MYT TARIFF ORDER

FOR THE PERIOD

FY09 TO FY11

Himachal Pradesh Electricity Regulatory Commission

May, 2008

BEFORE THE HIMACHAL PRADESH ELECTRICITY REGULATORY COMMISSION AT SHIMLA

CASE NO.255/2007

CORAM

YOGESH KHANNA

IN THE MATTER OF:

Determination of Aggregate Revenue Requirement (ARR) for the Multi Year Tariff petition of the first control period (FY09, FY10 & FY11) under section 62 of the Electricity Act, 2003.

AND

IN THE MATTER OF:

HP State Electricity Board

…APPLICANT

The Himachal Pradesh State Electricity Board (hereinafter called the "Board") has filed petition with the Himachal Pradesh Electricity Regulatory Commission (hereinafter referred to as the 'Commission' or 'HPERC') for approval of its Aggregate Revenue Requirement (ARR) and determination of Wheeling and Retail Supply Tariff as well as Generation and Transmission Tariffs for the first MYT Control Period (FY09 to FY11) under Sections 62, 64 and 86 of the Electricity Act, 2003 (hereinafter referred to as the Act), read with the HPERC (Terms and Conditions for Determination of Wheeling Tariff and Retail Supply Tariff) Regulations, 2007; the HPERC (Terms and Conditions for Determination of Hydro Generation Tariff) Regulations, 2007 and HPERC (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2007.

The Commission having heard the applicant, interveners, consumers, consumer representatives of various consumer groups on April 3, 2008 at Shimla, and having had the formal interactions with the officers and the Whole Time Members of the HP State Electricity Board including its Chairman between March 26 and April 1, 2008, and having considered the documents available on record, herewith accepts the applications with modifications, conditions and directions specified in the following Tariff Order. The Commission has determined the of Aggregate Revenue Requirement of the Generation, Transmission and Distribution functions of the Board for each year of the Control Period (FY09 – FY11) under the Multi Year Tariff regime and approved the Wheeling and the Retail Supply Tariffs for FY09 in accordance with the guidelines laid down in Section 61 of the Electricity Act, 2003, the National Electricity Policy, the National Tariff Policy and the regulations framed by the Commission, The Wheeling and Retail Supply Tariff shall be decided every year taking into account the adjustment on account of allowed variations in uncontrollable parameters. This Tariff Order also relates to the determination of Generation Tariff for the Board's own stations and Transmission Tariff of the Board for each year of the Control Period (FY09 – FY11) under the Multi Year Tariff regime.

The Commission, in exercise of the powers vested in it under Section 62 of the Electricity Act, 2003, orders that the approved tariffs together with "Schedule of General and Service Charges" shall come into force w.e.f. 1-4-2008. The arrears, if any, on account of revised tariffs for the months of April and May 2008 shall be adjusted in the bills for the months of June and July 2008 respectively.

In accordance with sub-regulation (5) of Regulation 4 of the HPERC (Terms and Conditions for Determination of Wheeling Tariff and Retail Supply Tariff) Regulations, 2007, the tariff determined by the Commission and directions and advisories given in Section A11 of the Tariff Order by the Commission shall be quid pro quo and mutually inclusive. The tariff determined shall, within the period specified by it, be subject to the compliance of the directions-cum-orders to the satisfaction of the Commission and the non-compliance shall lead to such amendment, revocation, variation and alteration of the tariff as may be ordered by the Commission.

In terms of sub-regulation (6) of Regulation 4 of the HPERC (Terms and Conditions for Determination of Wheeling Tariff and Retail Supply Tariff) Regulations, 2007, the Wheeling and the Retail Supply Tariff shall unless amended or revoked, continue to be in force upto March 31, 2009. In the event of failure on the part of the licensee to file application for true up of FY 08 and approval of wheeling and retails supply tariff for the ensuing financial year, in terms of Regulation 39 of the HPERC (Terms and Conditions for Determination of Wheeling Tariff and Retail Supply Tariff) Regulations, 2007 on or before November 30, 2008, the tariff determined by the Commission shall cease to operate after March 31, 2009, unless allowed to be continued for further period with such variations or modifications as may be ordered by the Commission.

In terms of sub-regulation (5) of Regulation 44 of the HPERC (Terms and Conditions for Determination of Wheeling Tariff and Retail Supply Tariff) Regulations, 2007, the consequential orders which the Commission may issue to give effect to the subsidy that the State Government may provide, shall not be construed as amendment of the tariff. The licensee Board shall, however, make appropriate adjustments in the bills to be raised on the consumers for the subsidy amount in the manner as the Commission may direct.

The Commission further directs the publication of the tariff in two leading newspapers one in Hindi and the other in English having wide circulation in the State within 7 days of the issue of the Tariff Order. The publication shall include a general description of the tariff changes and its effect on the various classes of consumers.

The Board is directed to make available the copies of the Tariff Order to all concerned officers up to AE level, and sub-divisions within two weeks of issue of this Order. The Board may file clarificatory petition in case of any doubt in the provisions of the Tariff Order, within 30 days of issue of the Tariff Order.

Chairman

Shimla.

Dated: May 30, 2008

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A1: BACKGROUND

1.1 The Himachal Pradesh State Electricity Board (hereinafter referred to as HPSEB or the Board) is a deemed licensee under the first proviso to Section 14 of the Electricity Act, 2003 (hereinafter referred to as 'the Act') for transmission, distribution and supply of electricity in the State of Himachal Pradesh.

1.2 The Board has filed petition with the Himachal Pradesh Electricity Regulatory Commission (hereinafter referred to as the 'Commission' or 'HPERC') for true – up of FY07 and approval of its Aggregate Revenue Requirement (ARR) and determination of Wheeling and Retail Supply Tariff as well as Generation and Transmission Tariffs for the first MYT Control Period (FY09 to FY11) under Sections 62, 64 and 86 of the Electricity Act, 2003 (hereinafter referred to as the Act), read with the Himachal Pradesh Electricity Regulatory Commission (Terms and Conditions for Determination of Wheeling Tariff and Retail Supply Tariff) Regulations, 2007; Himachal Pradesh Electricity Regulatory Commission (Terms and Conditions for Determination of Hydro Generation Tariff) Regulations, 2007 and Himachal Pradesh Electricity Regulatory Commission (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2007 (hereinafter referred to as MYT Regulations, 2007).

1.3 The licensee is required to observe the methodologies and procedures specified by the Commission in the above mentioned Regulations in calculating the expected revenue from charges (viz. Aggregate Revenue Requirement) and in designing tariffs. The calculations relate to each of the licensed business for each financial year of the Control Period regarding

(a) its expected aggregate revenue from charges under its currently approved tariff; and

(b) its expected revenue gap (if any) and a general explanation on how it proposes to deal with the revenue gap and the application for tariffs for the ensuing financial year.

1.4 This Tariff Order relates to the determination of Aggregate Revenue Requirement of the Generation, Transmission and Distribution function of HPSEB for each year of the Control Period (FY09 – FY11) under the Multi Year Tariff regime and approval of Wheeling and the Retail Supply Tariffs for FY09. Wheeling and Retail Supply Tariff shall be decided every year taking into account the adjustment on account of allowed variations in uncontrollable parameters. This Tariff Order also relates to the determination of Generation Tariff for HPSEB own stations and Transmission Tariff of the Board for each year of the Control Period (FY09 – FY11) under the Multi Year Tariff regime.

1.5 The Commission has reviewed the operational and financial performance of the Board for FY07 and has finalised this Order based on the review and analysis of the past records, information submissions, necessary clarifications submitted by the licensees and views expressed by stakeholders.

Functions of the Commission

1.6 The Himachal Pradesh Electricity Regulatory Commission was established and incorporated by the Government of Himachal Pradesh (hereinafter referred to as 'GoHP') through a notification dated December 30, 2000, under Section 17 of the repealed Electricity Regulatory Commissions Act, 1998 (14 of 1998), and now covered under the first proviso to Section 82 of the Electricity Act, 2003, with its office located at Shimla.

1.7 The Act mandates the Commission to take measures conducive to the development and management of the electricity industry in an efficient, economic and competitive manner.

1.8 The Commission derives its powers under Section 86 of the Electricity Act, 2003 (36 of 2003) which came into force with effect from 10 June 2003. The Act repealed the Indian Electricity Act, 1910, the Electricity (Supply) Act, 1948 and the Electricity Regulatory Commissions Act, 1998.

1.9 As part of the tariff related provisions of the Act, the State Electricity Regulatory Commission (SERC) is guided by the Electricity Act, the National Electricity Policy (NEP) and the National Tariff Policy (NTP).

1.10 The functions assigned to the Commission under Section 86 of the Act are as follows:

(1) "The State Commission shall discharge the following functions, namely: -

(a) Determine the tariff for generation, supply, transmission and wheeling of electricity, wholesale, bulk or retail, as the case may be, within the State: Provided that where open access has been permitted to a category of consumers under section 42, the State Commission shall determine only the wheeling charges and surcharge thereon, if any, for the said category of consumers;

(b) 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;

(c) Facilitate intra-state transmission and wheeling of electricity;

(d) Issue licences to persons seeking to act as transmission licensees, distribution licensees and electricity traders with respect to their operations within the State;

(e) 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;

(f) Adjudicate upon the disputes between the licensees and generating companies and to refer any dispute for arbitration;

(g) Levy fee for the purposes of this Act;

(h) Specify State Grid Code consistent with the Grid Code specified under clause (h) of sub-section (1) of section 79;

(i) Specify or enforce standards with respect to quality, continuity and reliability of service by licensees;

(j) Fix the trading margin in the intra-State trading of electricity, if considered, necessary;

(k) Discharge such other functions as may be assigned to it under this Act.

(2) The State Commission shall advise the State Government on all or any of the following matters, namely: -

(a) Promotion of competition, efficiency and economy in activities of the electricity industry;

(b) Promotion of investment in electricity industry;

(c) Reorganisation and restructuring of electricity industry in the State;

(d) Matters concerning generation, transmission, distribution and trading of electricity or any other matter referred to the State Commission by that Government."

Tariff Regulations framed under the Electricity Act 2003

1.11 HPERC had specified the terms and conditions for the determination of tariff in the year 2004, based on the principles laid down under Section 61 of the Electricity Act 2003.

1.12 Further, HPERC has notified Himachal Pradesh Electricity Regulatory Commission (Terms and Conditions for Determination of Wheeling Tariff and Retail Supply Tariff) Regulations, 2007; Himachal Pradesh Electricity Regulatory Commission (Terms and Conditions for Determination of Hydro Generation Tariff) Regulations, 2007 and Himachal Pradesh Electricity Regulatory Commission (Terms and

Conditions for Determination of Transmission Tariff) Regulations, 2007 and the previous tariff regulations of 2004 have been repealed. The tariff regulations clearly outline that the Act and the National Electricity Policy and National Tariff Policy would provide the guiding principles for setting tariffs.

Tariff Orders Issued by the Commission

1.13 The Commission issued its first Tariff Order for FY02 on 29 October 2001. In this Tariff Order, directions were issued to the Board on issues concerning improvement of performance and availability of information with the intention to improve the overall efficiency and database of the utility.

1.14 The Board did not submit the ARR and Tariff Filings for FY03 and FY04 despite the Commission's request to submit the same. In subsequent years, FY05, FY06, FY07 and FY08, the Board submitted its ARR and Tariff Filings and Commission issued the respective Tariff Orders on 2 July 2004, 29 June 2005, 3 July 2006 and 16 April 2007.

1.15 Some of the salient features of the previous Tariff Orders are as follows:

(a) Introduction of two part kVAh based tariff for all for all consumer categories except domestic category having connected load of 20 kW and above.

(b) Rationalisation of tariff slabs and categories.

(c) Rationalization of the Peak Load Exemption Charge (PLEC) and the Peak Load Violation Charge (PLVC).

(d) Introduction of a night time concessional tariff for select consumer categories.

(e) Adoption of a Cost to Supply Model to determine tariffs from the FY05 Tariff Order onwards to rationalise the tariffs.

(f) Reduction of energy charges of HT and EHT consumers in Large Industrial Power Supply category to reduce cross subsidy.

(g) Introduction of high voltage rebate and low voltage surcharge to encourage high voltage Distribution, a step towards - reduction of T & D loss.

(h) Issued directions to the Board to conduct various studies and undertake various activities for improving its operations.

(i) Introduction of EHT Consumers as a separate group under Bulk Supply Category and Water Pumping Supply (WPS).

Multi Year Tariff Framework

1.16 The Commission decided to adopt Multi Year Tariff (MYT) principles for determination of tariffs, in line with the provisions in Section 61 of the Act.

1.17 The Commission designed the MYT framework in the State and set long term performance targets for the Board engaged in generation, transmission and distribution. Simultaneously, the Commission segregated costs into two categories; first which are expected to be easily controlled by the entity and a second category over which an entity does not have significant control. The Commission would set targets for each year of the Control Period for the items or parameters that are deemed to be "controllable" and which shall include: Operation and Maintenance (O&M) Expenses, T&D losses, Quality of Supply etc.

1.18 Any financial losses arising out of the under-performance with respect to the targets specified by the Commission for the "controllable" parameters shall be to the Licensee's account. The Commission in the subsequent sections has discussed the circumstances under which the controllable parameters shall be trued up during the Control Period.

1.19 The MYT framework is also designed to provide predictability and reduce regulatory risk. This can be achieved by approval of a detailed capital investment plan for the Board, considering the expected network expansion and load growth during the Control Period. The longer time span enables the Board to propose its investment plan with details on the possible sources of financing and the corresponding capitalization schedule for each investment.

Multi Year Tariff Regulations

1.20 The Commission issued a Concept Paper and Draft MYT Regulations for Generation, Transmission and Distribution businesses to all concerned stakeholders, including the Government, the Board, and consumers. These documents detailed the principles, approach and methodology to be adopted for the determination of tariff for various entities under the MYT framework and also highlighted the various issues which were to be discussed and finalized for successful implementation of the MYT principles.

1.21 These draft regulations and MYT Concept Paper were issued on 28 June, 2007 and a notice for inviting comments and suggestions from public and stakeholders was published in leading newspapers on 2 July, 2007.

1.22 The Commission issued final regulations vide notification dated 10 October, 2007 specifying Terms and Conditions for Determination of Tariff for Generation, Transmission and Distribution of electricity under the Multi Year Tariff (MYT) framework.

Advice given by the Commission to GoHP

1.23 The Commission has given its statutory advice to the GoHP under Section 86(2) of the EA 2003.

(a) First advisory on July 30, 2004 was on ‘Physical verification of assets’;

(b) Second advisory on April 6, 2005 was on the ‘Reorganization and restructuring of the electricity industry’; and

(c) In the chapter “Directions and Advisories” of the Tariff Order for FY07 some of the advisories include the need to specify an agency to look into the safety aspects of the IPP projects, reassess the present mechanism of allotment of hydel projects in the state, requirement of equity infusion in the Board for cleaning the balance sheet, setting up special courts, delegating the power to the Board officials for dealing with theft of power, framing of rules under section 180 of the Electricity Act, 2003.

(d) The advisories in the Tariff Order for FY08 were related to the development of renewable energy, development of infrastructure in industrial areas, incentivising the Board in setting up transmission infrastructure with assistance from multilateral agencies and re-examination of the hydro policy of the state to make it investor friendly especially in respect of renewables.

Issues related to HPSEB

Capacity Building for Regulatory Process

1.24 The capacity within Board to undertake some of the initiatives highlighted in the National Electricity Policy and National Tariff Policy remains a concern for the Commission. The existing Regulatory Affairs Unit (RAU) needs to be strengthened in terms of staffing and inculcating adequate skill set. This unit has been acting as a transit point for forwarding information from various departments to the Commission instead of sanitising, analysing, presenting the information and improving the information and preparing a database.

Information Issues

1.25 In the Tariff Order of FY02, the Commission had directed the Board to take urgent steps to build a credible and accurate information system with unbundled costs and expenditure between the three businesses of generation, transmission and distribution. Board has submitted information on segregated costs based on the identification and isolation of different items like activities, assets, costs and revenues to the three functions based on circle wise data available for Generation, Transmission and Distribution functions based on certain estimates and assumptions.

1.26 It is also pertinent to note that the accounting principles adopted by the Board are archaic and needs a complete revamp with induction of qualified manpower and accounting systems. The segregation of accounts of the three businesses is still to be completed despite directions of the Commission in the previous tariff orders. The Board has, however, mentioned that full segregation of expenses with separate balance sheets of the three businesses would be made effective from FY09.

1.27 The information submitted for determination of tariffs for the various hydro projects of the Board is totally in-adequate to enable the Commission to determine the project-wise tariffs. The separate tariff petitions filed for the projects commissioned recently such as Larji and Khauli did not contain the requisite details and the various forms prescribed were either not filled or partially filled. The Board was not able to submit the additional information, sought by the Commission, through queries and during the validation session, leaving the Commission with no alternative but to make assumptions and use normative values for prudency.

1.28 Information on various parameters relating to the billing data has so many inconsistencies that it distorts the T&D loss projections and could adversely affect the viability of the distribution business. Lack of proper checks on such important information has impeded the finalisation of the true up petition for FY07.

1.29 Board still does not have Computerised Human Resources Database detailing basic information like the date of joining, qualifications, salary details, performance record, experience, etc. In absence of such information, development of training needs, calculation of terminal benefit, and identification of resources for appropriate jobs becomes difficult and hinders the manpower planning.

Technology Initiative

1.30 The Commission sincerely hopes that HPSEB would implement the computerised billing across various circles as agreed to in its various interactions. It would also advise HPSEB to closely monitor the progress regarding the study involving physical verification and valuation of assets and working out their fair value, depreciated value and revenue potential with appropriate technology. The study shall include mapping of consumers upto last service line including the size, length and location of service lines, installation of necessary hardware and software, and training of personnel. The objective of this study is to have the information on the assets, revenue potential, fair value and the depreciated value of Board’s assets. The results of this study would form the basis of transfer of assets at the time of unbundling as also for a detailed study of the cost of supply to various categories.

1.31 The Board has initiated the process for developing management information systems (MIS) for consumer billing, CRM etc which is being implemented in a phased manner. The initial pilot project would be reflected in all major divisions of the Board after successful test run. The Commission hopes that the IT initiative would enable the Board to keep in place a robust database management system which would yield reliable and credible data needed for tariff and other purposes like planning and decision making.

Government Support to HPSEB

1.32 The State government has been providing subsidy to the domestic and agriculture category consumers. The quantum of subsidy provided by the state government has increased each year in the previous years and this has off set the tariff hike in these categories, due to which the effective domestic and agriculture tariffs have remained unchanged in the state for the last 7 years.

1.33 This has led to a huge differential between the tariff set by the Commission for domestic and agriculture consumers and that paid by these consumers after subsidy. The summary of the difference between the tariffs before and after subsidy for domestic and agriculture consumers is shown below.

Table 1: Difference in Energy Charges of Domestic and Agriculture Consumers in FY08

Category	Tariff set by the Commission (Rs/unit)	Tariff Paid by the Consumer (Rs/unit)	Difference (Rs/unit)
Domestic			
(a) BPL	1.85	0.70	1.15
(b) Others			
0 – 150 unit	1.90	0.70	1.20
151 unit & above	2.90	1.59	1.31
Agriculture	1.85	0.70	1.15

1.34 The stable effective tariffs in these categories has led to difficulties in the tariff setting process as the cost to supply to these categories has significantly increased and the recovery of cost from these categories is around 50% only. There is an urgent need for a re-look by the State Government into this matter and perhaps a phased reduction in subsidy and focus towards the needy sections of the society is the need of the hour.

Filing of ARR and Tariff Petition for MYT Control Period (FY09 – FY11)

Procedural Background

1.35 The Board filed the application for approval of the Aggregate Revenue Requirement (ARR) and determination of Wheeling and Retail Supply Tariff as well as Generation and Transmission Tariffs for the first Control Period (FY09 – FY11), with the Commission on 30 November 2007 and the detailed formats were submitted on 15 December 2007. Additional information/clarifications and details, based on the queries of the Commission and validation session, were submitted on 21 January 2008 and 6 February, 2008.

1.36 PricewaterhouseCoopers were appointed Consultants to assist the Commission in the assessment of the ARR and determination of the relevant tariffs.

Admission Hearing

1.37 The Commission directed the Board on 2 January, 2008 to submit details regarding first set of deficiencies discovered during preliminary scrutiny of the ARR, which were submitted by the Board on 21 January, 2008. The Commission held Admissibility Hearing for the admission of the Petition on 7 February, 2008 and admitted the petition.

Interaction with the Petitioner

1.38 Since the submission of the petition by the Board there have been a series of interactions between the Board and the Commission, both written and oral, wherein the Commission sought additional information/clarification and justifications on various issues, critical for the analysis of the petition.

1.39 The Commission conducted the technical validation session on the petition filed by the Board on 4th and 5th April 2008 during which the discrepancies and additional information requirement in the Petition were highlighted.

Public Hearings

1.40 The Commission issued an interim order to the Board, after admission hearing on 7 February, 2008, for publishing a disclosure of the salient features of the petition for the information of all the stakeholders in the State. Accordingly the Board published the salient features of the petition in the following newspapers:

(a) The Tribune (Chandigarh edition) on 14 February, 2008

(b) Amar Ujala (Chandigarh edition) on 14 February, 2008

(c) The Hindustan Times(Chandigarh edition) on 18 February, 2008

(d) Divya Himachal (Chandigarh edition) on 18 February, 2008

1.41 The Commission invited suggestions and objections from the public on the tariff petition filed by the Board in accordance with Section 64 (3) of the Act subsequent of the publication of the initial disclosure by the Board. The public notice inviting objections/suggestions was published on 15 February, 2008 in the following newspapers:

(a) The Tribune (Chandigarh edition)

(b) Amar Ujala (Chandigarh edition)

1.42 The interested parties/stakeholders were asked to file their objections and suggestions on the petition by 7 March 2008.

1.43 The Commission received objections from nine stakeholders by the stipulated date i.e. 7 March, 2008. The Board filed its replies to the objections set out by various objectors on 24 March, 2008, a copy of which was also sent to the individual objectors. The objectors were also allowed to file rejoinder, if any, to the Commission with a copy to the petitioner till 28 March, 2008. Accordingly, rejoinders were filed by three objectors to the replies filed by the Board.

1.44 The Commission issued a public notice informing the public about the scheduled date of public hearing. All the parties, who had filed their objections /suggestions, were also informed about the date, time and venue for presenting their case in the public hearing.

1.45 Public hearing was held on 3 April 2008 at the Commission's Court Room in Shimla.

1.46 The Commission had authorised Sh. P. N. Bhardwaj as consumer representative since 18 May 2006 in pursuance to the provisions of Section 94(3) of the Electricity Act 2003, to represent the interest of the consumers in all proceedings before the Commission.

1.47 The issues and concerns voiced by various objectors have been carefully examined by the Commission. The major issues raised by the objectors in their written submission as well as those raised during the public hearing, have been summarized in Chapter 3 of this Order.

A2: SUMMARY OF THE ARR PETITION FOR THE CONTROL PERIOD

2.1 This section summarizes the highlights of the petition filed by the Board for determination of the Aggregate Revenue Requirement (ARR) and determination of Distribution and Retail Supply Tariff as well as Generation and Transmission Tariffs for the first Control Period (FY09 to FY11).

2.2 It would be appropriate to point out here that the submissions made by HPSEB have been inconsistent during the entire tariff process with different sets of data being submitted in different submissions, which led to confusion during the analysis process. Further, in the absence of segregated accounting and separate balance sheets, the filing has been made as a bundled entity and thereafter, the segregation has been done partly on actuals and partly on assumptions.

2.3 In view of the above, the Commission has taken a view based on the analysis of the data available to it in totality and has had to ignore various inconsistencies in HPSEB's submissions.

Sales Projections

2.4 For the Control Period, the Board has projected energy sales for the Domestic, Antodya, Commercial supply, Small & Medium Power supply, Street lighting supply, Water Pumping supply and Agricultural supply categories by applying four years Compounded Annual Growth Rate (CAGR) (FY03 to FY07) on the estimated sales for the FY08.

2.5 For NDNC a growth rate of 10% p.a. has been considered by the Board for projecting the sales for the Control Period. In the large supply and PIU category the Board has considered the growth rate of 12% p.a. for projecting the sales for the Control Period.

2.6 HPSEB has estimated sales for FY08 at 5,166 MU and projected energy sales of 5,690 MU for FY09, 6,271 MU for FY10 and 6,916 MU for FY11 within the state.

Table 2: Consumer Category wise Energy Sales

Energy Sales (MU)	FY08	FY09	FY10	FY11
	R.E	Projected	Projected	Projected
Domestic	1049.37	1129.96	1216.75	1310.21
Antodya/ BPL	1.17	1.93	3.18	5.25
Non Domestic - Non commercial	78.76	86.63	95.30	104.83
Commercial	253.88	266.17	279.05	292.56
Public Lighting	11.59	12.13	12.69	13.27
Small Power	64.51	68.80	73.39	78.28
Medium Power	122.04	130.17	138.84	148.09

Energy Sales (MU)	FY08	FY09	FY10	FY11
	R.E	Projected	Projected	Projected
Large Supply	2614.76	2928.53	3279.96	3673.55
PIU	440.00	492.80	551.94	618.17
Irrigation & Agriculture	25.91	27.94	30.12	32.47
Govt. Irrigation & Water Pumping	331.57	363.77	399.10	437.85
Temporary	29.61	34.05	39.15	45.03
Bulk Supply	143.06	147.44	151.95	156.59
Total Energy Sales	**5166.23**	**5690.32**	**6271.40**	**6916.14**

Transmission and Distribution (T&D) Loss

2.7 HPSEB has submitted to reduce T&D losses by 0.5% in each year of the Control Period, beginning with loss levels of 17.50% for FY08.

Table 3: Transmission & Distribution Loss

T&D Losses	FY08	FY09	FY10	FY11
	R.E	Projected	Projected	Projected
Sales within State (MU)	5166.23	5690.32	6271.40	6916.14
Proposed T&D Loss within the State (%)	17.50%	17.00%	16.50%	16.00%
Power Requirement for sale within the State (MU)	**6262.10**	**6855.81**	**7510.66**	**8233.50**

Energy Availability

Own Hydel Generation

2.8 HPSEB has projected energy availability from its own generation for the Control Period as detailed in section below:

Table 4: HPSEB Projection - Own Hydel Generation

Gross Generation (MU)	FY08	FY09	FY10	FY11
	R.E	Projected	Projected	Projected
Bhaba	572.29	572.29	572.29	572.29
Bassi	279.50	176.00	315.00	315.00
Giri	170.60	170.60	170.60	170.60
Andhra	63.36	63.36	63.36	63.36
Baner	39.81	39.81	39.81	39.81
Gaj	47.49	47.49	47.49	47.49
Binwa	30.43	30.43	30.43	30.43

Gross Generation (MU)	FY08	FY09	FY10	FY11
	R.E	Projected	Projected	Projected
Thirot	5.23	5.23	5.23	5.23
Ghanvi	74.53	74.53	74.53	74.53
Gumma	9.76	9.76	9.76	9.76
Holi	9.63	9.63	9.63	9.63
Larji	580.00	566.00	566.00	566.00
Khauli	48.00	48.00	48.00	48.00
Micro's	24.00	24.00	24.00	24.00
Bhaba Aug			26.00	26.00
Total	**1954.62**	**1837.12**	**2002.12**	**2002.12**
Less : Auxiliary Consumption	9.00	8.00	9.00	9.00
Less: GoHP 12 % Share in Larji, Khauli, Baner , Ghanvi& Gaj	94.78	93.10	93.10	93.10
Net Hydel Generation	**1850.84**	**1736.02**	**1900.02**	**1900.02**

2.9 Board has considered the average generation for the four years (FY03, FY04, FY05 & FY06) period and the revised estimates for the current year for projecting its own generation for the Control Period, except for Larji, Khauli and Holi HEP.

2.10 The energy generation from Larji, Khauli & Holi HEP has been considered at design energy levels for the Control Period.

Power Purchase Quantum from Other Sources

2.11 The quantum of power availability for HPSEB from various sources has been detailed in the table below. HPSEB has not segregated the energy to be purchased from these stations for its own consumption and the purchase to be made for sales outside state.

Table 5: HPSEB Projection - Power Purchase Quantum

Gross Power Purchase (MU)	FY08	FY09	FY10	FY11
Sources	R.E	Projected	Projected	Projected
Stations				
BBMB Old	44	44	44	44
BBMB New	122	125	125	125
Dehar	79	79	79	79
Total	**245**	**247**	**247**	**247**
NTPC Stations				
Anta(LNG)	10	11	11	11
Anta(GF)	85	88	88	88
Anta (LF)	5	5	5	5
Auraiya (LNG)	15	10	10	10

Gross Power Purchase (MU)	FY08	FY09	FY10	FY11
Sources	**R.E**	**Projected**	**Projected**	**Projected**
Auraiya (GF)	114	120	120	120
Auraiya (LF)	8	5	5	5
Dadri (LNG)	17	10	10	10
Dadri (GF)	133	138	138	138
Dadri (LF)	6	5	5	5
Unchahar-I	51	53	53	53
Unchahar-II	93	89	89	89
Unchahar-III	61	58	58	58
Rihand-1 STPS	264	244	244	244
Rihand-2 STPS	251	251	251	251
Kahelgaon	40	158	158	158
Singrauli	0	0	0	0
Barh I& II			343	663
Total	**1154**	**1245**	**1588**	**1908**
NHPC Stations				
Koteshwar	0	0	0	43
Koldam (NTPC)	0	0	548	548
Parbati III	0	0	0	56
Parbati II	0	0	0	70
Chamera - III	0	0	0	76
Salal	32	30	30	30
Tanakpur	15	15	15	15
Chamera-1	57	48	48	48
Chamera-2	54	54	54	54
Uri	68	69	69	69
Dhauliganga	40	40	40	40
Total	**264**	**256**	**805**	**1050**
Other Stations				
NAPP	47	73	73	73
RAPP	32	79	79	79
Nathpa Jhakri SoR	155	169	169	169
Shanan	5	5	5	5
Shanan Extn	45	45	45	45
Yamuna (UJVNL)	402	380	380	380
Khara	55	59	59	59
Baspa –II	1184	1050	1050	1050
Baspa II Sec Energy		140	140	140
Tehri I	64	71	71	71

Gross Power Purchase (MU)	FY08	FY09	FY10	FY11
Sources	**R.E**	**Projected**	**Projected**	**Projected**
Market Purchase	242	555	150	200
Total	**2232**	**2626**	**2221**	**2271**
Free Power & Equity Power				
Baira Suil	27	19	19	19
Chamera-I	54	37	37	37
Chamera –II	46	36	36	36
Shanan Share	3	1	1	1
Ranjeet Sagar Dam	68	13	13	13
Malana	53	8	8	8
Baspa – II	161	27	27	27
Nathpa Jhakri	158	158	158	158
Nathpa Jhakri Equity	289	289	289	289
Ghanvi	9	2	2	2
Baner	5	1	1	1
Gaj	6	1	1	1
Larji	70	11	11	11
Khauli	6	1	1	1
Koldam	0	0	45	45
Parbati III	0	0	0	38
Parbati II	0	0	0	47
Total	**953**	**606**	**651**	**736**
Banking Power	333	300	300	300
Unallocated Share	335	246	246	246
Private SHPs	110	150	158	166
UI	145	0	0	0
Total	**923**	**696**	**704**	**712**
Gross Power Purchase	**5772**	**5677**	**6216**	**6925**
External Loss %	3.50%	3.50%	3.50%	3.50%
Net Power Purchase	**5570**	**5478**	**5998**	**6682**

2.12 Some of the highlights of power availability are:

(a) Power purchase quantum from the NTPC stations has been calculated based on the installed capacity of each plant and by applying the average of previous three years month-wise PLF to calculate the month-wise gross generation. The effective share of the HPSEB is applied on the total month-wise net generation to estimate the month-wise net energy purchases from the respective stations.

(b) Power purchase quantum from NHPC Stations has been calculated as per the month-wise design energy shown by each plant in their respective water studies (as mentioned in the CERC Order). The effective share of the HPSEB is applied on the total month-wise ex-bus generation to estimate the month-wise energy purchases from the respective stations. The 12% free power share of GoHP from the corresponding plants has been worked out in a similar manner.

(c) The power quantum from the NAPP has been worked out at 68.5% PLF based on the GOI tariff notification applicable for NAPP.

(d) Power purchase quantum from Baspa II, Nathpa Jhakri & Tehri hydel stations has been calculated as per the month-wise design energy generation shown by each plant in their respective water studies. The effective share of the HPSEB is applied on the total month-wise ex-bus generation to estimate the month-wise energy purchases from these stations. In case of Baspa II, HPSEB has also projected the secondary energy to the tune of 140 MU based on the past year trends. The 12% free power share of GoHP from the corresponding plants has been worked out in a similar manner.

(e) Power purchase quantum from Khara, Yamuna (UJVNL) for the Control Period has been considered at the last three years average generation level.

(f) The entire free power share has been considered only during the winter months of Control Period.

(g) HPSEB has considered the generation from five new hydel plants namely Koldam, Koteshwar, Parbati–II, Parbati-III and Chamera-III during the Control Period as per tentative COD based on design energy given in their respective DPRs. HPSEB has considered 17.75% share (SoR -2.75% & Unallocated -15%) in Koldam, Parbati-II & Parbati III. In case of Parbati-II & III, Koldam and Chamera-III the 12% free power GoHP share has been considered only during the winter months.

(h) HPSEB has also considered generation from NTPC’s new thermal station Barh I&II as per the tentative COD. The Board has considered a 6.53% share in all the three units of Barh from the date of commissioning of each unit.

(i) For the current year, the Board has estimated the banking of 333 MU as per the existing agreement. The Board has projected a banking of 300 MU during the winter months of each year of the Control Period and the same will be returned in the summer months.

(j) External Transmission loss on Power Purchase in FY06 is taken at 3.5% by HPSEB, based on the actual loss levels for the first six months (as per NREB Report).

Outside State Sales

2.13 Considering the power availability and state own power requirement for the Control Period, the Board has projected the surplus power available for sale outside the state as 358 MU, 387 MU and 349 MU for FY09, FY10 and FY11 respectively.

Table 6: Outside State Sales Projection

Energy Sales to Outside State (MU)	FY08	FY09	FY10	FY11
	R.E	Projected	Projected	Projected
Energy available for sale to consumers outside state	1159	358	387	349
Less: Banking Power		333	300	300
Net Energy Available for Sale Outside State		**25**	**87**	**49**

Energy Balance

2.14 Based on the data on estimated & projected sales, own generation & power purchase, an Energy Balance has been prepared to assess the T&D losses during the Control Period.

Table 7: HPSEB Projection - Energy Balance

Energy Balance (MU)	FY08	FY09	FY10	FY11
	R.E	Projected	Projected	Projected
Purchase of Energy				
Net Power from Own Stations	1850.84	1736.02	1900.02	1900.02
Net Power from Other Sources	5570.33	5478.01	5998.00	6682.28
Total Energy Available for Sale	**7421.17**	**7214.03**	**7898.02**	**8582.30**
Energy Sales within the State	5166.23	5690.32	6271.40	6916.14
Proposed T&D Loss % within the State	17.50%	17.00%	16.50%	16.00%
Energy Requirement for sale within the State	**6262.10**	**6855.81**	**7510.66**	**8233.50**
Energy Available for inter state sale	1159.07	358.22	387.35	348.80
Total Sale (within & Outside the State)	6325.30	6048.54	6658.75	7264.94
Overall Losses	1095.87	1165.49	1239.27	1317.36
Overall T&D Losses %	**14.77%**	**16.16%**	**15.69%**	**15.35%**

Annual Revenue Requirement

Cost of Power Purchase

2.15 The cost of power available from various stations has been projected considering the following:

NTPC

(a) The annual fixed charges for FY08 have been taken from the tariff orders for the respective NTPC stations according to HPSEB's share. The annual fixed charges for the Control Period i.e. FY09 to FY11 has been escalated by 3% annually.

(b) The variable cost for FY08 are based on actual power purchase bills, including Fuel Purchase Agreement (FPA), received by the Petitioner during FY07 and an escalation factor of 3% has been considered for estimating the variable cost for FY08. The variable cost for the Control Period i.e. FY09 to FY11 has been escalated by 3% annually.

(c) Other charges for NTPC stations for FY08 are based on the actual power purchase bills received by the Petitioner during FY07. No escalation has been considered for FY08 as other charges are expected to remain the same. An escalation of 3% has been considered thereafter.

NHPC

(d) The power purchase cost for NHPC stations for FY08 and FY09 are derived from the CERC tariff orders for the capacity charges, primary and secondary energy charges.

(e) Other charges for NHPC stations for FY08 are based on the actual power purchase bills received by the Petitioner during FY07. No escalation has been considered for FY08 as other charges are expected to remain the same. An escalation of 3% has been considered thereafter.

New Generating Stations

(f) The average cost of 250 paise per unit has been considered for Kahelgaon Thermal Power Plant Phase II in FY09. For the future years average cost with an escalation of 3% has been considered.

(g) The average cost of 250 paise per unit has been considered for Barh-I and II in FY10. For the future years average cost with an escalation of 3% has been considered.

(h) For new central hydel projects like Koteshwar, Koldam (NTPC), Parbati –II and III and Chamera-III the average cost of 300 paise per unit has been considered with no escalation.

Other Generating Stations

(i) For the shared generations projects namely Bhakra (old), Bhakra(new), Dehar, Shanan BSS, Shanan Ext, Yamuna Share(UJVNL), Khara (UPPCL) the cost for FY08 has been taken from the actual bills of FY07 except for Bhakra(old) for which data from the tariff order has been taken. For the purpose of projections an escalation rate of 3% has been applied except for Bhakra (old) for which an escalation of 5 paise has been taken from the tariff order.

(j) For Baspa-II the primary and secondary energy charges as per actual bill stands at Rs 0.9973 per unit and Rs 2.97 per unit respectively. For the purpose of projections for the Control Period an escalation factor of 3% has been used.

(k) The rate for Nathpa Jhakri power (SOR Share) for FY08 has been calculated by using the actual bills of FY07. For the purpose of projections for the Control Period an escalation factor of 3% has been used.

(l) For the FY08, the equity power from Nathpa Jhakri has been taken as Rs 4.01 per unit based on the weighted average actual cost of FY07. No escalation has been considered for the Control Period.

(m) The rate of purchase for free power share of GoHP in the existing as well as in the new hydel plants has been taken as Rs 6.00 per unit as per the latest bills received by the Board.

(n) For the Control Period, the private SHPs (existing as well as new) have been calculated at the fixed rate of Rs 2.50 per unit.

PGCIL Charges

(o) HPSEB has estimated the inter-state transmission charges, payable to PGCIL (Power Grid Corporation of India Ltd.) for FY08 based on the September 2007 bill at the rate of Rs 65000/MW/month.

(p) HPSEB has taken into account the additional capacity share in the new stations and an escalation of 5% for the future years during the Control Period for estimation of Inter-State transmission charges.

2.16 The table below summarizes the station wise power purchase costs for current and ensuing year.

Table 8: Power Purchase Cost for the Control Period

Power Purchase for MYT	FY08		FY09		FY10		FY11	
	R.E.		Proj		Proj		Proj	
	Rs/U	Rs Cr	Rs/U	Rs Cr	Rs/U	Rs Cr	Rs/U	Rs Cr
Stations								
BBMB Old	0.47	2.06	0.52	2.28	0.57	2.50	0.62	2.72

Power Purchase for MYT	FY08		FY09		FY10		FY11	
	R.E.		Proj		Proj		Proj	
	Rs/U	Rs Cr	Rs/U	Rs Cr	Rs/U	Rs Cr	Rs/U	Rs Cr
BBMB New	0.28	3.38	0.28	3.55	0.29	3.65	0.30	3.76
Dehar	0.52	4.13	0.54	4.24	0.55	4.36	0.57	4.49
Total		**9.57**		**10.07**		**10.52**		**10.98**
NTPC Stations								
Anta(LNG)	4.24	4.35	4.37	4.61	4.50	4.75	4.63	4.90
Anta(GF)	1.84	15.72	1.90	16.72	1.95	17.22	2.01	17.73
Anta (LF)	8.27	4.13	8.52	4.26	8.77	4.39	9.04	4.52
Auraiya (LNG)	4.38	6.48	4.51	4.40	4.65	4.53	4.79	4.67
Auraiya(GF)	2.34	26.59	2.41	28.99	2.48	29.86	2.56	30.76
Auraiya (LF)	7.50	6.01	7.73	3.86	7.96	3.98	8.20	4.10
Dadri (LNG)	4.35	7.37	4.48	4.69	4.61	4.83	4.75	4.98
Dadri (GF)	2.49	33.16	2.56	35.28	2.64	36.34	2.72	37.43
Dadri (LF)	6.91	4.15	7.12	3.56	7.34	3.67	7.56	3.78
Unchahar-I	1.80	9.25	1.85	9.88	1.91	10.18	1.97	10.48
Unchahar-II	1.85	17.25	1.91	16.92	1.97	17.43	2.03	17.95
Unchahar-III	2.04	12.45	2.11	12.17	2.17	12.54	2.23	12.92
Rihand-I STPS	1.51	39.86	1.56	37.96	1.60	39.10	1.65	40.27
Rihand-II STPS	1.65	41.42	1.70	42.73	1.75	44.01	1.80	45.33
Kahelgaon – Extn	1.30	5.20	2.50	39.52	2.58	40.70	2.65	41.92
Singrauli	0.89	0.00	0.92	0.00	0.94	0.00	0.97	0.00
Barh I& II	0.00	0.00	0.00	0.00	2.50	85.65	2.58	170.83
Total		**233.38**		**265.57**		**359.19**		**452.57**
NHPC Stations								
Koteshwar	0.00	0.00	0.00	0.00	0.00	0.00	3.00	12.96
Koldam (NTPC)	0.00	0.00	0.00	0.00	3.00	164.48	3.00	164.48
Parbati III	0.00	0.00	0.00	0.00	0.00	0.00	3.00	16.87
Parbati II	0.00	0.00	0.00	0.00	0.00	0.00	3.00	20.93
Chamera – III	0.00	0.00	0.00	0.00	0.00	0.00	3.00	22.82
Salal	0.74	2.36	0.76	2.29	0.77	2.34	0.79	2.39
Tanakpur	1.32	1.96	1.34	1.98	1.37	2.02	1.39	2.06
Chamera-1	1.57	8.96	1.55	7.39	1.53	7.30	1.51	7.21
Chamera-2	2.98	15.92	2.90	15.79	2.83	15.40	2.76	15.04
Uri	1.66	11.22	1.51	10.49	1.38	9.59	1.27	8.81
Dhauliganga	1.88	7.44	1.88	7.54	1.89	7.57	1.90	7.59
Dhulasti	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		**47.86**		**45.48**		**208.70**		**281.15**

Power Purchase for MYT	FY08		FY09		FY10		FY11	
	R.E.		Proj		Proj		Proj	
	Rs/U	Rs Cr	Rs/U	Rs Cr	Rs/U	Rs Cr	Rs/U	Rs Cr
Other Stations								
NAPP	1.91	9.03	1.97	14.48	2.03	14.91	2.09	15.36
RAPP	3.04	9.88	3.13	24.59	3.23	25.33	3.32	26.09
Nathpa Jhakri SoR	2.95	45.62	3.04	51.35	3.13	52.89	3.22	54.47
Shanan	0.40	0.21	0.41	0.22	0.42	0.22	0.44	0.23
Shanan Extn	0.40	1.80	0.41	1.85	0.42	1.91	0.44	1.97
Yamuna (UJVNL)	0.37	14.87	0.38	14.47	0.39	14.91	0.40	15.35
Khara	0.37	2.04	0.38	2.25	0.39	2.32	0.40	2.39
Baspa –II	3.00	355.55	3.09	324.72	3.19	334.46	3.28	344.50
Baspa II Sec Energy	2.97	0.00	2.97	41.58	2.97	41.58	2.97	41.58
Tehri I	4.90	31.57	5.05	35.70	5.20	36.77	5.36	37.88
Market Purchase	4.85	117.37	4.85	269.18	6.00	90.00	6.00	120.00
Total		**587.93**		**780.39**		**615.30**		**659.82**
Free Power & Equity Power								
Baira Suil	6.00	15.93	6.00	11.66	6.00	11.66	6.00	11.66
Chamera-I	6.00	32.34	6.00	22.23	6.00	22.23	6.00	22.23
Chamera –II	6.00	27.32	6.00	21.60	6.00	21.60	6.00	21.60
Shanan Share	6.00	1.58	6.00	0.66	6.00	0.66	6.00	0.66
Ranjeet Sagar Dam	6.00	40.61	6.00	7.82	6.00	7.82	6.00	7.82
Malana	6.00	32.07	6.00	4.67	6.00	4.67	6.00	4.67
Baspa – II	6.00	96.89	6.00	16.35	6.00	16.35	6.00	16.35
Nathpa Jhakri	6.00	94.69	6.00	94.69	6.00	94.69	6.00	94.69
Nathpa Jhakri (Equity)	4.01	116.02	4.01	116.02	4.01	116.02	4.01	116.02
Ghanvi	6.00	5.34	6.00	1.23	6.00	1.23	6.00	1.23
Baner	6.00	2.85	6.00	0.69	6.00	0.69	6.00	0.69
Gaj	6.00	3.54	6.00	0.84	6.00	0.84	6.00	0.84
Larji	6.00	41.76	6.00	6.60	6.00	6.60	6.00	6.60
Khauli	6.00	3.48	6.00	0.84	6.00	0.84	6.00	0.84
Koldam (NTPC)	0.00	0.00	0.00	0.00	6.00	27.28	6.00	27.28
Parbati III	0.00	0.00	0.00	0.00	0.00	0.00	6.00	22.81
Parbati II	0.00	0.00	0.00	0.00	0.00	0.00	6.00	28.30
Total		**514.43**		**305.90**		**333.18**		**384.29**
Baspa – II Arrears		35.04		35.04		35.04		35.04
Banking Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unallocated Share	1.90	63.70	1.90	46.74	1.90	46.74	1.90	46.74
Private SHPs	2.50	27.55	2.50	37.55	2.50	39.43	2.50	41.40

Power Purchase for MYT	FY08		FY09		FY10		FY11	
	R.E.		Proj		Proj		Proj	
	Rs/U	Rs Cr	Rs/U	Rs Cr	Rs/U	Rs Cr	Rs/U	Rs Cr
UI	4.10	59.31	0.00	0.00	0.00	0.00	0.00	0.00
Total		**150.55**		**84.29**		**86.17**		**88.14**
PGCIL Charges		81.43		87.63		108.35		120.99
Grand Total		**1660.21**		**1614.37**		**1756.45**		**2032.97**

Repair & Maintenance Cost

2.17 The Board has projected the R&M expenses as per the methodology specified in the MYT Regulations, 2007.

2.18 HPSEB proposes to use the average of R&M Costs as % of Opening Gross Fixed Assets of the previous two years i.e. FY06 and FY07 to calculate the K-factor, as the provisional data for FY08 is not available. The R&M costs as % of Opening Gross Fixed Assets of the previous two years i.e. FY06 and FY07 stands at 0.84% and 1.18% respectively. Taking the average of 0.84% and 1.18% the K-factor comes to1.01%.

2.19 For the purpose of projections of R&M expenses for the Control Period, K-factor of 1.01% has been used on the opening GFA for the corresponding years of the Control Period.

2.20 The R&M expenses for the Control Period proposed by the Board is stated in the table below:

Table 9: Proposed R&M Expenses for the Control Period

R&M Expenses for the Control Period	FY09	FY10	FY11
Opening GFA	3741.25	4016.60	4344.45
K Factor (%)	1.01%	1.01%	1.01%
R&M Expenses	**37.76**	**40.54**	**43.85**

Employee Cost

2.21 HPSEB has taken the actual employee expenses for FY06 as the basis for forecasting the employee expenses for the Control Period. The salary component of the employee expense for FY06 has been escalated by 40% taking into consideration the likely impact due to 6th Pay Commission. HPSEB has merged the total DA estimated for FY08 with the estimated Basic Salaries of the same year, for projecting the basic salaries for FY09.

2.22 The estimated basic salary (including DA after merger) for the FY08 has been escalated by 3% annually during the Control Period. The DA for FY09 has been calculated at 6% of the total basic salary projected for FY09. Thereafter, further 6% addition in DA is assumed every year for projecting the DA for subsequent years of Control Period.

2.23 Leave Salary Contribution, LTC, earned leave encashment, staff welfare expenses and payment under workmen's compensation for FY08 and the Control Period have been projected to increase by 4.16% to cover the cost of inflation. Medical expense reimbursement, fee & honorarium for FY08 and the Control Period have also been escalated by 4.16%.

2.24 The summary of employee expenses proposed by the Board is shown below.

Table 10: HPSEB Projection - Employee Cost (Rs Cr)

Employee Cost	FY09	FY10	FY11
Salaries & Allowances			
Salaries (Basic)	292.11	517.50	533.02
Merger of DA with Basic (Proposed)	115.38		
DA	24.45	62.10	95.94
Arrears due to the 6th Pay Commission	193.89	98.96	0.00
Other Allowances	34.13	35.55	37.03
Overtime	1.33	1.39	1.45
Bonus	0.02	0.03	0.03
Salaries – Total	**661.32**	**715.52**	**667.47**
Medical expense Reimbursement	6.94	7.23	7.53
Fee & Honorarium	0.05	0.05	0.05
Earned Leave encashment	13.31	13.86	14.44
Leave Salary Contribution	0.00	0.00	0.00
Payment under workmen's compensation	0.98	1.02	1.06
LTC	0.15	0.16	0.17
Staff Welfare expenses	0.90	0.94	0.98
Other Staff Costs – Total	**22.33**	**23.26**	**24.23**
Pension	116.68	134.19	154.31
Gratuity	29.45	33.87	38.95
Any other items	4.33	4.98	5.73
Terminal benefits – Total	**150.47**	**173.04**	**198.99**
Gross Employee cost	**834.12**	**911.82**	**890.70**
Less: Capitalization	58.39	63.83	62.35
Net Employee costs	**775.73**	**847.99**	**828.35**

Administrative & General Expenses

2.25 A&G Expenses during the Control Period have been projected on the basis of the methodology as per MYT Regulations, 2007. The A&G expenses for the Control Period have been escalated at an estimated inflation factor of 4.16%.

2.26 In addition to this, the Board has considered additional payments to TCS against GIS/GPS mapping work initiated by HPSEB. HPSEB also proposed Rs 10 Cr as an additional A&G expenses for initiating a computerisation programme for improving its efficiency.

2.27 The summary of proposed A&G expenses is provided below.

Table 11: HPSEB Projection – A&G Expenses (Rs Cr)

A&G Expenses	FY09	FY10	FY11
Administration Charges			
Rent, Rates & Taxes	2.64	2.75	2.86
Telephone, Postage & Telegrams	2.88	2.99	3.12
Consultancy Charges	15.00	1.00	1.00
Conveyance & Travel	14.44	15.04	15.67
Regulatory Expenses	2.35	3.00	3.00
Income Tax Updating Charges	0.00	0.00	0.00
Insurance	0.01	0.01	0.01
Other Charges	0.50	0.52	0.54
Incentive awards to employees/outsiders	0.00	0.00	0.00
Sub Total	**37.81**	**25.31**	**26.20**
Other Charges			
Fees & Subscriptions, Books & Periodicals	0.18	0.19	0.20
Printing & Stationery	1.54	1.60	1.67
Advertisement Expenses	0.25	0.26	0.27
Electricity Charges	2.48	2.59	2.70
Water Charges/ Cold weather expenses	0.34	0.35	0.36
Miscellaneous Expenses	1.91	1.99	2.07
Legal Charges	0.29	0.31	0.32
Audit Fee	1.79	1.86	1.94
Freight Material related Expenses	3.57	3.72	3.87
Entertainment Charges	0.05	0.06	0.06
Training to Staff	0.07	0.07	0.07
Public Interaction Program	0.16	0.17	0.18
Public Expenses/ Other professional charges	0.03	0.03	0.04

A&G Expenses	FY09	FY10	FY11
A&G Expenses - Total	**50.48**	**38.51**	**39.95**
Less: Capitalization	8.09	6.18	6.41
Net A&G Costs	**42.39**	**32.34**	**33.54**

Depreciation

2.28 HPSEB has provided depreciation costs summarized in the table below.

Table 12: HPSEB Projection – Depreciation (Rs Cr)

Depreciation	FY09	FY10	FY11
GFA - Opening Balance			
Generation	1854.60	1871.96	1899.26
Transmission	780.26	907.77	1082.51
Distribution	1106.38	1236.87	1362.68
Others	0.00	0.00	0.00
Total	3741.25	4016.60	4344.45
Net Additions during the Year			
Generation	17.36	27.30	20.00
Transmission	127.50	174.74	188.60
Distribution	130.49	125.81	91.52
Others	0.00	0.00	0.00
Total	275.35	327.85	300.12
GFA - Closing Balance			
Generation	1871.96	1899.26	1919.26
Transmission	907.77	1082.51	1271.11
Distribution	1236.87	1362.68	1454.20
Others	0.00	0.00	0.00
Total	4016.60	4344.45	4644.57
Depreciation for the Year			
Generation	46.58	47.14	47.73
Transmission	21.10	24.88	29.42
Distribution	29.29	32.49	35.21
Others	0.00	0.00	0.00
Total	96.97	104.51	112.36
Depreciation Rate %			
Generation	2.50%	2.50%	2.50%
Transmission	2.50%	2.50%	2.50%
Distribution	2.50%	2.50%	2.50%
Others			

Interest & Finance Charges

2.29 HPSEB has proposed the following interest expenses based on the existing loan agreements and proposed capital expenditure plan for the Control Period.

2.30 Cost of raising finances has been calculated based on the new bank loans required for funding the proposed capital expenditure plan. 0.50% has been considered as cost of raising finances. Interest on working capital has been assumed at 11.75%.

Table 13: HPSEB Projection – Interest Expenses (Rs Cr)

Interest Cost	FY09	FY10	FY11
LIC	21.33	21.00	18.70
REC	35.00	48.37	66.12
PFC	78.29	69.70	63.54
Bonds	3.09	1.94	0.92
Bank Loans	27.61	20.47	15.03
Interest on state govt. loan	2.02	1.93	1.85
Non SLR Bonds	31.00	24.28	16.43
Other Negotiated Loan	0.00	0.00	0.00
Cost of raising finances	0.65	0.18	0.00
Interest on Security Deposits	4.31	4.53	4.75
Interest on WC borrowing & Other Charges	43.72	47.86	51.59
Interest & Finance Charges - Total	**247.02**	**240.26**	**238.93**
Less: Interest capitalized	49.40	48.05	47.79
Net Interest & Financing Costs	**197.61**	**192.20**	**191.15**

Working Capital Requirement

2.31 HPSEB has calculated the working capital requirement for FY08 and the Control Period according to the MYT Regulations, 2007.

Table 14: Working Capital Requirement (Rs Cr)

Working Capital Requirement	FY09	FY10	FY11
2/12 of Receivables	299.49	329.19	362.13
1/12 of O&M	71.32	76.74	75.48
Maintenance spares @ 40% of R&M	1.26	1.35	1.46
Total working capital	**372.07**	**407.28**	**439.07**
Interest on WC @ 11.75%	43.72	47.86	51.59

Return on Equity

2.32 HPSEB has taken 14% return on equity for generation and transmission businesses and 16% return for the distribution business. The Board has proposed to invest equity to the tune of Rs 784.37 Cr in the existing as well as new schemes during the Control Period.

Table 15: Return on Equity (Rs Cr)

Return on Equity	FY09	FY10	FY11
Generation (14%)	28.68	60.75	93.39
Transmission (14%)	19.49	24.25	29.15
Distribution (16%)	24.80	27.23	30.60
Total	**72.97**	**112.22**	**153.13**

Non Tariff Income & Other Income

2.33 Non-tariff income includes meter rent/service line rentals, recovery for theft of power/malpractices, wheeling charges recovery, miscellaneous charges from consumers, Interest on Staff loans & advances, Income from Investments, Interest on loans & advances to licensees, Delayed payment charges from consumers, Interest on advances to suppliers/contractors, Interest on banks (other than on fixed deposits), Income from trading, Income from staff welfare activities and Miscellaneous receipts.

2.34 Non Tariff and Other Income as shown in table below, is estimated to increase at around 5% p.a. An escalation of 5% p.a. is applied on FY07 actual figures for the future projections.

Table 16: Non-Tariff Income & Other Income (Rs Cr)

Non-Tariff Income	FY09	FY10	FY11
a) Meter Rent/Service line rentals	31.14	32.69	34.33
b) Recovery for theft of power/malpractices	4.58	4.81	5.05
c) Wheeling Charges recovery	6.22	6.53	6.85
d) Miscellaneous charges from consumers	3.93	4.13	4.34
Non Tariff Income – Total	**45.87**	**48.16**	**50.57**
Other Income			
a) Interest on Staff loans & advances	0.91	0.95	1.00
b) Income from Investments	0.07	0.08	0.08
c) Interest on loans & advances to licensees	0.00	0.00	0.00
d) Delayed payment charges from consumers	7.64	8.02	8.42
e) Interest on advances to suppliers/contractors	0.12	0.13	0.13
f) Interest on banks (other than on fixed deposits	0.00	0.00	0.00
g) Income from trading	1.54	1.61	1.69
h) Income from staff welfare activities	0.05	0.05	0.06
i) Miscellaneous receipts	38.72	40.66	42.69

Non-Tariff Income	FY09	FY10	FY11
Total	**49.05**	**51.51**	**54.08**
Total Non Tariff Income & Other Income	**94.92**	**99.67**	**104.65**

Aggregate Revenue Requirement

2.35 The Table below summarizes the HPSEB's Aggregate Revenue Requirement for the Control Period (FY 09, FY 10 & FY 11).

Table 17: Aggregate Revenue Requirement for the Control Period (Rs Cr)

Annual Revenue Requirement	FY09	FY10	FY11
Power Purchase Cost	1614.37	1756.45	2032.97
Employee Cost	775.73	847.99	828.35
Repairs & Maintenance	37.76	40.54	43.85
Admin & General	42.39	32.34	33.54
Interest	197.61	192.20	191.15
Depreciation	96.97	104.51	112.36
Total Costs	**2,764.84**	**2,974.04**	**3,242.22**
Add: Return on Equity	72.97	112.22	153.13
Less: Non-Tariff Income	94.92	99.67	104.65
Annual Revenue Requirement	**2,742.88**	**2,986.60**	**3,290.70**

Revenue from Sale of Power at Existing Tariffs

2.36 Revenue from sale of power for the Control Period is determined based on the Energy sales estimated in by the Board and the category wise tariffs approved by the Commission in its ARR & Tariff Order for FY08. The table below summarizes HPSEB's estimates of the revenue realized at current tariff for the Control Period.

Table 18: Sale of Power Revenue at Existing Tariff

Revenue @ Existing Tariff	FY09	FY10	FY11
Domestic (DS)	280.68	300.60	322.14
NDNCS	34.93	38.39	42.20
Commercial Supply	124.79	130.22	135.91
SMS	70.40	74.82	79.54
Large Supply	881.73	987.53	1,106.03
PIU	180.41	202.06	226.31
Agriculture	5.39	5.82	6.29
WPS	140.64	152.59	165.63

Revenue @ Existing Tariff	FY09	FY10	FY11
Street Lighting	3.79	3.97	4.15
Bulk Supply	53.13	54.93	56.80
Temporary	21.02	24.17	27.80
Total Revenue	**1,796.91**	**1,975.12**	**2,172.78**

Revenue Gap

2.37 The table below summarizes the Revenue Gap at existing tariff at Rs 930.84 Cr, Rs 959.06 Cr and Rs 1088.64 Cr for FY09, FY10 and FY11 respectively.

