THE ANDHRA PRADESH ELECTRICITY REGULATORY COMMISSION

HYDERABAD

O.P.No. 205/2000

O.P.No.206/2000

O.P.No.347/2000

Date of Order: 27.05.2000

Present: Shri G.P.Rao, Chairman,
Shri D. Lakshmi Narayana, Member,
Shri A.V. Subba Rao, Member

Transmission Corporation of Andhra Pradesh Limited APPLICANT

The Commission having heard the consumers and representatives of various organisations of domestic, commercial, industrial and agricultural consumers from 8.5.2000 to 10.5.2000, the Principal Secretary, Energy Department, Government of Andhra Pradesh and the staff of the Commission on behalf of the consumers on 11.5.2000 and the reply of the Chairman and Managing Director, Transmission Corporation of Andhra Pradesh Limited (APTRANSCO), the applicant on 12.5.2000, having consulted the members of the Commission Advisory Committee on 20.5.2000 and having considered the documents available on record passed the following order.

ORDER

1.1 PROCEDURAL HISTORY

Following the enactment of The Andhra Pradesh Electricity Reform Act, 1998 (herein after called, "the Reform Act") and unbundling of Andhra Pradesh State Electricity Board into Generation Corporation of Andhra Pradesh Limited and Transmission Corporation of Andhra Pradesh Limited., the Govt. of Andhra Pradesh have granted the Transmission Corporation of Andhra Pradesh (APTRANSCO) provisional licences to engage in the business of "Transmission and Bulk Supply" and "Distribution and Retail Supply" with effect from first day of February,1999. These provisional licences would cease to be valid and effective on completion of 12 months from the said date of enforcement or on the date notified by the Commission under section 14(4)(b) of the Reform Act whichever is earlier.

The Andhra Pradesh Electricity Regulatory Commission (herein after called "the Commission") was constituted on 31.3.1999.

APTRANSCO have submitted i) draft Licence for grant of licence to engage in the business of Transmission and Bulk Supply of Electricity and ii) draft Licence for grant of Licence to engage in the business of Distribution and Retail Supply of Electricity on 10.9.1999 to the Commission. These cases were numbered as O.P. No.3/1999 and O.P. No.4/1999 respectively. The Commission after publication of notice in the newspapers calling for objections and after hearing the respondents, passed orders on 31.1.2000 granting Licence No.1/2000 for Transmission and Bulk Supply of Electricity and Licence No.2/2000 for Distribution and Retail Supply of Electricity to APTRANSCO.

The Commission have communicated to APTRANSCO on 9.10.1999, the guidelines for filing of Expected Revenue from Charges (ERC) and Tariff Application for the financial year 2000-2001.

APTRANSCO, the provisional licence holder for Transmission and Bulk Supply and Distribution and Retail Supply filed ERC under section 26(5) of the Reform Act for the financial year 2000-2001 on 29.12.1999. They were taken on record as O.P.No.205/2000 and O.P.No.206/2000 respectively.

The Commission have issued guidelines under paragraph 16 of Transmission and Bulk Supply Licence No.1/2000, after publication of notification calling for objections from general public and discussion with the members of the Commission Advisory Committee for load forecast, resource plans and power procurement vide their letter No. APERC/Secy/F.Engg.D.No.1119/2000 dt.29.2.2000 in terms of Section 11 (1)(b) and Section 15(4)(j) of the Reform Act.

APTRANSCO have made an application on 31.3.2000 under paragraph 5.4 of APTRANSCO Distribution and Retail Supply Licence for permission to assign the licensed business to four Distribution Companies that have been constituted to carry out the distribution functions to work as financially and commercially viable entities by the Govt. of Andhra Pradesh. The Commission have, vide their proceedings No. APERC/Secy/Engg/No.6 dt.31.3.2000, granted approval to APTRANSCO to assign the distribution and retail supply functions that APTRANSCO was authorised to conduct or carryout under the Act and the licence, to its four subsidiary Distribution Companies and for that purpose, hold all or part of its assets in such subsidiary companies subject to certain conditions prescribed in the proceedings.

On 6.4.2000, APTRANSCO filed Tariff Proposals for the financial year 2000-2001 before the Commission along with the supplementary ERCs for Transmission and Bulk Supply and Distribution and Retail Supply. This was taken on record as

O.P. No.347/2000. APTRANSCO was directed to serve a public notice by publication in newspapers in one issue of a daily newspaper in English language and a minimum of two newspapers in Telugu language, having widest circulation in Andhra Pradesh, stating that APTRANSCO had filed the Annual Revenue Requirement (ARR) and Tariff proposals for the year 2000-2001 and that the copies of the applications together with supporting materials were available with Chief Engineer/Regulatory Affairs Cell, APTRANSCO, Head Quarters, Hyderabad and all Superintending Engineers in charge of Operation Circles of APTRANSCO in all the districts of Andhra Pradesh including Superintending Engineer Operation Hyderabad, North and Superintending Engineer Operation Hyderabad, South, for inspection/perusal by interested persons and filing of objections by 28.4.2000. APTRANSCO published the notice duly approved by the Commission on 8.4.2000. In the notice, it was also notified that those of the persons who wanted to make a personal representation during the public hearing may also indicate the same.

APERC have sent on 12.4.2000, a summary of Tariff Proposals and supplementary ERC to the members of the Commission Advisory Committee, calling for their comments/suggestions by 28.4.2000. They were also requested to intimate if they were interested in participating in the public hearing on the dates to be notified.

Following the public notice, 78 persons/Organisations have sent their objections/suggestions on APTRANSCO's proposals for revision of tariff, of which 26 persons/Organisations had expressed their desire to be heard in person.

The notice of public hearing from 8.5.2000 to 12.5.2000 was given to APTRANSCO. The persons who had expressed their desire to be heard in person by the Commission were also intimated the dates on which they would be heard. The dates of public hearing were intimated to the members of the Commission Advisory Committee. Commission's staff was also directed to make a presentation on the filings including technical aspects, on behalf of the consumers.

The Commission held public hearing from 8.5.2000 to 12.5.2000 as given below:

Table No.1

Sl. No.	**Date**	**Details of Organisations heard**
1	08-05-2000	Persons/ Organisations representing Industrial & Commercial Consumers.
2	09-05-2000	Persons/ Groups representing Domestic/ Consumer Organisations.
3	10-05-2000	Persons/ Organisations representing Agriculture & Others
4	11-05-2000	Government of Andhra Pradesh & Commission Staff
5	12-05-2000	Reply by APTRANSCO on the objections/ suggestions received.

For want of accommodation in the Court Hall of the Commission, admission was restricted only to those members of the general public who expressed their desire to be heard in person by the Commission, members of the Commission Advisory Committee, the representatives of the APTRANSCO, and the Government of Andhra Pradesh and the Commission staff.

The tariff proposal was discussed in the Commission Advisory Committee meeting on 20.5.2000.

1.2 DESCRIPTION OF FILINGS

1.2.1 Expected Revenue from Charges/Aggregate Revenue Requirement (ERC/ARR) Filing

1.2.1.1 Initial Filings

In its initial ERC/ARR filing in December 1999, APTRANSCO calculated a total Net Aggregate Revenue Requirement for its Transmission and Bulk Supply Business of Rs. 7,968.69 crores. This comprises a return of Rs. 87.91 crores, a total expenditure of Rs. 7,882.72, minus non-tariff income of Rs. 1.22 crores. The return comprised a capital base computed at Rs. 442.22 crore on which the reasonable return was Rs.70.76 crore and Rs.16.44 crore return on loans. The expenditure included two major items, power purchase cost of Rs.7299.02 crore from various sources and Rs.248.85 crore interest expenditure. The non-tariff income comprised income from all sources except the income through tariffs in the business of supply of electricity.

The Aggregate Revenue Requirement for the Distribution and Retail Supply Business was projected at Rs. 9463.67 crores, of which Rs. 46.01 crore was the reasonable return on a capital base of Rs. 282.91 crores. Netted against these figures was a non-tariff income of Rs. 447.47 so that the amount to be raised through tariffs is Rs. 9062.21 Crores.

1.2.1.2 Supplementary Filings

APTRANSCO filed the supplementary ERC/ARR filing on April 7, 2000 upon the completion of the first transfer scheme by GoAP and in conjunction with its proposed tariff. APTRANSCO incorporated the final figures of the first transfer scheme and updated the earlier estimates of other items based on latest information.

In the supplemental filing for the Transmission and Bulk Supply Business, the Aggregate Revenue Requirement declined by Rs.54.15 crores to 7914.54 crores, of which the reasonable return on revised capital base was reduced by Rs.2.10 crores and. the expenditure declined by Rs.52.05 crores.

In the supplemental filing for the Distribution and Retail Supply Business, the Aggregate Revenue Requirement increased by Rs. 149.14 crores to 9211.35 crores, of which the reasonable return on revised capital base was increased by Rs. 104.74 crores and. the expenditure increased by Rs.55.40 crores. The estimated revenue requirement of the Tariff filing is based on the figures in this Supplementary Filing

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1.2.1.3 **Revised Aggregate Revenue**

On 8 May 2000 ATRANSCO filed revisions to its supplemental filings for the "Transmission & Bulk Supply" and the "Distribution & Retail Supply Business". It stated that Operation and Maintenance Stores and Capital Stores had not been properly reflected in the Supplemental Filings. Accordingly, the Aggregate Revenue Requirement for the T&BS Business increased to Rs.7924.99 crores and the Aggregate Revenue Requirement for the D&RS business increased to Rs. 9233.84 crores.

1.3 TARIFF FILING

Against the projected revenue requirement of Rs. 9233.84 crores, APTRANSCO expects that the revenues at the current tariff levels will realise Rs. 5448 crores, leaving a deficit of Rs. 3786 crores. The Licensee anticipates that the GoAP will provide a subsidy of Rs. 2100 crores as part of its continuing support to the power sector and the reform process. However, a shortfall of Rs. 1686 crores would remain to be bridged.

After extensive discussions with its 100% owner, the GoAP, and in attempting to balance its own financial viability against the possibility of rate shock to its consumers, APTRANSCO proposed an increase in tariffs that would raise additional revenues of Rs. 808 crores. This will result in an overall average increase of 14.8% in tariff for its consumers, although specific increases will vary both among individual consumer categories and among the slabs in each category. In the process of developing the individual rates, APTRANSCO was guided by several principles. It assumed that the benefits of GoAP subsidies and of the cross-subsidies would be passed on to those consumer categories that were below the cost to serve. It proposed only moderate increases for those categories presently being charged tariffs above the cost of service, in order to discourage further migration to captive generation or other states. Increases were proposed for all categories that are currently subsidised to the extent that was considered commercially feasible in an effort to move the tariffs closer to the cost to serve.

APTRANSCO proposed four additional special regulatory treatments. First, it requested for deviation from the norms laid down in the Sixth Schedule to the Electricity (Supply) Act, 1948 (ES Act) to provide for consideration of Bills Receivables on the positive side and Bills Payables and Working Capital Borrowings on the negative side of the capital base. Second, it requested the establishment of a Regulatory Asset to capture the difference between its revenue requirement based on actual costs, and the actual level of revenues booked either from consumers or from GoAP as a subsidy. It intends to retire the Regulatory Asset in future years when the impact on consumers will be less. Third, it proposed a Fuel and Purchase Power Adjustment (FPPA) formula to permit variations in purchased power expenses to be passed through to the majority of metered consumers on a quarterly basis. Fourth, it requested recovery of the lost revenues that would have accrued to it between 1st April 2000, the anticipated effective date had the tariff been filed in December 1999 with the ERC/ARR, and the new date of tariff implementation on account of the delayed filing.

POSITIONS OF THE PUBLIC, STAFF AND APTRANSCO

1.4 PUBLIC COMMENTS

1.4.1 Legal Issues

During the public hearing on 8.5.2000, the Counsel for Association of Industrial Electricity Users filed three petitions, which were taken on file as I.A.Nos.2/2000, 3/2000 and 4/2000. During the hearing on 9.5.2000, the Counsel for M/s Aditya Spinners Limited and others filed another three petitions, which were taken on file as I.A.Nos. 5/2000, 6/2000 and 7/2000, the contents of which and the reliefs claimed therein were the same as those in the first three petitions respectively of Association of Industrial Electricity Users filed on 8-5-2000. Later in the evening on 9.5.2000, the Counsel for M/s. Association of Industrial Electricity Users and M/s Aditya Spinners Ltd., filed two more petitions, which were taken on file as I.A.Nos 8/2000 and 9/2000, the contents of which and reliefs claimed therein were the same. On 11.5.2000, the Counsel for M/s Aditya Spinners Ltd., and others filed a petition which was taken on file as I.A.No 10/2000. On 12-5-2000, the Counsel for M/s Association of Industrial Electricity Users filed another petition which was taken on file as I.A.No. 11/2000, the contents of which and the relief claimed therein was same as that in I.A.No.10/2000 filed on 11.5.2000.

I.A.Nos 2/2000 and 5/2000 related to deferring the consideration of the tariff proposals filed by APTRANSCO, establishing the Regulations prescribing methodologies and procedures for such filing, notification by publication, and the new Distribution Companies filing the tariff proposals in accordance with such regulations. I.A.Nos.3/2000 and 6/2000 related to deferring the consideration of the Filing of the Proposed Tariff (FPT) until the Licensee has separately filed an FPT for

Transmission and Bulk Supply and the tariff in respect of the same is separately established after following due procedure.

Petitions in I.A. Nos.4/2000, 7/2000, 10/2000 and 11/2000 related to furnishing of certain documents and information by the respondent, APTRANSCO. The respondent had agreed to furnish the information as requested. In I.A. Nos.10/2000 and 11/2000, a request was also made to direct the Commission Secretary to allow inspection of certain documents. The reliefs claimed in the above four petitions were granted.

The respondent, APTRANSCO has submitted its reply to I.A. Nos. 2/2000; 3/2000 and 4/2000 on 9.5.2000 and to I.A.Nos. 5/2000, 6/2000, 7/2000, 8/2000 and 9/2000 on 11.5.2000. The Commission directed the petitioners to file rejoinders if any to the reply of the respondent, the APTRANSCO, if they so desire in I.A.Nos. 2/2000,3/2000, 5/2000, 6/2000, 8/2000 and 9/2000. The Commission also directed that the I.A. Nos. 2/2000, 3/2000, 5/2000, 6/2000, 8/2000 and 9/2000 would be disposed of along with O.P. No.347/2000. The petitioners/objectors then filed their rejoinders to the reply of APTRANSCO in all these I.As on 19.5.2000.

In respect of I.A Nos. 10/2000 and 11/2000, APTRANSCO had furnished the information on 17.05.2000. The petitioners/objectors have also filed their rejoinders to the reply of APTRANSCO on 19.5.2000.

On 15.05.2000 M/S Association of Industrial Electricity Users and M/s Aditya Spinners and six others filed Supplementary Memoranda of Objections reiterating rejection of tariff proposals as prayed for in their earlier I.A.s. These have been taken on record as I.A. Nos. 12/2000 and 13/2000 respectively. The Respondent, APTRANSCO filed counters on 17.05.2000 in respect of these two I.A.s. The Commission passed an order on 17.5.2000 that the Supplementary Memoranda of Objections will be taken into consideration at the time of disposal of OP No. 347 of

2000. The petitioners/objectors filed their rejoinders to the reply of APTRANSCO on 19.5.2000.

APTRANSCO filed further responses to the replies of the petitioners in all petitions on 22.5.2000.

1.4.1.1. I.A. Nos 2/2000 and 5/2000

These are two substantially similar petitions filed by Association of Industrial Electricity Users (I.A. 2/2000) and Aditya Spinners and six others (I.A. 5/2000), the objectors asking the Commission to defer the consideration of the Tariff proposal filed by APTRANSCO till the framing of regulations prescribing the methodologies and procedures for tariff filing and further till the new distribution companies file the tariff proposals in accordance with such regulations. The objectors contended that on a conjoint reading of the provisions of sub-sections (1) and (2) of section 26 of the Reform Act the Commission is required to prescribe the terms and conditions for determination of the tariff by way of regulations. The objectors stated that the Distribution and Retail Supply licence granted to APTRANSCO provides that the Licensee shall establish tariff etc. in accordance with the Regulations, orders of the Commission and other requirements prescribed by the Commission. This also contemplates formulating and publishing Regulations. The Guidelines framed by the Commission for Revenue and Tariff filing are required to be published as Regulations in the Official Gazette. The Guidelines also contemplate that tariff should be designed and filed only in accordance with a duly notified cross subsidy scheme but the FPT does not refer to any such notified scheme. It has also been urged that in the Tariff filing, APTRANSCO has proposed a fuel surcharge adjustment formula, which is not in accordance with any regulations framed and published. The Objectors have also stated that at the time of filing of the tariff proposal by APTRANSCO the Government of Andhra Pradesh had formed four separate Distribution Companies for the distribution and retail supply of electricity in the State and APTRANSCO is no longer the distribution and retail supply Licensee. This will completely change the factors affecting the tariff determination so that the proposal for retail tariff filed by APTRANSCO has become infructuous. The Commission should return the tariff proposals and direct separate tariff proposals to be filed in accordance with the Regulations to be framed and published.

The respondent, APTRANSCO, has in its counter refuted all the objections.

1.4.1.2. I.A. Nos 3/2000, 6/2000, 8/2000 and 9/2000

I.A. Nos. 3 & 6 are similar petitions filed by Association of Indian Electricity Users and Aditya Spinners Limited and six others, the objectors stating that the consideration of the Distribution and Retail Supply FPT should be deferred until the Licensee has separately filed an FPT for Transmission and Bulk Supply and the tariff in respect of the same has been separately established. I.A. Nos. 8 & 9 are also similar objections, filed by the Association of Indian Electricity Users and Aditya Spinners Limited, the objectors stating that the Commission may pass appropriate orders directing the APTRANSCO to take necessary steps to establish a Transmission and Bulk Supply tariff in accordance with guidelines and regulations to be duly notified by the Commission and to pass such other interim, incidental or other orders as the Commission may deem fit in the facts and circumstances of the case. Of these four objections, the objectors' essential contention is that there are two separate Licensees one for Transmission and Bulk Supply and the other for Distribution and Retail Supply and therefore the two Licensees should separately file tariff proposals. The objectors have also stated that the Commission has agreed to assign the Distribution and Retail Supply licenses to such separate Distribution Companies.

The respondent, APTRANSCO, has in its counter refuted all the objections.

1.4.1.3. I. A. Nos. 12/2000 and 13/2000: (Supplementary (No.1) Memoranda of Objections to Tariff Proposals

After the conclusion of the hearing on 12th May 2000 the Association of Industrial Electricity Users and Aditya Spinners Ltd and six others have filed a Supplementary Memoranda of Objection to tariff proposal on 15th May 2000 the contents of which were the same. These two Supplementary Memoranda referred to the I.A.s filed earlier interalia seeking certain information from APTRANSCO and the orders passed by the Commission directing APTRANSCO to furnish the required information. In the orders dated 9.5.2000,11.5.2000, 12.5.2000 and 17.5.2000 in various I.A.s filed by objectors, the Commission had directed APTRANSCO to furnish information to the Commission as well as to the Objectors and accordingly APTRANSCO have filed Counters furnishing information.

In the Supplementary Memorandum of Objection, the Objectors have referred to the Second Transfer Scheme notified by the State Government on 31.3.2000. The objectors have stated that as per the notified scheme the four Distribution Companies are now engaged in the business of retail supply of electricity without a licence being taken from the Commission, which they cannot lawfully do in terms of Section 14 of the Reform Act. It has also been urged by the Objectors that upon the transfer of the assets etc. by APTRANSCO to the four Distribution Companies, APTRANSCO had already been divested of the distribution undertaking and, therefore, was not entitled to file a proposal for retail tariff. It has been alleged that the entire tariff proposal is on an artificial basis ignoring the realities of the situation. The Objectors state that it is only the Distribution Companies that can file the retail tariff proposal, not APTRANSCO. It has been alleged that the consumers have not been informed of the true facts in regard to the formation of the Distribution Companies, the Second Transfer Scheme and the transfer of assets etc from APTRANSCO to the Distribution Companies.

The respondent, APTRANSCO has in its counter refuted the objections.

1.5 SUBSTANTIVE ISSUES

The Commission received comments from 78 members of the public, both individuals and representatives of various consumer organisations. Of these, only 26 had requested and were given an opportunity to present their views orally before the Commission during the hearings held from May 8th to May 12th. The following sections summarise the various issues and objections raised by the public.

1.5.1 Data

Several objectors complained of the quality of the data, particularly in regard to the demand forecast, infirm T&D loss estimate, and the inconsistency with documents published or statements elsewhere. They expressed a concern that APTRANSCO was manipulating the data.

Of special concern was the uncertainty surrounding the estimate of agricultural consumption, (being unmetered) which in turn has a bearing on the identification of the level of Transmission and Distribution (T&D) losses. Various objectors produced calculations of estimates of agricultural usage that were both higher and lower than the 9815 MU used by APTRANSCO in the filing. Several stated that there was no possibility of resolving the controversy until electricity is supplied to the agricultural sector through meters that were properly installed and maintained and service is provided on an energy based tariff. These consumers considered APTRANSCO's proposals to promote metering inadequate, believing they offer the agricultural sector insufficient incentives to adopt metered supply voluntarily.

Aside from the difficulty of estimating losses due to the uncertainty of agricultural usage, objectors more generally doubted the credibility of APTRANSCO's loss estimates. Given the large investments in transmission and distribution, both recent and forecast, they believed that the estimate for technical losses should reflect the benefits of the investments.

1.5.2 Revenue Requirement

The most frequently raised issue relative to the revenue requirement was that of purchased power. To the degree the increase per unit cost was attributable to APTRANSCO's inefficiency in negotiated Purchase of Power Agreements (PPAs), such increases should not be passed on to the consumers. Objectors recommended that the Power Purchase Agreement with APGENCO should be for each generation station rather than averaged over all Hydel and all Thermal units to facilitate merit order dispatch, and argued that merit order dispatch should be extended to all power purchases. Questions were raised on the high cost of APGENCO power, particularly in comparison with the cost of power from central generating stations. APTRANSCO's proposal for a purchased power cost adjustment formula was criticised, both because it was not filed pursuant to Regulations issued by the Commission, and specifically because it contained costs other than fuel, contrary to the Reform Act. Concern was also expressed over the re-valuation of the generation assets by over Rs. 4000 crores in order to create a pension fund.

Several objectors criticised APTRANSCO's request for a deviation from the Sixth Schedule regarding Working Capital. They stated that the inclusion of receivables and payables resulted in a net increase in the capital base on which the Licensee would inappropriately earn a 16% return. Objectors did not believe that a sufficient case had been made for the departure from the Sixth Schedule, and questioned the calculation of the cost of the time lag between payables and receivables, particularly in the light of the imposition of the consumption security deposits and the delayed payment charge. In any case, the non-recoverable part of gross receivables ought to be written off against the existing provisions for bad debts. Other issues raised with regard to the capital base and reasonable return included the forecast for consumer contributions, the proper vintaging of assets for purposes of the rate of return, and the propriety of charging the costs of inefficiency and negligence against the Licensee's return. One objector also noted an apparent discrepancy in the interest burden between the tariff filing and the numbers in the supplemental ERC filings, and recommended that the entire loan profile of APTRANSCO be examined to ensure efficient sourcing of funds.

Finally, objectors faulted the Licensee for some of its investments, including single phase high voltage distribution system and hydro electric pumped storage system, noted the high cost of repair of distribution transformers, and maintained that the owner, not the consumers, should be held accountable for past or accumulated losses or capital inadequacies arising out of poor or inadequate management.

To the extent that a revenue gap remains after the revenue requirement is properly calculated and the tariff increase, if any, is imposed, several objectors stated that the government should provide for payment of subsidy and undertaking for including the amount in the state budget and a mechanism instituted to address defaults in timely payment. Specific suggestions included the commitment to pay APTRANSCO in cash 1/12th of the agreed subsidy each month, the specification of the consumer groups covered by the subsidy, and credits on the bills of the target customers. One objector opined that the entire concept of the regulatory asset deserves to be rejected outright as unreasonable, inequitable and contrary to law.

