	FY 2006-07
Gross Generation	MU	3200
Net Generation	MU	2932
Total Fixed Cost	Rs. Crore	287.46
Total Variable Cost	Rs. Crore	579.38
Total Cost	Rs. Crore	866.85
Variable Cost per Unit	Rs/kWh	1.98
Total Cost per Unit	Rs/kWh	2.96

#### 1.7 **Court Order**

The Discoms had filed appeals before the Appellate Tribunal for Electricity in respect of Tariff Orders for FY 2002-03, FY 2003-04 and FY 2004-05 issued by the Commission. The Appellate Tribunal had passed its order dated 24<sup>th</sup> May 2006, allowing a higher rate of depreciation, while upholding certain other issues as decided by the Commission. The Commission has preferred an appeal before the Hon'ble Supreme Court of India vide Civil Appeal No. 2733 of 2006. The Hon'ble Supreme Court admitted the Appeal and referred the case to Appellate Tribunal for Electricity *to examine whether the conclusions of the Commission are supportable in facts and in Law.*

#### 1.8 **Layout of this Order**

This Order is organised into three (3) Chapters. While the current Chapter gives the information about the Commission, the historical background and summary of the

Petition, the Second Chapter gives a detailed account of responses from stakeholders, Petitioner's comments and Commission's views on the responses. The Third Chapter discusses the Annual Revenue Requirement and Approved Tariff for FY 2006-07 and other related issues.

## **2. Response from Stakeholders**

The objections received from stakeholders, response of the Petitioner on the specific issues and the Commission's views on the same are enumerated hereunder:

### **2.1 O&M Expenses**

#### **2.1.1 *Objections***

The stakeholders have referred to a study conducted by Central Electricity Authority (CEA) about the reasonable O&M expenditure to be incurred by the Company. It has been pointed out that the Company has approached the Commission to request the CEA for re-fixing the benchmarks.

#### **2.1.2 *Response of the Petitioner***

The Petitioner has submitted that in view of certain anomalies in the CEA report, it has requested the Commission to take up the matter with CEA, for reconsideration. The Petitioner has also requested the Commission to allow a breathing period of 3 to 4 years as recommended by CEA, to achieve the norms.

#### **2.1.3 *Commission's Views***

The Commission is of the view that all the relevant parameters of operation had been considered by CEA while recommending normative O&M Expenses for these stations also taking into consideration the vintage and size of the generating units. It is unclear from various discussions with the Petitioner as to how long the IP station can be operated based on various conditions imposed by Statutory Authorities/Courts etc. In view of this uncertainty the Commission is unable to relax the norms and provide catch up time to improve the performance since such an arrangement will not take care of the interests of the consumers.

## **2.2 Fuel Availability**

### **2.2.1 *Objections***

The stakeholders have expressed concern that the estimated generation from gas turbines may reduce in case of restricted gas availability from Gas Authority of India Limited (GAIL). It has been expressed that the Petitioner has not made any efforts for exploring any other alternate fuel supplier for its gas based power station other than GAIL. The stakeholders have submitted that it is the prime responsibility of the owner of generating stations to make arrangements for supply of adequate fuel.

With reference to the proposed use of imported coal resulting in extra expenditure to the tune of Rs 25 crore, the stakeholders have submitted that the Petitioner may be asked to furnish the cost-benefit analysis and the same may be allowed if it increases efficiency and brings down the cost of generation.

### **2.2.2 Response of Petitioner**

The Petitioner has submitted that they have been taking up the matter for arranging gas with Ministry of Petroleum & Natural Gas (MoPNG), Government of India. Further, IPGCL have made all out efforts to bridge the gap in the gas availability and in its efforts, an agreement was made with GAIL in the year 2004 for the supply of R-LNG so that all the Gas Turbines of GT station can operate at their optimum capacity. However, due to scarcity of gas in the country, the gas allocations to the power stations have been reduced by GAIL/MoPNG. The Petitioner has stated that in its tariff orders of 2004, the Commission had expressed their reservations on using high cost gas; hence, the Petitioner had to restrain itself from sourcing gas at higher cost.

Presently, to meet the demand of power of the capital city, the Petitioner is making efforts to procure gas by way of bidding process and spot purchase to meet the shortfall. However, it is pertinent to mention that the gas so available shall be much costlier than the gas presently used by the Company.

The Petitioner has further submitted that the use of imported coal is as directed by Delhi Pollution Control Committee (DPCC) to reduce the emission level. Presently only one rake of imported coal has been procured and is being used in Unit No. 2 at IP Station on trial basis to give a feedback to DPCC about the reduction in emission level by blending of indigenous and imported coal in the ratio of 4:1. It has been stated that with the commissioning of retrofit Electrostatic Precipitator (ESP) at IP station, the benefit of using imported coal will be analysed and taken up with DPCC for review. However, in case DPCC insists on use of imported coal, the same shall form part of the variable charge of the stations.

### **2.2.3 Commission's Views**

The Commission is of the view that even at present, power is sourced at higher rates from outside Delhi and at times overdrawl from the Northern Grid is also resorted to, it will be necessary to fully utilise the existing resources. The Commission, therefore,

directs the Petitioner to make all out efforts to arrange for additional fuel at competitive rates to optimally utilise the installed capacity.

## **2.3 Operational Norms**

### **2.3.1 *Objections***

The stakeholders have referred to the request of the Petitioner for allowing the actual heat rate and auxiliary power consumption on the plea that power stations of IPGCL are 15-35 years old. The stakeholders have submitted that the Rajghat Power Station was commissioned in the year 1989-1990 and thus cannot be considered as Vintage Power Station by any norms. Further, as per the National Tariff Policy, the State Govt. power stations which have been operating at parameters much below the norms, the Commission may relax the norms for a suitable period with a transition path to be drawn to bring them in line with the Central Electricity Regulatory Commission (CERC) guidelines/norms.

It has been further submitted that the Petitioner should not be allowed any higher Station Heat Rate due to gas restrictions or power evacuation problems and the necessary augmentation and improvement works, if any, to remove the bottlenecks should have been initiated by the Petitioner well in time.

It has also been submitted that since the Petitioner has been enjoying the benefits of relaxed operational norms already for a period of almost four years, the Hon'ble Commission may ask the Petitioner to intimate the transition path over the time for achieving the norms notified by the CERC. The Petitioner should not be allowed to enjoy the benefit for inefficiency, which ultimately affects the consumer tariff.

The stakeholder has submitted that the variable cost of IPGCL needs improvement to take advantage of their lower fixed costs.

### **2.3.2 *Response of Petitioner***

The Petitioner has submitted that the IP station is now more than 35 years old and GTs of Gas Turbine Power Station are more than 20 years old; hence these units have already outlived their design life. It has been stated that while taking over from DVB all these power stations were poorly maintained.

The Petitioner has submitted that during the DVB period these plants were contributing 15-20% of the power requirements of Delhi and due to demand for power

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the maintenance /overhauling of the units were postponed from time to time which resulted in deterioration of the plant conditions. However, after un-bundling of DVB, IPGCL has been taking all short-term and long-term measures to improve the operation of these plants e.g. Steam Turbine Generators in GTPs which were put into operation one by one after necessary refurbishments.

Similarly, at Rajghat Power station, turbines of both units were having problems of high vibration/axial shift resulting in reduction of load. These problems are stated to have been persisting for the last several years. IPGCL has undertaken a major exercise to attend this problem which required shutdown of turbine of Unit No. 2 for a period of about 4-5 months. The Plant Load Factor (PLF) of the unit has improved to a level of 80% after repairs.

The Petitioner has further submitted that it has inducted senior executives from National Thermal Power Corporation Limited (NTPC) for improvement of water chemistry which has resulted in reduction of boiler and condenser tube failure.

The Petitioner has submitted that for these plants, the heat rates have been allowed by the Commission in accordance with the norms. The Petitioner has been requesting the Commission to allow actual station heat rate due to the reasons mentioned above, as the efficiency norms cannot be achieved in a short span. The Petitioner has expressed that it has been endeavouring hard to improve the performance by adopting best O&M practices in the plant as well as by undertaking vigorous repair and maintenance exercises. The Petitioner is hopeful to achieve the norms in the near future and has requested the Commission to allow the actual heat rate for at least next 3 years by which time its present efforts will fructify.

### **2.3.3 Commission's Views**

The Commission considered the Station Heat Rate for IP and Rajghat stations as per the draft Power Purchase Agreement (PPA) submitted by TRANSCO for these stations. This takes into account the vintage and size of the generating units. Further, for the relatively efficient GT station, the actuals have been taken note of while prescribing the normative Heat Rate. The actuals of the plant has been considered for allowing the other operating parameters for gradual transition to efficient operation. The Commission is undertaking an exercise to establish parameters for a multi- year

tariff regime and all these issues can be discussed and the Regulations finalised accordingly.

## **2.4 R&M Expenses**

### **2.4.1 *Objections***

The stakeholders have submitted that the R&M expenses claimed by the Petitioner are very much on the higher side and have requested the Commission to allow R&M expenses as per the CERC norms only, which will take care of requirements of old generating stations.

### **2.4.2 *Petitioner's Response***

The Petitioner has submitted that it has to incur substantial amount on the R&M activities of the plants to have an enhanced and reliable generation. It has been stated that IPGCL is having 15 no. of units with total installed capacity of 664.5 MW. The R&M expenditure is high due to the small size of the units and their poor condition at the time of unbundling of DVB, and the Petitioner is hopeful that in the near future this expenditure will stabilize.

### **2.4.3 *Commission's Views***

The Commission has allowed the R&M expenses as part of the O&M expenses in line with the recommendations made by CEA considering all relevant parameters of operation taking into account the vintage and size of the generating units of these stations.

## **2.5 Incentive**

### **2.5.1 *Objections***

The stakeholders have submitted that incentive for better generation should be allowed to the Petitioner only if the achievements are beyond the norms specified by CERC.