Table 19: Revenue Gap during the Control Period

Revenue Gap	FY09	FY10	FY11
Annual Revenue Requirement	**2,742.88**	**2,986.60**	**3,290.70**
Covered by			
Revenue @ Existing Tariff	1,796.91	1,975.12	2,172.78
Revenue from Sale outside state	15.13	52.41	29.28
GoHP Subsidy			
Revenue @ Existing Tariff + GoHP Subsidy	**1,812.04**	**2,027.53**	**2,202.06**
Revenue Gap/(Surplus)	**930.84**	**959.06**	**1,088.64**

Tariff Proposal

2.38 The Board had not initially proposed any retail tariff to cover the revenue gap but had subsequently submitted a proposal to cover the revenue gap projected by the Board for the Control Period.

2.39 The tariffs proposed by the Board are mentioned in the table below:

Table 20: Category-wise Proposed Tariff for Control Period

Category	Existing Tariff Components						Proposed Tariff Components for FY09, FY10 & FY11						
	Energy Charges			Consumer Service Charges	Demand Charges		Energy Charges				Consumer Service Charges	Demand Charges	
	Normal	Peak	Night		Normal	Peak	Normal	Peak	PLVC	Night		Normal	Peak
	Rs/U	Rs/U	Rs/U	Rs/con/mth	Rs/kVA/M	RskVA/M	Rs/U	Rs/U	Rs/U	Rs/U	Rs/con/mth	Rs/ kVA/M	
Domestic (DS)													
(a) BPL	1.85	0	0.00	0	0	0	1.85	0	0	0	0	0	0
(b) Others													
0 – 150	1.90	0	0.00	20	0	0	1.90	0	0	0	20	0	0
151 & above	2.90	0	0.00	20	0	0	2.90	0	0	0	20	0	0
NDNCS													
0 - 20 kW	3.75	0	0.00	50	0	0	4.30	0	0	0	100	0	0
Above 20 kW	3.00	0	2.80	100	75	0	4.30	0	0	4.10	100	75	0
Commercial Supply													
0 - 20 kW	4.10	0	0.00	50	0	0	4.40	0	0	0	100	0	0
20 - 100 kW	3.30	0	3.10	100	75	0	4.40	0	0	0	100	75	0
Above 100 kW	3.10	0	2.90	200	100	0	4.40	0	0	0	200	100	0
SMS													
0 - 20 kW	3.50	0	0.00	50	0	50.00	3.70	0	0	0	100	0	0
Above 20 kW	2.85	5.70	2.65	100	75	50.00	3.95	6.50	9.00	3.75	100	125	50.00
Large Supply													
EHT	2.15	4.30	1.95	300	185	50.00	3.90	6.50	9.00	3.70	300	210	50.00
HT	2.25	4.50	2.05	200	225	50.00	3.95	6.50	9.00	3.75	200	245	50.00
PIU													
EHT	2.40	4.80	2.20	300	185	50.00	3.90	6.50	9.00	3.70	300	260	50.00

Category	Existing Tariff Components						Proposed Tariff Components for FY09, FY10 & FY11						
	Energy Charges			Consumer Service Charges	Demand Charges		Energy Charges				Consumer Service Charges	Demand Charges	
	Normal	Peak	Night		Normal	Peak	Normal	Peak	PLVC	Night		Normal	Peak
	Rs/U	Rs/U	Rs/U	Rs/con/mth	Rs/kVA/M	RskVA/M	Rs/U	Rs/U	Rs/U	Rs/U	Rs/con/mth	Rs/ kVA/M	
HT	2.50	5.00	2.30	200	225	50.00	3.95	6.50	9.00	3.75	200	275	50.00
Agricultural Supply													0
Agriculture I Part	1.85	0.00	0.00	20	0	50.00	1.85	0.00	0.00	0	20	0	0
Agriculture II part	1.20	2.40	1.00	20	50	50.00	1.20	2.40	0.00	1.00	20	50	0
WPS													
LT	3.00	6.00	2.80	100	200	50.00	4.20	6.50	9.00	4.00	100	150	50.00
HT	2.40	4.80	2.20	100	150	50.00	4.10	6.50	9.00	3.90	100	140	50.00
EHT	2.10	4.20	1.90	100	120	50.00	3.90	6.50	9.00	3.70	100	130	50.00
Street Lighting Supply													
SLS	3.10	0	0.00	50	0	0	4.50	0	0	0	100	0	0
Bulk Supply													
LT	2.95	0	2.75	100	200	0	4.20	0	0	0	100	180	0
HT/EHT	2.25	0	2.05	100	150	0	4.00	0	0	0	100	180	0
Temporary Supply													
Temporary Single Part	6.00	0	0.00	100	0	0	6.50	0	0	0	100	0	0
Temporary Two Part	4.45	0	4.25	100	300	0	5.50	0	0	0	100	300	0

2.40 The Board has proposed to increase tariff for certain categories of consumers in order to prevent revenue losses due to low level of existing tariff. The same tariff has been proposed for the entire Control Period.

2.41 For the first Control Period, the Board proposes to introduce winter consumption surcharge during winter months i.e. November to March, where by higher tariffs could be fixed for these months when deficits are the highest requiring larger amount of expensive bilateral/short-term power purchase. The winter surcharge @ Re 1 per unit has been proposed for the large supply and PIU category.

2.42 The Board proposes to increase the tariff (energy as well as demand charges) for Large Supply and PIU Consumers. The present energy charges for Large Supply and PIU Consumers are inadequate to compensate for the loss of revenue due to increase in power purchase cost during the winter months. Even the proposed tariff is in line with the existing tariff applicable in the neighbouring states.

2.43 The Board proposes that there is no rationale for charging differential tariff for the categories under commercial supply as these consumers use electricity for the same purpose i.e. for business purposes. Therefore, the Board has proposes that same energy charges be levied for all the consumers under this category.

2.44 It has been observed by the Board, that in order to take advantage of lower tariff slabs in all the categories, many consumers are resorting to malpractice of having their load below 20 kW. This gives them exemption from paying demand charges. Hence, the Board has requested the Commission to consider the reduction of load in the first slab from 0-15 kW instead of existing slab of 0-20 kW while approving the tariff for MYT period.

2.45 The Board proposes to retain all other charges presently being charged from various categories of consumers for the Control Period.

Other miscellaneous amendments proposed by the Board

2.46 The Board has informed that the GoHP has a framed draft policy "Himachal Pradesh Home Stay Scheme 2007" for encouraging Home Stay Tourism under Govt. of India "Bed and Breakfast Scheme" in order to take tourism to the rural areas. In accordance with the above, sub clause (g) under the clause Applicability under existing Domestic Schedule of Tariff is, therefore, proposed to be added as under:-

> (g) "Home Stay Units" in rural areas duly registered with the District Tourism Development Officer"

2.47 The Board has informed that there is some confusion in the field units for charging of colony residences taken separately in SMS, LS and PIU categories of supply. In order to clarify the same, sub clause h under the clause Applicability under existing Domestic Schedule of Tariff is, therefore, proposed to be added as under:-

”if supply for colony/residences is taken separately in SMS, LS, PIU categories of supply”

2.48 The Board has proposed that Institute of Engineers be treated as Education Institution at par with Govt. Educational Institutions. Accordingly, the Board has proposed that the sub clause (b) of clause “Applicability under existing Non Domestic Non Commercial Schedule” be amended as under:-

“**Educational Institutions** viz, Schools, Universities, I.T.I’s, Centre for Institute of Engineers, Colleges, Sports Institutions, Mountaineering Institutions and allied sports and Libraries Hostels and residential quarter attached to the educational institutions, if supply is given at single point”.

2.49 The Board has requested that in case a consumer is paying lower voltage supply surcharge (LVSS) due to non-availing of load on standard supply voltage and at present, if his metering is done on the higher voltage side of the transformer then he is not liable to pay lower voltage metering surcharge (LVMS). The sub clause (k) of part-1 General is proposed to be modified as above.

2.50 The Board has requested that the fees amounting to Rs. 50/- per kVA of the quantum of load for which PLE be charged once in a financial year. The industrial consumers are being harassed by asking them to deposit the fees several times in a year

2.51 The Board has informed that the Power Availability Certificate (PAC) are being issued by the Board on the request of the prospective consumers after the proposed project is cleared from the State Level Single Window Clearance and Monitoring Authority or the Industries Department and other district level offices of Industry Department of H.P. Before issuing the PAC, the prospective consumers pay/deposit Rs.100/- per kW as non-refundable security and Rs.200/- per kW as advance cost share for creating infrastructure for supplying power to the prospective consumers. The PAC thus issued after the receipt of above amount, is valid for one year. The non-refundable security is adjusted against the regular security deposit at the time of applying for sanction of load within the validity period. Advance cost share @ Rs.200/- per kW is adjusted in the cost share amount, worked out in accordance with the HPERC (Recovery of Expenditure for Supply of Electricity) Regulation 2005.

2.52 The Board has further informed that in case, the prospective consumers fails to apply for sanction of load with in the validity period of the PAC and requests for extension in validity period of PAC, then the extension is allowed in favour of the prospective consumers after the deposit of validity extension charges by the prospective consumers as per provision contained in Sales Circular No. 219/95 dated 2.11.2005 @ Rs.10/- per kW per month for extension up to first six months & @ Rs.20/- per kW per month for extension above six months, after the expiry of PAC validity period of one year. These charges have not so far been included in Section – 2 “Schedule of general & Service Charges” of the Tariff Notification. The Board has accordingly proposed that these charges be included in the said schedule

2.53 The Board has informed that the Lahual & Spiti Hoteliers' Association represented that the hotels in Lahual & Spiti remain open only with the opening of Rohtang & Kunzum passes and are functional only for 3-4 months i.e. only during the summer season. As such the association has requested that the hotels situated at Lahaul & Spiti may be treated on seasonal basis. Accordingly the Board has proposed that the existing clause 'S' "Seasonal Industries" under part –I "General" of the schedule of tariff be amended to this extent.

2.54 The Board has informed that the Govt. of H.P. has requested to include fish farming in the agricultural pumping supply in accordance with the order of the Commission in the matter of M/s Himachal Aquaculture Farms v/s H.P. Govt. and HPSEB. It has therefore, proposed that the Commission may include this category (fish farming) in the Agricultural Pumping Supply.

2.55 The Board has informed that as per Sale Circular No. 1/2005, the consumers who have been approved connection at HV/EHV are required to deposit advance cost share @ Rs.200/- per kW. This cost share is adjusted against the cost share amount required to be paid by the consumers in accordance with the HPERC (Recovery of Expenditure for Supply of Electricity) Regulations, 2005. In case of such consumers where cost share is less than this amount, the extra amount is being refunded to the consumers through their energy bills. The Board has requested to include these charges in the schedule of General and Service Charges.

REVENUE FROM PROPOSED TARIFF AND GAP/SURPLUS

Table 21: Revenue at Proposed Tariff for First Control Period

Revenue @ Proposed Tariff	FY09	FY10	FY11
(Rs Cr)	Projections	Projections	Projections
Domestic (DS)	280.68	300.60	322.14
NDNCS	45.01	49.45	54.34
Commercial Supply	157.06	163.83	170.91
SMS	91.67	97.34	103.37
Large Supply	1,433.47	1,605.48	1,798.13
PIU	268.89	301.16	337.30
Agriculture	5.39	5.82	6.29
WPS	184.70	201.33	219.52
SLS	5.53	5.78	6.04
Bulk Supply	78.95	81.56	84.26
Temporary	23.40	26.90	30.94
Total Revenue	**2574.75**	**2839.26**	**3133.23**

Table 22: Revenue from Winter Surcharge for First Control Period

Revenue from Winter Surcharge	FY09	FY10	FY11
	Projections	Projections	Projections
(Applicable to Large/PIU Category)	**@ Rs. 1.00**	**@Rs. 1.00**	**@Rs. 1.00**
Large Supply	131.78	147.60	165.31
PIU	22.18	24.84	27.82
Total revenue (Rs. Cr)	**153.96**	**172.44**	**193.13**

Table 23: Recovery of Revenue Gap during Control Period

ARR, Revenue & Gap/ Surplus (Rs Cr)	FY09	FY10	FY11
	Projections	Projections	Projections
Revenue from Proposed Tariff	2574.75	2839.26	3133.23
Revenue - Winter Surcharge	153.96	172.44	193.13
Outside State Sale Revenue	15.13	52.41	29.28
Total Estimated Revenue	**2743.84**	**3064.11**	**3355.64**
Total ARR	**2,742.88**	**2,986.60**	**3,290.70**
(Gap) / Surplus	**0.96**	**77.51**	**64.94**

2.56 The total Revenue Gap of Rs 2978.54 Cr for the entire Control Period is proposed to be covered through additional Revenue from proposed tariff revision of Rs 3121.94 Cr (Revenue at proposed tariff + Revenue from winter surcharge).

2.57 The Board has also submitted that the surplus revenue of Rs 143.41 Cr from sale of power during the Control Period will be utilized for creating gratuity and pensioning fund for the terminal benefit liabilities incurred by the Board every year. The creation of the funds for the terminal benefits will ultimately lead to the better management of the terminal benefits, which ultimately will result into a reduction in the employee expenses incurred by the Board, in the future years.

Segregation of ARR for the Control Period

2.58 The Board has submitted the segregated ARR for Generation, Transmission and Distribution functions of the Board. The Board has considered the following while segregating the total ARR of the Board.

2.59 Power purchase costs have been fully allocated to Distribution function.

2.60 Interest & Finance charges for FY07 have been apportioned in principle of allocated loans (scheme specific). Interest & Finance charges for FY08 & the first Control Period have been allocated based on outstanding principle amount against loans raised for specific schemes, according to the capital expenditure plan.

2.61 Gross Fixed Assets & accumulated depreciation have been allocated to various functions on the basis of the Audited Accounts for FY07 and the capitalization schedule of the capital expenditure plan.

2.62 Consumer contribution has been fully allocated to Distribution business. Capital subsidies have been allocated based on the nature of the subsidy. Interest on Security deposits has been fully allocated to Distribution business.

2.63 Return on equity has been allocated according to the equity invested for each of the segments for HPSEB.

2.64 Expenses capitalised under various expense items have been allocated based on actual capitalization for FY07. Interest capitalised has been allocated based on the gross interest for that particular segment of the business.

2.65 All income items other than delayed payment surcharge from consumers that form part of other income and non-tariff income have been allocated based on the nature of income. Delayed payment surcharge from consumers has been allocated to Distribution entirely.

2.66 The table below summarizes the segregated ARR for the Control Period for generation, transmission and distribution respectively.

Table 24: Function-wise segregated ARR for Generation (Rs Cr)

Generation	FY09	FY10	FY11
	Proj	Proj	Proj
Power Purchase Cost	0.00	0.00	0.00
Net Employee Cost	107.86	117.43	111.91
Net R & M Expenses	10.59	11.37	12.29
Net A & G Expenses	7.47	7.61	7.88
Depreciation	46.58	47.14	47.73
Net Interest & Finance Charges	102.25	91.17	80.42
Return on Equity	29.95	62.65	95.78
Less: Non Tariff Income	6.37	6.69	7.02
Total ARR	**298.33**	**330.67**	**349.00**

Table 25: Function-wise segregated ARR for Transmission (Rs Cr)

Transmission	FY09	FY10	FY11
	Proj	Proj	Proj
Power Purchase Cost	0.00	0.00	0.00
Net Employee Cost	60.53	65.25	61.65
Net R & M Expenses	2.28	2.44	2.64

Transmission	FY09	FY10	FY11
	Proj	Proj	Proj
Net A & G Expenses	2.89	2.89	2.97
Depreciation	21.10	24.88	29.42
Net Interest & Finance Charges	21.72	25.15	39.10
Return on Equity	20.35	25.01	29.90
Less: Non Tariff Income	20.34	21.36	22.42
Total ARR	**108.53**	**124.26**	**143.26**

Table 26: Function-wise segregated ARR for Distribution (Rs Cr)

Distribution	FY09	FY10	FY11
	Proj	Proj	Proj
Power Purchase Cost	1614.37	1756.45	2032.97
Net Employee Cost	607.34	665.31	654.78
Net R & M Expenses	24.90	26.73	28.91
Net A & G Expenses	32.03	21.84	22.68
Depreciation	29.29	32.49	35.21
Net Interest & Finance Charges	73.64	75.88	71.62
Return on Equity	22.66	24.57	27.46
Less: Non Tariff Income	68.21	71.62	75.20
Total ARR	**2336.02**	**2531.66**	**2798.44**

Transmission & Wheeling Tariff for Control Period

2.67 The total losses in the system are projected at 17.00%, 16.50% and 16.00% for FY09, FY10 and FY11 respectively. The transmission losses are estimated at 3.71% for the Control Period. The distribution losses are estimated at 13.80%, 13.28% and 12.76% for the FY09, FY10 and FY11 respectively.

Table 27: Transmission & Wheeling Charges

	FY09	FY10	FY11
Transmission ARR (Rs Cr)	175.97	197.90	228.04
Input (MU)	6960	7619	8277
Transmission Charge (P/ unit)	**25**	**26**	**28**
Distribution ARR (Rs Cr)	721.65	775.21	765.47
Sales (MU)	5690	6271	6916
Wheeling Charges (P/ unit)	**127**	**124**	**111**

A3: OBJECTIONS FILED AND ISSUES RAISED BY CONSUMERS DURING PUBLIC HEARINGS

3.1 There were nine objectors who filed written objections to the Multi-Year Tariff petition filed by the Board. The objectors listed at Sr. No (f), (g) and (h) have filed their objections jointly. The list of the objectors is as follows:

(a) Gujarat Ambuja Cement Ltd., Darlaghat

(b) ACC Gagal Cement Works, Barmana

(c) The Kullu Hotels & Guest Houses Association, Kullu

(d) CII, PIA & BBNIA, KACCI Industries Association

(e) M/s Auro Spinning Mills, Baddi

(f) M/s H.M. Steels Ltd., Kala Amb

(g) M/s Sri Rama Steels Ltd., Barotiwala

(h) M/s J.B. Steel Rolling Mills, District Sirmour

(i) Manali Hoteliers' Association.

(j) Hotel Association- Chamunda Devi

(k) Consumer Representative

3.2 The public hearing was held on 3rd April, 2008 at the Commission's Court Room in Shimla. Names of objecting organization/companies and their respective representatives, who presented their cases before the Commission during public hearing, are given below:

Table 28: List of Objectors present during Public Hearing

S. No.	Objector/Organization	Represented by
1	Gujarat Ambuja Cement Ltd., Darlaghat.	Er. A. K. Thakur.
2	ACC Gagal Cement Works, Barmana.	Sh. D.R.Sood.
3	CII, PIA & BBNIA, KACCI Industries Association	Sh. Rajinder Gularia
4	M/s Auro Spinning Mills, Baddi.	Sh. Satish Mehta
5	M/s H.M. Steels Ltd., Kala Amb.	
6	M/s Sri Rama Steels Ltd., Barotiwala	Er. P.C. Deewan
7	M/s J.B. Steel Rolling Mills, Distt. Sirmour.	
9	Manali Hoteliers' Association.	Sh. Rajinder Sood.

S. No.	Objector/Organization	Represented by
10	Hotel Association- Chamunda Devi	Sh. Sunder Arora.
11	Consumer Representative.	Sh. P. N. Bhardwaj

3.3 Issues raised by the objectors along with the replies given to the objections by HPSEB and views of the Commission are mentioned in the sections below:

General Comments on Petition filed by the Board

3.4 The objectors pointed out the following issues related to the Multi Year Tariff petition filed by the Board:

(a) The petition is incomplete, lacks details and is inconsistent.

(b) Cost of Supply at different voltage and consumer category-wise not given.

(c) Reasons for reduced generation in respect of Bassi, Baner and Thirot HEPs not given.

(d) No reasons mentioned for delay in commissioning of Bhaba augmentation plant.

(e) No justification given for reduction in projected generation for Larji & Khauli HEPs.

(f) Availability of cheaper power from available sources should be fully utilized before opting for purchase of costlier power.

(g) No justification given for PLF figures of 90.86% in respect of Unchahar III.

(h) The growth rate by 12% per annum taken for consumption by the LS and PIU industries is unrealistic.

(i) In majority of the cases under consumer category wise energy sales, the anticipated annual growth for the Control Period is less than the actual growth from 06-07 to 07-08, which seems to be unrealistic.

(j) Variation in the projected power purchase cost of BBMB old.

(k) No justification for purchasing energy from Anta (LF), Auraiya (LF) and Dadri (LF) at a very high rate while cheaper power is available to the Board from other sources.

(l) Power purchase cost paid by HPSEB against the free power share and Equity Power Share of GoHP from different projects is very high as compared to other power stations. The matter requires negotiation with the Govt.

(m) An escalation of 5% for inter-state transmission charges is very high, it should be taken as 3% as in the case of 'other generating stations'.

(n) The basis for taking transmission and distribution losses not given. T&D losses envisaged in the ARR by the Board are not in line with the projections made in the MYT regulations. Circle-wise details not given.

(o) There is difference in the expenditure approved by the Commission under different components and actually claimed by the Board for the FY07.

(p) No reasons given by the Board to revise the approved interest and finance cost for the FY08.

(q) Excess supply to Domestic Category against the approved units has added to the revenue of the Board for the FY08, resulting into a state of surplus instead of deficit.

(r) Free power should be priced at lower rates to ensure the viability of the industrial units in the state.

(s) No corresponding explanation in the petition to the need and the source of the equity.

(t) The methodology used to project the repair and maintenance cost based on relationship between the repair and maintenance cost and GFA is not accurate as the new assets require much less maintenance in the first few years.

(u) The expenses such as fees to consultants, computerization meant for improving the efficiency of the utility etc. should not be passed on to the consumers.

(v) Directions imparted by the Commission in its Tariff Order for FY08 are not complied with in a time bound manner.

(w) Details concerning the various elements of the unbundled ARR are missing or have been left blank.

(x) The Board has sought waiver from filing information pertaining to plant wise details.

(y) Interest and finance charges worked out in the petition have certain basic errors.

(z) Formats submitted in respect of generation have been left blank on the pretext of non-availability of information or are incomplete.

(aa) The average Consumer Price Index (CPI) has been wrongly calculated thereby affecting the calculation of inflation factor used for escalating the A&G Expenses during the Control Period.

(bb) The balance amount payable as consultancy charges to M/s Tata Consultancy Services has been wrongly calculated.

(cc) GFA opening balance and addition of category-wise assets have not been considered for working out the depreciation.

(dd) Capital Investment Plan has been prepared in an arbitrary manner. Details of time frame/funds required need to be mentioned. It does not indicate separately the components of loan and equity.

(ee) Details of Domestic Loans, bonds and financial leasing are not available in respect of transmission and generation.

(ff) Wrong estimation of demand and energy requirement for FY08.

(gg) Expenditure such as consultancy of GIS/GPS and Asset Mapping should not be made part of A & G expenses and passed on to the consumers.

(hh) Wide variation between the projected amount and the actual amount under Non-tariff income.

(ii) No explanation for increase in the generation cost.

(jj) Quality of Service Forms in respect of transmission and distribution has not been submitted.

(kk) No information given on power cuts and interruptions.

(ll) Project-wise generation of Board's own plants not given.

(mm) Submission of petitions in respect of Larji and Khauli HEPs without getting the capital cost approved from the Commission.

(nn) There is mismatch between the assets added and the Investment Plan thereby leading to incorrect calculation of Depreciation.

(oo) The energy sale estimates for various categories have been wrongly projected.

(pp) Incomplete information in respect of sales outside the State and Energy Balance.

(qq) Board to purchase power in the merit order – Cheapest power should be purchased first.

(rr) No depreciation should be allowed until the asset register supports the fixed assets of the Board.

(ss) The interest on working capital has been assumed on the basis of PLR, which is very high whereas it should be charged on normative basis.

(tt) Government to be persuaded to continue to sell their share of free power at old rate to invite and encourage industries in the State and not to take 12% free power from Board's projects.

(uu) No demand charges for the period when power supply is interrupted on account of power shortage or otherwise.

(vv) Penalty to the Board for not supplying required power in winter months.

(ww) Non-compliance of various directives indicates inefficiency on the part of the Board. The result of the inefficiencies should not be passed on to the consumers.

(xx) No mention of the advantages and perceptible gains made under APDRP programme in the petition, as it stands completed.

(yy) Senior citizens are unaware of the facilities extended by the Board.

(zz) No mention in the petition relating to provision of subsidy for operation of very high cost hydro stations located in the far flung areas.

(aaa) Board to return the surety documents to the rightful owners who have already provided adequate security as per the regulations.

(bbb) Infrastructure charges collected by the Board from new consumers as well as old consumers for system improvement should find mention in the petition.

(ccc) Details of pending applications for connections from different categories of consumers to be mentioned in the petition.

(ddd) No justification for reducing equity for Generation and substantially increasing the same for Transmission and Distribution.

(eee) Full details of equity in respect of three businesses be given.

(fff) Incomplete information related to Capital Works in Progress (CWIP) in respect of the Distribution and Transmission Wings. No reasons given for time and cost over-run.

(ggg) No information related to planned power cuts imposed by the Board both during peak and normal hours.

Board's Response:

3.5 The compilation of the replies to the above issues filed by HPSEB is as follows:

(a) The lower generation in respect of Bassi, HEP is because of the RMU being carried out which would eventually increase the generation from the project.

(b) The energy generation for the Control Period for Larji and Khauli HEPs has been projected at design energy levels. The Commission to take an independent view on the decision of GoHP on free power by virtue of which it is entitled for 12% of power from April, 2006 onwards in all the projects exceeding 5 MW capacity commissioned by HPSEB after 1990.

(c) No PLF data in case of Unchahar III for the last three years is available as it is commissioned during the FY 06-07. The average PLF for recent months has been considered to project the generation for the Control Period.

(d) The estimates of energy sales within the State for the 2nd half of FY 07-08 are based on the actual energy sold during winter months of the FY 2006-07.

(e) The Board has provided the basis for estimation of energy sales in the tariff petition.

(f) The tariff for BBMB (old) has been taken from the Tariff Order approved for Bhakra (old) till FY10. An escalation of 5 paisa (based on past tariff) has been taken for FY11, since no rate is given in the tariff order for the FY11 approved for Bhakra (old).

(g) A very minimal quantity of energy is drawn from Anta (LF), Auraiya (LF), Dadri (LF) in case of emergencies and deficits in winter months. There is likelihood of liquid fuel power being booked to HPSEB on the basis of governing frequency in the region. The rates for FY08 are based on the latest bills available for these plants.

(h) The rate of purchase of free power share of GoHP has been taken as Rs. 6.00 per unit as per the GoHP directions. The Commission to take an independent view on this matter.

(i) The increase in the power purchase is due to the increased demand, increased cost and commitment to provide power for the entire year.

(j) The transmission losses computed for each year of the Control Period in section 22 of MYT petition is based on the total energy input in HPSEB system (own generation + power purchase) after deducting the sales outside the State.

(k) The Board has given an update on the status on the compliance of various directives issued by the Commission in its tariff petitions and the subsequent submissions made during the processing of the petition along with the future action plans. A status of update has also been posted on the Board's website for public information.

(l) The submission of all details/formats for the proposed unbundled entities is dependent on the finalisation of separate accounts including details of employees transfer, loans transfer etc., all of which have a direct impact on the ARR of each entity. Pending such finalisation, it would not be possible to provide all the details for each unbundled entity.

(m) The information submitted related to Capital Works in Progress (CWIP) is as per the formats prescribed by the Commission.

(n) The Board has made a request to the Commission to allow the Board to file a combined petition in respect of its own projects commissioned before 1990 as accurate plant wise details are not available for the old hydel plants.

(o) The information regarding gross receivables given in Form F11 is as per the prescribed format by the Commission.

(p) The T &D losses for FY08 are considered at 17.50%, which is in line with the losses approved by the Commission in Tariff Order for FY08. Further, Board has proposed to reduce losses by 0.5% for each year during the Control Period.

(q) The consultancy charges shown in Table 11 of the MYT petition is sum total charges for Tata Consultancy Services, Consultancy charges for computerization, consultancy fees to the consultant for filing and hearings, consultant fees for MYT filing & MYT tariff order and fees to consultants for taking assistance in other studies.

(r) The rate of the book depreciation has been computed as 2.5% per annum on a Straight Line Method.

(s) There is an inadvertent error in table summarizing CPI & WPI. The correct value for FY07 is 4.40.

(t) The return on equity has been worked out as per MYT Regulations furnished by the Commission.

(u) The trend of non-tariff income till October, 2007 indicates that it would be close to the amount projected however, there could be variation under the individual heads.

(v) The Board has provided the basis for estimation of energy sales in the tariff petition. The Commission can take an independent view on the rationale provided by HPSEB.

(w) The information related to power interruptions has been submitted in the format prescribed by the Commission. The Board has given project wise cost in respect of projects commissioned after 1990 and for projects commissioned before 1990, the Board has sought a waiver on the same and has sought the permission to file combined petition due to the non-availability of accurate plant-wise details.

(x) Fixed Assets Register will be compiled by the end of FY09.

(y) The interest on working capital has been compiled as per MYT Regulations furnished by the Commission which states " rate on interest on working capital shall be on normative basis and shall be equal to the short term Prime Lending Rate of SBI as on April 1 of the relevant year".

(z) During the winter months of FY08, the temperature remained exceptionally low thereby reducing the quantum of power generation during these months. During these months, no power was available in the open market even at a price of Rs 6/- unit. In such conditions, Board has no option except load shedding and peak restrictions.

(aa) The Commission has issued the Regulations on April 1, 2005 for security deposit for power connection. Board is strictly following these Regulations for all new connection applications which have been received after April 1, 2005.

(bb) The transmission losses of 3.71% have been taken from the data collected by the Board. The Board would also like to highlight that the cost of supply study conducted by the Commission in the tariff order for FY06 has shown the same level of transmission losses in the HPSEB system. For each year of the Control Period, the distribution loss level has been computed on the total energy required for estimated sales within the state after adjusting the transmission loss of 3.71%.

(cc) The petition filed by the Board has been examined in terms of its compliance with the statutory requirements. There have been changes subsequent to the filing, through validation sessions with the Commission and on account of availability of more authentic figures on power purchase, loans, revenue and cost estimates.

(dd) The APDRP schemes are under process and the same will be completed by the end of FY09. The Board will be able to furnish the final details of benefits and gains accrued from the APDRP scheme along with T&D loss reduction status by the end of FY09.

(ee) The Board will not be able to furnish the circle-wise details on the findings of the T&D loss study initiated by the Commission. The final report on this study is expected shortly.

(ff) The facilities provided by the Board to the Senior Citizens are being publicized through Urja Melas conducted at various places in the State. The Board is also doing the awareness campaign through Jingles in All India Radio and through visual spot in television channels.

(gg) The actual energy sales for the period April 07 to December 07 is 3741 MU against the total estimated sales of 5166 MU for the FY 07-08. There is no certainty that the sales for the FY08 would be 6262 MU as per estimates given by the objector.

(hh) The matter has been taken up with the GoHP for seeking assistance from Tribal Development Department of the State Government for funding the O&M expenses of generation projects in the tribal areas and the decision is pending with the GoHP.

(ii) The infrastructure charges collected from the consumers are booked under the head miscellaneous receipts in the Non-tariff income. The details of the same are furnished in the Annual Accounts of the Board.

(jj) The return on equity has been worked out as per the MYT Regulations furnished by the Commission. The total equity shown for FY07 is as per the Audited Balance Sheet and the Board of its own will arrange the addition of equity shown during the Control Period for the proposed capital expenditure plan.

(kk) The Board is planning to invest total equity to the tune of Rs. 784.37 Cr in the existing as well as the new schemes during the Control Period.

(ll) While preparing the Capital Investment Plan, Board has followed the same approach which other states had followed in their MYT submissions.

(mm) The Quality of Service formats have been submitted to the Commission along with the response to deficiency statement filed in the month of January, 2008.

(nn) The ARR/MYT petition submissions are primarily to monitor the financial aspects of the utility. It is also difficult for the utility to provide information such as details of power- cuts imposed by the Utility and information, which does not have any direct relation with the tariff fixation and cost approval exercise for the ensuing years.

Commission's Observations:

3.6 The Commission agrees with the objectors that the petition filed and the tariffs proposed by the Board was not in conformity with the provisions of the Electricity Act 2003, the National Electricity Policy, the National Tariff Policy, the MYT

Regulations as well as the directions given in the previous Tariff Orders issued by the Commission. The Board has proposed no increase for domestic and agriculture categories whereas, an increase in the tariffs of the subsidizing categories has been proposed.

3.7 The tariff petition has many information gaps on many aspects despite the fact that a validation session was held with the Board and interim orders pointing out information deficiencies were issued. Details relating to several key parameters of the ARR were not provided to the satisfaction of the Commission, despite being given ample opportunity, with the result that the Commission is left with no option but to exercise prudence check and to make suitable assumptions to fill the gaps for finalizing the ARR.

3.8 The Commission has exercised prudence checks and taken into consideration the concerns expressed by the various objectors while analyzing and evaluating the data submitted by the Board. The Commission's views have been brought out in the ensuing chapters where the various issues relating to the Board have been discussed in details.

3.9 The Commission has reviewed the progress of the compliance of directions issued in the past tariff orders and the last review hearing was held on 3 May 2008.

Performance and Functioning of the Board

3.10 The Objectors in their submissions cited various shortcomings in the functioning of the Board as well as highlighted operational deficiencies which are as follows:

(a) R&M cost as percentage of GFA for the FY07 is very high and projections made on this basis for the Control Period are not justified. The justification for this need to be given. Repair and Maintenance to be retained at the approved level for the FY08.

(b) The employees cost per unit (with the State) is very high and is highest in the country. No justification is given for this. There is sudden jump in the projections made during the Control Period. The Board has taken no measures to reduce the employee cost and has not framed any definite policy for reduction of staff and/or bringing down the employee cost. The employee cost for the Board should be capped at the approved level for the FY08. Only that part of the increase is salary should be passed on to the consumers, which is linked with the increase in productivity of the Board. The Administrative and General Expenses (A&G Expenses) for the Board are very high and have been wrongly projected during the Control Period.

(c) The cost of raising finances is very high. Interest and Finance charges should be approved if the loans are planned to add capacity. Loans raised for meeting revenue expenses should be discouraged.

(d) No justification for increase of nearly 40% O&M costs during FY09.

(e) High power purchase cost due to the costlier power from GoHP. Per unit power purchase cost has been showing an increasing trend which could be substantially reduced by improving the generation of Board’s stations, improving the T&D losses and demand side management. Board to improve generation of its own plants to reduce burden of high power purchase cost from other stations thereby reducing burden on the consumers.

(f) High wheeling charges projected by the Board. The wheeling and transmission costs mentioned in the petition are very high.

(g) T&D losses are reduced by 1% (as approved by the Commission) for each year of the Control Period. The Board needs to take efficiency measures to reduce T&D losses. The T&D loss study, if completed, is made public at the earliest.

(h) Audited accounts of the Board for the previous years be placed for public scrutiny.

(i) TOD setting of the energy meters has not been modified by the Board after the revision of peak hour time by the Commission.

(j) Industrial units are suffering loss of production due to power failure/voltage fluctuations. Frequent power cuts during off peak hours are a regular feature. Peak load restrictions and normal load restrictions hampering plant operations.

(k) Standard of quality power totally overlooked by the Board.

(l) Return on equity is highly exaggerated. The figures of equity for FY08 as approved by the Commission have been revised with the intention of earning a higher ROE against distribution.

(m) The capitalization of interest during the Control Period does not appear to be correct because investment plan which forms a part of the ARR highlights many works that are planned to be undertaken and which will have to be capitalized. The interest capitalized will therefore require an upward revision thereby reducing the ARR. The capitalisation of expenditure has not been proposed in proportion to the capital works proposed on the investment plan

(n) A huge gap of Rs 183 Cr between receivables and current billing made by the Board.

(o) Cost of generation worked out for Larji and Khauli HEPs is very high.

Board's Response

3.11 The compilation of the replies to the above issues as filed by HPSEB is as follows:

(a) The projections for R&M expenses for the Control Period were made as per MYT Regulations. Future R&M costs will be projected on the basis of the average of R&M costs as % of opening GFA for FY06 and FY07.

(b) The employee cost per unit of energy rate has now come down in the State indicating the improvement in employee productivity. Board has become conscious for making addition to the overall manpower structure.

(c) The rate of 0.50% has been considered as the cost of raising finances based on the present market trends.

(d) The Board is actively seeking opportunities to restructure the high cost debts and pass on the benefits of restructuring to the consumers in subsequent years.

(e) There was no/minimal outage on EHV system. Sometimes there is load fluctuation due to technical reasons as load shedding. Board has no control on grid/system voltage as HPSEB system is running in an integrated mode with Haryana, Punjab, UP and BBMB grid.

(f) The peak load and normal load restrictions are imposed by the Board to bring discipline in the system and to flatten the load curve. To create a balance between the increased energy demand and less availability of power in winter month, the Board has no other option except load shedding and peak restrictions.

(g) The quality and reliability of power supply in Himachal Pradesh is much better in comparison to the adjoining states. The Board has kept certain amount for the system improvement of distribution network in the proposed MYT Capital, Expenditure Plan to strengthen the system and quality of supply.

(h) The segregation of equity into different businesses shown during the previous ARRs and approved tariff orders are based on best estimates and assumptions as Board is operating as bundled utility.

(i) The power purchase cost from the central generating stations has been worked out on the basis of CERC orders and the latest bills received from the respective generating stations. The increase in the estimated power purchase cost for the Control Period is due to the sudden increase in the rate of free power component of GoHP and increased demand due to economic development including industrial development.

(j) The demand and energy requirement for the second half of the FY08 are based on the actual energy sold during winter months of FY07. The basis for this estimation is given in the petition. The Commission to take an independent view on the rationale provided by the Board.

(k) The Board has filed separate petitions for Larji and Khauli HEPs as per guidelines of CERC for hydro plants. The Commission to take an independent view on the same based on the rationale provided by the Board.

(l) The interest costs are increasing on account of new loans due to capital investments in its generation projects. Board would agree to the suggestions of the objector and has been seeking opportunities to restructure the high cost debts and pass on the benefits of the restructuring to the consumers in the subsequent years.

(m) The Board constantly strives to provide better service to its consumers and therefore considers the expenses proposed under Administrative & General expenditure in the petition, as justified.

(n) The depreciation rates for assets indicated in Table 12 of the petition are derived from the depreciation amount and Gross Fixed Assets (GFA) taken from the audited balance sheets of the Board for FY07. The rates so derived have been applied to the opening balance of GFA for FY08 and each year of the Control Period to work out depreciation amount for FY08 and each year of the Control Period respectively.

(o) The quantum of capitalization for the Control Period is estimated considering the capital works in progress and proposed capital expenditure plan for the Control Period.

(p) The Board has provided the basis for estimation of energy sales in the tariff petition.

(q) The net energy available for sale outside the state would be 358, 387 and 349 MU for FY09, FY10 and FY11 respectively.

(r) A minimal quantity of energy is withdrawn from plants with costly power in cases of emergencies and deficit in winter months.

(s) Increased repair and maintenance cost for the ensuing years would be required to maintain and strengthen the system and quality of supply as severe cash deficit position of the Board in the past led to inadequate upkeep of the system.

(t) The increase in the employees cost is on account of uncontrollable aspects such as DA increase, annual increments, merger of DA with DP, increase in terminals benefits on account of retirements etc.

(u) The consultancy expenses as part of A & G expenses has been projected as per the best estimates for the future regulatory and consultancy works.

(v) There are power cuts for reasons beyond the Board's control such as grid disturbances, break downs etc. Such cuts not only affect the consumers but also the Board as it results in loss of revenue.

(w) The Board does not agree to the calculated gap of Rs 183 Cr by the Objector as receivables against current billing.

(x) For improving the performance of Board's own plants, the Board is planning to form an internal committee to monitor the performance of its own generating stations.

(y) The proposed wheeling tariffs by the Board will decrease in the ensuing years from Rs 1.27/unit (FY09) to Rs 1.11/unit (FY11). The proposed increase in the first two years of the Control Period is due to the impact of the 6th Pay Commission.

Commission's Observations:

3.12 The Commission has discussed the various cost components of the ARR in the ChaptersA5, A6, A7 and A8 of this order and the detailed reasons have been recorded while allowing /disallowing any component of the cost. The Commission has ensured that the un-justified and un-substantiated costs would not be allowed to be passed through to the consumers, which has been the guiding philosophy over the last many tariff orders. Moreover, the Commission would like to highlight that the Board is paying a heavy price for the lack of proper and credible data and information gaps, which has shown not much improvement over the years and in some cases the distortion has become un-reasonable e.g. the total category wise sales for FY07.

3.13 The Commission has already put in place the Standards of Performance Regulations and the quality of supply would be monitored based on the indices specified therein.

3.14 The Commission is not satisfied with the progress made regarding man-power planning, despite clear directions issued in this regard. The Commission would give due attention to the manpower issues.

Regulatory Issues

3.15 The Objectors made the following submissions with respect to the regulatory principles adopted for the petition as well as their requests to the Commission:

(a) A reasonable limit on time lag between capital expenditure and creation of assets be prescribed by the Commission.

(b) The result of the T&D loss study be made public at the earliest.

(c) Need to fix a deadline for the completion of asset valuation exercise.

(d) Studies to establish the baseline data for various parameters for every distribution circle as well as allowable level of system loss for the network configuration and the capital expenditure required to augment the transmission and distribution system needs to be undertaken expeditiously.

(e) Recovery of expenditure for providing electricity connection is done by Board on adhoc basis and not as per the Recovery of Expenditure Regulations.

Board's Response:

3.16 The compilation of the replies to the above issues as filed by HPSEB is as follows:

(a) The Commission to take an independent view on the issues raised by the Objectors at Sr. No (a) to (c) above.

(b) The Commission to take any independent view on the studies proposed by the Objectors to establish the base line data for various parameters for every distribution circle as well as allowable level of system loss for the network configuration and the capital expenditure required to augment the transmission/distribution system.

Commission's Views:

3.17 The Commission has addressed the above issues in the various directions issued in the previous tariff orders as well as the MYT Regulations. The Commission would adhere to the trajectory regarding T&D loss as prescribed in the Regulations. The other issues are covered in the subsequent chapters.

Tariff Related Issues

General

3.18 The objectors pointed out the following general issues related to the Tariff petition filed by the Board:

(a) No winter surcharge should be levied on any specific consumer.

(b) The proposed tariff increase is not on principle of equity for all categories. Domestic and agriculture consumers have not been touched.

(c) The proposal of domestic tariff for "H.P. Home Stay Scheme" is against the spirit of tariff fixation. No new category of subsidized consumers be created in the form of 'Home Stay Scheme'.

(d) No need to charge the fee every year for the already sanctioned peak load and contract demand. In case increase in the peak load/contract demand is requested, fees should be charged on the incremental increase in peak load/contract demand.

(e) Minimize the power cut on large industrial HT and EHT consumers.

(f) Wrong claims on account of Peak Load Violation charges by the Board.

(g) Segregation of losses to be done at different voltage levels.

(h) Incentive to areas with low ATC losses and early payment. High load factor incentives to be maintained and enhanced.

(i) Peak hour supply charges to be reduced.

(j) The minimum chargeable demand should be 80% of the contract demand.

(k) The Board has not adopted the cost of supply model for tariff fixation as per tariff requirements under section 61(d) of the Electricity Act, the tariff policy and tariff fixation guidelines of the Commission.

(l) No efforts on the part of the Board to reduce cross-subsidy while fixing tariff for various categories for the Control Period.

(m) Institutions of Engineers can only be treated at par with educational institutions if the premises are used for educational purposes not for commercial activities.

(n) Need to rationalize the tariff structure in respect of industrial category – Units having a high load factor should pay a higher average tariff compared to those using less energy. Extending the benefit of low tariff to consumers with large consumption is not fair.

(o) Tariff hike in respect of agriculture consumers should be kept same as for the BPL consumers.

Board's Response.

3.19 The compilation of the replies to the above issues as filed by HPSEB is as follows:

(a) The Commission to take an independent view on the issue of cross subsidy in fixation of tariff for various categories of consumers.

(b) The winter surcharge is imposed to meet the emergent liabilities of purchase of winter power at expensive bilateral/short term power purchase rates.

(c) The policy for Home Stay Scheme is for encouraging Home Stay Tourism to popularize tourism in rural areas. The policy envisages that domestic rates for electricity would be charged from the registered Home Stay Units. To avoid any misuse of the policy the GoHP has allowed houses with certain number of rooms to be covered under this policy.

(d) The existing supply constraints in the State does not permit the Board to allow Peak Load sanctioned to the industries without charging any fees as it involves lot of procedural formalities.

(e) The Board does not agree to the loss level mentioned by the objector for EHT sector.

(f) The change in the rebate structure of supply of power at higher voltage level would require an increase in energy charges to maintain overall neutrality. The Commission to take an independent view on this matter.

(g) The kVAh based demand charges automatically benefit the consumers who have a high power factor.

(h) The change in the basis for working out demand charges (higher of actual demand or 80% of the contracted demand instead of contract demand) would require on increase in demand charges per kVA to maintain overall revenue neutrality. There is merit in charging demand charges on the basis of contract demand as the consumers pay in proportion to the capacity blocked by them.

(i) Any reduction in demand charges on account of non-availability of power would require alternate mode of recovery to ensure full recovery of the approved annual revenue requirements. Therefore, it may not be feasible to make any adjustment in the tariff on this ground.

(j) The cost data for FY07 has already been approved by the Commission. Therefore, the infrastructure cost for setting up the system of supply to the consumer premises for the FY08 will be charged in accordance with the cost data approved by the Commission.

(k) The existing set up of all the Private Educational Institutions/colleges in the State are under the commercial supply category. In the MYT petition, NDNC tariff has been charged to the Government Educational Institutions/Colleges and also to institutions promoting education in the State without indulging into commercial activities.

(l) The increase in the tariff has been proposed in view of the estimated increased costs of the Board during the Control Period. The Board would like the Commission to examine the costs and allow appropriate increase in tariff to ensure full recovery of approved costs.

Small Industries

3.20 The objectors pointed out the following issues related to the Tariff petition for small industries filed by the Board:

(a) Standard supply voltage should be based on Contract Demand of the consumers and not on the connected load as the contract demand would be the actual load on the system.

(b) Standard voltage upto 50 kVA Contract Demand be specified as LT voltage.

Board's Response:

3.21 The compilation of the replies to the above issues filed by the Board is as follows:

(a) The Standard Voltages for Supply were defined by HPERC in its Tariff Order for FY 05-06 and a surcharge was payable in case the supply is drawn at lower voltage level. This has been done to ensure quality power and reliability power to the consumers. The Board would like these provisions to continue in the ensuing financial year.

Commission's Views:

3.22 The Commission is guided by the provisions of section 61 of the Electricity Act 2003 and also the National Electricity Policy (NEP) and National Tariff Policy with regard to tariff making. The Commission has addressed these issues in the Chapter Tariff Philosophy and Design.

Large Industries including Power Intensive Units

3.23 The objectors pointed out the following issues relating to Large Industries including Power Intensive Units in the tariff petition filed by the Board:

(a) No justification of increase in tariff and demand charges for both HT and EHT categories.

(b) Imposition of winter surcharge for Large Supply (LS) and PIU categories is not justified.

(c) The application of Night Period Tariff be made applicable from 22.00 hours to 6.00 hours instead of existing 00.00 hours to 06.00 hours.

(d) A proportionate demand charges be levied according to the load allowed (on Pro-rata basis).

(e) Contract Demand sanctioned should be in kVA instead in kWs.

(f) Tariff increase proposed for the PIU category is not justified.

(g) Corresponding reduction in Peak Load Exemption Charges on pro-rata basis should be allowed.

(h) Need to rationalize the Peak Load Violation Charges – Violation penalty to be imposed with the frequency of defaults.

(i) PIU units need to pay the higher demand charges, since the system has to be strengthened for such consumers.

Board's Response:

3.24 The compilation of the replies to the above issues as filed by the Board is as follows:

(a) The provision for night time concessions are reviewed periodically based on the power supply situation and the same shall be reviewed after commissioning of new plants/capacity additions during the Control Period.

(b) A reduction in demand charges for non-availability period is not feasible and this would require an alternate mode of recovery to ensure full recovery of the approved annual revenue requirement.

(c) Increase in Tariff for PIU category has been proposed in view of the estimated increase in the costs during the Control Period. The Commission to examine the costs and allow appropriate increase in the tariff to ensure full recovery of costs.

(d) The Commission can take an independent view for replacing connected load from kW to kVA.

(e) The existing power supply constraints in Himachal Pradesh do not permit system where consumers can freely choose their consumption pattern because of shortages in peak capacity. Industrial, water irrigation and agriculture pumping consumers are normally not permitted to use electricity during peak load hours. In some cases, where exemption is granted to use electricity during peak hours, a charge called the peak load exemption charge (PLEC) is applied.

(f) Peak Load violation charges are levied to act as a deterrent to ensure grid discipline. Any violation during peak load restrictions cannot be ignored

Commission's Views:

3.25 Regarding re-categorisation on kVA basis, the Commission is of the opinion that the data available with the Board is presently on kW basis and in the absence of proper data, correct assessment of the impact of the re-categorisation would not be possible. Further, in view of the two part tariff put in place, the connected load has no relevance with respect to tariffs. Moreover, the Commission wants to encourage high voltage distribution system for reliable and quality supply apart from loss reduction.

3.26 For determining tariffs, the Commission would consider all the suggestions in the light of the provisions under section 61 of the Electricity Act 2003, the National Electricity Policy and the National Tariff Policy.

3.27 The Commission agrees with the reply of the Board in respect of peak load exemptions/restrictions that the overall grid parameters have to be factored in while allowing exemptions and imposing restrictions.

Hotels

3.28 The objectors pointed out the following issues:

(a) Single part tariff be made applicable with connected load upto 100 kW.

(b) The demand charges for Commercial Supply (CS) category should be abolished and reduction should be made in the rate of tariff also.

(c) Low Voltage Supply Surcharge (LVSS) should not be levied on the existing connections and in case of old consumers.

(d) Overcharging of Tariff by the Board.

(e) No proper check on uncontrolled huge theft of energy.

Board's Response:

3.29 The reply of the above issues filed by the Board is as follows:

(a) The introduction of single part tariff with connected load upto 100 kW would mean that the high end users within this category would be deprived of the benefit of lower effective tariff. Such tariff structure may result in blockage of capacity, as there will be no disincentive for taking higher sanctioned load.

(b) The increase in the tariff has been proposed in view of the estimated increased costs of the Board during the Control Period.

(c) There is no rationale for charging differential tariff for the categories under commercial supply as under this category the consumers use electricity for the same purpose i.e. business purposes.

(d) Increase in commercial tariff has been proposed in view of the estimated increased costs of the Board during the Control Period and it is also in line with the existing tariff in the neighbouring states.

Commission's Views:

3.30 For determining tariffs, the Commission would consider all the suggestions in the light of the provisions under section 61 of the Electricity Act 2003, the National Electricity Policy, the National Tariff Policy and the tariff rationalization philosophy, which the Commission has adopted over the years.

A4: INTERACTION WITH OFFICERS AND MEMBERS OF HIMACHAL PRADESH STATE ELECTRICITY BOARD

4.1 The Commission held formal interaction with the officers and Members of the Board, to enable the Commission to understand the strategies, systems and the working procedures of their units as well as the problems and difficulties being faced by them and the suggestions proposed by them to bring about efficiency and improvement in the working.

4.2 Schedule of formal interactions with the Officers & Members of HPSEB is as follows:

Table 29: Schedule of Interaction with the Board Officers

S. No.	Date & Time	Officer
1.	26/3/08 at 11.30 AM	Chief Engineer Op (South), HPSEB, Shimla
2	26/3/08 at 12.30 PM	Chief Engineer Op (Central Zone), HPSEB, Mandi
3	26/3/08 at 2.30 PM	Chief Engineer (System Planning), HPSEB, Shimla
4	27/3/08 at 11.30 AM	Chief Engineer (Transmission), HPSEB, Hamirpur
5	27/3/08 at 12.30 PM	Chief Engineer (Generation), HPSEB, Sundernagar Chief Engineer (Larji) HPSEB, Kullu
6	27/3/08 at 2.30 PM	Chief Engineer (System Op.), HPSEB, Shimla
7	28/3/08 at 11.30 AM	Chief Engineer (PSP), HPSEB, Shimla Chief Engineer (Projects) HPSEB, Shimla
8	28/3/08 at 2.30 PM	Chief Engineer (MM), HPSEB, Shimla
9	28/3/08 at 3.30 PM	Chief Engineer Op (North Zone), HPSEB, D’sala
10	1/4/08 at 11.30 AM	Chairman and Members of the Board

4.3 Separate detailed questionnaires were issued for the interactive meetings with each officer in advance while for the Whole Time Members of the Board, a list of issues arising out of interaction with officers of the Board was forwarded.

4.4 Responses to various questionnaires were submitted by the respective officers in writing during the interaction. Their responses to the questionnaires are on record of the Commission.

4.5 The issues that were raised by the various officers of HPSEB and the Commission during these interactions are summed up below:

Allotment of Power from Ultra Mega Power Projects

4.6 From the information submitted by the Board, the Commission has noticed that no share of power has been allocated to Himachal Pradesh from the ultra mega power projects (UMPPs) being set up in the various parts of the country. The Commission requested the Chairman, HPSEB who also holds the charge of Principal Secretary (Power) to the Government of Himachal Pradesh to proactively pursue the matter with the Ministry of Power, Government of India for allocation of share from the upcoming UMPPs keeping in mind the shortage of power in the winter months in the State. The Board agreed to this suggestion of the Commission.

Decision Making Processes and Systems

4.7 The Commission pointed out that based on the interaction with the officers of the Board as well as the whole-time members of the Board, it is evident that the decision making processes and systems are not fully geared to handle the requirement of the utility and to generate efficiency within the utility. Even the various directives and orders of the Commission are being complied with in a very lackadaisical and casual manner. The Commission stressed that the best practices of the Navratna PSUs must be adopted into the systems of the Board so as to improve the efficiency and productivity of the Board. The Chairman HPSEB assured that the matter would be examined and action would be initiated in due course.

Delay in Procurement of Material

4.8 The officers of the Board informed the Commission that there was acute shortage of material, thereby affecting progress of work and services to the consumers, because of delay in procurement of centralize items such as transformers, meters etc. The Chief Engineer (Materials Management) during the interaction informed that the delay had occurred primarily because the Excise Department had directed the Board to ensure that all the suppliers open dump depots in the State from where the material would be delivered. However, the State Government has now allowed a temporary waiver of this requirement and the materials are being ordered. The Commission requested the Chairman, HPSEB to take up the issue with the Excise Department for a permanent resolution of the matter so that the procurement process is not hampered.

Shortage of Qualified Engineers

4.9 The officers of the Board during interaction identified that the main problem affecting their working was the acute shortage of qualified Assistant Engineers and Junior Engineers. Further, they mentioned that the promotions granted to unqualified employees, by deviating from the R&P Rules had badly affected the delivery systems of the various units. The Chairman HPSEB informed that 41 Graduate Engineers had been appointed recently and the process of recruitment of Junior Engineers was underway. He further informed that the Board has drawn up a plan for regular recruitment of engineers and other highly skilled employees over the next few years to improve the overall efficiency and productivity of the organization. The Commission welcomed these developments and assured that though it is concerned with the high employee costs prevailing in the Board but keeping in mind the services to the consumers and the overall efficacy of the systems within the Board, all costs pertaining to recruitment of well-qualified officers and staff would be allowed in the subsequent ARRs.

Separation of Accounts

4.10 The Commission points out that despite earlier directive given to the Board; the Board has still not separated the accounts of the three businesses related to Generation, Transmission and Distribution. Such segregation is critical for the success of the MYT regime as also for the Board to arrive at a realistic picture of its division wise finances. The Member (Finance) informed that the process is underway and the trial balance sheets for the three businesses would be ready by July, 2008. Thereafter, the numbers would be carried forward to the current year's balance sheet and the variations/deviations would be analyzed and sorted out. He assured that the Board would prepare segregated balance sheets for the year FY09.

Various SPVs set up by the Board

4.11 The Commission pointed out that there seems to be a lot of confusion relating to the various SPVs set up by the Board and the State Government for the execution of new projects. The issues regarding equity investments already made in the various SPVs, staffing etc. need to be decided on priority so as to avoid duplicity of work and achieve optimum utilization of manpower of the Board.

4.12 The Chairman, HPSEB, who is also holding the charge of Principal Secretary (Power), stated that the Government is seized of the matter and process of amalgamation of the various SPVs into the Himachal Power Corporation is underway and the matters relating to equity, staffing etc. would also be decided in the near future.

Implementation of the recommendations on better Project Management contained in the two Enquiry Reports of the Larji Project

4.13 The Commission highlighted the need for the Board as well as the various SPV companies to learn from the mistakes made while implementing the Larji Project so as not to repeat the same mistake again. The recommendations made by the experts, contained in two reports, need to be integrated into the project implementation structure of the Board as well as the SPV companies. The Board informed that the recommendations have been implemented for the execution of Uhl-III project and the Board shall henceforth adopt the recommended practices for other projects also.

Need for a Thermal Power Plant

4.14 The Commission mentioned that on preliminary analysis of the data submitted in the tariff petition, it is evident that the State would continue to face shortage of power during the winter months for many years. Though many new hydro projects are likely to be commissioned in the region in the next five to seven years, the seasonal (winter) decline in generation of the hydro electric projects may still be inadequate to meet the winter shortages of power in the State. Therefore, the Board needs to carry out studies on whether a thermal power plant needs to be set up for meeting the power shortages during winter.

Monitoring of Large Consumers

4.15 The Commission pointed out that the monitoring systems for checking the billing of large consumers needs to be streamlined and proper and regular analysis of the billing is necessary to minimize malpractices and to identify leakages within the system. The Board informed that billing of large consumers is be done from the office of local Superintending Engineer and the Senior Executive Engineer (Commercial) is incharge of the billing and monitoring of all large consumers to ensure effective monitoring and to minimize billing related disputes.

Strengthening of Regulatory Cell and Utilization of Services of Experienced Engineers of the Board

4.16 Chairman of the Commission, expressed his concern that despite directing the Board to strengthen the Regulatory Cell, the Board has not been able to do so properly to meet the increasing requirement/workload which is important for making appropriate database as well as for dealing with the matters relating to Regulatory Commission in a time bound manner.

4.17 It was also suggested that since there is depletion in cadre of qualified officers, the Board should utilize the services of a few superannuated experienced engineers as consultants on contract. The Chairman HPSEB agreed to consider the suggestion.

Issues with respect to State Government

4.18 Since the Chairman, HPSEB was also holds the charge of Principal Secretary (Power) to the Government of Himachal Pradesh, the Commission utilized the opportunity to discuss certain issues which require the intervention of the State Government.

Infusing Equity in the Board

4.19 The Commission pointed out that the equity of Government in the Board has been stagnant for the last many years, thereby depriving the Board of ROE, despite the fact that some projects had been commissioned in the past few years. There was an urgent need to pump in equity by the State Government to offset the very high interest costs that the Board was paying for loans taken for the various projects. The State Government could utilize the revenues from sale of free power for this purpose. The Chairman, HPSEB assured that the matter would be taken up with the Government on this account.