1.5.3 Tariff design

Consumers were divided on the issue of moving the tariff towards the cost of service versus the need to continue to cross-subsidise particular sectors. Representatives of the commercial and industrial sectors argued that high rates charged to these sectors inhibited the ability of HT consumers to compete in national and international markets and of LT industrial consumers, essential to employment and the economy of the country, to prosper. Cross subsidies should be allowed only after the paying capacity of all consumers has been assessed, including recognition that the burden on these sectors had exceeded the paying capacity of some of their members. The Commission was requested not to be guided by the structure proposed in the filing but to evolve a tariff structure nearer the cost of service. In the long run Commission should evolve a rational categorisation of consumers on the basis of capacity to pay. The capacity to pay should not be confused with the capacity of the Licensee to collect. These objectors supported the policy embodied in the Common Minimum National Action Plan for Power 1996 of an agricultural tariff of Rs. 0.50 per unit, moving to at least 50% of the cost to serve within three years. As four years have already passed, they believed that if the tariff were not set immediately at Rs. 1/- per unit or above, the entire reform process would begin to fail.

In contrast, representatives of other consumers argued that it was appropriate in the context of inequality for the cross subsidies to continue and for the affluent within the domestic category, who can afford costly electric appliances, to subsidise the poorest categories. Similarly, representatives urged the special circumstances of agriculture, the importance of sustaining food security and the agricultural economy, the subsidisation by agriculture of other sectors through government restrictions and price controls, the investments farmers have made in wells and pump sets, and the additional cost of burnt out motors due to fluctuations in electrical supply. The efficiency of the sector could be improved through the manufacture of high efficiency motors and the study of the viability of lift irrigation. They also argued that usage was less than half of that assumed in the filing (the difference being theft), and at the lower assumptions of consumption, the sector was already paying above the World Bank norm of 50 paise (55.55 paise per unit) as opposed to 18 paise estimated by APTRANSCO).

The statement that what they are paying presently works out to 55.55 Ps is argued thus:

* Average Hours of use 600

* Units consumed per annum per H.P.: 1X 0.746 X 600 = 447.6 or say 450

* Present Slab rate for 5 HP pumpsets : Rs. 250

- Unit rate : $\frac{250 \text{ X } 100}{450}$ = 55.55 Ps.

It is further argued that the 600 Hrs Use is against unrestricted supply and present use will even be less than 450 units per H.P.

A specific request for a discounted tariff was made on behalf of pisciculture and prawn culture, an industry that has suffered on account of disease, cyclones and floods, and for whom any increase in tariff would result in losses to the small and marginal farmers residing in remote coastal areas of the State.

Representatives of the Railways requested tariff recognition for their fairly constant load operation, prompt payment, and low cost of service and suggested that Railway stations should be billed as per LT -VI category. He also stated that they may take their power requirement directly from Central Generating Stations if the high tariffs continue. Representatives of hotels and restaurants asked to be categorised under the LT-III tariff, arguing that both the central and state governments treat their activities as a manufacturing process, as for example, for various labour welfare measures. Further, they compete with the tourism industry of Tamil Nadu and Kerala where the tariff is only Rs. 3.50 per unit.

Both commercial and domestic representatives argued that the telescopic billing should be restored. They gave examples of the effect of non-telescopic billing for those consumers whose usage was at the dividing line of the slabs, where consumption of a unit over the maximum of the previous slab results in the entire usage being charged at the higher rate. Objectors argued that the non-telescopic billing was inequitable for those consumers who have no means of meticulously controlling their usage and leads to corruption as the meter readers can slightly adjust the consumer's bill to fall within the lower slab. They contended that APTRANSCO should introduce monthly meter reading on a fixed date, even if billing is done bi-monthly to determine the exact consumption each month. Self-assessment by consumers could be considered.

The LT industries strongly argued against the practice that contracted load is assumed to be the connected load without giving the consumer the option of assessing and specifying his contracted load separately in addition to connected load. They argued that contracted load is the maximum load that the consumer will draw from the system and the system could be designed for meeting the coincident demand of all such contracted demands, and therefore the fixed charge should only be applied to the consumer's contracted demand. They pointed out that there are many small industries whose such contracted demand would be significantly lower than the connected load due to the diversity of usage of their equipment or load cycles. The system is not only unfair to the consumer, but also inefficient for the electricity system as it is over built. Where the recorded demand exceeds the contracted demand, special rates for the excess demand can be applied. They also supported retention of the LT III B category of load between 75 and 150 HP.

1.5.4 Efficiency and Quality and Conditions of Service

The objectors raised a number of issues regarding improvements in efficiency. They supported the rapid replacement of defective meters in order to improve energy sales, revenue and the proper accounting for energy. Introduction of modern meters should be considered in high value services for cost efficiency as various types enable remote reading and transfer of the reading to a portable reader, which reduces human error and corruption and expedites billing and therefore collection. Other metering proposals included the installation of meters in order to measure accurately the losses in the EHT, HT and LT distribution systems, and installation of meters for all agricultural consumers and local bodies. Since a programme of universal metering will take some time to accomplish, meanwhile meters should be installed on all transformers that feed agricultural pump sets, on all new connections and all pump sets of capacity 10 HP and above.

Objectors also proposed the use of single-phase high voltage distribution and the introduction of discounts to encourage large LT consumers to opt for HT service as a way of reducing technical and commercial losses. Demand-side management should be promoted, including the encouragement of the adoption of efficient lighting by all consumers, the introduction of time of use metering, and the formulation of policies to encourage drip irrigation.

Several objectors complained that the system is being operated at a lower frequency than permitted by norms, which could lead to the tripping of generating units and is responsible for black-outs and the reduction in efficiency of pumps and all motive power loads. Estimates were offered for the cost of low frequency, both in terms of energy (4590 MU) and financial losses (Rs. 500-700 crores). Low voltage was also cited as a costly problem, responsible for 3% of the distribution losses (1200 MU) or Rs. 240 crores a year. The public urged the Commission to establish quality of service standards and a time bound plan for improvement, preferably simultaneously with any consideration of a tariff increase.

Objectors also recommended changes in specific aspects of billing. They argued that the interest on security deposits was abnormally low and should be increased to at least the Bank rate under the RBI guidelines, and that security deposits of three months' value should not be required for high value consumers who were billed monthly and who are also penalised or disconnected for late payment. The due date for payment in the LT tariff should be revised to 15 days and flat rate charge of 0.03% per day levied for the first 15 days and the higher rate of 0.07% per day applied thereafter. A mechanism should be adopted to protect consumers from non-dispatch and delayed dispatch of bills. Arrangements should be made to collect payments through approved banks.

Generally, it was suggested that the existing terms and conditions of supply should be reviewed and revised, as they are inconsistent with the Indian Electricity Act.

Finally, nearly all objectors urged that pilferage should be curtailed by strict vigilance and penalties. Programmes should be developed and progress monitored so that law-abiding consumers do not have to pay for theft by other consumers. Many contended that if theft were eliminated, there would be no need for a tariff increase.

1.6 Position of Staff

1.6.1 Data

Staff believes that APTRANSCO has made its best efforts to comply with the formats prescribed by the Commission in providing the information for the purpose of ERC/ARR filing. As APTRANSCO was able to arrive at the aggregate revenue requirement despite not providing the information in the required formats, Staff recommends that the ERC/ARR filing be deemed as complete for FY2000-01. They accept the assurance of the Licensee that complete information will be available for FY2001-02.

1.6.2 Revenue Requirement

At the public hearing, staff presented its analysis of the filings. It accepted that the reforms process is in the initial stages and the state is in a period of transition from a controlled economy to a market oriented economy. APTRANSCO is a regulated monopoly with obligations defined by the Act and the licence. In general, the staff has adopted the Sixth Schedule to the Electricity (Supply) Act 1948 as its regulatory framework, which defines the cost of supply of electricity to consumers and the Licensee's entitlement to a reasonable return on its capital base.

Staff found that the most critical parameter in the filing was the source and cost of power. Their estimate for the sources and quantum of energy that will be required differed from APTRANSCO's as follows (in MUs):

Table No. 2

Source	APTRANSCO MUs	STAFF MUs
APGENCO	26788.15	27184.87
CGS	9670.00	10258.49
APGPCL	383.00	383.00
IPPs	4728.34	3645.00
Others	418.44	548.44
Free Wheeling	0.00	100.00
SEBs	640.50	640.50
Total	**42628.43**	**42760.30**

In addition, Staff assumed that 131 MUs are available from Visakha Steel Plant (VSP) so that there is no difference in the total energy purchases.

Staff's calculations assume that auxiliary consumption is as per actual trends, windage losses at 1% as per current trends, and purchases from NTPC(S) as per past trends of allocation and performance level. They accepted APGENCO's schedule of overhauls, and assumed that the gross generation from VSP would be taken to the grid. They believed that 100 MUs could be assumed to be available each from Free Wheeling (the saving on line losses due to transmission by displacement) and from the unutilised capacity of APGPCL. They then assumed a merit order selection, estimating Hydel generation on the basis of the average of the previous ten years. Transit losses were included in the coal costs. As a result, while there is no difference in total energy purchases, there is a significant difference in power purchase costs as estimated by APTRANSCO and staff (in Crores Rupees):

Table No. 3

Source	APTRANSCO Rs. Crores	STAFF Rs. Crores
APGENCO	3927.26	3389.10
CGS	1522.85	1529.37
APGPCL	84.95	84.95
IPPs	1441.17	1074.22
Others	90.37	114.37
Free Wheeling	107.57	106.68
SEBs	149.25	149.25
Total	**7323.42**	**6447.95**

For purposes of the revenue calculation, Staff accepted the technical losses as per the projections of APTRANSCO (Transmission at 4.5% and Distribution at 30.9% to gross purchases) but stated their view that reduction of losses would be possible with improved metering, energy audits, improved distribution network and energy conservation. They provisionally accepted APTRANSCO's estimates of agricultural consumption, although they noted that without metering and data analysis both the T&D losses and the agricultural consumption could only be guesses. They accepted APTRANSCO's load projections based on the study of its consultant, SNC Lavlin.

Staff did not accept APTRANSCO's proposal for a fuel and purchased power cost adjustment formula based on its reading of Section 26(9) of the Reform Act, which refers specifically to "any fuel surcharge formula". It is Staff's view that under the law, the formula can only recognise variations in fuel costs and not variations in other costs of purchased power such as operation and maintenance costs. They believe, however, that it would be possible to reconcile estimates of these costs with the actuals at each annual tariff filing.

Staff then calculated APTRANSCO's Aggregate Revenue Requirement, which also differed from the Licensee's calculation. At the Transmission and Bulk Supply level the comparison is as follows:

Table No. 4

	APTRANSCO Rs. Crores	**STAFF Rs. Crores**
Original Cost of Fixed Assets	2678.00	2318.05
Construction Work In Progress	1147.26	1151.80
Working Capital	4.84	3.19 + 3.96
Receivables	1302.74	0.00
Accumulated Depreciation	711.112	672.40
Loans	1785.16	1785.16
Working Capital Borrowing	1061.41	0.00
Market Borrowing & CAPEX	182.33	0.00
Payables	956.69	0.00
Total	**436.60**	**1019.44**

Thus the difference between the estimates of APTRANSCO and Staff in the net Capital Base at the Transmission and Bulk Supply level is Rs. 582.84 crores.

At the Distribution and Retail Supply level the cost comparison is as follows:

Table No. 5

	APTRANSCO Rs. Crores	STAFF Rs. Crores
OCFA	4000.40	3935.01
CWIP	1076.43	941.03
Stores	21.92	21.92
Average Cash	86.61	63.56
Receivables	1833.52	0.00
Accumulated Depreciation	1823.69	1817.84
Loans	1774.94	1774.94
Consumer Security Deposits	941.32	1042.01
Payables	1302.74	0.00
Total	**1176.19**	**326.73**

The difference between the APTRANSCO and Staff estimates in respect of the net capital base at the Distribution and Retail supply level is thus Rs. 849.46 crores.

The primary reason for the differences in the estimates is that for the capital base, Staff calculated fixed assets and CWIP on the basis of the Aggregate Revenue Requirement filing and on the basis of the Sixth Schedule. This latter consideration in particular affected the calculation of working capital. Staff did not believe that it was appropriate to include receivables and payables in the capital base as a working capital adjustment. Further, Staff was concerned that the Licensee had included an additionality in estimates by way of receivables, payables and working capital borrowings in the capital base. The Licensee claimed during discussions that such inclusions are as per international practice and generally accepted accounting principles, where, any equity funds if invested would earn returns accordingly.

Staff also made adjustments to several other expense categories. They based their estimate of wages and salaries on DA projections and did not accept APTRANSCO's inclusion of a provision for payment towards 240 days of earned leave for the retirees during the year. They also disputed the need for a provision for bad debts by charging the Revenue Requirement for the year and contended that bad debts should not arise in view of the statutory instrument available to APTRANSCO by way of APSEB (Recovery of Dues) Act, 1984. Similarly, the Sixth Schedule does not allow inclusion of receivables, payables and working capital borrowings in the computation of the capital base and have therefore deleted these amounts. Finally, Staff believe that for an estimate of the contribution required to the pension and gratuity fund for the employees' services during 2000-01, the actuarial assumptions of Price Waterhouse are not appropriate for future contributions, and have used their own study and estimate.

After taking the aforesaid differences in the cost of purchased power and the various items of expenses, the estimate of expenses for Distribution and Retail Supply are as follows:

Table No. 6

Item of Expense	APTRANSCO Rs. Crores	STAFF Rs. Crores
Purchase of energy	7924.99	7033.99
Wages & Salaries	534.81	478.07
A & G expenses	88.52	88.52
Repairs and Maintenance	131.51	131.51
Rent Rates and Taxes	96.96	19.95
Approved Loan Interest	220.86	220.86
Legal Charges	0.61	0.61
Bad Debts	92.34	0.00
Auditors Fee	1.21	1.21
Depreciation	251.37	245.52
Contribution to Employees funds	142.95	42.82
Tax on Income	22.54	23.54
Contribution to Contingency Reserve	10.86	10.69
TOTAL	9519.53	8297.29

The capital base calculation together with the estimates for expenses, gives the following Aggregate Revenue Requirement for Distribution and Retail Supply business.

Table No. 7

Category	APTRANSCO Rs. Crores	STAFF Rs. Crores
Total Expenses	9519.53	8297.29
Reasonable Return at 16%	161.78	61.15
Less non-tariff income	(447.47)	(519.47)
Less variable cost adjustment	(216.00)	0.00
Net Revenue Requirement	**9017.84**	**7838.97**

The difference between the two estimates is Rs. 1178.87 crores. Revenue at current tariffs have been posited at Rs. 5,436.88 crores. Thus, at current tariffs the gap to be covered as per APTRANSCO's estimates of the revenue requirement is Rs. 3580.96, and as per Staff's estimates is Rs. 2402.09 crores. Of this amount, APTRANSCO projects, and Staff accepts, that APTRANSCO can achieve an efficiency gain of Rs.500 crores, leaving the two estimates at Rs. 3080.96 crores and Rs.1902.09 crores respectively as the net gap to be filled. Against these sums, the 15% tariff increase proposed by the Licensee would raise Rs. 808 crores.

1.6.3 Tariff design

Staff did not offer any specific proposals regarding tariff design, except to state that the design of the tariff should be based on the tariff philosophy of the APERC and the suggestions made during the public hearing. Staff understands the APERC tariff philosophy as supporting a gradual move to tariffs based on the cost of service while avoiding to the extent possible a rate shock. "Cost" initially would be based on an embedded cost of service study, although in future years a marginal cost study should be employed.

1.6.4 Other issues

Staff expressed a general concern with the quality of service, including problems of low frequency, low voltage, grid failures and prompt customer services.

The Staff evaluated the APTRANSCO's position on the level of its transmission losses and found that APTRANSCO could not explain the assumed 4.5 percent transmission loss. They noted that APTRANSCO has stated that it has either no meters, defective meters or no meters of required accuracy class to measure the energy flows at both generating stations and interface points:

> The metering, if any, was confined to interstate energy accounting, purchases from central generating stations and IPPs. Besides these meters, the rest of the meters in the system are either not of the required accuracy class or are not operational (para 1 of SNR 3.1-SNR 3.3)
>
> Given the current level of metering, it would be difficult to provide the EHT/HT and LT losses at this stage by voltage class. Action has already been initiated under Adaptable Programme Lending to identify the interface transformers and feeders and the metering points in between the EHT System, Sub-transmission system and to assess the meters required for taking up the segregation of voltage level-wise losses. (para 2 of SNR 3.1-SNR 3.3).

The Staff, however, is of the opinion that the assumed transmission loss of 4.5 percent is close to global standards in transmission business (2-4 percent), and can be accepted. In the opinion of the staff, there is no way to identify the losses in different stages of transmission and distribution in the absence of proper metering at generating stations and interface points (where the ownership of energy is transferred).

Staff also analysed the relationship between the estimations of agricultural consumption and commercial losses. As a result of the lack of metering data, APTRANSCO is constrained to estimate the agricultural consumption. Staff noted that APTRANSCO was constantly changing the method of estimation, which validates the apprehension that APTRANSCO masks the losses by attributing a portion to agricultural consumption. Staff recognises, however, that the methodology is changing and for the purposes of this filing, recommends that the Commission accept the figure 9815 MU as a "guestimate" for 2000-2001 in the absence of reliable data.

1.7 Statement by the Government of Andhra Pradesh (GoAP)

During the Public Hearing on the 11th May, the Principal Secretary, Department of Energy, on behalf of the Government of Andhra Pradesh, stated that once the Commission formulates the tariff after allowing cross subsidization, the Government would decide whether any additional subsidy is required to be provided for any category of consumers based on Government's social and economic philosophy. He also made it clear that while subsidy commitment would be made by Government taking into account their resources position, once the commitment is made the Government would fulfil the same whether a specific budgetary provision is made or not. He elaborated on how the Govt. have provided requisite assistance in various ways like providing cash assistance, by making tripartite adjustments and writing off interest and loan instalments due to Govt. and making cross adjustments to amounts payable by the utility. The Government have assisted APTRANSCO to raise resources through bonds to the tune of Rs.5202.61 crores and all these bonds are guaranteed by the Govt. of Andhra Pradesh. Of this bond amount, Rs.2356.35 crores was received by the utility in cash and most of the remaining adjustment bonds issued were utilized to meet the payment obligations to various power and coal suppliers. Thus, bulk of the bonds have been issued to provide revenue relief to the utility. He also pointed out that the Govt. is working on the course of action to be taken with regard to formally taking over the bond liability. And in this regard they have already paid Rs.390.71 crores during 1999-2000 towards interest on account of bonds. He concluded that the track record of the government with regard to extending the committed assistance is beyond doubt.

The GoAP also presented its views on the need for reforms in the sector in general and the government's role in the first tariff filing. It stated that the annual revenue deficits had been increasing year after year from Rs. 850 crores in 1996-97 to their current level of Rs.3700 crores and that no State or society could sustain such an escalating deficit. The government would not shirk its responsibility and will support APTRANSCO to make it viable. However, GoAP can not make an open ended offer. As soon as the final figures emerge from the Commission, the GoAP can specify the quantum of assistance. Further, once the government commits to a level of subsidy, it will make the appropriate arrangements.

1.8 Response by APTRANSCO

APTRANSCO prefaced its response to the queries raised generally by the public and specifically by the staff presentation with an introductory statement on the nature of its inherited business which is constrained by embedded structural deficiencies and historical financial liabilities. They have planned a series of improvement initiatives to correct these structural deficiencies, but currently are in a state of transition. APTRANSCO's stakeholders must recognise that support is essential during this period and that additional revenues are required to sustain service and efficiency improvement programs. The Licensee contended that there were three types of constraints on the sector. First, physical constraints include lack of adequate evacuation facilities and infrastructure, a transmission and distribution system that has been neglected over the years, inadequacy of numbers of staff due to failure to fill vacant posts for 15 years, illegal tapping of lines leading to accidents and fatalities, premature weakening of lines and equipment due to weather and unauthorised building constructions and growing of trees underneath the power lines. Illegal loads such as commercial welding loads and marble cutting, connecting additional loads in the existing services and use of power intensive electrical appliances in households have also affected the quality of service. Second, the financial constraints of the system include inadequate tariffs, a dependence on subsidies and an inability to satisfy investment requirements. Lack of tariff revision and failure to rationalise tariffs in the past has resulted in poor finances; cross-subsidisation has reached its limits and continued growth in sales to unrenumerative categories only worsened the Licensee's finances. Third, the sector is also burdened with social obligations. Domestic tariffs are significantly below the cost of supply. APTRANSCO must supply additional electricity to protect standing crops, but under the regime of flat rates receives no additional revenue. The situation is not sustainable; the energy supplied to agriculture in the previous year (1998-99) was 7,696 MUs; APTRANSCO budgeted 9,362 MUs in the current year (1999-2000) whereas the estimated supply was 11,500 MUs.

APTRANSCO believes that it has improved its performance significantly since the reform, particularly as it addresses its technical weakness. It has increased the number of substations at all levels, improved line availability, reduced the number of distribution transformer failures (though they admit that at 28.5% for 1999-2000 these levels are unacceptable), and improved the response time in replacement of burnt transformers. However, its customer mix has shifted to lower yield (domestic and agricultural) accounts and the power purchase mix has shifted to the more expensive thermal sources. Huge investments are required to relieve overload on lines and transformers, improve the system and reduce technical losses (an estimated Rs. 890 crores for every 1% reduction in technical losses), and major investments are required in metering to reduce commercial losses.

1.8.1 Data

APTRANSCO acknowledges that it has not been able to provide all of the information required by the APERC guidelines for this first filing. It notes that audited accounts of APSEB, on which the ARR is based, are available for only the ten-month period ending 31 January 1999, and relate to the aggregate business of the former APSEB. Separate accounts of APTRANSCO are available from 1 February 1999 and the balance two months data has been taken from actual financial data compiled by APTRANSCO but is subject to audit. Further, the First Transfer Scheme was finalised only on 31 January 2000, and APTRANSCO is still in the process of incorporating all the adjustments.

APTRANSCO agrees that the estimation of agricultural consumption and losses continues to be a major issue for the Licensee, and concedes that the effort to make available its latest and best estimates has resulted in a shift in numbers. The Licensee had attempted to address the problem through an Energy Audit of agricultural usage, but found that most meters could be installed where the installation site was easily accessible and there was no resistance by the farmers. As a result, the study is biased towards data obtained from large farmers and probably overstates the consumption. New initiatives to both audit and control consumption are the installation of 50,000 meters on the distribution transformers that serve agriculture, and the separation of agricultural feeders from the domestic. APTRANSCO estimates that metering of all agricultural consumers and the institution of an alternative method of meter reading would require a capital investment of Rs. 370 crores over two to three years

APTRANSCO had assumed 4.5 percent of total power supplied as the transmission loss for the year 2000-01. The total available supply from all sources is 42,628.39 MU for the year 2000-01. After deducting the transmission loss at 4.5 percent, i.e., 1918.28 MU, the net power available for distribution will equal to 40710.11 for the year 2000-01 (Schedule XV of SNR 1.1 of ERC application of APTRANSCO).

APTRANSCO sought waiver from furnishing the information as per prescribed forms under appendix-3 of the guidelines. APTRANSCO also sought the permission to estimate the overall systems losses for the year 1998-99 and from 1-4-99 to 30-9-99 as per its own format. (form 3.1(a) of SNR 3.1-SNR 3.3). APTRANSCO considered the total power delivered to the grid and deducted (a) the metered sales and (b) the estimated sales of unmetered connections from the total power delivered to the grid. The resultant sum is considered as overall systems loss.

1.8.2 Revenue requirement

APTRANSCO agrees that the cost of purchased power has increased. However, this is primarily due to the change in the hydel-thermal mix. The energy supplied has grown by 8.3% per year, and the entire additional power requirement has been met through costlier thermal and gas stations, so that the share of hydel in the total supply has fallen from 50% in 1991 to 16% in 1999-2000. A particularly expensive unit is the Kondapalli independent power producer whose cost of production has escalated due to the increased cost of naphtha. However, this fuel cost will be mitigated as gas becomes available and the unit is converted. The cost of the other two Natural Gas based IPPs is around Rs. 2 per unit. In the future all PPAs must be approved by the APERC.