### **2.5.2 *Petitioner's Response***

The Petitioner has submitted that the plants were operating at low PLF due to poor conditions when inherited from DVB and it will take time to improve the performance. The Petitioner has stated that for motivation to improve and achieve the purpose of reforms, incentive should be allowed beyond the targets fixed.

### **2.5.3 Commission's Views**

The Commission recognises the importance of fixing incentives for actual PLF over and above the PLF fixed for recovery of full fixed cost so as to induce the generating companies towards better performance. The incentive has accordingly been allowed by the Commission in its Tariff Orders and the targets have been appropriately prescribed keeping in view the vintage and operating capabilities of the plant.

## **2.6 Depreciation and Development Cost**

### **2.6.1 Objections**

The stakeholders have submitted that the depreciation may be charged in the Books of Accounts for the purpose of Income Tax and for the purpose of Registrar of Companies. However, the same should be excluded from the expenditure in the ARR. One of the stakeholders though has submitted that the ARR should include depreciation and development cost.

### **2.6.2 Response of the Petitioner**

The Petitioner has submitted that in their ARR petition, depreciation has been included as part of the total cost for recovery through the tariff as per the CERC guidelines as well as National Tariff Policy. Further, depreciation is a charge against the revenue towards wear and tear of the fixed assets.

The Petitioner has clarified that no amount has been taken in the ARR as Development Cost. However, new additions in the fixed assets as well as major expenditure on improvements etc. which has the effect of extending the useful life of the assets or increasing efficiency or decreasing operating cost, are capitalised according to the prescribed accounting standards.

### **2.6.3 Commission's Views**

The Commission is of the view that from an accounting perspective, Depreciation is a charge to the Profit and Loss account and represents a measure of the wearing out, consumption or other loss in value of an asset arising from use, efflux of time or obsolescence through technology and market changes. Further, from a regulatory perspective, depreciation is a small amount of the original cost of the capital assets, built into the tariff computation every year with a view to providing the utility a source of funding to repay instalments of debt capital and is proportionately charged



over the useful life of the asset. The Commission has considered the depreciation in tariff computations as per the CERC guidelines.

## **2.7 Rebate on timely payment**

### **2.7.1 Objections**

The stakeholders have submitted that the rebate for early payment is being allowed to TRANSCO as per the CERC norms. It has been expressed that apart from the Petitioner, generators and power traders are allowing rebate @ 2% for early payments, hence the request of Petitioner to allow rebate as expense is not tenable.

### **2.7.2 Petitioner's Response**

The Petitioner has submitted that the interest on working capital is being allowed at the rate of 10.25% per annum whereas the rebate on timely payment amounts to 24% per annum. The Petitioner has expressed that since all the expenses are booked net of all rebates, the rebates/discounts allowed by them on the revenue earnings should be considered and allowed in the tariff to have parity.

### **2.7.3 Commission's Views**

The Commission is of the view that the rebate for timely payment is a commercial arrangement to expedite the receipt of payment. Further, the Commission has considered receivables for 2 months based on the projected sales keeping in view the norms for realisation of payment, for estimating the working capital requirement and the interest is allowed accordingly. The rebate on timely payment is, therefore, a trade-off with the interest on 2 months receivables considered in working capital requirement. Therefore, the Commission has not considered any expense towards rebate on timely payment by TRANSCO while determining the ARR of the Petitioner.

## **2.8 Viability**

### **2.8.1 Objections**

The stakeholders have submitted that since the plants are marked by high running costs and uncertainties of availability of fuel, the wisdom of running the plant may be revaluated and TRANSCO may look for cheaper alternative sources of power.

### **2.8.2 Petitioner's Response**

The Petitioner has submitted that of its three plants, only one is gas based and the remaining are coal based. The gas based station is functioning as base load station and catering to VIP areas in addition to Delhi Metro Rail Corporation (DMRC). The Petitioner has further submitted that there is no uncertainty in availability of fuel as there is a long-term agreement with GAIL for supply of gas. The present gas shortage is a temporary phenomenon. The Petitioner expects that the gas supply position will improve as the country is negotiating for gas with other countries as well as the gas discovered in the oil fields of the country would also be available in the near future. The arrangement to procure gas through spot purchase is also being made. Therefore, as per the Petitioner, there is no merit in reevaluating the wisdom of running the plant.

### **2.8.3 Commission's Views**

The Commission is in agreement with the views of the Petitioner. All the gas based power stations in the country are facing acute shortage of gas. Concerted efforts are being made by various agencies for arranging adequate supply of gas. Further, seeing the present scenario of acute power shortage in the country, it does not seem feasible to shut down the plant as proposed by some stakeholders.

## **2.9 Power Purchase Agreement (PPA)**

### **2.9.1 Objections**

The stakeholders have submitted that the draft PPA for supply of power by the Petitioner to TRANSCO has not yet been finalized. The Commission has been requested to expedite the clearance of the PPA.

### **2.9.2 Petitioner's Response**

The Petitioner has submitted that the draft PPA was submitted to the Commission by TRANSCO for necessary approval on 9<sup>th</sup> December 2003. Presently, the power is being supplied to TRANSCO in accordance with the tariff orders issued by the Commission on year to year basis.

### **2.9.3 Commission's Views**

The Commission examines all the operating parameters relevant to cost of power purchase by TRANSCO as agreed in the draft PPA while determining the ARR and finalisation of tariff in section 3.

## **2.10 Miscellaneous Issues**

### **2.10.1 Objections**

The stakeholders have submitted that the request of Petitioner for allowing full fixed charges even for less availability of machines may not be considered as the Petitioner should have planned the preventive maintenance during the prolonged downtime of the plants.

### **2.10.2 Petitioner's Response**

The Petitioner has submitted that during the FY 2005-06, it has achieved the generation target except in case of RPH. It has been stated that RPH was facing chronic problem of high vibration and axial shift persisting for the last several years. In order to rectify this problem once for all, overhauling of the units including cutting of condenser neck and re-erection of the turbine was taken up on Unit No.2 which has resulted in improved performance with PLF of more than 80% since December 2005, after commissioning. Based on the above results, a similar exercise is being carried out on Unit No.1 also at RPH. The Petitioner further submitted that at the time of fixing of target by CEA for the year 2005-06, it was assumed that the performance of the plant would improve with the routine overhauling but this long term measure involving 4-5 months shut down was taken due to which the generation targets of FY 2005-06 could not be achieved. However, this exercise has given a positive result of enhanced and sustained generation of above 80% PLF.

### **2.10.3 Commission's Views**

The Commission is of the view that the availability as certified by State Load Despatch Centre (SLDC) should be considered for the admissibility of fixed charges to the Petitioner as per the target availability so stipulated. However, given the positive results of enhanced and reliable generation at PLF of above 80%, the Commission has considered the long term impact of major repairs taken up by the Petitioner at Rajghat station to allow relaxation in target availability for this station as

a special case with the stipulation that no incentive would be payable for this period of relaxation. For the purpose of recovery of full fixed cost of Rajghat Power Station, the target availability for the FY 2005-06 and FY 2006-07 shall be clubbed together and full fixed cost shall be allowed if the availability for both the years put together exceeds 60%. However, no incentive shall be payable even if the actual PLF exceeds 60% for these two years put together, since a conscious relaxation is allowed in this case.

### 3. Analysis of ARR

#### 3.1 Introduction

While analysing the ARR and Tariff Petition for FY 2006-07, the Commission, based on the submission made by the Petitioner asked for further details and supporting documents, which was submitted by the Petitioner. The Commission held various technical sessions with the Petitioner to validate the data submitted and the Petitioner was asked to submit the actual for FY 2005-06 based on audited accounts. The Petitioner, however, submitted the actual for FY 2005-06 based on provisional accounts.

Based on the Tariff Order dated July 7, 2005 for FY 2005-06 and the information provided by the Petitioner, the Commission has trued up the expenses and revenue for FY 2005-06. Further, the Commission has also trued up certain elements for FY 2004-05 based on the final audited accounts. The expenses to be trued up for FY 2004-05 have been discussed in Para 3.24.

The Commission has considered various submissions made by the Petitioner during the course of the ARR and tariff determination process and has carefully analysed the different heads of expenditure to arrive at the revenue requirement for FY 2006-07.

#### 3.2 Gross Generation

IPGCL has three thermal power stations viz., Indraprastha Thermal Power Station (247.5 MW), Rajghat Thermal Power House (135 MW) and Indraprastha Gas Turbine power station (282 MW). The details of each of these stations are given below in Tables 3.1, 3.2 and 3.3, respectively.

**Table:3.1 I.P. Station**

Details	Unit –1	Unit –2	Unit –3	Unit-4	Unit-5
Capacity (MW)	Decommissioned	62.5	62.5	62.5	60
Date of Commercial Operation		1.1.1968	1.3.1968	30.4.1968	1.1.1974
Fuel Used		Coal			

**Table:3.2 Rajghat Power Station**

Details	Unit –1	Unit –2
Capacity (MW)	67.5	67.5
Date of Stabilisation	May 1990	January 1990
Fuel Used	Coal	Coal

**Table:3.3 Gas Turbine Power Station**

Details	GT 1	GT 2	GT 3	GT 4	GT 5	GT 6	STG 1	STG 2	STG 3
Capacity (MW)	30	30	30	30	30	30	34	34	34
Date of Commercial Operation	17.6.86	20.6.86	11.8.86	3.9.86	11.11.86	20.11.86	25.4.96	12.8.97	27.12.96
Fuel Used	Gas	Gas	Gas	Gas	Gas	Gas	Waste Heat	Waste Heat	Waste Heat

### 3.3 Generation from IP Power Station (IP)

#### 3.3.1 Petitioner's Submission

The Petitioner has submitted that in pursuance of understanding/agreement of earlier successive entities i.e. DESU and DVB with the Government of Haryana at the time of installation of units 2, 3, and 4 of the I.P Station, the Petitioner is transferring 1/3<sup>rd</sup> of the power generated from these units to Haryana.