Providing Funds for Cleaning the Balance Sheets

4.20 The Commission pointed out that State Government needs to assess the quantum of funds required for cleaning the balance sheets of the various successor entities, once the Board is unbundled because the successor entities have to start with a clean balance sheet.

Creation of Energy Directorate

4.21 The Commission wished to know the role being envisaged for the Energy Directorate which the State Government proposes to set up. Chairman, HPSEB informed that the proposed Directorate would handle matters relating to allotment of projects to IPPs and subsequent monitoring of their progress. It might also handle the free power of the State Government. However, the various options are being examined and the Government would decide on the matter shortly.

Promotion of Energy Efficient Devices such as CFLs

4.22 The Commission expressed the need for implementing demand side management and the use of energy efficient devices to minimize the consumption of power and to promote the use of renewable energy. The Chairman, HPSEB informed that the State Government is in the process of devising a scheme for all government offices and also for the public for promotion of CFLs.

Basin-wise Transmission Evacuation Plans

4.23 The Commission highlighted the need for developing an integrated approach to the evacuation of power from the various river basins keeping in mind the limited corridors available as well as the adverse impact on the ecology. Chairman, HPSEB assured that long term transmission evacuation plans would be drawn up to evacuate power from the projects coming up in the various river basins both in the public and private sector. He also assured that the effort shall be made on priority basis for getting these schemes financed from the financial institutions.

A5: ANALYSIS OF THE AGGREGATE REVENUE REQUIREMENT (ARR) OF HPSEB FOR THE CONTROL PERIOD

Introduction

5.1 The Commission has analyzed the Multi Year Tariff (MYT) petition submitted by the Petitioner (HPSEB) for approval of Aggregate Revenue Requirement (ARR) of the HPSEB and determination of Wheeling and Retail Supply Tariffs for the Control Period (FY09-FY11).

5.2 The Commission held several rounds of technical discussions to validate the data submitted by the Petitioner and sought further clarifications on various issues. The Commission has considered all information submitted by the Petitioner as part of the tariff petition, audited accounts for past years, responses to various queries raised during the discussions and also during the public hearing, for determination of tariff.

5.3 This section contains detailed analysis of the MYT petition and various parameters approved by the Commission for determination of ARR for HPSEB as a whole.

Base Year

5.4 As per the MYT Regulations issued by the Commission, the base year of the Control Period is the financial year immediately preceding first year of the Control Period i.e. FY08. However, neither audited nor provisional accounts of HPSEB for FY08 are available till the finalization of this order. Hence, for the purpose of ARR and tariff determination for the Control Period, the Commission has considered trued up values of FY07 and the revised estimates of FY08 submitted by the Board to project the revised values of the expenses for base year.

5.5 The Commission clarifies that all the expenses projection and trajectory for the Control Period may be trued up by the Commission as and when the audited accounts for FY08 are made available.

Sales Forecast

5.6 While projecting the energy sales of the Petitioner during the Control Period, the Commission has decided to forecast sales figures for the Control Period using past trends and projections made by the Petitioner.

5.7 For the Control Period, the Board has projected energy sales for the Domestic, Antodya/BPL, Commercial supply, Small & Medium Power supply, Street lighting supply, Water Pumping supply and Agricultural supply categories by applying four years Compounded Annual Growth Rate (CAGR) (FY03 to FY07) on the estimated sales for the FY08.

5.8 For NDNC a growth rate of 10% p.a. has been considered by the Board for projecting the sales for the Control Period. In the large supply and PIU category the Board has considered the growth rate of 12% p.a. for projecting the sales for the Control Period.

5.9 HPSEB has estimated sales for FY08 at 5,166 MU and projected energy sales of 5,690 MU for FY09, 6,271 MU for FY10 and 6,916 MU for FY11 within the state.

5.10 During Technical Validation session with the Board officials, the Commission discussed the trends in growth in sales over the years. For checking the rationale behind sales estimation and to get in-depth information on sales, the Commission directed the Board to submit the category-wise and slab-wise actual sales figures for FY06 & FY07. The Board, however, failed to submit slab-wise sales figures for different categories and submitted only category-wise sales figures to the Commission. The Commission also directed the Board to submit the category-wise actual sales for each month of FY08 (till December), which was complied with by the Board.

5.11 The Commission also asked the Board to provide the details of applications pending for new connections to enable the Commission to examine and assess the growth in sales to each consumer category, which were complied with by the Board.

5.12 The Commission has undertaken a detailed analysis of the sales projected by the Board. The Commission has analyzed the year-on-year variations in sales as well as the short term and long term trends in sales and has computed the CAGR over the short term, i.e., 3 years and long term, i.e., 10 years. The Commission has approved the total sales of 5,782.16 MU, 6,501.48 MU and 7,156.58 MU for FY09, FY10 and FY11 respectively, which shows a growth rate of 15%, 12% and 10% respectively as compared to the previous year.

5.13 The Commission has approved the sales to each category of consumers as detailed below:

Domestic Supply

(a) The trend analysis of sales to this category shows that the year-on-year variation in sales ranges between 4.4% and 13.5% while 10 year CAGR for sales is 8.26%. The actual growth rate of sales for FY07 is 9.43%, while number of domestic consumers increased by 34,529. The expected growth rate of sales for FY08 is 10.5%. The Board has projected an increase of 45,279 domestic consumers in FY08.

(b) Considering all this, for the Control Period, the Commission has projected an increase in sales to this category at 8.26%, which is line with 10 years' CAGR for sales to this category. While projecting the sales for the Control Period, the Commission has considered the estimated sales for FY08. For this, the Commission has considered the actual sales in FY08 till December 2007 and has estimated the energy sold during January to March 2008 as the average of proportion as actual energy sold during Jan- Mar quarter with respect to energy sold during FY05, FY06 and FY07.

(c) This above demand projection included the demand projection for BPL category also. The Board has estimated 900 consumers under BPL category for FY08. Revised estimates for FY08 for BPL category is 0.43MU based on the actual monthly sales till December 2007. For the Control Period the Commission has estimated sales to this category in same proportion of the sales to BPL category to the total domestic sales in FY08.

NDNCS and Commercial Supply

(d) NDNCS category was created in the Tariff Order for FY02. In the absence of segregated data for sales to this category prior to FY02, the Commission has assessed the trend in sales for the NDNCS and Commercial category together.

(e) An analysis of the trend in sales to the NDNCs and Commercial category together shows that the year-on-year variation in sales ranges between 3.7% and 13.32%. The long term (10 years) CAGR for sales is 9.25% while the short term (3 years) CAGR is 10.21%. The actual growth rate of sales for FY07 is 9.07% and estimated growth rate for FY08 is 13.11%

(f) Considering all this, for the Control Period, the Commission has projected an increase in sales to this category at 9.25% which is in line with the 10 years' CAGR for sales to the NDNCS and Commercial Supply categories considered together.

Small & Medium Industrial Power Supply

(g) An assessment of the growth in sales to this category indicates large variations in growth on a year-to-year basis with variation in sales ranging from -36.47% to 13.64%.

(h) The trend in the data is more consistent from FY02 onwards from where it shows continuous increase in consumption except for FY06. Further the 10 year CAGR is -1.42% and the 3 year CAGR is 7.16%. The expected growth rate in sales for FY08 is 12.52%. The Board has projected an increase of 1220 consumers in this category for FY08.

(i) After detailed analysis of the trend in sales, pending applications for new connections and the economic outlook of the State, the Commission has projected an increase in sales to this category at 8.65% which is 6 year CAGR for this category for the Control Period.

Large Industrial Power (LS) Supply

(j) An assessment of the growth in sales to this category indicates large variations in growth on a year-to-year basis with variation in sales ranging from 0.9% to 35.93%. The long term (10 years) CAGR for sales is 13.72% while the short term (3 years) CAGR is 29.82%. The actual growth rate in sales for FY07 is 23.10% while the expected growth rate for FY08 is 30.75%.

(k) After detailed analysis of the trend in sales and the economic outlook of the State for the forthcoming year, the Commission has projected an increase in sales to this category in FY09 at 19.45% which is the 6 year CAGR for this category. For FY10 and FY11 the Commission is of the opinion that the growth in this category would slow down as the incentive offered by the Central Government to set up industrial unit in HP would end partly in 2010 and rest in 2013. Thus, for FY10 and FY11 the Commission has considered the growth in the industrial demand at 15.45% and 11.45% respectively by considering 4% tapering of demand.

Power Intensive Units (PIU)

(l) A new category called PIU was created in the Tariff Order for FY07, for Power Intensive Large Industries which earlier were part of LS category.

(m) Due to non-availability of the actual data for FY07 and only revised estimates for FY08 the Commission has assessed the trend in sales for PIU and Large Industrial Power Supply Category together. Further, the Commission has considered the consumption for this category in proportion of the connected load in PIU to the connected load of PIU and LS combined as submitted by the Board. Based on this, the ratio of sales of PIU to the total industrial sales (PIU + LS) considered by the Commission is 25%. The growth in demand has been assumed same as that for LS category.

Agriculture and Allied Activities Supply

(n) An assessment of the growth in sales to this category over the last 10 years indicates large variations in growth on a year-to-year basis with variation in sales ranging from -8.33% to 41.67%.

(o) The long term (10 years) CAGR for sales is 8.67% while the short term (3 years) CAGR is 0.01%.

(p) Looking at the static growth in agriculture sector of Himachal Pradesh, the Commission has projected an increase in sales to this category at 5.27%, which is in line with the 5 year CAGR of this category for the Control Period.

Water Pumping Supply (WPS)

(q) An analysis of the trend in sales to this category during the last 10 years shows that the year on year variation in sales ranges from -2.88% to 13.04%. The long term (10 years) CAGR for sales is 7.37% while the short term (3 years) CAGR is 7.04%.

(r) The Commission has projected increase in sales to this category at 7.37% which is in line with the 10 year CAGR for this category for the Control Period.

Street Lighting Supply

(s) An analysis of the trend in sales to this category shows that the year on year variation in sales ranges from -3.45% to 20%. The long term (10 years) CAGR for sales is 7.72% while the short term (3 years) CAGR is 5.12%. The actual growth rate of sales for FY07 is -3.45% while expected growth rate for FY08 is 11.40%.

(t) The Commission has projected increase in sales to this category at 5.87% which is in line with the 8 year CAGR for this category for the Control Period.

Bulk Supply

(u) An analysis of the trend in sales to this category shows that the year on year variation in sales ranges from -15.44% to 35.92%. The long term (10 years) CAGR for sales is 0.67% while the short term (3 years) CAGR is 14.44%.

(v) The actual growth rate of sales for FY07 is 20.40% while expected growth rate for FY08 is 15.77%. The Commission has projected increase in sales to this category at 2.33% which is in line with the 5 year CAGR for sales to this category for the Control Period.

Temporary Supply

(w) The Commission has approved the sales equal to estimated sales for FY08 under this category i.e. 28.89 MU

5.14 After detailed scrutiny of the consumer category wise sales, the Commission estimates the following sales to the retail consumers in the state of Himachal Pradesh:

Table 30: Approved Energy Sales (MU) for the Control Period

Category	FY09		FY10		FY11	
	Petition	Approved	Petition	Approved	Petition	Approved
BPL	1.93	0.47	3.18	0.50	5.25	0.55
Domestic Supply	1129.96	1133.96	1216.75	1227.59	1310.21	1328.94

Category	FY09		FY10		FY11	
	Petition	Approved	Petition	Approved	Petition	Approved
Non Domestic Non Commercial	86.63	87.77	95.30	95.89	104.83	104.76
Commercial Supply	266.17	269.57	279.05	294.51	292.56	321.76
Small & Medium Industrial Power	198.97	192.99	212.23	209.68	226.37	227.81
Large Industrial Power Supply	2928.53	2641.01	3279.96	3048.98	3673.55	3398.02
PIU	492.80	880.34	551.94	1016.33	618.17	1132.67
Agriculture & Allied Activities	27.94	26.61	30.12	28.01	32.47	29.49
Water Pumping Supply	363.77	356.20	399.10	382.43	437.85	410.60
Street Lighting Supply	12.13	13.37	12.69	14.15	13.27	14.98
Bulk Supply	147.44	151.00	151.95	154.51	156.59	158.11
Temporary Metered Supply	34.05	28.89	39.15	28.89	45.03	28.89
Total	**5690.32**	**5,782.16**	**6271.42**	**6,501.48**	**6916.15**	**7,156.58**

5.15 The annual sales across various categories of consumers have been broken down into monthly sales based on the seasonality of actual monthly sales in FY06, FY07 and FY08. The monthly sales projections have been used to dispatch generation for meeting this demand as discussed in the following section.

Table 31: Historical Monthly Sales (MU)

Month	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total
Demand FY06	264	276	287	300	282	302	303	311	290	325	309	319	**3569**
Demand FY07	299	306	316	333	322	346	342	354	375	380	382	405	**4160**
Demand FY08	363	406	409	437	428	445	427	410	415	435	425	445	**5047**

Table 32: Monthly Demand Projection (MU) for the Control Period

Month	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total
Demand FY09	420	446	458	483	465	494	486	489	488	518	506	530	**5782**
Demand FY10	472	502	515	544	523	555	546	550	549	582	569	596	**6501**
Demand FY11	519	552	566	598	576	611	601	605	605	641	626	656	**7157**

T&D Losses

5.16 The Petitioner in its MYT Petition has proposed 0.5% T&D loss reduction year on year during the Control Period and proposes to reach at the T&D losses of 16% at the end of the Control Period.

5.17 The Commission here would like to highlight that the LS & PIU categories contributes approx 60% of the energy sales in the state. This 60% energy sales happen at high voltage levels (11 kV and above) and the distribution losses at this voltage levels are in the range of 3% to 7%. Thus, if it is assumed that transmission losses are 3.71% and the distribution losses at HT voltage is 4.5%, the overall T&D losses for LS & PIU category comes approx at 8%. If the total T&D losses in the state are

17.5% and 60% of the energy sales happen at 8% T&D losses, **the T&D losses on the balance 40% sales are approx 28.5%.** If the T&D losses in the categories contributing to the balance 40% of the energy sales are reduced by 2%, the overall T&D losses reduces by 1.05%.

5.18 As per the information submitted by the Board for truing of FY07, the Board has already achieved T&D loss level of 17.00% in FY07. Given the, past performance of the Board in reducing T&D losses, the Commission is of the opinion that the Board would be able achieve T&D losses of 16.5% in FY08. For the Control Period, the Commission has considered the T&D loss reduction trajectory of 0.75%, 0.75% and 0.5% in FY09, FY10 and FY11 respectively to reach a level of 14.5% by the end of the Control Period. The Commission, however, clarifies that the T&D loss reduction trajectory may be trued up once the actual T&D losses for FY08 are submitted by the Board for truing up.

Table 33: Approved T&D losses for the Control Period

Losses (%)	FY09		FY10		FY11	
	Petition	Approved	Petition	Approved	Petition	Approved
Opening T&D Loss (%)	17.50%	16.50%	17.00%	15.75%	16.50%	15.00%
T&D Loss Reduction (%)	0.50%	0.75%	0.50%	0.75%	0.50%	0.50%
T&D Losses for the year (%)	17.00%	15.75%	16.50%	15.00%	16.00%	14.50%
Transmission Losses (%)	3.71%	3.71%	3.71%	3.71%	3.71%	3.71%
Distribution Losses (%)	13.80%	12.50%	13.28%	11.72%	12.76%	11.21%

5.19 For the purpose of calculating the incentive/ penalty on account of over/under achievement of T&D loss reduction target, the Commission would consider the following:

(a) First year of the Control Period: The Petitioner shall be eligible for an incentive if the T&D loss reduction in the first year of the Control Period is above 0.75%. Any under recovery in the revenue realized, if the T&D loss reduction in the first year of the Control Period is below 0.5%, shall be to the account of the Petitioner. The Petitioner shall not be eligible for any incentive or penalty if the T&D loss reduction in the first year of the Control Period is between 0.5% and 0.75%.

(b) Second year of the Control Period: The Petitioner shall be eligible for an incentive if the cumulative value of loss reduction in that year and in the previous year is over 1.5%. Any under recovery in the revenue realized, if the T&D loss reduction in the second year of the Control Period is below 0.5% and that the cumulative value of loss reduction in that year and in the previous year is below 1%, shall be to the account of the Petitioner. The Petitioner shall not be eligible for any incentive or penalty if the cumulative T&D loss reduction in the first and second year of the Control Period is between 1% and 1.5%.

(c) Last year of the Control Period: The Petitioner shall be eligible for an incentive if the cumulative value of loss reduction at the end of the Control Period is over 2%. Any under recovery in the revenue realized, if the T&D loss reduction in the last year of the Control Period is below 0.5% and that the cumulative value of loss reduction at the end of the Control Period is below 2%, shall be to the account of the Petitioner.. The Petitioner shall not be eligible for any incentive or penalty if the cumulative T&D loss reduction at the end of the Control Period is 2%.

5.20 As per the clause 8 (3) of MYT Distribution Regulations, the incentives/ profits arising from achieving loss level better than specified in the loss reduction trajectory shall be shared in the ratio of 2/3rd with the licensee and 1/3rd in the contingency reserve for the first Control Period.

5.21 For all the generating stations that are in the Northern Region and wherein the power comes through PGCIL network to HP, regional losses of 3.50% has been considered by the Commission. For Kahelgaon - II and Barh I & II, Eastern Region losses of 3.0% have also been considered.

Energy Requirement

5.22 The Commission's estimates of energy requirement at distribution periphery for the Control Period are based on the sales and T&D loss reduction trajectory approved by the Commission. The Commission's estimates for power requirement are tabulated below:

Table 34: Approved Energy Requirement for the Control Period

Energy Requirement	FY09		FY10		FY11	
	Petition	Approved	Petition	Approved	Petition	Approved
Sales (MU)	5690.32	5782.16	6271.40	6501.48	6916.14	7156.58
Distribution Losses (%)	13.80%	12.50%	13.28%	11.72%	12.76%	11.21%
Energy Requirement (MU)	6601.29	6608.48	7231.78	7365.03	7927.72	8059.73

Determination of Aggregate Revenue Requirement

5.23 The Commission has analyzed all the components of the Aggregate Revenue Requirement (ARR) submitted by the Petitioner to approve suitable values for each component, for each year of the Control Period. As per the MYT Regulations, 2007 the ARR include the following uncontrollable and controllable components:

(a) Uncontrollable Components

(i) Sales

(ii) Power Purchase Cost (including inter state & intra state transmission charges)

(b) Controllable Components

(i) Operations and Maintenance Expenses;

(ii) Interest and Finance Charges

(iii) Return on Equity;

(iv) Depreciation, including Advance Against Depreciation;

(v) Non-Tariff Income; and

(vi) Income from other businesses.

Power Purchase

5.24 The power purchase expense is the single largest component in the ARR. Hence, it is imperative that this element of cost is estimated with utmost care based on the most efficient way of procuring power from the generating stations through long term/short term arrangements or through bilateral purchase agreements.

5.25 The Commission has exercised due caution in estimating power purchase cost of the Petitioner. The Commission has made reasonable assumption for PLF, auxiliary consumption and transmission losses to arrive at the quantum of energy available for the Petitioner.

Source of Power

5.26 Following power generating stations have been considered for the purpose of estimation of power availability for the Control Period.

(a) HPSEB own generating stations

(b) Purchase from Central Generating Stations of NTPC, NHPC, SJVNL and NPC and Tehri

(c) Purchase from Baspa, Patikari HEPs and private SHPs upto 5 MW.

(d) Purchase from BBMB and shared stations

(e) Purchase of Free & Equity power from GoHP

(f) Purchase through bilateral short term arrangements.

(g) New Plants expected to be commissioned during the Control Period

(h) Banking arrangements.

Allocation in Generating Stations

Allocation from HPSEB own stations

5.27 Based on the existing arrangements between HPSEB and GoHP the Commission has considered the following allocation from HPSEB's own generating stations while estimating the power availability to HPSEB from these stations.

Table 35: Allocation from HSPEB own stations

Station	FY09 to FY11
	Allocated
Bhaba	100.00%
Bassi	100.00%
Giri	100.00%
Andhra	100.00%
Ghanvi	88.00%
Baner	88.00%
Gaj	88.00%
Binwa	100.00%
Thirot	100.00%
Gumma	100.00%
Holi	100.00%
Larji	88.00%
Khauli	88.00%
SHPs	100.00%

Allocation from Central Sector Generating Stations (CSGS)

5.28 HP has firm allocated share in Central Sector Generating Stations (CSGS) of NTPC, National Hydroelectric Power Corporation (NHPC), Tehri Hydro Development Corporation (THDC), Satluj Jal Vidyut Nigam Limited (SJVNL) and Nuclear Power Corporation Limited (NPCIL).

5.29 In addition to the firm share allocation, most of these stations (except Bairasuil, Salal, Tanakpur, Chamera-I and Uri stations of NHPC) have 15% unallocated power. The distribution of this unallocated power among the constituents of Northern Region is decided from time to time, based on the power requirement and power shortage in different States.

5.30 The Petitioner in its petition has considered allocation of firm and unallocated power of CSGS, however, the unallocated share from CSGS for the Control Period has been considered at the same level of unallocated share as was received during the winter months of FY07 by the Board.

5.31 The Commission has considered allocation of firm power of CSGS as per the allocations effective from 27 October, 2007 as specified in the notification no. NRPC/SE(O)/Allocations/2008-09 dated 11 April, 2008 of Northern Regional Power Committee.

5.32 The Petitioner's share in CSGS unallocated quota vary from time to time based on the allocation made to HP depending upon power requirement and power shortage in different States. Therefore, the Commission has considered monthly share of firm and unallocated power for HP in CSGS FY07 and FY08 sourced from the Final REA of March 2007 and Provisional REA of March 2008.

5.33 HP's share in Central Sector Generating Stations is summarized below.

Table 36: Firm Allocation from Central Sector Generating Stations (CSGS)

Station	FY09 to FY11
	Allocated
NTPC	
Anta GPP	3.58%
Auriya GPP	3.32%
Dadri GPP	3.01%
Unchahar-I	1.67%
Unchahar-II	2.86%
Unchahar-III	3.81%
Rihand-1 STPS	3.50%
Rihand-2 STPS	3.30%
Singrauli STPS	0.00%
Kahelgaon – II	1.53%
NPCIL	
NAPP	3.18%
RAPP (V & VI)	3.40%
NHPC	
Salal	0.99%
Tanakpur	3.84%
Chamera I	2.90%
Chamera II	3.67%
Uri	2.71%
Dhauliganga	3.57%
THDC	
Tehri	2.80%

Station	FY09 to FY11
	Allocated
SJVNL	
Nathpa Jhakri HEP	2.47%
BBMB	
BBMB (Old)	Fixed[1]
BBMB (New)	2.12%
Dehar	Fixed[2]

Table 37: Unallocated Share from Central Sector Generating Stations (CSGS)

Stations	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
NTPC												
Anta GPP	1.37%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.32%	1.37%	1.47%	1.47%	1.46%
Auriya GPP	0.95%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.91%	0.96%	1.01%	1.01%	1.02%
Dadri GPP	0.65%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.62%	0.64%	0.67%	0.69%	0.69%
Unchahar-I	0.47%	0.17%	0.00%	0.00%	0.00%	0.00%	0.00%	0.49%	0.49%	0.49%	0.47%	0.49%
Unchahar-II	1.51%	0.73%	0.00%	0.00%	0.00%	0.00%	0.25%	1.53%	1.54%	1.54%	1.51%	1.53%
Unchahar-III	1.38%	0.57%	0.00%	0.00%	0.00%	0.00%	0.24%	1.53%	1.52%	1.53%	1.47%	1.53%
Rihand-1 STPS	1.46%	0.52%	0.00%	0.00%	0.00%	0.00%	0.37%	1.54%	1.54%	1.54%	1.51%	1.54%
Rihand-2 STPS	1.47%	0.50%	0.00%	0.00%	0.00%	0.00%	0.24%	1.54%	1.54%	1.55%	1.52%	1.54%
Singrauli STPS	1.47%	0.52%	0.00%	0.00%	0.00%	0.00%	0.23%	1.54%	1.54%	1.54%	1.54%	1.54%
Kahelgaon – II	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
NPCIL												
NAPP	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.24%	1.49%	1.49%	0.00%	1.52%	1.49%
RAPP (V & VI)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
NHPC												
Salal	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Tanakpur	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Chamera I	1.76%	0.68%	0.00%	0.00%	0.00%	0.00%	0.26%	1.98%	1.98%	1.99%	2.01%	1.88%
Chamera II	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Uri	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Dhauliganga	1.49%	0.53%	0.00%	0.00%	0.00%	0.00%	0.16%	1.61%	1.67%	1.67%	1.66%	1.59%
Dulhasti	1.47%	0.63%	0.00%	0.00%	0.00%	0.00%	0.20%	1.58%	1.65%	1.66%	1.65%	1.53%

[1] BBMB (old) share: 1.2 LU per day

[2] Dehar share: 15 MW at 60% PLF

Stations	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
THDC												
Tehri	0.98%	0.35%	0.00%	0.00%	0.00%	0.00%	0.17%	1.09%	1.11%	1.10%	1.11%	1.05%
SJVNL												
Nathpa Jhakri	0.96%	0.35%	0.00%	0.00%	0.00%	0.00%	0.15%	1.07%	1.09%	1.11%	1.11%	1.04%

Allocation from Shared Stations

5.34 HP has firm allocated share in Shanan, Shanan (ext), UJVNL and Khara. The allocation from these stations considered by the Commission for the Control Period is shown below.

Table 38: Allocation from Shared Stations

Station	FY09 to FY11
	Allocated
Shanan	Fixed[3]
Shanan Ext	Fixed[4]
Yamuna (UJVNL)	24.68%
Khara	20.00%

Allocation from IPPs & Private projects

5.35 The allocation from IPPs and other Private projects as considered by the Commission for the Control Period is shown below.

Table 39: Allocation from IPPs & Private projects

Stations	FY09 to FY11
	Allocated
Baspa-II	88.00%
Patikari	88.00%
Pvt SHPs	100.00%

Allocation from Free & Equity Power

5.36 GoHP has free power & equity power entitlements in several stations as shown in the table below. HPSEB gets free & equity power from GoHP during the winter months.

[3] Shanan Share: Fixed share of 1000 kW at 60% PLF

[4] Shanan Ext: Fixed share of 45 MU per annum

Table 40: Free & Equity Power Entitlement to GoHP

Station	FY09 to FY11
	Allocated
Free Power	
Baira Suil	12.00%
Chamera-I	12.00%
Chamera –II	12.00%
Shanan Share	Fixed[5]
Ranjeet Sagar Dam Share	4.60%
Malana	15.00%
Baspa – II	12.00%
Patikari	12.00%
Nathpa Jhakri	12.00%
Ghanvi	12.00%
Baner	12.00%
Gaj	12.00%
Larji	12.00%
Khauli	12.00%
Equity Power	
Nathpa Jhakri	22.00%

Allocation from New Projects

5.37 As per the petition submitted by the Board, Board has entitlements in the upcoming power projects. The Commission has considered the same while projecting the availability to HPSEB from these stations for the Control Period. The summary of the same is shown in the table below.

Table 41: Allocation from New Projects

Station	FY09 to FY11		
	Allocated	Unallocated	Total
Barh I & II	5.00%	1.53%	6.53%
Koldam	2.75%	15.00%	17.75%
Chamera III	2.75%	15.00%	17.75%
Parbati II	2.75%	15.00%	17.75%
Parbati III	2.75%	15.00%	17.75%
Koteshwar	2.51%	0.00%	2.51%

[5] Shanan Free Power Share: Fixed share of 500 kW at 60% PLF

Energy Availability

Energy Availability from HPSEB own stations

5.38 The Commission has estimated net energy available to the Petitioner during the Control Period by considering generation as average of last four years generation except for Bassi, Holi, Larji and Khauli. For Bassi, due to the planned R&M work, the Commission has considered the annual generation as projected by the Board for the Control Period. For Holi, the Commission has taken the average generation for last 2 years. For Larji and Khauli the Commission has considered the respective design energy of these plants.

5.39 The Commission has also considered the auxiliary consumption of these plants as per the HPERC Generation Regulations, 2007 and as mentioned in the Generation ARR section of this order.

5.40 The effective share of the Petitioner is applied on the energy sent out to estimate the energy availability from the respective Stations. Key parameters considered by the Commission to project the energy available from the HPSEB own generating stations during the Control Period and Petitioner's share of energy in each station are summarized in the table below.

Table 42: Energy Available from HPSEB Own Stations in FY09 (MU)

Station	FY09			
	Generation	Aux Consumption	Allocation	HPSEB Share
Bhaba	530.02	1.20%	100.00%	523.65
Bassi	176.00	0.70%	100.00%	174.77
Giri	173.34	0.70%	100.00%	172.13
Andhra	60.60	1.00%	100.00%	59.99
Ghanvi	70.34	1.20%	88.00%	61.16
Baner	43.40	1.00%	88.00%	37.81
Gaj	48.75	1.00%	88.00%	42.47
Binwa	31.95	0.70%	100.00%	31.73
Thirot	6.51	0.70%	100.00%	6.47
Gumma	8.46	0.70%	100.00%	8.40
Holi	10.23	0.70%	100.00%	10.16
Larji	546.25	1.20%	88.00%	474.93
Khauli	49.60	0.70%	88.00%	43.34
SHPs	25.39	0.92%	100.00%	25.15
Total	**1780.82**	**-**	**-**	**1672.15**

Table 43: Energy Available from HPSEB Own Stations in FY10 (MU)

Station	FY10			
	Generation	Aux Consumption	Allocation	HPSEB Share
Bhaba	572.29	1.20%	100.00%	565.42
Bassi	315.00	0.70%	100.00%	312.80
Giri	173.34	0.70%	100.00%	172.13
Andhra	60.60	1.00%	100.00%	59.99
Ghanvi	70.34	1.20%	88.00%	61.16
Baner	43.40	1.00%	88.00%	37.81
Gaj	48.75	1.00%	88.00%	42.47
Binwa	31.95	0.70%	100.00%	31.73
Thirot	6.51	0.70%	100.00%	6.47
Gumma	8.46	0.70%	100.00%	8.40
Holi	10.23	0.70%	100.00%	10.16
Larji	546.25	1.20%	88.00%	474.93
Khauli	49.60	0.70%	88.00%	43.34
SHPs	25.39	0.92%	100.00%	25.15
Total	**1962.10**	**-**	**-**	**1851.95**

Table 44: Energy Available from HPSEB Own Stations in FY11 (MU)

Station	FY11			
	Generation	Aux Consumption	Allocation	HPSEB Share
Bhaba	572.29	1.20%	100.00%	565.42
Bassi	315.00	0.70%	100.00%	312.80
Giri	173.34	0.70%	100.00%	172.13
Andhra	60.60	1.00%	100.00%	59.99
Ghanvi	70.34	1.20%	88.00%	61.16
Baner	43.40	1.00%	88.00%	37.81
Gaj	48.75	1.00%	88.00%	42.47
Binwa	31.95	0.70%	100.00%	31.73
Thirot	6.51	0.70%	100.00%	6.47
Gumma	8.46	0.70%	100.00%	8.40
Holi	10.23	0.70%	100.00%	10.16
Larji	546.25	1.20%	88.00%	474.93
Khauli	49.60	0.70%	88.00%	43.34
SHPs	25.39	0.92%	100.00%	25.15
Total	**1962.10**	**-**	**-**	**1851.95**

Energy Availability from the Central Sector Generating Stations (CSGS)

5.41 For the NTPC stations, the Commission has estimated available gross generation for the Control Period based on the actual PLF achieved by the plants in previous years.

Net energy sent out is estimated after deducting auxiliary consumption as approved in relevant CERC orders.

5.42 For NHPC's hydro electric projects, the Commission has taken gross generation for the Control Period at the Design Energy of these projects. Gross generation for other hydro plants namely Nathpa Jhakri and Tehri have been considered based on the CEA generation targets for FY08 as there is a significant deviation in the generation of these plants from their respective design energy.

5.43 The Petitioner in its petition has projected the energy availability from NAPS at 65% PLF. The Commission has, however, observed that the PLF of NAPS in the last few years have declined significantly due to non-availability of the fuel. As per the recent information made available by the NPCIL, the capacity factor of NAPS & RAPS has been around 40% and 60% respectively. Further, the plant availability was around 70% and 90% respectively. Thus for NPCIL stations, the Commission based on the past performance has assumed PLF of 40% and 60 % for NAPS and RAPS respectively along with the plant availability of 70% and 90%.

5.44 The energy available from BBMB (old) and Dehar has been assumed at 1.2 LU per day and 15 MW@60% PLF respectively. The energy availability from BBMB (new) has been considered based on the CEA program energy for FY08.

5.45 The effective share of the Petitioner is applied on the energy sent out to estimate the energy availability for the Petitioner from respective stations. Energy sent out from the CSGS and the Petitioner's share of energy in each station are summarized below in the table:

Table 45: Energy Available from Central Sector Generating Stations (CSGS)

Station	Capacity (MW)	PLF (%)	Aux Consumption	Energy Sent Out (MU)	HPSEB Share (MU)
NTPC					
Anta GPP	419.33	77.41%	3.00%	2758.26	118.02
Auriya GPP	663.36	75.62%	3.00%	4262.64	162.19
Dadri GPP	829.78	75.51%	3.00%	5324.21	177.67
Unchahar-I	420.00	95.13%	8.77%	3192.98	61.81
Unchahar-II	420.00	92.53%	9.00%	3098.03	115.12
Unchahar-III	210.00	95.43%	9.00%	1597.55	73.98
Rihand-1 STPS	1000.00	86.98%	8.50%	6972.04	302.14
Rihand-2 STPS	1000.00	94.82%	7.50%	7683.48	316.79
Singrauli STPS	2000.00	87.19%	7.75%	14092.20	115.98
Kahelgaon – II	1500.00	80.00%	9.00%	10308.91	158.07
NPCIL					

Station	Capacity (MW)	PLF (%)	Aux Consumption	Energy Sent Out (MU)	HPSEB Share (MU)
NAPP	440.00	40.00%	9.50%	976.70[6]	36.07
RAPP (V & VI)	440.00	60.00%	9.50%	1883.65[7]	64.04
NHPC					
Salal	690.00		1.00%	3020.67	29.90
Tanakpur	94.20		1.00%	443.19	17.02
Chamera I	540.00		1.00%	1628.13	47.22
Chamera II	300.00		1.00%	1467.07	75.56
Uri	480.00		1.00%	2530.77	68.58
Dhauliganga	280.00		1.00%	1109.86	43.84
Dulhasti	390.00		1.00%	1698.84	8.73
THDC					
Tehri	1000.00		1.00%	2745.27	86.18
SJVNL					
Nathpa Jhakri	1500.00		1.20%	6323.20	181.34
BBMB					
BBMB (Old)	1480.30			Fixed	43.80
BBMB (New)	1480.30		1.00%	6286.50	133.27
Dehar	990.00			Fixed	78.84

Energy Available from Shared Stations

5.46 HP has fixed allocation from Shanan and Shanan (Ext) i.e. 1 MW@60% PLF and 45 MU respectively. The Commission has considered the same while projecting the availability from these stations for the Control Period. For UJVNL and Khara, the Commission has considered the energy availability based on the average of last two years.

Table 46: Energy Available from Shared Stations

Station	Capacity (MW)	Aux Consumption	Energy Sent Out (MU)	HPSEB Share (MU)
Shanan	60.00		Fixed	5.26
Shanan (Ext)	50.00		Fixed	45.00
Yamuna	474.75	3.00%	1596.59	394.04
Khara	72.00	3.00%	281.87	56.37

[6] NAPS Plant Availability – 70%

[7] RAPS Plant Availability – 90%

Allocation from IPPs & Private projects

5.47 The total energy available from Baspa-II HEP has been considered at design energy of Baspa i.e. 1193 MU and the energy available to HPSEB out of it has been considered as per the existing PPA i.e. 1050.06 MU. The total energy availability from Patikari HEP has been considered at. 78.02 MU as per the existing PPA. The energy available to HPSEB from Patikari HEP has been considered at 68.66 MU, after reducing the 12% free power entitlement of GoHP in Patikari HEP.

Table 47: Energy Available from Baspa & Patikari

Station	Capacity (MW)	Design Energy (MU)	HPSEB Share (MU)
Baspa-II	300.00	1193.25	1050.06
Patikari	16.00	78.02	68.66

5.48 For projecting the energy availability from private small hydro projects (SHPs) upto 5 MW, the Commission has analyzed the information sought from Himurja on the tentative COD of new private SHPs. As per the information submitted, the total capacity of new private SHPs to be tentatively commissioned is 188.3 MW, 51.00 MW and 217.40 MW in the year 2009, 2010 and 2011 respectively. The Commission is of the opinion that the capacity addition projected by HIMURJA seems be on a very optimistic side. However, the capacity addition in the private SHPs cannot be completely ignored. Thus, the Commission has considered 50 MW capacity additions of private SHPs for each year of the Control Period. Further, the Commission has considered the energy available from the new capacities commissioned in a year would be made available in the middle of the year. The energy available from private SHPs during the Control Period as considered by the Commission is shown in the table below.

Table 48: Energy Available from Private SHPs (MU)

Station	FY08	FY09	FY10	FY11
Existing Generation	147.34			
Capacity Addition (MW)		50	50	50
Additional Generation (MU)		100	300	500
Energy Available (MU)		247.34	447.34	647.34

Energy Available from Free & Equity Power

5.49 The GoHP has 12% free power share in 5 of the HPSEB power plants viz. Ghanvi, Baner, Gaj, Larji & Khauli. The GoHP also has free power share of 12% in three of the NHPC plants (i.e. Baira Suil, Chamera I & Chamera II), Shanan (500 kW), 4.6% in Ranjeet Sagar Dam, 12% in Baspa II & Nathpa Jhakri and 15% in Malana. GoHP also has 22% equity share in Nathpa Jhakri.

5.50 The GoHP has agreed to provide free power from these plants to the Board during October to April, when the Board is deficit in energy. The equity power from Nathpa

Jhakri is considered to be made available during the winter months (Nov – Mar).

5.51 The table below shows the Commission's estimates of energy availability to HPSEB plant-wise:

Table 49: Energy Available Free Power (MU)

Station	Total Energy Available	Aux Consumption	Energy Sent Out	Free Power Available to GoHP	Free Power Available to HPSEB (Oct - Apr)
Baira Suil	726.36	1.00%	719.09	86.29	32.81
Chamera-I	1644.58	1.00%	1628.13	195.38	59.69
Chamera –II	1481.89	1.00%	1467.07	176.05	65.99
Shanan Share	2.63	Fixed	2.63	2.63	1.53
Ranjeet Sagar Dam	1546.34	1.00%	1530.87	70.42	24.65
Malana	350.00	1.00%	346.50	51.98	17.61
Baspa – II	1213.18	1.64%	1193.25	143.19	42.44
Patikari	78.02	0.00%	78.02	9.36	2.87
Nathpa Jhakri	6400.00	1.20%	6323.20	758.78	267.21
Ghanvi	70.34	1.20%	69.50	8.34	3.40
Baner	43.40	1.00%	42.97	5.16	2.18
Gaj	48.75	1.00%	48.26	5.79	2.49
Larji	546.25	1.20%	539.70	64.76	19.83
Khauli	49.60	0.70%	49.25	5.91	2.39
Total	**14201.33**		**14038.44**	**1584.04**	**545.08**

Table 50: Energy Available Equity Power (MU)

Station	Total Energy Available	Aux Consumption	Energy Sent Out	Equity Power Available to GoHP	Equity Power Available to HPSEB (Nov - Mar)
Equity Power	6400.00	1.20%	6323.20	1391.10	324.04

Energy Available from New Projects

5.52 The Commission has considered the commissioning schedule of the future stations based on the data available from CEA and as per the discussion held with HPSEB officials.

5.53 Energy available from these future stations has been considered as per the allocation share specified earlier in this section. The Commission has assumed PLF of 80% for thermal and design energy for hydro plants respectively. Auxiliary consumption has been assumed at 9% for coal fired thermal projects and 1% for hydro projects (including 0.5% transformational loss).

5.54 Energy availability to the Petitioner in the Control Period from future projects as considered by the Commission is summarized below in the table:

Table 51: Energy Available from New Projects (MU)

Station	FY09	FY10	FY11
Barh I & II	0.00	342.62	663.40
Koldam	0.00	230.90	548.26
Chamera III	0.00	0.00	75.56
Parbatti II	Unlikely to be commissioned during the Control Period		
Parbatti III	0.00	0.00	56.23
Koteshwar	0.00	0.00	43.19

Other Sources, Bilateral and Short Term Arrangements and Banking

5.55 For the purpose projecting the power purchase from Bilateral, shot term arrangements and Banking, the Commission has carried out a month-wise demand supply analysis for each year of the Control Period. The summary of the same is shown in the tables below.

Table 52: Monthly Demand Supply Position (MU) in FY09

Month	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total
Total Sales (MU)	419.64	446.27	457.59	483.39	465.04	493.54	485.59	488.94	488.45	517.82	506.14	529.76	5782.16
Distribution Losses (MU)	59.97	63.78	65.39	69.08	66.46	70.53	69.39	69.87	69.80	74.00	72.33	75.71	826.32
Demand at Distribution Periphery (MU)	**479.61**	**510.04**	**522.98**	**552.47**	**531.50**	**564.07**	**554.98**	**558.81**	**558.26**	**591.82**	**578.47**	**605.46**	**6608.48**
Power Purchase Outside State (MU)	370.97	325.11	408.15	436.10	446.25	360.32	315.78	400.38	384.19	363.60	338.82	402.66	4552.32
PGCIL Transmission Losses (MU)	13.36	11.77	14.66	15.65	16.01	12.99	11.44	14.39	13.84	13.11	12.21	14.48	163.91
Balance Available at HP Periphery (MU)	357.61	313.34	393.49	420.45	430.24	347.33	304.34	385.99	370.35	350.48	326.61	388.18	4388.41
Power Purchase within State (MU)	251.89	237.46	229.82	272.66	325.96	251.88	191.20	121.26	104.81	95.97	101.09	176.77	2360.78
Intra State Transmission Losses (MU)	22.61	20.43	23.12	25.71	28.06	22.23	18.38	18.82	17.63	16.56	15.87	20.96	250.39
Net Availability at Distribution Periphery (MU)	**586.89**	**530.37**	**600.18**	**667.39**	**728.15**	**576.98**	**477.15**	**488.43**	**457.53**	**429.89**	**411.83**	**543.99**	**6498.79**
Deficit at Distribution Periphery (MU)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**77.83**	**70.38**	**100.72**	**161.93**	**166.64**	**61.47**	**638.98**
Surplus at Distribution Periphery (MU)	**107.27**	**20.33**	**77.21**	**114.92**	**196.65**	**12.91**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**529.29**

Table 53: Monthly Demand Supply position (MU) in FY10

Month	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total
Total Sales (MU)	471.85	501.78	514.51	543.52	522.90	554.94	546.00	549.76	549.22	582.24	569.10	595.66	6501.48
Distribution Losses (MU)	62.67	66.65	68.34	72.19	69.45	73.71	72.52	73.02	72.95	77.34	75.59	79.12	863.55
Demand at Distribution Periphery (MU)	**534.52**	**568.43**	**582.85**	**615.72**	**592.35**	**628.64**	**618.52**	**622.79**	**622.17**	**659.57**	**644.69**	**674.78**	**7365.03**
Power Purchase Outside State (MU)	399.93	363.93	451.53	488.48	499.42	399.06	337.49	413.50	394.74	373.40	350.63	422.71	4894.82
PGCIL Transmission Losses (MU)	15.21	14.25	17.44	19.00	19.41	15.46	12.83	15.23	14.51	13.74	12.97	15.76	185.81
Balance Available at HP Periphery (MU)	384.72	349.68	434.10	469.48	480.01	383.59	324.66	398.28	380.23	359.65	337.67	406.95	4709.00
Power Purchase within State (MU)	318.26	304.67	298.02	354.76	414.04	320.16	243.30	154.67	136.57	122.24	131.15	226.51	3024.36
Intra State Transmission Losses (MU)	26.08	24.28	27.16	30.58	33.17	26.11	21.07	20.51	19.17	17.88	17.39	23.50	286.91
Net Availability at Distribution Periphery (MU)	**676.90**	**630.07**	**704.96**	**793.66**	**860.88**	**677.64**	**546.89**	**532.43**	**497.63**	**464.01**	**451.43**	**609.96**	**7446.46**

Month	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total
Deficit at Distribution Periphery (MU)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**71.63**	**90.35**	**124.53**	**195.56**	**193.26**	**64.82**	**740.16**
Surplus at Distribution Periphery (MU)	**142.38**	**61.64**	**122.11**	**177.94**	**268.53**	**48.99**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**821.59**

Table 54: Monthly Demand Supply position (MU) in FY11

Month	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total
Total Sales (MU)	519.39	552.34	566.35	598.29	575.59	610.85	601.01	605.16	604.56	640.91	626.44	655.68	7156.58
Distribution Losses (%)	65.55	69.71	71.47	75.50	72.64	77.09	75.85	76.37	76.29	80.88	79.06	82.75	903.15
Demand at Distribution Periphery (MU)	**584.94**	**622.05**	**637.83**	**673.79**	**648.22**	**687.94**	**676.86**	**681.53**	**680.85**	**721.79**	**705.50**	**738.43**	**8059.73**
Power Purchase Outside State (MU)	430.71	405.17	497.63	544.14	555.91	440.22	360.57	427.45	405.96	383.82	363.19	444.02	5258.79
PGCIL Transmission Losses (MU)	17.07	16.75	20.23	22.37	22.83	17.96	14.23	16.07	15.19	14.37	13.73	17.05	207.84
Balance Available at HP Periphery (MU)	413.63	388.43	477.40	521.77	533.09	422.26	346.34	411.38	390.77	369.44	349.47	426.97	5050.95
Power Purchase within State (MU)	394.09	373.05	371.06	446.11	509.52	393.43	303.08	192.70	172.12	152.10	166.65	285.18	3759.08
Intra State Transmission Losses (MU)	29.97	28.25	31.48	35.91	38.68	30.26	24.09	22.41	20.88	19.35	19.15	26.42	326.85
Net Availability at Distribution Periphery (MU)	**777.75**	**733.23**	**816.98**	**931.97**	**1003.93**	**785.43**	**625.32**	**581.67**	**542.01**	**502.20**	**496.97**	**685.73**	**8483.17**
Deficit at Distribution Periphery (MU)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**51.54**	**99.86**	**138.84**	**219.59**	**208.54**	**52.70**	**771.07**
Surplus at Distribution Periphery (MU)	**192.82**	**111.18**	**179.16**	**258.17**	**355.70**	**97.49**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1194.51**

5.56 As shown in the tables above, HPSEB is power deficit in winter months and power surplus in summer months. Thus, it is considered that the Board would enter into banking arrangements with other states during the summer months to partly offset the deficit in the winter months. Any deficit, if remaining after banking arrangement, has been considered to be purchased from short term arrangements/ market purchase.

5.57 The summary of banking and short term power purchase approved by the Commission is shown below.

Table 55: Power Purchase through Banking & Short Term Arrangements (MU)

Particulars	FY09	FY10	FY11
Total Deficit at Distribution Periphery (MU)	638.98	740.16	771.07
Intra State Transmission Losses (%)	3.71%	3.71%	3.71%
Inter State Transmission Losses (%)	3.50%	3.50%	3.50%
Total Deficit at Ex- Bus (MU)	**687.66**	**796.56**	**829.82**
Deficit Power Procured through -			
Banking	550.00	600.00	600.00
Market Purchase & Bilateral Arrangements	137.66	196.56	229.82

Power Purchase Cost

Generation cost of HPSEB own stations

5.58 Since Board is still a bundled entity, the cost of generation from the Board's own generating stations are being shown as the part of Board's expenses under various heads such as employee cost, R&M cost, A&G cost, interest cost, deprecation etc. Thus, the Commission has not considered the generation cost of Board's own generating stations as part of the power purchase cost in the total ARR of the Board.

5.59 However, the Commission has carried out the exercise of determination of generation ARR for Board's own generating stations in this order, which has been detailed in the subsequent chapter.

Cost of Power of Central Sector Generating Stations (CSGS)

NTPC

5.60 The Commission has derived annual fixed charges (in proportion to the Petitioner's share) applicable in FY08 and FY09 for various central sector generating stations from the relevant Tariff Orders issued by CERC. The annual fixed charges for FY10 and FY11 have been considered at same level as that for FY09 on the assumption that any increase in Operation & Maintenance cost will be offset by the decrease in other fixed charges.

5.61 The variable cost including Fuel Price Adjustment (FPA) for the Control Period has been based upon the power purchase data for FY07, as submitted by Board. An escalation of 3%

has been applied for the variable cost for subsequent years.

5.62 Other Charges has been considered as the average of other charges paid per unit in FY06 and FY07 by the Board.

5.63 For the recently commissioned Kahelgaon –II, the variable & fixed charges have not been approved yet CERC. Thus, in the absence of the tariff order for Kahelgaon – II, the Commission has considered the composite rate estimated by the Board for FY08 in its petition and has escalated the same by 3% each year to arrive at the composite variable rate for the Control Period.

5.64 The summary of the variable charges (including FPA), fixed charges and other charges considered by the Commission for NTPC stations for the Control Period is shown in the table below.

Table 56: Variable Charges (P/ unit) considered for NTPC Stations

Station	FY09	FY10	FY11
Anta GPP	163.47	168.38	173.43
Auriya GPP	196.17	202.05	208.12
Dadri GPP	193.18	198.97	204.94
Unchahar-I	135.18	139.23	143.41
Unchahar-II	136.56	140.65	144.87
Unchahar-III	139.93	144.13	148.45
Rihand-1 STPS	98.80	101.77	104.82
Rihand-2 STPS	99.78	102.77	105.86
Singrauli STPS	90.07	92.78	95.56
Kahelgaon – II	250.00	257.50	265.23

Table 57: Fixed & Other Charges considered for NTPC Stations for the Control Period

Station	Fixed Charges (Rs Cr)	Other Charges (P/ unit)
Anta GPP	78.08	0.19
Auriya GPP	116.18	0.24
Dadri GPP	159.51	0.28
Unchahar-I	142.46	0.21
Unchahar-II	177.87	0.04
Unchahar-III	119.40	0.00
Rihand-1 STPS	341.62	0.25
Rihand-2 STPS	526.68	0.42
Singrauli STPS	350.68	0.12

NHPC

5.65 For NHPC hydro stations annual fixed charges as specified in the respective CERC tariff orders has been considered and the net charges payable has been derived after deducting the free share of power, if any, in the respective stations.

5.66 The summary of the fixed charges considered by the Commission for NHPC stations for the Control Period is shown in the table below.

Table 58: Fixed Charges considered for NHPC Stations for the Control Period

Station	Fixed Charges (Rs Cr)
Salal	176.74
Tanakpur	46.83
Chamera I	199.53
Chamera II	327.37
Uri	274.16
Dhauliganga	173.70
Dulhasti	497.40

NPCIL

5.67 For NPCIL plants, based on the actual power purchase bill for FY07, single part tariff with 1% annual escalation has been considered. For newly commissioned units V & VI of RAPS, the Commission has considered the tariff estimated by Board for FY08 in its petition and has escalated the same by 1% for the Control Period.

5.68 The summary of the composite variable charges considered by the Commission for NPCIL stations for the Control Period is shown in the table below.

Table 59: Variable Charges (P/ unit) considered for NPCIL Stations

Station	FY09	FY10	FY11
NAPS	196.66	202.56	208.64
RAPS	313.12	322.51	332.19

THDC

5.69 For Tehri HEP, the Commission has considered a composite variable rate of 350 P/ unit for the Control Period.

SJVNL (Nathpa Jhakri)

5.70 For Nathpa Jhakri HEP the annual fixed charge for FY08 i.e Rs 1278.12 Cr has been considered and the net charges payable have been derived after deducting the free share of power.

BBMB

5.71 As per the power purchase agreement with BBMB stations, HPSEB bears proportionate O&M charges towards cost of energy. For BBMB (old), the Commission has considered the variable charges (O&M charges) payable by the Board in FY08 and has escalated the same by 5 P/ unit, as per the submission made by the Board.

5.72 For BBMB (new) and Dehar, the Commission has considered variable charges (O&M charges) paid by the Board in FY07 and have escalated the same by 3% for the Control Period.

5.73 The summary of the variable charges considered by the Commission for BBMB stations for the Control Period is shown in the table below.

Table 60: Variable Charges (P/ unit) considered for BBMB Stations

Station	FY09	FY10	FY11
BBMB (old)	52.00	57.00	62.00
BBMB (new)	28.78	29.64	30.53
Dehar	54.12	55.74	57.42

Cost of Power from Shared Stations

5.74 The cost of power from Shanan and Shanan (ext) has been considered at 40 P/unit and for Khara HEP at 37 P/unit as per the existing practice. For UJVNL, the Commission has considered the latest Tariff Order (FY09) for UJVNL and has derived the pooled cost of power payable to UJVNL in FY09 by HPSEB.

Table 61: UJVNL Variable Charges Calculation

	Total AFC approved less RoE and Interest Charges (Rs Cr)	Salable Primary Energy (MU)	Primary Energy Charges (P/unit)
Chibroo	22.13	743.25	29.77
Khodri	13.80	342.58	40.28
Dhalipur	8.25	190.66	43.29
Dhakrani	5.59	155.78	35.88
Kulhal	5.32	152.83	34.81
Pooled Average	**55.09**	**1585.1**	**34.76**

Table 62: Variable Charges (P/ unit) considered for Shared Stations

Station	FY09	FY10	FY11
Shanan	40.00	40.00	40.00
Shanan (Ext)	40.00	40.00	40.00
Yamuna (UJVNL)	34.76	34.76	34.76

Station	FY09	FY10	FY11
Khara	37.00	37.00	37.00

Cost of Power from IPPs & Private projects

5.75 Since the tariff petition for the Control Period of Baspa-II is in process, the Commission has provisionally considered a composite rate of 294.49 P/ unit, derived from the Tariff Order on Baspa-II issued by the Commission on 24 Feb, 2007. For Patikari, the Commission has considered energy charges of 225 P/unit as specified in its PPA.

5.76 Cost of power from private SHPs has been considered at two different rates. The energy rate for private SHPs having PPA with the Board prior to July 2006 has been considered at 250 P/unit and the energy rate for private SHPs having PPA after July 2006 with the Board has been considered at 287 P/unit.

Cost of Power of Free & Equity Power

5.77 As per the Commission's Order dated 26 May, 2008 the rate of free power available to the Board from GoHP has been fixed at 304 P/unit for FY09. However, for the purpose of projecting the power purchase cost for the Control Period the Commission has considered 304 P/unit as the rate of free power available to the Board from GoHP for the entire Control Period. The Commission, here, would like to clarify that the rate of free power considered by the Commission for FY10 and FY11 is provisional and would be trued up.

5.78 For projecting the rate of equity power, annual fixed charges of Nathpa Jhakri for FY08 has been considered and the net charges payable has been derived after deducting the free share of power. Further, the Commission has considered the variable charges paid by the Board on account of equity power in FY08 and has escalated the same at the rate of 3%.

Cost of power from New Projects

5.79 The Commission has considered the rate of energy purchased from the new projects during the Control Period at the same rate as specified by the Board in its Petition.

5.80 The summary of composite rate considered by the Commission for the new projects is shown in the table below.

Table 63: Variable Charges (P/unit) of New Projects

Station	FY09	FY10	FY11
Barh I & II	NA	250.00	258.00
Koldam	NA	300.00	300.00
Chamera III	NA	NA	300.00
Parbatti II	NA	NA	300.00
Parbatti III	NA	NA	300.00
Koteshwar	NA	NA	300.00

Cost of Power Purchase from Other Sources, Bilateral, Short Term Arrangements and Banking

5.81 The Commission has analyzed the actual power purchase data submitted by the Board for FY08 (till Jan). The Commission has observed that the Board has purchased power through UI and market purchases at an average rate of Rs. 5.42/ unit (till Jan). Thus, for the Control Period, the Commission has considered the bilateral/market purchase from inter-state sources at Rs 5.50 per unit. For Banking and Return Banking no cost has been assumed as both the transaction are happening in the same financial year.

5.82 The Commission has analyzed the actual power sold by the Board in FY08 (till Jan). The Commission has observed that HPSEB has sold surplus power to the NDPL and PSEB at a rate of Rs 7.30/ unit. The Commission further notes that the Uttar Pradesh Power Corporation Ltd (UPPCL) has entered into an agreement with HP Government to buy power during the summer months (330 MW in April and 630 MW between May and October) at a rate of Rs 7.01/ unit. The Commission has, thus, considered the rate of sale of surplus power available to the Board at a rate of Rs 7.01/ unit.