Of staff's re-estimation of power purchase costs and reduction of Rs. 874 crores, the Licensee accepts reduction of Rs. 121 crores due to the revised power purchase mix and indicates that another Rs. 216 crores could be reduced when a separate arrangement of pass through of fuel cost variation is allowed. APTRANSCO agreed with the concept of merit order dispatch but pointed out that one must take into account the take or pay obligations in the contracts and the shortages of capacity. APTRANSCO defended the details of its power cost estimates. Auxiliary consumption is provided as per the PPAs, but since new meters are being fixed at the inter-connection points, the auxiliary consumption must be re-estimated at 10% rather than 9.75%. They accepted staff's position on the revised overhaul schedule and its estimates of windage losses and hydel generation. It was concerned that staff had not taken into account transit losses of fuel (coal). The Licensee believes that staff is assuming that the units available from NTPC(SR) will be approximately 5000 MU, and argues that the five-year (1995-2000) average is 4432 MU and therefore its estimate of 4600 MU is a better approximation. It contends that its assumptions regarding the Visakha Steel plant should be retained as the firm capacity commitment is 18 MU per month (80% PLF based on a firm capacity of 30 MW availability throughout 24 hours). The maximum drawal of 60 MW is not firm. It does not believe that the units received as wheeling charges are available as there are equivalent line losses, and therefore units in kind received from wheeling should not be included as available. Similarly, it did not expect any extra supplies from APGPCL (100 MW).

APTRANSCO agreed that the establishment of a Fuel and Purchased Power Adjustment formula would resolve the differences in the estimates, as the estimated amounts would be reconciled to the actuals, whatever they are.

APTRANSCO stated that the re-valuation of APGENCO's assets by Rs. 4300 crores on account of pension fund liability was determined in the first Transfer Scheme and its effect is the same as current funding of pension disbursements. In the past, APSEB had provided for 14% towards pension liability, but the funds were ploughed back into the business, rather than deposited in a Trust and dispersal for pensions was done from current accounts.

The Licensee summarised its response to staff's analysis of its costs in the following table:

Table No. 8

Item	Reduction proposed by Staff Rs. Crores	APTRANSCO Position Rs. Crores	Remarks
Power Purchase cost	874	216 121 ***337***	To be recovered under FSA; Due to Revised Power Purchase Mix; Total reduction.
Wages and Salaries	59	Nil	1-2% DA increase is too conservative; Leave encashment to Retirees should be recoverable.
Contribution to Employees Terminal Benefits Funds	101	Nil	Allowance @ 8.33% against 28.6% (32.43% of Basic Salary and DA) estimated by Actuary is not acceptable.
Rent, Rates and Taxes	77	Nil	Disputed Sales tax liability; Case pending with the Tribunal.
Provision for Bad debts	92	Nil	Provision @ 1% as against collection efficiency of 92%-95% in previous years.
Non-Tariff income (Increased)	72	Nil	No basis provided; annual increase of approx Rs 40 crores already considered
Changes to Capital base			
Capital Expenditure proposed: - Transmission - Distribution	 136 194	 Nil Nil	 Funds tied up; orders placed Budgeted amounts likely to be achieved
Additional WC -Transmission -Distribution	 -715 531	 Nil Nil	 Requested deviation from the Sixth Schedule to recognise contemporary business practice

Item	Reduction proposed by Staff Rs. Crores	APTRANSCO Position Rs. Crores	Remarks
Incr. in consumer security deposit (Distribution)	100	Nil	Amount based on the First Transfer Scheme
Impact on return -Transmission -Distribution	 -87 100	 Nil Nil	 @16% @13%
Interest on WC and other long term loans	150	Nil	Essential expenditure of any business
Other items	-44	Nil	Consequential/minor changes
Total	**1395**	**337**	**Unacceptable decrease of Rs. 1,058 crores**

APTRANSCO provided some additional details and arguments to support its figures. On wages and salaries it argues that the increase of 1% from 1.1.2000 in the Dearness Allowance (DA) was an aberration, that the five year average is 14% a year, the ten year average is 8 to 10% and therefore its figure of 12.5% is justified. It also contends that Staff's disallowance of leave encashment paid to retirees is not justified. It believes that its actuarial estimate of 32.41% for its current contribution to employee pension trusts should be retained. It further contends that for meeting pension payments the historical contribution rate of 14% had in experience proved grossly inadequate and that the staff's 8.33% provision has no basis. On Bad Debts, APTRANSCO argues that provisioning bad debts is recognised as a prudent expenditure under the Electricity (Supply)(Annual Accounts) Rules, 1985 ('ESAR') at a fixed percentage of dues from consumers and that this amount is provided in addition to sums written off as bad debts. APTRANSCO is appointing consultants to review the debts it inherited from the APSEB and to recommend the appropriate amount for write off.

The figure for Rent, Rates and Taxes is due to a disputed past sales tax liability (on material supplied by the erstwhile APSEB to its contractors) currently pending with the court. APTRANSCO believes that both the past liability and the probable future demands should be provided for.

A reconciliation of the records for consumer security deposits between the field offices and the head office has concluded that the actual balances are Rs. 765 crores and this amount was included in the First Transfer Scheme. Hence, Staff's adjustment to Rs. 849 crores is inappropriate.

It believes that the interest on the Vidyut Bonds should be allowed until a commitment from the GoAP has been obtained to provide cash assistance to service them. In response to the objector's call for an examination of APTRANSCO's loan portfolio to ensure that it does not go for inefficient sourcing of funds, the Licensee argued that its loan portfolio should be viewed against the background of the sector's revenue deficits and inadequate funds. Further, it is the best that could be arranged and that interest on market borrowings should be allowed as a pass through.

APTRANSCO believes that its non-tariff income projection, increased by 10% over 1999-2000, is appropriate and that Staff's further increase of Rs. 40 crores is unjustified.

A major issue is APTRANSCO's request for a deviation from the Sixth Schedule for Working Capital. APTRANSCO submits that there is an anomaly in the computation of the capital base under the Sixth Schedule whereby select items of current assets are reflected at their normative levels while negative elements are being recorded at their entire/actual levels (e.g., consumer security deposits held against receivables). APTRANSCO believes this leads to an understatement of the capital base and requests the Commission to include all working capital elements such as receivables, payables and working capital borrowings in the computation. The Licensee states that internationally there is widespread acceptance of including working capital in the revenue requirements in cost-based regulatory jurisdictions, and its recognition is fully supported by Indian accounting standards.

1.8.3 Tariff Design

In its filing, APTRANSCO has adopted the principle of an evolution towards cost-based tariffs. It averred that it was committed to meeting the needs of the agricultural sector. However, it contended that the current tariff structure and the resulting increases in consumption of both electricity and water is unsustainable. It noted the changes in agricultural usage since meters were removed in 1983, including the change from open wells to tube wells and the increase in the bore diameters from 4" to 6-8" and the depths drilled. It stated that the agricultural community must help by switching to less water intensive crops (than paddy) and different irrigation techniques, most important of which is drip irrigation combining savings of precious resources of electricity and water.

On the requests for special consideration by specific categories, APTRANSCO acknowledged the problem of the shrimp culture farmers but believed that they should remain in the same tariff category, noting that the GoAP has promised a direct subsidy. Hotels have traditionally been considered commercial rather than industrial concerns, though again the government has been willing to provide concessionary rates for hotels in particular areas. The Railways can not be given preferential rates based on their load factor, as their load does not exhibit much differentiation between peak and off-peak, the peak is likely to be at night when agricultural usage is high. In any case the load factor of the Railways is only 30% and they are not charged demand charges. Railway stations are billed at commercial rates because of the entry fees and the commercial activity that takes place there. Specific sources of power can not be designated for specific customer groups, either hydel for agriculture or NPTC for Railways. APTRANSCO's customer categories are broadly differentiated as subsidised and non-subsidised and none has any claim to particular sources of energy.

The power provided to the domestic customers is highly subsidised, particularly to those customers who consume 0-50 units who constitute 60% of domestic customers. Tariffs have not been raised to domestic customers consuming less than 300 units since 1996.

APTRANSCO stated that it had no objection to telescopic billing as long as the tariff design was revenue neutral. It does not disagree that contract rather than connected demand is the appropriate measure as long as the information is available and proper metering installed.

1.8.4 Efficiency and Quality and Conditions of Service

APTRANSCO detailed the various initiatives it has taken in the recent past to improve its efficiency and the quality of service for its customers and to reduce its technical and commercial losses. It conceded that the system is plagued by frequency problems but noted that this was due to the capacity shortages in the entire southern region, and are problems that all the Southern States were endeavouring to address.

APTRANSCO observed that consumer deposits are collected against the consumption, and the Supreme Court has upheld the right of an SEB to collect such deposits, leaving to the discretion of the SEB the rate of interest.

The Licensee recognises that the problem of theft is especially troublesome and intends to initiate particular steps to curb its commercial losses. These include

- internal management measures, such as the rotation of meter readers;
- Overall supervision, such as the continual energy audit of 103 towns, data logging meters on 11 kv lines and linking of distribution transformer codes with consumer service numbers;
- technical investments, such as the laying of AB cables in areas of rampant direct tapping and installation of tamper proof meters; and
- public initiatives, such as the Shaktiman scheme to involve the public in detection of pilferage and the Own your Transformer Program in the rural areas.

2 COMMISSION ANALYSIS

2.1. Analysis of legal issues

2.3.1. I.A. Nos. 2/2000 and 5/2000

The Commission has considered the issues raised by the Objectors and the counters filed by APTRANSCO. The plea urged by the Objectors to the effect that the Commission is required to frame regulations before considering the Revenue and Tariff proposals and in the absence of the regulations duly published in the Official Gazette the Commission cannot proceed with the hearing cannot be accepted. Section 26(1) of the Reform Act gives the Commission the power to specify the methodologies and procedures from time to time in regard to calculation of the expected revenue and in designing the tariffs. This provision does not envisage framing of regulations. The revenue requirement and tariff proposals are complex in nature and cannot be completely covered in regulations. The Reform Act therefore allows flexibility to the Commission to adopt from time to time such methodologies and procedures as it considers appropriate. The expression used in section 26(1) of the Reform Act is "specified" and not "prescribed". Section 2(h) of the Reform Act defined “prescribed“ as meaning prescribed by the rules or regulations. In contrast to sub-section (1) of Section 26, sub-section (2) of section 26 uses the expression "prescribe" and also regulations framed and published. Firstly, the sub-section (2) is an enabling provision in that it states that the Commission shall be entitled to prescribe. This provision does not mandate the Commission to prescribe by Regulations, the terms and conditions for determination of the Licensee's revenue and tariffs. In any event this does not take away the powers of the Commission to issue and give effect to guidelines specifying the methodologies and procedures under sub-section (1) of section 26, without the same being prescribed in the Regulations. Similarly sub-section (5) of section 26 provides that the Licensee shall give the Commission details in a format as specified by the Commission. This provision also does not envisage framing of Regulations as a precondition for dealing with the Tariff Proposals. Sub-section (9) of section 26, amongst others, deals with Fuel Surcharge

Formula refers to adjustments to be undertaken during the year i.e. after the tariff is fixed. If the Commission prescribes a regulation, the Licensee shall have to follow the regulations. The Commission has so far not prescribed any regulations for fuel surcharge adjustments. The Commission can always prescribe the formula and require the Licensee to adopt the same. This will not prevent the Commission to hear the Licensee's application for tariff.

The Objectors have also stated in their objections that unless a scheme in regard to cross-subsidisation is notified by the Commission by way of regulations and the same is published in the Official Gazette and further AP Transco files the Tariff proposal in compliance with such regulations, tariff filing of AP Transco cannot be taken up for consideration. In this regard the Objectors have referred to Clause 9.1.1 of the Distribution and Retail Supply Licence given to AP Transco. There have been no guidelines or any scheme for cross subsidy notified by the Commission so far. The clause in the licence referred to would mean that if and when the Commission notifies a scheme and if there exists any such scheme, AP Transco and other licensees concerned will be required to follow the same. This does not mean that tariff application cannot be taken up for consideration in the absence of any such scheme as contended by the Objectors. There is no mandate of law that there should be any such Scheme before a Tariff proposal can be considered.

2.3.1. I.A. Nos. 3/2000, 6/2000, 8/2000 and 9/2000

The Commission has considered the issues raised by the objectors and the counter filed by APTRANSCO. The Commission has so far not permitted the assignment of the Licence by APTRANSCO to the distribution Companies. APTRANSCO continues to be the Distribution and Retail Supply Licensee even though the four distribution companies have been formed. These distribution companies have to get a licence from the Commission in terms of section 15 of the Reform Act and till then the APTRANSCO will continue as the Licensee. The Commission will be considering the application for grant of distribution and retail supply licenses to such distribution companies after the completion of the procedures specified under section 15 of the Reform Act and after a public notice. It is therefore not correct that the application filed by APTRANSCO for retail tariff has become infructuous.

The Commission has only permitted the four distribution companies, which are wholly owned subsidiaries of APTRANSCO to carry on the distribution and retail supply functions on behalf of APTRANSCO. The business will continue to be that of APTRANSCO till such time the Commission considers the application from the four distribution companies for grant of Licences. The objectors' contention overlooks the fact that at this stage, separation is required in the Revenue Requirement proposals and APTRANSCO has filed two applications, one for Transmission and Bulk Supply and the other, for Distribution and Retail Supply, for such revenue requirements. The separate revenue requirement filing serves the purpose of knowing the revenue requirements of the two business activities separately. So long as APTRANSCO is both the Transmission and Bulk Supply Licensee and Distribution and Retail Supply Licensee, a composite tariff in the form of Distribution and Retail Supply Tariff meets the requirement as APTRANSCO cannot sell electricity to itself. As and when the Commission deals with the applications for grant of distribution and retail supply licenses to the four distribution companies the Commission will decide on the price at which APTRANSCO will sell energy to such distribution companies and also the price at which APTRANSCO will wheel the energy to the distribution companies if the energy is purchased by the distribution companies from others. At this stage, for the reasons given above, there is no need either to call for separate tariff proposals or fix tariffs for transmission and bulk supply independent of distribution and retail tariff.

Incidentally the objectors have contended that I.A. No. 8 and 9 filed by them should be treated as independent petitions under Section 28 of the Reform Act seeking enforcement of the Licence conditions and not as an Interim Application in OP 347/2000. The matters raised are interlinked with the Tariff Application of APTRANSCO. The Commission is therefore of the view that the same should be decided along with the main petition and was therefore right in treating all such applications as Interim Applications.

2.3.1. I.A. Nos. 12/2000 and 13/2000: (Supplementary (No.1)Memoranda of Objections to Tariff Proposals

The submissions of the Objectors contained in the Supplementary Memoranda of Objections overlook the fact that the Second Transfer Scheme notified by the Government of Andhra Pradesh is a statutory Transfer Scheme and issued in accordance with the powers vested in the State Government under section 23 of the Act. The Commission has, however, not granted the licence so far to the Distribution Companies. The licence to the Distribution Companies will be considered only after following the procedures laid down in law i.e. the Reform Act and Regulations and after hearing objections from the interested parties. As on date, APTRANSCO continues to be the Distribution and Retail Supply Licensee. The Commission has allowed APTRANSCO to carry out defined functions through their wholly owned Distribution Companies and for that purpose has allowed APTRANSCO to hold assets in the name of the Distribution Companies. The business conducted by the Distribution Companies shall be for and on behalf of APTRANSCO till such time the licences are granted to the Distribution Companies in accordance with law. The order passed by the Commission allowing APTRANSCO to conduct business and to hold assets in the name of Distribution Companies is in accordance with Clause 5.4 of the Distribution and Retail Supply Licence granted to APTRANSCO. This has been done to facilitate the re-organisation of the electricity industry by the State Government in accordance with the provisions of Section 23 of the Reform Act. The Second Transfer Scheme was notified by the State Government in the Official Gazette on 31-03-2000. In these circumstances there is no question of any suspicion or doubt about the intention or consequences flowing from the issue of the Statutory Transfer Scheme. The Objectors had the full opportunity to present their case in regard to the above issues at the time of the tariff hearing. No prejudice, therefore, has been caused to any of the parties.

The Objectors have raised two other issues in the Supplementary Memoranda, namely, one relating to the reduction in the value of consumer contribution and other relating to information quality and staff submission. As regards consumer contribution, APTRANSCO has stated that the reconciliation of the Consumer Contribution amounts has been provided in clauses 1.3.1 and 3.4.7 of SNR 1.9 of the ERC/ARR filing as submitted on December 29, 1999. Further, the Licensee has adopted the amounts for the purpose of the ERC/ARR filing in accordance with the First Transfer Scheme issued by the government of Andhra Pradesh, which is binding in law as per Section 23(4)(b) of the Reform Act.

As regards information quality and staff submission, the Commission staff had made a presentation based on the documents filed by APTRANSCO. These documents were available to the Objectors. The Objectors at all times had the liberty to ask for information on these documents. The Commission staff's presentation was done publicly in the presence of all Objectors. The presentation was made to enable APTRANSCO to deal with certain specific issues. APTRANSCO had dealt with these specific issues, again publicly in the presence of all concerned. The hard copy of the presentation by the Commission Staff was made available to APTRANSCO on 11.5.2000 and also to the Objectors on 12.5.2000 when they requested for the same. Upon request, a copy of the information sheet that was given to APTRANSCO was also handed over to the Counsel of the Objectors on 17.5.2000. It is wrong to allege that APTRANSCO had access to better information on the presentation made by the Commission's staff as compared to the consumers present at the hearing. The object of the hearing was to get as much information as possible on the revenue requirement and tariff proposal of APTRANSCO. The Commission heard all the interested parties during the public hearing, which commenced on 8.5.2000 and concluded on 12.5.2000. The Commission, therefore, finds no merit in the submission made by the Objectors, namely, that the Commission should not proceed to decide the application and tariff proposal.

The Commission is of the view that the application filed by APTRANSCO both in regard to revenue requirement and tariff proposal for the year 2000-2001 are required to be decided at the earliest, particularly, considering the fact that more than 45 days have expired from the commencement of the financial year on 1.4.2000. The approval of any revenue requirement and tariff proposal for the financial year 2000-2001 would not mean that the Commission will have no power to rectify matters if any of the information furnished by APTRANSCO turns out to be incorrect. The requirement and tariff proposals are approved based on the projected financial details. In the event the financial details projected by APTRANSCO turn out to be materially incorrect or otherwise any information has been withheld which would have material effect on the approval granted, the Commission will always have the power to rectify the same in exercise of its powers under Section 10(4) of the Reform Act or otherwise while dealing with the revenue requirement and tariff proposal for the next financial year.

2.2. Tariff Policy

The Commission prepared a draft paper on tariff philosophy and held public hearings in three places in the State in November and December, 1999. The paper was also discussed with the Commission Advisory Committee. A synopsis of some of our conclusions, which have been detailed in the Tariff philosophy, is given below.

2.3.1. Legal basis

The Andhra Pradesh Electricity Regulatory Commission (the Commission) was established in April of 1999 with, as stated in Section 11(1) of the Act, the following mandate:

(d) to promote efficiency, economy and safety in the use of electricity in the State including and in particular in regard to quality, continuity and reliability of service and enable to meet all such reasonable demands for electricity;

(e) to regulate the purchase, distribution, supply and utilisation of electricity, the quality of service, the tariff and charges payable keeping in view both the interest of the consumer as well as the consideration that the supply and distribution cannot be maintained unless the charges for the electricity supplied are adequately levied and duly collected;

(f) to promote competitiveness and progressively involve the participation of the private sector, while ensuring fair deal to the customers;

In addition, Section 26(7) of the Act specifically charges the Commission to ensure that any tariff implemented under this section

(a) shall not show undue preference to any consumer of electricity, but may differentiate according to the consumer's load factor or power factor, the consumer's total consumption of energy during any specified period, or the time at which supply is required; or paying capacity of category of consumers and need for cross-subsidisation;

(b) shall be just and reasonable and be such as to promote economic efficiency in the supply and consumption of electricity; and

(c) shall satisfy all other relevant provisions of this Act and the conditions of the relevant licence.

Further, Section 26(8) directs the Commission to "endeavour to fix tariff in such manner that, as far as possible, similarly placed consumers in different areas pay similar tariff."

These specific functions, as well as the overall stated purpose of the Act, make it clear that the Commission has a responsibility to consider and balance the concerns and interests of both consumers and licensees in developing a tariff regulatory framework that will foster an efficient electricity sector in Andhra Pradesh. In addition, the statutory references to uniform state-wide tariffs and tariff support to specific customer classes, combined with the statutory requirements for efficiency of tariffs and financial viability of the licensees require simultaneous solutions to these issues. Any tariff order issued pursuant to the Act must embody such a simultaneous and consistent resolution to the various imperatives of the statute.

2.3.1. Need for Change

It is instructive to highlight the need for change in the approach to tariff regulation in Andhra Pradesh. One of the major causes of the unviability of the power sector in Andhra Pradesh is the tariff structure. The APSEB, like other State Electricity Boards in India in recent years, has not determined revenue requirements and tariff design on the basis of the costs of electricity, either in regard to raising sufficient revenues to recover total costs, or setting efficient prices of electricity for consumers. Data show that since 1994, the APSEB has not been in a position to sustain its operations through its own internal generation of resources. The most recent tariff increase (January 1999) was not only insufficient to keep pace with the rising cost of generation and power supply but widened the distortions to serve social objectives at the expense of efficiency and cost recovery.

The past years' deficiencies and distortions have harmed the licensee, its customers and the state as a whole. Despite being among the well run SEBs in India, the APSEB experienced substantial financial losses and capacity shortages and the consequent poor performance of the APSEB resulted in poor quality of service for all consumers. At one end of the consumer spectrum, subsidised categories have been encouraged to use electricity inefficiently and unproductively. At the other end, the high tariffs for industrial and trade purposes have provided an incentive for these customers to leave the system.

The situation is no longer sustainable. The Act now requires the new licensees to use their resources in an economical and efficient manner and the tariffs to be compensatory. It has vested the Commission with the responsibility to resolve the problems of the power sector in Andhra Pradesh through measures promoting its objectives. Adoption of an appropriate policy for setting tariffs of the Licensees plays an important role in this process.

The Commission believes that the resolution to the problems of the Andhra Pradesh power sector must contain the following elements:

- Improvements in efficiency by APTRANSCO

- Establishment of compensatory tariffs
- Re-balancing of the rate structure to reduce cross-subsidies.
- Phasing out external subsidies in three to five years.

2.3.1. Improvements in Efficiency

Among the most pressing needs for reform in the electricity industry in Andhra Pradesh are the reduction of technical and non-technical losses and the metering of customer consumption. The electricity industry in Andhra Pradesh will remain inefficient unless these areas are addressed. The purpose of the Act, indeed, one of the Commission's primary functions, is the elimination of such inefficiency. Power losses threaten the Licensee's financial health and keep prices to the paying consumers unnecessarily high. Estimates of non-metered consumption are a poor substitute for accurate meter reading and inhibit the Commission's ability to ensure that APTRANSCO is receiving the proper amount of revenue from each of its customers. In the longer term, the lack of time-of-use metering will limit the Commission's ability to determine tariffs that properly reflect costs. Taken together, these problem areas affect in a very substantial way the commercial viability of the electricity sector as well as satisfaction of consumers in the State.

Clearly, the Commission must address all these areas. APTRANSCO has already initiated programs to alleviate these problems. Investigation of energy theft has been intensified in the last two years, and bill collection at the LT level has increased to 91.8% in the last year. Initiatives planned for the immediate future include increasing the continuous energy audit from 56 to 103 towns, compulsory rotation of meter readers, laying of AB cables in areas of rampant direct tapping, installation of tamper-proof meters on high-value services and development of software to identify services with large variations in consumption. As a result of these and other efforts, in the current filing APTRANSCO anticipates realising efficiency improvements equalling Rs. 500 crore in 2000-2001. Nevertheless, this is just the beginning of the journey. In particular, a programme of pricing must be adopted to encourage the metering of the agricultural sector, not only for the sake of the efficiency of the power sector, but for the long-term health of the agricultural sector itself and its sustainable use of the water resource.

2.2.4 Establishment of Compensatory Tariffs

In recent years, electricity has been treated as a public service rather than as a commodity. That is, instead of selling to consumers at a price reflecting the cost of service, social policy objectives have determined the level of tariffs to be charged for each class. There has been little relationship between the costs a consumer imposed on the system and the price the consumer paid; similarly, the relationship between the total cost to provide electricity to the state and the revenues realised from tariffs was of secondary importance. In particular, in a laudable attempt to promote universal service to all domestic consumers and low prices as an important input to agriculture, the electricity tariffs for small domestic consumers and agriculture have been set at a small fraction of the cost of service. The cost of this measure, however, had to be recovered from external sources, such as the government's budget, or from other classes of users.

