

Financial Statements of Electricity Companies

Unit –1: Relevant Legal and Administrative Provisions

Learning Objectives

After studying this unit, you will be able to:

- ◆ Know the legal framework applicable for electricity companies.
- ◆ Understand the composition and purposes of various statutory authorities.
- ◆ Understand how accounting is done in electricity companies

1.1 Introduction

Earlier electricity supply undertakings were governed by the Indian Electricity Act, 1910, the Electricity (Supply) Act, 1948 and the Indian Electricity Rules, 1956. Also there were State legislations relating to electricity supply. Some State Legislations were the Punjab Electricity Act, 1939, the W.B. Electricity (Emergency Powers) Act, 1948, the Madras Electricity Duty Act, 1939, the Madras Electricity Duty Rules, 1939, the Madras Electricity (Validation of Levy Surcharges) Act, 1949, the UP Electricity Duty Act, 1942, the UP Electricity Duty Rules, 1942 etc.

1.1.1 Historical Background of Legislative Initiatives

The Indian Electricity Act, 1910 provided basic framework for electric supply industry in India. It made provisions for growth of the sector through licensees. The Act covered the provisions for licence by State Government, provision for licence for supply of electricity in a specified area, legal framework for laying down of wires and other works, provisions laying down relationship between licensee and consumer.

The Electricity (Supply) Act, 1948 mandated creation of State Electricity Boards (SEBs) and need for the State to step in (through SEBs) to extend electrification (so far limited to cities) across the country. Later on this Act was amended to enable generation in Central sector and to bring in commercial viability in the functioning of SEBs -- especially section 59 was amended to make the earning of a minimum return of 3% on fixed assets a statutory requirement (w.e.f. 1.4.1985). Further amendment was made in 1991 to open generation to private sector and establishment of

RLDCs and another amendment in 1998 was made to provide for private sector participation in transmission, and also provision relating to Transmission Utilities.

The Electricity Regulatory Commission Act, 1998 lays down the provision for setting up of Central / State Electricity Regulatory Commission with powers to determine tariffs. Further, it emphasized on the constitution of SERC optional for States and distancing of Government from tariff determination.

1.2 Electricity Act, 2003

Before enactment of the Electricity Act 2003, generation, distribution and transmission were carried out mainly by the State Electricity Board. Due to politico economic situation the cross subsidies had reached an unsustainable level. Therefore, for purpose of distancing state government from tariff determination, the Electricity Regulatory Commissions Act, was enacted in 1998. To reform the electricity sector further by participation of private sector and to bring in competition the Electricity Act was enacted in 2003.

The Electricity Act 2003 seeks to create liberal framework of development for the power sector by distancing Government from regulation. It replaced the three existing legislations, namely, Indian Electricity Act, 1910, the Electricity (Supply) Act, 1948 and the Electricity Regulatory Commissions Act, 1998.

1.2.1 Objectives: The objectives of the Act are "to consolidate the laws relating to generation, transmission, distribution, trading and use of electricity and generally for taking measures conducive to development of electricity industry, promoting competition therein, protecting interest of consumers and supply of electricity to all areas, rationalization of electricity tariff, ensuring transparent policies regarding subsidies, promotion of efficient and environmentally benign policies, constitution of Central Electricity Authority, Regulatory Commissions and establishment of Appellate Tribunal and for matters connected therewith or incidental thereto"

The Electricity Act 2003 provides electricity market for private investments for increasing generation capacity and efficient network use in India. It encourages captive generation, non-discriminatory open access to transmission and distribution system and de-licensing generation

Under the Electricity Act 2003, activities like generation, transmission and distribution have been separately identified. Now, no person shall (a) transmit electricity; or (b) distribute electricity; or (c) undertake trading in electricity, unless he is authorised to do so by a license issued under section 14, or is exempt under section 13.

As per sec 2(29), "generate" means to produce electricity from a generating station for the purpose of giving supply to any premises or enabling a supply to be so given;

1.2.2 Features of the Act

- a) The Act de-licenses power generation completely (except for hydro power projects over a certain size). As per the Act, 10% of the power supplied by suppliers and distributors to

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the consumers has to be generated using renewable and non-conventional sources of energy.

- b) Till 2003, State Electricity Boards (SEBs) were responsible for providing electricity to the people. Most of the SEBs were not even able to earn a minimum Rate of Return (RoR) of 3% on their net fixed assets in servicing after providing for depreciation and interest charges in accordance with Section 59 of the Electricity (Supply) Act, 1948. Thus, to overcome these teething problems that the sector faces, the state government was required to unbundle State Electricity boards. However they may continue with them as distribution licensees and state transmission utilities.
- c) Setting up state electricity regulatory commission (SERC) made mandatory. An appellate tribunal was to be set up to hear appeals.
- d) The act extends to whole of India except state of Jammu and Kashmir
- e) The Central Government to prepare a National Electricity Policy in consultation with State Governments. (Section 3)
- f) Provision for license free generation and distribution in the rural areas. (Section 14) Generation being de-licensed and captive generation being freely permitted.
- g) Hydro projects however, would need clearance from the Central Electricity Authority. (Sections 7, 8 & 9)
- h) Transmission Utility at the Central as well as State level, to be a Government company – with responsibility for planned and coordinated development of transmission network. (Sections 38 & 39)
- i) Provision for private licensees in transmission and entry in distribution through an independent network, (Section 14)
- j) Open access in transmission from the outset. (Sections 38-40)
- k) Open access in distribution to be introduced in phases with surcharge for current level of cross subsidy to be gradually phased out along with cross subsidies and obligation to supply. SERCs to frame regulations within one year regarding phasing of open access. (Section 42)
- l) Distribution licensees would be free to undertake generation and generating companies would be free to take up distribution businesses. (Sections 7, 12)
- m) Provision for payment of subsidy through budget. (Section 65)
- n) Trading, a distinct activity is being recognised with the safeguard of the Regulatory Commissions being authorised to fix ceilings on trading margins, if necessary. (Sections 12, 79 & 86)
- o) Provision for reorganisation or continuance of SEBs. (Sections 131 & 172)
- p) Metering of all electricity supplied made mandatory. (Section 55)

- q) Appellate Tribunal to hear appeals against the decision of the CERC and SERCs. (Section 111)
- r) Provisions relating to theft of electricity made more stringent. (Section 135-150)
- s) Provisions safeguarding consumer interests. (Sections 57-59, 166)
- t) Ombudsman scheme (Section 42) for consumers' grievance redressal.

1.3 Central Electricity Authority

Under Section 3 of the Electricity (Supply) Act, 1948, the Central Government has the power to constitute a body called Central Electricity Authority generally to exercise such functions and perform such duties under the Act in such a manner as the Central Government may describe or direct. Central Electricity Authority (CEA) is a Statutory Body constituted, hereinafter replaced by the Electricity Act 2003, where similar provisions exists, the office of the CEA is an "Attached Office" of the Ministry of Power. The CEA is responsible for the technical coordination and supervision of programmes and is also entrusted with a following statutory functions:

- a. advise the Central Government on the matters relating to the national electricity policy, formulate short-term and perspective plans for development of the electricity system and co-ordinate the activities of the planning agencies for the optimal utilisation of resources to subserve the interests of the national economy and to provide reliable and affordable electricity for all consumers;
- b. specify the technical standards for construction of electrical plants, electric lines and connectivity to the grid;
- c. specify the safety requirements for construction, operation and maintenance of electrical plants and electric lines;
- d. specify the Grid Standards for operation and maintenance of transmission lines;
- e. specify the conditions for installation of meters for transmission and supply of electricity;
- f. promote and assist in the timely completion of schemes and projects for improving and augmenting the electricity system;
- g. promote measures for advancing the skill of persons engaged in the electricity industry;
- h. advise the Central Government on any matter on which its advice is sought or make recommendation to that Government on any matter if, in the opinion of the Authority, the recommendation would help in improving the generation, transmission, trading, distribution and utilisation of electricity;
- i. collect and record the data concerning the generation, transmission, trading, distribution and utilisation of electricity and carry out studies relating to cost, efficiency, competitiveness and such like matters;

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- j. make public from time to time information secured under this Act, and provide for the publication of reports and investigations;
- k. promote research in matters affecting the generation, transmission, distribution and trading of electricity;
- l. carry out, or cause to be carried out, any investigation for the purposes of generating or transmitting or distributing electricity;
- m. advise any State Government, licensees or the generating companies on such matters which shall enable them to operate and maintain the electricity system under their ownership or control in an improved manner and where necessary, in co-ordination with any other Government, licensee or the generating company owning or having the control of another electricity system;
- n. advise the Appropriate Government and the Appropriate Commission on all technical matters relating to generation, transmission and distribution of electricity; and
- o. discharge such other functions as may be provided under this Act.

The Members of the Authority shall be appointed from amongst persons of ability, integrity and standing who have knowledge of, and adequate experience and capacity in, dealing with problems relating to engineering, finance, commerce, economics or industrial matters, and at least one Member shall be appointed from each of the following categories, namely:-

- a. engineering with specialisation in design, construction, operation and maintenance of generating stations;
- b. engineering with specialisation in transmission and supply of electricity;
- c. applied research in the field of electricity;
- d. applied economics, accounting, commerce or finance.

The Authority shall consist of not more than fourteen Members (including its Chairperson) of whom not more than eight shall be full-time Members to be appointed by the Central Government. The Central Government appoints one of the full time members to be the chairman of the Authority.

1.4 Central Electricity Regulatory Commission

The Central Electricity Regulatory Commission shall be a body corporate, having perpetual succession and a common seal with power to acquire, hold and dispose of property, both movable and immovable, and to contract and shall, by the said name, sue or be sued.

Constitution: The Central Commission shall consist of the following Members namely:-

- a) a Chairperson and three other Members;
- b) the Chairperson of the Authority who shall be the Member, ex officio.

The Chairperson and Members of the Central Commission shall be appointed by the Central Government on the recommendation of the Selection Committee

The Central Commission shall discharge the following functions, namely:-

- c) to regulate the tariff of generating companies owned or controlled by the Central Government;
- d) to regulate the tariff of generating companies other than those owned or controlled by the Central Government specified in clause (a), if such generating companies enter into or otherwise have a composite scheme for generation and sale of electricity in more than one State;
- e) to regulate the inter-State transmission of electricity ;
- f) to determine tariff for inter-State transmission of electricity;
- g) to issue licenses to persons to function as transmission licensee and electricity trader with respect to their inter-State operations.
- h) to adjudicate upon disputes involving generating companies or transmission licensee in regard to matters connected with clauses (a) to (d) above and to refer any dispute for arbitration;
- i) to levy fees for the purposes of this Act;
- j) to specify Grid Code having regard to Grid Standards;
- k) to specify and enforce the standards with respect to quality, continuity and reliability of service by licensees.
- l) to fix the trading margin in the inter-State trading of electricity, if considered, necessary;
- m) to discharge such other functions as may be assigned under this Act.

The Central Commission shall advise the Central Government on all or any of the following matters, namely (i) formulation of National electricity Policy and tariff policy; (ii) promotion of competition, efficiency and economy in activities of the electricity industry; (iii) promotion of investment in electricity industry; (iv) any other matter referred to the Central Commission by that Government.

The Central Commission shall ensure transparency while exercising its powers and discharging its functions.

1.5 State Electricity Commission

The State Commission shall also be a body corporate by the name aforesaid, having perpetual succession and a common seal, with power to acquire, hold and dispose of property, both movable and immovable, and to contract and shall, by the said name, sue or be sued.