5.83 The summary of power purchase cost approved by the Commission for the Control Period is shown in the table below.

Table 64: Approved Power Purchase Cost (Rs Cr) for the Control Period

Station	FY09		FY10		FY11	
	Quantum (MU)	Cost (Rs Cr)	Quantum (MU)	Cost (Rs Cr)	Quantum (MU)	Cost (Rs Cr)
NTPC						
Anta GPP	118.02	22.66	118.02	23.24	118.02	23.83
Auriya GPP	162.19	36.28	162.19	37.23	162.19	38.21
Dadri GPP	177.67	39.69	177.67	40.72	177.67	41.78
Unchahar-I	61.81	11.13	61.81	11.38	61.81	11.63
Unchahar-II	115.12	22.33	115.12	22.81	115.12	23.29
Unchahar-III	73.98	15.88	73.98	16.19	73.98	16.51
Rihand-1 STPS	302.14	44.73	302.14	45.63	302.14	46.55
Rihand-2 STPS	316.79	53.46	316.79	54.41	316.79	55.38
Singrauli STPS	115.98	13.35	115.98	13.66	115.98	13.98
Kahelgaon – II	158.07	39.52	158.07	40.70	158.07	41.92
NPCIL						
NAPS	36.07	7.09	36.07	7.31	36.07	7.53
RAPS	64.04	20.05	64.04	20.66	64.04	21.27
NHPC						
Salal	29.90	1.99	29.90	1.99	29.90	1.99
Tanakpur	17.02	2.04	17.02	2.04	17.02	2.04

Station	FY09		FY10		FY11	
	Quantum (MU)	Cost (Rs Cr)	Quantum (MU)	Cost (Rs Cr)	Quantum (MU)	Cost (Rs Cr)
Chamera I	47.22	6.58	47.22	6.58	47.22	6.58
Chamera II	64.38	16.32	64.38	16.32	64.38	16.32
Uri	68.58	8.44	68.58	8.44	68.58	8.44
Dhauliganga	0.04	7.80	43.84	7.80	43.84	7.80
Dulhasti	6.17	2.91	6.17	2.91	6.17	2.91
THDC						
Tehri	86.18	30.16	86.18	30.16	86.18	30.16
BBMB						
BBMB Old	43.92	2.28	43.80	2.50	43.80	2.72
BBMB New	133.27	3.84	133.27	3.95	133.27	4.07
Dehar	78.84	4.27	78.84	4.39	78.84	4.53
Shared Stations						
Shanan	5.26	0.21	5.26	0.21	5.26	0.21
Shanan Ext	45.00	1.80	45.00	1.80	45.00	1.80
Yamuna	394.04	13.70	394.04	13.70	394.04	13.70
Khara	56.37	2.09	56.37	2.09	56.37	2.09
SJVNL						
Nathpa Jhakri (SOR)	181.34	41.65	181.34	41.65	181.34	41.65
IPPs						
Baspa – II	1050.06	309.23	1050.06	309.23	1050.06	309.23
Patikari	68.66	15.45	68.66	15.45	68.66	15.45
Private SHPs						
Old PPA	247.34	61.84	397.34	99.34	497.34	124.34
New PPA	0.00	0.00	50.00	14.35	150.00	43.05
Free Power						
Baira Suil	32.81	9.97	32.81	9.97	32.81	9.97
Chamera-I	59.69	18.14	59.69	18.14	59.69	18.14
Chamera -II	65.99	20.06	65.99	20.06	65.99	20.06
Shanan Share	1.53	0.46	1.53	0.46	1.53	0.46
Ranjeet Sagar Dam Share	24.65	7.49	24.65	7.49	24.65	7.49
Malana	17.61	5.35	17.61	5.35	17.61	5.35

Station	FY09		FY10		FY11	
	Quantum (MU)	Cost (Rs Cr)	Quantum (MU)	Cost (Rs Cr)	Quantum (MU)	Cost (Rs Cr)
Baspa – II	42.44	12.90	42.44	12.90	42.44	12.90
Patikari	2.87	0.87	2.87	0.87	2.87	0.87
Nathpa Jhakri	267.21	81.23	267.21	81.23	267.21	81.23
Koldam	0.00	0.00	52.89	16.08	125.57	38.17
Parbatti II	0.00	0.00	0.00	0.00	0.00	0.00
Parbatti III	0.00	0.00	0.00	0.00	12.88	3.92
Ghanvi	3.40	1.03	3.40	1.03	3.40	1.03
Baner	2.18	0.66	2.18	0.66	2.18	0.66
Gaj	2.49	0.76	2.49	0.76	2.49	0.76
Larji	19.83	6.03	19.83	6.03	19.83	6.03
Khauli	2.39	0.73	2.39	0.73	2.39	0.73
Equity Power						
Nathpa Jhakri	324.04	93.92	324.04	94.77	324.04	95.65
New Projects						
Barh I & II	0.00	0.00	342.62	85.66	663.40	171.16
Koldam	0.00	0.00	230.90	69.27	548.26	164.48
Chamera III	0.00	0.00	0.00	0.00	75.56	22.67
Parbatti II	0.00	0.00	0.00	0.00	0.00	0.00
Parbatti III	0.00	0.00	0.00	0.00	56.23	16.87
Koteshwar	0.00	0.00	0.00	0.00	43.19	12.96
Banking	550.00	0.00	600.00	0.00	600.00	0.00
Bilateral	137.66	75.72	196.56	108.11	229.82	126.40
HPSEB own Stations	1672.15	0.00	1851.95	0.00	1851.95	0.00
Grand Total	**7556.96**	**1194.09**	**8715.74**	**1458.40**	**9847.68**	**1798.94**

Periodic Review & True up of Power Purchase Cost

5.84 As per the MYT Regulations, 2007, power purchase is an uncontrollable parameter and needs to be trued up every year based on actual. Hence, any variation in the power purchase cost shall be trued up at the end of every year of the Control Period.

Energy Balance

5.85 The month wise energy balance for the Board for the Control Period is shown in the tables below.

Table 65: Energy Balance for FY09 (MU)

Month	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total
Power Purchase from Outside the State	370.97	325.11	408.15	436.10	446.25	360.32	315.78	400.38	384.19	363.60	338.82	402.66	4552.32
Bilateral & Banking Power Purchase	0.00	0.00	0.00	0.00	0.00	0.00	83.76	75.74	108.40	174.27	179.33	66.16	687.66
Total Purchase from outside the State	370.97	325.11	408.15	436.10	446.25	360.32	399.54	476.12	492.58	537.87	518.15	468.82	5239.98
Surplus Power Sold Outside State	115.45	21.88	83.09	123.68	211.63	13.89	0.00	0.00	0.00	0.00	0.00	0.00	569.62
Net Power Purchased for the State	255.52	303.23	325.06	312.42	234.62	346.42	399.54	476.12	492.58	537.87	518.15	468.82	4670.36
Less: PGCIL Losses	9.32	11.00	11.75	11.32	8.60	12.50	14.37	17.04	17.63	19.21	18.49	16.80	168.04
Balance Available	246.20	292.23	313.31	301.09	226.02	333.92	385.17	459.08	474.96	518.65	499.67	452.02	4502.32
Power Purchase within State	251.89	237.46	229.82	272.66	325.96	251.88	191.20	121.26	104.81	95.97	101.09	176.77	2360.78
Total Power Available at State Periphery	498.09	529.69	543.13	573.76	551.98	585.80	576.37	580.34	579.77	614.62	600.75	628.79	6863.10
Less: Intra State Transmission Losses	18.48	19.65	20.15	21.29	20.48	21.73	21.38	21.53	21.51	22.80	22.29	23.33	254.62
Net Available for sale within the State	**479.61**	**510.04**	**522.98**	**552.47**	**531.50**	**564.07**	**554.98**	**558.81**	**558.26**	**591.82**	**578.47**	**605.46**	**6608.48**

Table 66: Energy Balance for FY10 (MU)

Month	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total
Power Purchase from Outside the State	399.93	363.93	451.53	488.48	499.42	399.06	337.49	413.50	394.74	373.40	350.63	422.71	4894.82
Bilateral & Banking Power Purchase	0.00	0.00	0.00	0.00	0.00	0.00	77.08	97.24	134.02	210.46	207.99	69.76	796.56
Total Purchase from outside the State	399.93	363.93	451.53	488.48	499.42	399.06	414.58	510.74	528.76	583.86	558.62	492.47	5691.38
Surplus Power Sold Outside State	153.23	66.34	131.41	191.50	288.99	52.73	0.00	0.00	0.00	0.00	0.00	0.00	884.19
Net Power Purchased for the State	246.70	297.59	320.12	296.98	210.43	346.33	414.58	510.74	528.76	583.86	558.62	492.47	4807.18
Less: PGCIL Losses	9.85	11.93	12.84	12.30	9.29	13.62	15.53	18.63	19.20	21.11	20.25	18.21	182.75
Balance Available	236.85	285.66	307.28	284.68	201.14	332.71	399.05	492.11	509.56	562.75	538.38	474.27	4624.44
Power Purchase within State	318.26	304.67	298.02	354.76	414.04	320.16	243.30	154.67	136.57	122.24	131.15	226.51	3024.36
Total Power Available at State Periphery	555.11	590.33	605.31	639.44	615.17	652.87	642.35	646.78	646.14	684.99	669.53	700.78	7648.80
Less: Intra State Transmission Losses	20.59	21.90	22.46	23.72	22.82	24.22	23.83	24.00	23.97	25.41	24.84	26.00	283.77
Net Available for sale within the State	**534.52**	**568.43**	**582.85**	**615.72**	**592.35**	**628.64**	**618.52**	**622.79**	**622.17**	**659.57**	**644.69**	**674.78**	**7365.03**

Table 67: Energy Balance for FY11 (MU)

Month	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total
Power Purchase from Outside the State	430.71	405.17	497.63	544.14	555.91	440.22	360.57	427.45	405.96	383.82	363.19	444.02	5258.79
Bilateral & Banking Power Purchase	0.00	0.00	0.00	0.00	0.00	0.00	55.46	107.47	149.42	236.32	224.43	56.71	829.82
Total Purchase from outside the State	430.71	405.17	497.63	544.14	555.91	440.22	416.03	534.93	555.38	620.14	587.62	500.74	6088.61
Surplus Power Sold Outside State	207.51	119.65	192.81	277.84	382.81	104.91	0.00	0.00	0.00	0.00	0.00	0.00	1285.53
Net Power Purchased for the State	223.20	285.52	304.82	266.29	173.11	335.31	416.03	534.93	555.38	620.14	587.62	500.74	4803.08
Less: PGCIL Losses	9.81	12.56	13.48	12.65	9.43	14.28	16.17	19.83	20.42	22.64	21.58	19.04	191.89
Balance Available	213.39	272.97	291.34	253.65	163.68	321.02	399.86	515.09	534.96	597.50	566.04	481.70	4611.19
Power Purchase within State	394.09	373.05	371.06	446.11	509.52	393.43	303.08	192.70	172.12	152.10	166.65	285.18	3759.08
Total Power Available at State Periphery	607.47	646.02	662.40	699.76	673.20	714.45	702.94	707.79	707.08	749.60	732.68	766.88	8370.27
Less: Intra State Transmission Losses	22.54	23.97	24.58	25.96	24.98	26.51	26.08	26.26	26.23	27.81	27.18	28.45	310.54
Net Available for sale within the State	**584.94**	**622.05**	**637.83**	**673.79**	**648.22**	**687.94**	**676.86**	**681.53**	**680.85**	**721.79**	**705.50**	**738.43**	**8059.73**

PGCIL Charges

5.86 For approving the PGCIL charges for the Control Period the Commission has considered the transmission charges of Rs 65000/ MW/ Month, as submitted by the Petitioner based on the actual transmission paid. The Commission has further considered 5% escalation of the transmission charges and the addition in capacity on account of share in the new stations. The summary of the PGCIL Charges approved by the Commission for the Control Period are shown in the table below.

Table 68: Approved PGCIL Charges (Rs Cr) for the Control Period

	FY09	FY10	FY11
PGCIL Charges	81.30	97.58	117.78

5.87 The Commission, however, would true up the PGCIL charges for each of the Control Period based on actual amount paid at the end of each year.

Operation and Maintenance (O&M) Expenses

5.88 As per the MYT Regulations, O&M expenses include the following:

(a) Employee Expenses

(b) Administrative and General (A&G) Expenses

(c) Repairs and Maintenance (R&M) Expenses

5.89 As per the MYT Regulations, employee and A&G expenses for the Control Period shall be determined using the following methodology:

$$EMP_n + A\&G_n = (EMP_{n-1} + A\&G_{n-1}) * (INDX_n / INDX_{n-1})$$

5.90 The inflation factor for the nth year (INDXn) is determined using a combination of Consumer Price Index (CPI) and Wholesale Price Index (WPI) for the nth year.

5.91 The Commission is of the opinion that the escalation in the employee expenses is a factor of increase in CPI and that the escalation in the A&G expenses is a factor of increase in WPI. Hence, the Commission has considered different weightages of CPI and WPI for projecting the employee expenses and A&G expenses for the Control Period as mentioned below.

$$INDX_n \text{ (Employee)} = 0.75*CPI_n + 0.25*WPI_n$$

$$INDX_n \text{ (A\&G)} = 0.25*CPI_n + 0.75*WPI_n$$

Determination of Inflation Factor

5.92 The inflation factor used for indexing the employee expenses and A&G expenses is determined using a combination of the Consumer Price Index (CPI) and the Wholesale Price Index (WPI).

5.93 Since, the CPI component is primarily considered to contribute towards employee expenses; the Commission has considered the CPI (overall) for Industrial Workers published by the Labour Bureau. The WPI component is linked to A&G costs and hence has been taken from the WPI (overall) published by the Central Statistical Organization.

Table 69: Actual CPI and WPI

Year	CPI (Overall)	% Growth YoY	WPI (Overall)	% Growth YoY
2000-01	444.17		155.70	
2001-02	463.33	4.3%	161.34	3.6%
2002-03	481.75	4.0%	166.78	3.4%
2003-04	500.33	3.9%	175.92	5.5%
2004-05	519.50	3.8%	187.29	6.5%
2005-06	542.41	4.4%	195.57	4.4%
2006-07	578.75	6.7%	206.18	4.7%

5.94 Based on these values, the Commission has calculated the annual growth in values of CPI (overall) for Industrial Workers and WPI (overall) for A&G expenses for the period FY01 – FY07 and has considered the same for determination of indices during the Control Period as given in the tables below.

Table 70: Projected CPI and WPI during the Control Period

Year	Projected Growth in CPI	CPI (Overall)	Projected Growth in WPI	WPI (Overall)
2007-08	4.5%	604.88	4.7%	215.81
2008-09	4.5%	632.39	4.8%	226.27
2009-10	4.6%	661.75	5.1%	237.79
2010-11	4.8%	693.35	5.0%	249.75

5.95 The Commission has determined the inflation factor for the nth year (INDXn) using a weighted average of CPI and WPI as mentioned earlier. The inflation factor is then used to calculate the escalation factor for each year (INDXn/ INDXn-1) which is used for projections of Employee and A&G expenses in each year of the Control Period, as shown in the table below.

Table 71: Escalation Factor for the Control Period

Year	Index used for Employee Expenses		Index used for A&G Expenses	
	Index	Escalation Factor	Index	Escalation Factor
2008-09	530.86	1.046	327.80	1.047
2009-10	555.76	1.047	343.78	1.049

Year	Index used for Employee Expenses		Index used for A&G Expenses	
	Index	Escalation Factor	Index	Escalation Factor
2010-11	582.45	1.048	360.65	1.049

Employee Expenses

5.96 The Commission has determined the employee expenses of the Petitioner for the Control Period using the methodology detailed in the MYT Regulations, 2007. Hence, the employee expenses for the nth year of the Control Period (EMPn) shall be determined using the employee expenses for the (n-1)th year (EMPn-1) and the escalation factor as determined above (Table 71).

5.97 For the Purpose of calculation of employee expenses for the Control Period the Commission has first derived the revised values for the base year by considering the employee expenses approved in the True-up Order for FY07 dated 29 April, 2008 and the revised estimates of employee expenses for FY08 submitted by the Board. The summary of revised values of employee expenses for FY08 considered by the Commission is shown in the table below.

Table 72: Revised Estimates of Employee Expenses for FY08 (Rs Cr)

Particular	FY07 True up	FY08 Board's Estimate	FY08 Commission's Estimate
Basic Salary	284.26	283.60	289.40[8]
Overtime	0.00	1.28	0.00
DA	68.22	112.02	69.46[9]
Other Allowances	31.46	32.77	32.77
Bonus	0.00	0.02	0.00
Fee & Honorarium	0.04	0.05	0.05
Medical expense Reimbursement	6.40	6.67	6.67
LTA	0.14	0.15	0.15
Earned Leave	12.27	12.78	12.78
Payment under workmen's compensation	0.90	0.94	0.94
Leave Salary Contribution	0.00	0.00	0.00
Staff Welfare expenses	0.83	0.86	0.86
Terminal Benefits	113.78	130.84	130.84
Total Employee Expenses	**518.30**	**581.98**	**543.92**

5.98 The Petitioner in its petition has considered the likely effect of 6th Pay Commission while projecting the employee expenses for the Control Period.

[8] Basic Salary of FY08 has been derived by considering the basic salary per employee for FY07 and escalating it by 4% to arrive at the basic salary per employee for FY08 and multiplying the same with the number of employee for FY08.

[9] DA for FY08 has been calculated at 24% of the Basic Salary

5.99 The Commission acknowledges that there would be a likely impact of the recommendations of 6th Pay Commission; however, it feels that any future liability, which is uncertain in terms of its outcome and impact, cannot be passed upfront to the Consumers. The recommendations of the 6th Pay Commission of Central Government has no direct impact on GoHP since GoHP follows the pay scales and allowances, as implemented by the Government of Punjab. The Government of Punjab has recently constituted its Pay Commission and it is likely to take time to submit its recommendations. The Punjab Government would then implement the recommendations and PSEB would follow suit. Thereafter the GoHP would implement the Punjab pay scales and the HPSEB would be last in the chain to implement the 6th Pay Commission's recommendations as adopted by PSEB. Therefore, the Commission feels that this process would take time and may go beyond this Control Period.

5.100 The Commission acknowledges this as a contingent liability for the future but does not provide for the same in this order. Any impact on employee cost due to the recommendation of 6th Pay Commission would be duly trued up as and when it is implemented.

5.101 For capitalizing the employee expenses for the Control Period, the Commission has considered the capitalization of employee expenses submitted by the Petitioner and has adjusted the same in the ratio of approved capital works in progress (CWIP) and that proposed by the Petitioner.

5.102 The summary of employee expenses approved by the Commission for the Control Period is shown below.

Table 73: Approved Employee Expenses for the Control Period (Rs Cr)

Particulars	FY08	FY09	FY10	FY11
Index(n)/ Index (n-1)		1.0458	1.0469	1.0480
Total Employee Cost approved	**543.92**	**568.83**	**595.51**	**624.10**
Less: Capitalisation		57.93	55.66	56.39
Net Employee Cost approved		**510.89**	**539.85**	**567.72**

Administrative and General (A&G) Expenses

5.103 The Commission has determined the A&G expenses of the Petitioner for the Control Period using the methodology detailed in the MYT Regulations, 2007. Hence, the A&G expenses for the nth year of the Control Period (A&Gn) shall be determined using the A&G expenses for the (n-1)th year (A&Gn-1) and the escalation factor as determined above (Table 71).

5.104 For the purpose of calculation of A&G expenses for the Control Period the Commission has first derived the revised values for the base year by considering the A&G expenses approved in the True-up Order for FY07 dated 29 April, 2008 and the revised estimates of A&G expenses for FY08 submitted by the Board. The summary of revised values of A&G expenses for FY08 considered by the Commission is shown in the table below.

Table 74: Revised Estimates of A&G Expenses for FY08 (Rs Cr)

Particular	FY07 True up	FY08 Board's Estimate	FY08 Commission's Estimate
Administration Charges			
Rent, Rates & Taxes	2.43	2.53	2.53
Telephone, Postage & Telegrams	2.65	2.76	2.76
Consultancy Charges	0.30	12.00	0.69
Conveyance & Travel	13.31	13.86	13.86
Regulatory Expenses	2.09	2.35	2.35
Insurance	0.01	0.01	0.01
Other Charges	0.46	0.48	0.48
Other Administrative Charges			
Fees & Subscriptions, Books & Periodicals	0.17	0.18	0.18
Printing & Stationery	1.42	1.48	1.48
Advertisement Expenses	0.23	0.24	0.24
Electricity Charges	2.29	2.39	2.39
Water Charges/ Cold weather expenses	0.31	0.32	0.32
Miscellaneous Expenses	1.76	1.83	1.83
Legal Charges	0.27	0.28	0.28
Audit Fee	1.65	1.72	1.72
Freight Material related Expenses	3.29	3.43	3.43
Entertainment Charges	0.05	0.05	0.05
Training to Staff	0.06	0.06	0.06
Public Interaction Program	0.15	0.16	0.16
Public Expenses/ Other professional charges	0.03	0.03	0.03
Less: A&G Expenses on Hospitals & Schools	0.08	0.00	0.08
Total Administrative Charges	**32.85**	**46.16**	**34.77**

5.105 The Commission during the validation session directed the Petitioner to explain the substantial rise in the consultancy charges as estimated in FY08 by the Petitioner. The Petitioner in its clarification letter submitted to the Commission mentioned that the increase in consultancy charge is due to recent IT initiatives taken by the Board. The Commission thereby, further directed the Board to submit the estimated payments to be made against the consultancy charges in FY08 and further in the Control Period. The Board in its subsequent submission submitted that the estimated amount to be paid against consultancy charges in FY08 is Rs 0.69 Cr and Rs 18.16 Cr, Rs 23.3 Cr and Rs 1.28 Cr for the respective years of the Control Period.

5.106 Thus, the Commission has considered the Rs 0.69 Cr as the consultancy charges for FY08. Further the Commission has decided to make a special provision for the consultancy charges for the new IT initiatives taken by the Board. The special provision approved for the consultancy charges is discussed later in this chapter.

5.107 For capitalizing the A&G expenses for the Control Period, the Commission has considered the capitalization of A&G expenses submitted by the Petitioner and has adjusted the same in the ratio of approved capital works in progress (CWIP) and that proposed by the Petitioner.

5.108 The summary of A&G expenses approved by the Commission for the Control Period is shown below.

Table 75: Approved A&G Expenses for the Control Period (Rs Cr)

Particulars	FY08	FY09	FY10	FY11
Index(n)/ Index (n-1)		1.0470	1.0488	1.0491
Total A&G Cost Approved	**34.77**	**36.41**	**38.18**	**40.06**
Less: Capitalisation		7.97	4.63	5.18
Net A&G Cost approved		**28.44**	**33.55**	**34.88**

Repairs and Maintenance (R&M) Expenses

5.109 As per the MYT Regulations for Wheeling and Retail Supply and Transmission, the Repairs and Maintenance (R&M) Expenses of the Petitioner for the Control Period has to be determined based on the following formula:

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

Where, ‘K’ is a constant (expressed in %) governing the relationship between R&M costs and Gross Fixed Assets (GFA) for the n^{th} year.

5.110 The Commission believes that since ‘K’ is being used for determination of R&M expenses for four years (FY08 – FY11), it should be derived using data for a longer period to reduce the impact of any deviations in any particular year. Hence, the Commission has determined the value of ‘K’ for the Control Period as the average of the individual ‘K’ for the last 4 years (FY04 to FY07).

5.111 The Commission has considered the approved values of R&M Expenses and opening GFA, as contained in previous Tariff Orders to calculate the respective values of ‘K’ for the previous years, as shown below.

Table 76: Determination of ‘K’

Particulars	FY04	FY05	FY06	FY07
Opening GFA (Rs Cr)	1700.05	1793.89	2192.58	2322.34
R&M Expenses (Rs Cr)	17.13	17.44	18.34	26.19
‘K’ (%)	1.01%	0.97%	0.84%	1.13%

5.112 The Commission has therefore determined the value of ‘K’ for the Control Period as 0.99%, which is the average 'K' for last 4 years. The Commission has thereby determined the R&M Expenses for each year of the Control Period, considering the opening level of GFA as approved by the Commission and the K factor of 0.99%.

5.113 The summary of R&M Expenses approved by the Commission for the Control Period is as shown below.

Table 77: Approved R&M Expenses for the Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
GFA (Opening)	3698.10	4281.97	5128.67
K Factor	0.99%	0.99%	0.99%
R&M Expenses	**36.46**	**42.22**	**50.57**

Periodic Review & True up of O&M Expenses

5.114 As per the MYT Regulations, O&M expenses (viz. Employee expenses, A&G expenses and R&M expenses) is a controllable factor and hence the O&M expenses projected for the Control Period, as per the methodology specified in the MYT Regulations, 2007 are not subjected to truing-up in the ARR. Further, any surplus or deficit on account of O&M expenses shall be to the account of the licensee and shall not be trued up in ARR.

5.115 The Commission, however, may true-up the O&M trajectory for the Control Period once the audited accounts of FY08 are made available and/or the utility is unbundled and/or recommendations of the 6th Pay Commission are implemented during the Control Period.

Special Provisions

5.116 The Commission had given specific directions to the Board, in the previous tariff order, to recruit AEs and JEs on priority, which unfortunately had not been complied with earlier. The Board, however, has submitted that it is in process of recruiting the AEs, JEs and MBAs during the Control Period and some AEs have been appointed and selection for JEs is underway. In this regard, the Board has requested the Commission to provide a special provision for recruitment of new employees in the ARR for the Control Period.

5.117 The summary of the estimated new employees to be recruited and the provision approved by the Commission for the same is shown below.

Table 78: Provision for New Recruitment Approved for the Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
AEs			
Additions	10	93	0
Cumulative Additions	51	144	144
Salary per month Rs	20000	20000	20000
Total Salary for the year Rs Cr	1.22	3.46	3.46

Particulars	FY09	FY10	FY11
JEs			
Additions	232	0	0
Cumulative Additions	232	232	232
Salary per month Rs	15000	15000	15000
Total Salary for the year Rs Cr	4.18	4.18	4.18
MBAs			
Additions	0	14	0
Cumulative Additions	0	14	14
Salary per month Rs	20000	20000	20000
Total Salary for the year Rs Cr	0.00	0.34	0.34
Grand Total	**5.40**	**7.97**	**7.97**

5.118 The Board has undertaken certain IT and other initiatives such as GIS/GPS based asset mapping, MIS implementation for centralized billing & CRM and CoS Study & segregation of accounts into Generation, Transmission and Distribution. Since, these are one time expenses and are non-recurring in nature; the Commission has decided to make a special provision for these initiatives in the ARR for the Control Period. The summary of the provision kept for IT and other initiatives is shown below.

Table 79: Provision for IT & other initiatives approved for the Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
GIS/ GPS mapping	4.00	15.00	0.00
MIS implementation	13.36	7.50	0.38
CoS Study, Segregation of accounts etc	0.80	0.80	0.90
Total	**18.16**	**23.30**	**1.28**

5.119 The Commission would however true-up the provisions kept above, based on the actual expenditure incurred by the Board, at the end of each year of the Control Period.

Capital Investment

5.120 The Petitioner has submitted that it would spend approx Rs 1900 Cr towards capital expenditure during the Control Period. The Commission has analyzed the function-wise and scheme-wise details of the capital expenditure plan submitted by the Board and approves Rs 1326 Cr towards capital expenditure for the Control Period. The Commission has discussed in detail the capital expenditure approved for all the three functions viz. generation, transmission and distribution in the Generation ARR, Transmission ARR and Distribution ARR chapter respectively.

5.121 The Commission wishes to state that the capital investment considered above is only for the purpose of tariff determination and the same would be trued up based on the actual capital expenditure at the end of the Control Period. The summary of capital expenditure approved by the Commission for the Control Period is shown in the table below.

Table 80: Approved Capital Investment Plan for the Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
Generation	119.60	20.50	69.74
Transmission	248.00	170.00	175.00
Distribution	359.03	142.68	134.55
Total	**726.63**	**333.18**	**379.29**

Asset Capitalization

5.122 The Commission has analyzed the asset capitalization proposed by the Petitioner in its petition for all the three functions. For approving the total asset capitalization for HPSEB, the Commission has first approved the asset capitalization for all the three functions independently and has consolidated the same to arrive at the total capitalization for the Board for the Control Period.

5.123 The Commission during the analysis of the petition observed that the total asset base of the Board's own generating stations at the end of FY07, as submitted by the Board exceeded the amount mentioned in the audited accounts of FY07 by Rs 506.77 Cr. The Commission directed the Board to explain the difference. The Board in its clarification letter dated 17 April 2008 submitted that the difference between the GFA (generation) of the audited accounts and of the petition is due to the fact that certain generating stations are not fully capitalized in the accounts. The Board also submitted the details of the amount still pending to be capitalized for different generating stations. The summary of the same is shown in the table below.

Table 81: Capitalisation of Generation Assets (Rs Cr)

Particulars	FY07	FY07	FY07
	Petition	Accounts	Difference
Giri	40.02	36.22	3.80
Andhra	57.61	57.61	0.00
Gumma	36.60	28.89	7.71
Bhaba	239.78	222.19	17.59
Nogli	11.81	11.81	0.00
Ghanvi	166.30	142.62	23.68
Chaba	1.21	1.21	0.00
Bassi	31.26	31.26	0.00
Binwa	17.44	17.44	0.00
Gaj	75.49	60.58	14.91
Baner	68.79	55.67	13.12
Khauli	126.30	60.95	65.35

Particulars	FY07	FY07	FY07
	Petition	Accounts	Difference
Rukti	1.59	1.59	0.00
Rong Tong	16.39	16.39	0.00
Chamba	0.50	0.50	0.00
Sal-II	19.25	17.48	1.77
Killar	8.65	8.65	0.00
Holi	29.93	29.93	0.00
Thirot	60.18	49.30	10.88
Larji	1291.00	943.04	347.96
Total	**2300.10**	**1793.33**	**506.77**

5.124 The Commission was surprised to see that the cost of generating stations other than Larji and Khauli are still not capitalized completely in the accounts. Considering the above the Commission has taken the capital cost of the plants as per Accounts for determination of generation tariff and has assumed that the remaining amount (except for Larji and Khauli) will not be capitalized in future. The capitalization schedule for FY08 and for the Control Period to arrive at the total GFA for generation has been discussed in the Generation ARR chapter of this order.

5.125 For transmission and distribution the Commission has considered the capitalization schedule proposed by the Board for the Control Period, which has been also discussed in detail in the Transmission ARR and Distribution ARR chapter respectively. The summary of approved capitalization for the Control Period is shown below.

Table 82: Approved Capitalisation plan for the Control Period (Rs Cr)

Particulars	FY07	FY08	FY09	FY10	FY11
Generation					
CWIP (opening)	1103.34	34.01	0.00	119.60	39.58
Addition	0.00	0.00	119.60	20.50	69.74
Base Expenditure	0.00	0.00	99.90	17.66	63.45
Establishment Exp.	0.00	0.00	9.73	0.80	2.97
IDC	0.00	0.00	9.97	2.04	3.32
Capitalisation	1069.33	34.01	0.00	100.52	0.00
CWIP (closing)	34.01	0.00	119.60	39.58	109.32
Transmission					
CWIP (opening)	108.58	107.25	172.58	284.69	235.20
Addition	56.69	118.91	248.00	170.00	175.00
Base Expenditure	36.39	92.86	235.59	156.95	158.66
Establishment Exp.	13.50	13.19	6.98	6.76	6.56
IDC	6.80	12.86	5.43	6.29	9.78

Particulars	FY07	FY08	FY09	FY10	FY11
Capitalisation	58.02	53.58	135.89	219.49	202.20
CWIP (closing)	107.25	172.58	284.69	235.20	208.00
Distribution					
CWIP (opening)	610.46	628.43	680.54	591.59	207.59
Addition	124.36	122.10	359.03	142.68	134.55
Base Expenditure	56.28	64.07	291.43	70.98	64.61
Establishment Exp.	23.25	22.50	49.19	52.73	52.04
IDC	44.83	35.53	18.41	18.97	17.90
Capitalisation	106.39	69.99	447.98	526.69	205.15
CWIP (closing)	628.43	680.54	591.59	207.59	136.99

5.126 The Commission would like to highlight that the capitalization approved above is provisional and the same would be subjected to true-up at the end of the Control Period.

Depreciation

5.127 The Board has provided the break up of total assets into generation, transmission and distribution and has proposed the asset capitalization for each of these functions for the Control Period.

5.128 For approving the depreciation for the Control Period, the Commission has first determined the opening and closing GFA of all the function. For this the Commission has considered the closing value of assets approved for FY07 for the respective functions and the approved capitalization schedule for FY08 and for the Control Period.

5.129 The Commission has calculated depreciation for each function viz. generation, transmission and distribution separately. For generation, the Commission has calculated depreciation for each plant which is discussed in the Generation ARR chapter of this order. For transmission and distribution, the Commission has calculated the depreciation on the average of GFA for the respective year and since the Board has not prepared a “Fixed Asset Register (FAR)”, the Commission has considered the rate of depreciation as 2.5% inline with the practice followed in the previous tariff orders.

5.130 The summary of the GFA & depreciation approved by the Commission for the Control Period is shown below.

Table 83: Approved GFA & Depreciation for the Control Period (Rs Cr)

Particulars	FY07	FY08	FY09	FY10	FY11
Opening	**2322.34**	**3540.52**	**3698.10**	**4281.97**	**5128.67**
Generation	723.68	1793.01	1827.02	1827.02	1927.54
Transmission	668.66	726.68	780.26	916.15	1135.64
Distribution	930.00	1020.83	1090.82	1538.80	2065.49

Particulars	FY07	FY08	FY09	FY10	FY11
Addition	**1233.74**	**157.58**	**583.87**	**846.70**	**407.34**
Generation	1069.33	34.01	0.00	100.52	0.00
Transmission	58.02	53.58	135.89	219.49	202.20
Distribution	106.39	69.99	447.98	526.69	205.15
Reduction	**15.56**	**0.00**	**0.00**	**0.00**	**0.00**
Generation	0.00	0.00	0.00	0.00	0.00
Transmission	0.00	0.00	0.00	0.00	0.00
Distribution	15.56	0.00	0.00	0.00	0.00
Closing	**3540.52**	**3698.10**	**4281.97**	**5128.67**	**5536.01**
Generation	1793.01	1827.02	1827.02	1927.54	1927.54
Transmission	726.68	780.26	916.15	1135.64	1337.84
Distribution	1020.83	1090.82	1538.80	2065.49	2270.63
Depreciation Rate					
Generation		2.50%	2.52%	2.52%	2.52%
Transmission		2.50%	2.50%	2.50%	2.50%
Distribution		2.50%	2.50%	2.50%	2.50%
Depreciation		**88.51**	**100.15**	**118.03**	**133.71**
Generation		44.83	46.08	47.33	48.59
Transmission		18.17	21.21	25.65	30.92
Distribution		25.52	32.87	45.05	54.20

Working Capital Requirement

5.131 The Commission has determined the working capital requirement for each of the three functions viz. generation, transmission and distribution separately, which has been discussed in detail the Generation ARR, Transmission ARR and Distribution ARR chapter respectively. The Commission has added up the working capital requirement for all the three functions to determine the total working capital requirement of the Board for the Control Period. The summary of same is shown below.

Table 84: Working Capital Requirement approved for Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
Working Capital Approved for Generation	51.50	51.14	50.79
Working Capital Approved for Transmission	23.57	26.17	30.26
Working Capital Approved for Distribution	106.09	124.85	147.04
Total Working Capital Approved	**181.16**	**202.15**	**228.09**

Interest & Financing Charges

5.132 For the purpose of calculating the interest expenses for the Control Period the Commission has first prepared a source wise loan schedule. For this, the Commission has considered the outstanding loans at the end of FY07 as approved by the Commission in the True-up Order for FY07 dated 29 April, 2008 and the repayment schedule of the respective loans in FY08 and in the Control Period. Further the Commission has determined the debt requirement for the capital expenditure plan approved by the Commission for the Control Period.

5.133 The Petitioner in its petition has proposed to fund the capital expenditure for the Control Period through consumer contribution, debt and equity. The summary of means of finance proposed by the Petitioner in its petition is shown in the table below:

Table 85: Means of Finance proposed by the Board for the Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
Funding Requirement	768.56	578.64	557.09
Consumer Contribution	181.70	93.45	93.45
Debt	369.91	206.95	174.45
Equity	**216.95**	**278.24**	**289.19**

5.134 The Commission has analyzed the means of finance for all three functions separately and has considered the following for approving the means of finance of the Board for the Control Period:

(a) As per the MYT Regulations, debt or equity would be allowed only on the capitalized assets and not on the capital works in progress. Thus, the Commission has considered the assets capitalized for each function in each year as the funding requirement for that year of the Control Period.

(b) The Commission has thereby reduced the consumer contribution from the funding requirement determined above. For this, the Commission has considered the consumer contribution submitted by the Board and has adjusted the same in the proportion of funding requirement approved by the Commission and that submitted by the Board.

(c) The balance has been considered to be funded through debt and/or equity. As per the MYT Regulations, the equity has been capped at a maximum of 30%; however, there is no cap on the debt funding. The Commission has analyzed the funding pattern of Board for the past projects and has observed that the most of the projects taken up by the Board have been funded entirely through debt. Thus, the Commission has considered 100% debt funding for the future projects as well.

5.135 The Commission has discussed the means of finance and debt requirement in detail for each of the three functions in the Generation ARR, Transmission ARR and Distribution ARR respectively. The summary of means of finance approved by the Commission for HPSEB as a whole is shown in the table below:

Table 86: Means of Finance approved by the Commission for the Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
Funding Requirement	157.31	420.14	407.34
Less: Consumer Contribution	52.41	100.71	122.02
Balance Remaining	104.90	319.42	285.32
Funded through Debt	104.90	319.42	285.32
Funded through Equity	0.00	0.00	0.00

5.136 The summary of the loans approved (source wise) by the Commission for FY08 and the Control Period is shown in the table below.

Table 87: Loan Schedule approved for the Control Period (Rs Cr)

Closing Balance	FY07	FY08	FY09	FY10	FY11
LIC					
Opening	24.78	20.66	16.61	12.76	9.44
Addition	0.00	0.00	0.00	0.00	0.00
Repayment	4.11	4.06	3.84	3.33	3.33
Closing	20.66	16.61	12.76	9.44	6.11
PFC					
Opening	807.20	804.27	731.52	641.78	556.59
Addition	14.37	0.59	0.00	0.00	0.00
Repayment	17.29	73.33	89.74	85.19	85.57
Closing	804.27	731.52	641.78	556.59	471.02
REC					
Opening	126.16	155.21	122.61	80.79	44.01
Addition	57.34	0.00	0.00	0.00	0.00
Repayment	28.29	32.61	41.82	36.77	19.57
Closing	155.21	122.61	80.79	44.01	24.44
RGGY					
Opening	0.00	0.75	0.67	0.60	0.52
Addition	0.75	0.00	0.00	0.00	0.00
Repayment	0.00	0.07	0.07	0.07	0.07
Closing	0.75	0.67	0.60	0.52	0.45
Bank Loan					
Opening	255.56	250.21	220.00	168.00	120.00
Addition	0.00	0.00	0.00	0.00	0.00
Repayment	5.35	30.21	52.00	48.00	48.00
Closing	250.21	220.00	168.00	120.00	72.00
Non NSLR Bonds					
Opening	762.38	333.61	333.61	267.79	201.97
Addition	0.00	0.00	0.00	0.00	0.00

Closing Balance	FY07	FY08	FY09	FY10	FY11
Repayment	428.77	0.00	65.82	65.82	87.76
Closing	333.61	333.61	267.79	201.97	114.21
State Govt Loans					
Opening	20.13	20.13	19.08	18.04	16.99
Addition	0.00	0.00	0.00	0.00	0.00
Repayment	0.00	1.05	1.05	1.05	1.05
Closing	20.13	19.08	18.04	16.99	15.94
Market Bonds					
Opening	35.49	35.49	29.99	23.31	10.00
Addition	0.00	0.00	0.00	0.00	0.00
Repayment	0.00	5.50	6.68	13.31	4.50
Closing	35.49	29.99	23.31	10.00	5.50
Short Term Loans					
Opening	0.00	0.00	7.20	5.60	4.00
Addition	0.00	8.00	0.00	0.00	0.00
Repayment	0.00	0.80	1.60	1.60	1.60
Closing	0.00	7.20	5.60	4.00	2.40
New loans taken for Capex					
Opening		0.00	183.71	278.12	536.74
Addition		183.71[10]	104.90	319.42	285.32
Repayment		0.00	10.49	60.80	89.34
Closing		183.71	278.12	536.74	732.72
Total (Closing)					
Opening	2031.69	1620.33	1665.00	1496.78	1500.26
Addition	72.45	192.30	104.90	319.42	285.32
Repayment	483.82	147.63	273.12	315.94	340.78
Closing	1620.33	1665.00	1496.78	1500.26	1444.80

5.137 For approving the Interest and Financing charges for the Control Period, the Commission has considered the following:

(a) For calculation of interest charges the Commission has considered the interest rate of the respective loans. The interest on new loans has been considered at 10.25% and the interest on working capital loans has been considered at 12.25%.

(b) For capitalization of Interest expenses for the Control Period, the Commission has considered the capitalization of interest expenses proposed by the Petitioner and has adjusted the same in the ratio of approved capital works in progress (CWIP) and that proposed by the Petitioner.

[10] Based on the Capex approved by the Commission for FY08; the figure is subject to true-up based on actuals

5.138 Based on the loans and interest rates approved for the Control Period, the interest and financing charges approved by the Commission are tabulated below:

Table 88: Interest Charges approved for the Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
LIC	1.32	1.00	0.70
PFC	65.08	56.70	48.51
REC & RGGY	9.97	6.14	3.38
Bank Loan	17.39	12.89	8.57
Non NSLR Bonds	31.01	24.28	16.43
State Govt Loans	2.16	2.04	1.92
Market Bonds	3.09	1.94	0.92
Short Term Loans	0.58	0.43	0.29
New loans for Capex	21.37	39.58	63.11
Interest on Consumer Deposit	4.73	5.21	5.73
Interest on Working Capital	22.19	24.76	27.94
Total Interest Charges	**178.90**	**174.97**	**177.49**
Less: Capitalisation	17.43	14.73	0.00
Net Interest Charges Approved	**161.47**	**160.24**	**177.49**

Return on Equity

5.139 As per the audited accounts of the Board, the equity capital of the Board is Rs 282.11 Cr. The Commission has carried out a detailed exercise to segregate the equity invested in the Board's own generating stations from the total equity of Rs 282.11 Cr. The Commission has calculated the equity invested plant wise which is discussed in the generation ARR chapter of this order. The total equity invested in the generation approved by the Commission is Rs 93.11 Cr. Splitting rest of the equity into transmission and distribution is a complex process as there is no project wise break available and thus it is difficult to map the equity infusion. Hence, the Commission has considered the equity amount infused into transmission and distribution function in proportion of the assets in these respective functions in FY07. Thus, the approved equity into transmission and distribution function is Rs 79.05 Cr and Rs 109.95 Cr respectively.

5.140 The Commission has approved ROE to the generation, transmission and distribution businesses at the rate of 14%, 14% and 16%, respectively, in accordance with its Tariff Regulations, as detailed in the table below:

Table 89: Approved ROE for the Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
Equity	**282.11**	**282.11**	**282.11**
Generation	93.11	93.11	93.11
Transmission	79.05	79.05	79.05

Particulars	FY09	FY10	FY11
Distribution	109.95	109.95	109.95
Rate			
Generation	14.00%	14.00%	14.00%
Transmission	14.00%	14.00%	14.00%
Distribution	16.00%	16.00%	16.00%
Approved ROE	**41.69**	**41.69**	**41.69**
Generation	13.04	13.04	13.04
Transmission	11.07	11.07	11.07
Distribution	17.59	17.59	17.59

Non Tariff Income

5.141 The Petitioner has submitted the Non Tariff Income for the Control Period as Rs 94.94 Cr, Rs 99.66 Cr and Rs 104.64 Cr for FY09, FY10 and FY11 respectively. The Commission approves the same for the Control Period. The summary of the same is shown below.

Table 90: Approved NTI for the Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
Interest Income from Investments	0.07	0.08	0.08
Interest on loans and Advances to staff	0.91	0.95	1.00
Interest on Advances to Suppliers / Contractors	0.12	0.13	0.13
Income from Trading (other than Electricity)	1.54	1.61	1.69
Income/Fee/Collection against staff welfare activities	0.05	0.05	0.06
Miscellaneous receipts	38.72	40.66	42.69
Delayed payment charges from consumers	7.64	8.02	8.42
Meter Rent	31.14	32.69	34.33
Recovery from theft of energy	4.58	4.81	5.05
Wheeling charges	6.22	6.53	6.85
Misc. charges from consumers	3.93	4.13	4.34
Total NTI	94.92	99.66	104.64

Baspa Arrears

5.142 HPSEB is liable to pay an arrear to M/s Jaiparkash Hydro Power Ltd. on account of revision in tariff for Baspa II HEP for FY04, FY05, and FY06. The opening amount of outstanding amount of arrears payable to Baspa in FY09 is Rs 210 Cr. The Commission in its Order dated 7 February, 2008 in review petition no. 75/2007 & 94/2007 has decided that the entire arrears of prior period are to be paid to the company in FY09. Since, this is a revenue item and pertains to the prior period power purchase expenditure it has to be passed on in the

ARR. The Commission, however, is of the opinion that allowing the entire amount in one single year would result into significant increase in the ARR of the Board thereby leading to significant increase in tariffs. Thus, the Commission has decided to create a regulatory asset of this amount which would be amortized in 6 years with a carrying cost of 10%.

Table 91: Baspa Arrears Amortization (Rs Cr)

Particulars	FY09	FY10	FY11	FY12	FY13	FY14
Opening Balance	210.00	182.78	152.84	119.91	83.68	43.83
Amortization	43.83	43.83	43.83	43.83	43.83	43.83
Closing Balance	166.17	138.95	109.01	76.08	39.85	0.00
Carrying Cost	**16.62**	**13.89**	**10.90**	**7.61**	**3.98**	**0.00**

Creation of Gratuity and Pension Fund

5.143 HPSEB has envisaged creating gratuity and pension fund for the terminal benefit liabilities incurred by the Board every year. The Petitioner has submitted that the creation of the fund for the terminal benefits would lead to the better management of the terminal benefits, which would result into a reduction in the employee expenses incurred by the Board, in the future years. In this regard the Board has requested the Commission to make a provision for the creation of Terminal Benefit fund in the ARR for the Control Period.

5.144 The Commission welcomes the above initiative of the Board but is of the following opinion:

(a) The creation of gratuity and pension fund would help the Board in meeting its future liability towards terminal benefits offered to the employees. However, any future liability of the Board cannot be passed onto the consumers now.

(b) Further, during the unbundling process of the Board, the balance sheet of the Board would have to be cleaned up wherein certain liabilities of the Board would be absorbed by the government. Hence, the quantum of future liabilities towards terminal benefits is uncertain.

5.145 In consideration of the above, the Commission does not approve any provision for creation of Gratuity and Pension Fund in the ARR for the Control Period.

Loan for Atal Bijli Bachat Yojna

5.146 The GoHP has recently announced introduction of “Atal Bijli Bachat Yojna” and to provide four CFL bulbs free of cost to the consumers within the state. The GoHP has decided to provide a loan of Rs. 80 Cr to HPSEB for implementation of this scheme. Subsequently, the Board has requested the Commission to allow the loan of Rs. 80 Cr as a pass through in the ARR of FY09.

5.147 The Commission welcomes the energy conservation initiative taken by the GoHP, however, is of the following opinion:

(a) Firstly, all major proposals affecting the ARR should be submitted by the Board before the public hearings, so that the various stakeholders get an opportunity to express their views/objections. Since this proposal has come after the public hearings in the case have been concluded, it would be against the principles of natural justice to accept it now and burden the consumers of the State with an additional cost, before first giving them an opportunity of being heard.

(b) Secondly, any scheme that has an impact on the ARR of the Board has to be approved by the Commission before it is implemented. Therefore, the Board should submit a detailed project proposal that would highlight the scope of the scheme, detailed project cost, benefits of the scheme, funding mechanism etc, to the Commission for approval before it can be passed on to the ARR. The details currently available with the Commission to analyze the scheme are insufficient hence the cost of the same cannot be passed on to the ARR now.

(c) Thirdly, the above mentioned scheme is a government initiative; hence, the cost of this scheme should be shared by the government. Passing the cost of the scheme into the ARR would make the consumers pay for the CFLs indirectly through tariffs which perhaps is not the intention of GoHP.

(d) Fourthly, the Board could earn carbon credits by implementing this scheme which could offset the cost of implementing this scheme.

5.148 Thus, the Commission in consideration of the above does not approve the cost of the above mentioned scheme to be passed onto the ARR.

Aggregate Revenue Requirement of HPSEB

5.149 The table given below provides a summary view of the Revenue Requirement as approved by the Commission for the Control Period. Detailed analysis of each expense head has already been provided in the above sections.

Table 92: Approved ARR for the Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
Power Purchase Expenses	1194.09	1458.40	1798.94
PGCIL Charges	81.30	97.58	117.78
Baspa Arrears	43.83	43.83	43.83
Operation & Maintenance Costs	641.70	675.91	714.73
Provision for New Recruitments	5.40	7.97	7.97
Provision for IT & Other Initiatives	18.16	23.30	1.28
Interest & Financing Charges	178.90	174.97	177.49
Depreciation	100.15	118.03	133.71
Return on Equity	41.69	41.69	41.69
Less: Interest & Expenses Capitalisation	83.34	75.02	61.56

Particulars	FY09	FY10	FY11
Less: Non Tariff Income	94.92	99.66	104.64
True up FY07	(105.51)		
Aggregate Revenue Requirement	**2021.47**	**2467.01**	**2871.23**

Segregation of ARR for the Control Period

5.150 As per the requirement of the MYT Regulations, the Board was supposed to file separate petitions for approval of ARR for Generation, Transmission and Distribution businesses. However, the Board has filed a single petition for approval of ARR for HPSEB as a whole and has segregated the total ARR into Generation, Transmission and Distribution functions. The Board has however, has filed separate formats for Generation, Transmission and Distribution functions, in compliance with the MYT Regulations.

5.151 The Commission has carried out the exercise of determination of ARR for the Generation, Transmission and Distribution business of the Board as it is a prerequisite for implementation of the Multi Year Tariff regime. As the Board is a bundled entity the accounts are maintained for the Board as a whole and separate account for the three functions, namely, Generation, Transmission and Distribution are not maintained. Hence, the segregation of assets, liabilities, cost and revenues to the three functions is very much dependent on the availability of right data and prudent judgment. The segregation of assets, liabilities, cost and revenues to the three functions will only be possibly once the Board puts in place separate accounting system for the three functions or is unbundled into three separate entities.

5.152 Thus, the Commission has first determined and approved the ARR for total HPSEB as a whole and thereby allocated the total ARR into Generation, Transmission and Distribution functions.

5.153 The Commission has used the following approach while determining the ARR for Generation, Transmission and Distribution functions.

(a) The Commission has first, independently, determined the ARR for the generation function, as it is project specific and all the cost & expenses in ARR related to a generating station can be mapped. Thus, the Commission has analyzed and approved the ARR for each generating station and has arrived at the consolidated ARR for the generation business by adding up the ARR of all the generating stations under HPSEB.

(b) For determining the ARR for generation, transmission and distribution function the Commission has considered the following:

(i) **Power Purchase**: Power purchase costs have been fully allocated to Distribution function.

(ii) **O&M Expenses**: The Commission has approved the total O&M expenditure for generation on normative basis as per Generation MYT Regulations. The approved O&M for generation is thereby allocated to employee expenses, A&G expenses and R&M expenses in the same proportion as submitted by the Board in the Generation ARR. For allocating the O&M expenses into transmission and distribution business, the Commission has first reduced the O&M expenses allocated to generation from the total O&M expenses approved and has allocated the balance using the following methodology-

- **Employee Expenses**: Employee expenses have been allocated between transmission and distribution in the same ratio as proposed by the Petitioner in its petition.

- **R&M Expenses**: R&M expenses have been allocated between transmission and distribution in the ratio of assets allocated into transmission and distribution function for each year of the Control Period.

- **A&G Expenses**: A&G expenses have been allocated between transmission and distribution in the same ratio as proposed by the Petitioner in its petition.

(iii) **Interest & Finance Charges**: Interest & Finance charges have been allocated in principle of allocated loans (scheme specific) and based on the loans allocated their respective repayment schedule and interest rates; the Commission has determined the interest charges. For new loans taken during the Control Period, the Commission has considered the investment plan and capitalization schedule of the respective functions.

(iv) **Depreciation**: Gross Fixed Assets & depreciation have been allocated to various functions on the basis of the Audited Accounts for FY07 and the capitalization schedule of the capital expenditure plan.

(v) **Return on equity**: The total equity of the Board is Rs. 282.11 Cr, the Commission has first determined amount of equity invested in the generation business and rest has been allocated to transmission and distribution function in the ratio of the asset base of the respective functions in FY07.

(vi) **Special Provisions**: The special provision kept in the total ARR of HPSEB has been fully allocated into distribution business.

(vii) **Non Tariff Income**: Non Tariff income has been fully allocated to the distribution business

(viii) **Consumer Contribution**: Consumer contribution and interest on Security deposits has been fully allocated to Distribution business.

5.154 The analysis and determination of segregated ARR for Generation, Transmission and Distribution functions are covered in the subsequent chapters.

5.155 The Commission would like to highlight that the ARR approved for Generation, Transmission and Distribution functions are based on certain assumptions as the accounts of HPSEB are not segregated and that the Commission would true up or revisit the ARR of all the three functions once the accounts are segregated and/or the Board is unbundled and the successor entities of the Board come with the review petitions for the same.

A6: AGGREGATE REVENUE REQUIREMENT OF HPSEB GENERATING STATIONS AND FIXATION OF ANNUAL FIXED CHARGES

6.1 This chapter relates to the Multi Year Tariff petition filed by the Board for determination of Generation Aggregate Revenue Requirement and the Tariff for Hydro Electric Plants (HEPs) owned by the Board for the Control Period (FY09 to FY11).

Generating Stations Owned By HPSEB

6.2 HPSEB owns and operates 20 HEPs, with a total installed capacity of 466.95 MW of which 10 HEPs have installed capacity above 5 MW and the rest below 5 MW. The details of the stations are given below:

Table 93: Details of HPSEB Hydro Electric Stations

Sl No	Hydro Electric Plant	Commissioned On	Units	Installed Capacity (MW)
1	Chaba	1913-14	2 x 0.5 + 3 x 0.25	1.75
2	Chamba	1938, 57, 85	3 x 0.15 MW	0.45
3	Nogli	1963, 69, 78	2 x 0.25 + 4 x 0.50 MW	2.50
4	Bassi	1970, 71, 81	4 x 15.00 MW	60.00
5	Giri	1978	2 x 30.00 MW	60.00
6	Rukti	1979, 80	3 x 0.50 MW	1.50
7	Binwa	1984	2 x 3.00 MW	6.00
8	Rong Tong	1986-87, 97	4 x 0.50 MW	2.00
9	Andhra	1987	3 x 5.65 MW	16.95
10	Bhaba	1989	3 x 40.00 MW	120.00
11	Killar	1995	3 x 0.10 MW	0.30
12	Thirot	1995	3 x 1.50 MW	4.50
13	Gaj	1996	3 x 3.50 MW	10.50
14	Baner	1996	3 x 4.00 MW	12.00
15	Sal – II	1999	2 x 1.00 MW	2.00
16	Gumma	2000	2 x 1.50 MW	3.00
17	Ghanvi	2000	2 x 11.25 MW	22.50
18	Holi	2004	2 x 1.50 MW	3.00
19	Khauli	2006	2 x 6.00 MW	12.00
20	Larji	2006	3 x 42.00 MW	126.00
	Total			**466.95**

6.3 The GoHP has 12% share in power generated from Gaj, Baner, Ghanvi, Larji and Khauli HEPs as free power. The Board has submitted plant wise details in the MYT formats for these five plants and has filed a combined petition in MYT formats for all 20 HEPs without any supporting write-up.

6.4 The Board has not submitted adequate information on the design energy, projected generation, projected capacity index, transformation losses, and auxiliary consumption etc considered for the respective stations during the Control Period. The Board has cited non-availability of plant wise details for the old hydro plants as the reason for not furnishing the information.

6.5 The Commission observes that the petition submitted by the Board is ill-prepared and incomplete in many respects and contains contradictory and incoherent information at many places. The Board has not provided adequate details and/or documents in support of the petition submitted. In the face of such a petition, the Commission has relied upon past submissions/petitions of the Board and the submissions and information made available to the Commission during the numerous interactions held with the Board.

6.6 The Commission understands that an exercise to determine plant-wise tariff without credible and reliable data is an exercise in futility. However, it still decided to undertake the exercise to highlight the status with respect to the generating business and the data gaps and inconsistencies which have not been sorted out despite repeated directives from the Commission especially with respect to filing of petitions for determination of tariff for the projects commissioned recently. The Commission shall re-visit the numbers again, once the Board or its successor entity, files petitions with reliable, accurate and credible data which is supported with documentary evidence.

6.7 The Commission has considered the norms for capacity index, transformation losses and auxiliary losses as specified by the Himachal Pradesh Electricity Regulatory Commission (Terms and Conditions for Determination of Hydro Generation Tariff) Regulations, 2007 (hereinafter referred to as ‘HPERC Generation Regulations, 2007’) for determination of Generation tariffs.

Generation ARR Submitted By the Board

6.8 The Board has complied with the Commission’s directive given in the first Tariff Order dated September 21, 2001 and subsequently in the second Tariff Order dated July 5, 2004 to file functionally unbundled Aggregate Revenue Requirement (ARR). The Board has segregated the ARR for FY08 and for the first Control Period (FY09 – FY11) into three functions, namely Generation, Transmission and Distribution for filling of the MYT petition. However, the separate accounting of these businesses is still not in place.

6.9 The Board’s approach towards segregation of the ARR for the first Control Period is based on identifying and isolating the different items like activities, assets, costs and revenues to the three functions based on circle wise data available for Generation, Transmission and Distribution function for FY07, certain estimates and assumptions.

6.10 The Board has submitted the combined ARR petition for the Generation business taking into consideration all the 20 HEPs that it operates and has proposed an Annual Fixed Charge (AFC) of Rs 305.61 Cr, Rs 337.85 Cr and Rs 356.21 Cr for FY09, FY10 and FY11 respectively.. The Board has also submitted, individual petitions for the 5 HEPs in which the GoHP has 12 % share as free power.

6.11 The details of the complete Generation ARR and the 5 HEPs are as shown below:

Table 94: Details of Generation ARR Submitted by the Board

Particulars	Units		Control Period		
		FY08	FY09	FY10	FY11
Generation					
Gross Generation	MU	1954.62	1837.12	2002.12	2002.12
Aux Consumption	MU	9.00	8.00	9.00	9.00
GoHP 12% Share (in 5 HEPs)	MU	94.78	93.10	93.10	93.10
Net Generation	MU	1850.84	1736.02	1900.02	1900.02
Cost of Generation	P/kWh	109.87	176.04	177.82	187.48
Expenditure					
O&M expenses	Rs Cr	68.82	125.92	136.40	132.09
R&M Expenses	Rs Cr	10.06	10.59	11.37	12.29
Employee Expenses	Rs Cr	51.61	107.86	117.43	111.91
A&G Expenses	Rs Cr	7.15	7.47	7.61	7.88
Depreciation	Rs Cr	45.60	46.58	47.14	47.73
Interest & Finance Charges	Rs Cr	73.78	102.25	91.17	80.42
Interest on Working Capital	Rs Cr	1.86	2.19	2.39	2.58
Return on Equity	Rs Cr	13.30	28.68	60.75	93.39
Annual Revenue Requirement	**Rs Cr**	**203.36**	**305.61**	**337.85**	**356.21**

ARR for Baner HEP

6.12 The Baner hydro electric project (12 MW) with three generating units of 4 MW each was executed by the Board in the year 1996 with a capital cost of Rs 68.79 Cr. The components of tariff and assumptions considered by the Board for determination of ARR or Annual Fixed Charge (AFC) have been detailed below.

Operations and Maintenance

6.13 The Operations and Maintenance expenses (O&M) consist of Employee Expenses, Administrative and General Expenses (A&G), and Repair and Maintenance Expenses (R&M). The Board has projected the O&M expenses as per the CERC (Terms and Conditions of Tariff) Regulations, 2004, as 1.50% of the Capital Cost of the project for the first year (FY97) of operation and has been subsequently escalated at 4% per annum for projecting the O&M expenses for FY08 and the Control Period.

Interest on Loans

6.14 The Board has submitted that it has incurred an expenditure of Rs 68.79 Cr on the commissioning of the project, which was funded through a debt amount of Rs 49.66 Cr, corresponding to a debt: equity ratio of 72:28. The debt was arranged from PFC at an interest rate of 10.75% with half yearly repayments of Rs 0.55 Cr and LIC at an interest rate of 9% with annual repayments of Rs 0.21 Cr. The last repayment for PFC loan will be in FY09 and for the LIC loan in FY12.

Interest on Working Capital

6.15 The Board has followed the CERC (Terms and Conditions of Tariff) Regulations, 2004 and has considered the following components for determining the working capital.

(a) Maintenance Spares - 1% of Completed Cost

(b) Escalation in Maintenance Spares – 6% per annum

(c) O&M Expenses - 1 Months

(d) Receivables – 2 Months

6.16 The rate of interest of 11.75% has been considered for determining interest on working capital for the Control Period.

Depreciation

6.17 The Board has considered the useful life of the project as 35 years as laid down by the CERC Tariff Regulations. The rate of depreciation has been computed as 2.50% per annum on straight line method and the depreciable value of the project has been considered as 90%.

Return on Equity

6.18 The Board has submitted that it had invested Rs 19.13 Cr as equity in the project and has considered a return of 14% on equity which amounts to Rs 2.68 Cr.