The Petitioner in its ARR has submitted that the plant has generated 456 MU during FY 2005-06 till September, 2005 and is expected to generate 950 MU over the full year with a PLF of 43.8%. For FY 2006-07, the Petitioner has proposed the generation of 900 MU at a PLF of 41.5% as per targets proposed to be fixed by CEA.

#### 3.3.2 Commission's Analysis

Based on the actual details submitted by the Petitioner from the records of SLDC, the Commission has accepted the actual gross generation of 984.75 MU for FY 2005-06. For FY 2006-07, the Commission has considered gross generation of 950 MU in accordance with the generation target prescribed by the CEA. The generation details submitted by the Petitioner and as approved by the Commission are given in Table 3.4 below.

**Table:3.4 Gross Generation**

Description	FY 2005-06				FY 2006-07	
	Order	Revised Estimates	Actual	Commission	Petition	Commission
Installed Capacity (MW)	247.5	247.5	247.5	247.5	247.5	247.5
PLF	46.1%	43.8%	45.4%	45.4%	41.5%	43.8%
Gross Generation (MU)	1000	950	985	985	900	950

### 3.4 Auxiliary Consumption of IP Power Station (IP)

#### 3.4.1 Petitioner's Submission

The Petitioner has estimated the Auxiliary Consumption for FY 2005-06 at 14.84% on the basis of the actual Auxiliary Consumption till September 2005. The Petitioner has considered the auxiliary consumption for FY 2006-07 at 13.56%. The Petitioner has submitted that the auxiliary consumption is higher as compared to the newly set up higher size units elsewhere due to the age of plants, small capacities and obsolete designs. The Petitioner has requested the Commission to allow actual auxiliary consumption.

#### 3.4.2 Commission's Analysis

The actual Auxiliary Power Consumption during FY 2005-06, as submitted by the Petitioner is 15.16 %. The Commission is of the view that the Petitioner has to make serious efforts in regulating the Auxiliary Consumption to the approved level of 11.64% which is being retained for both FY 2005-06 and FY 2006-07. The details of auxiliary consumption submitted by the Petitioner and as approved by the Commission are given in Table 3.5 below:

**Table: 3.5 Auxiliary Consumption**

Description	FY 2005-06				FY 2006-07	
	Order	Revised Estimates	Actual	Commission	Petition	Commission
Auxiliary Consumption	11.64%	14.84%	15.16%	11.64%	13.56%	11.64%

### 3.5 Net Generation from IP Power Station (IP)

The Commission has arrived at the net generation on the basis of the Gross Generation and the Auxiliary Consumption allowed for in the above sections. The Net Generation as submitted by the Petitioner and as estimated by the Commission is given in Table 3.6 below;

**Table:3.6 Net Generation**

Description	FY 2005-06				FY 2006-07	
	Order	Revised Estimates	Actual	Commission	Petition	Commission
Gross Generation (MU)	1000	950	985	985	900	950
Auxiliary Consumption (%)	11.64%	14.84%	15.16%	11.64%	13.56%	11.64%
Net Generation (MU)	884	809	836	870	778	839

### 3.6 Generation from Rajghat Thermal Power Station

#### 3.6.1 Petitioner's Submission

The Petitioner in its ARR has submitted that the plant has generated 253 MU during FY 2005-06 till September, 2005 and is expected to generate a total of 550 MU by the end of the year with a PLF of 46.5% as against the generation target of 870 MU fixed by the Commission in the Tariff order dated July 7, 2005. The Petitioner has further submitted that the said generation target was fixed on the assumption that both the machines shall be overhauled in March and April 2005. However, due to shortage of power, IPGCL was not allowed to avail shutdown during this period and Unit-2 could be taken for overhauling in the month of July, 2005. Both the units are stated to have chronic problems of high axial shift/vibration leading to reduction in generation. These problems were attended to for Unit-2 which has been stabilized in the last week of November 2005 and is now generating at full load. Unit-1 was proposed for similar overhauling from April, 2006 and the same was expected to take 3 months. The Petitioner has stated that due to long shutdown of Unit required to rectify the chronic problems and the low generation from other Unit for reasons cited above, the Rajghat Power Station would be able to generate 550 MU only in FY 2005-06.

For FY 2006-07, the Petitioner has proposed generation of 800 MU at a PLF of 67.6% as per targets fixed by CEA.



### 3.6.2 Commission's Analysis

The actual gross generation as submitted by the Petitioner for FY 2005-06 from the records of SLDC is 574 MU which has been considered by the Commission. For FY 2006-07, the Commission has considered the gross generation as per the revised generation target of 800 MU as prescribed by CEA. The generation details submitted by the Petitioner and that allowed by the Commission are given in Table 3.7 below.

**Table:3.7 Gross Generation**

Description	FY 2005-06				FY 2006-07	
	Order	Revised Estimates	Actual	Commission	Petition	Commission
Installed Capacity (MW)	135	135	135	135	135	135
PLF	73.6%	46.5%	48.6%	48.6%	67.6%	67.6%
Gross Generation (MU)	870	550	574	574	800	800

### 3.7 Auxiliary Consumption of Rajghat Thermal Power Station

#### 3.7.1 Petitioner's Submission

The Petitioner has submitted that based on actual data for the period April – September 2005, the auxiliary consumption for FY 2005-06 was expected to be 14%. The Petitioner has proposed to improve the performance and bring down the auxiliary consumption to a level of 12.5% for FY 2006-07.

#### 3.7.2 Commission's Analysis

The actual auxiliary consumption as submitted by the Petitioner for FY 2005-06 is 13.88%. The Commission is of the view that there is scope for bringing down the auxiliary consumption and the Petitioner is required to make efforts in this direction. Accordingly, the auxiliary consumption is being maintained at the earlier approved level of 11.28% for FY 2005-06 and FY 2006-07. The details of the auxiliary consumption as per the submission of the Petitioner and as allowed by the Commission are given in Table 3.8 below;

**Table:3.8 Auxiliary Consumption**

Description	FY 2005-06				FY 2006-07	
	Order for FY 05-06	Revised Estimates	Actual	Commission	Petition	Commission
Auxiliary Consumption (%)	11.28%	14.00%	13.88%	11.28%	12.50%	11.28%

### 3.8 Net Generation from Rajghat Thermal Power Station

The Commission has arrived at the net generation based on the Gross Generation and the Auxiliary Consumption allowed for as discussed in the sections above. The net generation as submitted by the Petitioner and as estimated by the Commission is given in Table 3.9 below;

**Table: 3.9 Net Generation**

Description	FY 2005-06				FY 2006-07	
	Order for FY 05-06	Revised Estimates	Actual	Commission	Petition	Commission
Gross Generation (MU)	870	550	574	574	800	800
Auxiliary Consumption (%)	11.28%	14.00%	13.88%	11.28%	12.50%	11.28%
Net Generation (MU)	772	473	495	510	700	710

### 3.9 Generation from IP Gas Turbine Station

#### 3.9.1 Petitioner's Submission

The Petitioner in its ARR has submitted that the plant has generated 875 MU during FY 2005-06 till September, 2005 and is expected to generate a total of 1650 MU by the end of the year with a PLF of 66.80%. For the FY 2006-07, the Petitioner has proposed a generation of 1500 MU at a PLF of 60.70% as per targets fixed by CEA. The Petitioner has submitted that due to depleting gas reserves the total allocation has been reduced from 1.44 MMSCM to 1.34 MMSCM per day and even these quantities are subject to daily cuts by GAIL depending on availability. A cut of 15% and 20% has been estimated in supply during FY 2005-06 and FY 2006-07, respectively. The

Petitioner has further submitted that the proposed generation is based on the assumption that the Company would continue to receive gas and R-LNG with the anticipated level of cuts only and any further cut would affect the generation. In view of the above cuts in gas supply, generation from five Gas Turbines has been considered.

### 3.9.2 Commission's Analysis

The actual gross generation of the plant as submitted by the Petitioner from the records of SLDC for FY 2005-06 is 1748 MU resulting in a PLF of 70.60% and the same has been considered by the Commission. For FY 2006-07, the Commission has considered the gross generation as per the generation target of 1500 MU prescribed by the CEA. The Commission has noted the submissions of the Petitioner with regard to restriction in gas supply likely to affect the generation levels during FY 2006-07. The generation details submitted by the Petitioner and that allowed by the Commission are given in Table 3.10.

**Table: 3.10 Gross Generation**

Description	FY 2005-06				FY 2006-07	
	Order for FY 05-06	Revised Estimaes	Actual	Commission	Petition	Commission
Installed Capacity (MW)	282	282	282	282	282	282
PLF	66.8%	66.8%	70.6%	70.6%	60.7%	60.7%
Gross Generation (MU)	1650	1650	1748	1748	1500	1500

### 3.10 Auxiliary Consumption of IP Gas Turbine Station

#### 3.10.1 Petitioner's Submission

The Petitioner has estimated and considered the actual Auxiliary Consumption of 3.1% both for FY 2005-06 and FY 2006-07.

#### 3.10.2 Commission's Analysis

During the FY 2005-06, the Petitioner has achieved actual Auxiliary Consumption level at 2.89% of gross generation which is better as compared to 3.1% estimated in the ARR submission. The Commission reiterates its view that the gains due to

efficient operation should be allowed to the generating companies to act as incentive for further improvement in performance. The consumers stand to gain by way of higher levels of generation. The Commission has, therefore, considered auxiliary consumption at 3% on normative basis both for FY 2005-06 and FY 2006-07. The Auxiliary Consumption details submitted by the Petitioner and as allowed by the Commission are given in Table 3.11

**Table:3.11 Auxiliary Consumption**

Description	FY 2005-06				FY 2006-07	
	Order for FY 05-06	Revised Estimates	Actual	Commission	Petition	Commission
Auxiliary Consumption (%)	3.00%	3.10%	2.89%	3.00%	3.10%	3.00%

### 3.11 Net Generation from IP Gas Turbine Station

The Commission has arrived at the net generation based on the Gross Generation and the Auxiliary Consumption allowed for as discussed in the sections above. The net generation details submitted by the Petitioner and that allowed by the Commission are given in Table 3.12 below.