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- To determine the tariff for generation, supply, transmission and wheeling of electricity, wholesale, bulk or retail, as the case may be within the State
- To regulate electricity purchase and procurement process of distribution licensees including the price at which electricity shall be procured from the generating companies or licensees or from other sources through agreements for purchase of power for distribution of supply within the State
- Facilitate intra-State transmission and wheeling of electricity
- Issue licences to persons seeking to act as transmission licensees, distribution licensees, and electricity traders
- Promote cogeneration and generation of electricity from renewable sources of energy
- Adjudicate upon the disputes between the licensees and generation companies and to refer any dispute for arbitration
- Levy fee for the purposes of this Act
- Specify State Grid Code
- Specify or enforce standards with respect to quality, continuity and reliability of service by Licensees
- Fix the trading margin in the intra-State trading of electricity, if considered, necessary
- Discharge such other functions as may be assigned to it under this Act
- Advise the State Government as mandated under Section 86(2) of the Electricity Act, 2003

Thus, CERC and State Electricity Regulatory Commission (SERC) are the two electricity regulators — one operating at the central level and the other at various state levels. SERC's primary function was to determine bulk and retail tariffs to be charged to customers, regulate the operations of intrastate transmission.

The State Commission shall specify an Electricity Supply Code (sec 50) to provide for recovery of electricity charges, intervals for billing of electricity charges disconnection of supply of electricity for non-payment thereof; restoration of supply of electricity; tampering, distress or damage to electrical plant, electric lines or meter, entry of distribution licensee or any person acting on his behalf for disconnecting supply and removing the meter; entry for replacing, altering or maintaining electric lines or electrical plant or meter.

1.6 Generating Companies

1.6.1 Generating Company and requirement for setting up of generating station: As per sec 2(29), "generate" means to produce electricity from a generating station for the purpose of giving supply to any premises or enabling a supply to be so given;

Generating company means any company or body corporate or association or body of individuals, whether incorporated or not, or artificial juridical person, which owns or operates or maintains a generating station;

Any generating company may establish, operate and maintain a generating station without obtaining a licence under this Act if it complies with the technical standards relating to connectivity with the grid referred to in clause (b) of section 73.

1.6.2 Captive Generation: Captive generating plant” means a power plant set up by any person to generate electricity primarily for his own use and includes a power plant set up by any co-operative society or association of persons for generating electricity primarily for use of members of such cooperative society or association;

1. Notwithstanding anything contained in this Act, a person may construct, maintain or operate a captive generating plant and dedicated transmission lines provided that the supply of electricity from the captive generating plant through the grid shall be regulated in the same manner as the generating station of a generating company.
2. Every person, who has constructed a captive generating plant and maintains and operates such plant, shall have the right to open access for the purposes of carrying electricity from his captive generating plant to the destination of his use provided that such open access shall be subject to availability of adequate transmission facility and such availability of transmission facility shall be determined by the Central Transmission Utility or the State Transmission Utility, as the case may be provided further that any dispute regarding the availability of transmission facility shall be adjudicated upon by the Appropriate Commission.

1.6.3 Duties of Generating Companies

1. to establish, operate and maintain generating stations, tie-lines, sub-stations and dedicated transmission lines connected therewith in accordance with the provisions of this Act or the rules or regulations made thereunder.
2. supply electricity to any licensee in accordance with this Act and the rules and regulations made thereunder and may, subject to the regulations made under sub-section (2) of section 42, supply electricity to any consumer.
3. (a) submit technical details regarding its generating stations to the Appropriate Commission and the Authority;
(b) co-ordinate with the Central Transmission Utility or the State Transmission Utility, as the case may be, for transmission of the electricity generated by it.

1.7 Licensee and Bulk Licensee

No person shall (a) transmit electricity; or (b) distribute electricity; or (c) undertake trading in electricity, unless he is authorised to do so by a licence issued under section 14, or is exempt under section 13.

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Licensee not to do certain things.

- (1) No licensee shall, without prior approval of the Appropriate Commission, -
 - (a) undertake any transaction to acquire by purchase or takeover or otherwise, the utility of any other licensee; or
 - (b) merge his utility with the utility of any other licensee provided that nothing contained in this sub-section shall apply if the utility of the licensee is situate in a State other than the State in which the utility referred to in clause (a) or clause (b) is situate.
- (2) Every licensee shall, before obtaining the approval under subsection (1), give not less than one month's notice to every other licensee who transmits or distributes electricity in the area of such licensee who applies for such approval.
- (3) No licensee shall at any time assign his licence or transfer his utility, or any part thereof, by sale, lease, exchange or otherwise without the prior approval of the Appropriate Commission.
- (4) Any agreement relating to any transaction specified in subsection (1) or sub-section (3), unless made with, the prior approval of the Appropriate Commission, shall be void.

1.8 Transmission of Electricity

Inter-State transmission

Inter-State Transmission System'-includes:

- i) any system for conveyance of electricity by means of main transmission line from the territory of one State to another State;
- ii) the conveyance of electricity across the territory of an intervening State as well as conveyance within the State which is incidental to such interstate transmission of electricity;
- iii) the transmission of electricity within a State on a system built, owned , operated, maintained or controlled by CTU."

The Central Government may, make region-wise demarcation of the country, and, from time to time, make such modifications therein as it may consider necessary for the efficient, economical and integrated transmission and supply of electricity, and in particular to facilitate voluntary interconnections and co-ordination of facilities for the inter-State, regional and interregional generation and transmission of electricity.

The State Commission shall facilitate and promote transmission, wheeling and inter-connection arrangements within its territorial jurisdiction for the transmission and supply of electricity by economical and efficient utilisation of the electricity.

1.9 Open Access

"open access" means the non-discriminatory provision for the use of transmission lines or distribution system or associated facilities with such lines or system by any licensee or consumer

or a person engaged in generation in accordance with the regulations specified by the Appropriate Commission;

1.10 Tariff

The Appropriate Commission shall specify the terms and conditions for the determination of tariff by the following:

- (a) the principles and methodologies specified by the Central Commission for determination of the tariff applicable to generating companies and transmission licensees;
- (b) the generation, transmission, distribution and supply of electricity are conducted on commercial principles;
- (c) the factors which would encourage competition, efficiency, economical use of the resources, good performance and optimum investments;
- (d) safeguarding of consumers' interest and at the same time, recovery of the cost of electricity in a reasonable manner;
- (e) the principles rewarding efficiency in performance;
- (f) multi year tariff principles;
- (g) that the tariff progressively reflects the cost of supply of electricity and also, reduces and eliminates cross-subsidies within the period to be specified by the Appropriate Commission;
- (h) the promotion of co-generation and generation of electricity from renewable sources of energy;
- (i) the National Electricity Policy and tariff policy:

1.11 Determination of Tariff

Determination of tariff by bidding process

As per section 62 of the Act,

- (1) The Appropriate Commission shall determine the tariff for:
 - (a) supply of electricity by a generating company to a distribution licensee provided in case of shortage of supply of electricity, it fixes the minimum and maximum ceiling of tariff for sale or purchase of electricity in pursuance of an agreement, entered into between a generating company and a licensee or between licensees, for a period not exceeding one year to ensure reasonable prices of electricity;
 - (b) transmission of electricity ;
 - (c) wheeling of electricity;

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- (d) retail sale of electricity. Provided that in case of distribution of electricity in the same area by two or more distribution licensees, for promoting competition among distribution licensees, it may fix only maximum ceiling of tariff for retail sale of electricity.
- (2) The Appropriate Commission shall 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.
- (3) No tariff or part of any tariff may ordinarily be amended more frequently than once in any financial year, except in respect of any changes expressly permitted under the terms of any fuel surcharge formula as may be specified.
- (4) If any licensee or a generating company recovers a price or charge exceeding the tariff determined under this section, the excess amount shall be recoverable by the person who has paid such price or charge along with interest equivalent to the bank rate without prejudice to any other liability incurred by the licensee.

Unit 2 : Accounting Terms

Learning Objectives

After studying this unit, you will be able to:

- ◆ Understand relevant transaction of an electricity company such as security deposit, capital service line contribution, Accelerated Power Development and Reforms Program loan and grant and depreciation.
- ◆ Understand Reporting of financial statements of electricity company as per Revised Schedule VI
- ◆ Differentiate between replacement and extension or improvement of assets in the accounts. Learn the technique of recording of the transactions relating to replacement/extension or improvement of plant and machinery of electricity supply companies
- ◆ Understand method of depreciation for replacement of asset i.e. the optimised depreciated replacement cost [ODRC] method

It has been observed that many State Electricity Boards use different accounting techniques, which is different from what is prescribed by the Electricity Act, 2003. Therefore, in this unit we have limited our discussion on accounting practices followed by Electricity Companies only. Transactions and events of an Electricity company are considered for

1. Accounting and reporting of financial statements in Annual reports as required by the **Companies Act, 1956**.
2. Tariff determination as per **Electricity Act, 2003**. For tariff determination two orders have been issued viz 2004 Regulations and 2009 Regulations.

Tariff determination on basis of audited balance sheet presented practical difficulties as there was time lag between the availability of audited balance sheet and the commencement of the year, whereas the tariff is required to be determined before the commencement of a year.

The conclusion arrived at by the Commission was that the methodology for obtaining the Tariff rate base has to be different and independent. Accounting and reporting aspect is discussed in this Unit.

2.1 Relevant Transaction of Electricity Supply Company

1. Security deposit

As provided in section 47 of the Act, the Distribution Licensee may require from any person, who requires a supply of electricity to his premises in pursuance of section 43 of the Act, to deposit sufficient security against the estimated payment which may become due to him -

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- (i) in respect of electricity supplied to such person (including Energy Charges, Fixed / Demand Charges, Fuel Price and Power Purchase Adjustment (FPPPA) charges, Electricity Duty and any other charges as may be levied from time to time), or
- (2) where any electric line or electric plant or electric meter is to be provided for supplying electricity to such person, in respect of the provision of such line or plant or meter.
- (3) The distribution licensee shall pay interest equivalent to the bank rate or more, as may be specified **by the concerned State Commission**, on the security referred to in sub-section (1) and refund such security on the request of the person who gave such security.
- (4) A distribution licensee shall not be entitled to require security in pursuance of clause (a) of sub-section (1) if the person requiring the supply is prepared to take the supply through a pre-payment meter.

Different State Commissions prescribe different security deposit norms as per section 47 of the Act. Norms of Kerala State are given below for reference.

2.2 Kerala Electricity Supply Code 2011

Determination of Security Deposit amount for a consumer = $\text{Load} \times \text{Load Factor of the category in which the consumer falls} \times (\text{Billing cycle} + 45 \text{ days}) \times \text{Current tariff}$

S. No.	Particulars	Load factor
1	Domestic	30%
2	Commercial	50%
3	LT Industrial	50%
4	HT/EHT Industrial:	
	* Single shift industries	50%
	• Double shift industries	75%
	• Continuous industries	100%
5	Agriculture / Water Supply	50%
6	Street lights	40%
7	Signals & blinkers	75%
8	Railway Traction	50%

Interest on Security Deposit

The Licensee shall pay interest to the consumer at the Reserve Bank of India bank rate prevailing on the 1st of April for the year, payable annually on the consumer's security deposit

with effect from date of such deposit in case of new connections energized after the date of this notification, or in other cases, from the date of notification of this Code. The interest accrued during the year shall be adjusted in the consumer's bill for the first quarter of the ensuing financial year.