6.19 The detail of the AFC for FY08 and the Control Period for Baner HEP is provided in the table below:

Table 95: Details of ARR/AFC of Baner HEP

Particulars	Units		Control Period		
		FY08	FY09	FY10	FY11
Installed capacity MW		12	12	12	12
Year of commissioning unit wise		1996	1996	1996	1996
Original cost of completion of the project including IDC	Rs Cr	68.79	68.79	68.79	68.79
Total Debt	Rs Cr	49.66	49.66	49.66	49.66
HPSEB Equity	Rs Cr	19.13	19.13	19.13	19.13

Particulars	Units		Control Period		
		FY08	FY09	FY10	FY11
Cost of additional works after completion of the project	Rs Cr	0.00	0.00	0.00	0.00
Depreciated cost of the project at the beginning of the year	Rs Cr	50.00	48.28	46.56	44.84
Per MW Cost	Rs Cr	5.73	5.73	5.73	5.73
Gross Generation of Energy	MU	39.81	39.81	39.81	39.81
Auxiliary Consumption	MU	0.08	0.08	0.08	0.08
GoHP 12% Share	MU	4.77	4.77	4.77	4.77
Net Energy	MU	34.96	34.96	34.96	34.96
Annual Working Expenses for the Year					
Depreciation @ 2.5%	Rs Cr	1.72	1.72	1.72	1.72
Interest on Loan (Actual Paid)	Rs Cr	0.20	0.08	0.05	0.03
O&M Expenses(i/c other direct charges)	Rs Cr	1.59	1.65	1.72	1.79
Interest on Working Capital	Rs Cr				
O&M Expenses for 1 month	Rs Cr	0.13	0.14	0.14	0.15
Maintenance Spares	Rs Cr	1.31	1.38	1.47	1.56
Receivables for 2 months of Fixed Charges	Rs Cr	1.08	1.07	1.08	1.09
Total Working Capital	Rs Cr	2.52	2.59	2.69	2.79
Interest on Working Capital	Rs Cr	0.30	0.30	0.32	0.33
Total Annual Expenses	Rs Cr	**3.81**	**3.76**	**3.80**	**3.86**
Return on Equity	Rs Cr	2.68	2.68	2.68	2.68
Cost of Generation	Rs/kWh	1.09	1.07	1.09	1.10
Sale Rate of Energy	**Rs/kWh**	**1.85**	**1.84**	**1.85**	**1.87**
Depreciated cost of the project at the end of the year under report	Rs Cr	48.28	46.56	44.84	43.12

ARR for Gaj HEP

6.20 The Gaj hydro electric project (10.50 MW) with three generating units of 3.50 MW each was executed by the Board in the year 1996 with a capital cost of Rs 75.49 Cr. The components of tariff and assumptions considered by the Board for determination of ARR/AFC have been detailed below.

Operations and Maintenance

6.21 The Operations and Maintenance expenses (O&M) consist of Employee Expenses, Administrative and General Expenses (A&G), and Repair and Maintenance Expenses (R&M). The Board has projected the O&M expenses as per the CERC (Terms and Conditions of Tariff) Regulations, 2004, as 1.50% of the Capital Cost of the project for the first year (FY97) of operation and has been subsequently escalated at 4% per annum for projecting the O&M expenses for FY08 and the Control Period.

Interest on Loans

6.22 The Board has submitted that it has incurred an expenditure of Rs 75.49 Cr on the commissioning of the project, which was funded through a debt amount of Rs 52.31 Cr corresponding to a debt: equity ratio of 69:31. The debt was arranged from PFC at an interest rate of 10.75% with half yearly repayments and LIC at an interest rate of 9% with annual repayments of Rs 0.21 Cr. The last repayment for PFC loan will be in FY12 and for LIC loan in FY12.

Interest on Working Capital

6.23 The Board has followed the CERC (Terms and Conditions of Tariff) Regulations, 2004 and has considered the following components for determining the working capital.

(a) Maintenance Spares - 1% of Completed Cost

(b) Escalation in Maintenance Spares – 6% per annum

(c) O&M Expenses - 1 Months

(d) Receivables – 2 Months

6.24 The rate of interest of 11.75% has been considered for determining interest on working capital for the Control Period.

Depreciation

6.25 The Board has considered the useful life of the project as 35 years as laid down by the CERC Tariff Regulations. The rate of depreciation has been computed as 2.50% per annum on straight line method and the depreciable value of the project has been considered as 90%.

Return on Equity

6.26 The Board has submitted that it had invested Rs 23.18 Cr as equity in the project and has considered a return of 14% on equity which amounts to Rs 3.25 Cr.

6.27 The detail of the AFC for FY08 and the Control Period for Gaj HEP is provided in the table below:

Table 96: Details of ARR/AFC of Gaj HEP

Particulars	Units		Control Period		
		FY08	FY09	FY10	FY11
Installed Capacity	MW	10.50	10.50	10.50	10.50
Year of Commissioning		1996	1996	1996	1996
Original cost of completion of the project including IDC	Rs Cr	75.49	75.49	75.49	75.49
Total Debt	Rs Cr	52.31	52.31	52.31	52.31
HPSEB Equity	Rs Cr	23.18	23.18	23.18	23.18
Cost of additional works after completion of the project	Rs Cr	0.00	0.00	0.00	0.00
Depreciated cost of the project at the beginning of the year	Rs Cr	54.09	52.21	50.32	48.43
Per MW Cost	Rs Cr	7.19	7.19	7.19	7.19
Gross Generation of Energy	MU	47.486	47.486	47.486	47.486
Auxiliary Consumption	MU	0.128	0.128	0.128	0.128
GoHP 12% Share	MU	5.683	5.683	5.683	5.683
Net Energy	MU	41.675	41.675	41.675	41.675
Annual Working Expenses for the Year					
Depreciation @ 2.5%	Rs Cr	1.89	1.89	1.89	1.89
Interest on Loan (Actual Paid)	Rs Cr	0.29	0.17	0.11	0.06
O&M Expenses(i/c other direct charges)	Rs Cr	1.74	1.81	1.89	1.96
Interest on Working Capital	Rs Cr				
O&M Expenses for 1 month	Rs Cr	0.15	0.15	0.16	0.16
Maintenance Spares	Rs Cr	1.43	1.52	1.61	1.71
Receivables for 2 months of Fixed Charges	Rs Cr	1.25	1.24	1.25	1.25
Total Working Capital	Rs Cr	2.83	2.91	3.01	3.12
Interest on Working Capital	Rs Cr	0.33	0.34	0.35	0.37
Total Annual Expenses	**Rs Cr**	**4.25**	**4.22**	**4.24**	**4.28**
Return on Equity	Rs Cr	3.25	3.25	3.25	3.25
Cost of Generation	Rs/kWh	1.02	1.01	1.02	1.03
Sale Rate of Energy	**Rs/kWh**	**1.80**	**1.79**	**1.80**	**1.80**
Depreciated cost of the project at the end of the year under report	Rs Cr	52.21	50.32	48.43	46.54

ARR for Ghanvi HEP

6.28 The Ghanvi hydro electric project (22.50 MW) with two generating units of 11.25 MW each was executed by the Board in the year 2000 with a capital cost of Rs 166.30 Cr. The components of tariff and assumptions considered by the Board for determination of ARR/AFC have been detailed below.

Operations and Maintenance

6.29 The Operations and Maintenance expenses (O&M) consist of Employee Expenses, Administrative and General Expenses (A&G), and Repair and Maintenance Expenses (R&M). The Board has projected the O&M expenses as per the CERC (Terms and Conditions of Tariff) Regulations, 2004, as 1.50% of the Capital Cost of the project for the first year (FY01) of operation and has been subsequently escalated at 4% per annum for projecting the O&M expenses for FY08 and the Control Period.

Interest on Loans

6.30 The Board has submitted that it has incurred an expenditure of Rs 166.30 Cr on the commissioning of the project, which was funded through a debt amount of Rs 118.97 Cr corresponding to a debt: equity ratio of 72:28. The debt was arranged from PFC at an interest rate of 10.75% with half yearly repayments of Rs 3.08 Cr and LIC at an interest rate of 9% with annual repayments of Rs 1.17 Cr for FY08 to FY12, Rs 0.96 Cr for FY13 and Rs 0.64 Cr for FY14. The last repayment for PFC loan will be in first half of FY12 and for LIC loan will be in FY14.

Interest on Working Capital

6.31 The Board has followed the CERC (Terms and Conditions of Tariff) Regulations, 2004 and has considered the following components for determining the working capital.

(a) Maintenance Spares - 1% of Completed Cost

(b) Escalation in Maintenance Spares – 6% per annum

(c) O&M Expenses - 1 Months

(d) Receivables – 2 Months

6.32 The rate of interest of 11.75% has considered for determining interest on working capital for the Control Period.

Depreciation

6.33 The Board has considered the useful life of the project as 35 years as laid down by the CERC Tariff Regulations. The rate of depreciation has been computed as 2.50% per annum on straight line method and the depreciable value of the project has been considered as 90%.

6.34 The Board has considered Advance Against Depreciation (AAD) till FY12 in determination of tariff for the purpose of loan repayment.

Return on Equity

6.35 The Board has submitted that it had invested Rs 47.33 Cr as equity in the project and has considered a return of 14% on equity which amounts to Rs 6.63 Cr.

6.36 The detail of the AFC for FY08 and the Control Period for Ghanvi HEP is provided in the table below:

Table 97: Details of ARR/AFC of Ghanvi HEP

Particulars	Units		Control Period		
		FY08	FY09	FY10	FY11
Installed Capacity	MW	22.5	22.5	22.5	22.5
Year of Commissioning		2000	2000	2000	2000
Original cost of completion of the project including IDC	Rs Cr	166.30	166.30	166.30	166.30
Total Debt	Rs Cr	118.97	118.97	118.97	118.97
HPSEB Equity	Rs Cr	47.33	47.33	47.33	47.33
Cost of additional works after completion of the project	Rs Cr	0.00	0.00	0.00	0.00
Depreciated cost of the project at the beginning of the year	Rs Cr	141.34	137.19	133.03	128.87
Per MW Cost	Rs Cr	7.39	7.39	7.39	7.39
Gross Generation of Energy	MU	74.527	74.527	74.527	74.527
Auxiliary Consumption	MU	0.253	0.253	0.253	0.253
GoHP 12% Share	MU	8.913	8.913	8.913	8.913
Net Energy	MU	65.360	65.360	65.360	65.360
Annual Working Expenses for the Year					
Depreciation @ 2.5%	Rs Cr	4.16	4.16	4.16	4.16
Advance Against Depreciation	Rs Cr	3.16	3.16	3.16	3.16
Interest on Loan (Actual Paid)	Rs Cr	3.26	2.49	1.73	0.96
O&M Expenses(i/c other direct charges)	Rs Cr	3.28	3.41	3.55	3.69
Interest on Working Capital	Rs Cr				
O&M Expenses for 1 month	Rs Cr	0.27	0.28	0.30	0.31
Maintenance Spares	Rs Cr	2.50	2.65	2.81	2.98
Receivables for 2 months of Fixed Charges	Rs Cr	3.54	3.43	3.33	3.23
Total Working Capital	Rs Cr	6.31	6.37	6.43	6.51
Interest on Working Capital	Rs Cr	0.74	0.75	0.76	0.77
Total Annual Expenses	**Rs Cr**	**14.60**	**13.97**	**13.35**	**12.73**
Return on Equity	Rs Cr	6.63	6.63	6.63	6.63

Particulars	Units		Control Period		
		FY08	FY09	FY10	FY11
Cost of Generation	Rs/kWh	2.23	2.14	2.04	1.95
Sale Rate of Energy	**Rs/kWh**	**3.25**	**3.15**	**3.06**	**2.96**
Depreciated cost of the project at the end of the year under report	Rs Cr	137.19	133.03	128.87	124.71

ARR for Larji HEP

6.37 The Larji hydro electric project (126 MW) with three generating units of 42 MW each was commissioned by the Board in the year 2006 at a capital cost of Rs 1293.69 Cr. The components of tariff and assumptions considered by the Board for determination of ARR/AFC have been detailed below.

Operations and Maintenance

6.38 The Operations and Maintenance expenses (O&M) consist of Employee Expenses, Administrative and General Expenses (A&G), and Repair and Maintenance Expenses (R&M). The Board has projected the O&M expenses as per the CERC (Terms and Conditions of Tariff) Regulations, 2004, as 1.50% of the Capital Cost of the project for the first year (FY01) of operation and has been subsequently escalated at 4% per annum for projecting the O&M expenses for FY08 and the Control Period.

Interest on Loans

6.39 The Board has submitted that it has incurred an expenditure of Rs 1293.69 Cr on the commissioning of the project, which was funded through a debt amount of Rs 1060 Cr corresponding to a debt: equity ratio of 82:18. The debt was arranged from PFC at an interest rate of 9% with tenure of 10 years and annual debt repayment of Rs 79 Cr. The debt repayment commences from FY08 and the last repayment would be in FY17.

6.40 A loan of Rs 170 Cr was arranged from HP Cooperative Bank at an initial interest rate of 12.50%, which the Board restructured to 9% in the year 2004. The tenure of debt is 5 years with 10 equal half yearly repayments of Rs 17 Cr. The repayment of debt commences from the second half of FY08 and the last repayment will be in first half of FY13.

6.41 A third loan amount of Rs 100 Cr was availed from Punjab National Bank with an interest rate of 9%. The tenure of the loan is 10 years with 3 year moratorium and annual repayment of Rs 14 Cr. The debt repayment starts from FY10 and the last repayment will be in FY17.

Interest on Working Capital

6.42 The Board has followed the CERC (Terms and Conditions of Tariff) Regulations, 2004 and has considered the following components for determining the working capital.

(a) Maintenance Spares - 1% of Completed Cost

(b) Escalation in Maintenance Spares – 6% per annum

(c) O&M Expenses - 1 Months

(d) Receivables – 2 Months

6.43 The rate of interest of 11.75% has been considered for determining interest on working capital for the Control Period.

Depreciation

6.44 The Board has considered the useful life of the project as 35 years as laid down by the CERC Tariff Regulations. The rate of depreciation has been computed as 2.57% per annum on straight line method and the depreciable value of the project has been considered as 90% with a salvage value of 10%.

6.45 The Board has factored in Advance Against Depreciation (AAD) till FY17 in determination of tariff for the purpose of loan repayment.

Return on Equity

6.46 The Board has submitted that it had invested Rs 185.58 Cr as equity in the project and the state government has provided an equity support of Rs 48.11 Cr. The Board has considered a return of 14% on equity base of Rs 233.69 Cr which amounts to Rs 32.72 Cr.

Revenue Projection

6.47 The Board has considered the revised design energy of 546.25 MU to project the revenues. The energy available for sale at the bus of the project has been calculated after accounting for auxiliary consumption of 0.70%, transformation losses of 0.50% and 12% free power to the state government.

6.48 The detail of the AFC for FY08 and the Control Period for Larji HEP is provided in the table below:

Table 98: Details of ARR/AFC of Larji HEP

Particulars	Units		Control Period		
		FY08	**FY09**	**FY10**	**FY11**
Installed Capacity	MW	126	126	126	126
Year of Commissioning		2006	2006	2006	2006
Original cost of completion of the project including IDC	Rs Cr	1293.69	1293.69	1293.69	1293.69

Particulars	Units		Control Period		
		FY08	**FY09**	**FY10**	**FY11**
Total Debt	Rs Cr	1060.00	1060.00	1060.00	1060.00
HPSEB Equity	Rs Cr	233.69	233.69	233.69	233.69
Cost of additional works after completion of the project	Rs Cr	-	-	-	-
Depreciated cost of the project at the beginning of the year	Rs Cr	-	-	-	-
Per MW Cost	Rs Cr	10.27	10.27	10.27	10.27
Gross Generation of Energy	MU	546.25	546.25	546.25	546.25
Auxiliary Consumption	MU	6.56	6.56	6.56	6.56
GoHP 12% Share	MU	64.76	64.76	64.76	64.76
Net Energy	MU	474.93	474.93	474.93	474.93
Annual Working Expenses for the Year					
Depreciation @ 2.57%	Rs Cr	33.27	33.27	33.27	33.27
Advance Against Depreciation	Rs Cr	62.73	79.73	94.02	94.02
Interest on Loan (Actual Paid)	Rs Cr	95.22	85.03	73.82	61.97
O&M Expenses(i/c other direct charges)	Rs Cr	19.41	20.18	20.99	21.83
Interest on Working Capital	Rs Cr	6.60	6.86	7.04	6.93
O&M Expenses for 1 month	Rs Cr	1.62	1.68	1.75	1.82
Maintenance Spares	Rs Cr	12.94	13.71	14.54	15.41
Receivables for 2 months of Fixed Charges	Rs Cr	41.66	42.96	43.64	41.79
Total Working Capital	Rs Cr	56.21	58.36	59.93	59.02
Interest on Working Capital @ 11.75%	Rs Cr	6.60	6.86	7.04	6.93
Total Annual Expenses	**Rs Cr**	**217.23**	**225.07**	**229.14**	**218.02**
Return on Equity	Rs Cr	32.72	32.72	32.72	32.72
Cost of Generation	Rs/kWh	4.57	4.74	4.82	4.59
Sale Rate of Energy	**Rs/kWh**	5.26	5.43	5.51	5.28
Depreciated cost of the project at the end of the year under report	Rs Cr	-	-	-	-

ARR for Khauli HEP

6.49 The Khauli hydro electric project (12 MW) with two generating units of 6 MW each was commissioned by the Board in the year 2006 at a capital cost of Rs 126.29 Cr. The components of tariff and assumptions considered by the Board for determination of ARR/AFC have been detailed below.

Operations and Maintenance

6.50 The Operations and Maintenance expenses (O&M) consist of Employee Expenses, Administrative and General Expenses (A&G), and Repair and Maintenance Expenses (R&M). The Board has projected the O&M expenses as per the CERC (Terms and Conditions of Tariff) Regulations, 2004, as 1.50% of the Capital Cost of the project for the first year (FY01) of operation and has been subsequently escalated at 4% per annum for projecting the O&M expenses for FY08 and the Control Period.

Interest on Loans

6.51 The Board has submitted that it has incurred an expenditure of Rs 126.29 Cr on the commissioning of the project, which was funded through a debt amount of Rs 70 Cr corresponding to a debt: equity ratio of 55:45. The debt was arranged from HP Cooperative Bank at an interest rate of 9% with tenure of 5 years and annual debt repayment of Rs 17 Cr. The debt repayment commences from second half of FY08 and the last repayment would be in first half of FY13.

Interest on Working Capital

6.52 The Board has followed the CERC (Terms and Conditions of Tariff) Regulations, 2004 and has considered the following components for determining the working capital.

(a) Maintenance Spares - 1% of Completed Cost

(b) Escalation in Maintenance Spares – 6% per annum

(c) O&M Expenses - 1 Months

(d) Receivables – 2 Months

6.53 The rate of interest of 11.75% has considered for determining interest on working capital for the Control Period.

Depreciation

6.54 The Board has considered the useful life of the project as 35 years as laid down by the CERC Tariff Regulations. The rate of depreciation has been computed as 2.57% per annum on straight line method and the depreciable value of the project has been considered as 90% with a salvage value of 10%.

6.55 The Board has factored in Advance Against Depreciation (AAD) till FY13 in determination of tariff for the purpose of loan repayment.

Return on Equity

6.56 The Board has submitted that it had invested Rs 56.29 Cr as equity in the project but for tariff calculation has restricted equity to 30% of the capital cost. The Board has considered a return of 14% on equity base of Rs 37.89 Cr which amounts to Rs 5.30 Cr.

Revenue Projection

6.57 The Board has considered the revised design energy of 49.69 MU to project the revenues. The energy available for sale at the bus of the project has been calculated after accounting for auxiliary consumption of 0.50%, transformation losses of 0.50% and 12% free power to the state government.

6.58 The detail of the AFC for FY08 and the Control Period for Khauli HEP is provided in the table below:

Table 99: Details of ARR/AFC of Khauli HEP

Particulars	Units		Control Period		
		FY08	FY09	FY10	FY11
Installed Capacity	MW	12	12	12	12
Year of Commissioning		2006	2006	2006	2006
Original cost of completion of the project including IDC	Rs Cr	126.29	126.29	126.29	126.29
Total Debt	Rs Cr	70.00	70.00	70.00	70.00
HPSEB Equity	Rs Cr	56.29	56.29	56.29	56.29
Cost of additional works after completion of the project	Rs Cr	-	-	-	-
Depreciated cost of the project at the beginning of the year	Rs Cr	-	-	-	-
Per MW Cost		10.52	10.52	10.52	10.52
Gross Generation of Energy	MU	49.69	49.69	49.69	49.69
Auxiliary Consumption	MU	0.50	0.50	0.50	0.50
GoHP 12% Share	MU	5.90	5.90	5.90	5.90
Net Energy	MU	43.29	43.29	43.29	43.29
Annual Working Expenses for the Year					
Depreciation @ 2.57%	Rs Cr	3.25	3.25	3.25	3.25
Advance Against Depreciation	Rs Cr	3.75	10.75	10.75	10.75
Interest on Loan (Actual Paid)	Rs Cr	6.14	5.04	3.78	2.52
O&M Expenses(i/c other direct charges)	Rs Cr	1.89	1.97	2.05	2.13
Interest on Working Capital	Rs Cr	0.58	0.71	0.69	0.68
O&M Expenses for 1 month	Rs Cr	0.16	0.16	0.17	0.18
Maintenance Spares	Rs Cr	1.26	1.34	1.42	1.50
Receivables for 2 months of Fixed Charges	Rs Cr	3.49	4.50	4.30	4.11

Particulars	Units		Control Period		
		FY08	FY09	FY10	FY11
Total Working Capital	Rs Cr	4.91	6.01	5.89	5.79
Interest on Working Capital @ 11.75%	Rs Cr	0.58	0.71	0.69	0.68
Total Annual Expenses	**Rs Cr**	15.61	21.72	20.52	19.33
Return on Equity	Rs Cr	5.30	5.30	5.30	5.30
Cost of Generation	Rs/kWh	3.61	5.02	4.74	4.47
Sale Rate of Energy	**Rs/kWh**	4.83	6.24	5.96	5.69
Depreciated cost of the project at the end of the year under report	Rs Cr	-	-	-	-

Commission's Analysis

6.59 The Commission has carried out the exercise of determination of tariff for the Generation business of the Board as it is a prerequisite for implementation of the Multi Year Tariff regime. Since the Board at present is a bundled entity, the accounts are maintained for the Board as a whole and separate accounts for the three functions, namely, Generation, Transmission and Distribution are not maintained. Hence, the segregation of assets, liabilities, cost and revenues to the three functions is very much dependent on the availability of appropriate data and prudent judgement. The segregation of assets, liabilities, cost and revenues to the three functions will only be possible once the Board puts in place separate accounting system for the three businesses or is unbundled into three separate entities. However, the Commission has decided to carry out the exercise of determination of ARR for respective businesses as it would help in focussing on the information gaps and inefficiencies in the different businesses and identify areas which require immediate attention.

6.60 The Commission, for determination of ARR/AFC and tariff for the Generation business has divided the 20 HEPs into two categories; group one comprising of HEPs that were commissioned pre-1990 and group two that were commissioned post-1990. There are 10 HEPs that were commissioned pre-1990, for which a single common tariff has been determined. For the projects that have been commissioned post – 1990, individual tariff for each project has been determined.

6.61 The details of the pre-1990 and post-1990 projects is given below;

Table 100: Details of Pre - 1990 Hydro Electric Stations

Sl No	Hydro Electric Plant	Commissioned On	Units	Installed Capacity (MW)	Capital Cost (Rs Cr)
1	Chaba	1913-14	2 x 0.5 + 3 x 0.25 MW	1.75	1.21
2	Chamba	1938, 57, 85	3 x 0.15 MW	0.45	0.50
3	Nogli	1963, 69, 78	2 x 0.25 + 4 x 0.50 MW	2.50	11.81
4	Bassi	1970, 71, 81	4 x 15.00 MW	60.00	31.26

Sl No	Hydro Electric Plant	Commissioned On	Units	Installed Capacity (MW)	Capital Cost (Rs Cr)
5	Giri	1978	2 x 30.00 MW	60.00	36.22
6	Rukti	1979, 80	3 x 0.50 MW	1.50	1.59
7	Binwa	1984	2 x 3.00 MW	6.00	17.44
8	Rong Tong	1986-87, 97	4 x 0.50 MW	2.00	16.39
9	Andhra	1987	3 x 5.65 MW	16.95	57.61
10	Bhaba	1989	3 x 40.00 MW	120.00	222.19
	Total			**271.15**	

Table 101: Details of Post – 1990 Hydro Electric Stations

Sl No	Hydro Electric Plant	Commissioned On	Units	Installed Capacity (MW)	Capital Cost (Rs Cr)
1	Killar	1995	3 x 0.10 MW	0.30	8.65
2	Thirot	1995	3 x 1.50 MW	4.50	49.30
3	Gaj	1996	3 x 3.50 MW	10.50	60.58
4	Baner	1996	3 x 4.00 MW	12.00	55.67
5	Sal – II	1999	2 x 1.00 MW	2.00	17.48
6	Gumma	2000	2 x 1.50 MW	3.00	28.89
7	Ghanvi	2000	2 x 11.25 MW	22.50	142.62
8	Holi	2004	2 x 1.50 MW	3.00	29.93
9	Khauli	2006	2 x 6.00 MW	12.00	78.00*
10	Larji	2006	3 x 42.00 MW	126.00	960.00*
	Total			195.80	

* Capital Cost as approved by the Commission

6.62 The ARR/AFC so determined for pre-1990 and post-1990 projects by the Commission shall be combined to arrive at the ARR/AFC for the Generation business of the Board.

Base Year

6.63 The HPERC Generation Regulations, 2007, has defined the base year as the financial year immediately preceding the first year of the Control Period, which is FY08. As the audited/provisional accounts of the Board for FY08 are not available, the Commission has considered FY07 as the base year for projecting the O&M expenses for the HEPs.

Operational Norms

6.64 The Commission has considered the norms of operation for generating stations of normative capacity index for recovery of full capacity charge, auxiliary energy consumption and transformation losses as specified by the HPERC Generation Regulations, 2007.

Components of Annual Fixed Charge

6.65 The Commission, for the determination of Annual Fixed Charge and the tariff for sale of electricity from the generating station, has considered the following elements as specified by the HPERC (Terms and Conditions for Determination of Hydro Generation Tariff) Regulations, 2007.

(a) Operation and Maintenance Expenses (O&M)

(b) Depreciation

(c) Advance Against Depreciation (AAD)

(d) Interest on Loans

(e) Interest on Working Capital; and

(f) Return on Equity (RoE)

6.66 The Commission has considered equity employed in a generating station in excess of 30% as normative loan and applied weighted average cost of debt as the rate of interest. The Commission has not considered Income Tax and Non Tariff Income for tariff determination and shall be considered at actual during true-up.

Determination of Annual Fixed Charge for Pre – 1990 HEPs

6.67 The Commission, for the determination of Annual Fixed Charge for the projects commissioned pre-1990, was severely constrained due to lack of adequate and proper information on these projects. The Commission has relied upon the past submissions and petitions of the Board submitted during the finalization of previous years tariff orders and any further information that was made available to the Commission by the Board during the course of processing this tariff order.

6.68 The Commission has considered the following assumptions for determination of AFC and tariff for sale of electricity for pre-1990 projects.

(a) The funding of the project is through 100% debt and all debt has been retired as of date.

(b) The completed cost of pre-1990 projects have not been subjected to prudence check by the Commission as these are old projects and the detailed break-up of costs needed for determining the completed cost is not available. Therefore, the Commission has taken the cost of these projects as specified in the Accounts statement of the Board.

(c) The Commission has arrived at the accumulated depreciation for the individual projects considering a depreciation rate of 2.50% for each year post commercial operation date of the projects. The depreciation for the Control Period has been considered at 2.50% as per past practice and shall be allowed upto a maximum of 90% of the original cost of the asset.

(d) O&M expenses for Giri, Andhra, Bhaba, Bassi, Binwa, Nogli and Chaba projects have been determined as per the methodology stipulated in the HPERC Generation Regulations, 2007 as the information of last five years O&M expenses was available with the Commission. For the projects, Rukti, Rong Tong and Chamba, the information on last five years O&M expenses is not available with the Commission and therefore, the average of O&M expenses incurred in FY06 and FY07 have been considered and escalated at 4% to project the O&M expenses for the Control Period.

(e) As per HPERC Generation Regulations, 2007, the Working Capital comprises of

(i) O&M expenses for 1 Month

(ii) Maintenance Spares equivalent to 40% of R&M expenses for 1 Month

(iii) Receivables equivalent to two months of fixed and variable charges for sale of electricity calculated on the normative capacity index.

The Commission has determined O&M expense for the Control Period as a gross number comprising of employee expense, R&M expense and A&G expense and which has been determined as per the HPERC Generation Regulations, 2007. The Commission has proportionally divided the O&M expense into employee, R&M and A&G expenses, in the ratio as determined from the Board's Generation petition.

(f) The generation from the HEPs over the Control Period has been projected based on the average actual generation of last four years (FY05 to FY08).

6.69 The annual fixed charge so determined for individual project commissioned pre-1990 have been added to arrive the total AFC for pre-1990 commissioned plants.

Annual Fixed Charge for Chaba HEP

6.70 Chaba HEP is a 1.75 MW (2 x 0.5 MW + 3 x 0.25 MW) project commissioned in the year 1913-14. It is a non-peaking, run of the river project with surface power station and static excitation. The project was executed with a capital cost of Rs 1.21 Cr and was funded through 100% debt. It is a 94 year old completely depreciated plant with no outstanding loan. The O&M expenses have been projected as per HPERC Generation Regulations, 2007.

6.71 The auxiliary energy consumption has been taken as 0.50% which is the prescribed norm for surface hydro electric power generating station with static excitation system and transformation losses of 0.50%, as per the HPERC Generation Regulations, 2007.

6.72 The AFC so determined for Chaba HEP is shown below.

Table 102: AFC for Chaba HEP

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Gross Generation	MU	6.16	6.45	6.45	6.45
Total Auxiliary	MU	0.06	0.06	0.06	0.06
Net Generation at Bus	MU	6.10	6.39	6.39	6.39
Less: Free Power to GoHP @ 0%	MU	0.00	0.00	0.00	0.00
Energy available for Sale	**MU**	**6.10**	**6.39**	**6.39**	**6.39**
O & M Expenses	Rs Cr	0.65	0.68	0.71	0.74
Repair & Maintenance	Rs Cr	0.08	0.08	0.08	0.09
Employee Expenses	Rs Cr	0.49	0.51	0.53	0.55
A & G Expenses	Rs Cr	0.09	0.09	0.10	0.10
Depreciation	Rs Cr	0.00	0.00	0.00	0.00
AAD	Rs Cr	0.00	0.00	0.00	0.00
Interest Charges	Rs Cr	0.00	0.00	0.00	0.00
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00
Interest on Notional Loan	Rs Cr	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.02	0.02	0.02	0.02
Annual Fixed Charge	**Rs Cr**	**0.68**	**0.70**	**0.73**	**0.76**
Sale Rate of Energy	P/kWh	111	110	114	119

Annual Fixed Charge for Chamba HEP

6.73 Chamba HEP is a 0.45 MW (3 X 0.15 MW) project commissioned by the Board in the years 1938, 1957 and 1985. It is a non-peaking, run of the river project with surface power station and rotating exciters. The project was executed with a capital cost of Rs 0.50 Cr and was funded through 100% debt with no outstanding loan. The annual depreciation is Rs 0.01 Cr at 2.50% on a GFA of Rs. 0.50 Cr. The O&M expenses have been projected as average of O&M expenses incurred in FY06 and FY07 and escalated at 4%.

6.74 The auxiliary energy consumption has been taken as 0.20% which is for surface hydro electric power generating station with rotating exciters mounted on the generator shaft and transformation losses of 0.50%, as per the HPERC Regulations, 2007.

6.75 The AFC so determined for Chamba HEP is shown below.

Table 103: AFC for Chamba HEP

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Gross Generation	MU	0.40	0.94	0.94	0.94
Total Auxiliary	MU	0.00	0.01	0.01	0.01
Net Generation at Bus	MU	0.39	0.93	0.93	0.93

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Less: Free Power to GoHP @ 0%	MU	0.00	0.00	0.00	0.00
Energy available for Sale	**MU**	**0.39**	**0.93**	**0.93**	**0.93**
O & M Expenses	Rs Cr	0.21	0.22	0.22	0.23
Repair & Maintenance	Rs Cr	0.02	0.03	0.03	0.03
Employee Expenses	Rs Cr	0.15	0.16	0.17	0.17
A & G Expenses	Rs Cr	0.03	0.03	0.03	0.03
Depreciation	Rs Cr	0.01	0.01	0.01	0.01
AAD	Rs Cr	0.00	0.00	0.00	0.00
Interest Charges	Rs Cr	0.00	0.00	0.00	0.00
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00
Interest on Notional Loan	Rs Cr	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.01	0.01	0.01	0.01
Annual Fixed Charge	**Rs Cr**	**0.23**	**0.24**	**0.24**	**0.25**
Sale Rate of Energy	P/kWh	578	252	262	272

Annual Fixed Charge for Nogli HEP

6.76 Nogli HEP is a 2.50 MW (2 x 0.25 + 4 x 0.50 MW) project commissioned by the Board in the years 1963, 1970 and 1974. It is a non-peaking, run of the river project with surface power station and static excitation. The project was executed with a capital cost of Rs 11.81 Cr and was funded through 100% debt. It is a completely depreciated plant with no outstanding loan. The O&M expenses have been projected as per HPERC Generation Regulations, 2007.

6.77 The auxiliary energy consumption has been taken a 0.50% which is for surface hydro electric power generating station with static excitation system and transformation losses of 0.50%, as per the HPERC Regulations, 2007.

6.78 The AFC so determined for Nogli HEP is shown below.

Table 104: AFC for Nogli HEP

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Gross Generation	MU	10.55	8.00	8.00	8.00
Total Auxiliary	MU	0.11	0.08	0.08	0.08
Net Generation at Bus	MU	10.44	7.92	7.92	7.92
Less: Free Power to GoHP @ 0%	MU	0.00	0.00	0.00	0.00
Energy available for Sale	**MU**	**10.44**	**7.92**	**7.92**	**7.92**
O & M Expenses	Rs Cr	0.71	0.73	0.76	0.79

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Repair & Maintenance	Rs Cr	0.08	0.09	0.09	0.09
Employee Expenses	Rs Cr	0.53	0.55	0.57	0.59
A & G Expenses	Rs Cr	0.10	0.10	0.11	0.11
Depreciation	Rs Cr	0.00	0.00	0.00	0.00
AAD	Rs Cr	0.00	0.00	0.00	0.00
Interest Charges	Rs Cr	0.00	0.00	0.00	0.00
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00
Interest on Notional Loan	Rs Cr	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.02	0.02	0.02	0.03
Annual Fixed Charge	**Rs Cr**	**0.73**	**0.76**	**0.79**	**0.82**
Sale Rate of Energy	P/kWh	70	96	99	103

Annual Fixed Charge for Bassi HEP

6.79 Bassi HEP is a 60 MW (4 x 15 MW) project commissioned by the Board in the year 1970, 1971 and 1981. It is a peaking, storage project with surface power station and rotating exciters. The project was executed with a capital cost of Rs 31.26 Cr and was funded through 100% debt with no outstanding loan. The O&M expenses have been projected as per HPERC Generation Regulations, 2007.

6.80 The auxiliary energy consumption has been taken as 0.20% which is for surface hydro electric power generating station with rotating exciters mounted on the generator shaft and transformation losses of 0.50%, as per the HPERC Generation Regulations, 2007.

6.81 The Board has proposed to renovate and up-rate the Bassi HEP from 60 MW to 66 MW at an estimated cost of Rs 76.97 Cr during the Control Period. The Commission has considered that the Board will execute the capex through 100% debt and has assumed a rate of interest on the debt as 10.25% to determine the interest charges. The capital expenditure is considered to be completely capitalized in FY10 and added to the GFA.

6.82 The AFC so determined for Bassi HEP is shown below.

Table 105: AFC for Bassi HEP

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Gross Generation	MU	284.77	176.00	315.00	315.00
Total Auxiliary	MU	1.99	1.23	2.21	2.21
Net Generation at Bus	MU	282.77	174.77	312.80	312.80
Less: Free Power to GoHP @ 0%	MU	0.00	0.00	0.00	0.00
Energy available for Sale	**MU**	**282.77**	**174.77**	**312.80**	**312.80**
O & M Expenses	Rs Cr	5.81	6.04	6.28	6.53

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Repair & Maintenance	Rs Cr	0.68	0.71	0.74	0.77
Employee Expenses	Rs Cr	4.32	4.50	4.68	4.86
A & G Expenses	Rs Cr	0.80	0.83	0.87	0.90
Depreciation	Rs Cr	0.78	0.78	1.79	2.80
AAD	Rs Cr	0.00	0.00	0.00	0.00
Interest Charges	Rs Cr	0.00	0.00	3.82	7.21
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00
Interest on Notional Loan	Rs Cr	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.21	0.21	0.32	0.42
Annual Fixed Charge	**Rs Cr**	6.80	7.03	12.23	17.01
Sale Rate of Energy	P/kWh	24	40	39	54

Annual Fixed Charge for Giri HEP

6.83 Giri HEP is a 60 MW (2 x 30 MW) project commissioned by the Board in the year 1978. It is a non-peaking, run of the river project with semi underground power station and rotating excitation. The Board in its letter dated 17 April 2008, has submitted that as per the figures supplied by CE (Gen) the capital cost of project is Rs 40.02 Cr and as per Accounts it is Rs 36.22 Cr, a difference of Rs 3.80 Cr. The Commission has considered the completed cost of the project as per the Accounts at Rs 36.22 Cr for tariff determination and has considered that the remaining amount of Rs 3.80 Cr will not be capitalized in the future. The project is assumed to be funded through 100% debt with no outstanding loan. The O&M expenses have been projected as per HPERC Generation Regulations, 2007.

6.84 The auxiliary energy consumption has been taken as 0.20% which is for surface hydro electric power generating station with rotating exciters mounted on the generator shaft and transformation losses of 0.50%, as per the HPERC Generation Regulations, 2007.

6.85 The AFC so determined for Giri HEP is shown below.

Table 106: AFC for Giri HEP

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Gross Generation	MU	177.21	173.34	173.34	173.34
Total Auxiliary	MU	1.24	1.21	1.21	1.21
Net Generation at Bus	MU	175.96	172.13	172.13	172.13
Less: Free Power to GoHP @ 0%	MU	0.00	0.00	0.00	0.00
Energy available for Sale	**MU**	**175.96**	**172.13**	**172.13**	**172.13**
O & M Expenses	Rs Cr	5.79	6.02	6.26	6.51
Repair & Maintenance	Rs Cr	0.68	0.71	0.74	0.77
Employee Expenses	Rs Cr	4.31	4.48	4.66	4.85

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
A & G Expenses	Rs Cr	0.80	0.83	0.87	0.90
Depreciation	Rs Cr	0.91	0.91	0.91	0.91
AAD	Rs Cr	0.00	0.00	0.00	0.00
Interest Charges	Rs Cr	0.00	0.00	0.00	0.00
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00
Interest on Notional Loan	Rs Cr	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.21	0.21	0.22	0.23
Annual Fixed Charge	**Rs Cr**	**6.91**	**7.14**	**7.39**	**7.65**
Sale Rate of Energy	P/kWh	39	41	43	44

Annual Fixed Charge for Rukti HEP

6.86 Rukti HEP is a 1.50 MW (3 x 0.50 MW) project commissioned by the Board in the year 1979 and 1980. It is a non-peaking, run of the river project with surface power station and static excitation. The project was executed with a capital cost of Rs 1.59 Cr and was funded through 100% debt with no outstanding loan. The O&M expenses have been projected as average of O&M expenses incurred in FY06 and FY07 and escalated at 4%.

6.87 The auxiliary energy consumption has been taken as 0.50% which is for surface hydro electric power generating station with static excitation system and transformation losses of 0.50%, as per the HPERC Regulations, 2007.

6.88 The AFC so determined for Rukti HEP is shown below.

Table 107: AFC for Rukti HEP

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Gross Generation	MU	1.79	1.30	1.30	1.30
Total Auxiliary	MU	0.02	0.01	0.01	0.01
Net Generation at Bus	MU	1.77	1.28	1.28	1.28
Less: Free Power to GoHP @ 0%	MU	0.00	0.00	0.00	0.00
Energy available for Sale	**MU**	**1.77**	**1.28**	**1.28**	**1.28**
O & M Expenses	Rs Cr	0.45	0.47	0.49	0.51
Repair & Maintenance	Rs Cr	0.05	0.06	0.06	0.06
Employee Expenses	Rs Cr	0.34	0.35	0.36	0.38
A & G Expenses	Rs Cr	0.06	0.07	0.07	0.07
Depreciation	Rs Cr	0.04	0.04	0.04	0.04
AAD	Rs Cr	0.00	0.00	0.00	0.00
Interest Charges	Rs Cr	0.00	0.00	0.00	0.00
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Interest on Notional Loan	Rs Cr	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.02	0.02	0.02	0.02
Annual Fixed Charge	**Rs Cr**	**0.51**	**0.53**	**0.55**	**0.57**
Sale Rate of Energy	P/kWh	287	410	425	440

Annual Fixed Charge for Binwa HEP

6.89 Binwa HEP is a 6 MW (2 x 3 MW) project commissioned by the Board in the year 1984. It is a peaking, storage project with surface power station and rotating exciters. The project was executed with a capital cost of Rs 17.44 Cr and was funded through 100% debt with no outstanding loan. The O&M expenses have been projected as per HPERC Regulations, 2007.

6.90 The auxiliary energy consumption has been taken as 0.20% which is for surface hydro electric power generating station with rotating exciters mounted on the generator shaft and transformation losses of 0.50%, as per the HPERC Generation Regulations, 2007.

6.91 The AFC so determined for Binwa HEP is shown below.

Table 108: AFC for Binwa HEP

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Gross Generation	MU	32.06	31.95	31.95	31.95
Total Auxiliary	MU	0.22	0.22	0.22	0.22
Net Generation at Bus	MU	31.83	31.73	31.73	31.73
Less: Free Power to GoHP @ 0%	MU	0.00	0.00	0.00	0.00
Energy available for Sale	**MU**	**31.83**	**31.73**	**31.73**	**31.73**
O & M Expenses	Rs Cr	2.32	2.41	2.51	2.61
Repair & Maintenance	Rs Cr	0.27	0.28	0.29	0.31
Employee Expenses	Rs Cr	1.73	1.79	1.87	1.94
A & G Expenses	Rs Cr	0.32	0.33	0.35	0.36
Depreciation	Rs Cr	0.44	0.44	0.44	0.44
AAD	Rs Cr	0.00	0.00	0.00	0.00
Interest Charges	Rs Cr	0.00	0.00	0.00	0.00
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00
Interest on Notional Loan	Rs Cr	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.09	0.09	0.09	0.09
Annual Fixed Charge	**Rs Cr**	**2.84**	**2.93**	**3.03**	**3.14**
Sale Rate of Energy	P/kWh	89	92	96	99

Annual Fixed Charge for Rong Tong HEP

6.92 Rong Tong HEP is a 2 MW (4 x 0.50 MW) project commissioned by the Board in the year 1986-87. The project was executed with a capital cost of Rs 16.39 Cr and was funded through 100% debt with no outstanding loan. The O&M expenses have been projected as average of O&M expenses incurred in FY06 and FY07 and escalated at 4%.

6.93 The auxiliary energy consumption has been taken as 0.50% which is for surface hydro electric power generating station with static excitation system and transformation losses of 0.50%, as per the HPERC Generation Regulations, 2007.

6.94 The AFC so determined for Rong Tong HEP is shown below.

Table 109: AFC for Rong Tong HEP

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Gross Generation	MU	1.62	1.68	1.68	1.68
Total Auxiliary	MU	0.02	0.02	0.02	0.02
Net Generation at Bus	MU	1.60	1.66	1.66	1.66
Less: Free Power to GoHP @ 0%	MU	0.00	0.00	0.00	0.00
Energy available for Sale	**MU**	**1.60**	**1.66**	**1.66**	**1.66**
O & M Expenses	Rs Cr	0.54	0.56	0.58	0.60
Repair & Maintenance	Rs Cr	0.06	0.07	0.07	0.07
Employee Expenses	Rs Cr	0.40	0.41	0.43	0.45
A & G Expenses	Rs Cr	0.07	0.08	0.08	0.08
Depreciation	Rs Cr	0.41	0.41	0.41	0.41
AAD	Rs Cr	0.00	0.00	0.00	0.00
Interest Charges	Rs Cr	0.00	0.00	0.00	0.00
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00
Interest on Notional Loan	Rs Cr	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.03	0.03	0.03	0.03
Annual Fixed Charge	**Rs Cr**	**0.97**	**0.99**	**1.02**	**1.04**
Sale Rate of Energy	P/kWh	607	599	613	627

Annual Fixed Charge for Andhra HEP

6.95 Andhra HEP is a 16.95 MW (3 x 5.65 MW) project commissioned by the Board in the year 1987. It is a peaking, storage project with surface power station and static excitation. The project was executed with a capital cost of Rs 57.61 Cr and was funded through 100% debt with no outstanding loan. The O&M expenses have been projected as per HPERC Generation Regulations, 2007.

6.96 The auxiliary energy consumption has been taken as 0.50% which is for surface hydro electric power generating station with static excitation system and transformation losses of 0.50%, as per the HPERC Generation Regulations, 2007.

6.97 The AFC so determined for Andhra HEP is shown below.

Table 110: AFC for Andhra HEP

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Gross Generation	MU	65.98	60.60	60.60	60.60
Total Auxiliary	MU	0.66	0.61	0.61	0.61
Net Generation at Bus	MU	65.32	59.99	59.99	59.99
Less: Free Power to GoHP @ 0%	MU	0.00	0.00	0.00	0.00
Energy available for Sale	**MU**	**65.32**	**59.99**	**59.99**	**59.99**
O & M Expenses	Rs Cr	2.03	2.11	2.19	2.28
Repair & Maintenance	Rs Cr	0.24	0.25	0.26	0.27
Employee Expenses	Rs Cr	1.51	1.57	1.63	1.70
A & G Expenses	Rs Cr	0.28	0.29	0.30	0.32
Depreciation	Rs Cr	1.44	1.44	1.44	1.44
AAD	Rs Cr	0.00	0.00	0.00	0.00
Interest Charges	Rs Cr	0.00	0.00	0.00	0.00
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00
Interest on Notional Loan	Rs Cr	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.10	0.10	0.10	0.10
Annual Fixed Charge	**Rs Cr**	**3.57**	**3.65**	**3.73**	**3.82**
Sale Rate of Energy	P/kWh	55	61	62	64

Annual Fixed Charge for Bhaba HEP

6.98 Bhaba HEP is a 120 MW (3 x 40 MW) project commissioned by the Board in the year 1989. It is a peaking, storage project with underground power station and static excitation. The Board in its letter dated 17 April 2008, has submitted that as per the figures supplied by CE (Gen) the capital cost of project is Rs 239.78 Cr and as per Accounts it is Rs 222.19 Cr, a difference of Rs 17.59 Cr. The Commission has considered the completed cost of the project as per the Accounts at Rs 222.19 Cr for tariff determination and has considered that the remaining amount of Rs 17.59 Cr will not be capitalized in the future. The project is assumed to be funded through 100% debt with no outstanding loan. The O&M expenses have been projected as per HPERC Generation Regulations, 2007.

6.99 The Commission has allowed repayment of principal and interest on Market Bonds of Rs 6.68 Cr taken in 1998. The bonds are due for repayment in FY09.

6.100 The auxiliary energy consumption has been taken as 0.70% which is for underground hydro electric power generating station with static excitation system and transformation losses of

0.50%, as per the HPERC Generation Regulations, 2007.

6.101 The AFC so determined for Bhaba HEP is shown below.

Table 111: AFC for Bhaba HEP

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Gross Generation	MU	452.47	530.02	572.29	572.29
Total Auxiliary	MU	5.43	6.36	6.87	6.87
Net Generation at Bus	MU	447.04	523.65	565.42	565.42
Less: Free Power to GoHP @ 0%	MU	0.00	0.00	0.00	0.00
Energy available for Sale	**MU**	**447.04**	**523.65**	**565.42**	**565.42**
O & M Expenses	Rs Cr	9.88	10.27	10.68	11.11
Repair & Maintenance	Rs Cr	1.16	1.21	1.26	1.31
Employee Expenses	Rs Cr	7.35	7.65	7.95	8.27
A & G Expenses	Rs Cr	1.37	1.42	1.48	1.54
Depreciation	Rs Cr	5.55	5.55	5.55	5.55
AAD	Rs Cr	0.00	0.00	0.00	0.00
Interest Charges	Rs Cr	0.77	0.38	0.00	0.00
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00
Interest on Notional Loan	Rs Cr	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.46	0.45	0.46	0.47
Annual Fixed Charge	**Rs Cr**	**16.66**	**16.66**	**16.69**	**17.13**
Sale Rate of Energy	P/kWh	37	32	30	30

Annual Fixed Charge for Pre- 1990 HEPs

6.102 The total installed capacity of pre-1990 commissioned plants is 271.15 MW at a capital cost of Rs 396.22 Cr. The AFC determined for the 10 pre-1990 HEPs has been added to arrive at the total AFC for pre-1990 HEPs.

Table 112: Total AFC for Pre-1990 HEPs

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Gross Generation	MU	1032.98	990.27	1171.55	1171.55
Total Auxiliary	MU	9.75	9.82	11.30	11.30
Net Generation at Bus	MU	1023.22	980.45	1160.25	1160.25
Less: Free Power to GoHP @ 0%	MU	0.00	0.00	0.00	0.00
Energy available for Sale	**MU**	**1023.22**	**980.45**	**1160.25**	**1160.25**
Annual Fixed Charge for					
Chaba	Rs Cr	0.68	0.70	0.73	0.76

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Chamba	Rs Cr	0.23	0.24	0.24	0.25
Nogli	Rs Cr	0.73	0.76	0.79	0.82
Bassi	Rs Cr	6.80	7.03	12.23	17.01
Giri	Rs Cr	6.91	7.14	7.39	7.65
Rukti	Rs Cr	0.51	0.53	0.55	0.57
Binwa	Rs Cr	2.84	2.93	3.03	3.14
Rong Tong	Rs Cr	0.97	0.99	1.02	1.04
Andhra	Rs Cr	3.57	3.65	3.73	3.82
Bhaba	Rs Cr	16.66	16.66	16.69	17.13
Total Annual Fixed Charge	**Rs Cr**	**39.89**	**40.62**	**46.40**	**52.18**
Sale Rate of Energy (Average)	P/kWh	39	41	40	45

Determination of Annual Fixed Charge for Post – 1990 HEPs

6.103 The Commission, for the determination of Annual Fixed Charge for the projects commissioned post-1990, was constrained due to lack of availability of adequate and proper information on many of the projects. The Commission has relied upon the past submissions and petitions of the Board submitted during the finalization of previous years tariff orders and any further information that was made available to the Commission by the Board during the course of this tariff order. The Commission has also relied upon the petition and the information filed by the Board for Gaj, Baner, Ghanvi, Larji and Khauli HEPs

6.104 The Commission has considered the following assumptions for determination of AFC and tariff for sale of electricity for post-1990 projects.

(a) The funding of Sal-II, Killar, Thirot, Gumma and Holi projects is through 100% debt and all debt has been retired as of date.

(b) The completed cost of the following projects Sal-II, Killar, Thirot, Gaj, Baner, Gumma, Ghanvi and Holi have not been subjected to prudence check by the Commission as these are relatively old projects and the detailed breakup of costs needed for determining the completed cost is not available. Therefore, the Commission has taken the cost of these projects as specified in the Accounts statement of the Board.

(c) The rate of depreciation for Larji and Khauli projects has been considered at 2.57% and for rest of the projects at 2.50% as per past practice upto a maximum of 90% of the original cost of the asset. The Commission has arrived at the accumulated depreciation for the individual projects considering a depreciation rate of 2.50% for each year post commercial operation date of the projects.

(d) O&M expenses for Thirot, Gaj, Baner, Gumma, Ghanvi, Holi, Khauli and Larji projects have been determined as per the methodology stipulated in the HPERC Generation Regulations, 2007. For the projects, Sal-II and Killar the information on last five years O&M expenses is not available with the Commission and the average of O&M expenses incurred in FY06 and FY07 has been considered and escalated at 4% to project the O&M expenses for the Control Period.

(e) As per HPERC Generation Regulations, 2007, the Working Capital comprises of

(i) O&M expenses for 1 Month

(ii) Maintenance Spares equivalent to 40% of R&M expenses for 1 Month

(iii) Receivables equivalent to two months of fixed and variable charges for sale of electricity calculated on the normative capacity index.

The Commission has determined O&M expense for the Control Period as a gross number comprising of employee expense, R&M expense and A&G expense and which has been determined as per the Regulations. The Commission has proportionally divided the O&M expense into employee, R&M and A&G expenses, in the ratio as determined from the Board's Generation petition.

(f) The generation from the HEPs for the Control Period has been projected as the average of last four years (FY05 to FY08) actual generation. For Larji and Kauli project the design energy has been taken as the gross generation for the Control Period.

Annual Fixed Charge for Killar HEP

6.105 Killar HEP is a 0.30 MW (3 x 0.10 MW) project commissioned by the Board in the year 1995. It is a peaking, run of the river project with surface power station and rotating exciters. The project was executed with a capital cost of Rs 8.65 Cr and was funded through 100% debt with no outstanding loan. The O&M expenses have been projected as average of O&M expenses incurred in FY06 and FY07 and escalated at 4%.

6.106 The auxiliary energy consumption has been taken as 0.20% which is for surface hydro electric power generating station with rotating exciters mounted on the generator shaft and transformation losses of 0.50%, as per the HPERC Generation Regulations, 2007. The GoHP has no share in the generation as free power.

6.107 The AFC so determined for Killar HEP is shown below.

Table 113: AFC for Killar HEP

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Gross Generation	MU	0.90	1.06	1.06	1.06

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Total Auxiliary	MU	0.01	0.01	0.01	0.01
Net Generation at Bus	MU	0.90	1.05	1.05	1.05
Less: Free Power to GoHP @ 0%	MU	0.00	0.00	0.00	0.00
Energy available for Sale	**MU**	**0.90**	**1.05**	**1.05**	**1.05**
O & M Expenses	Rs Cr	0.20	0.21	0.22	0.23
Repair & Maintenance	Rs Cr	0.02	0.02	0.03	0.03
Employee Expenses	Rs Cr	0.15	0.16	0.16	0.17
A & G Expenses	Rs Cr	0.03	0.03	0.03	0.03
Depreciation	Rs Cr	0.22	0.22	0.22	0.22
AAD	Rs Cr	0.00	0.00	0.00	0.00
Interest Charges	Rs Cr	0.00	0.00	0.00	0.00
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00
Interest on Notional Loan	Rs Cr	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.01	0.01	0.01	0.01
Annual Fixed Charge	**Rs Cr**	**0.43**	**0.44**	**0.45**	**0.46**
Sale Rate of Energy	P/kWh	480	417	426	434

Annual Fixed Charge for Thirot HEP

6.108 Thirot HEP is a 4.50 MW (3 x 1.50 MW) project commissioned by the Board in the year 1995. It is a peaking, storage project with surface power station and rotating exciters. The Board in its letter dated 17 April 2008, has submitted that as per the figures supplied by CE (Gen) the capital cost of project is Rs 60.18 Cr and as per Accounts it is Rs 49.30 Cr, a difference of Rs 10.88 Cr. The Commission has considered the completed cost of the project as per the Accounts at Rs 49.30 Cr for tariff determination and has considered that the remaining amount of Rs 10.88 Cr will not be capitalized in the future. The project is assumed to be funded through equity of Rs 15 Cr and a debt of Rs 34.30 Cr with no outstanding loan. The O&M expenses have been projected as average of O&M expenses incurred in FY06 and FY07 and escalated at 4%.

6.109 The auxiliary energy consumption has been taken as 0.20% which is for surface hydro electric power generating station with rotating exciters mounted on the generator shaft and transformation losses of 0.50%, as per the HPERC Generation Regulations, 2007. The GoHP has no share in the generation as free power.

Return on Equity

6.110 The Board has calculated the return on equity at 14% on the equity of Rs 15 Cr invested in the project. The Commission has considered that the only equity that was invested in the project was from GoHP of Rs 15 Cr which was later transferred to the Board and the Board had taken short term loans which were shown as Board’s equity. Hence, the Commission has provided return on Rs 15 Cr of GoHP equity (transferred to the Board) at 14% as per the

HPERC Generation Regulation, 2007.

6.111 The AFC so determined for Thirot HEP is shown below.

Table 114: AFC for Thirot HEP

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Gross Generation	MU	8.61	6.51	6.51	6.51
Total Auxiliary	MU	0.06	0.05	0.05	0.05
Net Generation at Bus	MU	8.55	6.47	6.47	6.47
Less: Free Power to GoHP @ 0%	MU	0.00	0.00	0.00	0.00
Energy available for Sale	**MU**	**8.55**	**6.47**	**6.47**	**6.47**
O & M Expenses	Rs Cr	0.67	0.70	0.73	0.76
Repair & Maintenance	Rs Cr	0.08	0.08	0.09	0.09
Employee Expenses	Rs Cr	0.50	0.52	0.54	0.56
A & G Expenses	Rs Cr	0.09	0.10	0.10	0.10
Depreciation	Rs Cr	1.23	1.23	1.23	1.23
AAD	Rs Cr	0.00	0.00	0.00	0.00
Interest Charges	Rs Cr	0.00	0.00	0.00	0.00
Return on Equity	Rs Cr	2.10	2.10	2.10	2.10
Interest on Notional Loan	Rs Cr	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.09	0.09	0.09	0.09
Annual Fixed Charge	**Rs Cr**	**4.10**	**4.12**	**4.15**	**4.18**
Sale Rate of Energy	P/kWh	479	638	642	647

Annual Fixed Charge for Sal-II HEP

6.112 Sal-II HEP is a 2 MW (2 x 1 MW) project commissioned by the Board in the year 2000. It is a non-peaking, run of the river project with surface power station and rotating exciters. The Board in its letter dated 17 April 2008, has submitted that as per the figures supplied by CE (Gen) the capital cost of project is Rs 19.25 Cr and as per Accounts it is Rs 17.48 Cr, a difference of Rs 1.77 Cr. The Commission has considered the completed cost of the project as per the Accounts at Rs 17.48 Cr for tariff determination and has considered that the remaining amount of Rs 1.77 Cr will not be capitalized in the future. The project is assumed to be funded through 100% debt with no outstanding loan. The O&M expenses have been projected as average of O&M expenses incurred in FY06 and FY07 and escalated at 4%.

6.113 The auxiliary energy consumption has been taken as 0.20% which is for surface hydro electric power generating station with rotating exciters mounted on the generator shaft and transformation losses of 0.50%, as per the HPERC Generation Regulations, 2007. The GoHP has no share in the generation as free power.