**Table: 3.12 Net Generation**

Description	FY 2005-06				FY 2006-07	
	Order for FY 05-06	Rev Est	Actual	Commission	Petition	Commission
Gross Generation (MU)	1650	1650	1748	1748	1500	1500
Auxiliary Consumption (%)	3.00%	3.10%	2.89%	3.00%	3.10%	3.00%
Net Generation (MU)	1601	1599	1698	1696	1454	1455

### 3.12 Total Generation for IPGCL

Based on the above analysis, the total Gross Generation and Net Generation for the Company is as given in the Table 3.13 below;

**Table:3.13 Total Generation for IPGCL**

Description	FY 2005-06				FY 2006-07	
	Order for FY 05-06	Revised Estimates	Actual	Commission	Petition	Commission
Gross Generation (MU)	3520	3150	3307	3307	3200	3250
Net Generation (MU)	3257	2881	3028	3075	2932	3004

### 3.13 Fixed Costs

The Commission has examined in detail all the components of the Fixed Cost of IPGCL. The fixed cost of the IPGCL includes the following elements:

- O&M Expenses
- Depreciation
- Advance against Depreciation
- Interest Charges
- Return on Equity
- Interest on Working Capital
- Income Tax including Fringe Benefit Tax
- Fixed Fuel Costs

#### 3.13.1 O&M Expenses

##### 3.13.1.1 *Petitioner's Submission for IP Power Station (IP)*

The Petitioner has submitted the estimates of O&M expenses for FY 2005-06 based on actuals for April 2005 to September 2005 and projections for FY 2006-07 in its ARR filing. The O&M expenses for the FY 2005-06 were estimated at Rs. 60.72 Crore and for the FY 2006-07 the said expenses were projected at Rs. 63.75 Crore. As per the subsequent submission, the actual O&M expenses incurred, by the Petitioner, for FY 2005-06 is Rs. 49.96 Crore.

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**3.13.1.2 Petitioner's Submission for Rajghat Power Station (RPH)**

The Petitioner has submitted the estimates of O&M expenses for FY 2005-06 based on actuals for April 2005 to September 2005 and projections for FY 2006-07 in its ARR filing. The O&M expenses for the FY 2005-06 were estimated at Rs. 38.74 Crore and for the FY 2006-07 the said expenses were projected at Rs. 40.02 Crore. The Petitioner has further submitted that the O&M expenses in FY 2005-06 were higher than the O&M expenses in FY 2004-05 due to major overhauling and repairs of Unit-2. As per the subsequent submission, the actual O&M expense incurred by the Petitioner for FY 2005-06 is Rs. 33.66 Crore.

**3.13.1.3 Petitioner's Submission for Gas Turbine Power Station (GTPS)**

The Petitioner has submitted the estimates of O&M expenses for FY 2005-06 based on actuals for April 2005 to September 2005 and projections for FY 2006-07 in its ARR filing. The O&M expenses for the FY 2005-06 were estimated at Rs. 38.14 Crore and for FY 2006-07 the said expenses were projected at Rs. 49.74 Crore. The Petitioner has further submitted that the R&M expenditure during FY 2006-07 will be high as three hot gas path inspections and two major inspections of gas turbines are due during the year. As per the subsequent submission, the actual O&M expense incurred by the Petitioner for FY 2005-06 is Rs. 33.08 Crore.

Further the Petitioner had submitted that the O&M expenses for all the three stations include Corporate Office expenses which consist of expenses of key executive functionaries including Managing Director, Director (T), Director (F), Company Secretary, etc. and the activities of administration, finance, stores, medical department, civil, etc. The Petitioner also submitted that these functions are common for both IPGCL and PPCL and as per the directive of Board of Directors of the Company; these Corporate Office expenses shall be shared between the two companies. The Corporate Office expenses allocated to IPGCL have been further divided between the three power stations by the Company in proportion to the net power generation in the three plants.

The Petitioner has submitted that the O&M expenses also include the amount being paid to Haryana Irrigation Department for maintenance of barrage at ITO to meet the water requirement of plants and apart from this, water charges being paid to Delhi Jal

Board for domestic water consumption are also considered. The said charges are stated to have been considered in the tariff calculation for FY 2005-06 and FY 2006-07 under the head “water charges”.

The Petitioner has mentioned that an increase of 5% per annum has been estimated in the employee cost for FY 2005-06 and FY 2006-07 on account of DA hike of 3 to 4% on half yearly basis and annual increments. The Establishment expenses have been hiked by Rs 5 Crore in FY 2005-06 and FY 2006-07 to offset the expected savings on account of outgoing employees under Voluntary Retirement Scheme (VRS).

#### **3.13.1.4 Commission's Analysis**

The Commission in its previous Tariff Order dated July 7, 2005 allowed an O&M cost of Rs. 91.81 Crore for FY 2005-06 for the Company as a whole based on normative expenses of Rs.88.28 Crore recommended by CEA for FY 2004-05 by providing escalation of 4%. However, as per the Petitioner's submission, the actual expense incurred during FY 2005-06 is Rs. 116.70 Crore.

The Commission is of the opinion that the actual O&M expenses of IPGCL are on a higher side and if the actual O&M costs are considered for the purpose of ARR and Tariff Determination, the per unit generation cost will increase substantially. Further, CEA has made its recommendation of normative O&M expenses considering all relevant parameters of operation taking into account the vintage and size of the generating units of these stations. The generating stations are expected to perform at an acceptable level to recover commensurate expenses. This is necessary to safeguard the interests of the consumers. It has been noted that the Petitioner has, for the first time, taken an Insurance Policy for GT station and Rajghat station during the FY 2005-06 and the insurance premium is an additional expense. Since the Insurance Policy serves to off-load the tariff from cost of breakdown to a significant extent, it would be reasonable to allow the insurance premium as part of the O&M expenses. The Commission has, therefore, considered the actual insurance premium for FY 2005-06 apart from the normative O&M expenses of Rs 91.81 Crore and accordingly the O&M expenses for FY 2005-06 is approved at Rs. 95.61 crore. For FY 2006-07, the Commission allows an increase of 4% over the approved O&M expenses for FY 2005-06 and the station-wise O&M expenses so approved by the Commission are Rs. 40.16 Crore, Rs. 25.76 Crore and Rs. 33.52 Crore for IP Power Station, RPH Station

and GTPS, respectively with total amounting to Rs 99.44 Crore. Table 3.14 presents the station-wise and for Company as a whole, O&M charges for FY 2005-06 and FY 2006-07.

**Table:3.14 O&M Charges (Rs. Crore)**

Description	FY 2005-06			FY 2006-07		
	Order for FY 05-06	Revised Estimates	Actual	Commission	Petition	Commission
For IP Station	38.62	60.72	49.96	38.62	63.75	40.16
For RPH	23.87	38.74	33.66	24.77	40.02	25.76
For GTPS	29.33	38.14	33.08	32.23	49.74	33.52
<b>For Company (as a whole)</b>	<b>91.81</b>	<b>137.60</b>	<b>116.70</b>	<b>95.61</b>	<b>153.51</b>	<b>99.44</b>

### 3.13.2 Depreciation

#### 3.13.2.1 Petitioner's Submission

The Petitioner has submitted that as per Electricity Act, 2003 and after the repeal of the Electricity (Supply) Act, 1948, the Power Sector utilities are required to follow the Companies Act, 1956 in the matter of depreciation. At the time of filing of the petition, it was stated by the Petitioner that the Ministry of Power in its draft Tariff Policy has mentioned the depreciation rate to be as per Schedule XIV of the Companies Act, 1956 for Tariff determination. All power sector entities will be treated as 'continuous process plant' for the purpose of determination of depreciation rate and accordingly the depreciation has been calculated as per the rates provided in the Companies Act, 1956. Further, the depreciation on the additions during the financial year has been provided on half of the amount, assuming that the additions have been made evenly throughout the year.

#### 3.13.2.2 Petitioner's Submission for IP Power Station (IP)

The Depreciation for FY 2005-06 has been estimated at Rs. 27.83 Crore based on the actual expenses incurred till September 2005 and projections thereafter. For FY 2006-07 the depreciation has been estimated at Rs. 0.23 Crore. The Petitioner has further submitted that since IP station has outlived its useful life, 95% of Rs 29 Crore



additional capitalization in IP station on account of IPGCL share in Electrostatic Precipitators (ESPs) has been depreciated during FY 2005-06 itself. However, as per the subsequent submission the actual Depreciation for FY 2005-06 is Rs 1.31Crore.

### **3.13.2.3 Petitioner's Submission for Rajghat Power Station ( RPH)**

The Depreciation for FY 2005-06 is estimated at Rs. 11.42 Crore and for FY 2006-07 the same is projected at Rs.12.02 Crore. However, as per the subsequent submission, the actual Depreciation for FY 2005-06 is Rs. 11.35 Crore.

### **3.13.2.4 Petitioner's Submission for Gas Turbine Power Station (GTPS)**

The Depreciation expenses for FY 2005-06 are estimated at Rs. 17.24 Crore and expenses for FY 2006-07 are projected at Rs. 18.06 Crore. However, as per the subsequent submission the actual Depreciation for FY 2005-06 is Rs. 17.51 Crore.

### **3.13.2.5 Commission's Analysis**

The Commission has adequately deliberated and discussed the issue of depreciation calculation in its Tariff Order dated July 7, 2005 for FY 2005-06. The Commission had decided to consider the rates of depreciation based on straight line method over the useful life of the asset and at the rates prescribed in Appendix II to Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2004 for various classes of asset. However, this philosophy could not be adopted for IPGCL as station-wise asset break-up is not available, and in the absence of the same it is not possible to arrive at weighted average depreciation rate for each station. Therefore, the Commission has again considered an average depreciation rate of 4 % for coal based thermal stations and 5% for GT station. In case of IP station, the depreciation is mainly on account of addition to the existing ESPs, which the Petitioner has not considered for FY 2006-07.