The inefficiencies inherent in setting tariffs based on social objectives, however, can be very substantial, and ultimately in conflict with some of the provisions of the Act and the Commission's assigned goals. Further, the escalation of the subsidy required from government has risen to unsustainable levels, levels that interfere with government's ability to fund those activities that are more uniquely the role of government, such as health and education.

The Government of Andhra Pradesh has made clear that it does not intend to abandon its responsibilities to the sector. For a period of time, it will continue to provide a subsidy to the power sector so that it will not be necessary to raise the overall level of tariffs immediately to cover the full revenue requirement of APTRANSCO. However, the external subsidy must be considered a transitional measure, with the long-term goal being an industry that is self-sustaining and ultimately able to positively contribute to the welfare of the state and the finances of its government.

In addition to adopting the long-term goal of a self-sustaining power sector and a level of revenues that will support it, the Commission must also address the more practical issues of the choice of the regulatory framework it will use to regulate the tariffs and charges of licensees and the methodologies for determining the licensee's revenue requirement and allowed revenue. Economic theory indicates that the most economically efficient solution to the issue of determining prices and quality of goods and services is the outcome of a competitive market. The competitive market solution would consistently provide the amount of power and the quality of service that consumers were willing to pay, supplied by the lowest cost producers of the service. The goal for a Commission regulatory framework, then, is to replicate the results of that market solution. Two possible approaches for regulating electric power prices of the licensees are Rate of Return Regulation and Performance Based Regulation. Elements of both approaches can also be used.

The traditional framework for setting electricity prices is Rate-of-Return (RoR) regulation, the current Sixth Schedule of the Electricity (Supply) Act, 1948 being one such method. It is sometimes referred to as cost-plus regulation because the regulated entity is able to collect from its customers all its prudently incurred expenses plus a regulated return on its prudent investment. Under this general framework, the utility has the burden of proving to the regulatory body’s satisfaction that each proposed element of the revenue requirement formula is a prudently incurred cost required to serve the public’s electricity needs.

Performance Based Regulation (PBR) is a modification of RoR regulation. Under a PBR system, the regulatory lag is stretched out. At pre-set intervals (often 5-10 years), baseline rates are reset using RoR principles. Between these baseline tariff cases, tariffs are adjusted based on specific formulae that include as variables measures of the utility's performance, cost indices, etc. PBR seeks to eliminate some of the regulator command and control aspects of RoR regulation and substitute for it a system of incentives or penalties for performance by the regulated entity outside of a "normal" range.

Having considered the two types of regulatory frameworks the Commission has concluded that in the short run, the Rate of Return Regulation combined with select performance parameters that encourage reduction of technical and non-technical system losses and improvement in the quality of service shall be adopted. Thus for this filing, the Commission will generally adhere to the financial principles and their applications provided in the Sixth Schedule, and depart from those factors when it believes that a departure would encourage efficiency and optimum use of resources by the Licensee and its consumers. In the long run, once the financial viability of the licensee has been achieved and reliable performance statistics have been built up, some form of Performance Based Regulation, possibly including Price or Revenue Caps (RPI-X), shall be considered.

Either RoR or PBR regulation of tariffs requires choosing the appropriate rate of return on capital invested in power sector facilities. The Commission is well aware that if investors do not receive adequate compensation for their investment in power sector assets, they will not commit their capital to the sector. Without additional investment in transmission and distribution facilities, it will be impossible to improve the existing situation in the power sector in Andhra Pradesh. Implementation of plans for reduction of technical losses, installation of meters, improvement of service quality, etc., will be extremely difficult to achieve. As a result, consumers will stand to suffer without hope for improvement in a reasonable time frame.

While the Commission has the authority to deviate from the rates of return specified in the Sixth Schedule, we believe that the level of return as per the Sixth Schedule of the Electricity (Supply) Act for the current filing is appropriate.

Having chosen the regulatory framework including the rate of return, the Commission must decide its methodology for determining the licensee's revenue requirement and allowed revenue. Having considered various approaches and in the absence of requisite data, the Commission has chosen to adopt the methodology of actual historic accounting with adjustments for expected changes and benchmarks for the immediate years.

2.2.5 Re-balancing of the Rate Structure

The current levels of electricity tariffs in Andhra Pradesh contain a large degree of cross-subsidy, causing a significant operational and financial strain on APTRANSCO. Cross-subsidisation takes place when one consumer group pays a part or all of the cost imposed on the system by another consumer group.

Large industrial users pay well above the economic cost of supply, cross-subsidising low voltage users, such as residential and agricultural consumers, who pay tariffs well below the economic costs. Low LT tariffs result in an inefficient high demand for power, which puts pressure on the system capacity and the quality of service. A well-documented result of cross-subsidies in Andhra Pradesh is that large industrial users, burdened by one of the highest industrial tariffs in India, are forced to look for alternative sources of power. Many of them find it economic to build captive generation and leave the system. Unless LT tariffs are realigned more with the costs of supply, more large industrial users may leave the system, transferring the burden of cross-subsidies to APTRANSCO. This will threaten APTRANSCO's financial viability and, in the end, adversely affect all electricity consumers in Andhra Pradesh.

The Commission has decided that for purposes of the current filing the revenue requirement shall be allocated among different consumer classes on the basis of embedded cost to serve, with due regard to the social aspects during the transition period. Within each class, the tariff design will attempt to distribute the class revenue requirement with some reference to marginal cost of electricity to different consumers. In future years, once the requisite data on load profile, paying capacity, resource plans, etc. are available, the revenue requirement shall be allocated among different consuming classes based on marginal cost.

Once having determined the appropriate methodology and class responsibility for the cost of service, the Commission must determine the extent to which it should take paying capacity into account and structure a cross-subsidy mechanism in view of the fact that doing so could mean compromising to some degree the efficient and commercial performance of the power sector in Andhra Pradesh. In general, the Commission believes that ultimately consumers should purchase electricity at a price that reflects the cost of supply. Concern about the paying capacity of consumer will be addressed through the design of the tariff structure, and in particular in the pricing of individual slabs of usage. Any subsidy that is required to meet social objectives must be categorised by class and based on policy directions issued by the State Government, which shall contribute the amount to compensate the licensee to the extent of the subsidies granted.

Having established cost based tariffs mitigated by whatever external subsidies the State Government finds appropriate to fund as the goal, the issue then for the instant filing is rather the avoidance of rate shock. The implementation of cost reflective tariffs will require a transitional period to allow consumers, particularly the agricultural and domestic classes to adapt to the new tariff regime. No one pretends that the adjustment will be without difficulty, but it is the only route to a sustainable power sector and the way perhaps made easier by a clear understanding from the first step of the ultimate destination.

2.3. Analysis of Substantive Issues raised by the Public and Staff

2.3.1. Data

Data constraints are well recognised by the Commission and its Staff and acknowledged by APTRANSCO. In its filing APTRANSCO requested waivers for data required by the Commission as it was not yet available. The Commission concurs with its Staff that as APTRANSCO was able to arrive at the aggregate revenue requirement despite not providing the information in the required formats, the ERC/ARR filing may be deemed as complete for FY2000-01. However, we will expect APTRANSCO to initiate actions on a priority basis for filling the data gaps. Two immediate interconnected concerns are those that relate to agricultural consumption and estimates of commercial losses. A list of waivers prayed for and accepted by the Commission is at Annexure - I.

2.4 Agricultural Consumption and losses

2.4.1 Agricultural Consumption

A major concern in the Commission is with regard to estimates of agricultural consumption. Due to historical policy decisions, agricultural consumers are not metered since 1983. These consumers have been charged a flat rate based on pumpset rated capacity in HP. In the absence of meters the consumption of this category is a "guestimate" which has serious ramifications on the licensee's assessment of commercial losses. It also has implications for inefficiencies in the usage of electricity and water by this sector. Out of the total energy generated, only 41% is metered and billed, the balance representing agricultural consumption and technical and commercial losses, which together make up 59% (The technical losses are the Transmission & Distribution losses).

The licensee has relied on different methodologies to estimate the consumption of agriculture to arrive at the following estimates.

Table No. 9

Year of Estimate	Methodology	Estimated Units
1996-97	Sampling Method	7835 MU
1998-99	Cumulative HP Rating	7969 MU
2000-01	Forecast	9815 MU

The sampling method used the data obtained by installing 10 meters in each Mandal. The computed consumption so obtained was revised to 7835 MU as the samples were not representative.

In cumulative HP rating method, the total connected pumpset capacity was assumed to have worked for 1200 Hrs during the year and the consumption computed.

For the tariff year of 2000-2001, the licensee has estimated monthly consumption pattern aggregating to 9800 MU and supported it by

a. Short term forecast of Energy sales, energy requirements and peak demand made by SNC, Lavlin, WB consultants which projected 9420 MU sales.

b. Estimated consumption of 9900 MU on the basis of agricultural consumption pattern in Kuppam Rural Electric Co-op. Society which adopted an average pumpset capacity of 4.5 HP working for 6 Hrs a day (5 to 7 Hrs) and 240 days in the year.

There was thus no consistency in the methods followed to determine the agricultural consumption. For the year 1999-2000, against 9362 MU projected in the ARR, it is said that it reached 11500 MU and the increased consumption is on account of drought conditions prevailing in the State. The 9815 MU is stated to work out to 21% of the total energy generated. The estimates of agricultural consumption by the licensee were hotly disputed by several objectors. Their estimates of Agricultural consumption are ranging from 10% to over 50% of the total generation. One objector contended that the agricultural consumption was deliberately inflated not only to obtain a higher subsidy from the Government but also to artificially keep the levels of loss low. The fact that APTRANSCO's own statistics show that losses have increased from 18.85% in 1995-96 to 35.4% in the estimate for 2000-2001 clearly showed that there was manipulation in the figures of agricultural consumption. The estimate of agricultural consumption based on the number of pump sets as per books of the Licensee is also questioned as it does not take into account pump sets which have been disconnected or pump sets which are not used or used only partially on account of lack of water in the wells. The licensee's contention of supplying electricity for nine hours a day is also seriously questioned. On the other hand objectors from the industry have complained that the heavy agricultural consumption for much more than nine hours a day with nominal charges, has not only pushed up their tariff but also landed APTRANSCO in a serious financial mess.

It is also not always possible to regulate strictly the hours of supply to agricultural sector, as the rural feeders are common for agricultural as well as domestic and other loads. APTRANSCO has plans to separate feeders for agricultural and non-agricultural loads. They also intend to install meters at the transformers to serve as group metering for the agricultural loads fed from it. Once these are done we may have a more reliable picture of agricultural consumption.

The licensee says that the agricultural consumption depends upon various factors such as rainfall, cropping pattern, availability of groundwater etc. For instance the agricultural consumption in 1999-2000 was 11500 MU as against the estimate of 9362 MU, as it was a year of severe drought. Consequently, the agricultural production increased inspite of the drought.

With the existing state of evidence it is not possible to arrive at any reasonable estimate of agricultural consumption. Commission has earlier directed the licensee to institute a year long sample study during 2000-2001 to determine energy consumption by the agricultural pumpsets covering all the Mandals and ½% of the pumpsets in the State. There is also another study which APTRANSCO has undertaken with funding from the World Bank. The licensee is also directed to carry out a census of agricultural pumpsets within six months from the date of this Tariff Order. APTRANSCO shall file a census proposal before and seek approval of the Commission to carry out such census within four weeks from the date of this Tariff Order. As the census is made with due numbering of the poles and services for identification, the unauthorised loads if any connected should be removed and an Affidavit to the effect should be filed with the Commission. Commission hopes that with more reliable statistics it will be able to form a reasonable assessment of the agricultural consumption atleast by the next tariff filing.

During the public hearing, it has been stated by some Objectors that a number of pumpsets are non-operational but have been taken into account as in operation by APTRANSCO. Similarly, it is stated that the capacity of the pumpsets has also been increased but the APTRANSCO had not taken them into account. In order to rectify the situation the Commission directs that the APTRANSCO shall conduct a survey and prepare an upto-date list of number of pumpsets and their capacities by 31st October, 2000 , as the issue has a bearing on the fixing of tariffs.

But the licensee should ensure that the agricultural consumption is strictly regulated on the basis of their own submitted estimate of 9815 MU. If it becomes necessary to buy more power for supplying to agriculture, the licensee shall obtain the permission of the Commission to do so after duly tying up the funds for the required power purchases. The Commission has taken into consideration the objectors' preference for metering of all usage including Agricultural. We do not view the studies of agricultural consumption as a substitute for a programme to meter all agricultural consumers. The Commission expects all the agricultural services to be metered within 3 years.

2.4.2 LOSSES:

2.4.2.1 Transmission Losses:

As APSEB was a composite entity it had meters only at inter face points with central generation stations or with other grids. As APTRANSCO is now a separate entity there is need to install meters at all inter-face points including generation stations belonging to APGENCO. Though for the purpose of ARR for the year 2000-2001 we accept APTRANSCO's estimate of 4.5% transmission loss, we direct the licensee to instal 0.2 accuracy class meters at all inter-face points (where the ownership of power changes) and file a compliance report within 1 month from the date of this order. APTRANSCO has plans to instal immediately data loggers at all the substations to record the energy in flow and out flow on a continuous basis. APTRANSCO shall conduct regular and thorough energy audit fixing accountability. The institution of energy audit shall be confirmed to the Commission within 3 months from the date of this tariff order.

2.4.2.2. Distribution Losses:

APTRANSCO has computed distribution losses for the year 2000 – 2001 at 13,172.17 MU i.e. at 30.90% out of which commercial losses are estimated to be 13%. As already mentioned the distribution loss is a derived figure calculated by deducting metered sales, estimated agricultural consumption and the assumed transmission loss of 4.5% from gross energy purchased. The figures of estimate of distribution loss are seriously disputed by several objectors. As already mentioned, it is contended that losses are suppressed by over estimating agricultural consumption, and that if the distribution losses (which are claimed to include losses on account of theft on a large scale) are brought down there would be no need for any increase in tariff. One of the objectors has requested that the Commission should determine the present loss and direct the licensee to reduce distribution losses to 24% by 31.3.2001 (Transmission Loss - 4%, Distribution Loss - 12% and Commercial Loss - 8%). Another objector has requested that it should be ensured that the losses are reduced year after year till the overall loss level reaches 15%. It is argued that the inefficiency of the licensee on account of the heavy distribution loss should not be passed on to the consumer by increasing tariff but should be borne by the licensee itself. APTRANSCO in its reply has stated that an all out drive would be launched to reduce the losses to achieve efficiency gains of Rs.500 crores.

Much as we would like to determine the level of losses and direct the licensee to reduce the losses to a particular level, the task appears impossible in view of the present very unreliable statistics for agricultural consumption and consequently for losses. The only reliable figure we have to go by is the level of billing which is at present 41% of the total energy purchased. Any improvement by way of regulation of agricultural consumption and reduction of losses would automatically be reflected in improved billing. When specifically asked, whether it was possible to improve the billing from 41% to 51% of the generated energy, the licensee frankly replied that it would be a very difficult task. But as we see, the licensee has to make serious efforts to achieve substantial improvement in the billing to be able to collect Rs.500 crores towards efficiency improvements as committed. We therefore direct that while the licensee should strive to improve the billing to 51%, should atleast reach the level of 48% before 31.3.2001.

With more reliable data, the Commission hopes to be in a better position to arrive at reasonable estimates of agricultural consumption and consequently of losses to enable it to fix specific targets for reduction of losses and better address the issues etc., in the next tariff filing.

2.5 SIXTH SCHEDULE DEVIATION

The licensee has requested a deviation from the Sixth Schedule on the issue of including receivables on the positive side of the capital base, and payables and working capital on the negative side of the capital base. This deviation has been requested according to the Licensee "in order to better align the capital base with the shareholders funds".

The Commission has carefully considered this issue with emphasis on the conceptual underpinnings of the phrase ‘align the capital base’ and ‘shareholders funds’. Receivables and payables together with stocks form part of the working capital of any business entity. Under the Regulatory framework of the Sixth Schedule only the assets which are being used and the cost of serving them for providing the services to the consumers are allowed for earning a return. This therefore, allows the utility to include on the positive side original cost of fixed asset, work in progress and working capital. Working capital comprises i) 1/12 of the annual cost of stores and ii) 1/12 of the annual cash and bank balances. The Sixth Schedule is not sensitive to the possibility of a cash strapped utility requiring additional working capital, a legacy of historical structural inefficiencies. The Commission however, is sensitive to the issue of additional working capital requirements *provided the need is justified.*

The deviation is not merely as stated on the issue of additionality of working capital but also on the nature of funding. The Licensee has requested for deviation from the Sixth Schedule in the specified format with the express intention of infusing equity funds as working capital on the positive side thereby enabling it to earn a 16% return. The proposal as outlined tends to obfuscate the distinction between borrowed funds and shareholder funds and results in additionality of counting of costs, ultimately to be borne by the consumer. The Commission on principle is opposed to obfuscation of the sources of funds and the consequent burden on the consumers. If working capital is brought in as fresh shareholders funds the Commission is willing to allow these funds to be placed on the positive side of the capital base and earn the prescribed returns to these funds. If working capital is borrowed on short-term basis from the financial institutions, the Commission will recognise interest on these borrowings as a pass through on the expenditure side.

Accepting the deviation in its present form also has other implications for the efficient working of the Licensee. Inclusion of receivables on the positive side of the Capital Base may encourage tendencies of slackness in the efficient recovery of its receivables which is already evident from the high levels of 'Receivables' as presented in the ERC/ARR and pointed out by some Objectors during the Public Hearings. Under the circumstances, the Commission would not wish to approve any departure from Sixth Schedule which does not encourage efficiency, economic use of resources and good performance.

The Commission having examined in depth both the conceptual and financial implications of the requested deviation from the Sixth Schedule disallows the deviation in this filing. If, in the future, it is considered necessary to make a deviation, the Commission would not be averse to consider such a request if it is consistent with the objects sought to be achieved under the Reform Act.

2.6 FUEL AND PURCHASED POWER ADJUSTMENT

APTRANSCO proposed a Fuel & Power Purchase adjustment (FPPA) formula in its Tariff filing. The formula sought to provide for an automatic adjustment of tariff owing to ‘changes in the Licensee’s purchased power cost for the actual level of sales’ in addition to the adjustment on account of changes in the fuel prices. This formula is not allowed as only fuel cost changes can be allowed to pass through as per Section 26 (9) of the Reform Act.

The Commission however notes that conditions like adverse monsoon, machine breakdowns etc. could upset the projected power procurement to meet the demands, which themselves are affected by conditions like drought, recession etc. and would consider truing up in the next tariff filing subject to prior consent by the Commission for each of the major changes. The fuel surcharge, on account of variations in the prices of fuel, computed for a quarter may be passed through the tariff as per formula to be prescribed by Regulations of the Commission shortly.

2.7. Regulatory Asset

APTRANSCO requested the Commission to approve a Regulatory Asset Mechanism to cover the difference between the approved revenue requirement and actual revenue. Such differences could arise from the revenue effects of changes in consumer mix, the failure of the expected subsidy from GoAP to materialise, bona-fide higher than the projected expenditure, or the failure of projected efficiency gains to be realised.

APTRANSCO proposes that the short fall of revenue over the actual revenue requirement should be included as an asset on positive side of the capital base. Interest would be capitalised and the asset depreciated over three-year period. Further, the borrowings used to finance the regulatory asset would not be deducted from capital base to ensure the otherwise reasonable return on capital base. Since the Sixth Schedule allows the carry forward of losses through a special appropriation but not a return, the establishment of a regulatory asset would require a deviation from the Sixth Schedule.

We have evaluated the Licensee's request. We believe that its concerns are generally valid in the context of our regulatory framework, which allows a Licensee an opportunity to earn a reasonable return, subject to the fulfilment of otherwise stipulated conditions. In particular, during the transition period, the estimates are likely to differ significantly from the actual expenditure and the differences are probably biased towards unexpected increases in expenditure and reductions in income.

The possible short fall of revenue and promised subsidy and the likelihood of unanticipated expenditures which cannot be forecasted with accuracy has been the basis for the request of a Regulatory Asset. We do not accept the proposal at this stage.

We are concerned, however, that APTRANSCO proposes not to accept the responsibility for the efficiency gains it promised to achieve in its Tariff application. As we stated elsewhere, we intend to hold the Licensee to its commitment of Rs.500 crores in this regard, and put APTRANSCO on notice that the commission will not include any short falls in its achievement of the promised efficiency gains in Regulatory Asset

Rate of Return - Vintage of Assets

Some objectors during the public hearings raised the question that the rate of return should be in relation to the vintage of the assets. But, as APTRANSCO became the new owner of these assets by virtue of the vesting at the assets under the First Transfer Scheme, which is binding in law under Section 23(4)(b) of the Reform Act.

2.8. EFFICIENCY AND QUALITY AND CONDITIONS OF SERVICE

2.8.1. Efficiency gain of Rs. 500 crores

APTRANSCO has anticipated in its calculations an efficiency gain of Rs 500 crores in addition to the 1.5% reduction in losses. It has stated that it was an extremely ambitious target, and does not believe that it should be penalised if it does not attain its goal. As already stated, the Commission believes that having proposed tariffs based on this goal, the Licensee has made a commitment and can not request later any short fall to be recouped as a regulatory asset. Rather, within the regulatory framework we have adopted, the financial effect of any short fall is automatically reflected in a reduction of the Licensee's return.

Indeed, we believe that there is scope for even higher efficiency gains than the committed Rs. 500 crores. Those opportunities exist in merit order dispatch, Demand Side Management measures for subsidised consumers, strict implementation of the regulated supply to Agriculture, metering at all levels, strengthening of the internal processes to minimise commercial losses, and plug the loopholes in metering, billing and collection of revenues.

We also require that APTRANSCO file a detailed action plan on how it intends to achieve its projected Rs. 500 crore efficiency gain.

2.8.2 Quality of Service

The Commission shares the concerns of the public and staff with the quality of service of APTRANSCO. The Licensee has proposed steps to improve its performance and monitoring, but has not provided details of an action plan, including a time frame for specific measures, the resources and budget allocation, or the institution of accountability within the Licensee's internal organisation that would lend credibility to the proposals. While APTRANSCO has suggested that it is initiating pilot works in areas and intends on the basis of feedback and assessment to replicate these programmes in other areas, no specific information has been provided in the filing.

The Licensee has conceded that the frequency profile of the state is far from satisfactory. It attributes the low frequencies to the capacity shortages in the southern region and has stated that all the state electricity entities are endeavouring to address the problem. We expect the Licensee to keep the Commission apprised of its progress in this regard.

In the coming year, the Commission will be approving a variety of codes and laying down standards for the performance of distribution and transmission licensees.

2.8.2. Conditions of Service

2.8.3.1. Contract versus connected load

We agree with the objectors that properly estimated and enforced contract load is a better measure of actual demand than connected load, is fairer to consumers and more efficient for the Licensee. We encourage APTRANSCO to work with its LT consumers to install the necessary metering and to propose the required rate structure, single part or two part.

2.8.3.2 Security Deposits

We agree with APTRANSCO that security deposits are legitimate charges collected against future consumption and that the courts have upheld them for the SEBs. While the interest rate of 3% may be low in light of current interest charges, the courts have also found that the rate may be fixed at the discretion of the SEB. We presume that these rulings would also apply to the Licensee.

2.8.3.2. Billing

Our adoption of telescopic tariffs has responded to many of the issues raised by objectors concerning billing. Further, we note the various measures undertaken by APTRANSCO, currently in a pilot stage, including spot billing, continuous/staggered billing, and establishment of public grievance cells. We encourage APTRANSCO to pursue and expand these initiatives system-wide, and also to consider the objectors' request for payments through approved banks and their desire for a mechanism to protect consumers from non-dispatch and delayed dispatch of bills.

3. ERC / ARR - TRANSMISSION AND BULK SUPPLY: O.P. No. 205/2000

APTRANSCO, the provisional licence holder for Transmission and Bulk Supply filed its ERC under section 26(5) of the Reform Act for the financial year 2000-2001 on 29.12.1999. The Commission has examined the Licensee's proposals and provides below the reasons where the Commission finds the calculations incorrect and its alternative calculations.

