Concept Note on MYT Regulations

DELHI ELECTRICITY REGULATORY

COMMISSION

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Introduction

The Electricity Act 2003 (hereinafter referred to as "Act") empowers the Appropriate Commission to specify the terms and conditions for the determination of Tariff. As per Section 61 of the Act, the Commission shall be guided by the following factors while determining the terms and conditions of tariff:

- the principles and methodologies specified by the Central Commission for determination of the tariff applicable to generating companies and transmission licensees;
- the generation, transmission, distribution and supply of electricity are conducted on commercial principles;
- the factors which would encourage competition, efficiency, economical use of the resources, good performance and optimum investments;
- safeguarding of consumers' interest and at the same time, recovery of the cost of electricity in a reasonable manner;
- the principles rewarding efficiency in performance;
- multi year tariff principles;
- 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;
- the promotion of co-generation and generation of electricity from renewable sources of energy;
- National Electricity Policy and tariff policy.

Section 185 (3) of the Act ensured that the provisions of the enactments specified in the Schedule, which are not inconsistent with the provisions of the Act, shall be made applicable to the relevant States. Delhi Electricity Reform Act (hereinafter referred to as "Reform Act"), 2000 (Delhi Act No. 2 of 2001) is part of the Schedule referred to in Section 185 of the Act.

In exercise of the powers conferred by section 12 and other applicable provisions of the Reform Act, and after considering the views expressed by the Delhi Electricity Regulatory Commission (hereinafter referred to as "Commission"), the Government of National Capital Territory of Delhi (GoNCTD) notified the policy directions enabling restructuring of the Delhi Vidyut Board and privatisation of the distribution business.

The power sector in Delhi was privatized with effect from July 1, 2002 and the electricity tariffs in Delhi were governed by the Policy Directions issued by GoNCTD vide its notification of November 2001 and as amended in May 2002. The important parameters involved in fixation of tariffs as indicated in Policy Directions included the following:

- Reduction of Aggregate Technical and Commercial (AT&C) Losses to the extent of at least 17% during the period 2002 to 2007
- The distribution licensee shall earn at least a return of 16% on the issued and paid up capital and free reserves invested into fixed or any other assets for the purpose of electricity distribution.
- Electricity Tariffs of the three distribution licensees shall be identical till the end of 2006-07
- There shall be a profit sharing scheme for any over-achievement made by the Distribution licensee vis-à-vis the targets.
- The Government shall give a transitional support of Rs 3450 Cr to the Delhi Transmission Company Limited (DTL) to bridge the gap between its revenue requirement and bulk supply tariff.

During the Policy Direction period (2002-2007), the Commission determined tariff in accordance with the Policy Directions issued by the GoNCTD and the Reform Act. With the Policy Direction period coming to an end in March 2007, the Commission issued Regulations vide notification dated May 30, 2007 specifying Terms and Conditions for Determination of Tariff for Generation, Transmission and Distribution of electricity under the Multi Year Tariff (MYT) framework for the period FY 2007-08 to FY 2010-11.

The Commission vide its Order dated May 10, 2011 extended the MYT Regulations and the Control Period for a further period of one year upto March 31, 2012.And thus, the MYT Regulations for the second MYT Control Period need to be notified.

Subsequent to the notification of the MYT Regulations, 2007, the CERC Tariff Regulations for the Control Period from April 1, 2009 to March 31, 2014 have been notified. In accordance with Section 61 of the EA 2003, the appropriate Commission shall be guided by the principles and methodologies specified by the Central Commission for determination of tariff applicable to generating companies and transmission licensees.

In this context, the Commission has prepared the Draft MYT Regulations for the second Control Period for Generation, Transmission and Distribution. Further, to facilitate better understanding and information of all the stakeholders, the Commission has prepared this Concept Note.

General Principles

The Commission through the MYT Regulations aims to meet the following objectives:

- Provide Regulatory Certainty to the investors and consumers by promoting transparency, consistency and predictability of regulatory approaches thereby minimising perceptions of regulatory risk.
- Ensure financial viability of the sector to attract investments and safeguard consumers.
- Provide incentivisation framework to reward performance, promote efficiency and competition.
- Address risk sharing mechanism between utility and consumers based on controllable and uncontrollable factors.

The Commission has also considered the following principles while preparing the Concept Note and the Draft MYT Regulations for the second Control Period:

- The proposed MYT framework recognises the necessity to continue considering the retail supply business and the network business of the distribution licensees separately.
  - Retail Supply tariff is aimed to recover the power purchase costs, transmission costs, any other costs clearly attributable to the supply business, Distribution losses[1], and cross subsidies.
  - Wheeling Tariff is aimed to recover the cost of network business (excluding costs allocable for Supply tariff). It shall reflect Capital Servicing Costs (depreciation and return on capital), O&M costs (employee costs, R&M costs, A&G costs), and related network business costs (true-ups, incentives, penalties).

Control Period

Control Period means a multi-year period fixed by the Commission from time to time typically 3 to 5 years, for which the principles for determination of ARR shall be fixed.

It is proposed that the second Control Period for Generation, Transmission and Distribution shall be of 3 years (FY 2012-13 to FY 2014-15).

Process to be followed at the beginning of the Control Period

The MYT framework shall inter alia consist of the parameters within the control of Utilities. The MYT framework shall be finalised considering all the parameters duly specifying targets for these parameters under the control of the licensees. Some of the critical parameters in the business of Generation, Transmission and Distribution are as follows:

Generation Company's' Business:

[1] To clarify, Distribution losses are a cost for the supply business, and a performance parameter for the network business. Users of the network would pay a regulated wheeling charge (for use of network), and would also bear the losses in accordance with the supply market rules.

- Norms of operation and cost of fuel – This is a significant cost component for the generation company and depends both on how efficiently fuel is utilised in the generating station and the price of fuel used by the station, the latter being generally beyond the control of the Company.
- Operating Costs – O&M Expenses are considered to be within the control of company, and it is expected to run its operations in an efficient manner with suitable allocation of costs between different heads, based on its individual requirements.

Transmission Licensees' Business:

- Operating Costs – O&M Expenses are considered to be within the control of company, and it is expected to run its operations in an efficient manner with suitable allocation of costs between different heads, based on its individual requirements.
- Financing Costs– The network of the licensee in Delhi is being upgraded and expanded to meet the rapidly increasing demand for power. The cost of financing the expansion in network is a significant expense for the licensee.

Distribution Licensees' Business:

- Volume of Energy Sales – Individual consumers decide the quantity and the pattern of their consumption, which would be influenced by demand side management measures, energy efficiency, weather conditions, industrial activity, etc. It shall also be determined by the consumer mix of the Licensee.
- Power purchase cost – This is the most significant cost for any Distribution Licensee, driven by external factors such as fuel price changes, exchange rate fluctuations, inflation, etc.
- System Losses – Losses incurred due to technical and commercial loss, are considered to be within the Licensee's control, and are expected to be handled by the licensee.
- Operating Costs – O&M Expenses are considered to be within the control of licensees, and it is expected to run its operations in an efficient manner with suitable allocation of costs between different heads, based on its individual requirements.
- Financing Costs– The network of the licensee in Delhi is being upgraded and expanded to meet the rapidly increasing demand for power. The cost of financing the expansion in network is a significant expense for the licensee.

These above mentioned features of utilities business provide a useful basis for shaping the MYT principles. The ARR and tariffs for generation, transmission, retail supply business and the network business of distribution licensees would be determined for each year of the Control Period at the beginning of the Control Period, keeping in view the following:

- Based on a detailed examination of the licensees' filings and taking into account the suggestions and views expressed in public hearings, performance targets for licensees, as applicable for the Control Period, shall be determined.
- The targets shall be set for items that are deemed as "controllable" which include operating and maintenance expenditure, financing costs including depreciation pertaining to capital investments for all utilities; and AT&C losses, distribution losses, collection efficiency and quality of supply for distribution licensees.
- Any financial loss arising from the performance falling short of the targets in these controllable items shall be borne by the licensee and not be included in the ARR. Any financial gain arising from performing better than targets shall be as per the incentive mechanism specified in the Regulations.
- The Utilities shall not bear the burden of items that are considered beyond their control or "uncontrollable", and the consequent financial gain or loss shall be adjusted in the annual revenue requirement.
- Adequate investments in the business for asset creation, loss reduction, quality improvements and working capital shall be ensured, and the utilities shall be compensated for it.
- Standards of quality for supply and customer service for distribution licensees shall be monitored regularly and penalties for falling short and incentives for performing better shall be introduced.

- To ensure non-discriminatory open access tariffs, wheeling business and supply business of the distribution licensees shall be segregated for determination of ARR and appropriate tariffs.

The Commission shall also separately provide for the truing up for the FY 2010-11 and FY 2011-12 in accordance with the MYT Regulations for the first Control Period.

Controllable Factors

The controllable factors are defined broadly as those factors which are within the utilities' control. The incentive/ penalty mechanism in respect of the "Controllable" factors shall be finalized after considering the following:

- Factors on which the incentives and penalties shall be based;
- Actual structure and implementation process thereof.

Some of the issues relevant for the various controllable parameters are discussed below:

System Loss reduction

The Licensee shall propose AT&C loss reduction trajectory for each year of the Control Period. For any year of the Control Period, loss reduction should be at least 30% of the total AT&C loss reduction target set for the Control Period. The Commission shall examine the filings made by the Licensee for the AT&C loss trajectory for each year of the Control Period and approve the same with modification as considered necessary.

The Distribution Licensee shall also propose voltage-wise losses for each year of the Control Period for the determination of voltage-wise cost of supply and determination of voltage-wise Wheeling Tariff.

Operating Costs

This covers all costs of operating the business other than the financing costs. Under the MYT framework, the Commission shall undertake a detailed review of the existing costs to determine the permissible levels of O&M expenses for the first year of the Control Period, which shall be increased at an indexed rate for the subsequent years.

Capital Investments

At the start of the second Control Period, the Commission shall undertake a detailed review of capital investment plan submitted by the utilities based on expected load growth, refurbishment, loss reduction, supply quality and reliability, etc.

Financing Costs

The Commission shall determine the permissible level of debt and equity, permissible cost of debt, appropriate asset base for providing return at the approved rate of return.

Quality Parameters

The Commission intends to increase the focus on increasing the quality of service and shall initiate steps to improve supply quality and customer service. It is essential to develop a mechanism to quantitatively measure and record supply quality and customer service, in order to monitor the same effectively, and to ensure better implementation of the incentive/ penalty mechanism.

Process during the Control Period

In this section, the Commission shall discuss the annual process to be followed by the Licensees during the Control Period:

- Filing of the actual capital expenditure incurred and capitalisation during the year by the Generation, Transmission and Distribution utilities
- Filing of Expected Revenue from Charges and ARR by the Distribution Licensees

- Filing of Tariff Proposals by the Distribution Licensees

Filing of Capital Expenditure

The utilities shall submit the actual capital expenditure incurred and capitalisation during the year under review for each year of the Control Period and the Commission shall review the actual capital expenditure incurred and capitalisation at the end of each year of the Control Period vis-à-vis the approved capital expenditure and capitalisation schedule.

It is proposed that in case of:

- A Generation Company, the adjustment on account of actual capital investment vis-à-vis approved capital investment shall be done at the end of Control Period;
- A Transmission Licensee, the adjustment on account of actual capital investment vis-à-vis approved capital investment shall normally be done at the end of Control Period. There shall, however, also be a mid term review at the end of second year of the Control Period. In case, the cumulative incurred capital expenditure and/or capitalisation deviates from the approved capital expenditure / capitalisation by more than 10% (cumulative), the Commission shall make necessary changes to capital investment plan along with the adjustments in the related parameters, viz. RoCE and Depreciation for the Control Period after consultation with Licensee;
- A Distribution Licensee, the adjustment on account of actual capital investment vis-à-vis approved capital investment shall be done at the end of each year of the Control Period vis-à-vis the approved capital expenditure and capitalisation schedule. Further, based on trued up capital expenditure and capitalisation, the Commission shall true up Return on Capital Employed (RoCE) and depreciation while truing up for any year of the Control Period. The Commission may also revise the capital expenditure and capitalisation for remaining years of the Control Period based on trued up capital expenditure and capitalisation for any year.

Filing of Revenue Requirement

The distribution licensee shall file their application for true-up on account of variations in the uncontrollable factors based on the formats and timelines specified by the Commission.

Filing for Proposed Tariffs

Distribution Licensees shall submit the methodology used for calculating the expected revenue for charges and the procedures used for designing tariffs to the Commission.

The annual tariff filing shall contain the following:

- Description of actually incurred costs for past and current year, and the expected values for the ensuing year
- Forecasts for other elements, such as expected sales, inflation, interest rates, etc.
- Quality of Supply and customer service parameters
- Correction factors

Correction Factors

In the annual filing, the distribution licensee shall claim controllable costs as provided under the MYT Regulations, however there shall be no correction for the controllable costs. On the other hand, for the uncontrollable items, a correction shall be required in each year to reconcile the actual vis-à-vis the projections. The adjustment shall be annual for such factors – mostly limited to Retail Supply Business.