The Commission approves the total depreciation amount for the Company as a whole at Rs. 23.12 Crore and Rs 26.10 Crore for FY 2005-06 and FY 2006-07, respectively. The depreciation estimated by the Petitioner and as approved by the Commission for FY 2005-06 and FY 2006-07 is given in Table3.15

**Table:3.15 Depreciation (Rs. Crore)**

Description	FY 2005-06				FY 2006-07	
	Order for FY 05-06	Revised Estimates	Actual	Commission	Petition	Commission
For IP Station	2.34	27.83	1.31	0.78	0.23	2.78
For RPH	7.89	11.42	11.35	8.33	12.02	8.53
For GTPS	16.53	17.24	17.51	14.01	18.06	14.78
<b>For Company (as a whole)</b>	<b>26.76</b>	<b>56.49</b>	<b>30.17</b>	<b>23.12</b>	<b>30.31</b>	<b>26.10</b>

### 3.13.3 Advance against Depreciation

#### 3.13.3.1 Petitioner's Submission

The Petitioner has submitted that the depreciation amount provided as per the Companies Act does not match the loan repayment amount for the FY 2006-07 in respect of IP station and has requested the Commission to allow for an advance against depreciation of Rs. 2.50 Crore for FY 2006-07. In the subsequent submissions, the actual advance against depreciation as submitted by the Petitioner for FY 2005-06 is Rs 0.89 Crore as against Nil in the original filing of petition. However, no Advance against Depreciation has been claimed for RPH and GTPS for FY 2005-06 and FY 2006-07.

#### 3.13.3.2 Commission's Analysis

The Commission is of the opinion that as per CERC Guidelines, advance against depreciation could be provided if depreciation for the year is less than the loan repayment for the year, and the cumulative depreciation upto the year is less than the cumulative repayment upto that year. As per the details submitted by the Petitioner for IP station, the cumulative repayment of loan for FY 2005-06 and FY 2006-07 works out to be less than the cumulative depreciation upto FY 2005-06 and FY 2006-07, respectively. Therefore, in line with the principles of advance against depreciation as discussed above, the Commission has not allowed any amount towards advance against depreciation for IP station for FY 2005-06 and FY 2006-07.

The advance against depreciation estimated by the Petitioner and as approved by the Commission for FY 2005-06 and FY 2006-07 is given in Table 3.16

**Table 3.16: Advance Against Depreciation (Rs Crore)**

Description	FY 2005-06			FY 2006-07		
	Order for FY 05-06	Revised Estimates	Actual	Commission	Petition	Commission
Advance against depreciation for IP Station	0.00	0.00	0.89	0.00	2.50	0.00

### 3.13.4 Interest Charges

#### 3.13.4.1 Petitioner's Submission

The Petitioner has submitted that as per the Delhi Electricity Reforms (Transfer Scheme) Rules 2001, the secured loans payable by IPGCL to Holding Company as on July 1, 2002 is Rs. 210 Crore. According to the Transfer Scheme, there is a moratorium of four years for payment of interest and repayment of principal. This loan has been bifurcated station wise as under, based on the gross fixed assets of the Company:

I.P Station	Rs. 1.81 Core
R.P Station	Rs. 89.33 Crore
G.T.P Station	Rs. 118.86 Crore
<b>Total</b>	<b>Rs. 210.00 Crore</b>

The Petitioner has further submitted that it availed Plan fund loan from the Delhi Government amounting to Rs. 40.37 Crore @ 13% in FY 2002-03 and further loans amounting to Rs 58.85 Crore were taken @ 11.5 % in FY 2003-04 and FY 2004-05. The Petitioner proposes to draw a loan of Rs 38 Crore and Rs 70 Crore in FY 2005-06 and FY 2006-07, respectively.

The total Interest charges have been estimated at Rs. 12.02 Crore and Rs. 36.86 Crore for FY 2005-06 for FY 2006-07, respectively. In addition to this, the Petitioner has submitted that a rebate of 2% is being allowed to TRANSCO for timely payment and has requested the Commission to allow the same in the ARR.

#### **3.13.4.2 Petitioner's Submission for IP Station**

The Petitioner has submitted that the interest charges were estimated to be Rs. 3.79 Crore and Rs 6.54 Crore for FY 2005-06 and FY 2006-07, respectively. However, as per the subsequent submission, the actual Interest charges incurred for FY 2005-06 is Rs. 3.94 Crore.

The Petitioner has further submitted that the rebate to TRANSCO has been estimated at Rs 4.66 Crore and Rs 4.18 Crore for FY 2005-06 and FY 2006-07, respectively. However, the actual amount of rebate for FY 2005-06 as submitted by the Petitioner is Rs 3.29 Crore.

#### **3.13.4.3 Petitioner's Submission for Rajghat Power Station**

The Petitioner has submitted that the Interest charges shall be Rs. 2.05 Crore and Rs. 11.65 Crore for FY 2005-06 and FY 2006-07, respectively. However, as per the subsequent submission, the actual interest charges incurred for FY 2005-06 is Rs. 1.99 Crore.

The Petitioner has further submitted that the rebate to TRANSCO has been estimated at Rs 2.52 Crore and Rs 3.38 Crore for FY 2005-06 and FY 2006-07, respectively. However, the actual amount of rebate for FY 2005-06 as submitted by the Petitioner is Rs 2.76 Crore.

#### **3.13.4.4 Petitioner's Submission for Gas Turbine Power Station**

The Petitioner has submitted that the Interest charges shall be Rs. 6.18 Crore and Rs. 18.67 Crore for FY 2005-06 and FY 2006-07, respectively. However, as per the subsequent submission, the actual interest charges incurred for FY 2005-06 is Rs. 6.23 Crore.

The Petitioner has further submitted that the rebate to TRANSCO has been estimated at Rs 5.06 Crore and Rs 5.45 Crore for FY 2005-06 and FY 2006-07, respectively. However, the actual amount of rebate for FY 2005-06 as submitted by the Petitioner is Rs 6.83 Crore.

#### **3.13.4.5 Commission's Analysis**

The Commission has examined the means of finance and the associated interest charges estimated by the Petitioner.

The Commission has estimated the interest expenses at Rs 11.94 Crore and Rs 32.67 Crore for FY 2005-06 and FY 2006-07, respectively. The interest on Government of National Capital Territory of Delhi (GNCTD) loan has been calculated based on scheduled repayment schedule.

The interest on Holding Company Loan has been worked out based on the details provided by the Petitioner. As regards to the outstanding loan of Rs 210 Crore to the Holding Company in the books of IPGCL in accordance with the provisions of Transfer Scheme, the Policy Direction stipulates as follows:

*“The successor companies viz. GENCO, TRANSCO and the three Distribution Companies shall undertake to repay the loan payable to Holding Company mentioned in the relevant schedules of the Transfer Scheme, within thirteen years from the date of transfer with a waiver of interest and moratorium on principal repayment for the first four years. Thereafter the loan would carry an interest at the rate of 12% per annum and would be repaid in eighteen equal half yearly instalments”*

The Commission is of the view that there is waiver on interest for the first four years from the date of transfer and hence no interest is payable by GENCO/IPGCL to the Holding Company till July 2006. Therefore, the Commission has not considered any interest liability on this account while determining the interest expenses for FY 2005-06.

The issue of rebate allowed by the Petitioner to TRANSCO for timely payment has been considered by the Commission in its Review Order on Tariff for FY 2005-06. The Commission has further considered the matter in detail and is of the view that the rebate offered by Petitioner to TRANSCO is a commercial arrangement so as to expedite receipt of payment. The Commission has considered receivables for 2 months based on the projected sales keeping in view the norms for realisation of payment, for estimating the working capital requirement and the interest is allowed accordingly. The rebate on timely payment is therefore a trade-off with the interest on 2 months receivables considered in working capital requirement, hence does not merit any separate consideration. Therefore, the Commission has not allowed for rebate to TRANSCO on account of timely payment of Rs 12.88 Crore and Rs. 13.01 Crore for FY 2005-06 and FY 2006-07, respectively while computing the interest charges.

The interest charges as estimated by the Petitioner and as approved by the Commission are given in Table 3.17 below.

**Table:3.17 Interest Charges (Rs. Crore)**

Description	FY 2005-06			FY 2006-07		
	Order for FY 05-06	Revised Estimates	Actual	Commission	Petition	Commission
For IP Station	4.58	3.79	3.94	3.86	6.54	4.50
For RPH	2.74	2.05	1.99	1.62	11.65	9.92
For GTPS	8.29	6.18	6.23	6.46	18.67	18.25
<b>For Company (as a whole)</b>	<b>15.61</b>	<b>12.02</b>	<b>12.16</b>	<b>11.94</b>	<b>36.86</b>	<b>32.67</b>

### 3.13.5 Return on Equity

#### 3.13.5.1 Petitioner's Submission

As per the Transfer Scheme, the subscribed and paid up equity capital of the Company as on July 1, 2002 was fixed at Rs. 140 Crore and the Petitioner has estimated the Return on Equity (ROE) @ 14% on this equity of the Company. The total equity has been bifurcated, plant wise, as under on the basis of Net Fixed Assets of the Company:

I.P Station	Rs. 1.20 Crore
R.P Station	Rs. 59.56 Crore
G.T.P Station	Rs. 79.24 Crore
<b>Total</b>	<b>Rs. 140.00 Crore</b>

#### 3.13.5.2 Commission's Analysis

The Commission in its earlier Order dated July 7, 2005 on ARR and Tariff Petition of IPGCL for FY 2005-06 allowed ROE @14% in line with the Regulations issued by the Central Electricity Regulatory Commission (CERC). The CERC has issued the "**Terms and Conditions of Tariff Regulations**" during March 2004 in which CERC has revised the ROE norm from 16% to 14% for the Generating Companies and transmission licensees. The Commission for the purpose of this Order has considered the same ROE for both FY 2005-06 and FY 2006-07. The plant wise Return on Equity as estimated by the Petitioner and as approved by the Commission is given in the Table 3.18 below.