2.3 Accounting and Reporting of Security Deposit

Journal Entry	Amount to be debited / credited
When security deposit is received	
1. For amount received	
Bank A/c Dr. To Security Deposit A/c	Actual amount received
Note: Balance of Security Deposit A/c at the end of the accounting period should be disclosed as Non-current liability in the Balance Sheet since the same is, in substance, not repayable within a period of 12 months from the reporting date and hence does not satisfy any of the conditions for classifying a liability as 'current'	

Journal Entry	Amount to be debited / credited
(a) Interest accrued on security deposit at the end of the accounting period	
2. interest on security deposit at bank rate or more, as may be specified by the concerned State Commission,	
Interest Expense A/c Dr. To Interest Accrued on Security Deposit A/c	
Note: Balance of Interest Accrued on Security Deposit A/c at the end of the accounting period should be disclosed as Non-current liability in the Balance Sheet since the same is, in substance, not repayable within a period of 12 months from the reporting date and hence does not satisfy any of the conditions for classifying a liability as 'current'	

Journal Entry	Amount to be debited / credited
b) Adjustment of accrued interest on security deposit in the consumer's bill	
3. The interest accrued during the year shall be adjusted in the consumer's bill for the first quarter of the ensuing financial year	
Interest Accrued on Security Deposit A/c Dr. To Sales Turnover	

2.4 Capital Service Line Contributions

Different State Commissions prescribes such Service line cum Development (SLD) Charges norms as per section 47 of the Act. Norms of DELHI ELECTRICITY SUPPLY CODE REGULATIONS, 2012 Chapter IV paragraph 30 are given below for reference:

Service line cum Development (SLD) Charges: In case the area/colony is electrified by the Licensee, the SLD charges shall be payable by all consumers irrespective of whether it is electrified or un-electrified area. SLD charges, as given in Table-4, shall be leviable.

Service Line cum Development Charge

S.No.	Sanctioned Load (kW)	Amount (₹)
1	Upto 5	3,000
2	More than 5 upto 10	7,000
3	More than 10 upto 20	11,000
4	More than 20 upto 50	16,000
5	More than 50 upto 100	31,000
6	More than 100 kW (at 11 kV)	50% of the cost of HT cables/line/switchgear

Accounting for this source of funds of Electricity Company requires special attention as the following different accounting and reporting practices are noticed in published Financial Statements of some companies.

1. Amount received from consumer towards capital/service line contributions is accounted as liability and subsequently recognized as income over the life of the asset;
2. Amount received from consumer towards capital / service line contributions is accounted as reserves as the amount is not refundable and reported under the head reserves and surplus without transferring any proportionate amount to the income statement over the life of asset;
3. Amount received from consumer towards capital / service line contributions is accounted as capital reserve as the amount is not refundable and subsequently proportionate amount is transferred to income statement during the expected life of the asset to match against depreciation on total cost of such asset;
4. Amount received from consumer towards capital/service line contributions is accounted as reduction in the cost of non-current asset and depreciation may be provided on such reduced cost.

Accounting entry for the 3rd option is as follows

Journal Entry	Amount to be debited / credited
When amount received from consumers towards capital / service line contributions	
4. For amount received	
Bank A/c Dr. To Capital / service line contributions A/c	Actual amount received
Note: Balance of capital / service line contributions A/c at the end of the accounting period should be disclosed under Capital Reserve under "Reserves and Surplus" as in substance it is not redeemable to consumers.	

Journal Entry	Amount to be debited / credited
When proportionate amount is transferred to income statement during the expected life of the asset from capital / service line contributions A/c	
5. For amount received	
Capital / service line contributions A/c Dr. To Profit and Loss A/c	
Note: Balance of capital / service line contributions A/c at the end of the accounting period should be disclosed as Capital Reserve under "Reserves and Surplus" wherein this transfer is shown as deduction. The amount transferred matches proportionately against depreciation charged on total cost of such asset in the Statement of Profit and Loss.	

Return on equity shall be computed in rupee terms, on the equity base determined in accordance with regulation 12. Equity Base should not include the amount contributed by the consumers towards such capital investment. Consumer contribution for such capital investment is not brought out in the ARR .

2.5 Implementation of Accelerated Power Development and Reforms Program (APDRP)

Government identified need for electricity distribution reforms in light of existing poor distribution network, huge transmission and distribution losses due to un-metered supply and theft, high LT/HT line ratio, overloaded DT/lines etc. For this Government introduced Accelerated Power Development Program (APDP) in February, 2000.

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The main objective of this program was to initiate a financial turnaround in the performance of the state owned power sector.

Two years of working experience of APDP showed that it had several limitations. Therefore, in the Union Budget 2002-03 APDP was re-christened as Accelerated Power Development and Reforms Program (APDRP) with the stipulation that 'access of the States to the fund will be on the basis of agreed reform programmes' the center piece of which would be narrowing and ultimate elimination of the gap between unit cost of supply and revenue realization within a specific time frame.

2.5.1 Objectives of APDRP:- APDRP has now been given much wider scope than APDP. It aims at strengthening and up-gradation of the Sub-Transmission, and Distribution system in the country with the following objectives:

- i. Reducing Aggregate Technical and Commercial (AT&C) losses;
- ii. Improving quality of supply of power;
- iii. Increasing revenue collection; and
- iv. Improving consumer satisfaction.

Union Government provide funds under the programme as additional central assistance over and above the normal Central Plan Allocation to those States who commit to a time bound programme of reforms as elaborated in the Memorandum of Understanding (MoU) and Memorandum of Agreement (MoA). The funds under the programme are provided under two components:

- i **Investment component-** Assistance for strengthening and upgradation of sub-transmission and distribution system. Focus is on high density urban areas to achieve quick result as losses in absolute term are very high in such areas.
- ii. **Incentive component** – It is a grant for States/Utilities to encourage them to reduce their cash losses on yearly basis.

Investment component – Funds are provided through a combination of grant and loan. For this purpose States have been categorized as Special Category States and Non-Special Category States. 100% of the project cost in special category States (all North Eastern States, Sikkim, Uttaranchal, Himachal Pradesh and Jammu & Kashmir) in the ratio of 90% grant and 10% soft loan is financed. In respect of other States (Non-special category) Union Government finance 50% of the project cost and the ratio of grant and loan is 1:1. SEBs and Utilities have to arrange remaining 50% of the fund from Power Finance Corporation (PFC) and Rural Electrification Corporation (REC) or other financial institutions or from their own resources as counter-part funds.

Incentive component: - This component has been introduced to motivate SEBs/Utilities to reduce their cash losses. State Governments are incentivised upto 50% of the actual cash loss reduction by SEBs/ Utilities as grant. The year 2000-01 is the base year for the calculation of loss reduction, in subsequent years. The losses are calculated net of

subsidy and receivable. Funds under incentive components are provided as 100% grant to all the States (special category and non-special category) as Additional Plan Assistance.

The following table will make the funding modalities more clear:

S.No.	Category of States	% of Projects / Scheme Cost from APDRP as		% of Projects Scheme Cost from PFC/REC/ Own/ Other Sources
		Grant	Loan	
1	Special Category States	90	10	-
2	Non-special category States	25	25	50

2.5.2 Funding Pattern:

Funds under the Accelerated Power Development Reforms Programme (APDRP) are released to the State Government as below:

i. Non-special category States:

- 25 percent of the APDRP amount – after approval of project under APDRP and on tie up of counterpart funds from financial institutions and release of matching fund by financial institutions (FIs)
- On utilization of the 25 percent of sanctioned project cost, 50 percent of the APDRP amount is released.
- On utilization of 75 percent of the sanctioned project cost, balance 25 percent is released

ii. Special Category States: (namely all North-Eastern States, Sikkim, Uttaranchal, Himachal Pradesh and Jammu & Kashmir):

- 25 percent of the APDRP amount after approval of project
- On utilization of 25 percent of the project cost, 50 percent of the APDRP amount is released
- On utilization of 75 percent of the project cost, balance 25 percent of the APDRP amount is released

2.5.3 Accounting of Grant received under APDRP: Grant received under the Accelerated Power Development and Reforms Programme (APDRP) of the Ministry of Power, Government of India towards capital expenditure, is treated as capital receipt and accounted as Capital Reserve and subsequently adjusted as income (by transfer to the Statement of Profit and Loss) in the same proportion as the depreciation written off on the assets acquired out of the grant. The depreciation for the year debited to the statement of Profit and Loss on asset acquired out of grant match against portion of grant transferred from Capital Reserve. The

unadjusted balance of capital reserve is disclosed under Reserves and Surplus in balance sheet. In the Cash Flow Statement grant received under APDRP is reported under Financing Activity.

At any time if the ownership of the assets acquired, out of the grants, vest with the Government, the grants (capital reserve) are adjusted in the carrying cost of such assets.

The grant-in-aid assistance received by the utility under APDRP and its utilisation shown under the head capital expenditure made during the year is not considered for calculation of Annual Revenue Requirement (ARR) of the utility for the year.

2.6 Depreciation

Depreciation requires special consideration for an electricity supply company for following reasons:

- (1) The rates of depreciation prescribed by the Central Electricity Regulatory Commission for the purpose of tariff are different from those prescribed under Schedule XIV to the Companies Act, 1956;
- (2) As per 2004 Regulation, the Central Electricity Regulatory Commission has observed that different rates of depreciation are already being allowed for the purpose of accounts and income-tax. This being so, following different depreciation rates for the purpose of tariff was considered fully justified.
- (3) As per 2009 Regulation, it has been stated in the Tariff Policy that the depreciation rates for the assets shall be specified by the Central Electricity Regulatory Commission and this rate of depreciation shall be applicable for the purpose of tariff as well **as accounting**.
- (4) The Office of the Comptroller & Auditor General of India has expressed an opinion that power sector companies shall be governed by the rates of depreciation notified by the CERC for providing depreciation in respect of generating assets in the accounts instead of the rates as per the Companies Act, 1956. Accordingly, a Company should revise its accounting policies relating to charging of depreciation w.e.f. 1st April 2009 considering the rates and methodology notified by the CERC for determination of tariff through Regulations, 2009 (Ref. 35th Annual Report for FY 2010-11 of NTPC Ltd page 59).

2.6.1 Purpose of Depreciation: For the treatment of deprecation, three views are generally expressed

- The first is that it represents a cash flow for repayment of loan;
- The second is that it represents a return of capital subscribed; and
- The third is that it represents a replacement of capital or a charge for the replacement of the assets consumed.

As per 2004 Regulations, depreciation represents a cash flow for repayment of loan and allowed Advance Against Depreciation. (Explained in following paragraphs).

As per 2009 Regulations, depreciation represents a cash flow for repayment of loan not by allowing Advance against Depreciation but by prescribing higher rates of depreciation for initial years of loan redemption explained in following paragraphs.

2.6.2 Philosophy of depreciation

The philosophy of depreciation as adopted by the Commission in the existing norms as result of detailed study, prescribes following two methods of depreciation.

- The Straight Line method by application of a fixed rate over the fair life of the asset;
- Optimized Depreciated Replacement Cost (ODRC) based method under which the depreciation could be a method for replacement of the asset.