6.114 The AFC so determined for Sal-II HEP is shown below.

Table 115: AFC for Sal-II HEP

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Gross Generation	MU	5.54	5.96	5.96	5.96
Total Auxiliary	MU	0.04	0.04	0.04	0.04
Net Generation at Bus	MU	5.50	5.92	5.92	5.92
Less: Free Power to GoHP @ 0%	MU	0.00	0.00	0.00	0.00
Energy available for Sale	**MU**	**5.50**	**5.92**	**5.92**	**5.92**
O & M Expenses	Rs Cr	0.34	0.36	0.37	0.39
Repair & Maintenance	Rs Cr	0.04	0.04	0.04	0.05
Employee Expenses	Rs Cr	0.26	0.27	0.28	0.29
A & G Expenses	Rs Cr	0.05	0.05	0.05	0.05
Depreciation	Rs Cr	0.44	0.44	0.44	0.44
AAD	Rs Cr	0.00	0.00	0.00	0.00
Interest Charges	Rs Cr	0.00	0.00	0.00	0.00
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00
Interest on Notional Loan	Rs Cr	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.02	0.02	0.02	0.02
Annual Fixed Charge	**Rs Cr**	**0.80**	**0.81**	**0.83**	**0.84**
Sale Rate of Energy	P/kWh	146	138	140	143

Annual Fixed Charge for Gumma HEP

6.115 Gumma HEP is a 3 MW (2 x 1.5 MW) project commissioned by the Board in the year 2000. It is a non-peaking, run of the river project with surface power station and rotating exciters. The Board in its letter dated 17 April 2008, has submitted that as per the figures supplied by CE (Gen) the capital cost of project is Rs 36.60 Cr and as per Accounts it is Rs 28.89 Cr, a difference of Rs 7.71 Cr. The Commission has considered the completed cost of the project as per the Accounts at Rs 28.89 Cr for tariff determination and has considered that the remaining amount of Rs 7.71 Cr will not be capitalized in the future. The project is assumed to be funded through 100% debt with no outstanding loan. The O&M expenses have been projected as per HPERC Generation Regulations, 2007.

6.116 The auxiliary energy consumption has been taken as 0.20% which is for surface hydro electric power generating station with rotating exciters mounted on the generator shaft and transformation losses of 0.50%, as per the HPERC Generation Regulations, 2007. The GoHP has no share in the generation as free power.

6.117 The AFC so determined for Gumma HEP is shown below.

Table 116: AFC for Gumma HEP

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Gross Generation	MU	7.90	8.46	8.46	8.46
Total Auxiliary	MU	0.06	0.06	0.06	0.06
Net Generation at Bus	MU	7.85	8.40	8.40	8.40
Less: Free Power to GoHP @ 0%	MU	0.00	0.00	0.00	0.00
Energy available for Sale	**MU**	**7.85**	**8.40**	**8.40**	**8.40**
O & M Expenses	Rs Cr	0.66	0.69	0.72	0.75
Repair & Maintenance	Rs Cr	0.08	0.08	0.08	0.09
Employee Expenses	Rs Cr	0.49	0.51	0.54	0.56
A & G Expenses	Rs Cr	0.09	0.10	0.10	0.10
Depreciation	Rs Cr	0.72	0.72	0.72	0.72
AAD	Rs Cr	0.00	0.00	0.00	0.00
Interest Charges	Rs Cr	0.00	0.00	0.00	0.00
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00
Interest on Notional Loan	Rs Cr	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.04	0.04	0.04	0.04
Annual Fixed Charge	**Rs Cr**	**1.42**	**1.45**	**1.48**	**1.51**
Sale Rate of Energy	P/kWh	182	173	176	180

Annual Fixed Charge for Holi HEP

6.118 Holi HEP is a 3 MW (2 x 1.5 MW) project commissioned by the Board in the year 2004. It is a non-peaking, run of the river project with surface power station and rotating exciters. The project was commissioned with a capitalized cost of Rs 29.93 Cr (with no outstanding capitalization as per Accounts) as of date and was funded through 100% debt with no outstanding loan. The O&M expenses have been projected as per HPERC Generation Regulations, 2007.

6.119 The auxiliary energy consumption has been taken as 0.20% which is for surface hydro electric power generating station with rotating exciters mounted on the generator shaft and transformation losses of 0.50%, as per the HPERC Generation Regulations, 2007. The GoHP has no share in the generation as free power.

6.120 The AFC so determined for Holi HEP is shown below.

Table 117: AFC for Holi HEP

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Gross Generation	MU	10.84	10.23	10.23	10.23
Total Auxiliary	MU	0.08	0.07	0.07	0.07

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Net Generation at Bus	MU	10.76	10.16	10.16	10.16
Less: Free Power to GoHP @ 0%	MU	0.00	0.00	0.00	0.00
Energy available for Sale	**MU**	**10.76**	**10.16**	**10.16**	**10.16**
O & M Expenses	Rs Cr	0.49	0.51	0.53	0.55
Repair & Maintenance	Rs Cr	0.06	0.06	0.06	0.06
Employee Expenses	Rs Cr	0.36	0.38	0.39	0.41
A & G Expenses	Rs Cr	0.07	0.07	0.07	0.08
Depreciation	Rs Cr	0.75	0.75	0.75	0.75
AAD	Rs Cr	0.00	0.00	0.00	0.00
Interest Charges	Rs Cr	0.00	0.00	0.00	0.00
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00
Interest on Notional Loan	Rs Cr	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.03	0.03	0.03	0.03
Annual Fixed Charge	**Rs Cr**	**1.27**	**1.28**	**1.31**	**1.33**
Sale Rate of Energy	P/kWh	118	127	129	131

Annual Fixed Charge for Gaj HEP

6.121 Gaj HEP is a 10.50 MW (3 x 3.50 MW) project commissioned by the Board in the year 1996. It is a non-peaking, run of the river project with surface power station and static excitation. The submission of the Board for Gaj HEP has been detailed in beginning of this chapter.

Capital Cost

6.122 The Board in its filing for Gaj project has submitted that it has incurred an expenditure of Rs 75.49 Cr on the commissioning of the project. The Board in its letter dated 17 April, 2008 has submitted the details of reconciliation of generation assets shown in the balance sheet and revised capitalization schedule, wherein it has shown Rs 60.58 Cr as the capitalized cost of the project as per accounts, a difference of Rs 14.91 Cr.

6.123 The Commission has taken Rs 60.58 Cr as the capitalized project cost for the purpose of determination of AFC during the Control Period and has considered that the remaining amount of Rs 14.91 Cr will not be capitalized in the future.

Interest Charges

6.124 The Board has submitted the debt to equity ratio for the project as 69:31 with a debt amount of Rs 52.31 Cr arranged from PFC and LIC for the project and Board equity of Rs 23.18 Cr. The Commission during the validation sessions held with the Board, received different details of financing for the project from the Accounts department. The Accounts department submitted that the project cost is Rs 75.49 Cr and was financed through loans of Rs 19.21

Cr (three loans of Rs 9.43 Cr, Rs 6.72 Cr and 3.06 Cr) from PFC, Rs 3.10 Cr from LIC and Rs 15 Cr from GoHP amounting to a total debt of Rs 37.31 Cr and equity funding of Rs 15 Cr from GoHP and Rs 23.18 Cr as HPSEB equity. The D:E ratio for the project comes to 49:51. The Board was not able to clarify the source for Rs 23.18 Cr infused as Board's equity in the project.

6.125 In the MYT formats for Gaj project, the Board has shown gross opening loans of Rs 22.31 Cr comprising of Rs 19.21 Cr PFC loan and Rs 3.10 Cr LIC loan. There is no mention of the Rs 15 Cr loan from GoHP.

6.126 The Commission faced with such divergent information on the project cost and the means of finance, has considered the project cost as Rs 60.58 Cr for tariff determination and determined the funding for the project accordingly. The Commission has approved Rs 37.31 Cr of loan arranged from PFC, LIC and GoHP and the Rs 15 Cr GoHP equity as submitted by the Board. The Commission has considered that the remaining fund requirement of Rs 8.27 Cr has been funded through short term loans taken by the Board and there is not equity infusion in the project from the Board.

6.127 The Commission has approved the repayment and the interest charges for PFC and LIC loans for the Control Period as submitted by the Board and has considered that the GoHP loan and short term loans have been completely repaid.

Return on Equity

6.128 The Board has calculated the return on equity at 14% on the equity of Rs 23.18 Cr invested in the project. The Commission has considered that the equity invested in the project by the GoHP was Rs 15 Cr which was later transferred to the Board and the Board had taken short term loans which were shown as Board's equity. Hence, the Commission has provided return on Rs 15 Cr of GoHP equity (transferred to the Board) at 14% as per the HPERC Generation Regulation, 2007.

Operation and Maintenance

6.129 The Commission has followed the HPERC Generation Regulations, 2007 for determining the O&M expenses for the Control Period. The O&M has been determined as a gross number comprising of employee, R&M and A&G expenses. The Commission has proportionally divided the O&M expense into employee, R&M and A&G expenses, in the ratio as determined from the Board's Generation petition.

Depreciation

6.130 The Commission has calculated the depreciation for each year of the Control Period, based on the straight line method on the gross fixed assets of Rs 60.58 Cr for the project. The Commission has arrived at the depreciation and accumulated depreciation figure by applying 2.50% as the rate of depreciation from the commercial operation date of the project.

Interest on Working Capital

6.131 The Commission has followed the HPERC Generation Regulations, 2007 for determining the requirement for working capital during the Control Period. The rate of interest of 12.25% which is the SBI PLR has been considered for calculating the interest on working capital.

Generation from Gaj HEP

6.132 The Commission has projected the gross generation from the project as the average of last four years (FY05 to FY08) actual gross generation. The auxiliary energy consumption has been taken as 0.50% which is for surface hydro electric power generating station with static excitation system and transformation losses of 0.50%, as per the HPERC Generation Regulations, 2007

6.133 The GoHP has 12% share in the generation as free power which has been reduced to arrive at the net saleable energy from the project The AFC so determined for Gaj HEP is shown below.

Table 118: AFC for Gaj HEP

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Gross Generation	MU	46.04	48.75	48.75	48.75
Total Auxiliary	MU	0.46	0.49	0.49	0.49
Net Generation at Bus	MU	45.58	48.26	48.26	48.26
Less: Free Power to GoHP @ 12%	MU	5.47	5.79	5.79	5.79
Energy available for Sale	**MU**	**40.11**	**42.47**	**42.47**	**42.47**
O & M Expenses	Rs Cr	2.54	2.64	2.75	2.86
Repair & Maintenance	Rs Cr	0.30	0.31	0.32	0.34
Employee Expenses	Rs Cr	1.89	1.97	2.04	2.13
A & G Expenses	Rs Cr	0.35	0.36	0.38	0.39
Depreciation	Rs Cr	1.51	1.51	1.51	1.51
AAD	Rs Cr	0.00	0.00	0.00	0.00
Interest Charges	Rs Cr	0.31	0.19	0.12	0.07
Return on Equity	Rs Cr	2.10	2.10	2.10	2.10
Interest on Notional Loan	Rs Cr	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.17	0.16	0.17	0.17
Annual Fixed Charge	**Rs Cr**	**6.64**	**6.61**	**6.65**	**6.71**
Sale Rate of Energy	P/kWh	165	156	157	158

Annual Fixed Charge for Baner HEP

6.134 Baner HEP is a 12 MW (3 x 4 MW) project commissioned by the Board in the year 1996. It is a non-peaking, run of the river project with surface power station and static excitation. The submission of the Board for Baner HEP has been detailed in beginning of this chapter.

Capital Cost

6.135 The Board in its filing for Baner project has submitted that it has incurred an expenditure of Rs 68.79 Cr on the commissioning of the project. The Board in its letter dated 17 April, 2008 has submitted the details of reconciliation of generation assets shown in the balance sheet and revised capitalization schedule, wherein it has shown Rs 55.67 Cr as the capitalized cost of the project as per accounts, a difference of Rs 13.12 Cr.

6.136 The Commission has taken Rs 55.67 Cr as the capitalized project cost for the purpose of determination of AFC during the Control Period and has considered that the remaining amount of Rs 13.12 Cr will not be capitalized in the future.

Interest Charges

6.137 The Board has submitted the debt to equity ratio for the project as 72:28 with a debt amount of Rs 49.66 Cr arranged from PFC and LIC for the project and Board equity of Rs 19.13 Cr. The Commission during the validation sessions held with the Board, received different details of financing for the project from the Accounts department. The Accounts department submitted that the project cost as Rs 68.79 Cr and was financed through loans of Rs 16.56 Cr from PFC, Rs 3.10 Cr from LIC and Rs 15 Cr from GoHP amounting to a total debt of Rs 34.66 Cr and equity funding of Rs 15 Cr from GoHP and Rs 19.13 Cr as HPSEB equity. The D: E ratio for the project comes to 50.4:49.6. The Board was not able to clarify the source for Rs 19.13 Cr infused as Board’s equity in the project.

6.138 In the MYT formats for Baner project, the Board has shown gross opening loans of Rs 19.66 Cr comprising of Rs 16.56 Cr PFC loan and Rs 3.10 Cr LIC loan. There is no mention of the Rs 15 Cr loan from GoHP.

6.139 The Commission faced with such divergent information on the project cost and the means of finance, has considered the project cost as Rs 55.67 Cr for tariff determination and determined the funding for the project accordingly. The Commission has approved Rs 34.66 Cr of loan arranged from PFC, LIC and GoHP and the Rs 15 Cr GoHP equity as submitted by the Board. The Commission has considered that the remaining fund requirement of Rs 6.01 Cr has been funded through short term loans taken by the Board and there is not equity infusion in the project from the Board.

6.140 The Commission has approved the repayment and the interest charges for PFC and LIC loans for the Control Period as submitted by the Board and has considered that the GoHP loan and short term loans have been completely repaid.

Return on Equity

6.141 The Board has calculated the return on equity at 14% on the equity of Rs 19.13 Cr invested in the project. The Commission has considered that the only equity that was invested in the project was from GoHP of Rs 15 Cr which was later transferred to the Board and the Board had taken short term loans which were shown as Board's equity. Hence, the Commission has provided return on Rs 15 Cr of GoHP equity (transferred to the Board) at 14% as per the HPERC Generation Regulations, 2007.

Operation and Maintenance

6.142 The Commission has followed the HPERC Generation Regulation, 2007 for determining the O&M expenses for the Control Period. The O&M has been determined as a gross number comprising of employee, R&M and A&G expenses. The Commission has proportionally divided the O&M expense into employee, R&M and A&G expenses, in the ratio as determined from the Board's Generation petition.

Depreciation

6.143 The Commission has calculated the depreciation for each year of the Control Period, based on the straight line method on the gross fixed assets of Rs 55.67 Cr for the project. The Commission has arrived at the depreciation and accumulated depreciation figure by applying 2.50% as the rate of depreciation from the commercial operation date of the project.

Interest on Working Capital

6.144 The Commission has followed the HPERC Generation Regulations, 2007 for determining the requirement for working capital during the Control Period. The rate of interest of 12.25% which is the SBI PLR has been considered for calculating the interest on working capital.

Generation from Baner HEP

6.145 The Commission has projected the gross generation from the project as the average of last four years (FY05 to FY08) actual gross generation. The auxiliary energy consumption has been taken as 0.50% which is for surface hydro electric power generating station with static excitation system and transformation losses of 0.50%, as per the HPERC Generation Regulations, 2007.

6.146 The GoHP has 12% share in the generation as free power which has been reduced to arrive at the net saleable energy from the project The AFC so determined for Baner HEP is shown below.

Table 119: AFC for Baner HEP

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Gross Generation	MU	43.14	43.40	43.40	43.40
Total Auxiliary	MU	0.43	0.43	0.43	0.43

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Net Generation at Bus	MU	42.71	42.97	42.97	42.97
Less: Free Power to GoHP @ 12%	MU	5.13	5.16	5.16	5.16
Energy available for Sale	**MU**	**37.58**	**37.81**	**37.81**	**37.81**
O & M Expenses	Rs Cr	2.25	2.35	2.44	2.54
Repair & Maintenance	Rs Cr	0.27	0.28	0.29	0.30
Employee Expenses	Rs Cr	1.68	1.75	1.82	1.89
A & G Expenses	Rs Cr	0.31	0.32	0.34	0.35
Depreciation	Rs Cr	1.39	1.39	1.39	1.39
AAD	Rs Cr	0.00	0.00	0.00	0.00
Interest Charges	Rs Cr	0.23	0.10	0.05	0.03
Return on Equity	Rs Cr	2.10	2.10	2.10	2.10
Interest on Notional Loan	Rs Cr	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.16	0.15	0.15	0.15
Annual Fixed Charge	**Rs Cr**	**6.13**	**6.08**	**6.13**	**6.21**
Sale Rate of Energy	P/kWh	163	161	162	164

Annual Fixed Charge for Ghanvi HEP

6.147 Ghanvi HEP is a 22.50 MW (2 x 11.25 MW) project commissioned by the Board in the year 2000. It is a non-peaking, run of the river project with underground power station and static excitation. The submission of the Board for Ghanvi HEP has been detailed in beginning of this chapter.

Capital Cost

6.148 The Board in its filing for Ghanvi project has submitted that it has incurred an expenditure of Rs 166.30 Cr on the commissioning of the project. The Board in its letter dated 17 April, 2008 has submitted the details of reconciliation of generation assets shown in the balance sheet and revised capitalization schedule, wherein it has shown Rs 142.62 Cr as the capitalized cost of the project as per accounts, a difference of Rs 23.68 Cr.

6.149 The Commission has taken Rs 142.62 Cr as the capitalized project cost for the purpose of determination of AFC during the Control Period and has considered that the remaining amount of Rs 23.68 Cr will not be capitalized in the future.

Interest Charges

6.150 The Board has submitted the debt to equity ratio for the project as 72:28 with a debt amount of Rs 118.97 Cr arranged from PFC and LIC for the project and Board equity of Rs 47.33 Cr. The Commission during the validation sessions held with the Board, received different details of financing for the project from the Accounts department. The Accounts department submitted that the project cost as Rs 166.30 Cr and was financed through loans of Rs 61.50

Cr from PFC, Rs 17.47 Cr from LIC and Rs 87.33 Cr as HPSEB equity. The D: E ratio for the project comes to 60:40. The Board was not able to clarify the source for Rs 87.33 Cr infused as Board's equity in the project.

6.151 In the MYT formats for Ghanvi project, the Board has shown gross opening loans of Rs 78.97 Cr comprising of Rs 61.50 Cr PFC loan and Rs 17.47 Cr LIC loan.

6.152 The Commission faced with such divergent information on the project cost and the means of finance, has considered the project cost as Rs 142.62 Cr for tariff determination and determined the funding for the project accordingly. The Commission has approved Rs 93.97 Cr of loan arranged from PFC and LIC as submitted by the Board. The Commission has considered that the remaining fund requirement of Rs 48.65 Cr has been funded through short term loans taken by the Board and there is not equity infusion in the project from the Board.

6.153 The Commission has approved the repayment and the interest charges for PFC and LIC loans for the Control Period as submitted by the Board and has considered that the GoHP loan and short term loans have been completely repaid.

Operation and Maintenance

6.154 The Commission has followed the HPERC Generation Regulations, 2007 for determining the O&M expenses for the Control Period. The O&M has been determined as a gross number comprising of employee, R&M and A&G expenses. The Commission has proportionally divided the O&M expense into employee, R&M and A&G expenses, in the ratio as determined from the Board's Generation petition.

Depreciation

6.155 The Commission has calculated the depreciation for each year of the Control Period, based on the straight line method on the gross fixed assets of Rs 55.67 Cr for the project. The Commission has arrived at the depreciation and accumulated depreciation figure by applying 2.50% as the rate of depreciation from the commercial operation date of the project.

Interest on Working Capital

6.156 The Commission has followed the HPERC Generation Regulations, 2007 for determining the requirement for working capital during the Control Period. The rate of interest of 12.25% which is the SBI PLR has been considered for calculating the interest on working capital.

Generation from Ghanvi HEP

6.157 The Commission has projected the gross generation from the project as the average of last four years (FY05 to FY08) actual gross generation. The auxiliary energy consumption has been taken as 0.70% which is for underground hydro electric power generating station with static excitation system and transformation losses of 0.50%, as per the HPERC Generation Regulations, 2007

6.158 The GoHP has 12% share in the generation as free power which has been reduced to arrive at the net saleable energy from the project The AFC so determined for Ghanvi HEP is shown below.

Table 120: AFC for Ghanvi HEP

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Gross Generation	MU	77.78	70.34	70.34	70.34
Total Auxiliary	MU	0.93	0.84	0.84	0.84
Net Generation at Bus	MU	76.85	69.50	69.50	69.50
Less: Free Power to GoHP @ 12%	MU	9.22	8.34	8.34	8.34
Energy available for Sale	**MU**	**67.63**	**61.16**	**61.16**	**61.16**
O & M Expenses	Rs Cr	2.99	3.11	3.24	3.36
Repair & Maintenance	Rs Cr	0.35	0.37	0.38	0.40
Employee Expenses	Rs Cr	2.23	2.32	2.41	2.50
A & G Expenses	Rs Cr	0.41	0.43	0.45	0.46
Depreciation	Rs Cr	3.57	3.57	3.57	3.57
AAD	Rs Cr	3.75	3.75	3.75	3.75
Interest Charges	Rs Cr	3.43	2.66	1.89	1.13
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00
Interest on Notional Loan	Rs Cr	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.33	0.31	0.29	0.28
Annual Fixed Charge	**Rs Cr**	**14.06**	**13.39**	**12.74**	**12.09**
Sale Rate of Energy	P/kWh	208	219	208	198

Annual Fixed Charge for Khauli HEP

6.159 Khauli HEP is a 12 MW (2 x 6 MW) project commissioned by the Board in the year 2006. It is a non-peaking, run of the river project with surface power station and rotating brushless exciter.

6.160 The filing of the Board for Khauli HEP was incomplete and inconsistent in many respects and the contained contradictory information in many forms. This despite the fact that the Commission has directed the Board in its previous tariff orders to file proper petition for determination of the completed cost of the project and the generation tariff. The Board has not provided any documentary proof in support of the information provided in the petition. The submission of the Board for Khauli HEP has been discussed in beginning of this chapter.

6.161 Faced with such bad quality of filing, it was very difficult for the Commission to confidently rely on the submitted petition. Proper determination of generation tariff will only be possible once the Board files a proper and detailed petition with the Commission for finalization of the capital cost of the project with all relevant documentary support. Till then the Commission is left with no option but to determine an interim tariff for the project considering the costs that it feels are prudent.

Capital Cost

6.162 The Commission in the Tariff Order for 2007-08 had provisionally approved Rs 110 Cr as the capital cost for the Khauli project and directed the Board to file a detailed petition with the Commission for finalization of the capital cost for Khauli HEP, which the Board failed to do.

6.163 The Board in its MYT filing (word document) for Khauli project has submitted that it has incurred an expenditure of Rs 126.29 Cr on the commissioning of the project. In the formats submitted along with the word document, the Board has not provided any details/ breakup on the capital cost incurred on the project and has only mentioned the details of the original cost as Rs 66.08 Cr without IDC and has left the rest of the formats blank.

6.164 The Board in its letter dated 17 April, 2008 has submitted the details of reconciliation of generation assets shown in the balance sheet and revised capitalization schedule, wherein it has shown Rs 60.95 Cr as the capitalized cost of the project as per accounts and Rs 126.30 Cr as provided by CE (Generation) (Annexure 1 of the said letter). In the same letter, the Board has submitted (as Annexure 3), the bifurcation of capital cost of Khauli HEP and the reasons for time and cost overrun. The original cost has been shown as Rs 66.08 Cr and the capital cost of the project as of February, 2008 has been submitted as Rs 134.99 Cr, a variation of Rs 68.62 Cr.

6.165 The Commission faced with such inconsistent and fluid data, finds it very difficult to determine the capital cost of the project. The Commission thought of considering the completed cost as contained in the techno-economic clearance order for Khauli HEP, approved by the Board on 27 May 1998. The total completed cost for the project (including IDC) as per the TEC is Rs 89.86 Cr, which amounts to Rs 7.49 Cr per MW, which is in the perception of the Commission a very high cost as per 1998 price levels. The Commission is surprised to note that a project with such a high capital cost was found feasible for execution way back in 1998, and now the cost has further escalated to Rs 134.99 Cr, a per MW cost of Rs 11.25 Cr.

6.166 The Commission is mandated by the Electricity Act 2003 to protect the consumer’s interest and cannot allow such exorbitant project cost to be passed through. Therefore, the Commission has decided, as an interim measure, a normative capital cost of Rs 6.50 Cr per MW, which has been taken for determining the tariff for small hydro projects, to arrive at a completed capital cost of Rs 78 Cr for the project.

Interest Charges

6.167 The Board has submitted the debt to equity ratio for the project as 55:45 with a debt amount of Rs 70 Cr arranged from HP Cooperative Bank for the project and shown Rs 56.30 Cr as Board's equity. The Board has not provided any information on the source of this equity funding. The Commission has assumed that the Board has arranged short term loans, which have been treated and shown as Board's equity in the project.

6.168 The Commission, having worked out an interim capital cost of Rs 78 Cr, for the project, approves Rs 70 Cr loan from HP Cooperative Bank as submitted by the Board, and assumes that the remaining amount of Rs 8 Cr has been funded through short term loans having the same conditions as on the loan from HP Cooperative Bank.

6.169 The HP Cooperative Bank loan carries an interest rate of 9% and tenure of 5 years with 10 equal half yearly repayments. The repayment starts from the second half of FY08 and the last repayment shall be in the first half of FY13.

6.170 The Commission has calculated the total interest charges as per the actual repayment schedule and the interest charges for the respective years of the Control Period.

Return on Equity

6.171 The Board has considered Rs 56.30 Cr as Board's equity and has calculated the return on equity at 14%. The Commission has not considered any equity in the project as the project has been funded 100% through debt.

Operation and Maintenance

6.172 The Board has followed the CERC (Terms and Conditions of Tariff) Regulations 2004, for determining the O&M expenses for the Control Period. The O&M expenses have been projected as 1.5% of the capital cost (Rs 126.29 Cr) for the project for the first year of the operation of the project and have been subsequently escalated at a rate of 4% per annum.

6.173 The Commission has followed the HPERC Generation Regulations, 2007 for determining the O&M expenses for the Control Period. As per the Regulations,

"…the O&M expenses shall be fixed at 1.5% of the capital cost as admitted by the Commission and shall be escalated at the rate of 4% per annum from the subsequent year to arrive at O&M expenses for the base year. The base O&M expenses shall be further escalated at the rate of 4% per annum to arrive at permissible O&M expenses for the relevant year."

6.174 The O&M has been determined as a gross number comprising of employee, R&M and A&G expenses and the Commission has proportionally divided the O&M expense into employee, R&M and A&G expenses, in the ratio as determined from the Board's Generation petition.

Depreciation

6.175 The Board computed the depreciation at 2.57% per annum on Straight Line Method after considering the useful life of the project as 35 years and assumed the depreciable value of the project as 90% with 10% as salvage value. The Board has not provided the details of the calculations in its MYT formats submitted to the Commission.

6.176 As the assets wise breakup of the project is not available, the Commission has calculated the depreciation for each year of the Control Period, based on the straight line method on the gross fixed assets of Rs 78 Cr for the project. The rate of depreciation has been computed at 2.57% considering 90% depreciable value of the assets.

Advance Against Depreciation

6.177 The Board calculated and considered in tariff calculation the Advance Against Depreciation of Rs 3.75 Cr in FY08 and Rs 10.75 Cr in FY09 to FY11 for the purpose of debt repayment.

6.178 The Commission has worked out the AAD requirement as Rs 5.14 Cr in FY08 and Rs 5.80 Cr in FY09 to FY11. The AAD amount has been considered for calculation of AFC and tariff from the Khauli project.

Interest on Working Capital

6.179 The Commission has followed the HPERC Generation Regulations, 2007 for determining the requirement for working capital during the Control Period. The rate of interest of 12.25% which is the SBI PLR has been considered for calculating the interest on working capital.

Generation from Khauli HEP

6.180 The Board has projected the net generation of 43.29 MU from the project considering the revised design energy of 49.69 MU, less auxiliary consumption at 0.50%, transformation losses at 0.50% and 12% free power to GoHP.

6.181 The Commission has considered the gross generation equivalent to the design energy of 49.69 MU. The auxiliary energy consumption has been taken as 0.20% which is for surface hydro electric power generating station with rotating exciters mounted on the generator shaft and transformation losses of 0.50%, which are as per the HPERC Generation Regulations, 2007.

6.182 The GoHP has 12% share in the generation as free power has been reduced to arrive at the net saleable energy from the project The AFC so determined for Khauli HEP is shown below.

Table 121: AFC for Khauli HEP

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Gross Generation	MU	44.96	49.69	49.69	49.69
Total Auxiliary	MU	0.31	0.35	0.35	0.35

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Net Generation at Bus	MU	44.65	49.34	49.34	49.34
Less: Free Power to GoHP @ 12%	MU	5.36	5.92	5.92	5.92
Energy available for Sale	**MU**	**39.29**	**43.42**	**43.42**	**43.42**
O & M Expenses	Rs Cr	1.17	1.22	1.27	1.32
Repair & Maintenance	Rs Cr	0.14	0.14	0.15	0.15
Employee Expenses	Rs Cr	0.87	0.91	0.94	0.98
A & G Expenses	Rs Cr	0.16	0.17	0.17	0.18
Depreciation	Rs Cr	2.00	2.00	2.00	2.00
AAD	Rs Cr	5.14	5.80	5.80	5.80
Interest Charges	Rs Cr	3.84	5.93	4.53	3.12
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00
Interest on Notional Loan	Rs Cr	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.28	0.32	0.30	0.27
Annual Fixed Charge	**Rs Cr**	**12.44**	**15.27**	**13.89**	**12.51**
Sale Rate of Energy	P/kWh	317	352	320	288

Annual Fixed Charge for Larji HEP

6.183 Larji HEP is a 126 MW (3 x 42 MW) project commissioned by the Board in the year 2006. It is a run of the river with pondage project with underground power station and static excitation.

6.184 The filing of the Board for Larji HEP was incomplete and inconsistent in many respects and the contained contradictory information in many forms. To cite an example, in Form F5A of the formats which details the "Abstract of Capital Cost Estimates and Schedule of Commissioning for the New Projects", the Capital Cost estimates has been shown as "Rs 213.76 Cr with T&C". In Form F5B, which details the "Break up of Capital cost for Hydro Power Generating Station in New Projects", cost mentioned is Rs 211.83 Cr and in Form F5C, which details the "Break up of Capital Cost for Plant & Equipment", the cost mentioned is Rs 269.93 Cr. The information provided has no meaning in itself and is of no help to the Commission.

6.185 The tariff filing (word document) for Larji is based on a capital cost of Rs 1293.69 Cr. However, the formats do not support and provide additional information on the various cost components. The Board failed to submit and further provide details despite repeated queries and interactions. Thus, the Commission is not in a position to determine the capital cost of the project. This is despite the fact that the Board has been directed in the previous two tariff orders to file a proper petition for determination of capital cost and generation tariff.

6.186 Faced with such bad quality of filing, it was very difficult for the Commission to confidently rely on the petition submitted by the Board. Proper determination of generation tariff will only be possible once the Board files a petition with the Commission for finalization of the capital cost of the project with all relevant documentary support. Till then, the Commission as an interim measure has tried to determine the tariff for the project considering the costs that it feels are prudent.

Capital Cost

6.187 The Commission in the Tariff Order for 2007-08 had provisionally approved Rs 960 Cr as the capital cost for the Larji project and directed the Board to file a detailed petition with the Commission for finalization of the capital cost for Larji HEP, which the Board failed to do as brought out above.

6.188 The Board in its MYT filing (word document) for Larji project has submitted that it has incurred an expenditure of Rs 1293.69 Cr on the commissioning of the project. In the formats submitted along with the word document, the Board has provided incomplete and incoherent information to the Commission.

6.189 The Board in its letter dated 17 April, 2008 has submitted the details of reconciliation of generation assets shown in the balance sheet and revised capitalization schedule, wherein it has shown Rs 943.04 Cr as the capitalized cost of the project as per accounts and Rs 1291 Cr as provided by CE (Generation) (Annexure 1 of the said letter).

6.190 The Commission faced with such inconsistent and fluid data, finds it very difficult to determine the capital cost and tariff of the project. The Commission had initially considered allowing the cost, as contained in the TEC accorded by CEA in January 2000. The total completed cost for the project (including IDC) at 1999 price levels as per the TEC is Rs 796.98 Cr. However, after taking into consideration the adverse impact on debt servicing and cash flows which an uncovered gap of approximately Rs 500 Cr in capital cost could create, the Commission with an intention of mitigating the impact of such a high cost project has decided to provisionally approve the capital cost at Rs 960 Cr, as assessed by the Committee of Experts, constituted by the Commission, which had inquired into the reasons for high cost escalation of Larji project.

Interest Charges

6.191 The Board has submitted the debt to equity ratio for the project as 82:18 with a debt amount of Rs 1060 Cr arranged from PFC (Rs 790 Cr), HP Cooperative Bank (Rs 170 Cr) and PNB (Rs 100 Cr). The Board has submitted that it has infused Rs 185.58 Cr as equity and the GoHP has also provided an equity support of Rs 48.11 Cr for the project. The Board has not provided any information on the source of Rs 185.58 Cr which has been infused as equity. The Commission assumes that the Board has arranged short term loans, which have been shown as Board’s equity in the project.

6.192 The Commission having provisionally approved the capital cost of Rs 960 Cr for the project has considered the equity in the project as Rs 48.11 Cr which has been provided by GoHP. The remaining amount of Rs 911.89 Cr has been arranged through debt, Rs 170 Cr from HP Cooperative Bank and the rest Rs 741.89 Cr from PFC. The Commission thus disallows a loan of Rs 48.11 Cr from PFC and Rs 100 Cr from PNB. The Board’s equity of Rs 185.58

has also been disallowed.

6.193 The HP Cooperative Bank loan carries an interest rate of 9% and tenure of 5 years with 10 equal half yearly repayments. The repayment starts from the second half of FY08 and the last repayment shall be in the first half of FY13. The PFC loan carries an interest rate of 9.50% and tenure of 10 years and quarterly repayments.

6.194 The Commission has calculated the total interest charges as per the actual repayment schedule and the interest charges for the respective years of the Control Period.

Return on Equity

6.195 The Board has considered total equity of Rs 233.69 Cr (Board' Equity of Rs 158.58 Cr and GoHP's equity of Rs 48.11 Cr) and has calculated the return on equity at 14% as Rs 32.72 Cr per year for the Control Period.

6.196 The Commission has considered equity of Rs 48.11 Cr from GoHP and has disallowed Rs 158.58 Cr submitted as Board's equity in the project. The return on equity has been approved as Rs 6.74 Cr per year at 14% for the Control Period.

Operation and Maintenance

6.197 The Board has followed the CERC (Terms and Conditions of Tariff) Regulations 2004, for determining the O&M expenses for the Control Period. The O&M expenses have been projected as 1.5% of the capital cost (Rs 1293.69 Cr) for the project for the first year of the operation of the project and have been subsequently escalated at a rate of 4% per annum.

6.198 The Commission has followed the HPERC Generation Regulations, 2007 for determining the O&M expenses for the Control Period. As per the Regulations,

"…the O&M expenses shall be fixed at 1.5% of the capital cost as admitted by the Commission and shall be escalated at the rate of 4% per annum from the subsequent year to arrive at O&M expenses for the base year. The base O&M expenses shall be further escalated at the rate of 4% per annum to arrive at permissible O&M expenses for the relevant year."

6.199 The O&M has been determined as a gross number comprising of employee, R&M and A&G expenses and the Commission has proportionally divided the O&M expense into employee, R&M and A&G expenses, in the ratio as determined from the Board's Generation petition.

Depreciation

6.200 The Board computed the depreciation at 2.57% per annum on Straight Line Method after considering the useful life of the project as 35 years and assumed the depreciable value of the project as 90% with 10% as salvage value. The Board has not provided the details of the calculations in its MYT formats submitted to the Commission.

6.201 As the assets wise breakup of the project is not available, the Commission has calculated the depreciation for each year of the Control Period, based on the straight line method on the gross fixed assets of Rs 960 Cr for the project. The rate of depreciation has been computed at 2.57% considering 90% depreciable value of the assets. However, the Commission would allow asset-wise depreciation, as per the Regulations, once the list of assets is provided by the Board.

Advance Against Depreciation

6.202 The Board calculated and considered in tariff calculation the Advance Against Depreciation for the purpose of debt repayment. The Board in its submission has wrongly calculated the AAD amount.

6.203 The Commission has worked out the AAD requirement as Rs 41.91 Cr in FY08 and Rs 66.52 Cr in FY09 to FY11. The AAD amount has been considered for calculation of AFC and determination tariff from the Larji project.

Interest on Working Capital

6.204 The Commission has followed the HPERC Generation Regulations, 2007 for determining the requirement for working capital during the Control Period. The rate of interest of 12.25% which is the SBI PLR has been considered for calculating the interest on working capital.

Generation from Larji HEP

6.205 The Board has projected the net generation of 475 MU from the project considering the revised design energy of 546.25 MU, less auxiliary consumption at 0.70%, transformation losses at 0.50% and 12% free power to GoHP.

6.206 The Commission has considered the gross generation equivalent to the design energy of 546.25 MU. The auxiliary energy consumption has been taken as 0.70% which is for underground hydro electric power generating station with static excitation system and transformation losses of 0.50%, which are as per the HPERC Generation Regulations, 2007.

6.207 The GoHP has 12% share in the generation as free power has been reduced to arrive at the net saleable energy of 474.93 MU from the project The AFC so determined for Larji HEP is shown below.

Table 122: AFC for Larji HEP

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Gross Generation	MU	586.25	546.25	546.25	546.25
Total Auxiliary	MU	7.04	6.56	6.56	6.56
Net Generation at Bus	MU	579.22	539.70	539.70	539.70

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Less: Free Power to GoHP @ 12%	MU	69.51	64.76	64.76	64.76
Energy available for Sale	**MU**	**509.71**	**474.93**	**474.93**	**474.93**
O & M Expenses	Rs Cr	14.14	14.71	15.29	15.91
Repair & Maintenance	Rs Cr	1.66	1.73	1.80	1.87
Employee Expenses	Rs Cr	10.52	10.95	11.38	11.84
A & G Expenses	Rs Cr	1.95	2.03	2.11	2.20
Depreciation	Rs Cr	24.66	24.66	24.66	24.66
AAD	Rs Cr	41.92	66.53	66.53	66.53
Interest Charges	Rs Cr	82.79	72.94	62.84	52.73
Return on Equity	Rs Cr	6.74	6.74	6.74	6.74
Interest on Notional Loan	Rs Cr	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	3.70	4.03	3.84	3.65
Annual Fixed Charge	**Rs Cr**	**173.95**	**189.60**	**179.89**	**170.20**
Sale Rate of Energy	P/kWh	341	399	379	358

Bhaba Augmentation

6.208 The Board is executing Bhaba Augmentation, a new project of 3 MW upstream of existing Bhaba project and has submitted a capital expenditure requirement of Rs 17 Cr (Rs 16 Cr as base cost and Rs 1.08 Cr as IDC) during the Control Period. The Board in its filing has not shown capitalization of these assets during the Control Period. The Commission has considered that the Board will meet the capex requirement through debt (Rs 16 Cr) and has assumed a rate of interest on the debt as 10.25%. The Commission has considered a provisional capitalization of Rs.17.80 Cr in FY10 as the exact details of the capital expenditure on this project is not available.

6.209 The Commission directs the Board to file a separate petition for determination of tariff for the project as and when the project gets commissioned.

Interest & Financing Charges on other existing schemes

6.210 The Commission has also allowed the various PFC loans already taken by the Board for investigation of future hydro schemes and R&M works for shared stations and approves the interest on these loans as per the submission of the Board.

Table 123: Interest Charges on Loans for Shared Projects and S/I Schemes

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Interest Charges	Rs Cr	0.14	0.11	0.10	0.09

Summary of Capital Expenditure Approved

6.211 The summary of capital expenditure approved by the Commission for the generation function for the Control Period is shown below.

Table 124: Approved Capital Investment for Control Period (Rs Cr)

Capex	FY09	FY10	FY11
Bassi	76.97	0.00	0.00
Bhaba Augmentation	16.00	0.00	0.00
Ghanvi II	1.07	11.60	21.85
S/I Schemes	15.59	6.86	44.57
Total	**109.63**	**18.46**	**66.42**

Table 125: Approved CWIP for the Control Period (Rs Cr)

	FY07	FY08	FY09	FY10	FY11
CWIP (opening)	1103.34	34.01	0.00	119.60	39.58
Capital Investment	0.00	0.00	119.60	20.50	69.74
Base Expenditure	0.00	0.00	109.63	18.46	66.42
IDC	0.00	0.00	9.97	2.04	3.32
Capitalisation	1069.33	34.01	0.00	100.52	0.00
CWIP (closing)	34.01	0.00	119.60	39.58	109.32

Determination of Total Generation ARR/AFC

6.212 The Commission has added the individual ARR/AFC of the HEPs to arrive at the total generation ARRs/AFC. Considering the total loan repayment and the accumulated depreciation for the total generation business, there is no requirement for providing for AAD in FY09 and FY10.

Table 126: Total Generation ARR/AFC

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Gross Generation	MU	1864.94	1780.91	1962.19	1962.19
Total Auxiliary	MU	19.16	18.71	20.19	20.19
Net Generation at Bus	MU	1845.78	1762.20	1942.00	1942.00
Less: Free Power to GoHP	MU	94.68	89.97	89.97	89.97
Energy available for Sale	**MU**	**1751.10**	**1672.23**	**1852.02**	**1852.02**
O & M Expenses	Rs Cr	53.84	56.00	59.13	61.49
Repair & Maintenance	Rs Cr	6.33	6.58	6.95	7.23
Employee Expenses	Rs Cr	40.07	41.68	44.01	45.77
A & G Expenses	Rs Cr	7.44	7.74	8.17	8.50

Particular	Unit		Control Period		
		FY08	FY09	FY10	FY11
Depreciation	Rs Cr	46.08	46.08	47.33	48.59
AAD	Rs Cr	0.00	0.00	0.00	62.44
Interest Charges	Rs Cr	91.52	82.32	74.16	65.92
Return on Equity	Rs Cr	13.04	13.04	13.04	13.04
Interest on Notional Loan	Rs Cr	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	6.00	6.31	6.26	6.22
Less: Expense Capitalization	Rs Cr		9.73	0.80	2.97
Annual Fixed Charge	**Rs Cr**	**210.47**	**194.00**	**199.12**	**192.29**
Sale Rate of Energy	P/kWh	120	116	108	104

6.213 The total ARR/AFC for the generation business of the Board as determined by the Commission for the Control Period is Rs 194.00 Cr for FY09, Rs 199.12 Cr for FY10 and Rs 192.29 Cr for FY11.

A7: AGGREGATE REVENUE REQUIREMENT (ARR) OF THE TRANSMISSION FUNCTION AND FIXATION OF TRANSMISSION CHARGES FOR THE CONTROL PERIOD

Introduction

7.1 This chapter relates to the determination of ARR for the Transmission function and approval of Transmission Tariff for the Control Period (FY09 to FY11). The Transmission ARR approved in this chapter is applicable to the transmission function of Board and would also be applicable to the "State Transmission Utility (STU)" which may be one of the successor entities of the Board in the event of unbundling.

Transmission ARR submitted by the Board

7.2 The Board has complied with the Commission's directive given in the first Tariff Order dated October 29, 2001 and subsequently in the second Tariff Order dated July 2, 2004 to file functionally unbundled Aggregate Revenue Requirement (ARR). The Board has segregated the ARR for FY08 and the first Control Period into three functions, namely Generation, Transmission and Distribution for filing of the MYT petition.

7.3 The Board's approach towards segregation of the ARR for the first Control Period is based on identifying and isolating the different items like activities, assets, costs and revenues to the three functions based on circle wise data available for Generation, Transmission and Distribution function for FY07, certain estimates and assumptions.

7.4 The summary of the Transmission ARR submitted by the Board is shown below.

Table 127: Transmission ARR submitted by the Board (Rs Cr)

Particulars	FY09	FY10	FY11
Operation & Maintenance Costs	65.70	70.58	67.26
- Employee Cost	60.53	65.25	61.65
- R&M Cost	2.28	2.44	2.64
- A&G Cost	2.89	2.89	2.97
Interest & Financing Charges	21.72	25.15	39.10
Depreciation	21.10	24.88	29.42
Return on Equity	20.35	25.01	29.90
Less: Non Tariff Income	20.34	21.36	22.42
Aggregate Revenue Requirement	**108.53**	**124.26**	**143.26**

7.5 The Transmission losses considered by the Board for Control Period are 254.35 MU, 278.65 MU and 305.46 MU respectively for FY09, FY10 and FY11 respectively. While determining the transmission tariff for the Control Period, the Board has considered the cost incurred due to transmission losses in addition to the transmission ARR proposed above. The summary of transmission tariffs as proposed by the Petitioner in its petition is shown below.

Table 128: Transmission Tariffs proposed by the Board

Particulars	FY09	FY10	FY11
ARR of Transmission business (Rs Cr)	108.53	124.26	143.26
Transmission losses (MU)	254.35	278.65	305.46
Generation Cost (Rs/ unit)	2.65	2.64	2.78
Cost to be recovered due to transmission losses (Rs Cr)	67.44	73.63	84.78
Total Revenue Requirement (Rs Cr)	175.97	197.90	228.04
Energy Transmitted (MU)	6960	7619	8277
Transmission Tariff (P/ unit)	25	26	28

Transmission ARR approved by the Commission

7.6 As per the MYT Regulations, the Transmission ARR includes the following:

(a) O&M Expenses

(b) Interest & Financing charges

(c) Depreciation

(d) Return on Equity, and

(e) Less: Non Tariff Income

7.7 Based on this, the Commission has determined the Transmission ARR for the Control Period. The methodology of allocation of total ARR of HPSEB into transmission has already been discussed in "Segregation of ARR" section of Chapter 5 of this order.

O&M Expenses

Employee Expenses

7.8 As already discussed in Chapter 5, the Commission has first determined the employee expenses for the generation function. The balance of employee expenses remaining after reducing the employee expenses approved for generation function from the total employee expenses approved for HPSEB have been allocated between transmission and distribution in the same ratio as proposed by the Petitioner in its petition. The summary of employee expenses proposed by the Board in transmission and distribution ARR for the Control Period is shown below.

Table 129: Employee Expenses proposed by the Board for Transmission & Distribution Function

Particulars	FY09		FY10		FY11	
	Rs Cr	%	Rs Cr	%	Rs Cr	%
Transmission	65.09	9.06%	70.16	8.93%	66.29	8.61%
Distribution	653.06	90.94%	715.39	91.07%	704.07	91.39%

7.9 The summary of employee expenses approved by the Commission for the transmission function for the Control Period is shown in the table below.

Table 130: Employee Expenses approved by the Commission for Transmission Function

Particulars	FY09	FY10	FY11
Employee Expenses Approved for HPSEB	568.83	595.51	624.10
Employee Expenses Approved for Generation	41.68	44.01	45.77
Balance Remaining	527.15	551.50	578.34
Allocation to Transmission function	9.06%	8.93%	8.61%
Employee Expenses Approved for Transmission	**47.78**	**49.26**	**49.77**

7.10 Capitalization of employee expenses has been discussed in the "Capitalization of Interest & Expenses" section below.

A&G Expenses

7.11 As already discussed in Chapter 5, the Commission has first determined the A&G expenses for the generation function. The balance of A&G expenses remaining after reducing the A&G expenses approved for generation function from the total A&G expenses approved for HPSEB have been allocated between transmission and distribution in the same ratio as proposed by the Petitioner in its petition. The summary of A&G expenses proposed by the Board in transmission and distribution ARR for the Control Period is shown below.

Table 131: A&G Expenses proposed by the Board for Transmission & Distribution Function

Particulars	FY09		FY10		FY11	
	Rs Cr	%	Rs Cr	%	Rs Cr	%
Transmission	5.31	13.01%	4.74	16.21%	4.89	16.13%
Distribution	35.51	86.99%	24.50	83.79%	25.44	83.87%

7.12 The summary of A&G expenses approved by the Commission for the transmission function for the Control Period is shown in the table below.

Table 132: A&G Expenses approved by the Commission for transmission function

Particulars	FY09	FY10	FY11
A&G Expenses Approved for HPSEB	36.41	38.18	40.06
A&G Expenses Approved for Generation	7.74	8.17	8.50

Particulars	FY09	FY10	FY11
Balance Remaining	28.67	30.01	31.56
Allocation to Transmission function	13.01%	16.21%	16.13%
A&G Expenses Approved for Transmission	**3.73**	**4.87**	**5.09**

7.13 Capitalization of A&G expenses has been discussed in the "Capitalization of Interest & Expenses" section below.

R&M Expenses

7.14 As already discussed in Chapter 5, the Commission has first determined the R&M expenses for the generation function. The balance of R&M expenses remaining after reducing the R&M expenses approved for generation function from the total R&M expenses approved for HPSEB have been allocated between transmission and distribution in the ratio of assets allocated into transmission and distribution function for each year of the Control Period. The summary of GFA approved for transmission and distribution business for the Control Period is shown below.

Table 133: GFA (opening) Approved for Transmission & Distribution Function

Particulars	FY09		FY10		FY11	
	Rs Cr	%	Rs Cr	%	Rs Cr	%
Transmission	780.26	41.70%	916.15	37.32%	1135.64	35.48%
Distribution	1090.82	58.30%	1538.80	62.68%	2065.49	64.52%

7.15 The summary of R&M expenses approved by the Commission for the transmission function for the Control Period is shown in the table below.

Table 134: R&M Expenses approved by the Commission for Transmission Function

Particulars	FY09	FY10	FY11
R&M Expenses Approved for HPSEB	36.46	42.22	50.57
R&M Expenses Approved for Generation	6.58	6.95	7.23
Balance Remaining	29.88	35.27	43.34
Allocation to Transmission function	41.70%	37.32%	35.48%
R&M Expenses Approved for transmission	**12.46**	**13.16**	**15.38**

Capital Investment

7.16 The Petitioner has submitted that it would spend Rs 593 Cr towards capital expenditure for transmission during the Control Period. The Commission has analyzed the capital expenditure plan submitted by the Board for transmission schemes and has noticed that it provides only a macro picture of the capital expenditure proposed. The Commission, in the event of absence of detailed information, provisionally approves the capital expenditure for the transmission schemes for the Control Period at Rs. 593 Cr. Since the capex plan for the establishment/augmentation of the transmission system in HP, as submitted by the Board, is very brief, the Commission assumes that it would ensure timely evacuation of power from the various hydro electric projects being developed in the State.

7.17 The Commission wishes to state that the capital investment considered above is only for the purpose of tariff determination. It directs the Petitioner to submit details of the transmission schemes proposed to be undertaken in each year of the Control Period along with the following details:

(a) Scope of Work

(b) Single line diagram of substation works & ratings of equipments

(c) Commissioning schedule of the Scheme

(d) Pattern of financing

(e) Detailed cost estimates for electrical, civil works and other items

7.18 The Petitioner is directed to submit the above details for the current year by July 08 and for the remaining two years of the control period at the time of filing the true up petition in November, 08. In case the Board fails to submit the requisite details by the stipulated time, the Commission may review the approval accorded to the capex over the control period. The Board is advised to take up the proposed schemes for completion as per the time line/ schedule approved by the Commission and the funds/ basic infrastructure should be geared up accordingly. The Commission is concerned that there should not be any gaps in the transmission system which may impede the supply to end consumers.

Asset Capitalisation

7.19 The Commission has analyzed the asset capitalization proposed by the Petitioner in its petition for the transmission function.

7.20 The Commission is of the view that the transmission scheme comprising specified transmission lines, sub-stations with associated equipment and works as defined in the scope, need to be considered for capitalization only on commercial operation/ charging to rated voltage level after obtaining the statutory clearance of Electrical Inspector etc. and compliance with the safety rules/ regulations/ standards in vogue.

7.21 The Commission hereby directs the Petitioner to organize for scheme-wise completion and consequent capitalization of the assets in consonance with the commissioning/ commercial operation of the respective scheme which would be certified by the SLDC and considered as an element for calculation of transmission system availability.

7.22 The Petitioner is further directed that the relevant information be furnished in the formats which would be prescribed and notified by the Commission for capitalization of assets separately. The said formats are to be submitted along with the necessary statutory clearances/ certificates of Electrical Inspector, etc. for all EHV & HV works and certificate of SLDC for commissioning/ commercial operation. The capital expenditure incurred for deferred liabilities, residual works etc. within the original scope of scheme may be admitted by the Commission on merits and prudence checks. The Petitioner is advised to ensure timely completion of the works/ schemes as per the schedule stipulated in the proposals submitted to the Commission for approval.

7.23 For the purpose of determination of tariff, the Commission has analyzed the various capital schemes/ new investments, schedule of completion of the various schemes and the likely commissioning schedule which can be envisaged at this stage. The Commission has accordingly considered provisional capitalization for the Control Period and the same would be subjected to true-up at the end of the Control Period. The Petitioner is directed to submit actual details of capitalization for each year for the Control Period by September 30 of the following year to the Commission for scrutiny and year-wise capitalization of assets.

7.24 The Commission also directs the Petitioner to submit quarterly progress report on the all transmission schemes approved by the Commission at the end of each financial quarter in the formats specified in Annexure 3 of this order.

7.25 For approving the capitalization for the Control Period, the Commission has considered the following:-

(a) Opening CWIP in FY09 would be fully capitalized in FY09 and FY10 in the ratio of 50:50.

(b) The new investment in any year of the Control Period would be capitalized in the ratio of 20:40:40 in the first, second and third year from the inception of the scheme.

7.26 Based on the above, the Commission has determined the following capitalization schedule for the investments proposed during the Control Period.

Table 135: Capitalization Schedule for the Control Period (Rs Cr)

GFA	Investment	FY09	FY10	FY11
New Investment of FY09	248.00	49.60	99.20	99.20
New Investment of FY10	170.00	0.00	34.00	68.00
New Investment of FY11	175.00	0.00	0.00	35.00
Capitalisation of Investment prior to FY09	172.58	86.29	86.29	0.00
Total Capitalization		**135.89**	**219.49**	**202.20**

Table 136: Approved CWIP for the Control Period (Rs Cr)

GFA	FY07	FY08	FY09	FY10	FY11
CWIP (opening)	108.58	107.25	172.58	284.69	235.20
Capital Investment	56.69	118.91	248.00	170.00	175.00
Base Expenditure	36.39	92.86	235.59	156.95	158.66
Establishment Expenses	13.50	13.19	6.98	6.76	6.56

GFA	FY07	FY08	FY09	FY10	FY11
IDC	6.80	12.86	5.43	6.29	9.78
Capitalisation	58.02	53.58	135.89	219.49	202.20
CWIP (closing)	**107.25**	**172.58**	**284.69**	**235.20**	**208.00**

Depreciation

7.27 For approving the depreciation for the Control Period, the Commission has first determined the opening and closing GFA (transmission) for the Control Period. For this the Commission has considered the closing value of assets approved for FY07 for transmission in the True-up order for FY07 dated 29 April, 2008 and the approved capitalization schedule for FY08 and for the Control Period.

7.28 The summary of GFA (transmission) approved by the Commission for the Control Period is shown below.

Table 137: GFA approved by the Commission for transmission function (Rs Cr)

GFA	FY07	FY08	FY09	FY10	FY11
Opening	668.66	726.68	780.26	916.15	1135.64
Addition	58.02	53.58	135.89	219.49	202.20
Reduction	0.00	0.00	0.00	0.00	0.00
Closing	**726.68**	**780.26**	**916.15**	**1135.64**	**1337.84**

7.29 The Commission has determined the depreciation for each year of the Control Period on the average of approved GFA for the respective year and since the Board has not prepared a “Fixed Asset Register (FAR)”, the Commission has considered the rate of depreciation as 2.5% inline with the practice followed in the previous tariff orders.

7.30 The summary of the GFA & depreciation approved by the Commission for the Control Period is shown below.

Table 138: Depreciation approved by the Commission for transmission function (Rs Cr)

	FY09	FY10	FY11
Average GFA	848.21	1025.90	1236.74
Rate (%)	2.50%	2.50%	2.50%
Depreciation	**21.21**	**25.65**	**30.92**

Working Capital Requirement

7.31 Based on the approved O&M Expenses, expected receivables for transmission business and consumer security deposits, the Commission approves the working capital requirement for the Control Period provided in the table below.

Table 139: Working Capital Requirement approved for Control Period (Rs Cr.)

Particulars	FY09	FY10	FY11
R&M expenses	12.46	13.16	15.38
A&G expenses	3.73	4.87	5.09
Employee expenses	47.78	49.26	49.77
Total O&M expenses	63.98	67.30	70.25
1/12th of total O&M expenses	5.33	5.61	5.85
Receivables	106.94	120.73	143.34
Receivables equivalent to 2 months average billing	17.82	20.12	23.89
Maintenance Spares			
40% of the R&M expense for one month	0.42	0.44	0.51
Less: Consumer Security Deposit	0.00	0.00	0.00
Working Capital Requirement	**23.57**	**26.17**	**30.26**

Interest & Financing Charges

Means of Finance

7.32 For the purpose of calculating the interest expenses for the Control Period the Commission has first prepared a source wise loan schedule for all the loans taken specifically for transmission function. For this, the Commission has considered the outstanding loans at the end of FY07 and the repayment schedule of the respective loans in FY08 and in the Control Period. Further the Commission has determined the debt requirement of the capital expenditure plan approved by the Commission for the transmission function for the Control Period.

7.33 The Petitioner in its petition has proposed to fund the capital expenditure on transmission schemes for the Control Period through consumer contribution, debt and equity. The summary of means of finance proposed by the Petitioner in its petition is shown in the table below.

Table 140: Means of Finance proposed by the Board for Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
Funding Requirement	248.00	170.00	175.00
Consumer Contribution	21.00	0.00	0.00
Debt	168.56	136.00	140.00
Equity	58.44	34.00	35.00

7.34 The Commission has analyzed the means of finance for the transmission schemes approved for the Control Period and has considered the following:

(a) As per the MYT Regulations, debt or equity would be allowed only on the capitalized assets and not on the capital works in progress. Thus, the Commission has considered the approved assets capitalization for transmission function in each year as the funding requirement for that year of the Control Period.

(b) The Commission has thereby reduced the Consumer Contribution from the funding requirement determined above. For this, the Commission has considered the Consumer Contribution submitted by the Board for the transmission function and has adjusted the same in the proportion of funding requirement approved by the Commission and that submitted by the Board.

(c) The balance remaining has been considered to be funded through debt and/or equity. As per the MYT Regulations, the equity has been capped at a maximum of 30%; however, there is no cap on the debt funding. The Commission has analyzed the funding pattern of Board for the past projects and has observed that the most of the projects taken up by the Board have been funded entirely through debt. Thus, the Commission has considered 100% debt funding for the future projects as well.

7.35 The summary of means of finance approved by the Commission for transmission business is shown in the table below:

Table 141: Means of Finance approved by the Board for Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
Funding Requirement	49.60	133.20	202.20
Less: Consumer Contribution	4.20	8.40	8.40
Balance Remaining	45.40	124.80	193.80
Funded through Debt	45.40	124.80	193.80
Funded through Equity	0.00	0.00	0.00

7.36 The summary of the loans approved (source wise) by the Commission for transmission function for the Control Period is shown in the table below.