Process at the end of Control Period

The Commission shall also review the effectiveness of the implementation of the MYT principles and the success in achieving the intended objectives.

The Commission shall suitably modify the procedures and the methodologies used for the next Control Period, based on the experience of the first Control Period. The Commission shall also conduct a comprehensive review and take into account, amongst other things, the sector reality, consumer and other stakeholder expectations and licensees' requirements at that point in time.

The review shall be conducted sufficiently in advance to avoid a gap between two Control Periods. It shall be undertaken separately but simultaneously for all the distribution and retail supply licensees. The process shall be consultative and the Commission shall publish a discussion paper containing:

- Review of performance / outcomes of the current Control Period
- Review of proposals for the next Control Period

At the end of the Control Period, the Commission shall review actual capital expenditure, capitalization and capital structure vis-à-vis approved values by the Commission for the generating companies for each year of the Control Period.

Wheeling & retail supply

Sales Projections

During the first MYT Control Period, distribution licensees submitted figures of sales forecast in the petition for the respective years which were approved by the Commission after reviewing the accuracy of the filing and taking appropriate adjustment factors. Based on the approved sales forecast and the approved distribution losses, the quantum of power purchase requirement was approved. Subsequently true up of the same was conducted ex-post.

It would be useful to analyse the sales trend across all the licenses and amongst various consumer categories during the first MYT Control Period. The following table presents the trend of sales reflecting approved sales vis-à-vis projected sales. It provides an insight into the existing sales forecasting methodologies adopted by the licensees and the variance existing in the system.

Table 1: Sales Variations (MU)

	2007-08			2008-09			2009-10		
	Approved	Trued Up	Variation	Approved	Trued Up	Variation	Approved	Trued Up	Variation
BRPL	6305	6408	2%	6824	7014	3%	7797	7752	-1%
BYPL	3257	3518	8%	3516	3964	13%	4445	4287	-4%
NDPL	4733	4975	5%	5118	5161	1%	5625	5775	3%

Sales Variation in Supply Business

Sales figures for any year may be given the following treatments:

- Option 1: Based on the approved sales forecasts and target distribution loss levels, the power requirement is computed for the control period. At the end of each year of the Control Period, volume of sales are trued up with the actual (if actual is better than target) or with the target distribution loss level (if actual is less than target) to compute the quantum of power requirement.

- Option 2: Variations are not allowed on the approved sales forecasts, so any loss or profit due to variations in sales shall be borne by the licensee. While loss shall be to the account of the licensee, any gains shall be shared as per the profit sharing/incentive mechanism. This option shall encourage the licensee to implement energy efficiency / demand side management measures.

Ideally, sales should be made as “controllable”, i.e. the risk / cost associated with volume variations should be borne by the distribution licensee for the following reasons:

- It would incentivise better forecasting and investment planning as well as power purchase planning;

- it would ensure the distribution licensees to serve their consumers better as well as retain the reward associated with energy sales;

- it would encourage the distribution licensee to promote Demand Side Management / Energy Efficiency measures;

- in the competitive segment of the market (i.e. consumers who are eligible for open access), this would ensure that the distribution licensee does not have an advantage over other traders (i.e. the regulatory regime is non-discriminatory); and,

– it would be consistent with the requirement in the Tariff Policy that cross subsidies should be only upto pre-determined quantities of sale.

At the same time, it is also important to note that the very nature of business is such that uncontrollable factors like weather could significantly affect the demand forecasts. Similarly, in case of subsidised tariffs for certain categories of consumers treating sales as "controllable" will only result in "rewarding" the distribution licensees for providing poor quality of supply to these subsidised consumer segments. Adequate systems and processes need to be put in place to ensure that supply rostering to subsidised categories does not take place.

With implementation of better metering systems across various voltage levels and across consumer categories, it can forecast its sales better than presently pursued. Meanwhile, it is proposed that the process of estimating the sales for the ensuing year, followed by true up of the same should be continued during the second MYT Control Period.

AT&C Losses

Electricity losses in a distribution system occur mainly on two accounts-

– Every element in a power system (a line or a transformer, etc.) offers resistance/impedance to power flow and thus consumes some energy during operation. The cumulative energy consumed by all these elements is classified as "Technical Losses".

– Losses that occur on account of non-performing and underperforming meters, wrong application of multiplying factors, defects in CT and PT circuitry, meters not read, pilferage by manipulating or by passing of meters, theft by direct tapping, etc., correspond to energy consumed but not metered or billed and are hence, categorised as "Commercial Losses".

– The combination of Technical and Commercial losses in the electricity distribution system is termed as Distribution Losses. In addition to the above, there is also a loss in revenue collected due to non-realisation of billed amount. The aggregate of loss of energy and loss of revenue, i.e., the difference between units input into the distribution system and the units for which payment is collected or realised is called the AT&C Loss (Aggregate Technical and Commercial Loss).

In Delhi, historically, AT&C losses have been used to gauge the efficiency of the distribution licensees. The opening level of AT&C losses was determined by DERC in its Order on Bulk Supply Tariff (BST) for the three Distribution Licensees on February 22, 2002.

AT&C Loss reduction targets for the years 2002-03 till 2006-07 were determined through competitive bidding route for privatising the distribution licensees. GoNCTD had stipulated minimum loss reduction target of 20% from the baseline loss levels, whereas bids from investors proposed loss reduction in range of 13 – 14%. After negotiations, AT&C loss reduction target of 17% over a period of 5 years (with loss targets for each year) were agreed for the three licensees.

It was also specified that any benefit of loss reduction beyond the target level but below the Government stipulated minimum level would be passed onto consumer entirely, while the achievement above the Government stipulated minimum levels would be shared equally between consumer and licensee. Any revenue loss due to underachievement in target loss reduction would be borne by the licensee only.

AT&C losses continued to be the measure of performance for the Distribution Licensees in the first MYT Control Period, along with distribution losses and collection efficiency monitored separately. The target for AT&C loss level for the entire Control Period was specified to the respective Licensees by the Commission vide the MYT Regulations and the year-wise AT&C loss level targets were specified in the MYT order for FY 2007-08 to FY 2010-11.

Performance on AT&C Losses

Between years 2002-10, the three licensees have made significant gains in reducing their level of AT&C losses. During the period BRPL, BYPL and NDPL have reduced AT&C losses by 27%, 37% and 32% respectively from the opening loss levels.

Table 2: BRPL AT&C Loss Reduction Trajectory

BRPL	**Opening Loss Level 48.1%**									
	2002-03[2]	**2003-04**	**2004-05**	**2005-06**	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**
Negotiated/Approved Target Level (%)	47.5	46	42.7	36.7	31.1	26.69	23.46	20.23	17.00	15.00
Actual (Trued Up) Loss Level Achieved (%)	47.4	45.1	40.3	35. 5	29.9	27.91	20.59*	20.53	16.83*	-
Reduction over last year (%)		2.3	4.8	4.8	5.6	2.01	7.32	0.06	3.70	

Table 3: BYPL AT&C Loss Reduction Trajectory

BYPL	**Opening Loss Level 57.2%**									
	2002-03[3]	**2003-04**	**2004-05**	**2005-06**	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**
Negotiated/Approved Target Level (%)	56.45	54.70	50.70	45.05	39.95	34.77	30.52	26.26	22.00	18.00
Actual (Trued Up) Loss Level Achieved (%)	61.89	54.29	50.12	43.89	39.03	30.83	24.02*	24.32	19.95*	-
Reduction from previous year (%)		7.6	4.17	6.23	4.86	8.20	6.81	0.30	4.37	

Table 4: NDPL AT&C Loss Reduction Trajectory

NDPL	**Opening Loss Level 48.1%**									
	2002-03[4]	**2003-04**	**2004-05**	**2005-06**	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**
Negotiated/Approved Target Level (%)	47.5	46	42.7	36.7	31.10	22.03	20.35	18.68	17.00	13.00
Actual (Trued Up) Loss Level Achieved (%)	47.8	44.9	33.8	26.5	23.73	18.56	16.74	15.16	13.74*	-
Reduction from previous year (%)		2.3	4.8	4.8	11.77	5.17	1.82	1.58	1.42	

*As submitted by the utility, not trued up by the Commission.

[2] 2002-03 figures for all Distribution Licensees are for 9 months

[3] 2002-03 figures for all Distribution Licensees are for 9 months

[4] 2002-03 figures for all Distribution Licensees are for 9 months

Key Concerns in AT&C Losses

Inclusion of Electricity Duty

During the Policy Direction period and the first MYT Control Period, distribution licensees were reporting average billing rate (ABR) and revenue realised by including the electricity duty in the calculations. It is proposed to exclude electricity duty from the calculation of revenue billed and revenue realised.

Inclusion of Late Payment Surcharges

During the Policy Direction period and the first MYT Control Period, the Late Payment Surcharge was considered in the collection (which ideally should include only revenue through tariff) while computing the AT&C Losses. Late payment surcharge is penal interest imposed on the Consumers for delayed payment thus is of financial in nature. If the Late Payment Surcharge (LPSC) is removed from the revenue realised while computing AT&C loss levels, then the performance of distribution licensees for FY 2009-10 are as shown in the table below:

Table 5: Performance without Surcharges

2009-10	BRPL	BYPL	NDPL
LPSC Collected (Rs Cr)	28.16	20.87	16.09
Total Revenue Including LPSC (Rs Cr)	3588.84	1969.79	2750.64
AT&C loss level considering LPSC in Revenue (%)	20.20%	23.90%	14.89%
Restated AT&C Loss Level without LPSC (%)	20.83%	24.70%	15.39%

Assessment of energy consumed under 'Theft'

It was observed that the units shown as sales against amount recovered from theft cases was derived by dividing amount recovered from the consumers by Average Billing Rate, which is a wrong methodology. As per the Electricity Act, 2003, the tariff applicable for theft cases is twice of the normal tariff. It is proposed that in order to assess the total energy consumed under 'theft', the Licensees should divide the total revenue collection, as enforcement, by two times the Average Billing rate (ABR), as against the existing practice followed by the Licensees of dividing it by the ABR alone. The energy that is consumed as "theft" is billed at two times the applicable tariff rate for that particular category. Hence, dividing the total revenue collection by just ABR will erroneously inflate the energy sales figure under the 'theft' category. The other option that the Licensees could follow is to capture the actual units of energy against which the recovery from the consumer is made.

It is proposed that in the second control period, AT&C losses should be continued as a measure of performance. Also,

- Revenue billed and revenue realised should be reported for calculation of AT&C losses without including Electricity duty and LPSC.
- Distribution losses, for a licensee, defined as the difference between total energy input for sale to all its consumers and sum of the total energy billed in its license area in the same year shall be specified separately.
- Collection efficiency, defined as ratio of total revenue collection to the total revenue billed for the year, shall be specified separately. The collections from electricity duty and late payment surcharge shall not be included for computation of collection efficiency. Further, the Licensees shall capture the actual units of energy against which the recovery from the consumers is made for assessing energy sales under the 'theft' category.

Based on the above principles the Commission shall set the target AT&C losses for each year of the second MYT Control Period.

Sharing of Gains and Losses

Existing Regulations

During the first MYT Control Period, the profits arising from achieving loss level better than specified in the loss reduction trajectory was shared equally between the Licensees and the Contingency Reserve. However, profits arising from achieving loss level better than 15% (for NDPL and BRPL) and 18% (for BYPL) in any year were completely to the account of the Licensee.

Proposed Regulations

For the second MYT Control Period, it is proposed that any financial loss on account of under performance with respect to AT&C loss targets shall be to the Licensee's account. However, the Distribution Licensee will be eligible for higher return on equity (to be considered while calculating RoCE) as shown below for achieving lower AT&C loss level than specified in the loss reduction trajectory:

Additional Return on Equity (in percentage) = $(X_i-Y_i)/(X_{i-1}-X_i)$

Where,

X_i = Target AT&C loss level for ith year,

X_{i-1}= Target AT&C loss level for $(i-1)^{th}$ year,

Y_i = Actual AT&C Loss level for ith year.

For example, if the target AT&C loss level for the Licensee for the 1st year of the Control Period is specified to be 16.5% from a level of 18% for the year preceding the 1st year of the Control Period and the Licensee succeeds in achieving AT&C loss of 16% by the end of the 1st year, then the Licensee is eligible to earn additional return on equity of 0.33% (0.5/1.5) over and above the return earned at16%, i.e. return on equity will be calculated @ 16.33% while calculating WACC which will be used in calculating Return on Capital Employed.

Power Purchase

Power Procurement Plan and Guidelines

During the first MYT Control Period, based on approved sales forecast and target distribution loss levels, quantum of power purchase was fixed for each of the distribution licensees duly identified with the sources of power procurement.