Figure – 1(A) Depreciation Provision For Redemption of

➤ *Loan is redeemable in 5 equal annual instalment i.e ₹ 14 at the end of*

Asset purchased ₹ 100 out of capital contribution ₹ 30 and from 10% long term loan ₹ 70. Useful life of asset is 10 years with zero scrap value. Loan is redeemable in 5 equal annual instalment i.e. ₹ 14 at the end of every year. Depreciation provision is made to facilitate redemption of loan i.e. ₹ 14 at the end of every year for first 5 years after that depreciation provision is made as per straight line method during remaining useful life of the asset. Sale electricity i.e Tariff is adjusted ensuring 10% return on equity every year. It is presumed that

Year-

Opening Balance sheet

Liabilities		Assets	
Eq. cap.	30	Asset	
Long term	70	(life 10 years)	10
	10		10

Use of Asset

Income Statement

Sale of elect.	6
Generation	3
Depreciation	
=Loan Redeemed	1
Adm. exps.	8
Interest (10%)	7
Return on	6
	3

Cash/Bank A/c

Receipts		Payments	
Eq. cap.	30	Asset	10
Long term loan	70	Generation	32
Sale of elect.	64	Adm. exps.	8
		Interest on loan	7
		Dividend	3
		Loan	14
		Balance c/d	16
	16		16

Year-

Opening Balance Sheet

Liabilities		Assets	
Eq. cap.	30	Asset	
Long term	70	(life 10 years)	10
(70-14)	56		
Depreciation			
Provision	14		
	10		10

use of Asset

Income Statement

Sale of elect.	62
Generation	32
Depreciation	
=Loan	14
Adm. exps.	8
Interest (10%)	5
Return on	59
	3

Cash/Bank A/c

Receipts		Payments	
Sales of elect.	62	Generation	32
		Adm. exps.	8
		Interest on loan	5.6
		Dividend	3
		Loan	14
		Balance c/d	16
	62		62

Figure – 1(B) Depreciation Provision For Redemption of Loan

➤ Loan is redeemable in 5 equal annual instalment i.e. 14 at the end of every

Year-

Opening Balance Sheet

Liabilities		Assets	
Eq. cap.	30	Asset	
Long term loan		(life 10 years)	100
(56-14)	42		
Depreciation			
Provision	28		
	100		100

Use of Asset

Income Statement

Sale of elect.	61.2
Generation exps.	32
Depreciation	
=Loan Redeemed	14
Adm. exps.	8
Interest (10%)	4.2
Return on equity	58.2
	3

Cash/Bank A/c

Receipts		Payments	
Sale of elect.	61.2	Generation exps.	32
		Adm. exps.	8
		Interest on loan	4.2
		Dividend	3
		Loan Redeemed	14
		Balance c/d	Nil
	61.2		61.2

Year-

Opening Balance Sheet

Liabilities		Assets	
Eq. cap.	30	Asset	
Long term loan		(life 10 years)	100
(42-14)	28		
Depreciation			
Provision	42		
	100		100

Use of Asset

Income Statement

Sales of elect.	59.8
Generation exps.	32
Depreciation	
=Loan Redeemed	14
Adm. exps.	8
Interest (10%)	2.8
Return on equity	56.8
	3

Cash/Bank A/c

Receipts		Payments	
Sale of elect.	59.8	Generation exps.	32
		Adm. exps.	8
		Interest on loan	2.8
		Dividend	3
		Loan Redeemed	14
		Balance c/d	Nil
	59.8		59.8

Year-

Opening Balance sheet

Liabilities		Assets	
Eq. cap.	30	Asset	
Long term loan		(life 10 years)	100
(28-14)	14		
Depreciation			
Provision	56		
	100		100

Use of Asset

Income Statement

Sales of elect.	58.4
Generation exps.	32
Depreciation	
=Loan Redeemed	14
Adm. exps.	8
Interest (10%)	1.4
Return on equity	55.4
	3

Cash/Bank A/c

Receipts		Payments	
Sales of elect.	58.4	Generation exps.	32
		Adm. exps.	8
		Interest on loan	1.4
		Dividend	3
		Loan Redeemed	14
		Balance c/d	Nil
	58.4		58.4

Figure – 1(C) Depreciation Provision For Redemption of Loan

$$\text{Annual Depreciation} = \frac{\text{Balance Depreciation}}{\text{Balance Useful life}} = \frac{100 - 3}{10 - 5} = \frac{97}{5} = 19.4$$

Opening Balance Sheet

Liabilities		Assets	
Eq. cap.	30	Asset	
Long term loan		(life 10 years)	100
(14-14)		Nil	
Depreciation			
Provision	70		
	100		100

Use of Asset

Income Statement

Sale of elect.	49
Generation exps.	32
Depreciation	
(30/5)	6
Adm. exps.	8
	46
Return on equity	3

Cash/Bank A/c

Receipts		Payments	
Sale of elect.	49	Generation exps.	32
		Adm. exps.	8
		Dividend	3
		Balance c/d	6
	49		49

Year-

Opening Balance Sheet

Liabilities		Assets	
Eq. cap.	30	Asset	
Depreciation		(life 10 Year)	100
Provision	76	Cash B/s	6
	106		106

Use of Asset

Income Statement

Sale of elect.	49
Generation exps.	32
Depreciation	
(30/5)	6
Adm. exps.	8
	46
Return on equity	3

Cash/Bank A/c

Receipts		Payments	
Opening B/s	6	Generation exps.	32
Sale of elect.	49	Adm. exps.	8
		Dividend	3
		Balance c/d	12
	55		55

Year-

Opening Balance Sheet

Liabilities		Assets	
Eq. cap.	30	Asset	
Depreciation		(life 10 years)	100
Provision	82	Cash B/s	12
	112		112

Use of Asset

Income Statement

Sale of elect.	49
Generation exps.	32
Depreciation	
(30/5)	6
Adm. exps.	8
	46
Return on equity	3

Cash/Bank A/c

Receipts		Payments	
Opening B/s	12	Generation exps.	32
Sale of elect.	49	Adm. exps.	8
		Dividend	3
		Balance c/d	18
	61		61

Figure – 1(D) Depreciation Provision For Redemption of Loan

$$\text{Annual Depreciation} = \frac{\text{Balance Depreciation}}{\text{Balance Useful life}} = \frac{100 - 3}{10 - 5} = \frac{97}{5} = 19.4$$

Year-9

Opening Balance sheet				Income Statement				Cash/Bank A/c			
Liabilities		Assets						Receipts		Payments	
Eq. cap.	30	Asset		Sale of elect.	49			Opening B/s	18	Generation exps.	32
Depreciation		(life 10 years)	100	Generation exps.	32			Sale of elect.	49	Adm. exps.	8
Provision	88	Cash B/s	18	Depreciation						Dividend	3
				(30/5)	6					Balance c/d	24
				Adm. exps.	8	46					
				Return on equity	3						
	118		118						67		67

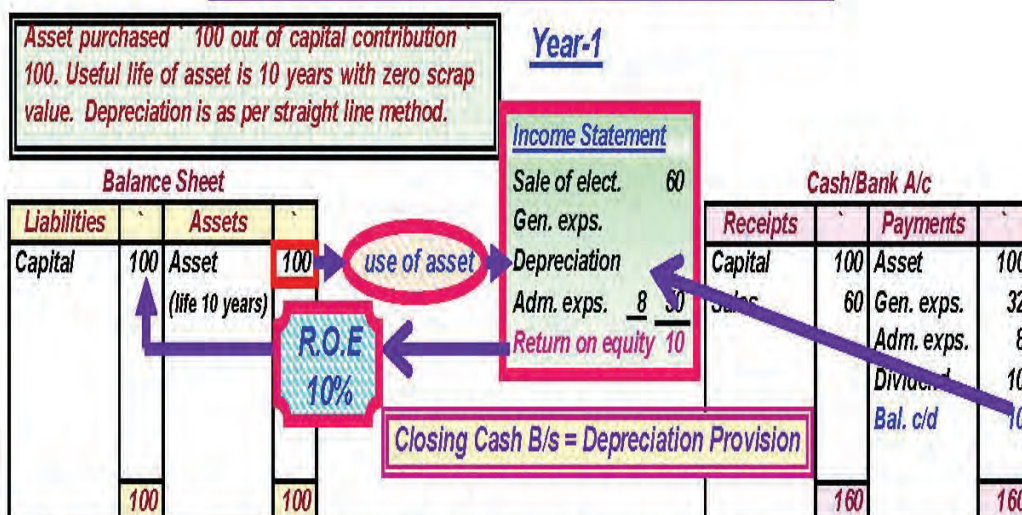
Year-

Opening Balance Sheet				Income Statement				Cash/Bank A/c			
Liabilities		Assets						Receipts		Payments	
Eq. cap.	30	Asset		Sale of elect.	49			Opening B/s	24	Generation exps.	32
Depreciation		(life 10 years)	100	Generation exps.	32			Sale of elect.	49	Adm. exps.	8
Provision	94	Cash B/s	24	Depreciation						Dividend	3
				(30/5)	6					Balance c/d	30
				Adm. exps.	8	46					
				Return on equity	3						
	124		124						73		73

Cumulative Cash Balance & Depreciation Provision							Closing Balance sheet		
End of Year	Asset at cost	Cumulative Depreciation	WD V	Cash B/s	Capital B/s	Sale of elect.	Liabilities		Assets
1	100	14	86	NIL	30	64	Eq. cap.	30	Cash balance
2	100	28	72	NIL	30	62.6			
3	100	42	58	NIL	30	61.2			
4	100	56	44	NIL	30	59.8			
5	100	70	30	NIL	30	58.4			
6	100	76	24	6	30	49			
7	100	82	18	12	30	49			
8	100	88	12	18	30	49			
9	100	94	6	24	30	49			
10	100	100	-	30	30	49			

Total of Sales of electricity i.e
Tariff for 10 years is ` 551

Figure – 2

Depreciation Provision For Capital Maintenance

At the year-end following balances are noticed during useful life of asset. Assume that transaction of year 1 repeated.

Cumulative Cash Balance & Depreciation Provision

End of Year	Asset B/s	Cumulative Depreciation	WDV	Cash B/s	Capital B/s
1	100	10	90	10	100
2	100	20	80	20	100
3	100	30	70	30	100
4	100	40	60	40	100
5	100	50	50	50	100
6	100	60	40	60	100
7	100	70	30	70	100
8	100	80	20	80	100
9	100	90	10	90	100
10	100	100	-	100	100

Cash Balance is equal to capital balance after Asset being used in operating activity

Sale value of electricity for 10 years = $60 \times 10 = 600$.

2.7 CERC (Terms and Conditions of Tariff) Regulations, 2009 Statement of Objects and Reasons

CERC has issued "CERC (Terms and Conditions of Tariff) Regulations, 2009 Statement of Objects and Reasons". The following are relevant observations:

1. As per the 2004 regulations. Value Base for the purpose of depreciation is historical cost of the asset which includes additional capitalization and FERV up to 31.03.2004. 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 conditions.
2. While determining the tariff, the Regulators have to ensure that: (i) capital is refunded to the investors over estimated life of assets, i.e. refund of capital: (ii) capital invested in the regulated business is allowed sufficient return so that the investors find the business attractive enough to invest, i.e. return on investment; and (iii) reasonable amount of operation and maintenance expenses is allowed, i.e. reimbursement of O&M expenses. And one of the major components of capital deployed is loan. As such it is important for the Commission to ensure availability of sufficient cash flow in the hands of the utilities to take care of the loan repayment obligation. For the control period 2004-09, the Commission took care of this cash flow requirement by allowing AAD, in case normative depreciation amount is not sufficient to meet the loan repayment obligations.
3. The Commission has proposed gearing of 70% investment with 30% equity in future so that the burden on the consumers on account of cost of capital would be reduced. From the experience it is found that long term loans are available for the power sector for the period 10-15 years. In the absence of AAD, the amount of depreciation calculated as per the existing methodology will not be enough to meet the loan repayment obligations.
4. The Commission has proposed gearing of 70% investment with 30% equity in future so that the burden on the consumers on account of cost of capital would be reduced. From the experience it is found that long term loans are available for the power sector for the period 10-15 years. In the absence of AAD, the amount of depreciation calculated as per the existing methodology will not be enough to meet the loan repayment obligations.
5. The Tariff policy stipulates that the Commission may notify the rates of depreciation in respect of generation and transmission assets. The depreciation rates so notified would also be applicable for distribution with appropriate modification as may be evolved by the

Forum of Regulators. The rates of depreciation so notified would be applicable for the purpose of tariffs as well as accounting. There should be no need for any advance against depreciation. Benefit of reduced tariff after the assets have been fully depreciated should remain available to the consumers. It is also the responsibility of the Commission to see that sufficient cash flow is available to the generators and transmission licenses to meet their loan obligations arising due to high gearing.