Table 142: Loan Schedule approved for transmission business for the Control Period (Rs Cr)

Closing Balance	FY08	FY09	FY10	FY11
PFC				
Opening Balance	21.40	15.49	10.19	5.80
Addition	0.00	0.00	0.00	0.00
Repayments	5.91	5.30	4.39	2.89
Closing Balance	15.49	10.19	5.80	2.90
REC				
Opening Balance	55.08	42.17	14.63	0.00
Addition	0.00	0.00	0.00	0.00
Repayments	12.91	27.54	14.63	0.00

Closing Balance	FY08	FY09	FY10	FY11
Closing Balance	42.17	14.63	0.00	0.00
Market Bonds				
Opening Balance	14.40	8.90	8.90	8.90
Addition	0.00	0.00	0.00	0.00
Repayments	5.50	0.00	0.00	3.40
Closing Balance	8.90	8.90	8.90	5.50
New loans for Capex				
Opening Balance	0.00	122.21	163.07	258.63
Addition	122.21	45.40	124.80	193.80
Repayments	0.00	4.54	29.24	48.62
Closing Balance	122.21	163.07	258.63	403.81
Total (Closing)				
Opening Balance	90.88	188.77	196.79	273.33
Addition	122.21	45.40	124.80	193.80
Repayments	24.32	37.38	48.26	54.91
Closing Balance	188.77	196.79	273.33	412.21

Interest & Financing Charges

7.37 For approving the Interest and Financing charges for the Control Period, the Commission has considered the following:

(a) For calculation of interest charges the Commission has considered the interest rate of the respective loans. The interest on new loans has been considered at 10.25% and the interest on working capital loans has been considered at 12.25%.

(b) Capitalization of Interest expenses for the Control Period has been discussed in the "Capitalization of Interest & Expenses" section below.

7.38 Based on the loans approved for the Control Period, the interest and financing charges approved by the Commission in this ARR are tabulated below:

Table 143: Interest Charges approved for the Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
PFC	1.26	0.81	0.47
REC	2.84	0.73	0.00
Market Bonds	1.05	1.05	0.86
New loans for Capex	13.09	20.16	32.65
Interest on Working Capital	2.89	3.21	3.71
Total Interest Charges	**21.13**	**25.96**	**37.68**

Return on Equity

7.39 As per the audited accounts of the Board, the equity capital of the Board is Rs 282.11 Cr. The Commission has carried out a detailed exercise to segregate the equity invested in the Board's own generating stations from the total equity of Rs 282.11 Cr. The Commission has calculated the equity invested plant wise which is discussed in the generation ARR chapter of this order. The total equity invested in the generation approved by the Commission is Rs 93.11 Cr. Splitting rest of the equity into transmission and distribution is a complex process as there is no project wise break available and thus it is difficult to map the equity infusion. Hence, the Commission has considered the equity amount infused into transmission and distribution function in proportion of the assets in these respective functions in FY07. Thus, the approved equity into transmission and distribution function is Rs 79.05 Cr and Rs 109.95 Cr respectively.

7.40 The Commission has approved ROE for transmission businesses at the rate of 14% in accordance with its Tariff Regulations, as detailed in the table below:

Table 144: Approved ROE for the Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
Transmission Equity	79.05	79.05	79.05
Rate	14.00%	14.00%	14.00%
Approved ROE	11.07	11.07	11.07

Capitalisation of Interest & Expenses

7.41 For capitalization of Employee and A&G expenses the Commission has considered the Employee and A&G expenses capitalization proposed by the petitioner and has adjusted the same in the ratio of approved capital expenditure to that proposed by the Petitioner for each year of the Control Period. For interest capitalization, the Commission has considered only the IDC pertaining to the investment carried out prior to FY09. No interest has been capitalized for the schemes that would be commencing during the Control Period as the debt for such schemes would be identified only when these schemes are capitalized.

7.42 The summary of the interest and expense capitalization approved by the Commission is shown in the table below.

Table 145: Approved Interest & Expenses Capitalisation for the Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
Interest Capitalised	3.45	2.47	0.00
Employee Expenses Capitalised	4.56	4.91	4.64
A&G Expenses Capitalised	2.42	1.85	1.92
Total	**10.43**	**9.23**	**6.56**

Non Tariff Income (NTI)

7.43 As already discussed in Chapter 5 of this order, the complete Non- Tariff income has been allocated to the Distribution business. Thus, the Commission has not considered any NTI for the transmission function for the Control Period.

Aggregate Revenue Requirement (ARR) of Transmission Business

7.44 The table given below provides a summary view of the Aggregate Revenue Requirement of Transmission business as approved by the Commission for the Control Period. Detailed analysis of each expense head has already been provided in the above sections.

Table 146: Approved ARR of Transmission business for the Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
Operation & Maintenance Costs	63.97	67.29	70.24
Interest & Financing Charges	21.13	25.96	37.68
Depreciation	21.21	25.65	30.92
Return on Equity	11.07	11.07	11.07
Less: Interest & Expenses Capitalised	10.43	9.23	6.56
Less: Non Tariff Income	0.00	0.00	0.00
Aggregate Revenue Requirement	**106.94**	**120.73**	**143.34**

Transmission Charges

7.45 Based on the ARR approved for transmission function, the Commission has determined the transmission charges for the Control Period as per the methodology specified in the MYT Regulations, 2007. The summary of the approved transmission charges for the Control Period is shown below.

Table 147: Approved Transmission Charges for the Control Period

Particulars	FY09	FY10	FY11
Transmission ARR (Rs Cr)	106.94	120.73	143.34

7.46 The Annual Transmission Service Charge (ATSC) shall be divided between Beneficiaries of the Transmission System on monthly basis based on the Allotted Transmission Capacity or Contracted Capacity, as the case may be and the transmission losses would be borne by the beneficiary (ies). The Commission shall separately issue as order on the transmission charges applicable to any open access customer.

7.47 The charges from short-term open access customers, if any, shall be recovered in line with the provisions mentioned in the MYT regulations.

7.48 The transmission service charge shall be recovered fully, only if it the transmission system availability is above 98%, as specified in the MYT regulations. The charges shall be recovered on a pro rata basis in case the availability is lower than the target level.

A8: AGGREGATE REVENUE REQUIREMENT (ARR) OF THE DISTRIBUTION FUNCTION AND FIXATION OF WHEELING CHARGES FOR THE CONTROL PERIOD

Introduction

8.1 This chapter relates to the determination of ARR for the Distribution function and approval of Wheeling Charges for the Control Period (FY09 to FY11). The Distribution ARR approved in this chapter is applicable to the distribution function of Board and would also be applicable to the "Distribution Company (DISCOM)" which may be one of the successor entities of the Board in the event of unbundling.

Distribution ARR submitted by the Board

8.2 The Board has complied with the Commission's directive given in the first Tariff Order dated September 21, 2001 and subsequently in the second Tariff Order dated July 5, 2004 to file functionally unbundled Aggregate Revenue Requirement (ARR). The Board has segregated the ARR for FY08 and the first Control Period into three functions, namely Generation, Transmission and Distribution for filling of the MYT petition.

8.3 The Board's approach towards segregation of the ARR for the first Control Period is based on identifying and isolating the different items like activities, assets, costs and revenues to the three functions based on circle wise data available for Generation, Transmission and Distribution function for FY07, with certain estimates and assumptions.

8.4 The summary of the Distribution ARR submitted by the Board is shown below.

Table 148: Distribution ARR submitted by the Board (Rs Cr)

Particulars	FY09	FY10	FY11
Power Purchase Cost	1614.37	1756.45	2032.97
Operation & Maintenance Costs	664.27	713.88	706.37
- Employee Cost	607.34	665.31	654.78
- R&M Cost	24.90	26.73	28.91
- A&G Cost	32.03	21.84	22.68
Interest & Financing Charges	73.64	75.88	71.62
Depreciation	29.29	32.49	35.21
Return on Equity	22.66	24.57	27.46
Less: Non Tariff Income	68.21	71.62	75.20
Aggregate Revenue Requirement	**2336.02**	**2531.66**	**2798.44**

8.5 While determining the Wheeling tariff for the Control Period, the Board has deducted power purchase cost from total distribution cost. The summary of wheeling charges as proposed by the Petitioner in its petition is shown below.

Table 149: Wheeling Charges proposed by the Board

Particulars	FY09	FY10	FY11
ARR of Distribution business (Rs Cr)	2336.02	2531.66	2798.44
Power Purchase Cost (Rs Cr)	1614.37	1756.45	2032.97
Wheeling Cost (Rs Cr)	721.65	775.21	765.47
Energy Sales (MU)	5690	6271	6916
Wheeling Charges (Rs/ unit)	**1.27**	**1.24**	**1.11**

Distribution ARR approved by the Commission

8.6 As per the MYT Regulations, the Distribution ARR includes the following:

(a) Power Purchase Cost

(b) Transmission Charges

(c) O&M Expenses

(d) Interest & Financing charges

(e) Depreciation

(f) Return on Equity, and

(g) Less: Non Tariff Income

8.7 Based on this, the Commission has determined the Distribution ARR for the Control Period and has allocated the total Distribution ARR into Wheeling and Retail Supply function. The methodology of allocation of total ARR of HPSEB into distribution has already been discussed in “Segregation of ARR” section of Chapter 5 of this order.

Power Purchase Expenses

Power Purchase from Board’s own Generating stations

8.8 The Commission has determined the aggregate revenue requirement of Board’s own generating stations in the Generation ARR (Chapter 6 of this order). The Commission considers the same as the power purchase cost from Board’s own generating stations.

Power Purchase from other sources

8.9 The Commission has determined the cost of power purchase from NTPC, NHPC, BBMB, SJVNL, Free Power etc. in the chapter 5 of this order. The Commission considers the same to determine the power purchase cost for the distribution business.

8.10 The summary of power purchase cost approved for the distribution business is shown in the table below.

Table 150: Power Purchase Expenses approved by the Commission for Distribution Function (Rs Cr)

Particulars	FY09	FY10	FY11
Power Purchase from Own Stations	194.00	199.12	192.29
Power Purchase from Other Sources	1194.09	1458.40	1798.94
Total Power Purchase	**1388.09**	**1657.51**	**1991.23**

Transmission Charges

Inter State Transmission Charges

8.11 The Commission has determined the inter-state transmission charges (PGCIL Charges) in the chapter 5 of this order. The Commission considers the same to determine the total transmission charges for the distribution business.

Intra State Transmission Charges

8.12 The Commission has determined the aggregate revenue requirement of Board's transmission function in the Transmission ARR (Chapter 7 of this order). The Commission considers the same to determine the total transmission charges for the distribution business.

8.13 The summary of transmission charges approved for the distribution business is shown in the table below.

Table 151: Transmission charges approved by the Commission for Distribution Function (Rs Cr)

Particulars	FY09	FY10	FY11
Inter State Transmission Charges	81.30	97.58	117.78
Intra State Transmission Charges	106.94	120.73	143.34
Total Transmission Charges	**188.24**	**218.30**	**261.12**

O&M Expenses

Employee Expenses

8.14 As already discussed in Chapter 5, the Commission has first determined the employee expenses for the generation function. The balance of employee expenses remaining after reducing the employee expenses approved for generation function from the total employee expenses approved for HPSEB have been allocated between transmission and distribution in the same ratio as proposed by the Petitioner in its petition. The summary of employee expenses proposed by the Board in transmission and distribution ARR for the Control Period is shown below.

Table 152: Employee Expenses proposed by the Board for Transmission & Distribution Function

Particulars	FY09		FY10		FY11	
	Rs Cr	%	Rs Cr	%	Rs Cr	%
Transmission	65.09	9.06%	70.16	8.93%	66.29	8.61%
Distribution	653.06	90.94%	715.39	91.07%	704.07	91.39%

8.15 The summary of employee expenses approved by the Commission for the distribution function for the Control Period is shown in the table below.

Table 153: Employee Expenses approved by the Commission for Distribution Function

Particulars	FY09	FY10	FY11
Employee Expenses Approved for HPSEB	568.83	595.51	624.10
Employee Expenses Approved for Generation	41.68	44.01	45.77
Balance Remaining	527.15	551.50	578.34
Allocation to Distribution function	90.94%	91.07%	91.39%
Employee Expenses Approved for distribution	**479.37**	**502.25**	**528.57**

8.16 Capitalization of employee expenses has been discussed in the "Capitalization of Interest & Expenses" section below.

A&G Expenses

8.17 As already discussed in Chapter 5, the Commission has first determined the A&G expenses for the generation function. The balance of A&G expenses remaining after reducing the A&G expenses approved for generation function from the total A&G expenses approved for HPSEB have been allocated between transmission and distribution in the same ratio as proposed by the Petitioner in its petition. The summary of A&G expenses proposed by the Board in transmission and distribution ARR for the Control Period is shown below.

Table 154: A&G Expenses proposed by the Board for Transmission & Distribution Function

Particulars	FY09		FY10		FY11	
	Rs Cr	%	Rs Cr	%	Rs Cr	%
Transmission	5.31	13.01%	4.74	16.21%	4.89	16.13%
Distribution	35.51	86.99%	24.50	83.79%	25.44	83.87%

8.18 The summary of A&G expenses approved by the Commission for the distribution function for the Control Period is shown in the table below.

Table 155: A&G Expenses approved by the Commission for distribution function

Particulars	FY09	FY10	FY11
A&G Expenses Approved for HPSEB	36.41	38.18	40.06
A&G Expenses Approved for Generation	7.74	8.17	8.50

Particulars	FY09	FY10	FY11
Balance Remaining	28.67	30.01	31.56
Allocation to Distribution function	86.99%	83.79%	83.87%
A&G Expenses Approved for distribution	**24.94**	**25.15**	**26.47**

8.19 Capitalization of A&G expenses has been discussed in the "Capitalization of Interest & Expenses" section below.

R&M Expenses

8.20 As already discussed in Chapter 5, the Commission has first determined the R&M expenses for the generation function. The balance of R&M expenses remaining after reducing the R&M expenses approved for generation function from the total R&M expenses approved for HPSEB have been allocated between transmission and distribution in the ratio of assets allocated into transmission and distribution function for each year of the Control Period. The summary of GFA approved for transmission and distribution business for the Control Period is shown below.

Table 156: GFA (opening) Approved for Transmission & Distribution Function

Particulars	FY09		FY10		FY11	
	Rs Cr	%	Rs Cr	%	Rs Cr	%
Transmission	780.26	41.70%	916.15	37.32%	1135.64	35.48%
Distribution	1090.82	58.30%	1538.80	62.68%	2065.49	64.52%

8.21 The summary of R&M expenses approved by the Commission for the distribution function for the Control Period is shown in the table below.

Table 157: R&M Expenses approved by the Commission for Distribution Function

Particulars	FY09	FY10	FY11
R&M Expenses Approved for HPSEB	36.46	42.22	50.57
R&M Expenses Approved for Generation	6.58	6.95	7.23
Balance Remaining	29.88	35.27	43.34
Allocation to Distribution function	58.30%	62.68%	64.52%
R&M Expenses Approved for distribution	**17.42**	**22.11**	**27.97**

Capital Investment

8.22 The Petitioner has submitted that it would spend Rs 636 Cr towards capital expenditure for distribution during the Control Period. The Commission has analyzed the capital expenditure plan submitted by the Board for distribution schemes and has noticed that it provides only a macro picture of the capital expenditure proposed. The Commission, in the event of absence of detailed information, provisionally approves the capital expenditure for the distribution schemes for the Control Period at Rs. 636 Cr.

8.23 The Commission reiterates that the consideration of capital investment including capitalization of interest and establishment expenses during the Control Period for the purpose of determination of ARR does not imply the approval of schemes and the Petitioner has to obtain the scheme wise approval for the capital expenditure to be incurred during each year of the Control Period as per the annual investment plan drawn for the purpose. The capex plan submitted by the Board is very brief and no details of the scheme-wise breakup of investments as well as the commissioning schedules have been submitted. The Petitioner is directed to submit the details of the sanctioned schemes, which form part of the capex plan, with cost benefit analysis to the Commission. The Petitioner is directed to submit the quarterly progress report of actual capital investment in the format prescribed by the Commission within one month of the respective quarter. The Commission would also true-up the capital investment for each year at the end of the Control Period based on the actual capital investment carried out by the Petitioner.

8.24 The Commission also directs the Petitioner to submit quarterly progress report on the all distribution schemes approved by the Commission at the end of each financial quarter in the formats specified in Annexure 3 of this order.

Asset Capitalisation

8.25 The Commission has analyzed the available details to consider provisional capitalization for the Control Period and the same would be subjected to true-up at the end of the Control Period. The Petitioner is directed to submit actual details of capitalization for each year for the Control Period by September 30 of the following year to the Commission for scrutiny and year-wise capitalization of assets.

8.26 The Commission hereby directs the Petitioner to organize for scheme-wise completion and consequent capitalization of the assets in consonance with the commissioning/ commercial operation of the respective scheme which would be certified by the Electrical Inspector/ relevant authority and considered as an element of distribution system in operation.

8.27 The Petitioner is further directed that the relevant information be furnished in the formats which would be prescribed and notified by the Commission for capitalization of assets separately. The said formats are to be submitted along with the necessary statutory clearances/ certificates of Electrical Inspector, etc. for HV works and certificate of concerned authority for commissioning/ commercial operation. The capital expenditure incurred for deferred liabilities, residual works etc. within the original scope of scheme may be admitted by the Commission on merits and prudence checks. The Petitioner is advised to ensure timely completion of the works/ schemes as per the schedule stipulated in the proposals submitted to the Commission for approval.

8.28 For approving the capitalization for the Control Period, the Commission has considered the following:-

(a) Opening CWIP in FY09 would be fully capitalized in FY09 and FY10 in the ratio of 50:50.

(b) The new investment in any year of the Control Period would be capitalized in the ratio of 30:40:30 in the first, second and third year from the inception of the scheme.

8.29 Based on the above, the Commission has determined the following capitalization schedule for the investments proposed during the Control Period. The Commission would like to clarify that capitalization approved below is provisional and is subjected to true-up on the basis of actual capital investment made and the schemes commissioned by the Petitioner.

Table 158: Capitalization Schedule for the Control Period (Rs Cr)

GFA	Investment	FY09	FY10	FY11
New Investment of FY09	359.03	107.71	143.61	107.71
New Investment of FY10	142.68	0.00	42.80	57.07
New Investment of FY11	134.55	0.00	0.00	40.37
Capitalisation of Investment prior to FY09	680.54	340.27	340.27	0.00
Total Capitalization		**447.98**	**526.69**	**205.15**

Table 159: Approved CWIP for the Control Period (Rs Cr)

GFA	FY07	FY08	FY09	FY10	FY11
CWIP (opening)	610.46	628.43	680.54	591.59	207.59
Capital Investment	124.36	122.10	359.03	142.68	134.55
Base Expenditure	56.28	64.07	291.43	70.98	64.61
Establishment Expenses	23.25	22.50	49.19	52.73	52.04
IDC	44.83	35.53	18.41	18.97	17.90
Capitalisation	106.39	69.99	447.98	526.69	205.15
CWIP (closing)	**628.43**	**680.54**	**591.59**	**207.59**	**136.99**

Depreciation

8.30 For approving the depreciation for the Control Period, the Commission has first determined the opening and closing GFA (distribution) for the Control Period. For this the Commission has considered the closing value of assets approved for FY07 for distribution function in the True-up order for FY07 dated 29 April, 2008 and the approved capitalization schedule for FY08 and for the Control Period.

8.31 The summary of GFA (distribution) approved by the Commission for the Control Period is shown below.

Table 160: GFA approved by the Commission for distribution function (Rs Cr)

GFA	FY07	FY08	FY09	FY10	FY11
Opening	930.00	1020.83	1090.82	1538.80	2065.49
Addition	106.39	69.99	447.98	526.69	205.15

GFA	FY07	FY08	FY09	FY10	FY11
Reduction	15.56	0.00	0.00	0.00	0.00
Closing	1020.83	1090.82	1538.80	2065.49	2270.63

8.32 The Commission has determined the depreciation for each year of the Control Period on the average of approved GFA for the respective year and since the Board has not prepared a "Fixed Asset Register (FAR)", the Commission has considered the rate of depreciation as 2.5% inline with the practice followed in the previous tariff orders.

8.33 The summary of the GFA & depreciation approved by the Commission for the Control Period is shown below.

Table 161: Depreciation approved by the Commission for distribution function (Rs Cr)

	FY09	FY10	FY11
Average GFA	1314.81	1802.14	2168.06
Rate (%)	2.50%	2.50%	2.50%
Depreciation	**32.87**	**45.05**	**54.20**

Working Capital Requirement

8.34 Based on the approved O&M Expenses, expected receivables for distribution business and consumer security deposits, the Commission approves the working capital requirement for the Control Period provided in the table below.

Table 162: Working Capital Requirement approved for Control Period (Rs Cr.)

Particulars	FY09	FY10	FY11
R&M expenses	17.42	22.11	27.97
A&G expenses	24.94	25.15	26.47
Employee expenses	479.37	502.25	528.57
Total O&M expenses	521.73	549.50	583.00
1/12th of total O&M Expenses	43.48	45.79	48.58
Receivables	2126.97	2467.01	2871.23
Receivables equivalent to 2 months average billing	354.50	411.17	478.54
Maintenance Spares			
40% of the R&M expense for one month	0.58	0.74	0.93
Less: Consumer Security Deposit	167.88	184.67	203.13

Particulars	FY09	FY10	FY11
Power Purchase Expenses[11]	1495.04	1778.24	2134.57
Less: One Month Power Purchase	124.59	148.19	177.88
Working Capital Requirement	**106.09**	**124.85**	**147.04**

Interest & Financing Charges

Means of Finance

8.35 For the purpose of calculating the interest expenses for the Control Period the Commission has first prepared a source wise loan schedule for all the loans taken specifically for distribution function. For this, the Commission has considered the outstanding loans at the end of FY07 approved in the True-up Order for FY07 dated 29 April, 2007 and the repayment schedule of the respective loans in FY08 and in the Control Period. Further the Commission has determined the debt requirement of the capital expenditure plan approved by the Commission for the distribution function for the Control Period.

8.36 The Petitioner in its petition has proposed to fund the capital expenditure on distribution schemes for the Control Period through consumer contribution, debt and equity. The summary of means of finance proposed by the Petitioner in its petition is shown in the table below.

Table 163: Means of Finance proposed by the Board for Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
Funding Requirement	359.03	142.68	134.55
Consumer Contribution	160.70	93.45	93.45
Debt	149.69	34.05	20.05
Equity	48.64	15.18	21.05

8.37 The Commission has analyzed the means of finance for the distribution schemes approved for the Control Period and has considered the following:

(a) As per the MYT Regulations, debt or equity would be allowed only on the capitalized assets and not on the capital works in progress. Thus, the Commission has considered the approved assets capitalization for distribution function in each year as the funding requirement for that year of the Control Period.

(b) The Commission has thereby reduced the Consumer Contribution from the funding requirement determined above. For this, the Commission has considered the Consumer Contribution submitted by the Board for the distribution function and has

[11] Power Purchase Expenses = Cost of power purchase from other stations + HPSEB Generation ARR + HPSEB Transmission ARR

adjusted the same in the proportion of funding requirement approved by the Commission and that submitted by the Board.

(c) The balance remaining has been considered to be funded through debt and/or equity. As per the MYT Regulations, the equity has been capped at a maximum of 30%; however, there is no cap on the debt funding. The Commission has analyzed the funding pattern of Board for the past projects and has observed that the most of the projects taken up by the Board have been funded entirely through debt. Thus, the Commission has considered 100% debt funding for the future projects as well.

8.38 The summary of means of finance approved by the Commission for distribution business is shown in the table below:

Table 164: Means of Finance approved by the Commission for Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
Funding Requirement	107.71	186.42	205.15
Less: Consumer Contribution	48.21	92.31	113.62
Balance Remaining	59.50	94.10	91.52
Funded through Debt	59.50	94.10	91.52
Funded through Equity	0.00	0.00	0.00

8.39 The summary of the loans approved (source wise) by the Commission for distribution function for the Control Period is shown in the table below.

Table 165: Loan Schedule approved for distribution business for the Control Period (Rs Cr)

Closing Balance	FY08	FY09	FY10	FY11
LIC				
Opening Balance	11.17	8.69	6.43	4.69
Addition	0.00	0.00	0.00	0.00
Repayments	2.47	2.26	1.74	1.74
Closing Balance	8.69	6.43	4.69	2.95
PFC				
Opening Balance	6.89	4.38	1.88	1.88
Addition	0.00	0.00	0.00	0.00
Repayments	2.51	2.51	0.00	1.88
Closing Balance	4.38	1.88	1.88	0.00
REC				
Opening Balance	100.13	80.43	66.15	44.01
Addition	0.00	0.00	0.00	0.00
Repayments	19.70	14.28	22.14	19.57
Closing Balance	80.43	66.15	44.01	24.44
RGGY				

Closing Balance	FY08	FY09	FY10	FY11
Opening Balance	0.75	0.67	0.60	0.52
Addition	0.00	0.00	0.00	0.00
Repayments	0.07	0.07	0.07	0.07
Closing Balance	0.67	0.60	0.52	0.45
Bank Loan				
Opening Balance	10.21	4.00	0.00	0.00
Addition	0.00	0.00	0.00	0.00
Repayments	6.21	4.00	0.00	0.00
Closing Balance	4.00	0.00	0.00	0.00
Non NSLR Bonds				
Opening Balance	333.61	333.61	267.79	201.97
Addition	0.00	0.00	0.00	0.00
Repayments	0.00	65.82	65.82	87.76
Closing Balance	333.61	267.79	201.97	114.21
State Govt Loans				
Opening Balance	20.13	19.08	18.04	16.99
Addition	0.00	0.00	0.00	0.00
Repayments	1.05	1.05	1.05	1.05
Closing Balance	19.08	18.04	16.99	15.94
Market Bonds				
Opening Balance	14.41	14.41	14.41	1.10
Addition	0.00	0.00	0.00	0.00
Repayments	0.00	0.00	13.31	1.10
Closing Balance	14.41	14.41	1.10	0.00
New loans for Capex				
Opening Balance	0.00	61.50	115.05	187.64
Addition	61.50	59.50	94.10	91.52
Repayments	0.00	5.95	21.51	30.66
Closing Balance	61.50	115.05	187.64	248.50
Total (Closing)				
Opening Balance	497.30	526.79	490.35	458.80
Addition	61.50	59.50	94.10	91.52
Repayments	32.01	95.94	125.65	143.83
Closing Balance	526.79	490.35	458.80	406.49

Interest & Financing Charges

8.40 For approving the Interest and Financing charges for the Control Period, the Commission has considered the following:

(a) For calculation of interest charges the Commission has considered the interest rate of the respective loans. The interest on new loans has been considered at 10.25% and the interest on working capital loans has been considered at 12.25%.

(b) Capitalization of Interest expenses for the Control Period has been discussed in the "Capitalization of Interest & Expenses" section below.

8.41 Based on the loans approved for the Control Period, the interest and financing charges approved by the Commission in this ARR are tabulated below:

Table 166: Interest Charges approved for the Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
LIC	0.68	0.50	0.34
PFC	0.32	0.19	0.10
REC	7.13	5.40	3.38
Banks	0.18	0.00	0.00
Non SLR Bonds	31.01	24.28	16.43
State Govt Loans	2.16	2.04	1.92
Market Bonds	1.66	0.89	0.06
Other Short Term	0.00	0.00	0.00
Interest on New loans for capex	8.28	14.78	21.70
Interest on Consumer Deposit	4.73	5.21	5.73
Interest on Working Capital	13.00	15.29	18.01
Total Interest Charges	**69.15**	**68.59**	**67.67**

Return on Equity & Supply Margin

8.42 As per the audited accounts of the Board, the equity capital of the Board is Rs 282.11 Cr. The Commission has carried out a detailed exercise to segregate the equity invested in the Board's own generating stations from the total equity of Rs 282.11 Cr. The Commission has calculated the equity invested plant wise which is discussed in the generation ARR chapter of this order. The total equity invested in the generation approved by the Commission is Rs 93.11 Cr. Splitting rest of the equity into transmission and distribution is a complex process as there is no project wise break available and thus it is difficult to map the equity infusion. Hence, the Commission has considered the equity amount infused into transmission and distribution function in proportion of the assets in these respective functions in FY07. Thus, the approved equity into transmission and distribution function is Rs 79.05 Cr and Rs 109.95 Cr respectively.

8.43 As per the MYT Regulation, the distribution business is split into Wheeling and Retail Supply Business. The Wheeling Business is allowed to earn a return on equity at 14% on the equity allocated to distribution business and the Retail Supply business is allowed to earn a supply margin. The total return of the distribution business is the sum of return allowed to wheeling business and supply margin.

8.44 The Commission has, thus, approved ROE for wheeling business at the rate of 14%, in accordance with its MYT Regulations, 2007, as detailed in the table below:

Table 167: Approved ROE for Wheeling Business (Rs Cr)

Particulars	FY09	FY10	FY11
Distribution Equity	109.95	109.95	109.95
Rate	14.00%	14.00%	14.00%
Approved ROE	15.39	15.39	15.39

Supply Margin

8.45 As per the MYT Regulation, 2007, the Commission shall lay down a retail supply margin for the retail supply business and that the retail supply margin is designed in such a manner that the total return from the wheeling business and retail supply business shall not exceed 16% of equity. Thus, for the purpose of calculating the supply margin for the Control Period the Commission has first determined the return at 16% of equity and has reduced the return approved for the wheeling business as shown in the table below.

Table 168: Approved Supply Margin Retail Supply Business (Rs Cr)

Particulars	FY09	FY10	FY11
Distribution Equity	109.95	109.95	109.95
Rate	16.00%	16.00%	16.00%
Total Return	17.59	17.59	17.59
Less: RoE of Wheeling Business	15.39	15.39	15.39
Supply Margin	2.20	2.20	2.20

8.46 The Commission has approved the total return allowed for distribution businesses, as detailed in the table below:

Table 169: Approved ROE for the Control Period for Distribution Function (Rs Cr)

Particulars	FY09	FY10	FY11
ROE of Wheeling Business	15.39	15.39	15.39
Supply Margin	2.20	2.20	2.20
Total	**17.59**	**17.59**	**17.59**

Capitalisation of Interest & Expenses

8.47 For capitalization of Employee and A&G expenses the Commission has considered the Employee and A&G expenses capitalization proposed by the petitioner and has adjusted the same in the ratio of approved capital expenditure to that proposed by the Petitioner for each year of the Control Period. For interest capitalization, the Commission has considered only the IDC pertaining to the investment carried out prior to FY09. No interest has been capitalized for the schemes that would be commencing during the Control Period as the debt for such schemes would be identified only when these schemes are capitalized.

8.48 The summary of the interest and expense capitalization approved by the Commission is shown in the table below.

Table 170: Approved Interest & Expenses Capitalisation for the Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
Interest Capitalised	13.98	12.26	0.00
Employee Expenses Capitalised	45.71	50.08	49.28
A&G Expenses Capitalised	3.48	2.65	2.75
Total	**63.18**	**64.99**	**52.04**

Non Tariff Income (NTI)

8.49 As discussed in Chapter 5 of this order, the entire NTI has been allocated to distribution business. Thus, the Commission approves the same for the Control Period. The summary of the same is shown below.

Table 171: Approved NTI for the Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
Interest Income from Investments	0.07	0.08	0.08
Interest on loans and Advances to staff	0.91	0.95	1.00
Interest on Advances to Suppliers / Contractors	0.12	0.13	0.13
Income from Trading (other than Electricity)	1.54	1.61	1.69
Income/Fee/Collection against staff welfare activities	0.05	0.05	0.06
Miscellaneous receipts	38.72	40.66	42.69
Delayed payment charges from consumers	7.64	8.02	8.42
Meter Rent	31.14	32.69	34.33
Recovery from theft of energy	4.58	4.81	5.05
Wheeling charges	6.22	6.53	6.85
Misc. charges from consumers	3.93	4.13	4.34
Total NTI	94.92	99.66	104.64

Aggregate Revenue Requirement (ARR) of Distribution Business

8.50 The table given below provides a summary view of the Aggregate Revenue Requirement of Distribution business as approved by the Commission for the Control Period. Detailed analysis of each expense head has already been provided in the above sections.

Table 172: Approved ARR of Distribution business for the Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
Power Purchase Expenses	1388.09	1657.51	1991.23
Transmission Charges	188.24	218.30	261.12
Baspa Arrears	43.83	43.83	43.83
Operation & Maintenance Costs	521.73	549.50	583.00
- Employee Cost	479.37	502.25	528.57
- R&M Cost	17.42	22.11	27.97
- A&G Cost	24.94	25.15	26.47
Provision for New Recruitments	5.40	7.97	7.97
Provision for IT & Other Initiatives	18.16	23.30	1.28
Interest & Financing Charges	69.15	68.59	67.67
Depreciation	32.87	45.05	54.20
Total Return	17.59	17.59	17.59
Less: Non Tariff Income	94.92	99.66	104.64
Less: Capitalisation of Interest & Expenses	63.18	64.99	52.04
True up FY07	(105.51)		
Aggregate Revenue Requirement	**2021.47**	**2467.01**	**2871.23**

Allocation of Distribution ARR into Wheeling and Retail Supply

8.51 As per the MYT Regulations, 2007 the total Distribution ARR for the Control Period has to be allocated between Wheeling and Retail Supply business. The wheeling charges would be calculated on the Wheeling ARR and the Retail Tariffs would be calculated on the Retail Supply ARR.

8.52 The Petitioner in its petition has not proposed any allocation of Distribution ARR into Wheeling and Retail Supply business. In the absence of any allocation statement, the Commission has allocated the Distribution ARR into Wheeling and Retail Supply business by considering the following allocation:

Table 173: Allocation of ARR of Distribution business for the Control Period (Rs Cr)

Particulars	Wheeling	Retail Supply
Power Purchase Expenses	0%	100%
Transmission Charges	0%	100%
Baspa Arrears	0%	100%
Employee Expenses	70%	30%
R&M Expenses	90%	10%
A&G Expenses	60%	40%
Provision for New Recruitments	100%	0%
Provision for IT & Other Initiatives	0%	100%
Interest & Financing Charges (other than	100%	0%

Particulars	Wheeling	Retail Supply
interest on working capital)		
Depreciation	100%	0%
Return on Equity on Wheeling Business	100%	0%
Supply Margin	0%	100%
Non Tariff Income (excluding wheeling charges received from other states)	0%	100%
Wheeling charges received from other states	100%	0%

8.53 The summary of Wheeling and Retail Supply ARR for the Control Period is shown below.

Table 174: Approved ARR of Wheeling business for the Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
Operation & Maintenance Costs	366.20	386.56	411.05
Provision for New Recruitments	5.40	7.97	7.97
Interest & Financing Charges	68.82	66.85	64.37
Depreciation	32.87	45.05	54.20
Return on Equity	15.39	15.39	15.39
Less: Non Tariff Income	6.22	6.53	6.85
Less: Capitalisation of Interest & Expenses	48.07	48.90	36.15
Aggregate Revenue Requirement	**434.40**	**466.39**	**509.98**

Table 175: Approved ARR of Retail Supply business for the Control Period (Rs Cr)

Particulars	FY09	FY10	FY11
Power Purchase Expenses	1388.09	1657.51	1991.23
Transmission Charges	188.24	218.30	261.12
Baspa Arrears	43.83	43.83	43.83
Operation & Maintenance Costs	155.56	162.97	171.98
Provision for IT & Other Initiatives	18.16	23.30	1.28
Interest & Financing Charges	0.32	1.74	3.30
Supply Margin	2.20	2.20	2.20
Less: Non Tariff Income	88.70	93.13	97.79
Less: Capitalisation of Interest & Expenses	15.11	16.08	15.89
True up FY07	(105.51)		
Aggregate Revenue Requirement	**1587.07**	**2000.62**	**2361.25**

Wheeling Charges

8.54 Based on the ARR approved for Wheeling function, the Commission has determined the Wheeling charges for the Control Period as per the methodology specified in the MYT Regulations, 2007. The summary of the approved Wheeling charges for the Control Period is shown below.

Table 176: Approved Wheeling Charges for the Control Period

Particulars	FY09	FY10	FY11
Wheeling ARR (Rs Cr)	434.40	466.39	509.98
Energy Sales (MU)	5782.16	6501.48	7156.58
Wheeling Charges (Rs/ unit)	**0.75**	**0.72**	**0.71**

8.55 The above charges are applicable to all consumers connecting to distribution network and the distribution losses approved by the Commission would be borne by the beneficiary in kind.

A9: TARIFF PHILOSOPHY & DESIGN

Cost to Serve

9.1 In this Section, the Commission has elaborated on the detailed methodology and assumptions used for determination of the cost of supply giving reasons for the changes in assumptions, wherever applicable.

9.2 In the earlier Tariff Orders, the Commission had made an effort to reduce the cross-subsidies, by reducing the differential between the average revenue realization and the cost of supply at the respective voltage. The Commission had also tried to ensure that no consumer category is subject to a tariff shock and reduction in cross-subsidy had to be in a gradual manner.

9.3 The tariffs proposed by the Board in ARR petition have little scientific basis as they are neither based on average cost nor on voltage wise cost of supply.

9.4 The Commission has developed a Cost to Serve Model based on information available. In subsequent sections, detailed assumptions and the method of computation of the cost of supply for FY09 has been explained.

Assumptions

9.5 The Commission has considered the following assumptions:

(a) Energy Input – Only the energy input into the state transmission system is required for intra-state consumption and it has not considered energy sale outside the state.

(b) Energy flows through each voltage level to reach Low Tension (LT) consumer. So the losses and costs at higher voltages are shared at lower voltages. It was an assumption due to lack of load flow study information and accurate power flow diagram outlining the flow of energy from one voltage to another.

(c) Category-wise sales have been allocated to different voltages in the same proportion based on past information, except for the categories where sales data at different voltages is available like Large Industries, Water Pumping, and Bulk Supply.

(d) The losses at EHT level have been estimated at 3.71% - similar to past year. The overall losses in the Board system for sales within the state has been benchmarked at 15.75% for FY09 - losses at 11 KV and above (HT) have been considered as 7.50% and resultant losses at voltage levels below 11 KV (LT) have been estimated at 17.46%.

(e) Cost segregation across voltage levels and consumer category wise is not available with the Commission. Segregation has been done based on the information provided by the Board in the past.

Methodology

9.6 Power Cost - The unit cost of generation and power purchase has been determined by dividing the total generation and power purchase cost with the total energy input into the system for the state's own consumption.

9.7 Cost of Supply to consumers at 66 kV and above has been determined by allocating the losses and cost according to the sales in this network (66 kV and above) and power wheeled through this network. Similarly, losses have been apportioned according to the sale at this system and the power wheeled through this system.

9.8 Cost of Supply to consumers at High Tension (11 kV and upto 33kV) has been estimated by allocating costs and losses according to the sales to HT consumers and power wheeled to reach the LT network. It also proportionally includes the cost and losses incurred during the wheeling of power at 66 kV and above network.

9.9 Cost of Supply for the consumers at Low Tension (below 11 kV) level has been estimated by ascertaining the distribution cost (below 11 kV), losses (below 11 kV) and sales to LT consumers. It also includes the proportional costs and losses incurred for wheeling the power at higher voltage levels.

Sales at various voltage levels

9.10 The sales at various voltage levels have been estimated based upon assumptions mentioned above, and are reproduced in the table below:

Table 177: Sales at Different Voltage Levels

S. No	Category	Total Sales (MU)	EHT (>=66kV)	HT (>=11kV)	LT (<11kV)
1	Domestic	1134.43	0.00	0.00	1134.43
2	NDNCS	87.77	0.00	26.33	61.44
3	Commercial	269.57	0.00	40.43	229.13
4	Small & Medium Industrial Power	192.99	0.00	0.00	192.99
5	Large Power Supply	2641.01	1018.25	1622.76	0.00
6	Power Intensive Units	880.34	339.42	540.92	
7	Water Pumping	356.20	0.00	53.43	302.77
8	Street Lighting	13.37	0.00	0.00	13.37
9	Agricultural and Allied Activities	26.61	0.00	0.00	26.61
10	Bulk supply	151.00	0.00	96.46	54.54
11	Temporary Supply	28.89	0.00	0.00	28.89
	Total (inside State)	5782.16	1357.67	2380.33	2044.16

Losses at various voltage levels

9.11 As discussed earlier, the losses at each voltage level have been assessed on the basis of certain assumptions. The losses at each voltage level are brought out in the Table below:

Table 178: T&D Losses at Different Voltage Levels

S. No	Particular	T & D Loss
1	66 kV and above (EHT)	3.71%
2	11 kV and above (HT)	7.50%
3	Below 11 kV (LT)	17.46%
4	**Total**	**15.75%**

Note: As the Board has failed to submit authentic information on losses at different voltage level, the losses at EHT level have been estimated at 3.71% - similar to past year. The overall losses in the Board system for sales within the state has been benchmarked at 15.75% for FY09 - losses at 11 KV and above (HT) have been considered as 7.50% and resultant losses at voltage levels below 11 KV (LT) has been estimated at 17.46%.

Cost Segregation

9.12 All the costs are divided into Generation, Transmission, and Distribution, in the following manner.

9.13 Generation and Power purchase cost: The Commission has considered the approved generation and power purchase cost at Rs 1513.23 Cr (Own generation cost at Rs 194.00 Cr plus total cost of power purchase at Rs 1194.09 Cr plus PGCIL Charges of Rs. 81.30 Cr and Baspa Arrears of Rs. 43.83 Cr).

9.14 Transmission Cost: The Commission has approved transmission cost of Rs. 111.94 Cr, (Transmission ARR of Rs 106.94 Cr plus Rs 5 Cr towards metering, billing and collection which is reflected in the distribution cost, as discussed earlier). This cost has been apportioned to the sale to industrial consumers, the power wheeled through this system and loss incurred in this network.

9.15 Distribution Cost: For arriving at the CoS, the Commission has considered the distribution cost of Rs 501.80 Cr after deducting Rs 5 Cr towards the metering, billing and collection cost incurred for the consumers in the transmission system from the Wheeling and Retail Supply cost of Rs 506.88 Cr. The distribution cost has further been divided into HT and LT network costs, according to the proportion of sales in these networks.

Table 179: Cost Allocation

Cost Head	Energy Wheeled (Excluding Losses) (MU) A	Cost Allocation (Rs Cr) B	Unit Cost (Rs/Unit) (B/A*10)	Applicable Categories
Generation & Power Purchase cost	6863.10	1513.23	2.20	EHT, HT and LT
Transmission cost	5782.16	111.94	0.19	EHT, HT and LT
Distribution Cost => 11 kV	4424.49	269.96	0.61	HT and LT

Cost Head	Energy Wheeled (Excluding Losses) (MU) A	Cost Allocation (Rs Cr) B	Unit Cost (Rs/Unit) (B/A*10)	Applicable Categories
Distribution Cost < 11 kV	2044.16	231.84	1.13	LT
Total		**2126.97**		

Table 180: Loss Allocation

Loss	Energy Wheeled (MU) A	Loss (MU) B	Loss (%) C = (B/A)*100	Gen Cost*C (Rs/Unit)	Applicable Categories
Transmission Loss	5,782.16	254.62	4.40%	0.10	EHT, HT and LT
Distribution Loss(=>11 kV)	4424.29	393.81	8.90%	0.20	HT and LT
Distribution Loss(<11 kV)	2044.16	432.51	21.16%	0.47	LT

9.16 The approved CoS at different voltage level for determination of tariff is shown in the table below.

Table 181: Cost to Serve

S. No.	Particulars	Generation bus bar	EHT (>=66 kV)	HT (>=11kV)	LT (<11kV)	Total
1	Energy Input (MU)	6863.10	6863.10	5250.81	2476.66	
2	Loss (MU)		254.62	393.81	432.51	1080.94
3	Sales at respective level (MU)	0.00	1357.67	2380.33	2044.16	5782.16
4	Cost at respective level (Rs Cr)	1513.23	111.94	269.96	231.84	2126.97
5	Cost Allocation					
	Generation Cost	2.20	2.20	2.20	2.20	
	Transmission Cost		0.19	0.19	0.19	
	Distribution Cost (>= 11 kV)			0.61	0.61	
	Distribution Cost (< 11 kV)				1.13	
6	Loss Allocation					
	Transmission Loss Allocation		0.10	0.10	0.10	
	Distribution Loss Allocation (>11 kV)			0.20	0.20	
	Distribution Loss Allocation (<11 kV)				0.47	
7	**Cost of Supply**		**2.50**	**3.30**	**4.90**	**3.68**

*Rs 3.68 per unit is average cost of supply

Existing Level of Cross Subsidies

9.17 In the previous Tariff Orders for FY05, FY06, FY07 and FY08, the Commission had taken steps towards reduction of cross-subsidy and had attempted to align the tariffs with the cost of supply at various voltage levels. In attempting to align tariffs with the cost of supply, the

Commission acknowledged the fact that though there is an urgent need for ensuring recovery of the cost of supply from the consumers to ensure fiscal sustainability of the Board, the exercise should not send tariff shocks to any class of consumers. Moreover, a certain minimum level of support would be required to be given to make electricity affordable for households in BPL category.

9.18 The Commission recognizes that the estimation of cost of supply at different voltage levels would require extensive, reliable and credible data and information at different voltage levels and is a separate detailed exercise on its own. Nevertheless, the Commission has endeavored to arrive at some estimates by making certain assumptions. In this Order, the Commission has extended the same principles as in previous years to compute the voltage-wise CoS for the Control Period as given above.

Tariff Principles

9.19 The philosophy of tariff determination is primarily guided by the principles enshrined in Section 61 of the Electricity Act, 2003, Himachal Pradesh Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff) Regulations, 2004 and the National Electricity Policy issued by Ministry of Power, GoI on February 12, 2005. The guiding principles as laid down in Section 61 of the Act are reproduced below:

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

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

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

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

(e) the principles rewarding efficiency in performance;

(f) multi-year tariff principles;

(g) that the tariff progressively, reflects the cost of supply of electricity, and also reduces and eliminates cross-subsidies within the period to be specified by the Appropriate Commission;

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

(i) the National Electricity Policy and Tariff Policy.

9.20 Apart from these principles, the National Electricity Policy has also laid down emphasis on Multi-Year Tariff framework, segregation of technical and commercial losses, incentives for the use of pre-paid meters, putting in place the governance structure in distribution needed for ensuring recovery of cost of service from consumers, minimum level of support for consumers of poor categories, need to correct the imbalance on account of cross subsidy progressively and gradually without giving tariff shock to the consumers and above all, to promote competition which is the very essence of the Electricity Act. The National Electricity Policy also emphasizes that advance subsidy be given by the State Government as per Section 65 of the Act to the power utility and mentions that necessary budgetary provision be made in advance so that the utilities do not suffer financial problems. The Electricity Policy further mentions of the need to make efforts to ensure that subsidies reach the targeted beneficiaries in the most transparent and efficient way.

9.21 Though the Commission is guided by the above principles, it had in the tariff order of FY08 at para 13.21, clearly spelt out that the burden of cross-subsidy has shifted from the subsidizing categories to the surpluses generated from sale of power outside the state. Any future reduction in the quantum of sale would necessitate a re-look at the cross-subsidies to avoid any tariff shock. From the load growth projected over the tariff period, it is evident that the revenue from sale outside the state is projected to come down to Rs 13.75 Cr as against Rs 349 Cr in FY08. Therefore, the Commission is left with no alternative but to hike the cross subsidy levels while at the same time increasing the tariffs of subsided categories substantially.

9.22 As per the Tariff Order of FY08 the industries with connected load of more than 100 kW were covered in schedule LS (Large Industrial Power Supply) or PIU (Power Intensive Units) depending on the nature of industries. The energy charge rate for the industries covered in the schedule PIU was higher by 25 paise per kVAh. The demand charges of both the categories were, however, the same. In order to differentiate the industries (more than 100 kW) on the basis of over all consumption pattern rather than on the nature of such industries, the Commission has decided that all the industries with connected load of more than 100 kW be covered under a single schedule which shall be named as “Large Industrial Power Supply” (LIP) and the earlier LS and PIU categories have been clubbed together under this category.

9.23 The Commission has decided to introduce two slabs for both EHT and HT groups under the LIP category. The levy of energy charges has now been linked with the consumption in terms of kVAh per kVA of the contract demand per month, so as to co-relate these charges with the consumption pattern. Such a philosophy is also relevant in view of the fact that the per kVAh effect of the demand charges tapers down with increase in the load factor. On the other hand, the cost for the provision of energy in case of consumers consuming more energy in terms of per kVA per month would be higher under the present power deficit scenario. The category-wise tariffs approved are as follows.

Approved Tariff Design

DS: Domestic Supply

9.24 The existing schedule is applicable to consumers using electrical energy for lights, fans, heaters, cooking ranges, ovens, refrigerators, air conditioners, stereos, radios, televisions, mixers, grinders, electric iron, sewing/embroidery/knitting machines, domestic pumping sets and other domestic appliances in a single private house/flat or any other residential premises, religious places with connected load upto 5 kW, Monasteries, Panchayat Ghars and Patwarkhanas upto 2 kW, Orphanages, homes for old people and destitute, Working Women Hostels, Hostels attached to the educational institutions if supply is given separately to each hostel and the electricity charges are recovered from the students based on actual consumption, Leprosy Homes run by charity and un-aided by the Government and "Home Stay Units" in rural areas duly registered with the District Tourism Development Officer.

9.25 The Board has proposed no increase in the domestic category in its ARR.

9.26 As per the National Electricity Policy, the tariff for BPL consumer has to be designed at 50% of average cost of supply. As the average cost of supply is Rs 3.68 per unit, the tariff for BPL consumers has been fixed at Rs 1.85 per unit.

9.27 The Commission had continued with two-slab tariff structure which was introduced in the Tariff Order for FY07. The comparison of existing tariff, tariff proposed by the Board and that approved by the Commission for domestic category is given below:

Table 182: Existing, Proposed and Approved Tariff for Domestic Category

Description	Existing		Proposed		Approved by Commission	
	Energy Charges	Consumer Service Charge	Energy Charges	Consumer Service Charge	Energy Charges	Consumer Service Charge
Units/Month	Rs/kWh	Rs/consumer/ month	Rs/kWh	Rs/consumer/ month	Rs/kWh	Rs/consumer/ month
BPL Consumer (Up to 50 units per month)	1.85	Nil	1.85	Nil	1.85	Nil
0-150	1.90	20	1.90	20	2.10	25.00
Above 150	2.90	20	2.90	20	3.15	25.00
Pre-paid meter	1.90		1.90		2.10	

9.28 The Govt. of Himachal Pradesh had provided subsidy to the Domestic Consumers last year (FY08). The details of the subsidy given is shown below:

Table 183: Effective Domestic Tariff after GoHP Subsidy for FY08

S. No	Consumer Slab	Tariff for Last Year	Govt. of HP Subsidy (In Rs/Unit)	Effective Tariff for Consumer
1	BPL	1.85	1.15	0.70

S. No	Consumer Slab	Tariff for Last Year	Govt. of HP Subsidy (In Rs/Unit)	Effective Tariff for Consumer
2	>0 - <=150	1.90	1.20	0.70
3	>150 - <=300	2.90	1.50	1.40
4	>300	2.90	0.75	2.15

9.29 The GoHP has budgeted a provision for subsidy of Rs 140 Cr. Accordingly; effective tariffs for FY09 for different slabs of domestic categories as shown below would entail a subsidy outgo of Rs 136.80 Cr.

Table 184: Effective slab wise per unit GoHP subsidy for FY09

S. No	Consumer Slab	Tariff for Current Year	Govt. of HP Subsidy (In Rs./Unit)	Effective Tariff for Consumer
1	BPL	1.85	1.15	0.70
2	>0 - <=150	2.10	1.20	0.90
3	>150 - <=300	3.15	1.45	1.70
4	>300	3.15	0.70	2.45

9.30 The Commission has increased the tariff for Domestic category to rationalize the tariffs by reducing the amount of cross subsidy provided to this category and improve the recovery ratio to 57% in FY09 as compared to 47% in FY08.

9.31 Due to the increased tariff, consumers in this category will get an additional burden of Rs 33.61 Cr.

Table 185: Impact of proposed Tariff on Domestic Category

Total Projected Revenue at Existing Tariff (Rs Cr)	Total Projected Revenue at Proposed Tariff (Rs Cr)	Net Impact of Proposed Tariff (Rs Cr)
280.71	314.32	33.61

9.32 The rebates and surcharges have been detailed in 'Part-1 General of Annexure II', and have been listed below:

(a) **Higher Voltage Supply Rebate (HVSR):** Applicable as specified under 'Part-1 General of Annexure II'.

(b) **Lower Voltage Supply Surcharge (LVSS):** Applicable as specified under 'Part-1 General of Annexure II'.

(c) **Lower Voltage Metering Surcharge (LVMS):** Applicable as specified under 'Part-1 General of Annexure II'.

(d) **Late Payment Surcharge (LPS):** Applicable as specified under 'Part-1 General of

Annexure II'.

(e) **Night Time Concession (NTC):** Not Applicable

(f) **Power Factor Surcharge (PFS):** Not Applicable.

(g) **Disturbing Load Penalty (DLP):** Applicable as specified under 'Part-1 General of this Annexure II'.

Non Domestic Non Commercial Supply

9.33 This schedule is applicable to Government and semi Government offices, Government Hospitals, Educational Institutions viz. Schools, Universities; I.T.Is, Colleges, Government Sports Institutions, Government Mountaineering Institutions and allied sports, Government Libraries, Centre for Institute of Engineers, Hostels and residential quarters attached to the educational institutions if supply is given at a single point; Religious places such as Temples, Gurudwaras, Mosques, Churches with connected load greater than 5 kW, Sainik and Government Rest Houses, Anganwari workers training centres; Hospitals run on charity basis; Sarais and Dharamsalas run by Panchayats and Municipal Committees or on donations and those attached with religious places; and Panchayat Ghars and Patwar Khana greater than 2 kW.

NOTE: In the case of residences attached to the Government as well as private Institutions, the same shall be charged at the 'Domestic tariff' where further distribution to such residential premises is undertaken by the Board and the Board provides meters for individual consumers.

9.34 The Board has retained the existing tariff structure in its petition and proposed to increase the normal energy charges by 30 paisa per kWh for 0-20 kW slab and 30 paisa per kVAh for above 20 kW slab. The Board has also proposed to increase the Consumer Service Charge for 0-20 kW slab from Rs 50/connection/month to Rs 100/connection/month. The demand charges for above 20 kW slab has been retained at the existing level of Rs 75/kVA/month.

9.35 The Commission has increased energy charge by 30 paisa per kWh for 0-20 kW slab and 30 paisa per kVAh for above 20 kW slab for FY09 in comparison to FY08. Demand charges for above 20 kW slab has been increased by Rs 25 per kVA/month. Consumer service charges has bee increased by Rs 10 per connection per month for 0-20 kW slab and Rs 20 per connection per month for above 20 kW slab for FY09.

9.36 The comparison of existing tariff, tariff proposed by the Board and that approved by the Commission is given in the tables below:

Table 186: Existing, Proposed and Approved Tariff for NDNCS Category (Up to 20kW)

Existing		Proposed		Approved by the Commission	
Energy Charge	Consumer Service Charge	Energy Charge	Consumer Service Charge	Energy Charge	Consumer Service Charge
Rs/kWh	Rs/consumer/month	Rs/kWh	Rs/consumer/month	Rs/kWh	Rs/consumer/month
3.75	50	4.30	100	4.05	60.00

Table 187: Existing, Proposed and Approved Tariff for NDNCS Category (Above 20kW)

Existing			Proposed			Approved by the Commission		
Energy Charge	Consumer Service charge	Demand Charge	Energy Charge	Consumer Service charge	Demand Charges	Energy Charge	Consumer Service charge	Demand Charge
Rs/kVAh	Rs/con/ month	Rs/kVA/ month	Rs/kWh	Rs/con/ month	Rs/kVA/ month	Rs/kVAh	Rs/con/mo nth	Rs/kVA /month
3.00	100	75	4.30	100	75	3.30	120	100

9.37 The Commission has increased the tariff for NDNCS category to rationalize the tariffs by reducing the amount of cross subsidy provided to this category and improve the recovery ratio to 90% in FY09 as compared to 76% in FY08.

9.38 Due to the increased tariff, consumers in this category will get an additional burden of Rs 4.07 Cr.

Table 188: Impact of proposed Tariff on NDNCS Category

Total Projected Revenue at Existing Tariff (Rs Cr)	Total Projected Revenue at Proposed Tariff (Rs Cr)	Net Impact of Proposed Tariff (Rs Cr)
34.81	38.89	4.07

9.39 The rebates and surcharges have been detailed in ‘Part-1 General of Annexure II’, and have been listed below:

(a) **Higher Voltage Supply Rebate (HVSR):** Applicable as specified under ‘Part-1 General of Annexure II’.

(b) **Lower Voltage Supply Surcharge (LVSS):** Applicable as specified under ‘Part-1 General of Annexure II’.

(c) **Lower Voltage Metering Surcharge (LVMS):** Applicable as specified under ‘Part-1 General of Annexure II’.

(d) **Late Payment Surcharge (LPS):** Applicable as specified under ‘Part-1 General of Annexure II’.

(e) **Contract Demand Violation Charge:** Applicable as specified under ‘Part-1

General of Annexure II'

(f) **Night Time Concession (NTC):** Applicable @ 20 paise/kVAh as applicable as specified under 'Part-1 General of Annexure II'.

(g) **Power Factor Surcharge (PFS):** Not Applicable.

(h) **Disturbing Load Penalty (DLP):** Applicable as specified under 'Part-1 General of Annexure II'.

(i) **Peak Load Exemption Charges (PLEC):** Not Applicable.

(j) **Peak Load Violation Charges (PLVC):** Not Applicable.

Commercial Supply (CS)

9.40 This schedule is applicable to consumers for lights, fans, appliances like pumping sets, central air conditioning plants, cold storages, lifts, heaters, embroidery machines, printing press, power press and small motors in all Commercial premises such as shops, business houses, cinemas, clubs, banks, private offices, private hospitals, petrol pumps, hotels/motels, welding sets, service stations, private nursing homes, private rest/guest houses, private research institutions, private coaching institutions, private Museums, dry cleaning, garages and private auditoriums, departmental stores, restaurants, lodging and boarding houses. This schedule will also include all other categories, which are not covered by any other tariff schedule.

9.41 The Board has retained the existing tariff structure in its petition and proposed to increase energy charges by 30 paise per kWh for 0-20 kW slab and 110 paise per kVAh for 20 kW-100 kW and 130 paise per kWh for above 100 kW slab.

9.42 The Commission has increased energy charges by 20 paisa per kWh for 0-20 kW slab and by 25 paisa per kVAh for 20 kW-100 kW and above 100 kW slabs for FY09 in comparison of FY08. The demand charges are kept at existing levels. Consumer service charges has bee increased by Rs 10 per connection per month for 0-20 kW slab, Rs 20 per connection per month for above 20 kW to 100 kW slab and Rs 40 per connection per month for above 100 kW slab for FY09.

9.43 The existing tariff, tariff proposed by the Board and tariff approved by the Commission are given in the tables below.

Table 189: Existing, Proposed and Approved Tariff for CS Category (Up to 20kW)

Existing		Proposed		Approved by the Commission	
Energy Charge	Consumer service charge	Energy Charge	Consumer Service Charge	Energy Charge	Consumer Service Charge
Rs./kWh	Rs/cons/month	Rs./kWh	Rs/cons/month	Rs./kWh	Rs/cons/month
4.10	50	4.40	100	4.30	60

Table 190: Existing, Proposed and Approved Tariff for CS Category (Above 20kW)

Slab	Existing			Proposed			Approved by the Commission		
	Energy Charges	Service Charges	Demand Charges	Energy Charges	Service Charges	Demand Charges	Energy Charges	Service Charges	Demand Charges
	Rs/kVAh	Rs/con/month	Rs/kVA/month	Rs/kVAh	Rs/con/month	Rs/kVA/month	Rs/kVAh	Rs/con/month	Rs/kVA/month
20-100 kW	3.30	100	75	4.40	100	75	3.55	120	75
Above 100kW	3.10	200	100	4.40	200	100	3.35	240	100

9.44 In case of mobile welding sets, the consumer will pay Rs 200 per day, in addition to the energy charges.

9.45 The Commission has increased the tariff for CS category to rationalize the tariffs by reducing the amount of cross subsidy provided to this category and improve the recovery ratio to 100% in FY09 as compared to 91% in FY08.