Accordingly, each licensee shall prepare a power procurement plan for the second Control Period and submit the same to the Commission for approval. The long-term power procurement plan shall be prepared considering the following:

- A quantitative forecast of the unrestricted demand for electricity for each tariff category within the area of supply of the respective Distribution Licensee during the Control Period;
- An estimate of the quantities of electricity supply from the identified sources of generation and power purchase;
- An estimate of availability of power to meet the base load and Peak load requirement:
- Standards to be maintained with regard to quality and reliability of supply, in accordance with the Delhi Electricity Supply Code and Performance Standards Regulations, 2007 as amended from time to time;
- Measures proposed to be implemented as regards energy conservation, energy efficiency and demand side management;

- The requirement of electricity supply from new sources of power generation and/or procurement from the existing sources based on the estimated demand in the licensed area. The plan for procurement of power shall also include quantities and cost estimates for such procurement:

- The long-term procurement plan shall be a cost-effective plan based on available information regarding costs of various sources of supply.

In addition to the long term procurement of power, the licensee may have to resort to short term/medium term power procurement to meet peak load or due to failure of supply from any source. In doing so, however, the licensees shall be guided by the power procurement guidelines etc. laid down by the Commission from time to time.

In the MYT Regulations for the second Control Period, the Commission may introduce an incentive/penalty mechanism to promote economical procurement of power and thereby, maximize revenue from sale of surplus power. The Commission has observed that the Distribution licensees, in the recent past, have been purchasing short term power at very high rates, while they were selling the surplus power (short-term) at relatively lower rates, resulting in very high net power purchase costs (short-term). The Commission is of the view that an incentive/penalty mechanism should be able to correct this practice and promote a more efficient and economical procurement of power. The Commission staff shall also make a presentation on the proposal at the time of public hearing.

Rebate on Power Purchase / Transmission Charges

During the second MYT Control Period, it is proposed to allow all Distribution Licensees normative working capital of two months receivable less one month power purchase cost less one month transmission cost. In doing so, it is assumed that average receivable cycle is 2 months for the licensees as majority of the consumers (approximately 70% of revenue) are being billed monthly and some consumers are being billed bi-monthly (approximately 30% of revenue). Accordingly, whatever cost the licensee would incur in 2 months would be funded through the 2 months receivables allowed by Commission as working capital. The 2 months receivables shall inter-alia include power purchase expense and transmission cost for 2 months as well. Further, the Commission has subtracted one month of power purchase cost and transmission cost as the bills are raised by the generators and transmission utilities only at the end of the month; .for instance, if a distribution licensee receives some quantum of supply in the month of January, it would receive a bill against that supply only on 1st February (One month credit period). If the distribution licensee pays the bill through letter of credit on presentation of bill, it would be entitled to get a rebate @ 2% of the power purchase and transmission bills (as per CERC Regulations). The Rebate offered by some of the Central Sector Generating Stations is even better than the rebate as per CERC Regulations. The working capital norms allowed by the Commission shall enable the distribution licensees to pay the bills on presentation of the same and the licensees shall avail maximum rebate at all times. It is thus proposed that the maximum applicable rebate on power purchase and transmission shall be reduced from the gross power purchase and transmission costs of the licensee irrespective of the actual rebate availed by the licensee from the generators.

Operation & Maintenance Expenses

The Operations and Maintenance expenses of a Distribution business generally comprise of those costs which are incurred on a day-to-day basis in order to run the business efficiently. These costs include:

- Employee Expenses, which include “wages and salaries” and “contribution to employee funds”;

- Repairs and Maintenance Expenses;

- Administrative and General Expenses, including expenses on rents, rates and taxes, legal charges, and audit and other charges

- Other miscellaneous expenses, statutory levies and taxes (except corporate income tax).

Existing Regulations

As per the existing Regulations, the Licensee submits the O&M expenses for the Control Period as prescribed in Multi Year Tariff filing procedure. The O&M expenses for the Base Year shall be approved by the Commission taking into account the latest available audited accounts, business plan filed by the Licensees, estimates of the actuals for the Base Year, prudence check and any other factor considered appropriate by the Commission.

This approach works on the premise that while the R&M expenses are driven by the size of the distribution system, the other two components of the O&M Expenses (viz. Employee and A&G Expenses)are driven by inflation. Accordingly, the R&M expenses are linked to the Gross Fixed Assets, while the employee expenses and A&G expenses are linked to an Inflation Index, as shown below.

As per the Existing Regulations,

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

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

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

$INDX_n = 0.55*CPI_n + 0.45*WPI_n$

Where,

'K' is a constant (could be expressed in %) governing the relationship between O&M costs and gross fixed assets (GFA) for the nth year. Value of K shall be determined by the Commission in the MYT Tariff order based on Licensee's filing, benchmarking, approved cost by the Commission in past and any other factor the Commission feels appropriate;

INDX - Inflation Factor to be used for indexing can be taken as a combination of the Consumer Price Index (CPI) and the Wholesale Price Index (WPI) for immediately preceding five years;

EMP_n – Employee Costs of the Licensee for the n_{th} year;

$A\&G_n$ – Administrative and General Costs of the Licensee for the n_{th} year;

$R\&M_n$ – Repair and Maintenance Costs of the Licensee for the n_{th} year;

X_n is an efficiency factor for n_{th} year. Value of X_n shall be determined by the Commission in the MYT Tariff order based on Licensee's filing, benchmarking, approved cost by the Commission in past and any other factor the Commission feels appropriate…"

<u>*Proposed Regulations*</u>

For the second Control Period, it is proposed to determine the value of 'K', for determination of R&M expenses, separately for each year of the Control Period, as opposed to the existing Regulations, wherein the value of 'K' is determined for the entire Control Period.

Further, the inflation factor used for indexing the Employee and A&G Expense shall be determined by considering the CPI and WPI for the preceding ten years from the base year, as against the existing approach of considering the five years immediately preceding the nth year.

As per the proposed Regulations, the Distribution Licensee shall segregate the accounts of the Licensed business into Wheeling Business and Retail Supply Business so that O&M expense can be apportioned to Wheeling and Retail Supply Business accordingly. For such period until accounts are segregated, the Licensees shall also prepare an Allocation Statement to apportion costs and revenues to respective business. Further, the Allocation Statement along with the detailed methodology followed for the same, which should be consistent over the Control Period and as approved by the Board of Directors of the Licensee, shall be submitted for approval of the Commission.

Working Capital Requirement

The Working Capital shall be used to calculate the Regulated Asset Base, used to provide the return to the Licensee under the Return on Capital Employed (RoCE) approach.

Existing Regulations

In the first Control Period, the Commission allowed working capital based on the following methodology for the distribution licensees:

- Receivables for two months of revenue from sale of electricity;
- Add: Operation and maintenance expenses for one month;
- Less: power purchase cost of one month.

Proposed Regulations

The prevalent formula for calculating the working capital leads to double counting of the expenditure on account of O&M expenses. The O&M expenses (for one month) are included additionally while calculating the working capital requirement. However, O&M expenses also form a part of the two months receivables included in the working capital requirement. It is proposed that this anomaly be removed by excluding the O&M expenses additionally while calculating the working capital requirement.

As explained earlier, it is also proposed that the power purchase expenses and transmission charges for one month shall be reduced from the overall working capital requirement. It may be noted that since receivables for two months of Wheeling charges have been added to the working capital requirement of the wheeling business, the same has been deducted from the working capital requirement for the retail supply business of the Distribution Licensee.

As per the proposed Regulations;

- *"...Working capital for wheeling business of electricity shall consist of:*
  - *Receivables for two months of Wheeling Charges.*
- *Working capital for retail supply of electricity shall consist of*
  - *Receivables for two months of revenue from sale of electricity;*
  - *Less: Power purchase costs for one month;*
  - *Less: Transmission charges for one month; and*
  - *Less: Wheeling charges for two month...."*

Return on Capital Employed

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

In view of the above, many regulators in the process of framing the MYT Regulations are evaluating the idea of implementing the concept of return on capital employed instead of the normative ROE concept.

The RoCE concept gives incentives to the licensees to optimise the debt equity ratio. The approach recognises that the consumers should pay for the capital employed in the assets being used to serve the consumers, and ensures that the financing decisions of the distribution licensee do not affect consumer tariffs. It also makes it easier for the regulators as they do not have to monitor the debt and equity component separately and can concentrate on the overall performance of the licensees.

Existing Regulations

As per the existing Regulations,

"*...Return on Capital Employed (RoCE) shall be used to provide a return to the Distribution Licensee, and shall cover all financing costs, without providing separate allowances for interest on loans and interest on working capital.*

The Return on Capital Employed (RoCE) for each year of the Control Period shall be determined at the beginning of the Control Period. It shall be determined by applying the Weighted Average Cost of Capital (WACC) to the Regulatory Rate Base (RRB) for each year of the Control Period.

Regulatory Rate Base (RRB) shall be used to calculate the total capital employed which shall include the original cost of assets and working capital, less the accumulated depreciation. Capital work in progress (CWIP) shall not form part of the RRB. Consumer Contribution, capital subsidies / grants shall be deducted in arriving at the RRB.

The WACC for each year of the Control Period shall be determined as the average of cost of debt and cost of equity, weighted by the normative debt-equity ratio.

The Return on Capital Employed (RoCE) for the year 'i' shall be computed in the following manner:

$$RoCE = WACC * RRB$$

The RRB shall be determined for each year of the Control Period at the beginning of the Control Period based on the approved capital investment plan with corresponding capitalisation schedule and normative working capital.

The Regulatory Rate Base (RRB) for the ith year shall be computed in the following manner:

$RRB_i = RRB_{i-1} + \Delta AB_i/2 + \Delta WCi$

Where,

'i' is the ith year of the Control Period, i = 1,2,3,4 for the first Control Period

RRB_i*: Regulated Rate Base for the ith year of the Control Period*

RRB_{i-1}*: Regulated Rate Base for the financial year preceding the ith year of the Control period. For the first year of the Control Period,* RRB_{i-1} *will be the Regulated Rate Base for the Base Year i.e.* RRB_O.

$RRB_O = OCFA_O - AD_O - CC_O$,

Where,

$OCFA_O$*: Original Cost of Fixed Assets at the end of the Base Year available for use and necessary for the purpose of the licensed business;*

AD_O*: Amounts written off or set aside on account of depreciation of fixed assets pertaining to the regulated business at the end of the Base Year;*

CC_O*: Total contributions pertaining to the OCFAo, made by the consumers towards the cost of construction of distribution/service lines by the Distribution Licensee and also includes the capital grants/subsidies received for this purpose.*

ΔWC_i: Change in normative working capital requirement in the ith year of the Control Period, from the (i-1)th year. For the first year of the Control Period (i=1), ΔWC_1 shall be taken as the normative working capital requirement of the first year. Working Capital shall consist of

Receivables for two months of Wheeling Charges; and

Operations and Maintenance expenses for one month.

ΔAB_i: Change in the Regulated Rate Base in the ith year of the Control Period. This component would be the average of the value at the beginning and end of the year as the asset creation is spread across a year and is arrived at as follows:

$\Delta AB_i = Inv_i - D_i - CC_i$,

Where,

Inv_i: Investments projected to be capitalised during the ith year of the Control Period and approved,

D_i: Amount set aside or written off on account of Depreciation of fixed assets for the ith year of the Control Period.

CC_i: Consumer Contributions pertaining to the ΔRRB_i and capital grants/subsidies received during ith year of the Control Period for construction of service lines or creation of fixed assets.

WACC is the Weighted Average Cost of Capital for each year of the Control Period shall be computed at the start of the Control Period in the following manner;

$$WACC = \left[\frac{D/E}{1+D/E}\right] r_d + \left[\frac{1}{1+D/E}\right] r_e$$

Where,

D/E is the Debt to Equity Ratio and for the purpose of determination of tariff, debt-equity ratio as on the Date of Commercial Operation in case of new distribution line or substation or capacity expanded shall be 70:30. Where equity employed is in excess of 30%, the amount of equity for the purpose of tariff shall be limited to 30% and the balance amount shall be considered as notional loan. The interest rate on the amount of equity in excess of 30% treated as notional loan shall be the weighted average rate of the loans of the Licensee for the respective years and shall be further limited to the prescribed rate of return on equity in the Regulations. Where actual equity employed is less than 30%, the actual equity and debt shall be considered;

r_d is the Cost of Debt and shall be determined at the beginning of the Control Period after considering Licensee's proposals, present cost of debt already contracted by the Licensee, and other relevant factors (risk free returns, risk premium, prime lending rates etc.);

r_e is the Return on Equity shall be determined at the beginning of the Control Period after considering CERC norms, Licensee's proposals, previous years' D/E mix and other relevant factors. The cost of equity for the Wheeling Business shall be considered at 14% post tax.

The Distribution Licensee shall make every effort to refinance the loan as long as it results in net benefit to the consumers. The cost associated with such refinancing shall be borne by the consumers and any benefit on account of refinancing of loan and interest on loan shall be passed on to the consumers. Refinancing may also include restructuring of debt.

