ANDHRA PRADESH ELECTRICITY REGULATORY COMMISSION

From

Secretary
APERC
11-4-660, 5th Floor,
Singareni Bhavan,
Red Hills,
Hyderabad – 500 004.

To

The Chairman & Managing Director
APTRANSCO,
Vidyut Soudha,
Hyderabad

The Chairman & Managing Director
APGENCO,
Vidyut Soudha,
Hyderabad

Lr.No.APERC/Secy\F: 24 /D.No. Spl.1/2003, Dt: 10 - 04 -2003

Sir/Madam,

Sub: - OP No.402/2002 – APTRANSCO – APGENCO PPA - Order issued.

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A copy of the Order No. 105/2003 passed by Andhra Pradesh Electricity Regulatory Commission in O.P. No. 402/2002 on 24-03-2003 is forwarded herewith.

Encl: as above

Yours faithfully,

SECRETARY

Copy to
The Prl Secretary, Energy Department, GoAP, Secretariat, Hyderabad — with a copy of order

ANDHRA PRADESH ELECTRICITY REGULATORY COMMISSION
4th & 5th Floors, Singareni Bhavan, Red Hills, Hyderabad – 500 004

O.P.No.402 / 2002.
Dated: 24-03-2003

23/1/2005

Present

Sri G.P.Rao, Chairman
Sri D.Lakshminarayana, Member
Sri K. Sreerama Murthy, Member

Between

APTRANSCO,
Vidyut Soudha, Khairtabad, Hyderabad – 500 082. ...Applicant

AND

M/s. Andhra Pradesh Power Generation Corporation LTD
Vidyut Soudha, Khairtabad, Hyderabad – 500 082. ...to whom notice is given.

1. Sri B.V.Raghavulu,
   Secretary, CPI (M),
   A.P.State Committee.
   R/o. 1-1-60 / 2, M B Bhavan,
   RTC X Roads, Hyderabad – 500 020.

2. Sri M.Venugopal Rao,
   Special Correspondent,
   Prajashakti Telugu Daily,
   1-7-139/43, Risalgadda,
   Hyderabad – 500 048.

3. Sri. B.Venkata Reddy , Secretary General
   APSEB Engineer's Association,
   6-3-663, Somajiguda, Hyderabad.

4. Sri. P. Mohan Reddy, Associate President, Ravi Colony Welfare Assosication, Plot No. 174, Road No. 2 H, Ravi Colony, Mahendra Hills, Secunderabad – 500 026.

5 Sri. B. Ramakrishna Rao, Deputy Manager (Retd.,),
Hindustan Ship Yard, 45-37-20,
Jagannadha Puram, Vishakapatnam- 530016.

6 Sri. S.R. Vijayakar, Lok Satta, 401 / 408, Nirmal Towers, Dwarakapuri Colony, Punjagutta,
Hyderabad – 500 082.

7 Sri M.Timma Reddy,
Convenor,
People's Monitory Group on electricity Regulation,
C/o. Centre for Environment concerns,
3-4-142/6, Barkatpura, Hyderabad – 27.

8 Sri K.Raghu,
President, APSEB Engineer's Association,
6-3-596/21/4, Venkataramana Colony,
Hyderabad – 500 004.

9 Sri. T.Venkata Narayana,
212, Defence Colony,
Sainik puri, Secunderabad 500094.

10 Sri. V.M. Ravi Shankar, Associated President,
APSEB Asst Engineers Association,
H.No. 1-10-247/4,
Near IAS Study Circle, Ashok Nagar,
Chikkadapally,
Hyderabad – 20

11 Sri. K.P. Reddaiah Yadav, Ex-MP,
8-3-976 / 85, Shalivahana Nagar,
Hyderabad – 500 0073

The Commission having considered the application of APTRANSCO to grant consent to the Power Purchase Agreement with APGENCO for the FY 2002-03 and having heard the respondent and members of the Public and duly taking into account the material on record passed the following order:

ORDER

CHAPTER-I: BACKGROUND

1) Consequent to the unbundling of the then APSEB into independent companies of APTRANSCO and APGENCO under first transfer scheme as stipulated in the APER Act 1998, a need arose for a Power Purchase Agreement between APTRANSCO and APGENCO.