6. As per the Accounting Standard 6 "Depreciation" (AS 6) issued by Institute of Chartered Accountants of India, 'Useful life is the period over which a depreciable asset is expected to be used by the enterprise'. As per section 205 and 350 of Companies Act, companies are required to provide depreciation in the books of accounts based on the useful life of asset. These rates are specified in Schedule XIV to the Act. However, in power sector the practice of considering depreciation towards the repayment of loan has been in vogue for quite sometime and has come to stay. The fact is that AAD is allowed over and above the rate arrived at on the basis of useful life to take care of repayment of loan has not given enough incentive for generating companies to look forward to long term loans. While on one hand it is argued that the Indian debt market is not having depth and the availability of long term loan is limited, it is imperative that the infrastructure companies, particularly power sector investors, who contract a sizeable amount of funding through loan should be able to facilitate long term funding with tenure of at least 12 years, if not more to be made available by the banks and financial institutions. The entities should use their propensity to avail large amounts of loans with the FIs/banks, and negotiate for long term low cost funding.
7. In a regulatory environment, the Commission has to protect the interest of the consumers while determining tariff and at the same time it is to be seen that the investors are having sufficient liquidity and revenue to meet their commercial commitment. Apart from paying regular dividend to the shareholders the utilities should have sufficient liquidity to cater to the loan repayment obligation. The Commission is aware of the burden of repayment of loan that will accrue over the initial years of the project life. Linking depreciation to the useful life of the assets may not provide sufficient cash flow to the utilities to meet their loan repayment obligation. Normally, the projects are having a debt component of 50% to 70% and are repayable over a period of 12 years. If higher depreciation is allowed over a period of initial 12 years, the debt repayment obligation can easily be met by the utilities. Once the loans are repaid, the benefit of reduced tariff should go to the consumers.
8. Accordingly, the Commission felt that the loan repayment period be treated as 12 years for all normative loans and accordingly this repayment period of 12 years be linked to depreciation. For 12 years during which the loan capital would be refunded to the investors in the form of depreciation, the rate of depreciation shall be as specified in appendix-III of the regulation and thereafter the remaining depreciable value shall be spread over the balance useful life of the assets.

2.8 Comparison between depreciation as per provision of Schedule XIV of the Companies Act, 1956 and as per tariff policy under Electricity Supply Act, 2003.

	Depreciation to be provided as per Schedule XIV to the Companies Act, 1956	Depreciation to be provided as per tariff policy under Electricity Supply Act 2003.
1	Schedule XIV does not have specific rate of depreciation that can be applied directly for generation, transmission and distribution assets used in electricity business. Hence it maynot be possible to maintain uniformity in calculation of depreciation amongst the various utilities in electricity business. This can also affect comparability.	Since 1948, rates of depreciation have been specified for various assets used in electricity business separately either by Government of India or the Commission. This ensures uniformity in calculation of depreciation amongst the various utilities in electricity business and also allows comparability.
2	The Companies Act, 1956 also allows calculation of depreciation when the asset is ready for use i.e. when asset is ready for commercial production.	Under regulatory system, depreciation is provided only when the asset is put to use.
3	As per the Companies Act, 1956 in case of revaluation of assets, the revalued cost is to be used for calculation of depreciation	Under regulatory system, for determination of tariff, depreciation is calculated on the capital cost admitted by the Commission and does not consider revalued cost of the asset.
4	As per Companies Act, 1956 and the notified accounting standards, spares are not capitalized (except in case of insurance spares or those acquired alongwith the asset). Such spares are depreciated alongwith the main asset. Other spares acquired are normally charged to statement of Profit and Loss as and when consumed.	Under regulatory system all spares are included in the value base for calculation of depreciation
5	Depreciation rates are prescribed in Schedule XIV of the Companies Act, 1956 and are based on estimated useful life.	The depreciation rates for different assets have been so assigned as to arrive at the weighted average rate approximating 5.28%. The depreciation rates as given in Appendix-III of the regulation have no bearing on the useful life of the projects as defined in regulation 3(42).

Note: Some companies engaged in generation of electricity are using the rates specified for Plant and Machinery under 'Continuous Process' given in schedule XIV for their thermal generating assets for the purpose of accounting whereas hydro generating companies and transmission licensees are applying the depreciation rates specified by the Commission for the purpose of accounting as well as tariff.

2.9 2004 Regulations

Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2004 has taken the first view that Depreciation represents cash flow for the repayment of loan this is evident in regulation 20 and 21 as described below.

2.9.1 Regulation 20

Debt-Equity Ratio

- (1) In case of the existing generating stations, debt-equity ratio considered by the Commission for the period ending 31.3.2004 shall be considered for determination of tariff with effect from 1.4.2004.

Provided that in cases where the tariff for the period ending 31.3.2004 has not been determined by the Commission, debt-equity ratio shall be as may be decided by the Commission.

Provided further that in case of the existing generating stations where additional capitalisation has been completed on or after 1.4.2004 and admitted by the Commission under Regulation 18, equity in the additional capitalization to be considered shall be-

- (i) 30% of the additional capital expenditure admitted by the Commission; or
- (ii) equity approved by the competent authority in the financial package, for additional capitalization; or
- (iii) actual equity employed, whichever is the least:

Provided further that in case of additional capital expenditure admitted under the second proviso, the Commission may consider equity of more than 30% if the generating company is able to satisfy the Commission that deployment of such equity of more than 30% was in the interest of general public.

- (2) In case of the generating stations for which investment approval was accorded prior to 1.4.2004 and which are likely to be declared under commercial operation during the period 1.4.2004 to 31.3.2009, debt and equity in the ratio of 70:30 shall be considered:

Provided that where equity actually employed to finance the project is less than 30%, the actual debt and equity shall be considered for determination of tariff:

Provided further that the Commission may in appropriate cases consider equity higher than 30% for determination of tariff, where the generating company is able to establish

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to the satisfaction of the Commission that deployment of equity higher than 30% was in the interest of general public.

- (3) In case of the generating stations for which investment approval is accorded on or after 1.4.2004, debt and equity in the ratio of 70:30 shall be considered for determination of tariff:

Provided that where equity actually employed is more than 30%, equity in excess of 30% shall be treated as notional loan:

Provided further that where deployment of equity is less than 30%, the actual debt and equity shall be considered for determination of tariff.

- (4) The debt and equity amount arrived at in accordance with above clause (1), (2) or (3), as the case may be, shall be used for calculation of interest on loan, return on equity, advance against depreciation and foreign exchange rate variation.

2.9.2 Regulation 21

Computation of Capacity (Fixed) Charges: (1) The capacity charges shall be computed on the following basis and their recovery shall be related to target availability.

(i) Interest on loan capital

- 1 Interest on loan capital shall be computed loan-wise on the loans arrived at in the manner indicated in Regulation 20 which mentions that "In case of the generating stations for which investment approval is accorded on or after 1.4.2004, debt and equity in the ratio of 70:30 shall be considered for determination of tariff Provided that where equity actually employed is more than 30%, equity in excess of 30% shall be treated as notional loan.

Provided further that where deployment of equity is less than 30%, the actual debt and equity shall be considered for determination of tariff";

2. The loan outstanding as on 1.4.2004 shall be worked out as the gross loan in accordance with Regulation 20 minus cumulative repayment as admitted by the Commission or any other authority having power to do so, up to 31.3.2004. The repayment for the period 2004-09 shall be worked out on a normative basis;
3. The generating company shall make every effort to re-finance the loan as long as it results in net benefit to the beneficiaries. The costs associated with such re-financing shall be borne by the beneficiaries;
4. The changes to the loan terms and conditions shall be reflected from the date of such re-financing and benefit passed on to the beneficiaries;
5. In case of dispute, any of the parties may approach the Commission with proper application. However, the beneficiaries shall not withhold any payment ordered by the Commission to the generating company during pendency of any dispute relating to re-financing of loan;

6. In case any moratorium period is availed of by the generating company, depreciation provided for in the tariff during the years of moratorium shall be treated as repayment during those years and interest on loan capital shall be calculated accordingly;
7. The generating company shall not make any profit on account of refinancing of loan and interest on loan;
8. The generating company may, at its discretion, swap loans having floating rate of interest with loans having fixed rate of interest, or vice-versa, at its own cost and gains or losses as a result of such swapping shall accrue to the generating company:

Provided that the beneficiaries shall be liable to pay interest for the loans initially contracted, whether on floating or fixed rate of interest.]

(ii) Depreciation, including Advance against Depreciation

(a) Depreciation

For the purpose of tariff, depreciation shall be computed in the following manner, namely:

- (i) The value base for the purpose of depreciation shall be the historical cost of the asset;
- (ii) Depreciation shall be calculated annually, based on straight line method over the useful life of the asset and at the rates prescribed in Appendix II to these regulations.
- (iii) The residual life of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the historical capital cost of the asset. Land is not a depreciable asset and its cost shall be excluded from the capital cost while computing 90% of the historical cost of the asset. The historical capital cost of the asset shall include additional capitalisation on account of Foreign Exchange Rate Variation up to 31.3.2004 already allowed by the Central Government /Commission.
- (iv) On repayment of entire loan, the remaining depreciable value shall be spread over the balance useful life of the asset.
- (v) Depreciation shall be chargeable from the first year of operation. In case of operation of the asset for part of the year, depreciation shall be charged on pro rata basis.

(b) Advance against Depreciation

In addition to allowable depreciation, the generating company shall be entitled to Advance against Depreciation, computed in the manner given hereunder:

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AAD = Loan repayment amount as per regulation 21 (i) subject to a ceiling of $1/10^{\text{th}}$ of loan amount as per regulation 20 minus depreciation as per schedule.

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.

(iii) Return on Equity:

Return on equity shall be computed on the equity base determined in accordance with regulation 20 @ 14% per annum.

Illustration: 1

From the following information calculate:

- Average capital cost
- Return on equity
- Interest on loans
- Depreciation
- Advance against depreciation

as per Regulation 21 of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2004.