In case any moratorium period is availed by the Licensee, depreciation provided for in the tariff during the years of moratorium shall be treated as notional repayment of loan during those years and interest on loan shall be calculated accordingly…."

Proposed Regulations

The Commission has revised its methodology to calculate the WACC for RoCE calculations in the proposed Regulations. As per the proposed Regulations, the Commission shall allow return on equity @16% for the Wheeling and Retail Business, as against 14% allowed in the existing Regulations (The proposed Regulations have dispensed the concept of Supply Margin @ 2% rate of return on equity and have instead consolidated the return on equity to be @16%).

Further, in the proposed Regulations, the Commission has specified that financing of Working Capital shall be allowed only through debt financing, which was not spelt clearly in the MYT Regulations, 2007. The Commission is of the view that the receivables and inventories that are hypothecated to get funding of the working capital are, essentially, the current assets of the business and are funded by the consumers and hence, do not qualify as additional investment made by the Licensees, on which the Licensee is entitled to get any return.

Also, the proposed Regulations specify that the cost of debt used to calculate WACC shall be calculated by considering the Licensee's credit rating and other relevant benchmarks etc. that the Commission may feel appropriate.

The Commission has spelt out in the proposed Regulations that any additional investment made by the Licensee other than in the fixed asset of the distribution business shall not qualify for the return on equity.

The methodology of determining the Regulatory Rate Base (RRB) has been kept as per the methodology prescribed in the existing MYT Regulations (specified for the first Control Period).

Supply Margin

Existing Regulations

In the first MYT Control Period, the Commission specified a retail supply margin for the Retail Supply Business based on the Allocation Statement provided by the Distribution Licensee. Further, the retail supply margin was specified in such manner that the return from the Wheeling Business and Retail Supply Business did not exceed 16% of equity.

Proposed Regulations

To simplify the calculation of revenue requirement of the licensees, the specification of a separate supply margin is proposed to be dispensed with in the second Control Period. The Commission shall specify separate ARR for both the Wheeling and Retail Supply of electricity based on the segregations of costs between the two businesses. The return for the Wheeling Business and Retail Supply Business of the licensee collectively shall be equal to 16% of equity.

Depreciation

Existing Regulations

As per the existing Regulations,

"...Depreciation shall be calculated for each year of the Control Period, on the amount of Original Cost of the Fixed Assets considered for calculation of the Regulated Rate Base of the corresponding year;

Provided that depreciation shall not be allowed on assets funded by any capital subsidies/grants.

Depreciation for each year of the Control Period shall be determined based on the methodology as specified in these Regulations along with the rates and other terms specified in Appendix 1 of the MYT Regulations (for FY 2007-08 to FY 2010-11).

Depreciation shall be calculated annually, based on the straight line method, over the useful life of the asset. The base value for the purpose of depreciation shall be original cost of the asset.

The residual value of assets shall be considered as 10% and depreciation shall be allowed to a maximum of 90% of the original cost of the asset. Land is not a depreciable asset and its cost shall be excluded while computing 90% of the original cost of the asset.

Depreciation shall be charged from the first year of operation of the asset. In case, the operation of the asset is for a part of the year, depreciation shall be charged on a pro rata basis.

In addition to allowable depreciation, the Distribution Licensee shall be entitled to Advance Against Depreciation, computed in the manner given hereunder:

AAD = Loan (raised for capital expenditure) repayment amount based on loan repayment tenure, subject to a ceiling of 1/10th of loan amount minus depreciation as calculated on the basis of these Regulations;

Provided that Advance Against Depreciation shall be permitted only if the cumulative repayment up to a particular year exceeds the cumulative depreciation up to that year;

Provided further that Advance Against Depreciation in a year shall be restricted to the extent of difference between cumulative repayment and cumulative depreciation up to that year.

On repayment of entire loan, the remaining depreciable value shall be spread over the balance useful life of the asset…"

Proposed Regulations

As per the proposed Regulations, assets that have been funded by consumer contribution (i.e. any receipts from consumers that are not treated as revenue), apart from those funded by capital subsidies/grants, shall be excluded from the asset base for calculating depreciation. Further, the Licensee shall make provision for replacement of such assets in the Capital Investment plan.

Further, the Licensee shall take prior approval of the Commission in case of retiring any asset before its useful life.

The applicable rates of depreciation for each asset and the Advance Against Depreciation (AAD) shall be calculated as per the methodology specified in the existing MYT Regulations, 2007, subject to the specific changes as mentioned above.

Income Tax

Existing Regulations

During the first Control Period Income Tax on the licensed business of the Distribution Licensee was treated as expense and was recoverable from consumers through tariff. However, the tax on income liable to be paid on the Licensed Business was limited to tax on return on the equity component of capital employed. Further, any tax liability on incentives due to improved performance was not considered.

Proposed Regulations

During the second Control Period, tax on income, if any, liable to be paid on the Licensed business of the Distribution Licensee shall again be limited to tax on return on the equity component of capital employed. Any additional tax other than this shall not be a pass through, and it shall be borne by the Distribution Licensee itself.

Non-Tariff Income

Existing Regulations

All incomes being incidental to electricity business and derived by the Licensee from sources, including but not limited to profit derived from disposal of assets, rents, delayed payment surcharge, meter rent (if any), income from investments other than contingency reserves, miscellaneous receipts from the consumers and income to Licensed business from the Other Business of the Distribution Licensee shall constitute Non-Tariff Income of the Licensee.

Interest on security deposits, in excess of the rate specified by the Commission in the "Delhi Electricity Supply Code and Performance Standards Regulations, 2007" shall be considered as Non Tariff income of the Licensees.

The amount received by the Licensee on account of Non-Tariff Income shall be deducted from the Annual revenue requirement in calculating the net revenue requirement of such Licensee.

Proposed Regulations

Other things remaining the same, the Commission has proposed to specify that any income arising from investment of shareholder's funds, if any, shall not be included in Non Tariff Income, which shall be subjected to prudence check by the Commission.

Further, the Commission has clearly spelt out that any interest earned on the Consumer Security deposit shall be included in the calculation of Non-Tariff Income. The interest paid on the same shall be treated separately as an expense head while calculating the annual revenue requirement.

Income from Other Business

Existing Regulations

Where the Licensee is engaged in any other business, the income from such business shall be calculated as per "DERC Treatment of Income from Other Business of Transmission Licensee and Distribution Licensee Regulation, 2005" and shall be deducted from the Annual Revenue Requirement in calculating the revenue requirement of the Licensee;

Provided that the Licensee shall follow a reasonable basis for allocation of all joint and common costs between the Distribution Business and the Other Business and shall submit the Allocation Statement as approved by the Board of Directors to the Commission along with his application for determination of tariff;

Provided further that where the sum total of the direct and indirect costs of such Other Business exceed the revenues from such Other Business or for any other reason, no amount shall be allowed to be added to the Annual revenue requirement of the Licensee on account of such Other Business.

Proposed Regulations

No change has been proposed in calculation of this component.

Receipts on account of cross subsidy surcharge and additional surcharge from open access customers.

Existing Regulations

The amount received or to be received by the Licensee on account of cross-subsidy surcharge and additional surcharge, as approved by the Commission from time to time in accordance with the Delhi Electricity Regulatory Commission (Terms and Conditions of Open Access) Regulations 2005 shall be shown separately against the consumer category that is permitted open access as per the phasing plan.

Cross-subsidy surcharge and additional surcharge shall be shown as revenue from tariff from the consumer categories permitted open access in accordance with the Delhi Electricity Regulatory Commission (Terms and Conditions of Open Access) Regulations 2005 and such amount shall be utilized to meet the cross-subsidy

requirements of subsidised categories and fixed costs of the Licensee arising out of his obligation to supply. The Licensee shall provide such details in its annual filings.

Proposed Regulations

The amount received or to be received by the Licensee on account of cross-subsidy surcharge and additional surcharge, as approved by the Commission from time to time in accordance with the Delhi Electricity Regulatory Commission (Terms and Conditions of Open Access) Regulations 2005, as amended from time-to-time, shall be shown separately against the consumer category that is permitted open access as per the phasing plan.

Cross-subsidy surcharge and additional surcharge shall be shown as revenue from tariff from the consumer categories permitted open access in accordance with the Delhi Electricity Regulatory Commission (Terms and Conditions of Open Access) Regulations 2005, as amended from time-to-time, and such amount shall be utilized to meet the cross-subsidy requirements of subsidised categories and fixed costs of the Licensee arising out of his obligation to supply. The Licensee shall provide such details in its annual filings.

Voltage Wise Wheeling Charges

Section 62 of the Electricity Act, 2003 empowers the State Electricity Regulatory Commission to determine tariffs for Transmission, Wheeling and Retail sale of electricity and in the process of tariff determination it is laid out that the Commission cannot show undue preference to any consumer of electricity but may differentiate according to the consumer's load factor, power factor, voltage, total consumption of electricity during any specified period or the time at which the supply is required or the geographical position of any area, the nature of supply and the purpose for which the supply is required.

Section 42 of the Act provides that the State Commission shall introduce Open Access in a phased manner for distribution network and specifies that the duties of the distribution licensee with respect to such supply shall be of a common carrier providing non-discriminatory open access.

Further strengthening the requirement of non-discriminatory open access Section 9 of the Act provides that the captive consumers using distribution network to pay only wheeling charges and are not required to pay the cross-subsidy surcharge, implying that the wheeling charges determined must be free from any kind of hidden cross-subsidies.

Tariff Policy (TP) notified on 6th January 2006 specifies in clause 8.5.5, that 'Wheeling charges should be determined on the basis of same principles as laid down for intra-state transmission charges and in addition would include average loss compensation of the relevant voltage level'. Clause 7.1(7) on intra-state transmission pricing specifies that the factors to be considered are 'voltage, distance, direction and quantum of flow'.

Keeping the above requirements in view, the approach for determining the wheeling charges should be based on the following principles.

- Segregate wheeling and retail Supply expenditure to identify wheeling ARR for determining wheeling charges charged by the distribution licensee for wheeling network users including open access and retail supply consumers;

- Determine Cost reflective, non-discriminatory, voltage wise wheeling charges for wheeling business;

- However, due to the absence of third party sales by Distribution Licensees in Delhi, and due to the absence of segregated wheeling and supply cost, till the availability of data on allocation, bulk supply cost can be taken as part of retail supply business and the other costs which include O&M, depreciation, interest and return can be taken as wheeling cost. This wheeling cost can be used for determining wheeling charges of the Distribution Licensees;

- Wheeling business requires capacity utilisation which is more or less fixed in nature, hence the charges determined are required to be measured in kVA and not in kWh;

- Setting up of wheeling tariffs;

- Distribution wires are identified as carrier of electricity from Generating station (or transmission network) to consumer consumption point. Ideally consumption at a particular voltage level requires network at that voltage level as well as at all higher voltage levels. So the lower voltages should contribute to the cost of the higher voltage levels also.

Explaining the above framework, the cost of higher voltages should be passed on to all the lower voltages as well. Where as consumers connected in the higher voltages would not be utilising the services of the lower voltage and would not be required to contribute to the lower voltage cost recovery. However, the consumers at the higher voltages pay respective connection charges or consumer contribution for the capital works involved at respective voltage which is usually not paid by the consumers connected at the LT voltage level. At LT level the consumers pay only for the service line or last mile connection charges.

From the cost distributed to each voltage based on the asset base of that voltage, the wheeling charge is calculated based on the contracted demand at each voltage level. The next step is the reallocation of cost between voltages and the logic for this approach is that the usages of higher voltages by lower voltages as well.

Setting cost reflective tariffs is a mandate of the Electricity Act 2003. It is required that the wheeling tariffs (for use of network) should be cross subsidy free, and all cross subsidies should be explicitly included in the retail supply tariffs. If the network costs are not properly allocated to consumer categories, the wheeling tariffs would contain some hidden cross-subsidies. As cost allocation improves, these cross subsidies would become visible. Accommodating these in the cross subsidy calculations and Sec 42 Surcharge would then pose a challenge, given the mandate to reduce cross subsidies.

It is better to estimate cost based wheeling charges and ensure that the cross-subsidies are not in the network business and should form part of the supply business. The network users are anyways paying for the cross-subsidy as surcharge. This ensures true estimation of charges and cross-subsidy and better target mechanism can be adopted. The Act also requires that captive consumers should not be paying surcharge. If cross-subsidy is included in the wheeling charges then it may be inconsistent with the provisions of the Act (Section 42 of the Act) and may not stand in the court of law. To address having different wheeling charges for captive and other users is not advisable as the act requires non-discriminatory open access tariff and having different rates or terms amount to discrimination.

As per the proposed Regulations, the Commission intends to follow the same approach of fixing voltage –wise wheeling tariffs, as specified in the existing MYT Regulations, 2007 (for the First Control Period).