2) An interim PPA with validity upto 31-03-2001 was entered into, on 07-05-2000, between APTRANSCO and APGENCO which was sent to the Commission for consent.

3) The interim PPA for FY-01 was examined and consented by the Commission on 16-07-2001.

4) In the letter (dated 16-07-2001) conveying the Commission's consent for the PPA for FY 2000-2001, general principles to be followed for the PPAs to be designed for future were also communicated.

5) The General Principles laid down were as under:

i) Introduction of Return on equity, "norms" for various parameters, target PLF for thermal units and target availability for Hydel units for fixed cost recovery, incentives for performance beyond a level and rebates and penalties for payments.

ii) Common PPA for fixed cost recovery (to be pooled for APGENCO) and station wise variable cost to facilitate incentives, norms and merit order dispatch.

iii) Total loan payment and depreciation already allowed to be limited to 90% of the Gross Fixed Assets (GFA).

iv) Coal supply Agreement to be entered into.

v) Identification of Auxiliary consumption excluding colony consumption and installation of 0.2 class accuracy meters at all interface points.

vi) PPA beyond FY 2001-2002 should be for 3 years.

6) APTRANSCO submitted a PPA for 2001-2002 on 03-03-2001. Though the Commission made certain observations, the PPA was not taken up for detailed scrutiny by the Commission. The ARR for 2001-2002 which was based on this PPA was taken into account while passing the tariff order for FY 2001-02.

7) The draft PPA for FY 2002-03 was filed on 10-03-2002. Commission decided to examine the PPA in detail after holding a public hearing.

8) Notifications were published in Eenadu and Hindu dated 30-03-2002 inviting objections / suggestions, on the draft PPA submitted by APTRANSCO, with the last date as 29-04-2002.

9) On a request from Sri. M. Venugopala Rao, special correspondent of "Praja Shakthi", a Telugu daily the last date was extended upto 10-05-2002 through necessary paper publication.

10) 10 sets of Objections were received as on 10-05-2002. Copies of objections / suggestions were sent to APTRANSCO on 14-05-2002 for filing its responses by 29-05-2002, with copies to the objectors.

11) The objections and responses of APTRANSCO filed under letter dated 12-06-2002 are discussed in chapter (III) of this order.

12) A notification was issued fixing up Public Hearing on 25-06-2002 with copies to all objectors. The venue was indicated as Ravindra Bharathi, Hyderabad.

13) As per the earlier decision of the Commission, a press release, high lighting the special features of draft PPA and the objections raised was issued on 20-06-2002.

14) Public Hearing took place at Ravindra Bharathi on 25-06-2002 between 9:30 and 13:30 hrs. Initially staff of the Commission presented its views on the draft PPA. This is detailed in Chapter (IV) of this order.

15) Later the following objectors presented their viewpoint:

i) Sri. B.V Raghavulu, CPM Leader.

ii) Sri M. Venu Gopala Rao, Special Correspondent Praja Sakthi.

iii) Sri. M. Thimma Reddy, Peoples Monitoring Group for Electricity Regulation

iv) Sri. K Raghu, Associate President of APSEB Engineers Association

v) Sri Venkata Reddy, Secretary, APSEB Engineers Association.

16) In addition to the original objectors the following persons also presented their view points on the PPA for the first time during the hearing on 25-06-2002.

i) Sri. K Narayana, Assistant Secretary, CPI.

ii) Sri. K.P Reddiah Yadav, Ex. MP.

Commission requested them to file their written objections.

17) CMD / APTRANSCO and CMD / APGENCO presented their view points on the draft PPA and responses to various queries raised by the Objectors and Staff of the Commission.

18) CMD / APGENCO presented a written statement of his oral presentation during the hearing, to the Commission on 26-06-2002.

19) The supplementary objections filed during the hearing were communicated on 01-07-2002 to APTRANSCO to file its response. APTRANSCO was given 15 days time from the date of receipt of the copies of supplementary objections. In addition certain clarifications were sought from FA & CCA (R&A) / APTRANSCO during a meeting on 28-06-2002, in the office of the APERC.