9.46 Due to the increased tariff, consumers in this category will get an additional burden of Rs. 9.00 Cr.

Table 191: Impact of proposed Tariff on CS Category

Total Projected Revenue at Existing Tariff (Rs Cr)	Total Projected Revenue at Proposed Tariff (Rs Cr)	Net Impact of Proposed Tariff (Rs Cr)
123.04	132.04	9.00

9.47 The applicable rebates and surcharges have been detailed in ‘Part-1 General of Annexure II’, and have been listed below:

(a) **Higher Voltage Supply Rebate (HVSR):** Applicable as specified under ‘Part-1 General of Annexure II’.

(b) **Lower Voltage Supply Surcharge (LVSS):** Applicable as specified under ‘Part-1 General of Annexure II’.

(c) **Lower Voltage Metering Surcharge (LVMS):** Applicable as specified under ‘Part-1 General of Annexure II’.

(d) **Late Payment Surcharge (LPS):** Applicable as specified under ‘Part-1 General of Annexure II’.

(e) **Contract Demand Violation Charge:** Applicable as specified under ‘Part-1 General of Annexure II’

(f) **Night Time Concession (NTC):** Applicable @ 20 paise/kVAh as applicable as specified under ‘Part-1 General of Annexure II’.

(g) **Power Factor Surcharge (PFS):** Not Applicable.

(h) **Disturbing Load Penalty:** Applicable as specified under ‘Part-1 General of Annexure II’.

(i) **Peak Load Exemption Charges (PLEC):** Not Applicable.

(j) **Peak Load Violation Charges (PLVC):** Not Applicable.

Small and Medium Industrial Power Supply (SMS)

9.48 This schedule is applicable to Industrial consumers with connected load not exceeding 100 kW including pumps (other than irrigation pumping), poultry farms and sheds, Atta Chakkies, and also for supply to Information Technology Industry, limited only to IT Parks recognised by the State/Central Government. The Industrial type of Agricultural loads with connected load falling in the above-mentioned range and not covered by Schedule "AAA" shall also be charged under this schedule.

9.49 The Board has retained the existing tariff structure in its petition and proposed to increase normal energy charges by 20 paise per kWh for 0-20 kW slab and 90 paisa per kVAh for above 20KW slabs.

9.50 The Commission has increased energy charges by 20 paisa per kWh for 0-20 kW slab and by 20 paisa per kVAh for above 20KW slabs for FY09 in comparison of FY08. Demand charges for above 20 kW slab has been increased by Rs 25 per kVA/month. Consumer service charges has bee increased by Rs 10 per connection per month for 0-20 kW slab and Rs 20 per connection per month for above 20 kW slab for FY09. The monthly demand charges of Rs 50 per kVA for peak load exemption (on load exempted during peak hours) have been kept at the same level as that of last year.

9.51 The existing tariff, tariff proposed by the Board and tariff approved by the Commission are given in the tables below.

Table 192: Existing, Proposed and Approved Tariff for SMS Category (Up to 20kW)

Existing		Proposed		Approved by the Commission	
Energy Charge	Consumer service charge	Energy Charge	Consumer Service Charge	Energy Charge	Consumer Service Charge
Rs/kWh	Rs/consumer/month	Rs/kWh	Rs/consumer/ month	Rs/kWh	Rs/consumer/ month
3.50	50	3.70	100	3.70	60

Table 193: Existing, Proposed and Approved Tariff for SMS Category (Above 20kW)

Existing			Proposed			Approved by the Commission		
Energy Charge	Consumer Service charge	Demand Charge	Energy Charge	Consumer Service charge	Demand Charges	Energy Charge	Consumer Service charge	Demand Charge
Rs/kVAh	Rs/con/month	Rs/kVA/month	Rs/kWh	Rs/con/month	Rs/kVA/month	Rs/kVAh	Rs/con/month	Rs/kVA/month
2.85	100	75	3.75	100	125	3.05	120	100

9.52 The Commission has increased the tariff for SMS category to rationalize the tariffs by reducing the amount of cross subsidy provided to this category and improve the recovery ratio to 80% in FY09 as compared to 76% in FY08.

9.53 Due to the increased tariff, consumers in this category will get an additional burden of Rs 6.03 Cr.

Table 194: Impact of proposed Tariff on SMS Category

Total Projected Revenue at Existing Tariff (Rs Cr)	Total Projected Revenue at Proposed Tariff (Rs Cr)	Net Impact of Proposed Tariff (Rs Cr)
69.97	75.99	6.03

9.54 The rebates and surcharges have been detailed in ‘Part-1 General of Annexure II’, and have been listed below:

(a) **Higher Voltage Supply Rebate (HVSR):** Applicable as specified under ‘Part-1 General of Annexure II’.

(b) **Lower Voltage Supply Surcharge (LVSS):** Applicable as specified under ‘Part-1 General of Annexure II’.

(c) **Lower Voltage Metering Surcharge (LVMS):** Applicable as specified under ‘Part-1 General of Annexure II’.'

(d) **Late Payment Surcharge (LPS):** Applicable as specified under ‘Part-1 General of Annexure II’.

(e) **Contract Demand Violation Charge:** Applicable as specified under ‘Part-1 General of Annexure II’.

(f) **Late Payment Surcharge (LPS):** Applicable as specified under ‘Part-1 General of Annexure II’.

(g) **Night Time Concession (NTC):** Applicable @ 20 paise/kVAh as applicable as specified under ‘Part-1 General of Annexure II’.

(h) **Power Factor Surcharge (PFS):** Applicable as specified under 'Part-1 General of Annexure II'.

(i) **Disturbing Load Penalty (DLP):** Not Applicable.

(j) **Peak Load Exemption Charges (PLEC):** Applicable as specified under 'Part-I General of Annexure II'.

(k) **Peak Load Violation Charges (PLVC):** Applicable as specified under 'Part-I General of Annexure II'.

Large Industrial Power Supply (LIP)

9.55 As has been brought out in para 9.22 and 9.23 above, the earlier categories of LS and PIU have been merged together. This schedule is therefore, applicable to all industrial power consumers with connected load exceeding 100 kW including the Information Technology industry (limited only to IT parks recognized by the State/Central Government) and not covered by schedule "AAAS".

9.56 The Board has retained the two part tariff structure in its petition for LS category and proposed to increase energy charges for EHT by 175 paise per kVAh and for HT by 170 paise per kVAh. It has proposed to increase demand charges for EHT from Rs 185/kVAh/month to Rs 210/kVAh/month and for HT from 225/kVAh/month to 245/kVAh/month. It has also proposed to retain the Consumer Service charges at the existing levels for EHT at Rs 300/Consumer/month and for HT at Rs 200/Consumer/month.

9.57 For PIU category, the Board has retained the two part tariff structure in its petition and proposed to increase energy charges for EHT by 65 paisa per kVAh and for HT by 60 paisa per kVAh. It has proposed to increase demand charges for EHT from Rs 250/kVAh/month to Rs 290/kVAh/month and for HT from 330/kVAh/month to 350/kVAh/month. It has also proposed to increase Consumer Service charges for EHT from Rs 300/Consumer/month to Rs 350/Consumer/month and for HT from Rs 200/Consumer/month to Rs 300/Consumer/month.

9.58 As detailed above in para 9.23, the Commission has decided to put in place a two slab tariff, based on the contract demand, for both EHT and HT consumers. For both consumers, the first slab shall provide for energy charges for consumption upto 300 kVAh per kVA of the contract demand per month and the second slab shall be for energy consumption exceeding 300 kVAh per kVA per month. The energy charge for first slab of EHT shall be Rs 2.35 per kVAh and for the second slab the charges shall be Rs. 2.50 per kVAh. Similarly for HT consumers, the energy charger for the first slab shall be Rs 2.50 per kVAh and for the second slab the charges shall be Rs. 2.65 per kVAh. Demand Charges have been kept at existing levels. Consumer service charges have been increased by Rs 50 per connection per month for EHT and HT consumers for FY09. The monthly demand charges of Rs 50 per kVA for peak load exemption (on the exempted load during peak hours) have been kept at the same level as that of last year.

9.59 The existing tariff structure and the tariffs proposed by the Board for LS and PIU categories are given in the table below:

Table 195: Existing and Proposed Tariffs for LS & PIU Category

	Existing			Proposed		
	Energy Charges	Service Charges	Demand Charges	Energy Charges	Service Charges	Demand Charges
	Rs/ kVAh	Rs/con/ month	Rs/kVA/ month	Rs/ kVAh	Rs/con/m onth	Rs/kVA/ month
LS						
EHT	2.15	300	185	3.90	300	210
HT	2.25	200	225	3.95	200	245
PIU						
EHT	2.40	300	185	3.90	300	260
HT	2.50	200	225	3.95	200	275

9.60 As discussed above the LS and PIU categories have been merged into one category i.e. “Large Industrial Power Supply”. Thus, the new tariff structure and the approved tariffs for LIP for FY09 is shown in the table below:

Table 196: Approved Tariff for Large Industrial Supply Category

	Approved by the Commission		
	Energy Charges	Service Charges	Demand Charges
	Rs/ kVAh	Rs/con/ month	Rs/kVA/ month
EHT			
Upto 300 kVAh/kVA/month	2.35	350	185
Balance kVAh during the month	2.50	350	185
HT			
Upto 300 kVAh/kVA/month	2.50	250	225
Balance kVAh during the month	2.65	250	225

9.61 Based on the above, sample tariff calculation is shown in Annexure-4. Due to the increased tariff, consumers in this category will get an additional burden of Rs 87.75 Cr.

Table 197: Impact of proposed Tariff on Large Industrial Supply Category

Total Projected Revenue at Existing Tariff (LS and PIU) (Rs Cr)	Total Projected Revenue at Proposed Tariff (Rs Cr)	Net Impact of Proposed Tariff (Rs Cr)
1160.26	1,248.01	87.75

9.62 The rebates and surcharges have been detailed in ‘Part-1 General of Annexure II’, and have been listed below:

(a) **Higher Voltage Supply Rebate (HVSR)**: Applicable as specified under 'Part-1 General of Annexure II'.

(b) **Lower Voltage Supply Surcharge (LVSS)**: Applicable as specified under 'Part-1 General of Annexure II'.

(c) **Lower Voltage Metering Surcharge (LVMS)**: Applicable as specified under 'Part-1 General of Annexure II'.

(d) **Late Payment Surcharge (LPS)**: Applicable as specified under 'Part-1 General of Annexure II'.

(e) **Contract Demand Violation Charge**: Applicable as specified under 'Part-1 General of Annexure II'.

(f) **Night Time Concession (NTC)**: Applicable @ 20 paise/kVAh as specified under 'Part-1 General of Annexure II'.

(g) **Power Factor Surcharge (PFS)**: Applicable as specified under 'Part-1 General of Annexure II'.

(h) **Disturbing Load Penalty (DLP)**: Applicable as specified under 'Part-1 General of Annexure II'.

(i) **Peak Load Exemption Charges (PLEC):** Applicable as specified under 'Part-I General of Annexure II'.

(j) **Peak Load Violation Charges (PLVC):** Applicable as specified under 'Part-I General of Annexure II'.

Water Pumping Supply (WPS)

9.63 The existing schedule is applicable to Government connections for water and irrigation pumping. The schedule also covers all consumption for bonafide Pump House lighting.

9.64 The Board has proposed to increase the energy charges for LT consumers by 120 paise per kVAh, for HT consumers by 170 paise per kVAh and 180 paise per kVAh for EHT consumers in this category for the Control Period in comparison of FY08. The Board has also proposed to reduce the demand charges for LT from Rs 200/kVAh/month to Rs 150/kVAh/month, for HT from Rs 150/kVAh/month to Rs 140/kVAh/month and to increase for EHT from Rs 120/kVAh/month to Rs 130/kVAh/month. Consumer Service charges has been kept at existing levels.

9.65 The Commission has increased the energy charges for LT and HT consumers by 40 paisa per kVAh and 30 paisa per kVAh respectively. The energy charges for EHT consumers in this category have been increased by 40 paisa per kVAh for FY09 in comparison of FY08. Demand charges have been kept at existing levels. Consumer service charges have been increased by Rs 20 per connection per month for EHT, HT and LT consumers for FY09. The monthly demand charges of Rs 50 per kVA for peak load exemption (on load exempted during peak hours) have been kept same as that of last year.

9.66 The existing tariff, tariff proposed by the Board and tariff approved by the Commission is given in the table below: -

Table 198: Existing, Proposed and Approved Tariff for WPS Category

	Existing			Proposed			Approved by the Commission		
	Energy Charges	Service Charges	Demand Charges	Energy Charges	Service Charges	Demand Charges	Energy Charges	Service Charges	Demand Charges
	Rs/ kVAh	Rs/con/ month	Rs/kVA/ month	Rs/ kVAh	Rs/con/ month	Rs/kVA/ month	Rs/ kVAh	Rs/con/ month	Rs/kVA/ month
LT	3.00	100	200	4.20	100	150	3.40	120	200
HT	2.40	100	150	4.10	100	140	2.70	120	150
EHT	2.10	100	120	3.90	100	130	2.50	120	120

9.67 The Commission has increased the tariff for WPS category to rationalize the tariffs by reducing the amount of cross subsidy provided to this category and improve the recovery ratio to 98% in FY09 as compared to 90% in FY08 for HT category and to 92% in FY09 as compared to 78% in FY08 for LT category.

9.68 Due to the increased tariff, consumers in this category will get an additional burden of Rs 13.80 Cr.

Table 199: Impact of proposed Tariff on WPS Category

Total Projected Revenue at Existing Tariff (Rs Cr)	Total Projected Revenue at Proposed Tariff (Rs Cr)	Net Impact of Proposed Tariff (Rs Cr)
139.89	153.69	13.80

9.69 The applicable rebates and surcharges have been detailed in ‘Part-1 General of Annexure II’, and have been listed below:

(a) **Higher Voltage Supply Rebate (HVSR)**: Applicable as specified under ‘Part-1 General of Annexure II’.

(b) **Lower Voltage Supply Surcharge (LVSS)**: Applicable as specified under ‘Part-1 General of Annexure II’.

(c) **Lower Voltage Metering Surcharge (LVMS)**: Applicable as specified under ‘Part-

1 General of Annexure II'.

(d) **Late Payment Surcharge (LPS)**: Applicable as specified under 'Part-1 General of Annexure II'.

(e) **Contract Demand Violation Charge**: Applicable as specified under 'Part-1 General of Annexure II'.

(f) **Night Time Concession (NTC)**: Applicable 20 paise/kVAh as applicable as specified under 'Part-1 General of Annexure II'.

(g) **Power Factor Surcharge (PFS)**: Applicable as specified under 'Part-1 General of Annexure II'.

(h) **Disturbing Load Penalty (DLP)**: Applicable as specified under 'Part-1 General' of Annexure II.

(i) **Peak Load Exemption Charges (PLEC):** Applicable as specified under 'Part-I General of Annexure II'.

(j) **Peak Load Violation Charges (PLVC):** Applicable as specified under 'Part-I General of Annexure II'.

Agriculture and Allied Activities Supply (AAAS)

9.70 This schedule shall be applicable to private Irrigation Pumping loads with connected load not exceeding 20 kW. Private Irrigation loads in individual /Society's names above 20 kW are also covered under this tariff.

9.71 This schedule shall also be applicable to green houses, poly houses, processing facilities for agriculture, pisciculture, horticulture, floriculture and sericulture etc. where all such activities are undertaken by farmers only under this category. This schedule will also be applicable to temporary agricultural loads such as wheat threshers, paddy threshers, tokas, and cane crushers.

9.72 The Board has proposed single part tariff for AAAS category and not proposed any tariff increase. The Commission has also not considered any hike in energy charges in this category. Consumer service charges have been increased by Rs 5 per connection per month for 0-20 kW slab and 20-100 kW slab consumers for FY09. The existing tariff, tariff proposed by the Board and tariff approved by the Commission for AAAS is given in the table below:

Table 200: Existing, Proposed and Approved Tariff for AAAS Category (Up to 20kW)

Existing		Proposed		Approved by the Commission	
Energy Charge	Consumer service charge	Energy Charge	Consumer Service Charge	Energy Charge	Consumer Service Charge
Rs/kWh	Rs/consumer/ month	Rs/kWh	Rs/consumer/ month	Rs./kWh	Rs/consumer/ month
1.85	20	1.85	20	1.85	25

Table 201: Existing, Proposed and Approved Tariff for AAAS Category (Above 20kW)

Existing			Proposed			Approved by the Commission		
Energy Charge	Consumer Service charge	Demand Charge	Energy Charge	Consumer Service charge	Demand Charge	Energy Charge	Consumer Service charge	Demand Charge
Rs/kVAh	Rs/con/mon th	Rs/kVA/ month	Rs/kVAh	Rs/con/mo nth	Rs/kVA/ month	Rs/kVAh	Rs/con/mo nth	Rs/kVA/ month
1.20	20	50	1.20	20	50	1.20	25	50

9.73 The Govt. of Himachal Pradesh had provided subsidy to the Agriculture Consumers last year (FY08). The details of the given subsidy is shown below:

Table 202: Effective Agriculture Tariff after GoHP Subsidy for FY08

S. No	Consumer Slab	Tariff for Last Year	Govt. of HP Subsidy (In Rs/Unit)	Effective Tariff for Consumer
1	0-20 kW (Rs /kWh)	1.85	1.35	0.50
2	20-100 kW (Rs/kVAh)	1.20	0.70	0.50

9.74 The GoHP has budgeted a provision for subsidy of Rs 140 Cr for domestic and agriculture categories. Accordingly; effective tariffs for FY09 for different slabs of agriculture categories as shown below would entail a subsidy outgo of Rs 3.35 Cr.

Table 203: Effective slab wise per unit GoHP subsidy for FY09

S. No	Consumer Slab	Tariff for Current Year	Govt. of HP Subsidy (In Rs./Unit)	Effective Tariff for Consumer
1	0-20 kW (Rs /kWh)	1.85	1.35	0.50
2	20-100 kW (Rs/kVAh)	1.20	0.70	0.50

9.75 The rebates and surcharges have been detailed in 'Part-1 General of Annexure II', and have been listed below:

(a) **Higher Voltage Supply Rebate (HVSR):** Applicable as specified under 'Part-1 General of Annexure II'.

(b) **Lower Voltage Supply Surcharge (LVSS):** Applicable as specified under 'Part-1

General of Annexure II'.

(c) **Lower Voltage Metering Surcharge (LVMS):** Applicable as specified under 'Part-1 General of Annexure II'.

(d) **Late Payment Surcharge (LPS):** Applicable as specified under 'Part-1 General of Annexure II'.

(e) **Contract Demand Violation Charge:** Applicable as specified under 'Part-1 General of Annexure II'.

(f) **Night Time Concession (NTC):** Applicable @ 20 p/kVAh as specified under 'Part-1 General of Annexure II'.

(g) **Power Factor Surcharge (PFS):** Applicable as specified under 'Part-1 General of Annexure II'.

(h) **Disturbing Load Penalty (DLP):** Applicable as specified under 'Part-1 General' of Annexure II.

(i) **Peak Load Exemption Charges (PLEC):** Applicable as specified under 'Part-I General of Annexure II'.

(j) **Peak Load Violation Charges (PLVC):** Applicable as specified under 'Part-I General of Annexure II'.

Bulk Supply

9.76 This schedule is applicable to general or mixed loads to M.E.S and other Military establishments, Railways, Central PWD Institutions, Hospitals, Departmental colonies, A.I.R Installations, Aerodromes, construction power to hydroelectric projects and other similar establishments where further distribution to various residential and non-residential buildings is to be undertaken by the consumers for their own bonafide use and not for resale to other consumers with or without profit. However, in case of MES, this schedule shall continue to apply till such time M.E.S. do not avail open access.

9.77 The Board has proposed a hike of 125 paise per kVAh in energy charges for LT consumers, 175 paise per kVAh for HT consumers and 185 paise per kVAh for EHT in this category.

9.78 The Commission has increased energy charges by 60 paisa per kVAh for LT and 40 paisa per kVAh for HT and EHT consumers for FY09 in comparison of FY08. Demand charges have been kept at existing levels. Consumer service charges have been increased by Rs 20 per connection per month for EHT, HT and LT consumers for FY09.

9.79 The existing tariff, tariff proposed by the Board and tariff approved by the Commission is given in the table below:

Table 204: Existing, Proposed and Approved Tariff for Bulk Supply Category

	Existing			Proposed			Approved by the Commission		
	Energy Charges	Service Charges	Demand Charges	Energy Charges	Service Charges	Demand Charges	Energy Charges	Service Charges	Demand Charges
	Rs/ kVAh	Rs/con/ month	Rs/kVA/ month	Rs/ kVAh	Rs/con/ month	Rs/kVA/ month	Rs/ kVAh	Rs/con/ month	Rs/kVA/ month
LT	2.95	100	200	4.20	100	180	3.55	120	200
HT	2.25	100	150	4.00	100	180	2.65	120	150
EHT	2.15	100	140	4.00	100	180	2.55	120	140

9.80 The Commission has increased the tariff for this category to rationalize the tariffs by reducing the amount of cross subsidy provided to this category and improve the recovery ratio to 105% in FY09 as compared to 91% in FY08 for HT and EHT consumers and to 89% in FY09 as compared to 91% in FY08 for LT consumers.

9.81 Due to the increased tariff, consumers in this category will get an additional burden of Rs 7.93 Cr.

Table 205: Impact of proposed Tariff on Bulk Supply Category

Total Projected Revenue at Existing Tariff (Rs Cr)	Total Projected Revenue at Proposed Tariff (Rs Cr)	Net Impact of Proposed Tariff (Rs Cr)
49.17	57.10	7.93

9.82 The rebates and surcharges have been detailed in 'Part-1 General of Annexure II', and have been listed below:

(a) **Higher Voltage Supply Rebate (HVSR):** Applicable as specified under 'Part-1 General of Annexure II'.

(b) **Lower Voltage Supply Surcharge (LVSS):** Applicable as specified under 'Part-1 General of Annexure II'.

(c) **Lower Voltage Metering Surcharge (LVMS):** Applicable as specified under 'Part-1 General of Annexure II'.

(d) **Late Payment Surcharge (LPS):** Applicable as specified under 'Part-1 General of Annexure II'.

(e) **Night Time Concession (NTC):** Applicable @ 20 p/kVAh as specified under 'Part-1 General of Annexure II'.

(f) **Contract Demand Violation Charge:** Applicable as specified under 'Part-1 General of Annexure II'.

(g) **Power Factor Surcharge (PFS):** Not Applicable.

(h) **Disturbing Load Penalty (DLP):** Not Applicable.

(i) **Peak Load Exemption Charges (PLEC):** Not Applicable.

(j) **Peak Load Violation Charges (PLVC):** Not Applicable.

Street Lighting Supply

9.83 This schedule is applicable for Street Lighting system including traffic control signal systems on roads and Park lighting in Municipalities, Panchayats and Notified Committee areas.

9.84 The Board has proposed to increase the energy charge by 140 paise per kWh and consumer service charge by Rs 50/consumer/month for this category. The Commission has increased the energy charges in this category by 50 paise per kWh. The Consumer service charge has been increased by Rs 10 per connection per month. The existing, proposed and the tariff approved by the Commission is given as under:

Table 206: Existing, Proposed and Approved Tariff for Street Lighting Supply Category

Existing		Proposed		Approved by the Commission	
Energy Charge	Consumer service charge	Energy Charge	Consumer Service Charge	Energy Charge	Consumer Service Charge
Rs/kWh	Rs/consumer/ month	Rs/kWh	Rs/consumer/ month	Rs/kWh	Rs/consumer/ month
3.10	50	4.50	100	3.60	60

9.85 Due to the increased tariff, the consumers of this category will get an additional burden of Rs.0.92.Cr.

9.86 The rebates and surcharges have been detailed in 'Part-1 General of Annexure II', and have been listed below:

(a) **Higher Voltage Supply Rebate (HVSR):** Applicable as specified under 'Part-1 General of Annexure II'.

(b) **Lower Voltage Supply Surcharge (LVSS):** Applicable as specified under 'Part-1 General of Annexure II'.

(c) **Lower Voltage Metering Surcharge (LVMS):** Applicable as specified under 'Part-1 General of Annexure II'.

(d) **Late Payment Surcharge (LPS):** Applicable as specified under 'Part-1 General of Annexure II'.

(e) **Night Time Concession (NTC):** Not Applicable.

(f) **Power Factor Surcharge (PFS):** Not Applicable.

(g) **Disturbing Load Penalty (DLP):** Not Applicable.

(h) **Peak Load Exemption Charges (PLEC):** Not Applicable.

(i) **Peak Load Violation Charges (PLVC):** Not Applicable.

Temporary Metered Supply

9.87 This schedule is applicable to all loads of temporary nature including exhibitions, touring talkies, circuses, fairs, melas, marriages, festivals, temporary supply for construction purposes including civil works by Government departments and other similar purposes for temporary needs only. However, this tariff is not applicable to wheat threshers and paddy threshers which shall be covered under Agriculture and Allied Activities Supply (AAAS) even for temporary connection.

9.88 The Board has proposed an increase of 50 paise/kWh for upto 20 kW slab and 105 paise/kWh in tariff for this category. The Commission has increased the energy charges in this category by 30 paise per kWh for consumers up to 20 kW connection and above 20 kW connection. The existing, proposed and the tariff approved by the Commission is given as under:

Table 207: Existing, Proposed and Approved Tariff for Temporary Meter Category (Up to 20 kW)

Existing		Proposed		Approved by the Commission	
Energy Charge	Consumer service charge	Energy Charge	Consumer Service Charge	Energy Charge	Consumer Service Charge
Rs/kWh	Rs/consumer/ month	Rs/kWh	Rs/consumer/ month	Rs/kWh	Rs/consumer/ month
6.00	100	6.50	100	6.30	120

Table 208: Existing, Proposed and Approved Tariff for Temporary Meter Category (above 20 kW)

Existing			Proposed			Approved by the Commission		
Energy Charge	Service charge	Demand Charge	Energy Charge	Service charge	Demand Charges	Energy Charge	Service charge	Demand Charge
Rs/kVAh	Rs/con/m onth	Rs/kVA/ month	Rs/kWh	Rs/con/m onth	Rs/kVA/ month	Rs/kVAh	Rs/con/m onth	Rs/kVA/ month
4.45	100	300	5.50	100	300	4.75	120	300

9.89 The rebates and surcharges have been detailed in ‘Part-1 General of Annexure II’, and have been listed below:

(a) **Higher Voltage Supply Rebate (HVSR):** Applicable as specified under ‘Part-1

General of this Annexure II'.

(b) **Lower Voltage Supply Surcharge (LVSS):** Applicable as specified under 'Part-1 General of this Annexure II'.

(c) **Lower Voltage Metering Surcharge (LVMS):** Applicable as specified under 'Part-1 General of this Annexure II'.

(d) **Late Payment Surcharge (LPS):** Applicable as specified under 'Part-1 General of this Annexure II'.

(e) **Night Time Concession (NTC):** Applicable @ 20 p/kVAh as specified under 'Part-1 General of this Annexure II'.

(f) **Power Factor Surcharge (PFS):** Not Applicable.

(g) **Disturbing Load Penalty (DLP):** Not Applicable.

(h) **Peak Load Exemption Charges (PLEC):** Not Applicable.

(i) **Peak Load Violation Charges (PLVC):** Not Applicable

A10: REVENUE PROJECTIONS

Revenue from Sales of Power within State

10.1 For calculation of projected revenues for each category of consumers – along with its slabs and sub categories – actual past data has been taken into account for certain categories like domestic and industrial consumers. For other categories, estimation has been done to split sales across slabs and sub categories – as proposed by the Board.

10.2 The Commission has calculated the revenue from Sale of Power across each consumer category at existing and approved tariff

Table 209: Revenue Projection from Sale of Power within State for Year FY09 (In Rs. Cr)

<table>
<tr><th rowspan="2">Revenue (Rs Cr)</th><th colspan="2">Board</th><th colspan="2">Commission</th><th>FY09</th></tr>
<tr><th>Existing Tariff</th><th>Proposed Tariff</th><th>Existing Tariff</th><th>Approved Tariff</th><th>Revenue Mobilization</th></tr>
<tr><td>Domestic</td><td rowspan="2">280.68</td><td rowspan="2">280.68</td><td rowspan="2">280.71</td><td rowspan="2">314.32</td><td rowspan="2">33.61</td></tr>
<tr><td>BPL</td></tr>
<tr><td>NDNCS</td><td>34.93</td><td>45.01</td><td>34.81</td><td>38.89</td><td>4.07</td></tr>
<tr><td>Commercial</td><td>124.79</td><td>157.06</td><td>123.04</td><td>132.04</td><td>9.00</td></tr>
<tr><td>Small & Medium Supply</td><td>70.40</td><td>91.67</td><td>69.97</td><td>75.99</td><td>6.03</td></tr>
<tr><td>Large Supply</td><td>881.73</td><td>1,433.47</td><td>852.08</td><td rowspan="2">1,248.01</td><td rowspan="2">87.75</td></tr>
<tr><td>PIUs</td><td>180.41</td><td>268.89</td><td>308.18</td></tr>
<tr><td>WPS</td><td>140.64</td><td>184.7</td><td>139.89</td><td>153.69</td><td>13.80</td></tr>
<tr><td>AAAS</td><td>5.39</td><td>5.39</td><td>5.00</td><td>5.09</td><td>0.09</td></tr>
<tr><td>Public Lighting</td><td>3.79</td><td>5.53</td><td>4.18</td><td>4.85</td><td>0.67</td></tr>
<tr><td>Bulk Supply</td><td>53.13</td><td>78.95</td><td>49.17</td><td>57.10</td><td>7.93</td></tr>
<tr><td>Temporary</td><td>21.02</td><td>23.4</td><td>17.59</td><td>18.51</td><td>0.92</td></tr>
<tr><td>Total Revenue</td><td>1,796.91</td><td>2574.75</td><td>1,884.62</td><td>2,048.50</td><td>163.88</td></tr>
</table>

Revenue from Sales of Power outside State

10.3 The Board in its petition has projected the sale of power outside the state as 358 MU and the proposed revenue from Sale of Power outside the state as Rs 15.13 Cr.

10.4 The Commission has projected the power available for sale outside the state (Ex-bus) during FY09, the summary of the same is shown below.

Table 210: Surplus Power Available for Sale in FY09 (MU)

Particulars	FY09
Total Surplus at Distribution Periphery (MU)	529.29
Intra State Transmission Losses (%)	3.71%

Particulars	FY09
Inter State Transmission Losses (%)	3.50%
Total Deficit at Ex- Bus (MU)	**569.62**

10.5 The Commission has considered that out of the surplus power of 569.62 MU, the Board would be able to bank 550 MU and the balance surplus power i.e. 19.62 MU would be sold in the short term market.

10.6 As the banking power would be returned in the same financial year, hence, neither the cost nor the revenue has been considered against the banking power.

10.7 For the sale of power in the short term market, the Commission has analyzed the actual power sold by the Board in FY08 (till Jan). The Commission has observed that HPSEB has sold surplus power to the NDPL and PSEB at a rate of Rs 7.30/ unit. The Commission further notes that the Uttar Pradesh Power Corporation Ltd (UPPCL) has entered into agreement with the State Government to buy power during the summer months (330 MW in April and 630 MW between May and October) at a rate of Rs 7.01/ unit. The Commission has, thus, considered the rate of sale of balance surplus power available to the Board at a rate of Rs 7.01/ unit.

10.8 The cost of power purchase for sale of power outside state, revenue and profit from it are tabulated below:

Table 211: Revenue Projection for Sale of Power outside State

Parameters	Units
Power Sold in the short term market (MU)	19.62
Sale Rate (Rs Per unit)	7.01
Revenue from sales of power outside state (Rs Cr)	13.75

Overall Revenue – Expenditure Position of HPSEB

10.9 The overall revenue and expenditure position of HPSEB after the revision in tariff is given in the table below:

Table 212: Overall Revenue-Expenditure position of HPSEB for Year FY07

Parameters	Rs Cr
Annual Revenue Requirement	2021.47
Revenue From Sale of Power within state	2,048.50
Revenue from sale of power outside state	13.75
Surplus after addressing the revenue gap	**40.78**

10.10 The Commission, hereby, directs the Petitioner to transfer the complete surplus revenue realised in FY09 at approved tariffs to MYT Contingency Reserve as per regulation 12 of the HPERC (Terms and Condition for determination of Wheeling Tariff and Retail Supply

Tariff) Regulation, 2007 as per the procedure clearly outlined in the said regulation. The Commission however, would like to highlight that the surplus revenue of Rs 40.78 Cr as determined is a provisional estimate and may change while truing up of the expenses for FY09. The use of these funds in any other manner shall be only with the prior approval of the Commission. The Commission may allow the Board to use part or whole of this reserve for the gratuity and pension fund, proposed to be created by the Board. However, the usage of this reserve would be decided by the Commission at an appropriate time.

A11: DIRECTIONS AND ADVISORIES

11.1 The Commission had issued directions to the Board in the previous tariff orders which if followed sincerely would have gone a long way in improving its efficiency and productivity and providing better quality supply & service to consumers. The Commission has been regularly reviewing the progress in implementation of these directions and some of the key directions were reviewed during hearing on 3 May 2008 and an interim order was issued on the same day.

11.2 All such directions, which have not been complied with to the satisfaction of the Commission, are reiterated and the Commission directs that these shall be implemented meticulously by the Board and its unbundled successor entities, during the first control period and shall be monitored as controllable parameters. The utility may approach the Commission where it finds any problem in implementation of a particular direction so that necessary guidelines, if required, are issued to facilitate implementation of such direction. The directions of previous tariff orders, which are still not fully complied with to the satisfaction of the Commission, are carried forward in this order are as given below:-

11.3 **Directions of Tariff Order FY-02**

(a) Unbundled Costs (Direction Nos. 7.1 to 7.3)

(b) Financial Restructuring (Direction No. 7.8)

(c) Public Interaction Programme (Direction Nos. 7.11 & 7.12)

(d) Unproductive Assets (Direction No. 7.13)

(e) Marginal Cost Pricing (Direction Nos. 7.22 to 7.24)

(f) Power Sector Reforms (Direction No. 7.14)

(g) Voltage wise Data (Direction No. 7.29)

11.4 **Directions of Tariff Order FY-05**

(a) Prioritization of Deliverables from ASCI (Direction No. 9.4.1.5)

(b) Valuation of Assets (Direction Nos. 7.15 to 7.17 & 9.4.1.8)

(c) T&D Losses (Direction Nos. 9.4.2 & 10.4.4)

(d) Capital Works in Progress (CWIP) to be capitalized (Direction No. 9.4.3)

(e) Capital Projects, Time & Cost Overrun (Direction Nos. 9.4.4 and 9.4.11)

(f) Outstanding dues from Govt. Departments. (Direction No. 9.4.13)

(g) Employees Cost (Direction Nos. 9.4.14)

(h) Material Management (Direction No. 9.4.15)

(i) Metering, Billing & Collection Efficiency (Direction No. 9.4.16)

(j) 400 KV line from Nalagarh to Kunihar & 400 KV sub-station at Kunihar and 220 KV Sub-Station at Nalagarh by HPSEB (Direction Nos. 9.4.21)

(k) Justification of REC funded schemes (Rajiv Gandhi Gramin Vidyutikaran Yojna Scheme) and multilateral funding of distribution schemes. (Direction Nos. 9.4.20)

(l) E-governance (Direction No. 10.4.20[a])

(m) Scheduling of Baspa-II (Direction No. 10.4.20[c])

11.5 **Directions of Tariff Order FY-06**

(a) Declining Generation of Board's own stations (Direction No. 10.5.2)

(b) Procurement of Long Term Power (Direction Nos. 10.5.3 & 10.5.4)

(c) High Voltage Distribution system (Direction No. 10.5.5)

(d) Installation of single phase transformers (Direction No. 10.5.6)

(e) Ratio of single and two phase lines to three phase LT Lines (Direction No. 10.5.7)

(f) Interface Metering (Direction No. 10.5.9)

(g) Replacement of defective/dead stop meters (Direction No. 10.5.10)

(h) Pre-paid metering (Direction No. 10.5.11)

(i) Consumer services for senior citizens (Direction No. 10.5.12)

(j) Unmanning of sub-stations (Direction No. 10.5.13)

(k) Legal liability insurance (Direction No. 10.5.14)

(l) Audit (Direction No. 10.5.15)

(m) O&M of generation projects in tribal area (Direction No. 10.5.19)

(n) Larji Project (Direction Nos. 9.4.23.1)

11.6 **Directions of Tariff Order FY-07**

(a) Decision Making Process (Direction No. 12a)

(b) Accelerated programme for renovation, modernization and up-gradation (Direction No. 12b)

(c) Debt sustainability Study (Direction No. 12c)

(d) Manpower Planning (Direction No. 12d)

(e) Rationalization of staff, redeployment, training & specialization in key activities (Direction No. 12e)

(f) Change in R&P Rules (Direction No. 12f)

(g) Reduction of Commercial Losses (Direction No. 12g)

(h) Implementation of MYT (Direction No. 12i)

(i) Determination of Generation Tariff of Board's own projects (Direction No. 12l)

(j) Miscellaneous (Direction No. 12m)

  (i) Provide Toll free numbers and Call Centres for complaint redressal (Direction No. 12m[I])

  (ii) Board to implement Contributory Pension Scheme instead of regular pension for all the new recruitments on GoHP pattern in order to reduce future pension liability (Direction No. 12m[ii])

  (iii) Creation of Separate Protection Unit & separate O&M Wing for the existing generating stations (Direction No. 12m[iii])

  (iv) Reduction in inventories and computerized material management with connectivity with all stores (Direction No. 12m[iv])

  (v) To delegate power to Chief Engineers for transfer of employees within their area of operation (Direction No. 12m[v])

  (vi) Invest its Corpus of GPF of the employees over the next three years in higher paying instruments so that the employees interests are safeguarded (Direction No. 12m[vi])

  (vii) Trading Strategies and Systems (Direction No. 12.5[a])

  (viii) Best Practices for restructuring the project implementation units of the Board and its Special Purpose Vehicles Companies (SPVs) (Direction No. 12.5 [ii])

  (ix) Transmission network in the State (Direction No. 12.5[e])

11.7 Directions of Tariff Order FY-08

(a) Unbundling Costs (Direction No. 12.3)

(b) Data base management & Management Information System (Direction No. 12.4)

(c) Quality of supply (Direction No. 12.5)

(d) Benchmark study (Direction No. 12.6)

(e) Manpower Planning (Direction No. 12.7)

(f) Business Plan for next five years (Direction No. 12.8)

(g) Investment Plan (Direction No. 12.9)

(h) Study on SCADA (Direction No. 12.10)

(i) Measurement of Harmonics (Direction No. 12.11)

(j) Minimum Voltage Level for Power Intensive Units (Direction No. 12.12)

(k) Streamlining of Billing and Collection (Direction No. 12.13)

New Directions to HPSEB

Energy Audit

11.8 Despite an earlier direction given in this regard, it has been observed that the energy audit is not being done, by the Board, in an effective manner. The Board is directed to take steps to carry out the energy audit in an effective manner. The areas/feeders involving high losses should be identified based on energy audit and necessary action be taken to reduce losses of such feeders/areas. The summary of result of energy audit and action taken be submitted to Commission on quarterly basis.

11.9 The Commission also directs the Board to submit the circle wise, category wise and voltage wise energy sales to the Commission on a quarterly basis.

Loss Making Circles and Feeders

11.10 The Petitioner is directed to identify high loss making circles and feeders (distribution losses above 25% and collection efficiency below 95%) and submit the same to the Commission. The Petitioner is further directed to submit a detailed report on loss improvement strategy in these circles and feeders and to propose a loss reduction trajectory in these circles for this Control Period. This information shall be filed with the Commission half yearly and also be kept on the Petitioner's website.

11.11 In this regard, the Petitioner is also directed to install pole mounted metering equipment at each 33kV and 11kV feeders and furnish the data of losses along with above mentioned report.

Distribution Transformer Failure Rate

11.12 It has been observed that failure rate of Distribution Transformers is higher in certain areas. The Board is directed to analyze the reasons for higher rate and take necessary corrective measures. The detailed report on the reasons of DTR failures and the corrective actions taken to offset the same to be submitted within a period of 10 weeks.

Market Survey

11.13 The Board shall carry out a census of all HT & EHT consumers covering aspects like type of activity, connected load, contracted load, captive capacity, types of loads, and other technical and commercial parameters and file a report thereon with the Commission by 30th September of each year.

Break-up of voltage-wise losses and assets in Distribution Network

11.14 The Board shall invariably submit the break-up of losses at each voltage i.e. LT, 11 kV, 33 kV, 66kV and 132kV for the purpose of preparing an accurate cost to serve model.

11.15 The Board shall invariably submit the break-up of GFA at each voltage i.e. LT, 11 kV, 33 kV, 66kV and 132kV for the purpose of preparing an accurate cost to serve model.

11.16 The above mentioned information has to submitted along with the true-up petition for each year of the Control Period.

Capital Investments

Transmission and Distribution Schemes

11.17 The Petitioner shall submit the copies of the transmission and distribution schemes sanctioned by it for all the works covered in the capital expenditure plan, provisionally approved by the Commission, along with the following details for each scheme

(a) Scope of Work

(b) Single line diagram of substation works

(c) Expected benefits on account of completion of the scheme.

(d) Quarterly programme for execution of the scheme.

(e) Commissioning schedule of the Scheme

(f) Pattern of financing

11.18 The Petitioner is directed to submit the above details for the current year by 31 July 08 and for the remaining two years of the control period, at the time of filing the true up petition in November 08. In case the Board fails to submit the requisite details by the stipulated time, the Commission may review the provisional capital expenditure allowed over the control period. The Petitioner is further directed to submit the quarterly progress report of actual capital investment in the format (Annexure-3) prescribed by the Commission within one month of the respective quarter.

11.19 The Board shall take all possible measures to ensure that the projects / schemes taken up are completed on schedule. In this regard, the Commission clarifies that it will not allow any interest during construction for delays exceeding one month and three months in respect of completion of projects / schemes with the completion schedules of up to one year and more than one year, respectively, unless the Commission's approval for extension in the completion schedules is obtained in advance.

Asset Capitalization

11.20 Considering the importance of capitalization of works, the Commission lays down the following requirements to be fulfilled before accepting inclusion of the value of a capitalized work in the GFA:

(a) On completion of a capital work, a physical completion certificate (PCC) to the effect that the work in question has been fully executed, physically, and the assets created are put to use, to be issued by the concerned engineer not below the rank of Superintending Engineer.

(b) The PCC shall be accompanied or followed by a financial completion certificate (FCC) to the effect that the assets created have been duly entered in the Fixed Assets Register by transfer from the CWIP register to GFA. The FCC shall have to be issued by the concerned finance officer not below the rank of Accounts Officer.

(c) The Commission may also inspect or arrange to inspect, at random, a few of the capitalized works included in the GFA to confirm that the assets created are actually being used and are useful for the business.

11.21 The Petitioner is directed to submit actual details of capitalization for each year for the Control Period by September 30 of the following year to the Commission for scrutiny and year-wise capitalization of assets. The Petitioner is further directed that the relevant information be furnished in the formats, which would be prescribed and notified by the Commission for capitalization of assets separately.

New Projects

11.22 The Petitioner is directed to submit quarterly progress report on the status of new projects for which PPA have been signed by the Board and the implementation of the associated power evacuation plan.

Share from Ultra-Mega Power Projects

11.23 Keeping in view the future requirements of power within the State, and the likely shortage of power, particularly during winter months, the Board is directed to make concerted efforts, in coordination with the State Government, to get a share allocated from the Center from various Ultra-Mega Power Projects which have been allotted/likely to be allotted to various developers on tariff based bidding process. The power from these Ultra Mega Power Projects is likely to be much cheaper than other central projects. The Board to submit a detailed status report on quarterly basis with respect to progress made in this regard.

Power Purchase Agreements

11.24 The Board has signed PPAs with NTPC, NHPC, SJVNL and other central sector generating stations and has entered into banking arrangements with other states, after the formation of Commission. The status report of all such power purchase agreements (except those already approved by HPERC) be submitted to the Commission along with two copies of each of such agreements by 31 July, 2008. The Board is further directed to regularly submit copies of all new agreements it may enter into for sale/purchase of power during the Control Period.

Preventive Maintenance Manuals/Schedules

11.25 It has been observed by the Commission that the preventive and routine maintenance of generating stations, transmission sub-stations and lines, and distribution system is not being undertaken regularly and only breakdown rectification/restoration work is being carried out which results into avoidable outages, inconvenience to consumers, loss of revenue to the Board and sub-optimal utilization of the man power resources. Therefore the Commission directs the Board to update/prepare detailed maintenance manuals/schedules separately for generating stations, transmission and distribution maintenance, which should include equipment-wise/item-wise maintenance procedure & schedule and responsibility centers. The new/updated manuals should be circulated to the concerned field units within six months of the issue of this Tariff Order under intimation (along with copies of manuals) to the Commission.

Survey and Investigations Schemes

11.26 The Commission has observed that a significant amount of capital expenditure is spent towards Survey and Investigation of projects. Thus, in this regard, the Commission directs the Petitioner to

(a) Develop proper methodology, process and timelines for survey & investigation of projects

(b) Preparation of DPR

(c) Obtain approval from the Commission for new surveys and investigations

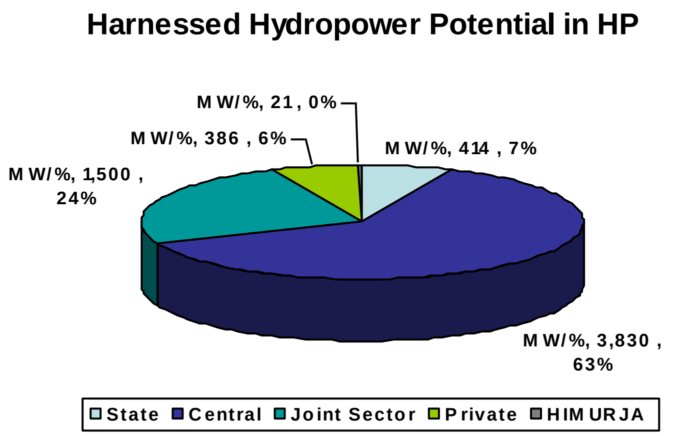
(d) Board to submit a quarterly information in this regard

Advisories to Government of Himachal Pradesh

Development of optimal trading strategy

11.27 Himachal Pradesh has a commercial potential of developing 21,000 MW of hydropower in the five river basins in the state. Till recently, the Central Sector and Joint Sector projects formed the significant portion of the hydropower potential of 6,370 MW harnessed in the state.

11.28 The State Government has taken several initiatives to encourage private sector participation in small hydro power development. The process of exploitation of hydro potential in small hydro sector through private sector participation began during 1995-96. Till 2007, the progress has been slow due to numerous reasons and a few projects have become unviable due to various reasons. In this phase, most of the medium and large projects of capacity more than 100 MW, barring a few projects by JP Hydro and LNJ Bhilwara, have been executed in state/central sector.



11.29 In future, the private sector participation in hydropower development is expected to be significant and as opposed to investment by public sector (state/central), such investments would come under deeper scrutiny to assess its impact on Government fiscals and overall socio-economic development of the state.

11.30 In last 2 years, the State Government has taken a policy decision of utilising the revenue from free royalty power available from existing projects for the economic development of the state. The 12 % free royalty power available from the recently awarded projects in the initial 12 years of operation is expected to further increase the share of power sector in non-tax revenue of the state after commissioning of these projects. This clearly indicates the role of hydropower sector in the future fiscal position of the state and overall state development policies.

11.31 Considering the importance of accelerated development of hydropower sector to the overall economy of the state, it is critical to review the impact and outcomes of the hydropower policy and critically review the effectiveness of the policy instruments i.e. various agreements, contracts, etc in achieving the objectives set out.

11.32 The free-power share of the state has been increasing in recent years and the surplus available after meeting the requirement of consumers in the state (sale to HPSEB) has also been increasing. The royalty power has increased from 684 MU in FY04 to over 1,580 MU in FY09. The new projects awarded to private sector in recent competitive bidding are expected to further increase the availability by nearly 500 MU by 2014-15.

11.33 The key risks in the trading sector are Volume risk, Price risk, Regulatory risk, Credit risk, Competition risk and evacuation risk. As the trading volume and trading market evolve, there would be a need for specialised skill and institutions to maximise revenue from the trading.

11.34 With this perspective, the Commission advises the Government of Himachal Pradesh to develop institutional mechanism which can do the following:

(a) Assessing various trading options like bilateral agreements with other utilities or traders (through long and short term agreements), direct sale options through open access, etc;

(b) Evaluate risks and potential benefits associated with various options;

(c) Assessing implementation issues (regulatory, institutional, etc) under various options;

(d) Intensive stakeholder consultation on options and implications towards finalising the options;

(e) Finalising implementation requirements for selected option(s) in terms of policies, institutions, systems and institutional capacity building; and

(f) Finalise plans for implementation.

Planning of Integrated Transmission Network

11.35 Essential to the development of the state generation potential and trading strategy is the planning and implementation of a reliable, optimal and cost-effective transmission network for evacuation of power from these generating stations. This will inter alia require the strengthening and augmentation of the intra-state and inter-state transmission systems for Himachal Pradesh. Hydropower potential is river basin specific and both generation and transmission needs to be developed on an integrated basin approach

11.36 The intra-state and inter-state transmission system is also required to be strengthened to meet the growing power requirements of the State.

11.37 Environmental considerations and limited Right of Way in hilly regions makes it imperative to evolve an environmentally sustainable approach to basin development. The Commission advises the Government of Himachal Pradesh for planning of an Integrated Transmission Network and pooling points within Himachal Pradesh. The Integrated Transmission Network shall be conceived as an integrated and optimal development of transmission system to pool power from several stations in the State to designated Pooling Points within

Himachal Pradesh, from where inter-state lines could be developed to convey power to beneficiaries outside the state. It would also pave the way for development of micro, mini and small hydro stations in the state of Himachal. The execution of the system so planned can be assigned by the State Government to the different agencies after examining the related commercial issues. Government of Himachal Pradesh can also take the Joint Venture route to develop such transmission projects taking advantage of recent developments in case of Tala & Sugem evacuation projects.

Evaluation of Franchisee Model in Distribution

11.38 To enhance customer service and increase operational efficiency of the distribution function, in areas where T & D losses are above the state average and/or collection efficiency poor, Government of Himachal Pradesh can explore the possibility of engaging Distribution Franchisees (DF) in the licence area of HPSEB. Different models are available for the purpose.

11.39 Owing to its smaller size, a DF is directly accountable to customers for efficiency and supply quality; it can reduce distribution losses and improve collection efficiency in areas where losses are as high as 30% and above. The summary of circle-wise AT&C losses is shown below. It can be seen from the table that Rohroo, Mandi, Kullu and Rampur are high loss making circles and introducing the franchise model in these circles could help in reducing losses significantly.

Table 213: Circle wise T&D losses and Collection Efficiency

Circle	T&D losses (%)	Collection Efficiency (%)
Rohroo	54%	78.47%
Mandi	39%	79.62%
Kullu	37%	92.2%
Rampur	35%	90.27%
Hamirpur	24%	87.78%
Dalhousie	21%	91.21%
Kangra	20%	86.17%
Una	18%	98.37%
Shimla	16%	91.37%
Bilaspur	14%	92.03%
Solan	8%	93.13%
Nahan	6%	95.22%

Advisory with respect to the Hydro Policy

11.40 The State Govt. may review its existing hydro policy to incorporate the following:-

(a) State Hydro Policy should be harmonized with the National Hydro Policy of 2008

(b) Tariff based bidding for the Projects where the entire power is to be procured by the Board/Govt.

(c) Free power based bidding (higher than the minimum 12%).

(d) Allocation of higher share of free power during winter months.

(e) In cases of equity participation by the Govt. in joint sector projects, the allocation of equity power should be in higher in winter months.

(f) Simplification of procedures for clearance of the projects through single window system or otherwise.

(g) Constitution of Independent Monitoring Committee to monitor the hydel projects being set up by IPPs..

A12: STRATEGIC MANAGEMENT ISSUES

12.1 In this section, the Commission would like to discuss certain important issues, which are very pertinent to the power sector scenario in the State.

Transmission Infrastructure Creation

12.2 While the Generation IPPs are coming into being there is an absolute necessity for transmission infrastructure to be created at a pace which ensures congruity between creation of capacity in both generation and transmission. In spite of two years of persuasion by the Commission the unbundled entity has till now not been able to start the actual construction work of transmission infrastructure in the State and is still grappling with the fiscal preparedness aspects. Necessarily the ability of the Board to carry out this activity is limited and needs to be augmented purposefully with a public/private partnership (PPP) mode of activity in which while the right of way issues, land acquisition and clearances are undertaken by the public utility, it is the private sector which brings in 90% of the funds for asset creation and for the physical building of the transmission infrastructure.

12.3 Appending to this is the need of for greater coordination so as to ensure that the wire business, construction activity, regulatory symbiosis and the stake-holders compositeness is achieved quickly and efficiently. This is so because the terrain requires that the construction be undertaken in an organised fashion so that the corridor definition and delineation is optimised. Added to this, of course, is the requirement of the Commission to set up Regulations quickly with regard to transmission and wheeling tariffs, augmentation charges, open access methodologies etc.

12.4 Benefits which can be derived owing to following the system are: significant savings on time, economies of scale and sizes of each contract would ensure that leading EPC players in the country will participate in the bidding process and bring in best practices in procurement, construction and project management.

12.5 There is a perceptible thinking in the public sector that the network already established is it's own property and that if other people are involved in the wire business they cannot be allowed to use it or if they use it, such use should only be to the advantage of the unbundled entity. These perspectives are founded on the old socialistic theme that the Government will conduct all business and take all the advantages of societal infrastructure creation. The Commission would like to reiterate that the opening of access to the private sector in the transmission segment along with the utilisation of the present day infrastructure without applying both tariff and non-tariff barriers is an absolute necessity if the State is to become a Power State in its truest sense. National needs are more important than State's own goals and since national energy needs are the major necessity today, the State's requirements need to be made subservient to this general objective.

12.6 The State Transmission System (TS) must be ring-fenced from the generation Evacuation System for technical and commercial reasons owing to despatch and energy flow issues and because costs can be allocated to generators and users equitably.

12.7 Considering atleast that some of the generation will be transmitted interstate, issues of segregation of intra and interstate points of the system must be done through a pooling point mechanism within the State before it is carried out of the State.

12.8 Most of the generators being dotted in distinct river-valley systems, bunching of TS upto pooling points in each valley is crucial. Benefits from these are savings of right of way and Transmission corridors in the ecologically sensitive region, integrated TS will club the generation optimally thus saving MW per Km costs, reduction in transmission losses, seamless connection to an integrated Regional Grid through convenient pooling points and utilisation of free power through independent inter-state feeder lines to nearest load centres.

12.9 Separate Transmission Service Agreements on pooled basis or valley-wise are entered with Generators initially and later with beneficiaries on a back to back basis by the Genco or Transco. Discom – specific TS paid through a regular ARR and Generation specific integrated system are paid through TSA approved by HPERC. We would have thus created bankable projects. There is a need to tie up with WB, ADB, PFC and REC through independent project feasibility reports.

12.10 Simultaneously, State Transco needs provision for adequate payment security mechanism for Transmission Service charges, ensure no cherry picking of projects by the Board, creation of PPP's by transparent bid based selection process in a timely manner, and administrative facilitation of Right of Way, acquisition and clearance issues. Adequate margins in TS need to be created to secure reliability of operations, capacity planning needs to be done so as to create adequate redundancy keeping in view international best practices, and the tariff mechanism needs to be sensitive to distance, direction and quantum of flows.

Best Practices

12.11 The utility has been told time and again to borrow and customise best practices of the Navratna Central Public Sector Undertakings (NTPC, etc.) so that manuals and systems prevalent therein can be effectively used to optimise the working in the Board. Inspite of discussions on these areas with the management no further steps seem to have been taken in this regard. The Commission would be extremely happy if atleast a beginning is made to carry out the study so as to ensure greater modernisation of sub-systems within the Board.

Tenurial Issues

12.12 In a bid ensure promotion for all individuals in the Board and to ensure advantage to individuals the management of HPSEB has till now been retiring personnel even though they may have spent just two to three months at the exit levels. While this may be extremely welcome from the point of view of the individual officer in the Board, the overall impact on the organisation is extremely negative. Unless and until the Board can develop a system wherein adequate tenure for a pro-active work-function can be built in, just this one aspect will lead to large scale distortion in decision-making processes in the Board.

Renewables

12.13 Largescale upgrades of technologies abroad have led to greater ussage of renewables wherein solar, geothermal or wind have augmented grid-power. In the long term, it is necessary that the Board develops a Wing for using separate venture funds effectively to incentivise private sector entities to go into these new technologies (especially in the solar sector like new material based SPVs or new concentrated ray turbines) so that these technologies can be franchised to the entrepreneurs in the State. This is necessary because the State cannot continue to depend upon the imported power during the winter and needs the hydro power for export purposes so that its trading portfolios can be built up.

Equity Infusion

12.14 The decision of GoHP with regard to transfer of free power to the control and advantage of Government has led to a situation wherein the Board has had to deal with greater transparency and has lost its latent subsidy components. While this may be to the good overall, transfer of resources has taken place from the Board to the Government and there is, therefore, a need for Government to utilise part of this resource for upgradation of the power sector in the State. The Board needs equity for Larji, Khauli, Uhl etc. as it has so far not been able to get this and has to depend on costly debt funds for this purpose.

12.15 Additionally, the needs for unbundling will have to ensure that the cleaning up of the ‘balance sheet’ is achieved quickly, therefore, atleast Rs.500 crore over a period of 3 years may be specifically reserved by the Government for cleaning up the balance sheet.

12.16 Simultaneously there is a need to utilise Tribal Funds for renovation and maintenance of hydro projects run by the Board in the tribal areas. Many of these are running sub-optimally and it will be useful to use such resources to run these effectively rather than using the grid for transmission of power to these areas.

Creation of ERO

12.17 Creation of a reliable sub-organisation in the Board is essential if standards of performance are to be maintained for the good of the common consumer. Creation of such an organisation which ensures reliable power and the necessary interventional capabilities for consumer needs has to be considered by the Utility.

Building Standards

12.18 The need for demand side management has to some extent been met by the scheme set up by the utility for introduction of CFL infrastructure. However, there is a need for the Board to work with the Town and Country Planning Deptt to set up legislation on optimal building standards so as to ensure energy conservation (especially considering the terrain and weather conditions in the State). A separate group should be set up between these two departments so that a degree of legislation can be evolved on specifications with regard to these standards.

Setting up of HPC

12.19 The need for the State Government to create the Himachal Power Corporation (HPC) in the State is not based on any cogent thinking. However, since the HPC has come into being, the Government should consider transferring all generation components from the Board to HPC. Simultaneously the asset values of these entities may be passed on to the Board by the Government so that investment needs of the Board's distribution and transmission business are taken care of. Though the Government has at long last created the Directorate of Energy in the Power Department, its activity co-efficients and work functions have not been specifically enunciated. The Government needs to ensure that this Directorate is fully manned as expeditiously as possible and that its terms of reference are stated explicitly.

A13: ANNEXURES