Retail Tariff Design

As per the National Tariff Policy, tariff setting process of the Commission should be governed by certain factors as summarised below:

- Economic pricing of electricity has to promoted, implying that tariffs should reflect the cost of supply of electricity to the end consumers;

- Cross subsidies in the tariffs should be reduced over a period and tariffs should be brought down to +/- 20% of the average cost by the end of 2010-2011. Cross subsidy for life line consumers of Domestic category may be 50% of the average cost of supply;

- Extent of subsidy for different categories of consumers can be decided by the State Government keeping in view various relevant aspects.

The existing tariff design is based on voltage wise differential and two part tariffs. Commission has been insistent to develop a cost to serve model and tariffs and has been directing the Distribution Licensees to provide data and propose a methodology for the same.

The Commission also favours the introduction of Time of Day (ToD) tariff in due course.

MYT framework apart from the principles discussed above also requires tariffs to be stable and predictable to the extent possible. As tariffs are the outcome of costs, the predictability of costs reflects the predictability of tariffs. But at the same time, the uncontrollable factors inherent in cost needs to be addressed.

Transmission

This section discusses the transmission tariff as determined by the Commission and recoverable by the Transmission Licensee (Delhi Transco Limited or DTL) and other Transmission System users (including Open Access Customers) in the NCT of Delhi.

As per the Tariff Policy, the principles and methodologies adopted by the Commission for determination of tariff for use of the transmission system during the second MYT Control Period have been guided by the principles specified by the Central Commission in the CERC (Terms and Conditions of Tariff) Regulations, 2009.

Operational Norms

Existing Regulations

The Commission has specified the suitable norms of operation for the Transmission Licensee in the Multi Year Tariff Order, based on the submission of the Business Plans by the Licensee. The parameter which were considered amongst others:

"...Transmission System Availability: The Target Availability for recovery of full annual transmission charges during the Control Period shall be 98%;.."

Proposed Regulations

In the proposed Regulations, the norms of operation for the transmission system availability have been specified as under:

"..Normative Annual Transmission System Availability Factor (NATAF): The Target Availability for recovery of full annual transmission charges during the Control Period shall be as under:

AC system: 98.0%

Recovery of full annual transmission charges below the target availability shall be on a pro rata basis.."

ARR for Transmission Business

The Aggregate Revenue Requirement for the Transmission Business for each year of the Control Period shall contain the following items:

- Operation and Maintenance expenses;
- Return on Capital Employed;
- Depreciation;
- Non-Tariff Income ; and,
- Income from Other Business.

Operation and Maintenance Expenses

Existing Regulations

As per the existing regulations,

"*....Operation and Maintenance (O&M) expenses shall comprise the following:*

- *Salaries, wages, pension contribution and other employee costs;*
- *Administrative and General expenses;*
- *Repairs and Maintenance; and*

- *Expenses related to auxiliary energy consumption in the sub-station for the purpose of air-conditioning, lighting, technical consumption, etc.; and*

- *Other miscellaneous expenses, statutory levies and taxes (except corporate income tax).*

The Licensee shall submit the O&M expenses for the Control Period as prescribed in multiyear tariff filing procedure. The O&M expenses for the Base Year shall be approved by the Commission taking into account the latest available audited accounts, business plan filed by the Licensees, estimates of the actuals for the Base Year, prudence check and any other factor considered appropriate by the Commission.

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

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

Where,

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

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

$INDX = 0.55 * CPI + 0.45 * WPI$

Where,

'K' is a constant (could be expressed in %) governing the relationship between O&M costs and gross fixed assets (GFA) for the nth year. Value of K shall be specified in the MYT Order of the Commission;

INDX - Inflation Factor to be used for indexing can be taken as a combination of the Consumer Price Index (CPI) and the Wholesale Price Index (WPI) for immediately preceding five years;

EMP_n *– Employee Costs of the Licensee for the* n^{th} *year;*

$A\&G_n$ *– Administrative and General Costs of the Licensee for the* n^{th} *year;*

$R\&M_n$ *– Repair and Maintenance Costs of the Licensee for the* n^{th} *year;*

X_n *is an efficiency factor for* n^{th} *year. Value of* X_n *shall be determined by the Commission in the MYT Tariff order based on Licensee's filing, benchmarking, approved cost by the Commission in past and any other factor the Commission feels appropriate…."*

<u>*Proposed Regulations*</u>

As per the proposed Regulations, the Commission shall determine the value of 'K', for determination of R&M expense, separately for each year of the Control Period, as opposed to the existing Regulations, wherein the value of 'K' is determined for the entire Control Period.

Further, the inflation factor used for indexing the Employee and A&G Expense shall be determined by considering the CPI and WPI for the preceding ten years from the base year, as against the existing approach of considering the five years immediately preceding the nth year.

Also, expenses related to auxiliary energy consumption in the sub-station for the purpose of air conditioning, lighting, technical consumption, etc. have been excluded from calculation of normative O&M expense for the Licensee.

Working Capital Requirement

The Working Capital shall be used to calculate the Regulated Asset Base, used to provide the return to the Licensee under the Return on Capital Employed (RoCE) approach.

Existing Regulations

During the first Control Period, the working capital requirements of the transmission licensee for each year of the Control Period were computed on a normative basis and consisted of:

- Receivables for two months
- Operation and Maintenance expenses for one month,

Proposed Regulations

It is now proposed to revise the formula for calculation of normative working capital to bring it in line with the tariff regulations of the CERC, 2009-14.

As per the proposed Regulations, the working capital requirement during the second control period shall consist of:

- Receivables for two months towards transmission tariffs calculated on Normative Annual Transmission Availability Factor;
- Maintenance spares @ 15% of operation and maintenance expenses ; and
- Operation and maintenance expenses for one month.

Return on Capital Employed

Existing Regulations

As per the existing Regulations,

"...Return on Capital Employed (RoCE) shall be used to provide a return to the Transmission Licensee, and shall cover all financing costs, without providing separate allowances for interest on loans and interest on working capital.

The Regulated Rate Base (RRB) shall be used to calculate the total capital employed which shall include the original cost of assets and working capital, less the accumulated depreciation. Capital work in progress (CWIP) shall not form part of the RRB. Capital subsidies / grants shall be deducted in arriving at the RRB.

The RRB shall be determined for each year of the Control Period at the beginning of the Control Period based on the approved capital investment plan with corresponding capitalisation schedule and normative working capital.

The Regulated Rate Base for the i^{th} year of the Control Period shall be computed in the following manner:

$$RRB_i = RRB_{i-1} + \Delta AB_i/2 + \Delta WC_i;$$

Where,

'i' is the i^{th} year of the Control Period, i = 1,2,3,4 for the first Control Period;

RRB_i: Regulated Rate Base for the i^{th} year of the Control Period;

ΔAB_i: Change in the Regulated Rate Base in the i^{th} year of the Control Period. This component shall be the average of the value at the beginning and end of the year as the asset creation is spread across a year and is arrived at as follows:

$$\Delta AB_i = Inv_i - D_i$$

Where,

Inv_i: Investments projected to be capitalised during the i^{th} year of the Control Period and approved;

D_i: Amount set aside or written off on account of Depreciation of fixed assets for the i^{th} year of the Control Period;

RRB_{i-1}: Regulated Rate Base for the Financial Year preceding the i^{th} year of the Control period. For the first year of the Control Period, RRB_{i-1} shall be the Regulated Rate Base for the Base Year i.e. RRB_O;

$$RRB_O = OCFA_O - AD_O - CC_O;$$

Where;

$OCFA_O$: Original Cost of Fixed Assets at the end of the Base Year available for use and necessary for the purpose of the Licenced Business;

AD_O: Amounts written off or set aside on account of depreciation of fixed assets pertaining to the regulated business at the end of the Base Year;

CC_O: Total contributions pertaining to the OCFAo, made by the consumers towards the cost of construction of Transmission System by the Transmission Licensee and also includes the capital grants/subsidies received for this purpose;

ΔWC_i: Change in normative working capital requirement in the i^{th} year of the Control Period, from the $(i-1)^{th}$ year. For the first year of the Control Period (i=1), ΔWC_1 shall be taken as the normative working capital requirement of the first year. Working capital for wheeling of electricity shall consist of

- *Receivables for two months towards transmission tariffs; and*
- *Operation and maintenance expenses for one month.*

Return on Capital Employed (RoCE) for the year 'i' shall be computed in the following manner:

$$RoCE = WACCi * RRBi$$

Where,

WACCi is the Weighted Average Cost of Capital for each year of the Control period;

RRBi - Regulated Rate Base is the asset base for each year of the Control Period based on the capital investment plan and working capital.

The WACC for each year of the Control Period shall be computed at the start of the Control Period in the following manner:

$$WACC = \left[\frac{D/E}{1+D/E}\right] * r_d + \left[\frac{1}{1+D/E}\right] * r_e$$

Where,

D/E is the Debt to Equity Ratio and for the purpose of determination of tariff, debt-equity ratio as on the Date of Commercial Operation in case of new Transmission line or substation or capacity expanded shall be 70:30. Where equity employed is in excess of 30%, the amount of equity for the purpose of tariff shall be limited to 30% and the balance amount shall be considered as notional loan. The interest rate on the amount of equity in excess of 30% treated as notional loan shall be the weighted average rate of the loans of the Transmission Licensee for the respective years and shall be further limited to the prescribed rate of return on equity in the Regulations. Where actual equity employed is less than 30%, the actual equity and debt shall be considered.

r_d is the Cost of Debt and shall be determined at the beginning of the Control Period after considering Transmission Licensee's proposals, present cost of debt already contracted by the Transmission Licensee, credit rating, benchmarking and other relevant factors (risk free returns, risk premium, prime lending rate etc.).

r_e is the Return on Equity and shall be determined at the beginning of the Control Period after considering CERC norms, Transmission Licensee's proposals, previous years' D/E mix and other relevant factors. The cost of equity for the Transmission Business shall be considered at 14% post tax.

The Transmission Licensee shall make every effort to refinance the loan as long as it results in net benefit to the Beneficiaries. The cost associated with such refinancing shall be borne by the Beneficiaries and any benefit on account of refinancing of loan and interest on loan shall be passed on to the Beneficiaries. Refinancing may also include restructuring of debt.

In case any moratorium period is availed by the Transmission Licensee, depreciation provided for in the tariff during the years of moratorium shall be treated as notional repayment of loan during those years and interest on loan shall be calculated accordingly…"

Proposed Regulations

The Commission has revised its methodology to calculate the WACC for RoCE calculations in the proposed Regulations. As per the proposed Regulations, the Commission shall allow return on equity @15.5% (pre-tax), as against 14% (post-tax) allowed in the existing Regulations.

Further, in case of Projects commissioned on or after 1st April, 2012, an additional return of 0.5% shall be allowed if such projects are completed within the timeline specified by the Commission in these Regulations.

Further, in the proposed Regulations, the Commission has specified that financing of Working Capital shall be allowed only through debt financing, which was not spelt clearly in the last MYT Regulations, 2007. The Commission is of the view that the receivables and inventories that are hypothecated to get funding of the working capital are, essentially, the current assets of the business and are funded by the consumers and hence, do not qualify as additional investment made by the Licensees, on which the Licensee is entitled to get any return.

Further, as per the proposed Regulations, benefits from re-financing of loan shall be distributed amongst the beneficiaries and the Licensee in the ratio of 2:1 and the cost of such restructuring shall be entirely borne by the beneficiaries.

Also, the proposed Regulations specify that apart from the factors considered for calculating the cost of debt (used to calculate WACC) in the existing MYT Regulations, 2007, the Commission shall consider the Licensee's credit rating and other relevant benchmarks that it may feel appropriate.

The methodology of determining the Regulatory Rate Base (RRB) has been kept as per the methodology prescribed in the existing MYT Regulations.

Depreciation

Existing Regulations

As per the existing Regulations,

"...Depreciation shall be calculated for each year of the Control Period, on the amount of Original Cost of the Fixed Assets considered for calculation of the Regulated Rate Base of the corresponding year.

Provided that depreciation shall not be allowed on assets funded by any capital subsidy / grant.

Depreciation for each year of the Control Period shall be determined based on the methodology as specified in these Regulations along with the rates and other terms specified in Appendix -I to these Regulations.

The residual value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the original cost of the asset. Land is not a depreciable asset and its cost shall be excluded while computing 90% of the original cost of the asset.

Depreciation shall be calculated annually, based on the straight line method, over the useful life of the asset. The base value for the purpose of depreciation shall be original cost of the asset.

Depreciation shall be charged from the first year of operation of the asset. In case, the operation of the asset is for the part of the year, depreciation shall be charged on a pro rata basis.

In addition to allowable depreciation, the Transmission Licensee shall be entitled to Advance Against Depreciation, computed in the manner given hereunder:

- *AAD = Loan (raised for capital expenditure) repayment amount based on loan repayment tenure, subject to a ceiling of 1/10th of loan amount minus depreciation as calculated on the basis of these Regulations;*
- *Provided that Advance Against Depreciation shall be permitted only if the cumulative repayment up to a particular year exceeds the cumulative depreciation up to that year;*
- *Provided further that Advance Against Depreciation in a year shall be restricted to the extent of difference between cumulative repayment and cumulative depreciation up to that year.*

On repayment of entire loan, the remaining depreciable value shall be spread over the balance useful life of the asset..."