20) In his letter dated 23-07-2002, Director (Commercial) of APGENCO made a plea for provision of ROE, Depreciation, Incentives and a facility/mechanism to ensure timely payment to APGENCO atleast in the next PPA.

21) APERC issued an order on the load forecast for the plan period FY 2000-2001 to FY 2006-2007 on 29-07-2002. In para 12 (iv) of that order, Commission recommended

that APTRANSCO and APGENCO should make a critical analysis of the Srisailam project to see if it can be included in the capacity for meeting the system peak demand during the plan period 2001-2007. Commission stated that it would further deal with this matter in detail, while dealing with the PPA between APTRANSCO – APGENCO.

22) Besides communicating the order dated 29-07-2002 in the normal course, the specific issue of Srisailam LBPH was referred to APTRANSCO in Commission's letter dated 05-08-2002 for its view.

23) On 02-09-2002 APTRANSCO filed its response on the supplementary objections and issues raised in the staff presentation during the hearing, queries on complying with "Guidelines for PPA" communicated on 16-07-2001 and APTRANSCO's views on Srisailam LBPH for being included in the power procurement plan for the plan period FY 2001-2007. On 05-09-2002 it forwarded the views of APGENCO to the Commission.

24) In its letter dated 28-09-2002, APGENCO stated that APTRANSCO promised ROE, Incentive and Depreciation to APGENCO in the coming years once its (APTRANSCO's) finances improved stating at the same time that a Long Term PPA with APGENCO would be considered for the periods beyond 2006 only as both the utilities are to run on a no loss / no profit basis in terms of Business Plan. APGENCO, citing Business Plan, pleaded that GENCO should not be denied ROE and other benefits for years to come.

25) In its letter dated 24-10-2002 Commission sought the views of APTRANSCO/ APGENCO on a set of "norms" proposed by APERC to be adopted in the PPA to be approved. The norms related to Station Heat Rate, PLF, specific Oil consumption, and Auxiliary Consumption.

26) APTRANSCO & APGENCO reiterated their views on Srisailam Left Bank Power House in further letters dated 09-11-2002 (APTRANSCO) and 15-11-2002 (APGENCO). One important feature of these letters is the submission that pumped mode of operations of SLBH would not be possible for another six years.

27) In response to APERC letter dated 24-10-2002 suggesting certain norms for heat rate, Specific Oil Consumption, Auxiliary consumption etc., APGENCO responded in its letter dated 09-12-2002, suggesting that the parameters agreed between APGENCO and APTRANSCO be kept, as they were, in the draft PPA for 2002-03. Certain suggestions were made for the future.

28) In its letter dated 31-12-2002 GENCO submitted certain broad principles and estimates with a request to incorporate them in the PPA for 2002-03 and future PPAs. These include provision of ROE, incentives, depreciation, interest on Vidyut Bonds, pension / PF bonds, advance depreciation payments, and retention of savings effected in the fixed costs.

29) APERC in its letter dated 08-01-2003 advised both APTRANSCO and APGENCO to provide 0.2 class accuracy energy meters on the HV Side of Generator transformers as well as Station / Auxiliary transformers to facilitate measurement of Auxiliary Consumption correctly. This was reiterated in a further letter dated 22-03-2003.

30) APTRANSCO vide its letter dated 20-01-2003 furnished clarifications sought by the Commission (Lr. dated 24-10-2002) on technical parameters to be incorporated in the PPA's for FY 03 and FY 04. TRANSCO requested that technical parameters incorporated in the draft PPA for FY 03 may be approved as they are and suggested certain new parameters for the PPA for FY 04. This is in line with the request of APGENCO (vide para 27 above).

31) APGENCO vide its letter dated 03-02-2003 addressed to Government of AP with a copy to the Commission, argued among other things that Srisailam L B P H shall be covered in the PPA. It also pleaded that no capacity set up by APGENCO can be excluded from any PPA with TRANSCO.

32) APGENCO vide its fax dated 07-02-2003 reiterated its request to APERC to incorporate interest and financial charges on loans, bonds and lease rentals, depreciation as per Electricity (Supply) Act, O & M expenses at the rate of

Rs.3.5 Crores / MW and Rs.3.0 Crores / MW for thermal and hydro units respectively with escalations considering the base year as 1999, interest on working capital, ROE @ 16%, Incentives and Interest on belated payments by APTRANSCO, for the purpose of the PPA for FY 2002-03.