3.1. CAPITAL BASE – Positive Side

3.1.1. Original Cost of Fixed Assets (OCFA)

The Licensee has proposed an amount of Rs. 2678.47 Crores as the Original Cost of Fixed Assets (OCFA) to be reckoned in the Capital Base. The Licensee's proposal for capitalisation of assets based on percentages mentioned in para 3.2 of SNR 1.11 is not considered appropriate as it does not meet the requirements of the concept of " Used and Useful " to be applied to assets before their inclusion in the Capital Base. Capitalisation is to be based on actual completion of projects/works. Based on the updated information sought from the Licensee of projects/works to be completed by 31.3.2000 and planned completions during 2000-01, the capitalisation figures have been finalised as follows.

Table No. 10

STATEMENT OF FIXED ASSETS

NAME OF THE ITEM	AMOUNT IN Rs. Crores	
	APTRANSCO	APERC
Original cost of fixed assets As on 31.03.99	1513.94	1513.94
Add amount capitalised during the year	633.67	0.00
Balance of total OCFA as on 31.03.00	2147.61	1513.94
Add amount capitalised during the year	530.86	804.11
Total OCFA as on 31.03.01	**2678.47**	**2318.05**

Accordingly OCFA taken to the capital base is Rs. 2318.05 Crores.

3.1.2. Capital Works in Progress (CWIP)

The Licensee has proposed an amount of Rs. 1147.26 Crores as Construction Works in Progress (CWIP) to be taken for Capital Base calculations. Based on the up-to-date details sought from the Licensee of the expenditure upto 31.3.2000 and planned expenditure during 2000-01 as well as the capitalisation as mentioned under OCFA above, the CWIP works out to Rs. 1218.67 Crores as detailed below.

The Commission prefers to allow the higher expenditure for CWIP with the express intention of persuading the Licensee to undertake the required investments for efficiency improvements. In case APTRANSCO falls short of the planned investment expenditure the shortfall will be adjusted in the next filing.

Table No. 11

STATEMENT OF WORKS IN PROGRESS FOR 1998-99 TO 2000-01

		(Amount in Rs. Crores)
	APTRANSCO	**APERC**
Opening Balance of CWIP 31/03/99	**760.52**	**688.56**
Add Capital Expenditure		
Additional Investments during the year	462.78	313.84
Interest & Expenses during the year	128.54	82.53
Total Additions to Capital Expenditure	591.32	396.37
Total CWIP during the year	1351.84	1084.93
Less Amounts Capitalised		
Base Works in Progress	487.51	0.00
Interest & Expenses during the year	146.17	0.00
Total Amount Capitalised	633.67	0.00(*)
Closing Balance of CWIP 31/03/00	**718.16**	**1084.93**
Add Capital Expenditure		
Additional Investments during the year	805.32	788.30
Interest & Expenses during the year	154.65	149.53
Total Additions to Capital Base	959.97	937.83
Total CWIP during the year	1678.13	2022.76
Less Amounts Capitalised		
Base Works in Progress	381.36	572.03
Interest & Expenses during the year	149.51	232.06
Total Amount Capitalised	530.87	804.11
Closing balance of CWIP 31/03/01	**1147.26**	**1218.67**
(*) NO WORKS COMPLETED, HENCE, NO CAPITALISATION		

3.1.3. Working Capital Requirements

3.1.3.1. Average cost of Stores.

The Licensee has not claimed any amount towards average cost of stores. However, it is considered that the Licensee does require some items to be held in stores to cater to the maintenance needs of the Transmission assets. An amount of Rs. 3.19 Crores being 2 months requirement of Repairs and Maintenance expenses of Rs.19.14 Crores is provided.

3.1.3.2. Average Cash and Bank Balance

The Licensee has proposed Rs.4.84 Crores towards Working Capital requirement in the form of Cash and bank balance and has stated (vide para 1.6 of SNR 1.11 of SARR) that this has been calculated to equal one month's requirement of operating expenses comprising repairs and maintenance plus employees cost plus administrative and general expenses plus provision for bad and doubtful debts for the year. As per para XVII (1) (e) (ii) of the Sixth Schedule, an amount equal to 1/12 of the sum of cash and bank balances (whether credit or debit) and call and short term deposits at the end of each month of the year of account, not exceeding in the aggregate an amount equal to one quarter of the expenditure items specified in the paragraph, is to be provided.

Keeping in view the above provision, the fund requirement for one month payment of employees' cost and administrative and general expenses would be appropriate for meeting working capital requirement. Calculated on this basis, the amount works out to Rs.1.99 crores which is provided.

Table No. 12

NAME OF THE ITEM	AMOUNT IN Rs. Crores
Average Cash and Bank balance	**23.80/12=1.99**
Expenses	
Wages and Salaries	3.12
Admin. and General expenses	0.88
Repairs & Maintenance	19.14
Rent, Rates and Taxes	0.18
Contribution to Employee funds	0.48
Total expenses	**23.80**

The Commission is apprised of the Licensee's need to borrow for working capital on a short-term basis. In the eventuality of such borrowings, the Commission may consider including the interest payments on the expenditure side if it can be justified.

3.2. CAPITAL BASE – Negative Side

3.2.1. Accumulated Depreciation

The accumulated depreciation as per the Licensee is Rs. 711.12 Crores against which Rs. 672.40 Crores is admitted. The difference of Rs.38.72 crores is due to differences in capitalisation of assets in 1999-2000 according to the details of completed projects furnished by the licensee as on 31.3.2000.

3.2.2. Approved Loans.

The Licensee has projected an amount of Rs. 1785.16 Crores as approved loans plus an amount of Rs. 182.33 Crores as other market borrowings for capital expenditure (capex). Scrutiny of project wise details furnished by the Licensee for the Capital Works in Progress reveals that the capital expenditure to end of March 2000 is less than that projected in the ARR and this has been dealt with in the paragraph under Capital Works in Progress above in detail. In view of this reduction in the capital expenditure, there is no need for the other market borrowings for capex. Therefore, while allowing the amount of Rs. 1785.16 Crores as approved loans, the projection under other market borrowing for capex is reduced to nil.

3.2.3. DEVIATION SOUGHT

3.2.3.1. Receivables, Payables and Working Capital Borrowings-

As already stated in para 2.5 the suggestion regarding departure from the Sixth Schedule is not acceptable to the Commission.

3.3. NET CAPITAL BASE

With the above changes in the positive and negative elements of the capital base, the 'net capital base' works out to Rs.1084.34 Crores as against Rs.436.60 crores projected by the Licensee as detailed below.

Table No. 13

NAME OF THE ITEM	APTRANSCO	APERC
		(Rs,. in Crores)
Capital Base Item-(positive)		
Original Cost of Fixed Assets	2678.47	2318.05
Capital Work in Progress	1147.26	1218.67
Working Capital		
a) Average cost of stores	0.00	3.19
b) Average Cash and Bank Balance	4.84	1.99
Receivables	1302.74	0.00
Total of Positive Elements of Capital Base	**5133.31**	**3541.90**
Capital Base Item-(negative)		
Accumulated Depreciation	711.12	672.40
Approved Loans (Indian Loans and Debentures)	1785.16	1785.16
Working Capital Borrowings	1061.41	0.00
Other Market Borrowings for CAPEX	182.33	0.00
Payables	956.69	0.00
Total of Negative Side of Capital Base	**4696.71**	**2457.56**
Net Capital Base	**436.60**	**1084.34**

3.4. EXPENDITURE

3.4.1. Purchase of Energy

A major item of expenditure for the Transmission Company is the purchase of energy. APTRANSCO has projected an expenditure of Rs.7323.42 Crs. on purchases of energy. They have estimated purchases of 42628 MU. EHT transmission loss level of 4.5% has been assumed.

The Commission undertook a detailed exercise on the availability of power and the costs of power purchased. The entire exercise was undertaken on the need to develop a framework for 'merit order selection' with in-built flexibility the Licensee should adopt. The following table compares the estimates of APTRANSCO and the Commission. The last column shows the differences between the two.

Table No. 14

	APTRANSCO 2000-01	**APERC 2000-01**	**Difference**
Purchase of energy (Rs. Crs)	7323.42	7041.61	281.82
Total units purchased (MU)	42628.43	42628.41	0.02
Transmission loss	4.5%	45%	

3.4.1.1 Volume of power purchased:

APTRANSCO purchases power from six sources: APGENCO, Central Generating Stations, IPPs, inter-state purchases, APGPCL (Joint Sector), and other sources which include captive power plants, non-conventional energy projects etc. The Licensee has made separate projections for each of these sources.

Table No. 15

	APTRANSCO (net of auxiliary consumption)	**APERC (net of auxiliary Consumption)**	**Difference**
	(MU)		
1.APGENCO			
Thermal	18247.50*	18683.57	+436.07
Hydel	8540.65	8537.91	-2.74
Total APGENCO	26978.15	27221.47	+433.32
2. CGS Gross	9670	9930	260
3. APGCL	383.00	443	60.00
4. IPPs	4238.34	3885.00	-843.34
5. Inter state purchases	640.50	640.50	0.00
6. Others	418.44	418.44	0.00
7. Wheeling in kind	0.00	90.00	90.00
Total Units	42628.43	42628.41	-.02

* As per SARR

The difference in the Projections is explained below.

- **APGENCO**

1. Power availability for thermal units has been estimated by APGENCO considering present performance of the units and the expected maintenance schedule.

2. APTRANSCO has considered auxiliary consumption of 10% for thermal units and 1.0% Hydel units.

Commission's Analysis

1. The past trends show Thermal stations' auxiliary consumption of 9.7% Weighted average of the auxiliary consumption of all the thermal stations' projected by the Licensee is also 9.7%. Past trend of the Hydel stations Auxiliary consumption is 0.6%. Colony consumption cannot from part auxiliary power consumption. Hence auxiliary power consumption of 9.7% for Thermal and 0.6% for Hydel is adopted.

2. Consequent to discussions with APGENCO and APTRANSCO on the possible generation, APTRANSCO have submitted a revised generation programme of 20685MU Gross energy. (Net Energy of 18683.57 MU) Which is adopted.

3. The Licensee has projected Hydel Generation from APGENCO for 2000-2001 as 8650 MU Gross. It is corrected to 8537 MU Gross correspond is to the previous 10 years' average.

APGENCO-Thermal Power Stations

Table No. 16

Unit	**Capacity**	**APTRANSCO***	**APERC**
	(MW)	(MU)	
RDM TS-B	62.50	400.00	400.00
KTS-A	240.00	1650.00	1666.76
KTS-B	210.00	650.00	697.20
KTS-C	220.00	1150.00	1150.00
KTS-D	500.00	3800.00	3800.00
VIJAYAWADATS-I	420.00	2865.00	3196.20
VIJAYAWADATS-II	420.00	3160.00	3170.08
VIJAYAWADATS-III	420.00	3250.00	3255.04
RAYALASEEMATPS	420.00	3200.00	3200.00
NELLORE TS	30.00	150.00	150.00
GROSS	2942.50	20275.00	20685.28
NET		Aux. 10% 18247.50	Aux. 9.7% 18419.86

*** As per SARR**

APGENCO-Hydel Power Stations

Table No. 17

Unit	Capacity	APTRANSCO	APERC Estimate of Generation
	(MW)	(MU)	
MKD(AP)	114.00	445.00	418.00
TB(AP)	72.00	197.00	132.40
UPPER SILERU	240.00	376.00	470.00
DONKARAYI	25.00	88.00	86.45
LOWER SILERU	460.00	1045.00	1188.00
SRISAILAM	770.00	3155.00	3131.00
NAGARJUNSAGAR	810.00	2830.00	2641.00
NS RIGHT C PH	90.00	200.00	213.53
NS LEFT CPH	60.00	109.00	88.88
NIZAMSAGAR	10.00	14.00	15.39
POCHAMPAD	27.00	70.00	92.58
PENNAHOBILAM	20.00	10.00	11.38
Mini –hydro	9.00	11.00	9.89
SINGUR		20.00	20.00
SSLM LCPH	300.00	80.00	80.00
Total Gross	3007.00	8650.00	8598.5
Net projected		Aux Cons 1.1% 8540.65	Aux Cons .6% 8537.91

➢ **Central Generating Stations (NTPC, NLC, NPC)**

4. APTRANSCO has bulk supply agreements with NTPC Southern Region to purchase power from Ramagundam STPS Neyveli Lignite Corp (NLC) and Madras Atomic Power Station (MAP). AP has 28% allocation in RSTPS, 19% from Neyveli Lignite Corporation and 8% from Madras Atomic Power Station (SNR 1.11 paragraph 4,5.2)

5. APTRANSCO has projected purchases of 7400 MU with allocated share of 887 MW for the three stations.

6. APTRANSCO have also projected purchases of 400 MU from the newly Commissioned Kaiga Atomic Power Plant.

7. Transmission losses have been considered at 4.5%.

Commission's Analysis

8. **NTPC Southern Region:** The projection of available units has been corrected to the average performance levels of the RSTPS during the last 4 years of 87%

PLF and 32.5% allocation considering additional allocation from unallocated power there of to the state. This value worked out to 4860MU

9. **NLC , MAPS & Kaiga,NTPC (ER):** Power purchases from NLC, MAPS & Kaiga as projected by Licensee are adopted by the commission.

Table No. 18

Power Purchases from Central Generating Stations

Central Generating Stations		**APTRANSCO**			**APERC**		
Plant Type	Unit	(MU)					
Thermal	NTPC(SR)	4600.00	151.55	4448.45	4860.00	160.00	4700.00
Thermal	NTPC(ER)	2270.00	123.15	2146.85	2270.00	123.15	2146.85
Thermal	NLC-1	950.00	31.30	918.70	950.00	31.3	918.70
Thermal	NLC-2	1100.00	34.26	1065.74	1100.00	34.26	1065.74
Atomic	MAPS	350.00	11.62	338.38	350.00	11.62	338.38
Atomic	KAPP	0.00	0.00	0.00	0	0	0
Atomic	KAIGA	400.00	16.00	384.00	400.00	16.00	384.00
	TOTAL	9670.00	379.88	9302.12	9930.00	388.33	9541.67

- **Inter state purchases**

GRIDCO

10. The agreement with GRIDCO is for 150 MW power purchase and projected 640 MU Energy. No interstate power purchases are classified. Commission have adopted the same figures.

- **Andhra Pradesh Gas Power Corp., APGPCL**

APTRANSCO Proposal **- APGPCL**

11. Based on the expected plant performance, maintenance schedules and the share of APTRANSCO in the two units of APGPCL, an estimate of available supply is projected. The expected supply from this source for 2000-2001 is 383 MU.

Commission's Analysis:

12. APGPCL stage- I unutilised capacity drawn by APTRANSCO was 60 and 62 MU in 98-99 and 99-2000 respectively. Same level (60 MU) is adopted as additional units available for the year 2000-01 also.

➢ **Independent Power Producers (IPPs)**

13. The Licensee has stated in SNR 1.11 that the power availability from the two IPPs *viz*. GVK and Spectrum is not expected to deviate significantly and has been taken at the same level as last year. Commission have adopted the power purchases.

14. Kondapalli Power Corp's 355 MW are scheduled to commence commercial operation in 2000-01 as per the schedule submitted in the ARR.

Commission's Analysis:

Power from Kondapalli being the costliest may be availed as an option strictly following the merit order dispatch considerations only till such time Natural gas is substituted for Naphtha as fuel for power generation. The Generation from the station considered by the Commission is therefore the balance of the requirement.

➢ **Other Sources**

15. Expected power procurement from the captive plants and other private sources is based on past experience and other agreements. 418.44 MU is projected by the Licensee and is adopted by the Commission.

➢ **Wheeling Charges-in-Kind**

16. Wheeling charges collected in kind from the third party sales have been computed on the basis of the agreed wheeling charges. Difference between wheeling charges collected in kind and possible Transmission and

Distribution losses in the wheeling was computed as 90 MU , which are to off set the overhead charges of the Licensee for the wheeling. APTRANSCO's plea that the savings in wheeling are nil is not acceptable in the absence of detailed calculations in support of their plea. The additional units of 90MU which include sundry sales from a few non-conventional energy sources and others are considered as available to Licensee.

3.4.1.2. Power Purchase Cost:

Table No. 19

Summary of Power Purchase Costs

	APTRANSCO	APERC	Difference	APTRANSCO	APERC
	(MU)			Rate per Unit	
1.APGENCO					
Thermal	18247.50	18683.57	+436.07		
Hydel	8540.65	8537.91	-2.74		
Variable Cost					
Thermal				1.05	1.04
Hydel				0.05	0.05
Fixed Cost					
Thermal	1481.03	1446.74	-		
Hydel	365.30	357.62	-		
T0tal APGENCO	267878.15	27221.47	+433.32	1.42	1.39
2.CGS	9670	9930	260	1.52	1.51
3.APGCL	383.00	443.00	0.00	2.22	1.46
4.IPPs	4728.34	3885.00	-843.34	3.30	2.91
5.Others	418.44	418.44	0.00	2.13	2.11
6.Wheeling in kind	0.00	115.00	115.00	In kind	In kind
7.SEBs	640.50	640.50	0.00	2.05	2.05
Total Units	42628.43	42628.41	-0.02		
	(Rs. Crs.)				
Total cost of Power Purchased*	7323.42	7041.61	-281.81		

* Fuel surcharge adjustment cost of Rs 216 crores also included which were accepted by Licensee in the court hearing..

The difference are discussed below.

17. Variable cost of APGENCO (Thermal) was adjusted to Rs.1.04 Ps/Kwh correcting an excess provision made in the SARR towards coal windage & transit losses.

With reference to fixed cost of APGENCO :

- Employees contribution for pension for future is considered at 13% based on a second actuarial study as different from 33% projected by the licensee in the SARR.
- In respect of Project Loans of Rs.1060 crore, as no interest or loan repayment is due in 2000-2001 as per the schedule II of the PPA. The provisions made by the Licensee are corrected.
- Market Borrowings by APGENCO on assumption that APTRANSCO will default continuously cannot be allowed. Instead, the commission considered LC level of Rs 92 Crores to cover and coal supplies from Mahanadi Coal Fields Limited & employee costs of APGENCO, and equivalent of fuel supply from other sources.
- The Commission agrees to allow the interest of Rs.163.41 Crores as part of the Power Purchase Costs of APTRANSCO from APGENCO for only this ARR pending a detailed study by the Commission of the circumstances leading to and the terms and conditions of the bond issue and the application of the proceeds.

- **Central Generating Stations**

The rate per unit projected by the Licensee of Rs.1.52/ Kwh in corrected to Rs.1.51/ Kwh to correspond to the weighted average of power purchases as adopted by the Commission.

<u>APGPCL</u>

18. APGPCL -II has been given gas allocation. The gas is expected to be available by about August 2000 and operation of the plant on gas is expected to be stabilized by September. Hence power generation using Natural gas fully is assumed from 1st October 2000 and power purchase cost is accordingly calculated

- **IPPs**

APTRANSCO Proposal

19. The Licensee has given the power purchase costs as per the agreements entered into.

Commission's Analysis:

In the case of Kondapalli, variance is due to the charges in quantities of energy purchased in open & combined cycles of operation of the plant.

3.4.2 Wages and Salaries

The Licensee has assumed wages and salaries to grow at 12.50% per annum. The D.A. increases estimated by the licensee at 5% on each date a revision due from 1.1.2000 onwards is considered high in view of the present trends of increase in the consumer price index (which is the base for the D. A. revision) and the D.A. increase from 1.1.2000 was in fact less than 1% . Taking these trends into account, the amount of wages and salaries has been revised to Rs. 548.62 Crores at the gross level (that is before capitalisation) for both the Transmission & Bulk Supply and Distribution & Retail Supply businesses. The change is largely on account of moderating D.A. rates for the tariff year taking that the D.A. increase may not be more than 3% from 1.7.2000 and not more than 4% from 1.1.2001. Hence, after capitalisation to provide for wages and salaries of those engaged in the capital works, the amount of wages and salaries admitted is Rs.3.12 Crores as against Rs.4.89 Crores proposed by the Licensee in the ARR.

Table No. 20

NAME OF THE ITEM	AMOUNT in Rs crores
Gross Salaries	24.82
Less Capitalisation	21.70
Net of Capitalisation-Salaries	**3.12**

3.4.3. Administration and General Expenses

The Licensee has projected an amount of Rs.0.88 Crores which is accepted as reasonable.

3.4.4 Repairs and Maintenance

The Licensee has projected an amount of Rs.19.14 Crores which is accepted as reasonable.

3.4.5. Rents, Rates and Taxes

The Licensee has projected an amount of Rs.0.18 Crores which is accepted as reasonable.

3.4.6. Approved Loan Interest

The Licensee has projected an amount of Rs. 319.01 Crores which is inclusive of Interest on Existing Loans, Fresh Loans, Other Market Borrowings for capex, Working Capital Borrowings and Other Financial Charges. As other market borrowings for capex and working capital borrowings have not been accepted (vide discussions above), the corresponding interest on these amounts has been excluded. The amount allowed on this account is Rs. 162.26 Crores which takes into account the interest during construction attributable to capital works and interest tax correction. As mentioned earlier, in case of extraordinary circumstances, working capital borrowings from 'approved institutions' may be considered by the Commission.

Table No. 21

NAME OF THE ITEM	AMOUNT IN Rs. crores
Existing Loans	139.16
Fresh Loans	109.73
Other Finance Charges	35.09
Total Interest provided for	283.98
Less Interest Capitalised	121.72
Net Interest to be provided	**162.26**

3.4.7. Depreciation

The Licensee has projected an amount of Rs.129.93 Crores and the amount admitted is Rs. 91.20 crores. The difference is on account of the level of capitalisation for the year 1999-2000 as explained above under Original Cost of Fixed Assets. The depreciation rates adopted are in accordance with Schedule VI.

3.4.8. Contribution to Employee Funds

The Licensee has projected an amount of Rs.1.31 Crores net of capitalisation based on the percentage given by the Actuary (M/s Pricewaterhouse Coopers) in his report assessing the past service liability towards Pension and Gratuity. The contribution for pension is 30.76% and for Gratuity is 1.67% totalling to 32.43% as per the report. This is considered high in view of the high inflation levels and corresponding D. A. increases assumed in making these projections. A quick estimate given by another Actuary taking the present trends of inflation assessed the liability at 13% of Basic Pay and D. A. towards pension and gratuity for the service rendered during the year 2000-01. This has been adopted. Consequently, the contributions to the employee pension and gratuity fund worked out to Rs.2.63 Crores gross and Rs.0.48 crores after capitalisation. The Licensee is advised to institute a study to have the actuarial liability as on 31-3-2000 and as on 31-3-2001 evaluated for the employees of both Transmission & Distribution businesses separately latest by 31st October 2000. Based on the study, necessary adjustments will be considered.

The Licensee has clarified that the requisite Trusts for pension and gratuity are yet to be formed. The Licensee is directed that till such time the Trusts are formed, the amounts accruing on this account are credited from month to month to a non-drawal bank account opened with a scheduled bank. Such account should be opened not later than 1st July 2000.

Table No. 22

NAME OF THE ITEM	AMOUNT IN Rs. Crores
Contribution to funds	2.63
Less Capitalisation	2.15
Net Contribution to Employee Fund	0.48

3.4.9. Tax on Income

The Licensee has projected an amount of Rs.14.72 Crores and has stated that the Tax liability is under the provisions of the Minimum Alternative Tax (MAT) under the Income Tax Act, 1961. Because of the changes to the Net Capital Base and consequently in the reasonable return and the differences in the expenditure items, the Tax on Income works out to Rs.31.99 Crores which is admitted.

3.4.10. Contribution to Contingency Reserve

Because of the changes in the Original cost of Fixed Assets as discussed above, Rs. 6.70 crores projected by the Licensee changes to Rs. 5.80 Crores, @ 0.25% of the Original cost of Fixed Assets as per Schedule VI.

3.4.11. Debt Redemption Obligation

According to the Sixth Schedule under Para XVII, section 2 (c) [v-b], special appropriation sufficient to cover Debt Redemption Obligation of the private Licensees may be done on a year to year basis taking into account the requirements of debt redemption and resource generation through depreciation and retained surplus.