Proposed Regulations

Depreciation is now allowed at higher rates, as per the revised rates specified in CERC (Terms and Conditions of Tariff) Regulations, 2009, for the first 12 years of operation in order to meet the loan repayment burden of the Licensee. The remaining depreciable value of the assets is spread over the balance useful life of the assets. Accordingly, the provision for Advance against Depreciation has also been dispensed with.

Income Tax

Existing Regulations

During the first Control Period, Income Tax, if any, on the licensed business of the Transmission Licensee was treated as expense and was recoverable from its Beneficiaries.

Proposed Regulations

In the second Control Period, the return on equity shall be grossed up by the applicable tax rate and the transmission licensee shall be provided pre-tax return on equity. Tax on the income streams of the licensee shall not be recovered from the beneficiaries separately.

However, the deferred tax liability, excluding Fringe Benefit Tax, for the period up to March 31, 2012 whenever it materializes, shall be recoverable directly from the beneficiaries and the long-term customers.

Non-Tariff Income

Existing Regulations

All incomes incidental to electricity business and derived by the Licensee from sources, including but not limited to profit derived from disposal of assets, rents, delayed payment surcharge, miscellaneous receipts from the Beneficiaries and income to Licensed business from the Other Business of the Transmission Licensee constitutes Non-Tariff Income of the Licensee.

The amount received by the Licensee on account of Non-Tariff Income is deducted from the Aggregate Revenue Requirement in calculating the net revenue requirement of the Licensee.

Proposed Regulations

No change is proposed in calculation of this component.

Other Income of the Transmission Licensee

Existing Regulations

Where the Transmission Licensee is engaged in any other business, the income from such business shall be calculated as per "DERC Treatment of Income from Other Business of Transmission Licensee and Distribution Licensee Regulation 2005"and shall be deducted from the Aggregate Revenue Requirement in calculating the revenue requirement of the Transmission Licensee;

Provided that the Transmission Licensee shall follow a reasonable basis for allocation of all joint and common costs between the Transmission Business and the Other Business and shall submit the Allocation Statement as approved by the Board of Directors to the Commission along with his application for determination of tariff;

Provided further that where the sum total of the direct and indirect costs of such Other Business exceed the revenues from such Other Business or for any other reason, no amount shall be allowed to be added to the Aggregate Revenue Requirement of the Transmission Licensee on account of such Other Business.

Proposed Regulations

No change is proposed in calculation of this component.

Generation

This section discusses generation tariff as determined by the Commission and applicable to the Generating Company providing electricity to any Distribution Licensee or other power procurers in the State.

Currently, the State has two Generating Companies – Indraprastha Power Generation Company Limited (IPGCL) and Pragati Power Corporation Limited (PPCL); the plant-wise details of the stations for which tariff is determined by the Commission are given below:

Table 6: Unit Details of Generation Stations

	Total Capacity	Unit Details	Fuel	COD
IPGCL - Rajghat Power House	135	2 x 67.5	Coal	1990
IPGCL - Gas Turbine Power Station	270	6 x 30	CNG/LNG	1986
		3 x 30	Steam Turbine	1996
PPCL - Gas Turbine	208	2 x 104	CNG/LNG	2002
PPCL - Steam Turbine	22	1 x 22	CNG/LNG	2003

The Commission intends to determine generation tariffs using a performance based approach, linking efficiency parameters, which would be used to provide incentives based on actual performance.

As per the Tariff Policy, the principles and methodologies adopted by the Commission for determination of generation tariff during the second MYT Control Period have been guided by the principles specified by the Central Commission in the CERC (Terms and Conditions of Tariff) Regulations, 2009.

Norms of Operation

During the first MYT Control Period, the operational norms for the **existing IPGCL and PPCL generating stations** were determined based on the petitions filed by these companies, past performance, performance of similarly placed units and benchmarking techniques. Considering the vintage and current operations of these plants, there seems to be no merit in modifying the norms of operation for any of the existing generating stations. It is thus proposed that for the second Control Period the same norms of operation be made applicable for the existing generating stations.

However, no target for PLF has been specified for the generating stations as had been done during the first Control Period. Instead, only a Normative Plant Availability Factor (NAPAF) has been specified for each plant, which shall form the basis for providing the generation incentive to the generating station.

The values for different operational norms for the existing generating plants have been proposed as under:

Indraprastha Power Generation Co. Ltd (IPGCL)

Rajghat Thermal Power House (RPH)

Parameters	2012-13	2013-14	2014-15
Normative Annual Plant Availability Factor (%)	75%	75%	75%
Gross Station Heat Rate (kCal/kWh))	3200	3200	3200
Auxiliary Consumption (%)	11.28%	11.28%	11.28%
Secondary Fuel Oil (LDO) Consumption (ml/kWh)	1.50	1.50	1.50
Secondary Fuel Oil (LSHS) Consumption (gm/kWh)	3.75	3.75	3.75

Indraprastha Gas Turbine Power Station (GTPS)

Parameters	2012-13	2013-14	2014-15
Normative Annual Plant Availability Factor (%)	80%	80%	80%
Combined cycle Gross Station Heat Rate (kCal/kWh)	2450	2450	2450
Open Cycle Gross Station Heat Rate (kCal/kWh)	3125	3125	3125
Combined Cycle Auxiliary Consumption (%)	3.0%	3.0%	3.0%
Open Cycle Auxiliary Consumption (%)	1.0%	1.0%	1.0%

Pragati Power Corporation Limited (PPCL-I)

Parameters	2012-13	2013-14	2014-15
Normative Annual Plant Availability Factor (%)	85%	85%	85%
Combined Cycle Gross Station Heat Rate (kCal/kWh)	2000	2000	2000
Open Cycle Gross Station Heat Rate (kCal/kWh)	2900	2900	2900
Combined Cycle Auxiliary Consumption (%)	3.0%	3.0%	3.0%
Open Cycle Auxiliary Consumption (%)	1.0%	1.0%	1.0%

All **new generation stations** to be setup in the State shall adhere to the norms of operation as specified in the CERC (Terms and Conditions of Tariff) Regulations, 2009.

Principles for determination of Generation tariff

Capital Cost of the Project

Existing Regulations

During the first MYT Control Period, the following provision was made with respect to Capital Cost in the DERC Generation Tariff Regulations, 2007:-

"the actual expenditure incurred on completion of the Project shall form the basis for determination of final tariff. The final tariff shall be determined based on the admitted capital expenditure actually incurred up to the Date of Commercial Operation of the generating station…"

Proposed Regulations

The methodology used for calculating the Capital Cost for Tariff Determination, as per the proposed Regulations is guided by the principles laid out in the CERC (Terms and Conditions for Tariff) Regulations, 2009.

The CERC in its latest Tariff Regulations (2009-14) has decided to allow interest during construction, financing charges and foreign exchange risk variation up to the date of commercial operation of the project on the actual as well as the normative loan admitted by the Commission. Accordingly, the provision regarding the Capital Cost has been modified as follows:-

"Capital cost for a Project shall include:

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

Additional Capitalisation

Existing Regulations

In accordance with the CERC Tariff Regulations (2004-09), during the first MYT Control Period, the following provision was made with respect to Additional Capitalisation in the DERC Generation Tariff Regulations, 2007:-

"The Commission shall include, subject to prudence check, the following capital expenditure, incurred after the Date of Commercial Operation of a Project and upto the Cut-off Date, to its original Project cost, provided the same was part of the original scope of work of the Project

(i) Deferred liabilities;
(ii) Works deferred for execution;
(iii) Procurement of initial capital spares within the original scope of work, subject to ceiling specified above (Section 6.2 of the Regulations);
(iv) Liabilities to meet award of arbitration or for compliance of the order or decree of a court; and
(v) On account of change of law.

Provided that original scope of work along with estimates of expenditure shall be submitted along with the application for determination of tariff;

Provided further that a list of the deferred liabilities and works deferred for execution shall be submitted along with the application for determination of tariff after the Date of Commercial Operation of the generating station."

Proposed Regulations

The methodology used for calculating additional capitalization for Tariff Determination, as per the proposed Regulations is guided by the principles laid out in the CERC (Terms and Conditions for Tariff) Regulations, 2009.

The CERC in its latest Tariff Regulations (2009-14) has adopted a different approach and has allowed generating companies and transmission licensees to make applications for tariff determination based on **anticipated** additional capital expenditure for the tariff period 2009-14 in order to provide tariff certainty and avoid retrospective tariff revisions and to keep the impact of tariff revision to the bare minimum.

Further, CERC has decided that the phrase 'deferred liability' should be substituted by the phrase 'undischarged liability' which would mean that even though the work has been executed, the liability for payment for that work has not been discharged.

Accordingly, the provision regarding the Capital Cost has been modified as follows:-

"The capital expenditure incurred or projected to be incurred, on the following counts within the original scope of work, after the date of commercial operation and up to the cut-off date may be admitted by the Commission, subject to prudence check:

(i) Undischarged liabilities;
(ii) Works deferred for execution;
(iii) Procurement of initial capital spares within the original scope of work, subject to the provisions under clause 6. 1 and 6.2 of these Regulations;
(iv) Liabilities to meet award of arbitration or for compliance of the order or decree of a court; and
(v) Change in law.

Provided that the details of works included in the original scope of work along with estimates of expenditure, undischarged liabilities and the works deferred for execution shall be submitted along with the application for determination of tariff.

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

(i) Liabilities to meet award of arbitration or for compliance of the order or decree of a court.
(ii) Change in law.
(iii) Deferred works relating to ash pond or ash handling system in the original scope of work.
(iv) In case of gas/liquid fuel based open/combined cycle thermal generating stations, any expenditure which has become necessary on renovation of gas turbine after 15 years of operations from its COD and the expenditure necessary due to obsolescence or non-availability of spares for successful and efficienct operation of the stations:
Provided that any expense included in R&M on consumables and cost of components and spares, which is generally covered in the)&M expenses during the major overhaul of gas turbine shall be suitably deducted after due prudence check from the R&M expenditure to be allowed
(v) Any capital expenditure found justified after prudence check necessitated on account of modification required or done in fuel receipt system arising due to non-materialisation of fuel coal linkage in respect of thermal generating station as result of circumstances not within the control of generating station.
(vi) Any undercharged liability towards final payment/withheld payment due to contractual exigencies for work executed within the cut-off date, after prudence check of the details of such deferred liability, total estimated cost of package, reason for such withholding of payment and release of such payment etc."

Sale of Infirm Power

Existing Regulations

In accordance with the CERC Tariff Regulations (2004-09), during the first MYT Control Period, the following provision was made with respect to Sale of Infirm Power in the DERC Generation Tariff Regulations, 2007:-

"Any revenue (other than the recovery of fuel cost) earned by the generating company from sale of Infirm Power, shall be taken as reduction in capital cost and shall not be treated as revenue."

Proposed Regulations

Following the guidelines laid down in the latest CERC Tariff Regulations (2009-14), the Commission has redrafted the regulation with respect to the sale of infirm power as follows:-

"Supply of infirm power shall be accounted as Unscheduled Interchange (UI) and paid for from the regional or State UI pool account at the applicable frequency-linked UI rate.

Provided that any revenue earned by the generating company from sale of infirm power after accounting for the fuel expenses shall be applied for reduction in capital cost."

Debt-Equity Ratio

Existing Regulations

During the first MYT Control Period, the following provision was made with respect to Debt-Equity Ratio in the DERC Generation Tariff Regulations, 2007:-

"Existing Stations:

For generating stations mentioned in the Transfer Scheme, dated July 1, 2002, the amount of loan capital shall be equal to the sum of the outstanding balance of all long term loans taken to finance the generating station, at the commencement of the Financial Year for which tariff is to be determined, as reflected in the tariff orders of the Commission.

The equity capital for generating stations mentioned in the Transfer Scheme, dated July 1, 2002 shall be taken as specified therein. Any fresh addition in equity after July 1, 2002 as may be approved by the Commission shall also be considered.

For other stations set up subsequent to Transfer Scheme dated July 1, 2002, the normative debt-equity ratio shall be considered to be 70:30 for determination of tariff.

New Stations:

The normative debt-equity ratio shall be considered to be 70:30 for determination of tariff.

In case of a generating station where equity employed is more than 30%, the amount of equity for determination of tariff shall be limited to 30% and the balance amount shall be considered as the normative loan.

In case of a generating station where actual equity employed is less than 30%, the actual debt and equity shall be considered for determination of tariff."

<u>*Proposed Regulations*</u>

Following the guidelines laid down in the latest CERC Tariff Regulations (2009-14), the Commission has redrafted the regulation as follows:-

"For generating stations mentioned in the Transfer Scheme, dated July 1, 2002, the amount of loan capital shall be equal to the sum of the outstanding balance of all long term loans taken to finance the generating station, at the commencement of the Financial Year for which tariff is to be determined, as reflected in the tariff orders of the Commission.