**Table:3.18 Return on Equity (Rs. Crore)**

Description	FY 2005-06				FY 2006-07	
	Order for FY 05-06	Revised Estimates	Actual	Commission	Petition	Commission
For IP Station	0.17	0.17	0.17	0.17	0.17	0.17
For RPH	8.34	8.34	8.34	8.34	8.34	8.34
For GTPS	11.09	11.09	11.09	11.09	11.09	11.09
<b>For Company (as a whole)</b>	<b>19.60</b>	<b>19.60</b>	<b>19.60</b>	<b>19.60</b>	<b>19.60</b>	<b>19.60</b>

### 3.13.6 Interest on Working Capital

#### 3.13.6.1 Petitioner's Submission

The Petitioner's submission on interest on working capital assumes the following norms of working capital for IP station and RPH station:

- Coal inventory for 2 months
- Oil inventory for 2 months
- O&M expenses for 1 month
- Spares for 1 year = 40% of O&M less 1/5<sup>th</sup> of initial capitalized spares for first 5 years
- Receivables for 2 months based on the projected sales.

For GTPS station, the Petitioner has followed the following norms for calculation of interest on working capital:

- Fuel Cost for 1 month
- Oil inventory for 2 months
- O&M expenses for 1 month
- Spares for 1 year = 40% of O&M less 1/5<sup>th</sup> of initial capitalized spares for first 5 years
- Receivables for 2 months based on the projected sales.

The total working capital requirement estimated by the Petitioner based on the above is Rs. 273.33 Crore and Rs. 294.64 Crore, respectively for FY 2005-06 and FY 2006-

07. The interest rate for working capital has been considered @ 10.75% p.a. based on the SBI PLR as on 01.04.2005 of 10.25% on monthly rest basis which works out to 10.75% on an annualized basis.

**3.13.6.2 Petitioner's Submission for I.P Station**

The interest on working capital has been estimated at Rs. 12.32 Crore and Rs 11.71 Crore for FY 2005-06 and FY 2006-07, respectively. However, as per the subsequent submission, the actual expense incurred during FY 2005-06 is Rs. 11.50 Crore.

**3.13.6.3 Petitioner's Submission for Rajghat Station**

The interest on working capital has been estimated at Rs. 6.77 Crore and Rs 8.65 Crore for FY 2005-06 and FY 2006-07, respectively. However, as per the subsequent submission, the actual expense incurred during FY 2005-06 is Rs. 6.84 Crore.

**3.13.6.4 Petitioner's Submission for Gas Turbine Power Station**

The interest on working capital has been estimated at Rs. 10.26 Crore and Rs 11.32 Crore for FY 2005-06 and FY 2006-07, respectively. However, as per the subsequent submission, the actual expense incurred during FY 2005-06 is Rs. 10.36 Crore.

**3.13.6.5 Commission's Analysis**

The Commission has estimated the working capital requirement for generating companies based on the following norms approved by CERC in their "**Terms and Conditions of Tariff**" Regulations of March 2004 in which CERC has revised the working capital norm for coal-based generating companies as follows:

- Coal stock for two months
- Oil stock for two months
- O&M Expenses for one month
- Maintenance spares – 1% of the actual capital cost escalated @ 6% per annum from the date of commercial operation
- Receivables for two month

For gas-based generating stations, CERC has specified the following norms:

- Fuel cost for one month
- Liquid fuel stock for ½ month



- O&M expenses for one month
- Maintenance spares – 1% of the actual capital cost escalated @ 6% per annum from the date of commercial operation
- Receivables for 2 month based on the projected sales.

The Commission has considered interest rate at 10.25% which is the SBI PLR Rate for short-term loans as on April 1, 2006, as the interest on working capital is a part of fixed cost which is recovered on monthly basis. This aspect had been clarified by the Commission in its Review Order on tariff for FY 2005-06. The interest on working capital allowed by the Commission vis-a-vis as considered in the Petition is as given in Table 3.19 below;

**Table:3.19 Interest on Working Capital (Rs. Crore)**

Description	FY 2005-06				FY 2006-07	
	Order for FY 05-06	Revised Estimates	Actual	Commission	Petition	Commission
For IP Station	7.43	12.32	11.50	7.27	11.71	7.33
For RPH	5.99	6.77	6.84	4.32	8.65	5.90
For GTPS	7.86	10.26	10.36	8.14	11.32	7.93
<b>For Company (as a whole)</b>	<b>21.28</b>	<b>29.36</b>	<b>28.70</b>	<b>19.73</b>	<b>31.67</b>	<b>21.16</b>

### 3.13.7 Total Fixed Cost

The total fixed cost estimates as per the Petitioner's submission and as allowed by Commission is summarised in the Table 3.20 below.

**Table:3.20 Total Fixed Cost (Rs. Crore)**

Description	FY 2005-06			FY 2006-07		
	Order for FY 05-06	Revised Estimates	Actual	Commission	Petition	Commission
O&M Charges	91.81	137.60	116.70	95.61	153.51	99.44
Depreciation	26.76	56.49	30.17	23.12	30.31	26.10
Advance against Depreciation	0.00	0.00	0.89	0.00	2.50	0.00
Rebate to DTL for timely payment	0.00	12.24	12.88	0.00	13.01	0.00
Interest	15.61	12.02	12.16	11.94	36.86	32.67
Return on Equity	19.60	19.60	19.60	19.60	19.60	19.60
Interest on WC	21.28	29.36	28.70	19.73	31.67	21.16
<b>Total Fixed Cost</b>	<b>175.06</b>	<b>267.31</b>	<b>221.10</b>	<b>169.99</b>	<b>287.46</b>	<b>198.96</b>
Total Net Energy Supply (MU) (Ex Bus)	3257	2881	3028	3075	2932	3004
Fixed cost/Unit (Rs/kWh) (on ESO basis)	<b>0.54</b>	<b>0.93</b>	<b>0.73</b>	<b>0.55</b>	<b>0.98</b>	<b>0.66</b>

### 3.14 Variable (Fuel) Cost

The variable cost of the plant depends upon the operational and fuel parameters such as Gross Station Heat Rate, Auxiliary Consumption, Fuel Cost and Gross Calorific value of fuel. The Petitioner has submitted the operating parameters of the plant as a part of ARR. The Petitioner has also made additional submission as required by the Commission. The Commission has analysed all the operational and fuel parameters.

### 3.15 Station Heat Rate for IP Power Station (IP)

#### 3.15.1 Petitioner's Submission

The Petitioner, in its ARR submission had estimated the Station Heat Rate of 3709 kCal/kWh and 3493 kCal/kWh for FY 2005-06 and FY 2006-07, respectively on the basis of actual heat rate achieved during the period April 2005 to September 2005 and

anticipated improvements in the working. The said Station Heat Rate has been arrived at after adjusting for the transit and handling loss to the extent of 0.8% and superficial surface moisture to the extent of 3% due to deshaling of the coal. The Petitioner has subsequently submitted the actual Heat Rate of the station for FY 2005-06 as 3907 kCal/kWh.

### 3.15.2 Commission's Analysis

During the ARR and Tariff Determination process for FY 2004-05, the Commission had directed the Petitioner to get an assessment of reasonable Heat Rate for IP station by CEA.

The CEA Study Report on "Heat Rate of IP station" has given the following recommendation:

*"The normative heat rate shall be 10 % above the design heat rate with the following adjustments:-*

- a) *The normative heat rate is recommended for 80 % PLF of the station. Additional Heat Rate of 2.5 kCal/kWh shall be allowed for each 1% reduction in PLF.*
- b) *While computing PLF of the station the units under planned maintenance and shut down exceeding 1 (one) day shall not be considered.*
- c) *The design heat rate shall be lower of the guaranteed heat rate or actual obtained during PG test at 0 % make up and design ambient conditions.*
- d) *The settlement of additional heat rate based on PLF is recommended to be made on monthly basis".*

However, as per Petitioner's submission dated April 8, 2005, IP station being more than 35 years old, the Design Heat Rate data of the units of IP station is not available with them. In the absence of the same, the Commission is not in a position to estimate the reasonable Station Heat Rate in accordance with the principles recommended by CEA. Therefore, the Commission has retained the earlier approved figure of 3235 kCal/kWh which was agreed to by the Petitioner in line with the draft PPA submitted by TRANSCO alongwith the ARR petition for FY 2004-05. The actual Station Heat

Rate is high on account of low operating levels, which needs to be improved. The details of the submission by the Petitioner and the allowed Heat Rate by the Commission is as given in the Table 3.21 below.

**Table:3.21 Station Heat Rate (kCal/kWh)**

Description	FY 2005-06			FY 2006-07		
	Order for FY 05-06	Revised Estimates	Actual	Commission	Petition	Commission
Station Heat Rate	3235	3709	3907	3235	3493	3235

### 3.16 Total Cost of fuel for IP Power Station (IP)

#### 3.16.1 Petitioner's Submission

The Petitioner has submitted that as per the directions of Delhi Pollution Control Committee (DPCC), they are required to use imported coal for reducing pollution level. The Petitioner has stated that it was proposed to import one rake of coal for blending the same with the indigenous coal on trial basis and if the same was found viable, the imported coal would be required for blending purpose in its power plant during FY 2006-07. In the subsequent submissions, the Petitioner has mentioned that the annual financial impact on account of regular use of imported coal will be about Rs 25 Crore and has requested the Commission to allow the cost of imported coal taken in FY 2005-06 on experimental basis and for regular use during FY 2006-07, in case the imported coal is to be used as per DPCC directions.

The Petitioner has submitted that the expenses towards the annual fuel cost are based on the estimated weighted average Gross Calorific Value of the coal at 3805 kCal/kg and 10686 kCal/litre for fuel oil. In the ARR submission, the cost of coal per MT has been considered at Rs. 1937 for FY 2005-06 with an increase of 5% for projections of FY 2006-07. The price of coal has been further hiked by 3.8% to offset the moisture and transit losses during these years. The total coal requirement is calculated based on the projected PLF and the Station Heat Rate. The specific oil consumption has been estimated at 11ml/kWh and 10 ml/kWh for FY 2005-06 and FY 2006-07, respectively. The actual specific oil consumption for FY 2005-06 as submitted by the

Petitioner is 10.31 ml/kWh. As per the further submission, the Petitioner has furnished the actual fuel cost for FY 2005-06 at Rs 212.83 Crore.