- Date of commercial operation or COD = 1-April-2005
- Approved opening Capital cost as on 1-4-2005 = ₹ 1,42,165.37
- Consider weighted average rate of depreciation of 3.6288%
- Details of allowed additional capital expenditure, details of actual repayment of loan and Weighted average rate of interest on loan is as follows

	2005-06	2006-07	2007-08	2008-09
	₹	₹	₹	₹
Additional capital expenditure (allowed above) (B)	9,922.29	2,786.65	1,933.54	1,507.84
Repayment of loan during the year (net)	7,555.0	9,748.14	10,242.94	10,687.75
Weighted Average Rate of Interest on Loan	7.3765%	7.4788%	7.4690%	7.5011%

Solution**a) Average capital cost**

Capital Cost

	2005-06	2006-07	2007-08	2008-09
	₹	₹	₹	₹
Opening capital cost (A)	1,42,165.37	1,52,087.66	1,54,874.31	1,56,807.85
Additional capital expenditure (allowed above) (B)	9,922.29	2,786.65	1,933.54	1,507.85
Closing Capital cost (A)+(B)	1,52,087.66	1,54,874.31	1,56,807.85	1,58,315.70
Average Capital cost	1,47,126.52	1,53,480.99	1,55,841.08	1,57,561.78

b) Return on equity**Debt-Equity ratio**

Debt-Equity ratio for the purpose of return on equity for the period 2004-09 is 70:30

	2005-06	2006-07	2007-08	2008-09
Opening Capital cost (A)	142165.37	152087.66	154874.31	156807.85
Equity-Opening considered now ((A)*0.30) = (B)	42649.61	45626.30	46462.29	47042.36
Additional allowable capital expenditure (C)	9922.29	2786.65	1933.54	1507.84
Addition of Equity due to admitted additional capital expenditure ((C)*0.30)=(D)	2976.69	836.00	580.06	452.35
Equity-Closing ((B)+(D))=(E)	45626.30	46462.29	47042.36	47494.71
Average equity [(B)+(E)]/2 = (F)	44137.95	46044.30	46752.33	47268.53
Return on Equity @ 14% of (F)	6179.31	6446.20	6545.33	6617.59

c) Interest on loan

	2005-06	2006-07	2007-08	2008-09
Opening Capital cost (A)	142165.37	152087.66	154874.31	156807.86
Gross Opening loan - considered at 70% of (A)=(B)	99515.76	106461.36	108412.02	109765.5

7.33 Advanced Accounting

Cumulative Repayment of Loan upto previous year (C)	Nil	7555	17303.14	27546.08
Net Loan Opening (B)-(C)=(D)	99515.76	98906.37	91108.88	82219.42
Additional capital expenditure (allowed above) (E)	9922.29	2786.65	1933.54	1507.84
Addition of loan due to approved additional capital expenditure- considered at 70% of (E)=(F)	6945.61	1950.66	1353.48	1055.49
Repayment of loan during the year (net)(G)	7555	9748.14	10242.94	10687.75
Net Loan Closing(D)+(F)-(G)=(H)	98906.37	91108.88	82219.42	72587.15
Average Loan{(D)+(H)}/2=I	99211.06	95007.62	86664.15	77403.29
Weighted Average Rate of Interest on Loan (J)	7.3765%	7.4788%	7.4690%	7.5011%
Interest on Loan(I) x (J)	7318.30	7105.43	6472.95	5806.10

d) Depreciation

Weighted average rate of depreciation is considered as 3.6288% and retained for the purpose of tariff. The necessary calculations are as under.

	2005-06	2006-07	2007-08	2008-09
Opening capital cost	142165.37	152087.66	154874.31	156807.86
Closing capital cost	152087.66	154874.31	156807.86	158315.7
Average capital cost(A)	147126.52	153480.99	155841.08	157561.78
Weighted Average Rate of depreciation %	0.036288	0.036288	0.036288	0.036288
Depreciation (annualized)	5338.93	5569.52	5655.2	5717.60
Depreciable value @ 90% of (A)	132413.86	138132.89	140256.98	141805.6
Cumulative depreciation (including AAD) at the beginning	0	7555	17303.14	27543.56
Balance depreciable	132413.86	130577.89	122953.84	114262.04

value (at the beginning)				
Depreciation to be Recovered	5338.87	5569.46	5655.1	5717.54
Advance against Depreciation (AAD)	2216.13	4178.68	4587.85	4970.21
Total depreciation for Tariff including (AAD)	7555	9748.14	10242.95	10687.75

	2005-06	2006-07	2007-08	2008-09
1/10th of Gross Loan(s)	9,951.58	10,646.14	10,841.2	10,976.55
Repayment of the Loan	7,555	9,748.14	10,242.94	10,687.75
Minimum of the above	7,555	9,748.14	10,242.94	10,687.75
Depreciation during the year	5,338.87	5,569.46	5,655.1	5,717.54
(A) Difference	2,216.13	4,178.68	4,587.85	4,970.21
Cumulative Repayment of the Loan	7,555	17,303.14	27,546.08	38,233.83
Cumulative Depreciation	5,338.87	13,124.46	22,955.71	33,254.77
(B) Difference	2,216.13	4,178.68	4,590.37	4,979.06
Advance against Depreciation (AAD) [Minimum of (A) and (B)]	2,216.13	4,178.68	4,587.85	4,970.21

2.10 2009 Regulations

These regulations may be called the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 has also maintained the first view that Depreciation represents cash flow for the repayment of loan in a modified form as compared to 2004 regulation this is evident in following regulation 17 as described below:

2.10.1 Regulation 17: Depreciation

- (1) The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission.
- (2) The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset. Provided that in case of

7.35 Advanced Accounting

hydro generating stations, the salvage value shall be as provided in the agreement signed by the developers with the State Government for creation of the site:

Provided further that the capital cost of the assets of the hydro generating station, for the purpose of computation of depreciable value, shall correspond to the percentage of sale of electricity under long-term power purchase agreement at regulated tariff.

- (3) Land other than the land held under lease and the land for reservoir in case of hydro generating station shall not be a depreciable asset and its cost shall be excluded from the capital cost while computing depreciable value of the asset.
- (4) Depreciation shall be calculated annually based on Straight Line Method and at rates specified in Table 2.1 to these regulations for the assets of the generating station and transmission system(refer illustration).

Provided that, the remaining depreciable value as on 31st March of the year closing after a period of 12 years from date of commercial operation shall be spread over the balance useful life of the assets.(refer illustration)
- (5) In case of the existing projects, the balance depreciable value as on 1.4.2009 shall be worked out by deducting [the cumulative depreciation including Advance against Depreciation]¹ as admitted by the Commission upto 31.3.2009 from the gross depreciable value of the assets.
- (6) 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 pro rata basis.

Appendix-III

Depreciation Schedule

Sr. No.	Asset Particulars	Depreciation Rate (Salvage Value=10%)
		SLM
A	Land under full ownership	0.00%
B	Land under lease	
(a)	for investment in the land	3.34%
(b)	For cost of clearing the site	3.34%
(c)	Land for reservoir in case of hydro generating station	3.34%

¹ Substituted vide Corrigendum to Central Electricity Regulatory Commission (Terms & Conditions of Tariff) Regulations 2009, published in the Gazette of India (Extraordinary) Part III, Section 4 on 10.6.2009

C	Assets purchased new	
(a)	Plant & Machinery in generating stations	
	(i)Hydro electric	5.28%
	(ii)Steam electric NHRB & waste heat recovery boilers	5.28%
	(iii)Diesel electric and gas plant	5.28%
(b)	Cooling towers & circulating water systems	5.28%
(c)	Hydraulic works forming part of the Hydro-	
	(i)Dams, Spillways, Weirs, Canals, Reinforced concrete flumes and syphons	5.28%
	(ii)Reinforced concrete pipelines and surge tanks, steel pipelines, sluice gates, steel surge tanks, hydraulic control valves and hydraulic works	5.28%
(d)	Building & Civil Engineering works of a	
	(i)Offices and showrooms	3.34%
	(ii)Containing thermo-electric generating plant	3.34%
	(iii)Containing hydro-electric generating plant	3.34%
	(iv)Temporary erections such as wooden structures	100.00%
	(v)Roads other than Kutcha roads	3.34%
	(vi)Others	3.34%
(e)	Transformers, Kiosk, sub-station equipment & other fixed apparatus (including plant)	
	(i)Transformers including foundations having rating of 100 KVA and over	5.28%
	(ii)Others	5.28%
(f)	Switchgear including cable connections	5.28%
(g)	Lightning arrestor	
	(i)Station type	5.28%
	(ii)Pole type	5.28%
	(iii)Synchronous condenser	5.28%
h	Batteries	5.28%
	(i)Underground cable including joint boxes and disconnected boxes	5.28%
	(ii)Cable duct system	5.28%
i	Overhead lines including cable support	

7.37 Advanced Accounting

	(i) Lines on fabricated steel operating at terminal voltages higher than 66 KV	5.28%
	(ii) Lines on steel supports operating at terminal voltages higher than 13.2 KV but not exceeding 66 KV	5.28%
	(iii) Lines on steel on reinforced concrete support	5.28%
	(iv) Lines on treated wood support	5.28%
i	Meters	5.28%
k	Self propelled vehicles	9.50%
l	Air Conditioning Plants	
	(i) Static	5.28%
	(ii) Portable	9.50%
(m)		
	(i) Office furniture and furnishing	6.33%
	(ii) Office equipment	6.33%
	(iii) Internal wiring including fittings and apparatus	6.33%
	(iv) Street Light fittings	5.28%
(n)	Apparatus let on hire	
	(i) Other than motors	9.50%
	(ii) Motors	6.33%
o	Communication equipment	
	(i) Radio and high frequency carrier system	6.33%
	(ii) Telephone lines and telephones	6.33%
P	I. T equipments	15.00%
q	Any other assets not covered above	5.28%

Illustration.2

From the following details of assets calculate weighted average rate of depreciation considering the rates as per Appendix-III

Particulars	Closing balance At cost
Land	
(a) Freehold	669,800
(b) Leasehold	215,450
Buildings	3,685,350
Railway Sidings	11,700

<i>Plant and Machinery</i>	
(a) Steam Station	14,164,950
(b) Others Including "Switchgears and Transformers"	10,289,450
<i>Transmission and Distributing Systems</i>	
(a) Overhead	2,121,450
(b) Underground	8,448,050
<i>Electrical Fittings and Apparatus</i>	250,650
<i>Furniture, Fixture and Office Equipments</i>	351,800
<i>Vehicles</i>	107,400
Total	40,316,050

Solution

Particulars	Closing balance at cost	rate of depreciation	
Land			
(a) Freehold	669,800	0	0
(b) Leasehold	215,450	3.34%	7196.03
Buildings	3,685,350	3.34%	123090.69
Railway Skiing	11,700	3.34%	390.78
Plant and Machinery			0
(a) Steam Station	14,164,950	5.28%	747909.36
(b) Others including "Switchgears and Transformers"	10,289,450	5.28%	543282.96
			0
Transmission and Distributing Systems			0
(a) Overhead	2,121,450	5.28%	112012.56
(b) Underground	8,448,050	5.28%	446057.04
Electrical Fittings and Apparatus	250,650	6.33%	15866.145

7.39 Advanced Accounting

Furniture, Fixture and Office Equipments	351,800	6.33%	22268.94
Vehicles	107,400	5.28%	5670.72
Total (other than land)	39,646,250		2,023,745.23

$$\begin{aligned} \text{Weighted average rate of depreciation} &= \frac{2,023,745.23}{39,646,250.00} \times 100 \\ &= 5.104506 \% \end{aligned}$$

Illustration 3

Calculate depreciation as per 2009 regulations from the following information of Barh Generation project

- (1) Date of commercial operation, i.e. 1.9.2010.
- (2) The details of actual expenditure incurred up to the date of commercial operation, i.e. 1.9.2010 and projected expenditure to be incurred from the date of commercial operation to 31.3.2014 for the assets under Barh Transmission System. The details of apportioned approved cost as on the date of commercial operation and projected expenditure to be incurred for the above mentioned assets is summarized below:-

Apportioned approved cost	Actual cost incurred as on the date of commercial operation	Proposed expenditure from the date of commercial operation to 31.3.2011	Proposed expenditure for 2011-12	Total estimated completion cost
205054.00	195054.65	30754.00	9716.00	235524.65

(3)

<i>Ave. Rate of Depreciation calculated as per rates specified in Appendix-III</i>	5.1749%	5.1650%	5.1650%	5.1650%
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Solution

As per 2009 regulations,

"cut-off date means 31 March of the year closing after 2 years of the year of commercial operation of the project, and in-case of the project is declared under commercial operation in

the last quarter of the year, the cut-off date shall be 31st March of the year closing after 3 years of the year of commercial operation".