The equity capital for generating stations mentioned in the Transfer Scheme, dated July 1, 2002 shall be taken as specified therein. Any fresh addition in equity after July 1, 2002 as may be approved by the Commission shall also be considered.

For a project declared under commercial operation on or after 1.4.2012, if the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan:

Provided that in case of a generating station where equity employed is more than 30%, the amount of equity for determination of tariff shall be limited to 30% and the balance amount shall be considered as the normative loan;

Provided also that in case of a generating station where actual equity employed is less than 30%, the actual debt and equity shall be considered for determination of tariff.

In case of the generating station declared under commercial operation prior to 1.4.2012, debt-equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2012 shall be considered.

Any expenditure incurred or projected to be incurred on or after 1.4.2012 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernisation expenditure for life extension the normative debt-equity ratio shall be considered to be 70:30 for determination of tariff:

Provided that in case of a generating station where equity employed is more than 30%, the amount of equity for determination of tariff shall be limited to 30% and the balance amount shall be considered as the normative loan;

Provided also that in case of a generating station where actual equity employed is less than 30%, the actual debt and equity shall be considered for determination of tariff."

Renovation and Modernisation

Proposed Regulations

The CERC in its latest Tariff Regulations (2009-14) has introduced certain provisions with respect to the treatment of expenditure on renovation and modernization of existing generating stations. The same, quoted below, have been incorporated in the Generation Tariff Regulations for the second Control Period.

"The generating company, for meeting the expenditure on renovation and modernization (R&M) for the purpose of extension of life beyond the useful life of the generating station or a unit thereof, shall make an application before the Commission for approval of the proposal with a Detailed Project Report giving complete scope, justification, cost-benefit analysis, estimated life extension from a reference date, financial package, phasing of expenditure, schedule of completion, reference price level, estimated completion cost including foreign exchange component, if any, record of consultation with beneficiaries and any other information considered to be relevant by the generating company.

Where the generating company, makes an application for approval of its proposal for renovation and modernisation, the approval shall be granted after due consideration of reasonableness of the cost estimates, financing plan, schedule of completion, interest during construction, use of efficient technology, cost-benefit analysis, and such other factors as may be considered relevant by the Commission.

Any expenditure incurred or projected to be incurred and admitted by the Commission after prudence check based on the estimates of renovation and modernization expenditure and life extension, and after deducting the accumulated depreciation already recovered from the original project cost, shall form the basis for determination of tariff.

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

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

A generating company (coal-based/lignite fired thermal generating station) on opting for the alternative in the clause 0 of these Regulations, shall be allowed special allowance @ Rs. 5.59 lakh/MW/year in 2012-11 and thereafter escalated @ 5.72% every year during the Control Period 2012-15, unit-wise from the next financial year from the respective date of the completion of useful life with reference to the date of commercial operation of the respective unit of generating station:

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

Interest and Finance Charges

Existing Regulations

During the first MYT Control Period, Interest and finance charges on loan capital were computed on the outstanding loans, duly taking into account the schedule of repayment, as per the terms and conditions of relevant agreements of loan, bond or non convertible debentures.

Further, the interest rate on the amount of equity in excess of 30%, treated as notional loan, was taken to be the weighted average rate of the loans of the respective years;

As per the existing Regulations,

"*Interest and finance charges on loan capital shall be computed on the outstanding loans, duly taking into account the schedule of repayment, as per the terms and conditions of relevant agreements of loan, bond or non convertible debentures. Exception can be made for the existing or past loans which may have different terms as per the agreements already executed if the Commission is satisfied that the loan has been contracted for and applied to identifiable and approved Projects.*

The interest rate on the amount of equity in excess of 30% treated as notional loan shall be the weighted average rate of the loans of the respective years and shall be further limited to the prescribed rate of return on equity in the Regulation;

Provided that all loans considered for this purpose shall be identified with the assets created;

Provided that interest and finance charges of re-negotiated loan agreements shall not be considered, if they result in higher charges;

Provided further that interest and finance charges on works in progress shall be excluded and shall be considered as part of the capital cost;

Provided further that neither penal interest nor overdue interest shall be allowed for computation of Tariff.

In case any moratorium period is availed of in any loan, depreciation provided for in the tariff during the years of moratorium shall be treated, as notional repayment of loan during those years and interest on loan capital shall be calculated accordingly.

The Generating Station shall make every effort to refinance the loan as long as it results in net benefit to the Beneficiaries. The cost associated with such refinancing shall be borne by the Beneficiaries and any benefit on account of refinancing of loan and interest on loan shall be passed on to the Beneficiaries. Refinancing may also include restructuring of debt.."

Proposed Regulations

The CERC in its latest Tariff Regulations (2009-14) has considered the weighted average rate of interest and normative repayment for calculation of interest on loan. It has considered the repayment for the tariff period as equal to the depreciation allowed. Also to encourage the entities to make every effort to re-finance the loan as long as it results in net benefit to the beneficiaries, the Commission has proposed to allow sharing of the net benefit between the beneficiaries and the utilities in the ratio of 2:1.

Following the guidelines laid down by CERC, the Commission has redrafted the methodology for calculation of interest on loan as follows:-

"Interest and finance charges on loan capital shall be computed on the outstanding loans, bond or non convertible debentures as on 31.03.2012 approved by the Commission and additional loan approved during each year of the Control Period.

The repayment for the year of the Control Period 2012-15 shall be deemed to be equal to the depreciation allowed for that year.

The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year applicable to the project.

…

The interest on loan shall be calculated on the normative average loan of the respective years by applying the weighted average rate of interest.

The interest rate on the amount of equity in excess of 30% treated as notional loan shall be the weighted average rate of the loans of the respective years and shall be further limited to the prescribed rate of return on equity in the Regulation;

…

The generating company shall make every effort to re-finance the loan as long as it results in net savings on interest and in that event the costs associated with such re-financing shall be borne by the beneficiaries and the net savings shall be shared between the beneficiaries and the generating company, as the case may be, in the ratio of 2:1.

The changes to the terms and conditions of the loans shall be reflected from the date of such re-financing.

…"

Working Capital Requirement

Existing Regulations

During the first MYT Control Period, the generation companies were allowed to claim working capital on a normative basis as per the formulae given below:

Working Capital requirement for coal-based generating stations included the following components:

(a) Cost of Coal for 1.5 months for pithead stations and for 2 months in nonpithead stations corresponding to the Target Availability;

(b) Cost of Secondary Fuel Oil for 2 months corresponding to the Target Availability;

(c) O&M expenses for 1 month;

(d) Receivables equivalent to 2 months of fixed and variable charges for sale of electricity calculated on the Target Availability.

For the gas based generating stations, the working capital requirements were calculated using the following components:

(a) Fuel expenses for 1 month corresponding to the Target Availability duly taking into account the mode of operation of the generating station on gas fuel and liquid fuel;

(b) Liquid fuel stock for ½ month;

(c) O&M expenses for 1 month;

(d) Receivables equivalent to 2 months of fixed and variable charges for sale of electricity calculated on the Target Availability.

Proposed Regulations

It is now proposed to revise the formulae for calculation of normative working capital to bring it in line with the latest tariff regulations of the Central Commission. As per the proposed Regulations the Commission shall now calculate the Working Capital requirement as follows:-

Coal-based generating stations

(i) Cost of coal for 1.5 months for pithead generating stations and 2 months for non-pithead generating stations for generation corresponding to the Normative Annual Plant Availability Factor;

(ii) Cost of secondary fuel oil for two months for generation corresponding to the Normative Annual Plant Availability Factor, and in case of use of more than one secondary fuel oil, cost of fuel oil stock for the main secondary fuel oil;

(iii) Maintenance spares @ 20% of operation and maintenance expenses;

(iv) O&M expenses for 1 month; and

(v) Receivables equivalent to 2 months of capacity charges and energy charges for sale of electricity calculated on the Normative Annual Plant Availability Factor.

Open-cycle Gas Turbine/Combined Cycle thermal generating stations

(i) Fuel expenses for 1 month corresponding to the Normative Annual Plant Availability Factor, duly taking into account mode of operation of the generating station on gas fuel and liquid fuel;

(ii) Liquid fuel stock for ½ month corresponding to the Normative Annual Plant Availability Factor duly taking into account mode of operation of the generating station of gas fuel and liquid fuel, and in case of use of more than one liquid fuel, cost of main liquid fuel;

(iii) Maintenance spares @ 30% of operation and maintenance expenses;

(iv) Receivables equivalent to two months of capacity charge and energy charge for sale of electricity calculated on Normative Annual Plant Availability factor, duly taking ; and

(v) O&M expenses for 1 month.

The cost of fuel in cases covered above shall be based on the landed cost incurred (taking into account normative transit and handling losses) by the generating company and gross calorific value of the fuel as per actual for the three months preceding the first month for which tariff is to be determined and no fuel price escalation shall be provided during the Control Period."

Depreciation

Existing Regulations

As per the existing Generation Regulations in the state depreciation is calculated by applying the depreciation rates notified by the Commission using Straight Line Method over the useful life of the asset and considering Salvage Value of 10%. On repayment of entire loan, the remaining depreciable value is spread over the balance useful life of the asset. Depreciation is chargeable from the first year of operation. In case of operation of the asset for part of the year, depreciation is charged on pro rata basis. To provide cash flow to the utilities to make them repay their debt, Advance Against Depreciation (AAD) is allowed subject to certain condition.

As per the existing Regulations,

"Depreciation shall be calculated for each year of the Control Period, on the amount of Capital Cost of the Fixed Assets as admitted by the Commission;

Provided that depreciation shall not be allowed on assets funded by any capital subsidy / grant.

Depreciation for each year of the Control Period shall be determined based on the methodology as specified in these Regulations along with the rates and other terms specified in Appendix-I of these Regulations.

Depreciation shall be calculated annually, based on the straight line method, over the useful life of the asset. The base value for the purpose of depreciation shall be capital cost of the asset as admitted by the Commission.

Provided that, the remaining depreciable value as on 31st March of the year closing after a period of 12 years from the date of commercial operation shall be spread over the balance useful life of the assets.

In case of the existing Projects, the balance depreciable value as on 1.4.2012 shall be worked out by deducting the cumulative depreciation including Advance Against Depreciation as admitted by the Commission upto 31.3.2012 from the gross depreciable value of the assets. The rate of depreciation shall be continued to be charged at the rate specified in Appendix-I till cumulative depreciation reaches 70%. Thereafter the remaining depreciable value shall be spread over the remaining life of the asset such that the maximum depreciation does not exceed 90%.

The salvage value of the asset shall be considered as 10% and depreciation shall be allowed upto a maximum of 90% of the capital cost of the asset. Land is not a depreciable asset and its cost shall be excluded while computing 90% of the original cost of the asset. In the event of Renovation and Modernization expenditure affecting the life of the asset, the depreciation shall be allowed upto a maximum of 90% of the cost of the asset within the enhanced life span of the asset.

Depreciation shall be chargeable from the first year of commercial operation. In case of commercial operation of the asset for part of the year, depreciation shall be charged on a pro rata basis…"

<u>*Proposed Regulations*</u>

In its latest Tariff Regulations (2009-14) the Central Commission has linked the allowable depreciation to the loan repayment obligation of the utilities. Depreciation is now allowed at higher rate for the first 12 years of operation so that the licensees are able to meet their loan repayment burden. The remaining depreciable value of the assets is spread over the balance useful life of the assets. Accordingly, the provision for Advance against Depreciation has also been dispensed with.

Following the guidelines laid down by CERC, the Commission has changed the methodology for calculation of depreciation as quoted below:-

"Depreciation shall be calculated for each year of the Control Period, on the amount of Capital Cost of the Fixed Assets as admitted by the Commission;

Provided that depreciation shall not be allowed on assets funded by any capital subsidy / grant.

Depreciation for each year of the Control Period shall be determined based on the methodology as specified in these Regulations along with the rates and other terms specified in Appendix-I of these Regulations.

Depreciation shall be calculated annually, based on the straight line method, over the useful life of the asset. The base value for the purpose of depreciation shall be capital cost of the asset as admitted by the Commission.

Provided that, the remaining depreciable value as on 31st March of the year closing after a period of 12 years from the date of commercial operation shall be spread over the balance useful life of the assets.

In case of the existing Projects, the balance depreciable value as on 1.4.2011 shall be worked out by deducting the cumulative depreciation including Advance Against Depreciation as admitted by the Commission upto 31.3.2011 from the gross depreciable value of the assets. The rate of depreciation shall be continued to be

charged at the rate specified in Appendix-I till cumulative depreciation reaches 70%. Thereafter the remaining depreciable value shall be spread over the remaining life of the asset such that the maximum depreciation does not exceed 90%.

The salvage value of the asset shall be considered as 10% and depreciation shall be allowed upto a maximum of 90% of the capital cost of the asset. Land is not a depreciable asset and its cost shall be excluded while computing 90% of the original cost of the asset. In the event of Renovation and Modernization expenditure affecting the life of the asset, the depreciation shall be allowed upto a maximum of 90% of the cost of the asset within the enhanced life span of the asset.