### 3.16.2 Commission's Analysis

The Commission has considered the specific oil consumption as 9.29 ml/kWh for both FY 2005-06 and FY 2006-07, based on the approved level as per Tariff Order dated July 7, 2005. The Commission has considered the actual fuel prices for estimating the total fuel cost to be allowed for FY 2005-06 based on the heat rate and auxiliary consumption approved by the Commission. For FY 2006-07, the Commission has considered an escalation of 3% on the price of coal and 5% on oil price based on past practice. The details of the total fuel cost as submitted by the Petitioner and estimated by the Commission is given in Table 3.22 below.

**Table:3.22 Total Fuel Cost for I P Station**

Description	FY 2005-06			FY 2006-07		
	Order for FY 05-06	Revised Estimates	Actual	Commission	Petition	Commission
Gross Generation (MU)	1000	950	985	985	900	950
Net Generation (MU)	884	809	836	870	778	839
Calorific Value of coal (kCal/kg)	3917	3805	3835	3835	3805	3835
Price of coal (Rs./MT)	1833	1937	1929	1929	2034	1987
Calorific Value of Fuel Oil (FO) (kCal/litre)	10720	10686	10680	10680	10686	10686
Price of FO (Rs./kl)	20370	25655	24425	24425	30109	25646
<b>Total Fuel Cost (Rs. Crore)</b>	166.00	201.09	212.83	177.65	189.97	176.95
<b>Variable cost of generation (Rs./kWh)</b>	1.66	2.12	2.16	1.79	2.11	1.86
<b>Cost of Energy sent out (Rs/kWh)</b>	<b>1.88</b>	<b>2.49</b>	<b>2.55</b>	<b>2.04</b>	<b>2.44</b>	<b>2.11</b>

### 3.17 Station Heat Rate for Rajghat Power Station

#### 3.17.1 Petitioner's Submission

The Petitioner, in its ARR submission had estimated the Station Heat Rate of 3314 kCal/kWh and 3167 kCal/kWh for FY 2005-06 and FY 2006-07, respectively on the basis of actual heat rate achieved during the period April 2005 to September 2005 and anticipated improvements in the working. The said Station Heat Rate has been arrived at after adjusting for the transit and handling loss to the extent of 0.8% and superficial surface moisture to the extent of 3% due to deshaling of the coal. The Petitioner has subsequently submitted the actual Heat Rate of the station for FY 2005-06 as 3586 kCal/kWh.

#### 3.17.2 Commission's Analysis

As per the draft PPA submitted by TRANSCO along with the ARR Petition for FY 2004-05, the Petitioner had agreed to Heat Rate of 3200 kCal/kWh and the same heat rate was approved by the Commission in its earlier Orders. The actual Station Heat Rate is high on account of low operating levels, which needs to be improved. The Commission has again considered the Station Heat Rate as 3200 kCal/kWh for both FY 2005-06 and FY 2006-07 as approved in the last Order. The detail of the submission by the Petitioner and the allowed Station Heat Rate by the Commission is as given in the Table 3.23 below.

**Table:3.23 Station Heat Rate (kCal/kWh)**

Description	FY 2005-06			FY 2006-07		
	Order for FY 05-06	Revised Estimates	Actual	Commission	Petition	Commission
Station Heat Rate	3200	3314	3586	3200	3167	3200

### 3.18 Total Cost of fuel for Rajghat Power Station

#### 3.18.1 Petitioner's Submission

The Petitioner has submitted that the expenses towards the annual fuel cost are based on estimated weighted average Gross Calorific Value of the coal at 3852 kCal/kg and 10350 kCal/kg and 10580 kCal/litre for LSHS and LDO, respectively.

In the ARR of the Petitioner, the cost of coal per MT was estimated at Rs. 1939 for FY 2005-06 and an increase of 5% has been estimated for projections of FY 2006-07. The total coal requirement was calculated based on the projected PLF and the Station Heat Rate. The specific oil consumption of LDO has been estimated at 2.00 ml/kWh and 1.50 ml/kWh for FY 2005-06 and FY 2006-07, respectively. In respect of LSHS the specific oil consumption has been estimated at 6.67 gm/kWh and 3.75 gm/kWh for FY 2005-06 and FY 2006-07, respectively. The actual fuel cost for FY 2005-06 was Rs. 109.57 Crore as per the subsequent submissions of the Petitioner.

### 3.18.2 Commission's Analysis

The Commission has considered the specific oil consumption as 1.94 ml/kWh of LDO and 4.48 gm/kWh of LSHS for FY 2005-06 based on the approved level as per Tariff Order dated July 7, 2005. For the FY 2006-07 the Commission has allowed the specific oil consumption as 1.50 ml/kWh of LDO and 3.75 gm/kWh of LSHS as per the submission of the Petitioner. The Commission has considered the actual fuel prices for estimating the total fuel cost to be allowed based on the heat rate and auxiliary consumption approved by the Commission for the FY 2005-06. Further an escalation of 3% on the price of coal and 5% on oil price based on past practice has been considered for FY 2006-07. The details of the total fuel cost as submitted by the Petitioner and estimated by the Commission is give in Table 3.24 below.

**Table:3.24 Total Fuel Cost for Rajghat Power Station**

Description	FY 2005-06				FY 2006-07	
	Order for FY 05-06	Revised Estimates	Actual	Commission	Petition	Commission
Gross Generation (MU)	870	550	574	574	800	800
Net Generation (MU)	772	473	495	510	700	710
Calorific Value of coal (kCal/kg)	3912	3852	3875	3875	3852	3875
Price of coal (Rs./MT)	1860	1939	1929	1929	2036	1987
Calorific Value of LSHS (kCal/kg)	10320	10350	10350	10350	10350	10350
Calorific Value	10720	10580	10580	10580	10580	10580

of LDO (kCal/l)						
Price of LSHS (Rs./MT)	13266	15300	15609.26	15609.26	19745	16390
Price of LDO (Rs./kl)	19617	25750	25372	25372	30109	26641
<b>Total Fuel Cost (Rs. Crore)</b>	136.00	97.69	109.57	96.42	141.13	137.12
<b>Variable cost of generation (Rs./kWh)</b>	1.56	1.78	1.91	1.68	1.76	1.71
<b>Cost of Energy sent out (Rs/kWh)</b>	<b>1.76</b>	<b>2.07</b>	<b>2.22</b>	<b>1.89</b>	<b>2.02</b>	<b>1.93</b>

### 3.19 Station Heat Rate for IP Gas Turbine Station

#### 3.19.1 Petitioner's Submission

The Petitioner has submitted that due to depleting gas reserves, GAIL is imposing cuts on a day to day basis on the supply of CNG. The Petitioner is of the viewpoint that since these cuts will increase progressively and due to the shortage of supply of CNG, the Company entered into an agreement with GAIL for the supply of R-LNG. The cuts have been estimated to the tune of 15% and 20% on total fuel supply for FY 2005-06 and FY 2006-07, respectively. The Petitioner has submitted the Heat Rate as 2497 kCal/kWh on Gross Calorific Value basis for FY 2005-06 and FY 2006-07. The actual Heat Rate for FY 2005-06 as submitted by the Petitioner is 2426 kCal/kWh.

#### 3.19.2 Commission's Analysis

The Commission has considered a normative heat rate of 2450 kCal/kWh, both for FY 2005-06 and FY 2006-07 on the basis of Gross Calorific Value of Gas. The Commission reiterates its views that the gains due to efficient operation should be allowed to the generating companies to act as incentive for further improvement in performance. The details of Heat Rate as submitted by the Petitioner and as approved by the Commission are given in the Table 3.25 below.

**Table:3.25 Station Heat Rate (kCal/kWh)**

Description	FY 2005-06			FY 2006-07		
	Order for FY 05-06	Revised Estimates	Actual	Commission	Petitioner	Commission



Station Heat Rate - Based on Gross Calorific Value	2450	2497	2426	2450	2497	2450
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### 3.20 Total Cost of fuel for IP Gas Turbine Station

#### 3.20.1 Petitioner's Submission

The Petitioner, in its ARR filing has submitted that it has entered into an agreement with GAIL for supply of R-LNG for meeting shortfall in supply of CNG/PMT (Panna Mukti Tapti Oil fields) gas to its gas turbine units and the R-LNG supply has commenced from March 2004.

The Petitioner has stated that it is obliged to bear the cost of this contracted quantity of R-LNG even if there is no off-take of supply and in view of this Agreement the Company would first off-take R-LNG before CNG/PMT. The fuel cost was accordingly estimated at Rs. 251.91 crore for FY 2005-06. The Petitioner has further submitted the actual fuel cost for FY 2005-06 at Rs. 265.18 Crore with a consumption of 244.76 MMSCM of CNG (APM & PMT) at a weighted average price of Rs. 4.30 per Standard Cubic Meter (SCM) for APM & PMT and Rs. 193.94 per MMBTU for R-LNG.

#### 3.20.2 Commission's Analysis

The Commission is aware of the shortage of gas in the country and believes that the Petitioner shall make adequate arrangements for the fuel to run its plant at the given capacity. The Commission had asked the Petitioner to submit the actual data for FY 2005-06 for quantity of different fuels used and the respective costs incurred. Based on the actual fuel prices including liquid fuels, Gross Calorific Value and the Station Heat Rate of 2450 kCal/kWh (on GCV basis) as approved in Tariff Order dated July 7, 2005, the Commission has allowed the total fuel cost of Rs. 260.07 crore for FY 2005-06.

The Commission has considered the same Station Heat Rate of 2450 kCal/kWh, actual Gross Calorific Value of fuel for FY 2005-06 and the fuel price as estimated by the Petitioner to work out the fuel costs for FY 2006-07.