The Licensee has projected an amount of Rs. 21.03 Crores on this account. In view of the reduction in the amount of depreciation as mentioned above, the amount to be provided under this head works out to Rs.59.76 Crores which is admitted.

3.5. TOTAL EXPENDITURE

The above changes made result in total expenditure working out to Rs 7416.42 Crores against Rs. 7841.21 Crores projected by the Licensee.

Table No. 23

EXPENDITURE ITEMS	APTRANSCO	APERC
		(Rs. in Crores)
Purchase of Energy	7323.42	7041.61
Wages and Salaries	4.89	3.12
Administration and General expenses	0.88	0.88
Repairs and Maintenance	19.14	19.14
Rent Rates & Taxes	0.18	0.18
Approved Loan Interest	319.01	162.26
Depreciation	129.93	91.20
Contributions to Employee funds	1.31	0.48
Tax on Income	14.72	31.99
Contribution to Contingency Reserve	6.70	5.80
Debt Redemption Obligation	21.03	59.76
TOTAL EXPENDITURE	**7841.21**	**7416.42**

3.6. REASONABLE RETURN

Because of the changes to the 'Net Capital Base' as above, the reasonable return calculated as per the Sixth Schedule works out to Rs. 182.74 Crores as against Rs.85.00 Crores claimed by the Licensee.

3.7. NON TARIFF INCOME

The Licensee has projected an amount of Rs.1.22 Crores which is accepted as reasonable.

3.8. AGGREGATE REVENUE REQUIREMENT

The Aggregate Revenue Requirement works out to Rs. 7597.58 Crores as against Rs. 7924.99 Crores projected by the Transmission and Bulk Supply Licensee.

Table No. 24

NAME OF THE ITEM	AMOUNT IN Rs. Crores
Reasonable Return	182.42
Total Expenditure	7416.42
Minus Non-tariff Income	1.22
Minus Outstanding Customer rebates	-
Total Net Aggregate Revenue Requirement	**7597.58**

4. <u>ERC/ARR - DISTRIBUTION AND RETAIL SUPPLY: O.P. 206/2000</u>

APTRANSCO, the provisional licence holder for Distribution and Retail Supply filed its ERC under section 26(5) of the Reform Act for the financial year 2000-2001 on 29.12.1999. The Commission has examined the Licensee's proposals and provides below the reasons where the Commission finds the calculations incorrect and its alternative calculations.

4.1. CAPITAL BASE – Positive Side

4.1.1. Original Cost of Fixed Assets (OCFA)

The Licensee has proposed an amount of Rs. 4000.40 Crores as the OCFA to be reckoned in the Capital Base. Based on the information furnished by the Licensee of projects / works to be completed by 31.3.2000 and planned completions during 2000-2001, the capitalisation values have been finalised as follows.

Table No. 25

STATEMENT OF FIXED ASSETS

NAME OF THE ITEM	APTRANSCO	APERC
		Amount in Crores)
Original cost of fixed assets As on 31.03.99	2956.26	2956.26
Less consumer contributions	32.78	32.78
Net balance of OCFA as on 31.03.99	2923.48	2923.48
Add capitalised during the year	488.73	407.78
Balance of OCFA as on 31.03.00	3412.21	3331.26
Less consumer contributions	140.00	140.00
Net balance of OCFA as on 31.03.00	3272.21	3191.26
Add capitalised during the year	898.19	913.75
Balance of OCFA as on 31.03.01	4170.40	4105.01
Less consumer contributions	170.00	170.00
Net balance of OCFA as on 31.03.01	**4000.40**	**3935.01**

Accordingly OCFA taken to the capital base is Rs. 3935.01 Crores.

4.1.2. Consumer Contributions

In APTRANSCO's reply to I.A.2/2000, there is a reference to P. 75 of the Annual Accounts of APSEB for 1998-99 (for a period of 10 months ending 31.1.00) (Exhibit 2). This Exhibit shows consumer contributions at Rs 792.79 crores as on 31.3.2000 and a negative addition (in effect reduction) of Rs 309.47 crores for the 10 month period ended 31.3.99. The resulting balance on this account as on 31.1.99 is shown as 483.32 crores. The Notes to Accounts (Pages 79 to 84) or the Audit Report on the Accounts by the Accountant General (Audit II) in pages 2 to 7 of the said Annual Accounts of APSEB contain no reference/explanation for this reduction.

However, as far as the Commission is concerned, the Transfer Schemes notified by GoAP for the reorganisation of the electricity industry under Section 23 of the Reform Act must be the starting point for reckoning the assets and liabilities, rights and obligations of the reorganised entities coming into existence. APTRANSCO is one such entity and the Finalised First Transfer Scheme notified on 31.1.2000 in the Gazette shows no amount towards consumer contributions in the assets and liabilities transferred to APTRANSCO as of 31.1.99. Section 23 of the Reform Act empowers the GoAP to take over all assets and liabilities of the Board (meaning APSEB) and re-vest only such assets and liabilities as the Government considers it necessary in the successor entities to give effect to the reorganisation of the electrical industry. Therefore, it would not be proper for the Commission to question the rationale of vesting some assets and liabilities and not vesting some other assets and liabilities in the successor entities. The Commission therefore adopts the position as reflected in the First Transfer Scheme (finalised and notified on 31.1.2000) with reference to consumer contributions.

The figure of Rs. 32.17 crores referred to by the objectors is the new receipts anticipated during the two months February and March 1999 by way of provisional transactions (vide para 3.1 of SNR 1.9 of the ARR filed on 29.12.99 for D&RS). This has been projected to rise to Rs. 172.17 crores as on 31.3.2000 and Rs. 342.17 crores as on 31.3.2001. These amounts have been duly reduced from the original cost of capital assets for inclusion in capital base calculations (vide SNR 1.1 of the ARR filed on 29.12.99 for D&RS). Therefore, the Commission finds no unjust inflation of the capital base and reasonable return as apprehended by the objector.

4.1.3. Capital Works in Progress (CWIP)

The Licensee has proposed an amount of Rs. 1076.43 Crores as CWIP to be taken for Capital Base calculations. Based on the updated details sought from the Licensee of the expenditure upto 31.3.2000 and planned expenditure during 2000-01 as well as the capitalisation as mentioned under OCFA above, the CWIP works out to Rs. 1010.62 Crores as detailed below.

Table No. 26

STATEMENT OF WORKS IN PROGRESS FOR 1998-99 TO 2000-01

	APTRANSCO	APERC
		(Amount in Rs. Crores.)
Opening balance of CWIP 31/03/99	**456.76**	**381.10**
Add Capital Expenditure		
Additional Investments during the year	774.54	790.10
Interest & Expenses during the year	113.31	108.01
Total additions to capital base	887.85	898.11
Less Amounts Capitalised		
Base Works in Progress	456.76	381.10
Interest & Expenses during the year	31.97	26.68
Total amount capitalised	488.73	407.78
Closing balance of CWIP 31/03/00	**855.88**	**871.43**
Add Capital Expenditure		
Additional Investments during the year	984.85	925.79
Interest & Expenses during the year	133.90	127.15
Total additions to capital base	1118.75	1052.94
Less Amounts Capitalised		
Base Works in Progress	855.87	871.43
Interest & Expenses during the year	42.32	42.32
Total amount capitalised	898.19	913.75
Closing balance of CWIP 31/03/01	**1076.44**	**1010.62**

4.1.4. Working Capital Requirements

Average cost of Stores.

The Licensee has projected an amount of Rs.21.92 Crores which is accepted as reasonable.

4.1.5. Average Cash and Bank Balance

The Licensee has proposed Rs. 86.61 Crores towards Working Capital requirement in the form of Cash and bank balance and has stated (vide para 1.6 of SNR 1.11 of SARR) that this has been calculated to equal one month's requirement of operating expenses comprising repairs and maintenance plus employees cost plus administrative and general expenses plus provision for bad and doubtful debts for the year. As per para XVII (1) (e) (ii) of the Sixth Schedule, an amount equal to 1/12 of the sum of Cash and bank balances (whether credit or debit) and call and short term deposits at the end of each month of the year of account, not exceeding in the aggregate an amount equal to one quarter of the expenditure items specified in the paragraph, is to be provided.

Keeping in view the above provision, the fund requirement for one month payment of employees' cost and administrative and general expenses would be appropriate for meeting working capital requirement. Calculated on this basis, the amount works out to Rs.71.78 crores. which is provided.

Table No. 27

NAME OF THE ITEM	AMOUNT IN Rs Crores
Average Cash and Bank balance	**861.35/12 =71.78**
Expenses	
Wages And Salaries	487.12
Admin and General expenses	88.52
Repairs & Maintenance	131.51
Auditors Fee	1.21
Legal Charges	0.61
Rent, Rates and Taxes	96.96
Contribution to Employee funds	55.42
Total expenses	**861.35**

4.2. CAPITAL BASE – Negative Side

4.2.1. Accumulated Depreciation

The accumulated depreciation as per the Licensee is Rs.1823.69 Crores against which Rs. 1817.84 Crores is admitted. The difference of Rs.5.85 crores is due to minor changes to capitalisation of assets in 1999-2000 according to the details of completed projects based on updated information sought from the Licensee as on 31.3.2000 and the resulting depreciation amounts.

4.2.2. Approved Loans.

The Licensee has projected an amount of Rs.1774.94 Crores which is accepted as reasonable.

4.2.3. Consumer Security Deposits

In the ERC / ARR filed for the Distribution & Retail Supply business on 29-12-99, the Licensee has shown (vide SNR 1.1) an amount of Rs.861.17 Crores as on 31.3.99 as Consumers' Security Deposits. The amount of security deposits from consumers as on 31.1.99 was Rs.849.05 Crores as per the audited Balance Sheet of the erstwhile APSEB (vide page 16 of Annual Accounts 1998-99). The increase from Rs.849.05 Crores to Rs.861.17 Crores represents additional deposits (Rs.12.12 Crores) received from consumers during the two - month period.

In the SARR filed on 6th April, 2000, the Licensee has shown (vide SNR 5.2.1) an amount of Rs.777.95 Crores as on 31.3.99 as against Rs.861.17 Crores shown earlier and has stated under remarks as follows:

> "Rs.83.22 Crores decrease is attributable to compilation adjustments of the field accounts with the headquarters as a part of the first transfer scheme finalisation."

The First Transfer Scheme notified by the GoAP in the Gazette shows an amount of Rs.765.8 Crores as on 31.1.99 under Deposits from consumers (possibly Rs.765.83 Crores rounded off). The difference between the Audited Balance Sheet figure (Rs.849.05 Crores) and the First Transfer Scheme figure (Rs.765.83 Crores) is Rs.83.22 Crores. The First Transfer Scheme therefore recognises the reduction of Rs. 83.22 Crores from the Audited Balance Sheet figure.

In view of this, the resulting figure of Rs. 941.32 crores as on 31.3.2001 proposed by the Licensee is accepted.

4.3. NET CAPITAL BASE

With the above changes in the positive and negative elements of the capital base, the 'net capital base' works out to Rs, 505.23 Crores as against Rs.1176.19 crores projected by the Licensee as detailed below.

Table No. 28

NAME OF THE ITEM	APTRANSCO	APERC
	AMOUNT IN Rs. Crores	
Capital Base Item-(positive)		
Original Cost of Fixed Assets	4000.40	3935.01
Capital Work in Progress	1076.43	1010.62
Working Capital		
a) Average cost of stores	21.92	21.92
b) Average Cash and Bank Balance	86.61	71.78
Receivables	1833.52	0.00
Total of positive elements of capital base	**7018.88**	**5039.33**
Capital Base Item-(negative)		
Accumulated Depreciation	1823.69	1817.84
Approved Loans (Indian Loans and Debentures)	1774.94	1774.94
Working Capital Borrowings	0.00	0.00
Other Market Borrowings for CAPEX	0.00	0.00
Consumer Security Deposits	941.32	941.32
Payables	1302.74	0.00
Total of Negative Side of Capital Base	**5842.69**	**4534.10**
NET CAPITAL BASE	**1176.19**	**505.23**

4.4. EXPENDITURE

4.4.1. Wages and Salaries

The Licensee has assumed wages and salaries to grow at 12.50% per annum. The D.A. increases estimated by the Licensee at 5% on each date of a revision due from 1.1.2000 onwards is considered high in view of the present trends of increase in the consumer price index (which is the base for the D. A. revision) where the increase from 1.1.2000 was in fact less than 1% . Taking these trends into account, the amount of wages and salaries has been revised to Rs. 548.62 Crores at the gross level (that is before capitalisation) for both the Transmission & Bulk Supply and Distribution & Retail Supply businesses. The change is largely on account of moderating D.A. rates for the tariff year, taking that the D.A. increase may not be more than 3% on 1.7.2000 and not more than 4% on 1.1.2001. Hence, after capitalisation to provide for wages and salaries of those engaged in capital works, the amount of wages and salaries admitted is Rs.487.12 Crores as against Rs.534.81 Crores proposed by the licensee in the ARR.

Table No. 29

NAME OF THE ITEM	Amount In Rs crores
Gross Salaries	523.80
Less Capitalisation	36.68
Net of Capitalisation-Salaries	487.12

4.4.2. Administration and General Expenses

The Licensee has projected an amount of Rs.88.52 Crores which is accepted as reasonable.

4.4.3. Repairs and Maintenance

The Licensee has projected an amount of Rs.131.51 Crores which is accepted as reasonable.

4.4.4. Rents, Rates and Taxes

The Licensee has projected an amount of Rs.96.96 Crores net of capitalisation which is accepted as reasonable.

4.4.5. Approved Loan Interest

The Licensee has projected an amount of Rs. 220.86 Crores net of capitalisation which is accepted as reasonable.

4.4.6. Legal Charges

The Licensee has projected an amount of Rs.0.61 Crores which is accepted as reasonable.

4.4.7. Bad Debts

The Licensee has proposed an amount of Rs. 92.34 Crores towards provision for bad and doubtful debts and stated that the amount has been worked out at 1% of gross revenue (including the subsidy from the Government).

According to the Electricity (Supply) Annual Accounts Rules, 1985 (Para 4, 2 of Annex V of Appendix V), the provision for doubtful dues from consumers is to be made as a fixed percentage of dues from consumers and not as a percent of gross revenue. The Rules also contemplate investigation to be conducted independently and in depth at the time of actually writing off a debt and a detailed study to be conducted periodically to ascertain the appropriate percentage and to update the percentage so determined. The Licensee does not appear to have taken these measures.

Considering the fact that the first transfer scheme finally notified by Government of Andhra Pradesh shows an existing provision of Rs. 618.90 Crores towards doubtful debts, it is felt that an addition to the revenue requirement on this account by allowing a further provision to be made would not be proper in view of the fact that there has been no review and no actual write off of bad debts for the past many years. Further, the age profile of the receivables ascertained from the Licensee shows the following position:

Table No. 30

	To end of March 1999 (Rs. Crores)	To end of March 2000 (Provisional) (Rs. Crores)
Less than 6 months old	181.03	295.62
Over six months but less than one Year	206.35	323.11
More than 1 year but less that 3 years	335.89	285.50
More than 3 years but less than 5 years	81.78	71.96
More than five years	166.40	149.76

It is evident from the above analysis that the dues of age more than one year are less than the provision already available (Rs. 618.9 crores) as per the First Transfer Scheme. The rest of the receivable is less than one year of age. For the above reasons, the proposed Rs. 92.34 crores towards provision for bad and doubtful debts has not been accepted. Accordingly, no provision for doubtful debts is made.

The Licensee is advised to pursue vigorously the review of receivables stated by the Licensee as having been already instituted and collect the debts on priority making use of the statutory instruments available to the Licensee to effect recovery. The progress in this regard may be reported to the Commission latest by 31.12.2000.

4.4.8. Auditors Fee

The Licensee has projected an amount of Rs.1.21 Crores which is accepted as reasonable.

4.4.9. Depreciation

The Licensee has projected an amount of Rs.251.37 Crores and the amount admitted is Rs. 245.52 crores. The small difference is on account of the level of capitalisation for the year 1999-2000 as explained above under Original Cost of Fixed Assets.

The depreciation rates adopted are in accordance with Schedule VI.

4.4.10. Contribution to Employee Funds

The Licensee has projected an amount of Rs. 142.95 Crores net of capitalisation based on the percentage given by the Actuary (M/s Price Waterhouse Coopers) in his report assessing the past service liability towards Pension and Gratuity. The contribution for pension is 30.76% and for Gratuity is 1.67% totalling to 32.43% as per the report. This is considered high in view of the high inflation levels and corresponding D. A. increases assumed in making these projections. A quick estimate given by another actuary taking the present trends of inflation assessed the liability at 13% of Basic Pay and D. A. towards pension and gratuity for the service rendered during the year 2000-01. This has been adopted. Consequently, the contributions to the employee pension and gratuity fund worked out to Rs.55.42 Crores. The Licensee is advised to institute a study to have the actuarial liability as on 31-3-2000 and as on 31-3-2001 evaluated for the employees of both Transmission & Distribution businesses separately latest by 31st October 2000. Based on the study, necessary adjustments will be made.

The Licensee has clarified that the requisite Trusts for pension and gratuity are yet to be formed. The Licensee is directed that till such Trusts are formed, the amounts accruing on this account are credited from month to month to a non-drawal bank account opened with a scheduled bank. Such account should be opened not later than 1st July 2000.

Table No. 31

NAME OF THE ITEM	AMOUNT IN Rs. Crores
Contribution to funds	55.42
Less Capitalisation	0.00
Net Contribution to Employee Fund	55.42

4.4.11. Tax on Income

The Licensee has projected an amount of Rs.22.54 Crores and has stated that the Tax liability is under the provisions of the Minimum Alternative Tax (MAT) under the Income Tax Act, 1961. Because of the changes to the Net Capital Base and consequently in the reasonable return and the differences in the expenditure items, the Tax on Income works out to Rs.12.94 Crores which is admitted.

4.4.12. Contribution to Contingency Reserve

Because of the changes in the Original cost of Fixed Assets as discussed above, the Rs. 10.86 crores as projected by the Licensee changes to Rs. 10.69 Crores, @ 0.25% of the Original cost of Fixed Assets as per Schedule VI.

4.5. TOTAL EXPENDITURE

The above changes made result in total expenditure working out to Rs 8948.93 Crores against Rs. 9519.53 Crores as projected by the Licensee.

Table No. 32

NAME OF THE ITEM	APTRANSCO	APERC
	Amount in Rs. Crores	
Purchase of Energy	7924.99	7597.58
Wages and Salaries	534.81	487.12
Administration and General expenses	88.52	88.52
Repairs and Maintenance	131.51	131.51
Rent Rates & Taxes	96.96	96.96
Approved Loan Interest	220.86	220.86
Legal Charges	0.61	0.61
Bad Debts	92.34	0.00
Auditors Fee	1.21	1.21
Depreciation	251.37	245.52
Contributions to Employee funds	142.95	55.42
Tax on Income	22.54	12.93
Contribution to Contingency Reserve	10.86	10.69
TOTAL EXPENDITURE	**9519.53**	**8948.93**

4.6. REASONABLE RETURN

Because of the changes to the 'Net Capital Base' as above, the reasonable return calculated as per the Sixth Schedule works out to Rs.89.71 Crores as against Rs.161.78 Crores claimed by the Licensee.

4.7. NON TARIFF INCOME

The Licensee has projected an amount of Rs.447.47 Crores which is modified to Rs. 457.47 Crores, that is, an increase of Rs.10 Crores to reflect the trend of 13% increase as against 10% as adopted by the Licensee for delayed payment surcharges and consumer charges.

4.8. AGGREGATE REVENUE REQUIREMENT

The Aggregate Revenue Requirement (ARR) works out to Rs. 8365.17 Crores as against Rs. 9017.84 Crores projected by the Licensee.

Table No. 33

NAME OF THE ITEM	AMOUNT IN Rs. Crores
Reasonable Return	89.71
Total Expenditure	8948.93
Minus Non-tariff Income	457.47
Minus Variable Cost Adjustments	216.00
Total Net Aggregate Revenue Requirement	**8365.17**

5. TOTAL NET AGGREGATE REVENUE REQUIREMENT OF BOTH TRANSMISSION AND DISTRIBUTION

The total Aggregate Revenue Requirement of both Transmission & Distribution business segments of the Licensee works out to Rs. 8365.17 Crores as follows:

Table No. 34

NAME OF ITEM	AMOUNT IN Rs. Crores		
	Transmission	**Distribution**	**Total**
Total Expenditure	**7416.38**	**(*)1351.35**	**8767.73**
Reasonable Return	**182.42**	**89.71**	**272.13**
Minus			
Non-tariff Income	1.22	457.47	458.69
Variable Cost Adjustment		216.00	216.00
Total	**1.22**	**673.47**	**674.69**
Net Aggregate Revenue Requirement of both Transmission & Distribution	**7597.58**	**767.59**	**8365.17**

(*) Power Purchase costs taken under Transmission only.

5.1. Expected Revenue from Current Charges

The expected revenue from current charges is projected by the Licensee at Rs. 5436.87 crores which is accepted. Recalculation at average rates of realisation during April-December,1999 since furnished by the Licensee gives a figure of Rs.5447.87.

5.2. The Gap

The Gap between the Aggregate Revenue Requirement of the two business segments of Transmission & Distribution and the expected revenue from current charges works out to Rs. 2917.30 crores as follows:

Table No. 35

NAME OF ITEM	AMOUNT IN Rs. Crores
Aggregate Revenue Requirement	8,365.17
Expected revenue from current charges	5,447.87
The Gap	2,917.30

Out of this, the Licensee has stated that the gap would be reduced by Rs. 500 crores through efficiency improvements. The gap then comes down to Rs. 2417.31 crores.

6. Tariff Design

6.1 Embedded Cost Study

APTRANSCO on the basis of a preliminary embedded cost of service study proposes to move class revenues closer to class embedded costs. This general approach is consistent with the Commission's Tariff Philosophy. The Staff has developed a similar model in order to allocate the cost of service among different categories on the basis of each consumer category's share of a particular cost element. Load forecast projections of SNC Lavalin used by APTRANSCO are also used in the Staff model. Two changes, however, have been made by the Staff in its model. They are: (1) the classification of fixed purchased power costs as demand-related against APTRANSCO's classification of all purchased power costs as energy related; and (2) the use of class coincident peak loads instead of non-coincident peak loads to allocate demand-related costs. The first change recognises that a portion of purchased power costs is related to peak demands imposed on the system and are fixed with respect to the amount of energy purchased. While classifying all fixed purchased power costs as demand-related may overstate the demand-related component, this approach is a preferred alternative to allocating all purchased power costs on the basis of energy as opted by APTRANSCO. APTRANSCO's approach fails to reflect the fact that customer categories with low load factors (such as domestic) add to system peaks, which require the system to maintain more capacity than would be necessary if their loads were more evenly distributed. This effect is not dramatic under current generation shortages. However, as capacity is added to serve full loads, the impact will become significant.

In line with the first assumption, the Staff has preferred to use class coincident peak demand as the allocator for demand-related costs, rather than non-coincident peak. Demand allocation factors are applied to generation capacity, transmission and distribution costs. It is true that demand-related distribution costs are attributable to local rather than system peak demands and often class non-coincident peaks are used as a proxy to measure the local peak demands. However, generation and transmission demand-related costs are more closely related to system peaks and therefore coincident peak demand is always appropriate to allocate these demand-related costs. Since Staff has classified fixed generation costs as demand-related, it is more appropriate to use the coincident peak allocators rather than non-coincident peak allocators.

The Commission believes these changes are appropriate and accepts Staff's changes to the embedded cost study.

6.1.1. Allocation of Subsidy from GoAP and Efficiency Gain

APTRANSCO assumes that (1) a specific amount of subsidy will be provided by GoAP, (2) tariffs can only be increased by 15 percent overall, and (3) the difference between the sum of the subsidy plus revenues with the 15-percent increase and total costs will become a regulatory asset to be recovered from consumers in later years. APTRANSCO did not assign the assumed GoAP subsidy to the customer categories.

The embedded cost model developed by the Staff allocates the entire revenue requirement to the customer categories, which enables the model to input and allocate the subsidy to be provided by GoAP. In the absence of special provision, Staff in its model has adopted a principle to allocate the subsidies and efficiency improvements to different customer categories in the same proportion to the difference between the current revenues and embedded costs.