Depreciation shall be chargeable from the first year of commercial operation. In case of commercial operation of the asset for part of the year, depreciation shall be charged on a pro rata basis."

Return on Equity

Existing Regulations

During the first MYT Control Period, the Commission allowed Return on Equity (post tax) at the rate of 14%.

Proposed Regulations

The Commission has revised its methodology to calculate Return on Equity in accordance with the latest Tariff Regulations of the Central Commission. It is proposed that the Commission shall allow return on equity @ 15.5% (pre-tax), as against 14% (post-tax) allowed in the existing Regulations.

Further, in case of Projects commissioned on or after 1st April, 2012, an additional return of 0.5% shall be allowed if such projects are completed within the timeline specified by the Commission in these Regulations.

Income Tax

Existing Regulations

During the first Control Period, Income Tax, if any, on the generation business of the Generating Company was treated as expense and was recoverable from the Beneficiaries of the Generating Station.

Proposed Regulations

In the second Control Period, the return on equity shall be grossed up by the applicable tax rate and the generator shall be provided pre-tax return on equity. Tax on the income streams of the generating company shall not be recovered from the beneficiaries separately.

However, the deferred tax liability, excluding Fringe Benefit Tax, for the period up to March 31, 2012 whenever it materializes, shall be recoverable directly from the beneficiaries and the long-term customers

Operation and Maintenance Expenses

The O&M expenses are allowed to the generation companies on a normative basis and comprise of the following:

- Salaries, wages, pension contribution and other employee costs;
- Administrative and General costs;
- Repairs and maintenance; and
- Other miscellaneous expenses, statutory levies and taxes (except corporate income tax).

Existing Regulations

For existing Generating Stations O&M expenses are allowed by escalating the base year expenses by and escalation rate of 4%. The O&M expenses for new Generating Stations are provided for as per the norms adopted by the CERC in its Tariff Regulations for FY 2004-09.

As per the existing Regulations,

"..Existing Generating Stations: The Applicant shall submit details of O&M expenses as required by the Commission. The O&M expenses for the Base Year shall be determined based on latest accounting statements, estimates of the generating company for relevant years and other factors considered relevant.

The O&M expenses for permissible towards determination of tariff for each year of the Control Period shall be determined after a prudency check by the Commission based on submissions of the Generating Company, previous years' actual expenses and any other factor considered relevant.

New Generating Stations: Normative O&M expenses (in Rs lakhs/ MW) permissible towards determination of tariff for each year of the Control Period shall be as follows:

Coal based Thermal Power Stations:

Year	***200/ 210/ 250 MW sets***	***500 MW and above sets***
2007-08	*11.70*	*10.52*
2008-09	*12.17*	*10.95*
2009-10	*12.65*	*11.38*
2010-11	*13.16*	*11.83*

Note: *For the generating stations having combination of 200/210/250 MW sets and 500 MW and above set, the weighted average value for operation and maintenance expenses shall be adopted.*

Gas Turbine / Combined Cycle generating Stations (Rs in lakh/MW):

YEAR	***GAS TURBINE/ COMBINED CYCLE GENERATING STATIONS OTHER THAN SMALL GAS TURBINE POWER GENERATING STATIONS***	***SMALL GAS TURBINE POWER GENERATING STATIONS***
2007-08	*8.77*	*10.65*
2008-09	*9.12*	*11.07*
2009-10	*9.49*	*11.52*
2010-11	*9.86*	*11.98*

Proposed Regulations

Following the guidelines of the latest CERC Tariff Regulations (for FY 2009-14), it is proposed that for existing Generating Stations O&M expenses be allowed by escalating the base year expenses by and escalation rate of 5.72%. The O&M expenses for new Generating Stations shall provided for as per the norms adopted by the CERC in its Tariff Regulations for FY 2009-14.

As per the proposed Regulations,

The Applicant shall submit details of O&M expenses as required by the Commission. The O&M expenses for the Base Year shall be determined based on latest accounting statements, estimates of the generating company for relevant years and other factors considered relevant.

The O&M expenses for permissible towards determination of tariff for each year of the Control Period shall be arrived by escalated O&M expenses determined for the base year at the rate of 5.72% per annum.

New Generating Stations:

Normative O&M expenses (in Rs lakhs/ MW) permissible towards determination of tariff for each year of the Control Period shall be as follows:

Coal based Thermal Power Stations:

Year	***200/ 210/ 250 MW sets***	***300/330/350 MW sets***	***500 MW sets***	***600 MW and above sets***
2012-13	*21.51*	*18.91*	*15.36*	*13.82*
2013-14	*22.74*	*19.99*	*16.24*	*14.62*
2014-15	*24.04*	*21.13*	*17.17*	*15.45*

Provided that the above norms shall be multiplied by the following factors for additional units in respective unit sizes for the units whose COD occurs on or after 1.4.2012 in the same station:

200/210/250 MW	*Additional 5th & 6th units*	*0.9*
	Additional 7th & more units	*0.85*
300/330/350 MW	*Additional 4th & 5th units*	*0.9*
	Additional 6th & more units	*0.85*
500 MW and above	*Additional 3rd & 4th units*	*0.9*
	Additional 5th & above units	*0.85*

Open Cycle Gas Turbine / Combined Cycle generating Stations (Rs in lakh/MW):

YEAR	***GAS TURBINE/ COMBINED CYCLE GENERATING STATIONS OTHER THAN SMALL GAS TURBINE POWER GENERATING STATIONS***	***SMALL GAS TURBINE POWER GENERATING STATIONS***
2012-13	*17.49*	*27.06*
2013-14	*18.49*	*28.61*
2014-15	*19.55*	*30.24*

In case of coal-based or lignite-fired thermal generating station a separate compensation allowance unit-wise shall be admissible to meet expenses on new assets of capital nature including in the nature of minor assets, in the following manner from the year following the year of completion of 10, 15, or 20 years of useful life:

Years of operation	***Compensation Allowance (Rs Lakh/MW/year)***

Years of operation	*Compensation Allowance (Rs Lakh/MW/year)*
0-10	*Nil*
11-15	*0.15*
16-20	*0.35*
21-25	*0.65*

Expenses on secondary fuel oil consumption

Existing Regulations

In the first MYT Control Period the expenses on secondary fuel oil were included in the energy charges to be recovered from the beneficiaries. Any change in cost of secondary fuel oil due to increase in price of secondary fuel was adjusted at the end of each month in accordance with the fuel price adjustment formula specified by the Commission.

Proposed Regulations

Following the guidelines of the latest CERC Tariff Regulations (for FY 2009-14), it is proposed that expenses on secondary fuel oil shall be treated as a part of the capacity charges and shall be calculated as per the methodology given below:-

"Expenses on secondary fuel oil in Rupees shall be computed corresponding to normative secondary fuel oil consumption (SFC) in accordance with the following formula specified by CERC as given below:

= SFC x LPSFi x NAPAF x 24 x NDY x IC x 10

Where,

SFC – Normative Specific Fuel Oil consumption in ml/kWh

LPSFi – Weighted Average Landed Price of Secondary Fuel in Rs/ml considered initially

NAPAF – Normative Annual Plant Availability Factor in percentage

NDY – Number of days in a year

IC - Installed Capacity in MW

Initially, the landed cost incurred by the generating company on secondary fuel oil shall be taken based on actuals of the weighted average price of the three preceding months and in the absence of landed costs for the three preceding months, latest procurement price for the generating station, before the start of the year.

The secondary fuel oil expenses shall be subject to fuel price adjustment at the end of the each year of Control Period as per following formula specified by the CERC.

The savings on account of secondary fuel oil consumption in relation to norms specified by the Commission shall be shared with beneficiaries in the ratio of 50:50."

Generation Incentive

Each generating company is provided with an incentive to increase generation beyond the stipulated minimum generation. The Central Commission, in its Tariff Regulations for 2009-14, has linked the generation incentive

to station Availability and not the actual generation by the station as had been the case in the previous Regulations (for 2004-09). The generation regulations in the State have also been modified accordingly.

Existing Regulations

During the first Control Period, generation incentive was payable at a flat rate of 25 paise/kWh for ex-bus scheduled energy corresponding to Scheduled Generation in excess of ex-bus energy corresponding to the Target Plant Load factor.

Proposed Regulations

No target for PLF has been specified for the generating stations for the second Control Period. Instead, only a Normative Plant Availability Factor (NAPAF) has specified for each plant, which shall form the basis for generation incentive, in line with the approach followed by the CERC in its latest Tariff Regulations.

The generation incentive, based on Availability, shall be recoverable along with the annual capacity charge of the station in accordance with the formula specified in the regulations.

Elements in benchmarking

A distribution network is responsible for delivering electricity to customers within its license area. Notably, factors like the number of customers, energy demand, line length etc. are determined by the licensee area of supply and can be considered as external factors. Such factors may be considered the 'Outputs' that the utility is required to deliver. In order to deliver the output the utility is required to incur certain costs as 'inputs'.

Benchmarking is a technique used to assess the efficiency of a utility relative to other utilities by considering certain 'inputs' utilised by the utilities in order to deliver the required 'Outputs'. The better the mix of the input of a utility for delivering the required output, the more is the efficiency of the utility.

The key elements in benchmarking are:

- Choice of inputs and outputs
- Choice of comparators (i.e. distribution networks to compare against)
- Choice of factors for normalisation

The following table shows the larger set of possible inputs and outputs. Combinations of these would be appropriate depending on the network characteristics (and other factors like data availability, choice of methodology, etc).

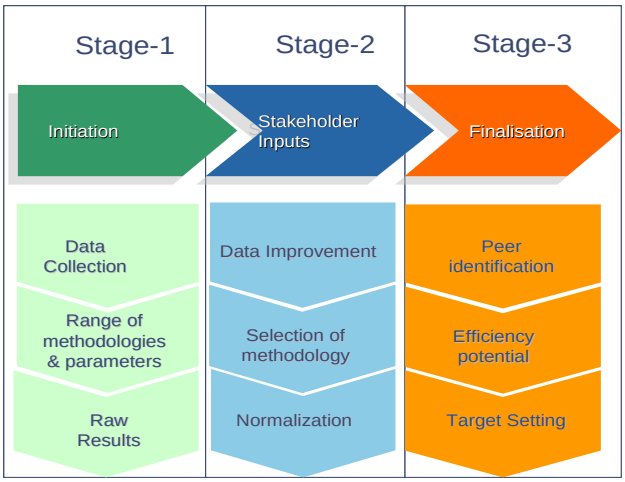
Table 7: Elements of Benchmark

Outputs	Inputs
Number of consumers Energy Sales (kWh) Peak demand (MW) Area served (sq. km) Quality parameters Distribution Losses	Operating costs (wages, repair & maintenance costs, administrative costs) Capital costs (Annual capex and/or assets)
Proxies Network length (for area served)	Proxies Network length Transformer capacity (both being proxies for assets being utilized by the business)

Benchmarking Process

The schematic diagram below broadly shows the process of applying benchmarking techniques for electricity sector regulation.

Figure 1: Benchmarking Process



Stage 1: Initiation: In the first stage, a broader set of inputs & outputs, and comparators, are selected. The initial analysis is done on the available information. The outcome of this stage is referred to as Raw Results, because the stakeholders' inputs on the specific factors of the Distribution Licensee are not considered yet.

Stakeholder Inputs: It is typical for each Distribution Licensee to highlight its unique characteristics as the explanation for its efficiency scores. Many of these would be relevant, and would deserve to be considered in normalising the raw scores. Equally, if all the factors are considered valid, each Distribution Licensee would appear to be most efficient. It is essential for the process to provide an opportunity for such factors to be brought out, and debated amongst the stakeholders.

This stage is also important to bring competitiveness among utilities, by providing opportunity for comparisons, explanations, and debate on various issues. More specifically, the stage enables:

The Distribution Licensees to provide further information relevant to the analysis. Also, to highlight any data improvements for example if any discrepancies arise out of accounting policies, whether capitalisation of operating expenses are consistent, etc.

Special cases to be brought to the fore. E.g. cost of concessional power provided to employees; any legacy costs that continue to impact Delhi Distribution Licensees but not the comparators, etc.

Stage 2 would comprise the responses to the raw result, the Licensees' petitions that would follow the regulations and the public hearings on the licensee petitions. Based on the outcome of this debate, the data set is likely to be improved and appropriate methodology, choice of parameters and normalisation factors would be finalised.

Stage 3/Finalisation: In the third stage, based on the feedback and analysis, the regulator would select appropriate comparator(s), take a view on a realistic pace of efficiency improvement, consider the special circumstances that are valid, and accordingly set targets for each distribution network.

This consultation paper aims to familiarize stakeholders with the benchmarking process and also demonstrates Stage-1 of the same. The objective is to demonstrate the need for greater stakeholder involvement in the whole process so that regulatory decisions on target setting provide appropriate incentives for performance improvement while leaving technical and economic decisions to the utilities concerned.