33) APTRANSCO in its letter dated 28-02-2003 has submitted that if only GO Ms No 69 dated 15-06-1996, stipulating that all possible generation during Non-monsoon months need to be from SSLM Right Bank Power House can be ignored, Srisailam Left Bank Power House can be considered to contribute about 300 MW to peak demand during peak period of the year.

34) This was followed by a letter from CMD / APGENCO dated 06-03-2003 giving, once more, the justification for the inclusion of Srisailam Left Bank Power House units in the PPA.

35) In its letter dated 07-03-2003 APGENCO gave detailed breakup for the savings of Rs.221.00 Crores made in the fixed costs of GENCO for the year 2002-03. APGENCO also said that if depreciation route was adopted in place of debt repayment, the savings would have been Rs.191.57 Crores only.

36) In their letter dated 12-03-2003 APGENCO informed that the fixed charges for the SSLBPH is Rs.191.57 Crores out of the total fixed charges of Rs.2010 Crores arrived at for all GENCO generating stations for FY 03-04.

37) In its letter dated 19-03-2003 APGENCO reiterated its request to permit it to retain the savings of Rs.221 Crores achieved by APGENCO in fixed costs as it has suffered a book loss to the tune of Rs.446 Crores (against an equity of Rs.2107 Crores) eroding of 22% of its equity. APGENCO added that in addition to the above, it has suffered a loss of Rs.2800 Cores by way of non inclusion of ROE, incentives, Depreciation etc.,

38) The issues raised by various objectors and the responses from APTRANSCO and APGENCO are detailed in Chapter – III whereas issues raised in Commission staff's presentation and APTRANSCO's response to them are set out in Chapter – IV.

CHAPTER - II

Salient features of the draft PPA submitted for consent:

39) The salient features of the draft PPA for 2002-03 are as under

a) Installed capacity during FY 2001-02 was 6066 MW (2943 MW Thermal and 3123 MW Hydel) where as that for 2002-03 it is 6366 MW with the addition of 2 x 150 MW Hydel Units at Srisailam LBPH.

b) Generation (excluding Auxiliary Consumption) in 2001-02 was 27804 MU (18810 MU Thermal and 8994 MU Hydel). Corresponding figures for 2002-03 are 26479 MU (19015 MU Thermal and 7464 MU Hydel).

c) The draft PPA is governed by GoAP Order Miscellaneous No.11 dated 31-01-2000 (the amended transfer scheme).

d) APTRANSCO to purchase all the declared capacity and Net Energy generated, subject to despatch instructions, under a two part tariff as under:

	FY 2002-03 Rs. in Crores
Fixed Charges	2150
Variable Charges (only for Thermal)	2100
Total Charges	**4250**

e) The draft PPA provides for Annual Fixed Charges computed as a Cumulative Charge for all Stations with no obligation to make available a minimum capacity, debt repayment in lieu of depreciation, no return on equity or incentives and Variable Charges calculated for Thermal stations, Station wise, using Station Specific figures for the landed prices of Fuels, Station Heat Rate, Auxiliary Consumption and Secondary Fuel consumption and no Variable Charges for Hydel Units.

f) The draft PPA also provides for correction for all costs at actuals at the end of a year and reimbursement of minimum fuel off-take charges payable for fuel, for power not generated due to dispatch instructions. Payment shall be either by a cheque or through LCs for Rs. 200 Crores covering essential cost of Coal, Railway Freight, Staff related items and debt repayment.

g) Despatch instructions shall be as per Grid Code with a maximum of two per day with a condition that gross generation for any unit shall not be reduced by more than 40% of the Installed capacity for any unit.

CHAPTER – III

Objections / suggestions made by General Public and responses by APTRANSCO / APGENCO

40) Auxiliary Consumption

Objections / Suggestions: - While on page 5 of the draft PPA Auxiliary consumption is defined as an actual value, as a factor in the determination of variable charge, it is given on page 12 of the draft PPA as a percentage for different stations.

Commission may allow actual certified values limited by reasonable Auxiliary consumption percentages.