Accordingly, the model has allocated the efficiency gain of Rs. 500 crores across the consumer categories in proportion to their cost of service on the assumption that the efficiency gain will be achieved by reducing the overall costs of the system.

The Commission believes that the issue of the allocation of the external subsidy is a temporary one, relevant only to the transition period. Further, cross-subsidies between consumer categories will be gradually reduced until charges to all categories eventually reflect the cost of service.

6.1.2 Percentage Increase by Class

During the transition period, some cross-subsidies are inevitable to avoid rate shock for the groups now being subsidised. Hence, in this tariff order taking into account the expected government subsidy and the revenue arising out of the efficiency improvements, additional constraints must be applied to control bill impacts. However, the Commission considers that to be fair to those customer categories that are now paying more than the cost of service, the increase in tariff in respect to those categories should be considerably less than for others whose tariffs are below the cost to serve. Accordingly the Commission adopted the following constraints for fixing tariffs in respect of those categories where revenue realisation per unit is already above the cost to serve.

- ❖ LT Non-Domestic Cat.II 15%
- ❖ LT Industrial Supply Cat.III 14%
- ❖ HT Industrial – Seg.Cat.I 5%
- ❖ HT Non – Seg.Cat.II 6%
- ❖ EHT Railroad Traction 6%

The details of revenues generated as a result of the increase in tariff proposed on the above categories is as given below:

Table No: 36

Name of the Category	Rs. In Cr
LT Non-Domestic Cat.II - 15%	79.53
LT Indl. Supply Cat.III - 13.5%	89.80
HT Indl. – Seg.Cat.I - 5.2%	112.41
HT Non-Seg. Cat.II - 5.6%	18.20
EHT RR Tract Cat.V - 6%	23.42
TOTAL:	**323.36**

The above amount of Rs.323 cr. together with Rs.500 cr. generated through efficiency gains is allocated to the rest of the categories in proportion to the difference between revenue realization at present tariff and the cost to serve at present tariffs. In order to fill the remaining deficit of Rs.2095 cr. (2918 minus 823) the Commission has decided to load it on to the same categories in proportion to the difference between the revenue realization and the cost to serve, after Rs. 823 cr. is also taken into account. With these increases, the level of tariffs worked out for recovery of full cost including the reasonable return is as below:

SCHEDULE OF RETAIL TARIFFS FOR 2000-2001

		APTRANSCO Current			APERC Proposed					
Categ-ory	Purpose	Fixed	Dem-and	Energy	Fixed	Demand	Energy	Full allocated cost of APERC	Additional revenue due to increase in tariff by the APERC	Total expected revenue after revised tariff
		(Rs/ HP/ Month)	(Rs/ kVA)	Ps/ KWH	(Rs/ HP/ Month)	(Rs/ kVA)	Ps/ KWH	Ps/ unit	Rs. Crores	Rs. Crores
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**
	LOW-TENSION SUPPLY									
LT-I	**Domestic**							**466**	**1136.4**	**2184.4**
	0-50			80		0-50	220			
	0-100			120		51-200	475			
	0-200			165		201-400	635			
	0-300			210		>400	775			
	0-400			290						
	>400			340						
LT-II	**Non-Domestic**							**339**	**79.53**	**611.18**
	0-100			275		0-100	330			
	0-200			425		101-200	650			
	>200			495		>200	725			
LT-III	**Industrial**							**299**	**90.42**	**756.73**
	First 1000 units	15		328	15		374			
	Balance units			368			420			
LT-IV	**Cottage Industry**	10		120	10		270	**370**	**6.98**	**10.98**
LT-V	**Agricultural 1**	**(Rs/HP/Annum)**			**(Rs/HP/Annum)**			**219**	**763.06**	**943.18**
	DPAP Areas									
	Up to 3 HP	100			550		@			
	> 3 HP up to 5 HP	200			1000		@			
	> 5 HP up to 10 HP	300			1450		@			
	10 HP and above	400			1800		@			
	Other Areas									
	Up to 3 HP	150			750		@			
	> 3 HP up to 5 HP	250			1200		@			
	> 5 HP up to 10 HP	350			1800		@			
	10 HP and above	400			2150		@			
LT-VI	**Local Bodies**							**354**	**85.23**	**152.11**
	Street Lighting									
	Minor Panchayats			100			160			
	Major Panchayats			100			210			

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Nagarpalikas and Municipalities Gr.3			120			270			
	Municipalities Gr.1 & 2			120			320			
	Municipalities Selection Spl.Gr.			120			340			
	Corporations			140			370			
	PWS Schemes									
	Minor Panchayats	Free			Agri.tariff as applicable in other areas					
	Major Panchayats	Agri.tariff as applicable in other areas			Agri.tariff as applicable in other areas					
	Nagarpalikas and Municipalities Gr.3									
	Upto 1000 units	15		328	20		370			
	Balance units			368			390			
	Municipalities Gr.1 & 2									
	Upto 1000 units	15		328	20		370			
	Balance units			368			390			
	Municipalities Selection Spl.Gr.									
	Upto 1000 units	15		328	20		370			
	Balance units			368			390			
	Corporations									
	Upto 1000 units	15		328	20		390			
	Balance units			368			450			
LT-VII	**General Purpose**			250			400	**309**	**19.05**	**50.80**
LT-VIII	**Temporary**			500			600	**261**	**0.30**	**1.80**
HT-I	**Industrial**							**192**	**112.41**	**2260.30**
	For first 1 lakh units		165	338		170	370			
	Next 1 lakh units			358			385			
	Balance units			373			390			
HT-II	**Industries – Non-Segregated**		165	418		170	443	**195**	**18.2**	**345.48**
HT-IV	**Agricultural/ Irrigation**	**Rs.400/HP/year**					110	**181**	**1.07**	**4.07**
HT-V	**Railway Traction**			428			454	**178**	**23.71**	**414.05**
HT-VI	**Townships/Colonies**			258			310	**241**	**6.40**	**38.13**
EI Coop				5			90	**221**	**85.68**	**90.72**
Temp							525	**170**	**0.08**	**1.39**
Grand Total									**2428.49**	**7865.26**
@Metered tariff will be at 50 ps/kWh and is an optional tariff										

6.1.3. The tariffs as worked above have been communicated to Government of Andhra Pradesh vide Lr. No. APERC/Secy./F5/D.No.Spl.1/2000 Dated 23-05-2000 on 23rd May, 2000 for directions u/s 12(3). The Commission has proposed that the amount determined towards subsidy may be reimbursed to APTRANSCO by the Government on monthly basis or on quarterly basis in advance. If this was not feasible, it was suggested that the GOAP should make further payment over and above the subsidy to cover the costs that APTRANSCO may incur to bridge the time gap in payment of the subsidy.

Government vide Lr.No.3170/Pr.II(1)/2000-1 Dated:26.05.2000 have communicated that they would provide a subsidy of Rs.1345 crores during 2000-2001 tariff year to bridge the revenue gap of APTRANSCO. The Government have also conveyed that the subsidy would be made available in equal monthly instalments after adjusting monthly plough-back dues which are due from the utilities. The Government have indicated that from APTRANSCO and APGENCO an amount of Rs.524.10 crores is due and the details of amount that falls due every month beginning from April, 2000 ending March, 2001 has also been given.

As the Government have not specifically conveyed the classes of consumers the subsidy should be adjusted against, discussions were held with the Principal Secretary, Department of Energy, Government of Andhra Pradesh and the tariffs reworked following the discussions and the same have been communicated to the Govt. for confirmation on 27.5.2000. Government have confirmed the reduced tariffs worked out after taking into account the subsidy of Rs.1345 cr. The government subsidy was substantially directed to LT Domestic Cat. I and LT Agricultural Cat. V.

The following table gives the details of allocation of subsidy.

Table No.37

Name of the Category	Subsidy allocated
	(Rs. in Cr)
LT Domestic Cat.I	501
LT Cottage Ind. Cat.IV	2
LT Irrigation/Agrl. Cat V	703
LT Public Lighting (Local Bodies) Cat.VI	27
HT Irrigation Cat.IV	*
HT Rural Elec.Co-op.Societies	90
Additional Subsidy to LT Agrl.Cat.V on account of annualisation	22
TOTAL:	1345
*Included in LT Category V	

It is on the above basis that the tariffs have been worked out. The tariffs finalized after taking into account the amount of Rs.500 cr generated by efficiency improvements and the subsidy of Rs.1345 cr are as below:

Table No.38

SCHEDULE OF TARIFFS FOR THE YEAR 2000-2001

SUMMARY OF TARIFF MODEL		Fixed Charge (Rs./year)	Energy Charges (Ps/unit)	Total Revenue
(Rs.in lakhs)				
(A)		(B)	(C)	(D)
LOW TENSION				
Category-I: Domestic				161,048
	0-50	--	135	22,124
	51-100	--	365	27,451
	101-200	--	365	39,269
	201-300	--	575	28,644
	301-400	--	575	16,205
	>400	--	665	27,355
Category-II: Non-Domestic and Commercial				61,118
	0-100	--	330	13,064
	101-200	--	650	9,743
	>200	--	725	38,311
Category-III: Indl.				75,610
	First 1000	180	374	23,200
	Balance		420	52,410
Category IV: Cottage Industry		120	165	540
Category V:Agriculture				29,005
	DPAP Areas			
	Upto 3 HP (2.25 kW)	200	--	1,891
	> 3 HP up to 5 HP (2.25to 3.75kw)	350	-	4,007
	> 5 HP up to 10 HP (3.75 to 7.5kw)	450	-	888
	> 10 HP (7.5kw)	550	-	30
	Other areas			
	Up to 3 HP (2.25kw)	250		4,891
	> 3 HP up to 5 HP (2.25 to 3.75kw)	400		10,865
	> 5 HP up to 10 HP (3.75 to 7.5kw)	500		4,468
	> 10 HP (7.5 kw)	600		1,964

(A)	(B)	(C)	(D)
Category VI: Local Bodies & PWS Schemes		242	13,875
Street Lighting			
Minor Panchayats		140	
Major Panchayats		190	
Nagarapalikas & Municipalities Gr-3		250	
Municipalities Gr 1&2		300	
Municipalities Selection Spl. Gr.		325	
Corporations		350	
PWS Schemes			
Minor Panchayats	Agri. Tariff as applicable in other areas		
Major Panchayats	Agri. Tariff as applicable in other areas		
Nagarapalikas & Municipalities Gr-3			
Upto 1000 units	20	350	
Balance units		380	
Municipalities Gr- 1& 2			
Upto 1000 units	20	350	
Balance units		380	
Municipalities Selection Spl. Gr			
Upto 1000 units	20	350	
Balance units		380	
Corporations			
Upto 1000 units	20	380	
Balance units		430	
Category VII: General Purpose	--	400	5,080
Category VIII: Temporary Supply	--	600	180
Total Low Tension	--	--	346,455
High Tension	Rs. per kVA		
Category I: Industry General	2,040		226,029
For first 1 lakh units		370	32,317
Next 1 lakh units		385	19,943
Balance units		390	136,000
Category II : Industry – Other	2,040	443	34,548
Category IV : Irrigation & Agriculture	--	35 *	300
Category V : Railway Traction	--	454	41,376
Category VI : Townships and Colonies	--	310	3,813
Rural Electric Co-operative Societies	--	5	504
Temporary	3120	525	139
Total High Tension	--	--	306,709
System Total	--	--	652,064
Subsidy Provided			132,278
Additional Agricultural Subsidy Provided on Annualized Tariff			2,200
Total Revenue with Subsidy of Rs.1345 cr.			786,542

(*) Subject to a minimum of Rs. 300/- per HP per year.

6.2 Tariff Structure

APTRANSCO has proposed only a few changes in the structure of the tariffs. They proposed to continue substantially the same general and miscellaneous charges as are existing.

6.2.1 Domestic (Category LT I)

APTRANSCO has continued the 6-slab non-telescopic structure of the domestic tariff, but increased each slab's price. It retains a lifeline tariff for the low income customers at 120 ps. The proposals of APTRANSCO raise the Domestic tariffs by about 34%.

Customers using more than 300 units per month received increases of 20 percent effective January 1, 1999. There was no increase in the tariff of consumers in slabs lower than 300 units after the last increase in August, 1996. While APTRANSCO's tariff filing discusses about moving to a telescopic structure for the domestic class, it proposes to retain the non-telescopic structure.

The Commission has taken note of the overwhelming demand during the public hearing and in the public representation for adoption of telescopic structure for domestic consumers and decided that a telescopic structure would be appropriate for Domestic customers. Under a non-telescopic structure, a consumer's entire consumption is priced at the level for the slab in which his consumption falls. In contrast, a telescopic slab structure prices each segment of total monthly consumption at the corresponding slab price. The advantages of the telescopic structure include:

- There is no huge increase in bill on account of the consumption marginally exceeding the slab zone.
- Because the bill impact of moving from one slab to another is reduced, there is less incentive to engage in corrupt practices to ensure that the higher meter reading is not recorded.
- Domestic meters are read every two months in AP. Under a non-telescopic tariff a customer whose consumption was high in only one of the two months has to

pay the higher slab price for all kWh consumed. The telescopic option gives the consumer the lower slab price for kWh consumed in both months.

The development of the telescopic tariff cannot simply apply a flat percentage increase to the current non-telescopic slabs because all consumers will benefit from the lower priced slabs. Consequently, the increases have to vary across slabs.

The Commission reduced the number of slabs from six to four as given below. Recategorization was necessitated by the consideration that larger the number of categories the greater the scope for leakages. A scientific approach to categorize would have to be based on the principle of ‘paying capacity’. Since such studies are not available for the present filing, the Commission has adopted a practical approach to paying capacity. The first slab represents the lifeline rate as stated by APTRANSCO. The next two rates are representative of consumption patterns of the middle class and the upper middle class households. The last slab is for the rich. By modifying the slab rates and the categories the tariff design attempts to combine efficiency with social objectives.

- 0 - 50 units
- 51-200 units
- 201-400 units
- Above 400

Keeping in view the large gap in revenue and the fact that even after the proposed increase by APTRANSCO, the revenue realisation per unit is only 224 ps. against the embedded cost of 496 ps., the Commission determined the Domestic tariffs to increase to a level where the revenue realisation represents atleast about 50% of the cost to serve. This meant an increase of 54% over the current revenue. With this increase, about Rs.560 crores would be realised. Even at this level of increase, the first slab of the Domestic-LT continues to receive a lifeline subsidy. The telescopic tariffs at this level are as given below:

Table No: 39

LT DOMESTIC CAT I

	APTRANSCO		APERC	
Slab	(Current) Energy Charge (Paisa/Unit)	(Proposed) Energy Charge (Paisa/Unit)	Slab	(Telescopic) Energy Charge (Paisa/Unit)
0 - 50	80	120	0-50	135
0 - 100	120	180	51-200	365
0 - 200	165	250		
0 - 300	210	300	201-400	575
0 - 400	290	350		
> 400	340	390	>400	665

6.2.2 Non-Domestic and Commercial Consumers (Category LT II)

Consumers in the non-domestic and commercial category on average currently pay more than the cost of service. APTRANSCO proposes to increase this cross-subsidy burden by raising this tariff by an average of 10 percent. The tariff is currently non-telescopic, with a below-cost slab priced at 275 ps per unit (compared to an embedded cost of 368 ps.) for consumers using up to 100 units per month and two above-cost slabs. The first slab constitutes 65 percent of the consumers and 31 percent of the unit sales in the class. Bill impacts under APTRANSCO's proposal for small (50 kWh per month), average (150 kWh) and large (1,500 kWh) customers are very similar, at 9.1, 8.2, and 11.1 %, respectively.

Consumers using more than 100 kWh received tariff increases of 13-32 percent in January 1999 while there was no increase in tariff for consumers in the first slab since August 1996.

As already mentioned, the Commission has determined that 15% is the appropriate overall increase that can be made to this group as the realisation of revenues is already higher than the embedded cost. The Commission also took into account the percentage additional realisation in this category as compared to other categories where the realisation is higher than the cost to serve at current charges while arriving at this 15% increase. The Commission has also determined that a telescopic structure should be adopted for this group also for the reasons already given above. The table below compares current tariffs, APTRANSCO's proposal, and the Commission's tariff.

Table No:40

LT NON-DOMESTIC CAT II

	APTRANSCO		APERC	
Slab	(Current) Energy Charge (Paisa/Unit)	(Proposed) Energy Charge (Paisa/Unit)	Slab	(Telescopic) Energy Charge (Paisa/Unit)
0 - 100	275	300	0-100	330
0 - 200	425	460	101-200	650
> 200	495	550	>200	725

6.2.3 LT Industrial Customers (Category LT III)

The current LT Industrial rate has a fixed charge of Rs 15 per HP/month of connected load and a telescopic two-block energy charge (including the current fuel adjustment surcharge) of 328 ps/kWh for the first 1000 units and 368 ps/kWh for the rest. This includes a tariff increase of 20% made in January, 1999. The embedded cost of service is 324 ps/kWh compared to average revenues at current rates of 369 ps/kWh.

Although this tariff is above cost to serve, APTRANSCO proposes to increase the tariff by an average of 6.5 %. The proposal includes no change in the fixed charge.

The Commission has determined to increase the tariff for this category by 14% for the same reasons as given for LT Non-Domestic Cat.II but retain the existing fixed charges.

Table No. 41

LT INDUSTRIAL CAT III

	APTRANSCO (CURRENT)		APTRANSCO (PROPOSED)		APERC	
Slab	Fixed Charge (Rs./HP/ month)	Energy Charge (Paise/Unit)	Fixed Charge (Rs./ HP/ month)	Energy Charge (Paise/Unit)	Fixed Charge (Rs./HP/ month)	Energy Charge (Paise/Unit)
First 1000	15	328	15	355	15	374
Balance		368		390		420

6.2.4 Cottage Industries (Category LT IV)

This category is subsidised currently by government policy. The current tariff consists of a fixed charge of Rs 10/HP/month plus an energy charge of 120 ps/kWh. Average revenue per unit under current rates for this category is 129 ps compared to the embedded cost of 403 ps. APTRANSCO proposes to leave the fixed charge unchanged and increase the energy charge to 150 ps/kWh. The result is an average increase of 35 %.

This category has not had a tariff increase since August 1996. The Commission has decided that a significant increase is warranted in this category towards energy charges in view of the wide gap between the current realisation and the cost to serve. The Commission has determined to increase the tariff for this category by 35%. At this rate the cost of realisation is 174 per unit. The Commission however retained the existing fixed charges.

Table No:42

LT COTTAGE INDUSTRY CAT. IV

	APTRANSCO (CURRENT)		APTRANSCO (PROPOSED)		APERC	
Slab	Fixed Charge (Rs./HP/ month)	Energy Charge (Paise/Unit)	Fixed Charge (Rs./HP/ month)	Energy Charge (Paise/Unit)	Fixed Charge (Rs./HP/ month)	Energy Charge (Paise/Unit)
	10	120	10	150	10	165

6.2.5. LT Agriculture (Category LT V)

The heavily subsidised agriculture class currently pays flat charges per HP of pump size, with the charges varying (1) by four categories of pump size and (2) by location of the pumpset in DPAP Area or Non-DPAP Area. APTRANSCO proposes an average increase in rates for this customer category by 61 percent. The last tariff increase for the LT agriculture group was in August 1996.

To encourage customers to install meters necessary to bill on actual consumption basis, APTRANSCO proposes to offer an optional tariff @ 50 ps./ kWH for consumers.

At current charges, the average realisation for this category is 18 Ps per unit while the cost to serve is 236 ps. The Commission considers that the Electricity industry in Andhra Pradesh cannot sustain such low tariffs for the agricultural sector which is claimed to have a consumption of about 36% of the total energy supplied. But organizations representing the farmers pleaded that there should be no increase in the Agricultural tariff as they are already paying over 50 ps. Per unit and that the figures of consumption by agricultural sector projected by APTRANSCO are excessive and far from truth. The others advocated that supply of power to agriculture should be metered and an incentive unit price fixed to encourage the farmers to switch over to metered tariff. Contrasting views are expressed by many during the public hearing and in the public representations regarding the level of Agriculture Consumption and on whether it could be so high as presented by APTRANSCO. The Commission share their concern. The present slab rates are only based on the capacity of the pumpset and do not offer any incentive for saving in consumption. APTRANSCO's projection of 9815 Mus of consumption by Agriculture sector during 2000-2001 would mean that the pumpsets would be used for 1600 hrs for the two crop seasons. At this level of consumption, the present lowest slab rate yields cost per unit of only about 8 paise. With a slab rate, as the usage and thereby the consumption gets less, the worked out unit rate goes up. Infact it is represented during the hearing that the farmers may not be using the pumpsets for more than 4 to 5 hours a day during the peak of the season. If it were so, the projection of 9815 MU towards agriculture consumption will be way out from actual consumption and the metering option will become attractive. For this reason the Commission believes that it would be in the interest of the farmer to have the energy consumption metered so that the billing is restricted to the actual consumption. Under flat rates, in the absence of incentive to limit the consumption, the tendency to waste is more and also the farmer pays for units not consumed. The Commission therefore desires that the entire consumption of agriculture sector is metered and reasonable charges are levied. This would also help identify the actual losses due to theft and facilitate appropriate action being initiated both by APTRANSCO and the Commission.

APTRANSCO, in their proposals have raised the tariff by 61% for this category.

Keeping in view the various doubts expressed regarding the projection of agricultural consumption by APTRANSCO and the need to identify the exact levels of consumption, the Commission for the time being, accepts the tariffs proposed by APTRANSCO. However in order to encourage the agricultural sector to switch over to metered tariff, the Commission has also determined a tariff of 35 ps. for metered connections, on an optional basis. At this tariff level the farmers stand to gain if their operation of pumpsets is only about 4 – 5 hours during the two crop seasons as claimed by the farmer organizations. This determination by the Commission is against the 50 ps. tariff proposed by APTRANSCO. The Commission does not expect any fall in the revenues on account of the lower tariff of 35 ps. per unit, as with lower consumption, more units of energy would be available for supply to the other categories of consumers whose tariffs are well above the tariff on flat rate basis for Agriculture. Infact, the Commission expects, the revenue would go up as more and more farmers opt for metered tariff. The following table gives the tariff determined by the Commission.

Table No:43

LT AGRICULTURE CAT V

Slab	APTRANSCO (CURRENT) Fixed Charge (Rs./ HP/ year)	APTRANSCO (CURRENT) Energy Charge (Paise/ Unit)	APTRANSCO (PROPOSED) Fixed Charge (Rs./HP/ year)	APTRANSCO (PROPOSED) Energy Charge (Paise/Unit)	APERC Fixed Charge (Rs./HP/ year)	APERC Energy Charge (Paise/Unit) (For all Metered Units)
DPAP areas						
Up to 3 HP	100		200		200	35
> 3 HP up to 5 HP	200		350		350	35
> 5 HP up to 10 HP	300		450		450	35
> 10 HP	400		550		550	35
						35
Other areas						35
Up to 3 HP	150		250		250	35
> 3 HP up to 5 HP	250		400		400	35
> 5 HP up to 10 HP	350		500		500	35
> 10 HP	400		600		600	35

6.2.6. Local Bodies (LT Category VI)

This category is a new aggregation of street lighting and public water supply (PWS) agencies/corporations. The street lighting tariffs are subsidised as per government policy. APTRANSCO proposes to continue to subsidise this category, but reduce the subsidy.

APTRANSCO proposes to reduce the subsidy for minor Panchayat PWS consumers by charging agricultural tariff instead of allowing it free and de-link Municipalities and Corporations, Sewerage and Water-supply schemes from the industrial tariffs category but charge PWS customers (Municipalities and Corporations) the same fixed and energy charges as for LT industries Cat.III. The latter charges are above the cost of service, although the amount is difficult to determine since the lighting and water pumping customers are grouped together in APTRANSCO's cost of service study

Grouping street lighting and PWS consumers, whose consumption patterns are very different, into a single class makes tariff design difficult and the Commission believes that these consumer classes should be categorised separately for the next tariff proposals.

APTRANSCO has proposed an average increase of 45% in the tariffs in this category. This increases the current revenue realisation of 117 Ps to 169 ps against the cost of service of 386 ps.

The Commission has determined an average tariff of 242 ps against 169 ps. proposed by APTRANSCO. At this tariff the revenue realisation will be 242 ps against the cost of service of 386 Ps. The following table gives the tariff details.