Based on above, the total fuel cost/ variable cost as estimated by the Petitioner and as approved by the Commission for FY 2005-06 and FY 2006-07 is given in Table 3.26 below:

**Table: 3.26 Total Fuel Cost for IP Gas Turbine Station**

Description	FY 2005-06			FY 2006-07		
	Order for FY 05-06	Revised Estimates	Actual	Commission	Petition	Commission
Gross Generation (MU)	1650	1650	1748	1748	1500	1500
Net Generation (MU)	1601	1599	1698	1696	1454	1455
<b>Total Fuel Cost (Rs Cr)</b>	<b>257.00</b>	<b>251.91</b>	<b>265.18</b>	<b>260.07</b>	<b>248.29</b>	<b>241.08</b>
<b>Variable Cost (ESO basis) per Kwh</b>	<b>1.61</b>	<b>1.58</b>	<b>1.56</b>	<b>1.53</b>	<b>1.71</b>	<b>1.66</b>

The Commission further directs that any variation in variable cost, owing to change in fuel composition (i.e. depending on percentage of CNG / PMT or R-LNG consumed) or variation in fuel price for FY 2006-07, shall be considered while truing up next year.

### 3.21 Approved Tariff for FY 2005-06 and FY 2006-07

The Commission directs that the tariff applicable shall be on the basis of two-part tariff comprising fixed and variable cost components. The summary of fixed and variable cost as approved by the Commission is as given in Table 3.27 below:

**Table 3.27: Summary of Approved Fixed and Variable Cost for IPGCL Stations for FY 2005-06 and FY 2006-07 (Rs Crore):**

Description	FY 2005-06			FY 2006-07		
	IP Station	RPH Station	GTPS Station	IP Station	RPH Station	GTPS Station
Annual Fixed Cost	50.69	47.37	71.95	54.94	58.45	85.57

Annual Variable Cost	177.65	96.42	260.07	176.95	137.12	241.08
<b>Total Cost (ESO basis)</b>	<b>228.34</b>	<b>143.79</b>	<b>332.03</b>	<b>231.89</b>	<b>195.57</b>	<b>326.65</b>

Apart from the above, all leviable statutory taxes, duties, cess etc. would be recoverable on actuals subject to presentation of requisite proof to the TRANSCO by the Petitioner.

### 3.21.1 Fixed Cost

In line with the Tariff Order dated July 7, 2005 issued by the Commission, the total Fixed Cost (Capacity Charges) shall be recovered by the Petitioner at stipulated Target Availability on an annual basis. The recovery of annual Fixed Cost below the level of Target Availability shall be on pro rata basis with no Fixed Cost payable at zero availability. For this purpose, the availability of the power station shall be certified by the SLDC. The backing down on the instructions of SLDC shall qualify for deemed availability for recovery of Fixed Cost. Any adjustment of recovery of annual Fixed Cost shall be based on the cumulative availability as certified by the SLDC at the end of the year. The Fixed Cost shall be recovered in 12 equal monthly instalments. The same procedure shall be continued for the FY 2006-07.

The Target Availability for recovery of annual Fixed Cost is being fixed taking into account the operational performance of the generating stations. However all efforts are to be made to ensure higher availability of units for generation. The Commission has accordingly fixed the Target availability as 50% for IP station and 70% for GTPS. In respect of RPH station, the Commission is aware that the major repairs taken up by the Petitioner for the two units during the FY 2005-06 and FY 2006-07 has resulted in lower availability. However, given the positive results of enhanced and reliable generation at PLF of above 80% after the repairs, the Commission has considered the request of the Petitioner and accordingly for recovery of full Fixed Cost of RPH, the Target Availability for FY 2005-06 and FY 2006-07 shall be clubbed together and recovery of full Fixed Cost shall be allowed if the Availability for both the years put together exceeds 60%.

### 3.21.2 Variable Cost

The Variable Cost shall be billed by the Petitioner to TRANSCO based on the actual power purchased during the month from the respective station as per the rates

approved by the Commission. The Petitioner shall bill for the Variable Cost based on the Energy Sent Out (ESO) from the power stations till the introduction of Intra State Availability Based Tariff (ABT) in the State of Delhi. The mechanism for recovery of Variable Cost after introduction of Intra State ABT in the State of Delhi shall be governed by the stipulations to be made at the time of its introduction.

### 3.21.3 Incentive

In the Tariff Order dated July 7, 2005 the Commission had allowed Incentive at a flat rate of 25 paise / kWh in case individual stations of IPGCL achieved actual PLF level beyond the stipulated target PLF for FY 2005-06. In FY 2005-06, since IP station has achieved PLF lower than the target PLF specified above, no incentive is admissible. However, GTPS station has achieved PLF of 70.6%, which is higher than the specified target PLF of 70% and Incentive for GTPS station for FY 2005-06 is payable for generation beyond 70%.

The Commission is of the opinion that the improvement in performance with respect to actual generation over and above the normative level shall be incentivised. The Commission approves the incentive of 25 paise/kWh for the actual generation achieved beyond the level corresponding to target PLF of 50% for IP station and 70% for GTPS on an annual basis for FY 2006-07. With the Commission allowing a conscious relaxation to RPH station for Target Availability for recovery of annual Fixed Cost as a special case, no incentive would be payable for this composite period of relaxation for FY 2005-06 and FY 2006-07. However, all the generating stations of the IPGCL shall comply with the SLDC instructions with respect to the backing down of the generation and such backing down shall not qualify for calculation of PLF for Incentive. Further, in case of non-compliance by generating stations to backing down instructions given by SLDC, generation during backing down period as instructed by SLDC shall not be considered for Incentive purpose. The SLDC shall at the end of the year, certify the generation level of generating stations which qualifies for Incentive purpose as per the above guidelines.

### 3.22 Truing-up for FY 2004-05

In the Tariff order dated July 7, 2005, the Commission has considered the Fixed Cost of Rs 162.65 Crore in the ARR of IPGCL for FY 2004-05.

The Petitioner has submitted the Audited Accounts for FY 2004-05. Interest on Loans has been considered for truing up based on the same. The Commission has reworked the depreciation. Accordingly as discussed above, the components of Fixed Cost so trued up for the FY 2004-05 is given in Table 3.28 below and the same will be considered in annual Fixed Charges to be paid by TRANSCO for the said period:

**Table 3.28: Truing-up of Fixed Cost for FY 2004-05 (Rs Crore)**

Description	FY 2004-05		
	Order for FY 2005-06	Allowed by Commission	Difference
Depreciation	23.56	22.36	1.20
Interest on Loans	10.09	9.02	1.07
<b>Total</b>	<b>33.65</b>	<b>31.38</b>	<b>2.27</b>

### 3.23 Other Issues

#### 3.23.1 Voluntary Retirement Scheme (VRS)

##### 3.23.1.1 Petitioner's Submission

The Petitioner has submitted that during FY 2003-04, the Company had given VRS to 383 employees and Rs. 21 Crore was paid as compensation to these employees. The Petitioner had also paid the terminal benefits to these employees which will be later on reimbursed to the Company by DVB Terminal Benefit Trust on the scheduled date of superannuation of the employees. The Company is now paying pension to these retirees till date of their normal superannuation. The interest loss on this account and ex-gratia payment to VRS employees approximately amounts to Rs. 25 Crore. This outgo will be offset by the savings to be made in the salaries over the next five years. The Establishment expenses have been hiked by Rs 5 crore in FY 2005-06 and FY 2006-07 to offset the expected savings on account of outgoing VRS employees.

##### 3.23.1.2 Commission's Response

This aspect has been dealt in detail in the Commission's last Tariff Order dated July 7, 2005 for FY 2005-06 and in the subsequent order on Review Petition filed by the Petitioner. The Commission reiterates that VRS expenses would be amortized by spreading the expenses over the period of time through savings in employees cost.

The Commission has taken the tariff neutral approach for treatment of VRS expense by DISCOMs and it cannot adopt a different yard-stick for IPGCL. Further the normative O&M expense which includes Employees cost, has been recommended by CEA and the same has been adopted by the Commission for FY 2004-05 onwards. Any expenses towards VRS has to be met by savings in employees cost due to implementation of VRS in line with the tariff neutral approach.

### **3.23.2 Renovation & Modernisation**

#### **3.23.2.1 Petitioner's Submission**

The Petitioner has proposed to incur the following capital expenditures on renovation and modernisation/repair and maintenance of the power plants to achieve optimum level of performance and enhanced life:

I.P Station	Rs. 110.00 Crore
R.P Station	Rs. 212.57 Crore
G.T Station	Rs. 140.00 Crore

However, the financial impact of the above proposal has not been reflected in the ARR.

#### **3.23.2.2 Commissioner's Response**

The Commission directs the Petitioner to get the projects evaluated by CEA and necessary action will be taken on submission of the CEA recommendations. Further the cost-benefit analysis needs to consider the vintage and expected residual life of these power stations as well as directions by any statutory agency/courts, before a final decision can be taken in the matter.

**Annexure 2**

List of respondents on proposal for Annual Revenue Requirement for IPGCL for Financial Year 2006-07

S.No.	Name	Designation	Address	Category
1.	Sh. P.L. Tuli		Bijli Consumer Society, 113, Old Gupta Colony, Delhi - 110009	Society
2.	Sh. Mallika Singh	Sr. Assistant Secretary	PHD Chamber of Commerce and Industry, PHD House, 4/2, Siri Institutional Area, August Kranti Marg, New Delhi - 110016	Commerce & Industry
3.	Sh. Vijay Kumar Gupta		BN 75. (W) Shalimar Bagh, Delhi - 110088	Individual
4.	Sh. M.P. Aggarwal	General Manager (Comml)	Delhi Transco Ltd., Shakti Sadan, Kotla Road, New delhi - 02	Transmission Licensee & Bulk Power Purchaser
5.	Sh. Ravi Dev Gupta	President – Delhi State Unit	Akhil Bhartiya Grahak Panchayat	Grahak Panchayat