Therefore, cut-off date for the above mentioned assets is 31.3.2013.

2.11 Additional Capital Expenditure

As per Regulation 9(1) of 2009 regulations-

"Additional Capitalization: (1) 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) XXX
- (iii) XXX
- (iv) XXX
- (v) XXX"

Additional capital expenditure of ₹ 9999.35 lakh has been considered out of ₹ 30754.00 lakh for the year 2010-11 and no further additional capital expenditure has been considered as capital cost has been restricted to apportioned approved cost in the absence of revised capital expenditure.

The date of commercial operation of the transmission system was 1.9.2010. Accordingly, it will complete 12 years beyond 2013-14 and thus depreciation has been calculated annually based on Straight Line Method and at rates specified in Appendix-III to the 2009 regulations.

Details of the depreciation worked out are as under-

(₹ in lakh)

	2010-11	2011-12	2012-13	2013-14
Opening Gross Block	195054.65	205054.00	205054.00	205054.00
Addition during 2009-14 due to Projected Additional Capitalization	9999.35	0.00	0.00	0.00
Closing Gross Block	205054.00	205054.00	205054.00	205054.00
Average Gross Block	200054.33	205054.00	205054.00	205054.00
Rate of Depreciation	5.1749%	5.1650%	5.1650%	5.1650%
Period	7 months	1 year	1 year	1 year
Depreciation	6038.97	10591.00	10591.00	10591.00

7.41 Advanced Accounting

	2010-11	2011-12	2012-13	2013-14
Average Gross Block	200054.33	205054.00	205054.00	205054.00
Rate of Depreciation	5.1749%	5.1650%	5.1650%	5.1650%
Period	7 months	1 year	1 year	1 year
Depreciation	6038.97	10591.00	10591.00	10591.00

Illustration 4

Calculate depreciation as per 2009 regulations from the following information of H.B.H. Power Generation Project

Date of commercial operation /Work Completed Date	11-Jan-95
Beginning of Current year	1-Apr-2010
Useful life	35 Years

S.N.		(Figures in ₹ Crores)
1	Capital Cost at beginning of the Year 2010-11	110.846
2	Additional Capitalisation during The year	0.000
	2011-12	0.478
	2012-13	4.070
3	Value of Land	0.000
4	Depreciation recovered up to 2008-09	48.046
5	Depreciation recovered in 2009-10	3.183

Note : Capital cost at the beginning of the year accumulated depreciation are as per tariff order FY 2010-11.

Solution

Name of the Power Station H.B.H. Power Generation Project	
Date of commercial operation /Work Completed Date	11-Jan-95
Beginning of Current year	1-Apr-10
Useful life	35 Years
Remaining Useful Life	20.00 Years

(Figures in ₹ Crores)

S.N.		2010-11	2011-12	2012-13
	Capital cost at beginning of the year	110.846	110.85	111.32
	Additional capitalisation during the year	0.000	0.478	4.070
	Closing capital cost	110.846	111.323	115.393
1	Average capital cost	110.846	111.084	113.358
	Less : Value of Land	0.000	0.000	0.000
3	Capital cost for depreciation (1-2)	110.846	111.084	113.358
4	Depreciable value (90% of 3)	99.761	99.976	102.022
5	Depreciation recovered up to 2008-09	48.046		
6	Depreciation recovered in 2009-10	3.183		
7	Depreciation recovered upto prev. year	51.229	53.656	56.094
8	Balance depreciation to be recovered	48.532	46.320	45.928
9	Balance useful life of 35 years	20.000	19.000	18.000
10	Yearly depreciation from 2010-11 (8/9)	2.427	2.438	2.552
11	Depreciation recovered upto the year	53.656	56.094	58.646

Note : Capital cost at the beginning of the year accumulated depreciation are as per tariff order FY 2010-11.

2.12 ODRC Method (Optimised Depreciated Replacement Cost)

Third view is that depreciation represents a replacement of capital or a charge for the replacement of the assets consumed. This view has been evaluated by the Commission and is as per Discussion Paper on Depreciation norms of ICRA Advisory Services(a division of ICRA Ltd) April, 2000 mentioned in following paragraphs:

The optimised depreciated replacement cost [ODRC] method involves

- (i) assessment of the gross current replacement cost of modern equivalent assets
- (ii) making an adjustment for over design, over capacity and redundant assets and then,
- (iii) depreciating this optimum gross current replacement cost to reflect the anticipated effective working life of the asset from new, the age of the asset and the estimated residual value at the end of the asset's working life.

7.43 Advanced Accounting

The effective working life of an asset is the estimated life of the asset, assuming continued use in its present function, as a part of a continuing business. The ODRC method comprises the following steps:

1. Preparing a detailed asset register. Asset registers should contain data on quantity, location physical condition, age and maintenance of the assets.
2. Calculation of the replacement cost. This refers to the cost of replacing the assets with modern equivalent assets.
3. Assessment of depreciation. The new assets at replacement costs identified earlier need to be depreciated in case the life of the existing asset is lower than the life of the new asset.
4. System Optimisation: This is done to measure the most cost effective way of delivering service, in terms of capacity and quality to meet the requirements. This involves three levels;
 - Capacity Optimisation both in size and number
 - Optimisation of spares
 - Optimisation of unit costs

Under an ODRC valuation methodology, depreciation would be greater than the capital expenditure likely to be incurred during the proposed regulatory period when the assets that exist in the system are old. For instance- generating machinery set up in the 70s would be due for replacement in the present decade and a switch to the ODRC valuation basis would result in higher depreciation charges due to higher current replacement costs.

The implementation of the ODRC would impart a significant shock to the system but this would be more gradual than under the HC system. The shocks can be further minimised if the period between adoption of the ODRC method and replacement of assets is spaced out. This would therefore require an immediate implementation of the ODRC valuation method.

2.13 Recommendation

To minimise the price shocks arising as a result of the lumpiness in capital expenditure and resultant fluctuations in depreciation, the asset valuation method adopted should to the greatest extent reflect current economic replacement cost. This approach will also enhance price signalling which is best done by using the ODRC valuation.

We however recommend that the historical cost be used as the basis for the short term (the exact time frame to be arrived based on discussion between CERC and the utilities) and thereafter shift to the ODRC method. We do not recommend an immediate shift to the ODRC method due to

1. Problems in producing a detailed asset register

2. The absence of norms for standard lives of assets
3. The absence of construction cost estimates
4. Lack of data on future load growth

The transition period should help utilities reorganise their management information systems to provide data for the implementation of the new valuation method.

The ODRC method would be better because

1. Little attention has been paid to replacing assets in India and many of these will be due for replacement in the coming decade. An adoption of the ODRC method will ensure that the price shocks are gradually administered to the customers.
2. This will ensure greater acceptability to users (State Electricity Boards and their successors) since over capacity issues will be addressed and cost reductions possible from new technologies will be incorporated in the valuation
3. Since the valuation will reflect the cost of replacement utilities will be able to assess the timing and financing requirements with a greater degree of certainty.

Illustration 5

The trial balance of Noida Electric Supply Ltd. for the year ended 31st March, 2012 is as below:

(₹ '000)		
Particulars	Dr.	Cr.
Share Capital :		
Equity Shares of ₹ 10 each		250,00
14% Preference Shares of ₹ 100 each		75,00
Patents and trade mark	12,52	
15% Debentures		123,50
16% Term Loan		76,50
Land (additions during the year 10,25)	62,25	
Building (additions during the year 25,40)	175,67	
Plant & Machinery	285,29	
Mains	22,62	
Meters	15,75	
Electrical Instrument	7,65	
Office furniture	12,25	
Capital reserve		25,10

7.45 Advanced Accounting

Contingency reserves		60,15
Transformers	82,20	
Net revenue account		26,75
Stock in hand	60,25	
Sundry debtors	31,23	
Contingency reserve investment	60,05	
Cash & Bank	16,27	
Public lamps	15,20	
Depreciation fund		129,08
Sundry Creditors		32,62
Proposed dividend		60,50
	859,20	859,20

During 2011-12, ₹ ('000) 50,00 of 14% preference shares were redeemed at a premium of 10% out of proceeds of fresh issue of equity shares of necessary amounts at a premium of 10%.

Prepare for the above period General Balance Sheet as on 31st March, 2012 as per the revised Schedule VI :

Solution

Balance Sheet of Noida Electric Supply Ltd. for the year ended March 31, 2012

		Particulars	Note No	₹ ('000)
		Equity and Liabilities		
1		Shareholders' funds		
	a	Share capital	1	32,500
	b	Reserves and Surplus	2	11,200
2		Non-current liabilities		
	a	Long-term borrowings	3	20,000
3		Current liabilities		
	a	Trade Payables		3,262
	b	Short-term provisions	4	6,050
		Total		73,012
		Assets		
1		Non-current assets		
	a	Fixed assets		
	i	Tangible assets	5	54,980

2		ii	Intangible assets		1,252
			Other non-current assets	6	6005
			Current assets		
	a		Inventories		6,025
	b		Trade receivables		3,123
	c		Cash and cash equivalents		1,627
			Total		73,012

Notes to financial statements

			₹ ('000)
1.	Share Capital		
	Equity share capital		
	Authorised		
	2,500,000 Equity shares of ₹ 10 each	25,000	
	Issued & subscribed		
	2,000,000 Equity shares of ₹ 10 each	20,000	
	500,000 Equity shares of ₹ 10 each issued during the year (A)	5,000	25,000
	Preference share capital		
	Authorised		
	125,000 14% Preference shares of ₹ 100 each	12,500	
	Issued & subscribed		
	125,000 14% Preference shares of ₹ 100 each	12,500	
	50,000 Preference shares of ₹ 100 each redeemed during the year (B)	(5,000)	7,500
	Total (A+B)		32,500
2.	Reserves and Surplus		
	Capital reserve		2,510
	Contingency Reserve		6,015
	Balance of net return A/c		2,675
	Total		11,200
3.	Long-term borrowings		
	Secured		
	15% Debentures		12,350

7.47 Advanced Accounting

	16% Term Loan (considered secured)		7,650
	Total		20,000
4.	Short-term provisions		
	Proposed dividend		6,050
	Total		6,050
5.	Tangible assets		
	Land	5,200	
	Addition during the year	1,025	6,225
	Building	15,027	
	Addition during the year	2,540	17,567
	Plant & Machinery		
	Steam Power Plant	28,529	
	Transformers	8,220	
	Mains	22,62	
	Meters	15,75	
	Public Lamps	1,520	42,106
	General Equipments		
	Electrical Instruments	765	
	Office Furniture	1,225	1,990
	Less: Depreciation fund		(12,908)
	Total		54,980
6.	Other non-current assets		
	Contingency Reserve Investment (assumed as non-current item)		6,005

Illustration 6

Following is the Trial Balance of Torrent Power Ltd as on 31-March-2012

Particulars	Dr.	Cr.
	₹	₹
Share Capital Authorized:		
2,000,000,000 Equity Shares of ₹10 each		10000000
Issued, Subscribed and Paid up:		
472,448,308 Equity Shares of ₹10 each		2362250