Table No:44

LT LOCAL BODIES CAT VI

		APTRANSCO (Current)		APTRANSCO (proposed)		APERC Energy (Paise/Unit)	
		Fixed (Rs./HP/ Month)	Energy ps/kwh	Fixed (Rs./HP/ Month)	Energy ps/kwh	Fixed (Rs./HP/ Month)	Energy ps/kwh
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Street Lighting						
	Minor Panchayats		100		100		140
	Major Panchayats		100		150		190
	Nagarpalikas and Municipalities Gr.3		120		200		250
	Municipalities Gr.1 & 2		120		250		300
	Municipalities Selection Spl. Grade		120		275		325
	Corporations		140		300		350
2.	PWS Schemes						
	Minor Panchayats	Free		Agricultural tariff as applicable in other areas		Agricultural tariff as applicable in other areas	
	Major Panchayats	Agricultural tariff as applicable in other areas		Agricultural tariff as applicable in other areas		Agricultural tariff as applicable in other areas	
	Nagarpalikas and Municipalities Gr.3					20	350
	Upto 1000 units	15	328	15	328	20	350

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Balance units		368		368		380
	Municipalities Gr.1 & 2						
	Upto 100 units	15	328	15	328	20	350
	Balance units		368		368		380
	Municipalities Selection Spl. Gr.						
	Upto 1000 units	15	328	15	328	20	350
	Balance units		368		368		380
	Corporations						
	Upto 1000 units	15	328	15	328	20	350
	Balance units		250		250		400

6.2.7. LT General Purpose (Category LT VII)

The LT General Purpose category covers places of worship, schools, charitable institutions, etc. APTRANSCO proposes to raise the tariff for this category from 2.50 ps to 3.50 ps as the earlier tariff was less than the embedded cost. It also proposes to include private educational institutions into the LT Non-Domestic category. The Commission agrees with this proposal of recategorisation.

The APTRANSCO has proposed to increase the current tariff of 250 ps. to 350 ps. The cost to serve for this category is 336 ps. per unit.

The Commission considers that this class being a general class with no social obligations and requiring any contstraints as in the case of industrial categories, the tariff can be raised from the present level of 250 ps. to 400 ps. Accordingly, the tariff determination is given below:

Table No:45

LT GENERAL PURPOSE CAT VII

	APTRANSCO		APERC
Slab	(Current) Energy Charge (Paise/Unit)	(Proposed) Energy Charge (Paise/Unit)	Energy Charge (Paise/Unit)
	250	350	400

6.2.8 LT Temporary Supply (Category LT VIII)

This group has traditionally paid tariffs higher than the cost to serve. APTRANSCO proposes to raise the tariff by ten percent from 500 ps/kWh to 550, to keep it equal to or higher than the highest commercial slab rate.

As this category provides for temporary requirement of power, the Commission determined the tariff as 600 ps. although the revenue realisation would be nominal. The tariff determination is as below.

Table No:46

LT TEMPORARY SUPPLY CAT VIII

	APTRANSCO		APERC
Slab	(Current) Energy Charge (Paise/Unit)	(Proposed) Energy Charge (Paise/Unit)	Energy Charge (Paise/Unit)
	500	550	600

6.2.9 HT Industrial – General (Category HT-I)

Current charges for these consumers are more than twice the cost of service. APTRANSCO proposes to increase their tariffs by an average of 6%. The increase would come as an increase to the demand charge and the consolidation (and raising) of the three energy slabs into a single block.

The Commission considers that it would be desirable to retain the three slabs so that for the lower slabs the increase is not too high when they are merged with the highest slab. The Commission therefore determined an average increase of about 5% without disturbing the highest slab proposed by APTRANSCO. The tariffs determined are given below.

Table No:47

HT INDUSTRIAL SEG. CAT I

	APTRANSCO (CURRENT)		APTRANSCO (PROPOSED)		APERC	
Slab	Fixed Charge (Rs./KVA)	Energy Charge (Paise/ Unit)	Fixed Charge (Rs./ KVA)	Energy Charge (Paise/ Unit)	Fixed Charge (Rs./KVA)	Energy Charge (Paise/ Unit)
For first 1 lakh units	165	338	170	390	170	370
Next 1 lakh units	165	353	170	390	170	385
Balance units	165	373	170	390	170	390

6.2.10 HT Non-Industrial (Category HT II)

For this category too, the tariffs are well in excess of the cost of service. APTRANSCO proposes a further increase, on demand and energy charges averaging 10 percent.

The Commission determined to raise the tariff by only about 6%, as shown below:

Table No:48

EHT INDUSTRIAL NON-SEG. CAT II

Slab	APTRANSCO (CURRENT)		APTRANSCO (PROPOSED)		APERC	
	Fixed Charge (Rs./KVA)	Energy Charge (Paise/ Unit)	Fixed Charge (Rs./ KVA)	Energy Charge (Paise/ Unit)	Fixed Charge (Rs./KVA)	Energy Charge (Paise/ Unit)
	165	418	170	465	170	443

6.2.11 HT Irrigation and Agricultural – Other (Category HT IV)

APTRANSCO proposes to convert the current tariff for this category from a charge per HP of Rs.400 to a charge of 50 ps per kWh, but with a minimum of Rs 300/HP/year. But, this will result in a decline in revenues at the present level of consumption in this category.

The Commission accepts the proposal of APTRANSCO to switch over to metered tariff but determines the tariff at 35 ps. per unit on par with LT Agriculture Cat V, but with a minimum of Rs.300 /HP/year. The tariff determined is given below.

Table No:49

EHT AGRICULTURE/IRRIGATION CAT IV

	APTRANSCO (CURRENT)		APTRANSCO (PROPOSED)		APERC	
Slab	Fixed Charge (Rs./HP)	Energy Charge (Paise/Unit)	Fixed Charge (Rs./HP)	Energy Charge (Paise/Unit)	Fixed Charge (Rs./HP)	Energy Charge (Paise/Unit)
	400			50 *		35 *

(*) Subject to a minimum of Rs. 300 / HP/ year

6.2.12 HT Railway Traction (Category-HT V)

APTRANSCO proposes to raise the present tariff, which consists of a single part energy charge, by about 9% to keep it in line with the average price to the HT Industrial group. The tariff is and will remain far above cost of service.

For this category also, revenue realisation per unit is higher than the cost to serve. The Commission therefore considers that any increase in this category should not be higher than 6%. Accordingly, the Commission determined to increase the tariff by only 6%. The tariff determined is given below.

Table No:50

EHT RR TRACT CAT V

	APTRANSCO		APERC
Slab	(Current) Energy Charge (Paise/Unit)	(Proposed) Energy Charge (Paise/Unit)	Energy Charge (Paise/Unit)
	428	466	454

6.2.13 HT Townships / Colonies (Category HT VI)

Customers in this category purchase power at HT and redistribute it to persons living in their employee colonies through their own colony distribution systems. APTRANSCO proposes to raise this tariff by about 16%.

The Commission considers that this category being a domestic category, to keep in line with LT Domestic Cat I, the tariff can be further increased by 20%. Accordingly the Commission determined a tariff of 310 ps as shown below.

Table No:51

HT TOWNSHIPS/COLONIES CAT VI

	APTRANSCO		APERC
Slab	(Current) Energy Charge (Paise/Unit)	(Proposed) Energy Charge (Paise/Unit)	Energy Charge (Paise/Unit)
	258	300	310

6.2.14 HT Temporary

APTRANSCO proposes to charge this service a price approximately 50% higher than the HT Industrial tariff.

As this category provides for temporary requirement of HT power, the Commission considers that its tariff should be lower than that of LT Temporary Category as cost to serve at HT is lower. Accordingly, the Commission determines the tariff of 525 ps for this category as shown below.

Table No:52

HT TEMPORARY

	APTRANSCO		APERC
Slab	(Current) Energy Charge (Paise/Unit)	(Proposed) Energy Charge (Paise/Unit)	Energy Charge (Paise/Unit)
	491	581	525

6.2.15 Special Tariffs

APTRANSCO currently provides, at earlier direction of GoAP, low-cost power to the Satya Sai Institute of Higher Medicine (30 ps per kWh). APTRANSCO also provides power to the Lal Bahadur Shastri Stadium at the Railway Traction tariff. APTRANSCO has asked the Commission to recommend whether to continue or terminate this special treatment.

The Commission has determined that every customer should be charged according to the tariffs corresponding to their voltage level of service and categorisation as above only.

6.2.16 Rural Electric Cooperative Societies

APTRANSCO projected an average realisation of Rs.0.05 per kWh for supplies to Rural Electric Cooperative Societies. The cost to serve as per the APERC estimates is Rs.2.41 ps.

At the time of licensing the nine Rural Electric Co-operative Societies, the Government have suggested that the Commission may consider to grant licences to these Co-operative Societies for a period of one year pending decision on their further continuance based on viability in the reform and re-structuring set up of the power sector. The Commission is therefore of the view that the proposal of the APTRANSCO to supply power at current charges to the nine Rural Electric Co-operative Societies can be accepted for the present. Accordingly, the Commission directs that the current rates be charged to Rural Electric Co-operatives temporarily till further orders are issued on the bulk supply tariff applicable to each of the Rural Electric Co-Operative societies.

This retail tariff determined by the Commission is applicable to the consumers of the nine Rural Electric Cooperative Societies also.

6.3 Annualisation of the Tariff Adjustments

APTRANSCO has proposed that the tariff changes in their proposal be adjusted to account for the fact that the new tariffs will be in effect for only 10 of the 12 months of the fiscal year. The proposal submitted by APTRANSCO covers the aggregate revenue requirement for the year 2000-2001. The Commission has also finalised the same for the year 2000-2001. While on account of delayed submission of tariff proposals, there are only 10 months left of the year 2000-2001 to levy and collect revenue, in the two months that passed by, APTRANSCO have suffered considerable revenue deficit as they realised revenues at existing Tariffs only. The Commission therefore accepts the proposal of APTRANSCO to annualise the revised tariffs so that APTRANSCO fully covers its cost and a reasonable return.

The following table gives the annualised tariffs for the period 4th June, 2000 to 31st March 2001.

Table No:53
SCHEDULE OF TARIFFS FOR THE PERIOD
4th JUNE, 2000 TO 31st MARCH, 2001

Cate-gory	Purpose	Fixed	Demand	Energy	Percentage increase
		(Rs/HP/ Month)	(Rs/kVA)	ps/kwh	
	(2) Low-Tension Supply				
LT-I	Domestic				54
	0-50			145	
	51-200			390	
	201-400			615	
	>400			705	
LT-II	Non-Domestic				15
	0-100			340	
	101-200			665	
	>200			745	
LT-III	Industrial				14
	First 1000 units	15		385	
	Balance units	15		430	
LT-IV	Cottage Industry	10		174	35
LT-V	Agricultural 1	(Rs/HP/Annum)			61
	DPAP Areas				
	Up to 3 HP	200		@	
	> 3 HP up to 5 HP	350		@	
	> 5 HP up to 10 HP	450		@	
	10 HP and above	550		@	
	Other Areas				
	Up to 3 HP	250		@	
	> 3 HP up to 5 HP	400		@	
	> 5 HP up to 10 HP	500		@	
	10 HP and above	600		@	
LT-VI	Local Bodies				108
	Street Lighting				
	Minor Panchayats			148	
	Major Panchayats			198	
	Nagarpalikas and Municipalities Gr.3			260	
	Municipalities Gr.1 & 2			310	
	Municipalities Selection Spl.Gr.			335	
	Corporations			360	
	PWS Schemes				
	Minor Panchayats	Agri.tariff as applicable in other areas			
	Major Panchayats	Agri.tariff as applicable in other areas			
	Nagarpalikas and Municipalities Gr.3				
	Upto 1000 units	20		355	
	Balance units			385	
	Municipalities Gr.1 & 2				
	Upto 1000 units	20		355	
	Balance units			385	
	Municipalities Selection Spl.Gr.				

	Upto 1000 units	20		355	
	Balance units			385	
	Corporations				
	Upto 1000 units	20		385	
	Balance units			438	
LT-VII	General Purpose			430	60
LT-VIII	Temporary			620	20
	High-Tension Supply				
HT-I	Industrial				5
	For first 1 lakh units		170	376	
	Next 1 lakh units			390	
	Balance units			395	
HT-II	Industries – Non-Segregated		170	450	6
HT-IV	**(3) Agricultural/Irrigation**	Rs.400/HP/year		@	
HT-V	Railway Traction			460	6
HT-VI	Townships/Colonies			320	20
Private Educational Institutions - shifted to LT Commercial.					
@Metered tariff will be at 35 ps/kWh and is an optional tariff					

Table No:54 (a)

LT CATEGORY : MINIMUM CHARGES

Category	Purpose	Type of connection	Rates
LT-I	Domestic	Single Phase	
		Upto 250 W	Rs. 25/ service/ month
		Above 250 W	Rs. 50/ service/ month
		Three Phase	Rs. 150/service/month
LT-II	Non-domestic	Single Phase	Rs. 65/service/month
		Three Phase	Rs. 200/service/month
LT-VI	Street Lighting	Panchayats	Rs. 2/point/month
		Municipalities	Rs. 6/point/month
		Corporations	Rs. 6/point/month
LT-VII		Single Phase	Rs. 50/service/month
		Three Phase	Rs. 150/service/month

HT CATEGORY : MINIMUM CHARGES

Demand: The consumers will be billed on the recorded maximum demand during the month or 80% of contracted demand whichever is higher, in respect of all the categories where demand charges are applicable.

Table No:54 (b)

Energy		
HT-I	Industrial	50 units per kVA of billing demand
HT-II	Industrial non-segregated	25 units per kVA of billing demand
HT-IV	Agricultural/ irrigation	Rs. 300/ year/HP of contracted load
HT-V	Railway Traction	32 units per kVA of contracted maximum demand
HT-VI	Townships/ colonies	25 units per kVA of contracted maximum demand

7. GENERAL

The foregoing tariffs are subject to the following:

1. Voltage Surcharge

HT consumers who are now getting supply at voltage different from the declared voltages and who want to continue taking supply at the same voltage will be charged as per the rates indicated below:

Table No:55

S. No	**Contracted Demand with Licensee and other sources (in KVA)**	**Voltage at which Supply should be availed (in Kilo Volts)**	**Voltage at which consumer is availing supply (in Kilo Volts)**	*RATES* **% extra over the normal rates**	
				Demand Charge	**Energy Charges**
1.	70 to 1500	11	6.6 or below	12%	10%
2.	1500 to 5000	33	11 or below	12%	10%
3.	Above	132 or 220	66	12%	10%
			33 or below	12%	10%

Note: The FSA will be charged extra as notified by Licensee (after receiving approval from APERC) from time to time.

2. For LT: Additional Charges for belated payment of Bills:

a) The C.C.bills shall be paid by the consumers within the due date mentioned in the bill, i.e. 14 days from date of the bill.

b) If payment is made after the due date, the consumers are liable to pay belated payment charges on the bill amount at the rate of 0.07 paise per rupee per day of delay calculated from the due date mentioned in the bill upto the date of payment.

c) If the c.c. bill amount is not paid within 7 days from the due date, the power supply will be disconnected without any further notice.

d) For re-connection of power supply after disconnection, the consumer has to pay reconnection fees plus belated payment charges calculated as per Para (b) above.

3. Special rate chargeable for pilferage and malpractice cases

HT & LT All Categories: 3 times the Tariff applicable for the purpose for which power is used.

The "General conditions of HT supply", "General Conditions of LT Tariff" and "The Miscellaneous and General Charges" applicable as in the subsisting tariff remain the same except to the extent modified above.

The directions of the Commission appearing at different places in the Tariff order are listed in Annexure-II.

8. Conclusions

The Commission has in the first ARR/ERC order and tariff order attempted to take initial steps for reforms in the electricity sector. The Commission is acutely aware of the problems associated with regulating a monopoly in the transition phase.

The Regulatory Model adopted by the Commission is the Sixth Schedule of the Electricity Act. The Schedule, which is considered by some as conservative in its approach, nevertheless enables the Utility to cover its expenses and earn a reasonable return. As stated earlier, modifications, deviations to the Sixth Schedule or even a shift away from the Schedule could be considered once the basic conditions for a competitive power market are established.

The regulated monopolist namely, APTRANSCO is constrained by historical structural inefficiencies. Revitalising APTRANSCO among other measures requires a) addition of funds and investment and; b) a move towards more scientific pricing principles; c) managerial efficiency and; d) commercial orientation. Interests of the Licensee have, however, to be balanced against the interests of consumers. The Commission, as mentioned earlier in the order, have attempted to undo 'past deficiencies and distortions which have harmed the licensee, its customers and the State as a whole'.

The Commission has conducted the exercise with utmost transparency. Views of all sections of consumers and the Licensee have been taken into account while making the tariff order. To reiterate, the Commission believes that the resolution of the problems of the Power Sector must incorporate measures for increasing the efficiency of APTRANSCO especially with regard to reduction of losses, to reduce its dependence on external subsidy and to move towards compensatory tariffs that reduces cross-subsidy between consumer categories. The Commission intends to do away with external subsidies in three to five years. The consequent package of measures outlined in the ERC/ARR orders have been designed keeping in mind the objections of the public that with loss reductions, there may not be any need for changes in the tariff structure and rate design. But, given the present financial status of APTRANSCO, non revision of tariff will only aggravate the current situation. The Commission is of the view that tariffs need revision and redesigning, to raise resources equitably.

Designing of tariff is a balancing exercise. While APTRANSCO's tariff is inefficient for oft-stated reasons, consumers have also been the beneficiaries of the same historical legacy. It is against this background that the Commission has sought to change the structure and design of tariffs to move towards embedded costs. Ultimately, recovery of full cost alone will lend viability to the power sector. As regards Agriculture, the attempt of the Commission has been to regulate power consumption by promoting more efficient use of water and power in Agriculture, and nudge the farmers towards metered consumption. In the case of the domestic sector, a balance between cost and sustainability has been incorporated. Regarding the industrial sector, increases in rates have been guided by the consideration to bring them in line with their full cost to prevent an uneconomic bypass in the sector's shift to captive generation and also to provide the requisite stimulus for reviving industrial growth in the state. Needless to add, in the interests of the Electricity Sector as a whole, industrial consumers must be served from the grid and not from their own captive power plants.

It is the sincere opinion of the Commission that this order on ARR/ERC and Tariffs is the first step in the direction of reforms. Interests of all the stakeholders viz., consumers, the utility and the State, have been taken into consideration. In the light of our findings, the Commission orders as follows with reference to the prayers of the applicant:

The Commission does not consider the Licensee's (APTRANSCO's) revenue calculations as filed to be in accordance with the requirement. The Commission has instead proposed an alternative calculation of the expected revenue from charges, which the licensee shall accept and implement the Tariffs based thereon, as contained in this order.

This Order is signed by the Andhra Pradesh Electricity Regulatory Commission on 27th May 2000.

Sd/-	**Sd/-**	**Sd/-**
(A. V. SUBBARAO)	(D. LAKSHMI NARAYANA)	(G. P. RAO)
MEMBER	**MEMBER**	**CHAIRMAN**

ANNEXURE-I

LIST OF WAIVERS REQUESTED BY APTRANSCO IN ITS FILINGS

1. **ARR/ERC FORTRANSMISSION AND BULK SUPPLY BUSINESS – OP206/2000**

2. **ARR/ERC FOR DISTRIBUTION AND RETAIL SUPPLY BUSINESS – OP 207/2000**

3. **PROPOSED TARIFFS – DISTRIBUTION AND RETAIL SUPPLY BUSINESS - OP/347/2000**

File	Waiver Requested	Commissions Decision
First Filing of ERC for Transmission & Bulk Supply-Dec. 29, 1999	*Request for waiver from filing certain information in relation to the ARR* 1.Inclusion of information after finalisation of the First Transfer Scheme	Allowed and Incorporated with modification as given in the Supplement to the ARR Application on April 6,2000
First Filing of ERC for Transmission & Bulk Supply-Dec. 29, 1999	*Request for waiver from filing certain information in relation to the ARR* 2. Audited Figures of only 10 months available. The residual two months is on the basis of actual expenditure.	**A.** Allowed and Accepted
First Filing of ERC for Transmission & Bulk Supply-Dec. 29, 1999	*Request for waiver from filing certain information in relation to the ARR* 3. As estimation of current losses are tentative request for considering inclusion of revised loss estimates after undertaking detailed studies	Request for waiver accepted. But the Commission has directed APTRANSCO to undertake a year-long study with immediate effect for measuring i) agricultural consumption; ii) installing meters at interface points
First Filing of ERC for Transmission & Bulk Supply, Distribution & Retail Supply Dec. 29, 1999	*Request for waiver from filing certain information in relation to the ARR* 4.PPA between APTRANSCO and APGENCO was still in the process of negotiation	The draft PPA has since been submitted to the Commission

First Filing of ERC for Transmission & Bulk Supply, Distribution & Retail Supply Dec. 29, 1999	Request for waiver from filing certain information in relation to the ARR 5.Request for not providing information in the appropriate formats maybe considered	Accepted
First Filing of ERC for Transmission & Bulk Supply Distribution & Retail Supply Dec 29, 1999	*For the purpose of this filing, the revenues from sale of electricity to RESCO's be disclosed as revenues of the Transmission and Bulk Supply Business of APTRANSCO*	Allowed as an interim measure without any wheeling charges to be paid by the RESCO's.
Filing of Proposed Tariff April 6, 2000	*Waiver from filing Marginal Cost Study* till completion of SCADA data.	Accepted.
Filing of Proposed Tariff April 6, 2000	*Waiver from delineating* projects undertaken for reduction of losses.	The Commission has directed APTRANSCO to draw up an Action plan to identify projects accordingly.
First filing ERC for Transmission & Bulk Supply and Distribution & Retail Supply Dec 29, 1999.	*Waiver from submitting cost benefit* analysis of proposed Capital Works in Progress 2000-2001.	The Commission has accepted the Waiver for this filing but directs the Licensee to file the cost benefit analysis for the next filing.
First filing ERC for Transmission & Bulk Supply and Distribution & Retail Supply Dec 29, 1999.	*Waiver from filing part of year tariff increase formats.*	Accepted.

ANNEXURE-II

LIST OF COMMISSION'S DIRECTIVES

1. The Commission directs APTRANSCO to initiate action on priority basis for filling the data gaps and to remedy system deficiencies (para 2.3.1).

2. APTRANSCO shall file a proposal before the Commission for approval to carry out a census of agricultural pump sets within four weeks from the date of this tariff order. APTRANSCO shall complete the study within six months from the date of this tariff order (para 2.4.1).

3. If it becomes necessary to buy more power for supplying to agriculture (over and above the licensee's submitted estimate of 9815 MU), the licensee shall obtain the specific permission of the Commission to do so and after duly tying up the funds for the required power purchases (Para 2.4.1).

4. The Commission directs APTRANSCO to install and use 0.2 accuracy class meters at all interface-points where the ownership of power changes and file compliance report within one month from the date of this order (para 2.4.2.1).

5. APTRANSCO shall also conduct regular and thorough energy audit to ensure accountability. The institution of such energy audit shall be confirmed to the Commission within three months from the date of this tariff order (para 2.4.2.1).

6. The Commission directs APTRANSCO that while the licensee should strive to improve the billing to 51% (from the present level of 41%), it should reach atleast 48% before 31.3.2001 (Para 2.4.2.2).

7. APTRANSCO is directed to file a detailed action plan on how it intends to achieve the projected efficiency gain of Rs.500 crore (para 2.8.1).

8. APTRANSCO is directed that till such time, the requisite trusts for the pension and gratuity funds are formed, the amounts accruing on this account are credited from month to month to a non-drawal bank account opened with a scheduled bank. Such account should be opened not later than July 1, 2000 (para 3.4.8).

9. The Commission directs APTRANSCO to pursue vigorously the review of receivables stated as having been already instituted and collect the debts on priority making use of the statutory instruments available to APTRANSCO to effect recovery. The progress in this regard shall be reported to the Commission latest by December 31, 2000 (para 4.4.7).

10. With reference to the interest expenditure of Rs.163.41 crore included in power purchase cost from APGENCO, APTRANSCO is directed to obtain and file the full particulars relating to the interest charge together with authenticated copies of documents to enable the Commission to conduct a study on the circumstances leading to and terms and conditions of the bond issue and the application of the proceeds (para 3.4.1.1).