Service Line Contributions		
As per the last Balance Sheet		1186800
Contributions during the year		432750
Grant in Aid under Accelerated Power Development and Reform Programme		
As per the last Balance Sheet		246250
Contingency Reserve		
As per the last Balance Sheet		305500
Tariff and Dividend Control Reserve		
As per the last Balance Sheet		57950
General Reserve		
As per the last Balance Sheet		13145000
Secured Term Loans		
From Financial Institutions		5872500
From Banks		8220050
Service Line and Security Deposits from Consumers		2329600
Term Loan from Government of India under Accelerated Power Development and Reform Programme		275150
Short Term Loan from Financial Institution		875000
Loan from Bank		54800
<u>Closing balance of Non-current Assets</u>		
Land		
(a) Freehold	669800	
(b) Leasehold	215450	
Buildings	3685350	
Railway Skiing	11700	
Plant and Machinery		
(a) Steam Station	14164950	
(b) Others Including "Switchgears and Transformers"	10289450	

7.49 Advanced Accounting

Transmission and Distribution Systems		
(a) Overhead	2121450	
(b) Underground	8448050	
Electrical Fittings and Apparatus	250650	
Furniture, Fixture and Office Equipments	351800	
Vehicles	107400	
Intangible Assets		
Software	87400	32300
Capital Work-in-Progress	2688550	
Contingency Reserve Investments (Quoted)		
ICICI Bonds – 2011	305500	
Other Investments Quoted	100	
Unquoted Investment in Subsidiary Companies	3998050	
Equity Shares AEC Cements & Constructions Limited	100	
Birla Sun Life Cash Plus	206800	
Kotak Floater Short Term	310250	
Interest Accrued on Investments	1050	
Debts / Receivables		
Secured - Considered Good	991650	
Unsecured - Considered Good	2054850	
Considered Doubtful	503050	
Inventories (Coal, Oil, Stores and Spares)	1317250	
Cash and Cheques on hand	15800	
Balances with scheduled banks		
In Current Accounts	377850	
Fixed Deposits Accounts	4237350	
Balances with other Banks in Current Accounts	350	
Advances recoverable in cash or in kind or for value to be received	650000	

Advances and Loans to Subsidiary Companies	68850	
Balance with Government Authority	5750	
Advance Tax and Tax deducted at source (Net of Provision for Taxation)	94400	
Provision for Gratuity and other fund		271900
Provision for Leave Encashment		333700
Provision for Taxation		96100
Provision for Indirect Tax		52550
Proposed Dividend		1204850
Provision for Corporate Dividend Tax		210750
Sundry Creditors		4506000
Due to Subsidiary Company		23750
Investor Education and Protection Fund (Unclaimed Dividends)		13700
Consumers' Benefit Account		60050
Credit Balances of Consumers		163550
Interest Accrued but not due on Loans and Security Deposits		104550
Opening balance of Profit and loss account		1893450
Profit during the year before adjustment *		13,900,200
	58231000	58231000

*Service line contribution ₹ 92,250 has to be transferred to Statement of Profit and Loss.

1. Transfer from Accelerated Power Development and Reform Programme 16150 to profit and loss account
2. **Provide for depreciation on tangible assets at the following rates of Appendix III**

Particulars	Rate of depreciation as per Appendix
Land	
(a) Freehold	0
(b) Leasehold	3.34%
Buildings	3.34%

Railway sidings	3.34%
Plant and Machinery	
(a) Steam Station	5.28%
(b) Others Including "Switchgears and Transformers"	5.28%
Transmission and Distributing Systems	
(a) Overhead	5.28%
(b) Underground	5.28%
Electrical Fittings and Apparatus	6.33%
Furniture, Fixture and Office Equipments	6.33%
Vehicles	5.28%

3. Transfer to Contingency Reserve ₹ 5,000 and to general reserve ₹ 2,000,000 from to statement of profit and loss.
4. Loss on Contingency Reserve Investment 8,050
5. Debts include outstanding for a period exceeding six months.

Secured

- Considered Good ₹ 43,400

Unsecured

- Considered Good ₹ 66,250
- Considered Doubtful ₹ 124,850

Make a provision for debts considered doubtful.

Prepare balance sheet as per Revised Schedule VI and also mention the effect of adjustments on the profit in a working note.

Solution

CAPITAL AND LIABILITIES	Notes	AMOUNT
<u>Shareholders' funds</u>		
(a) Share capital		
Share Capital	1	2,362,250
(b) Reserves and surplus		
Reserves and Surplus		28,633,055

Share application money	2	
<u>Non-current liabilities</u>		
(a) Long-term borrowings		
Secured Loans	3	14,092,550
Unsecured Loans	4	1,204,950
Service Line and Security Deposits from Consumers		2,329,600
(b) Deferred tax liabilities (Net)		
(c) Long-term provisions	5	605,600
<u>Current liabilities</u>		
(a) Short-term borrowings	6	23,750
(b) Trade payables	7	4,506,000
(c) Other current liabilities	8	341,850
(d) Short-term provisions	9	1,564,250
TOTAL LIABILITIES		55,663,855
<u>Non-current assets</u>		
(a) Fixed assets		
(i) Tangible assets	10	38,292,305
(ii) Intangible assets (87,400 – 32,300)		55,100
(iii) Capital work-in-progress		2,688,550
(iv) Intangible assets under development		
(b) Non-current investments	11	4,295,700
(c) Deferred tax assets (net)		
(d) Long-term loans and advances		
(e) Other non-current assets		
<u>Current assets</u>		
(a) Current investments	12	517,050
(b) Inventories (Coal, Oil, Stores...)		1,317,250
(c) Trade receivables	13	3,046,500
(d) Cash and cash equivalents	14	4,631,350
(e) Short-term loans and advances	15	819,000
(f) Other current assets (Int. accrued)		1,050
TOTAL ASSETS		55,663,855

Note to Financial Statements:

7.53 Advanced Accounting

1:- Share Capital

Particulars	Amount
Authorised:	
1,000,000 Equity Shares of `10/- each	10,000,000
Issued, Subscribed and Paid up:	
2,36,225 Equity Shares of `10/- each	2,362,250

2:- Reserve and surplus

Particulars	Amount	Amount
Capital Reserves		
Service Line Contributions		
As per last Balance Sheet	1,186,800	
Add: Contributions during the year	432,750	
	1,619,550	
Less: Transfer to Profit and Loss Account	92,250	
	1,527,300	1,527,300
Grant in Aid under Accelerated Power		
Development and Reform Programme	246,250	
As per last Balance Sheet		
Received during the year	-	
	246,250	
Less: Transfer to Profit and Loss Account	16,150	
	230,100	230,100
Statutory Reserves		
Contingency Reserve		
As per last Balance Sheet	305,500	
Less: Loss on Contingency Reserve Investments	8,050	
	297,450	
Add: Transfer from Profit and Loss Account	5,000	
	302,450	302,450

Tariff and Dividend Control Reserve		
As per last Balance Sheet	57,950	57,950
Other Reserves		
General Reserve		
As per last Balance Sheet	13,145,000	
Add: Transfer from Profit and Loss Account	2,000,000	
		15,145,000
Opening balance of Statement of Profit and loss	1893450	
Profit during the year before adjustment	13,900,200	
Less: Profit and loss Adjustments (Note 1)	4423395	11,370,255
		28,633,055

3 : Secured Loans

Particulars	Amount
Secured Term Loans	
From Financial Institutions	5,872,500
From Banks	8,220,050
	14,092,550

In the absence of details of security, disclosure for the same has not been made.

4 : Unsecured Loans

Particulars	Amount
Term Loan from Government of India under Accelerated Power Development and Reform Program	275,150
Short Term Loan from Financial Institutions	875,000
Loan from Bank	54,800
	1,204,950

5: Long-term provisions

Particulars	Amount
Provision for Gratuity and other funds	271,900
Provision for Leave Encashment	333,700
	605,600

7.55 Advanced Accounting

6: Short Term Borrowings

Particulars	Amount
Due to Subsidiary Company	23,750

7: Trade Payables

Particulars	Amount
Sundry Creditors	4,506,000

8: Other current Liabilities

Particulars	Amount
Investor Education and Protection Fund (Unclaimed Dividends)	13,700
Consumers' Benefit Account	60,050
Credit Balances of Consumers	163,550
Interest Accrued but not due on Loans and Security Deposits	104,550
	341,850

It is assumed that there is no current maturity of long term loans.

9: Short Term Provisions

Particulars	Amount
Provision for Taxation	96,100
Provision for Indirect Tax	52,550
Proposed Dividend	1,204,850
Provision for Corporate Dividend Tax	210,750
	1,564,250

10: Tangible Fixed Assets

Particulars	Closing bal. At cost	Provision for depreciation	Net block
Land			
(a) Freehold	669,800	0	669,800
(b) Leasehold @3.34%	215,450	7196.03	208,254
Buildings @3.34%	3,685,350	123090.69	3,562,259
Railway Siding @3.34%	11,700	390.78	11,309
Plant and Machinery			

(a) Steam Station @5.28%	14,164,950	747909.36	13,417,041
(b) Others Including "Switchgears and Transformers @5.28%	10,289,450	543282.96	9,746,167
Transmission & Distributing Systems			
(a) Overhead @5.28%	2,121,450	112012.56	2,009,437
(b) Underground @5.28%	8,448,050	446057.04	8,001,993
Electrical Fittings and Apparatus@6.33%	250,650	15866.145	234,784
Furniture, Fixture and Office Equipments@6.33%	351,800	22268.94	329,531
Vehicles @5.28%	107,400	5670.72	101,729
Total	40,316,050	2,023,745	38,292,305

11 : Non-current investments

Particulars	Amount
Contingency Reserve Investments (Quoted)	
ICICI Bond - 2011 (3,05,500 - 8050)	297,450
Other Investments Quoted	100
Unquoted Investment in Subsidiary Companies	3,998,050
Equity Shares AEC Cements & Constructions Limited	100
	4,295,700

12 : Current Investments

Particulars	Amount
Unquoted	
Birla Sun Life Cash Plus	206,800
Kotak Floater Short Term	310,250
	517,050

13: Trade receivable

Particulars	Amount	Amount
Debts outstanding for a period exceeding six months		
Secured - Considered Good	43,400	
Unsecured - Considered Good	66,250	

7.57 Advanced Accounting

Considered Doubtful	124,850	
		234,500
Other Debts		
Secured - Considered Good (9,91,650 – 43,400)	9,48,250	
Unsecured - Considered Good (20,54,850 – 66,250)	1,988,600	
Considered Doubtful (5,03,050 – 1,24,850)	378,200	
		3,315,050
Less: Provision for Doubtful Debts		503,050
		3,046,500

14: Cash and Cash equivalents

Particulars	Amount
Cash and Cheques on hand	15,800
Balances with scheduled banks	
In Current Accounts	377,850
Fixed Deposits Accounts	4,237,350
Balances with other Banks in Current Accounts	350
	4,631,350

15: Short-term loans and advances

Particulars	Amount
Unsecured (Considered Good Unless Otherwise Stated)	
Advances recoverable in cash or in kind or for value to be received	650,000
Advances and Loans to Subsidiary Companies	68,850
Balance with Government Authority	5,750
Advance Tax and Tax deducted at source	94,400
	819,000

Working Notes:

Note 1: Statement of profit and loss:

Opening balance of profit and loss account		1,893,450
Profit and loss account before adjustment		13,900,200
Add:		
service line contribution	92,250	

Grant in Aid under Accelerated Power Development and Reform Program	16,150	
Less:		
Contingency reserve	5,000	
General reserve	2,000,000	
Bad-debt reserve	503,050	
Depreciation	2,023,745	-4,423,395
Total as reported in balance sheet		11,370,255