APTRANSCO response: - APTRANSCO did not respond to the discrepancy referred directly. However, the percentage given in Schedule III-B can be converted into a decimal and used in the formula given on page 12.

APTRANSCO stated that

i) There are no GoI guidelines for thermal capacities below 200 MW.

ii) Permitted Auxiliary consumption for 200 MW is 9% without cooling tower and 9.5% with cooling tower.

iii) In case of lesser capacities, considering their age, a marginal escalation is provided.

41) Effective Date of the PPA:

Objection : On page 5 it is stated that PPA is effective from April 2002. But can the Agreement be effective before it receives consent from the Commission.

APTRANSCO response:-As per Reforms Act, the rights and responsibilities of erstwhile APSEB are shared by APTRANSCO and APGENCO. The latter will supply power and the former will redistribute the same. For smooth functioning. APGENCO and APTRANSCO have signed Power Purchase Agreements for every year since

FY 2000-2001. Tariff orders were issued by APERC for the year 2002-2003 taking into account the ARR figures which also figure in the PPA.

42) **Gross calorific value determination:**

Objection:- Though a definition of Gross calorific value is given in the draft PPA the method of determination is not given. Is payment made for coal supplies, based on the Gross calorific value as declared by Government coal suppliers, without verifying the fuel quality.

APTRANSCO response:- Gross calorific value of coal is measured as per IS 1350 (This will be incorporated in the PPA to be approved).

Coal supply agreements entered by APGENCO provide for determination of the grade of coal supplied, based on sampling, testing and joint declaration at loading point along with procedures for weighment of coal.

43) **Coal supply Agreement:**

Suggestions: Coal supply agreements is to be made public.

APTRANSCO response:- Copies are given to the Honorable Commission.

44) **Target PLF:**

Objection: Minimum PLF is not stipulated. Minimum operating load factor should be stipulated for APGENCO plants to ensure efficient operation.

APTRANSCO response: - Minimum PLF is the basis for paying 100% fixed charges and incentives for better performance (higher PLF). Though no ROE or incentives are allowed to APGENCO, it is mutually agreed that 100% fixed charges will be paid for the actual PLF. However APGENCO plants have been operating at a very high PLF.

45) **Station Heat Rate**

Objection (a) : Station heat rates (SHR) are very high, forcing consumers to absorb the cost of inefficient running.

APTRANSCO response:- Government of India guidelines stipulate a maximum of 2500 kcal / kWh as station heat rate for new thermal plant with a capacity of 200 MWs and higher. While adopting this rate for major stations at VTPS, RTPP and KTPS, for old stations of smaller capacities, heat rate is fixed based on the historical data and the ageing factor.

Objection (b): Article 3.1.2 of the draft PPA states that variations in auxiliary consumption and heat rates, from those indicated in Schedule III (b), for reasons beyond the control of APGENCO, would be allowed. Any increase in such parameters beyond the bench mark values laid down by the Commission should be subject to the scrutiny by the Commission.

APTRANSCO Response: As ROE and incentives are not being allowed, APGENCO wanted this reimbursement as there was no other source to APGENCO to meet the additional expenditure due to conditions beyond their control. APGENCO would have otherwise to justify the variation from the parameters with relevant data.

Objection (c):Station heat rates of some of these plants are high. It is 3770 kcal/ kWh for NTS, 3130 kcal/ kWh for KTPS – A, B & C. On NTS, a 30 MW plant, more than Rs.20 Crores were spent on renovation and modernization. This should have resulted in improvements like lower heat rate.

APTRANSCO response: The thermal stations mentioned have served more than their life time. GoI guidelines do not specify norms for units with capacities less than 200 MW. SHR shown as 3130 kcal/kwh pertains to 8 units of KTPS – A, B & C stations all of which are of smaller capacities. Consequent on completion of R & M in KTPS – A station, the station heat rate has improved from 3130 kcal/ kWh to 2700 kcal / kWh.

Similar improvements are expected in KTPS – B & C stations and NTS, once the R & M works are completed.

46) **Energy charges for pumping mode:**

Objection: Is there justification for APGENCO to charge APTRANSCO for the energy consumed for pumping, at the same rate as cost of generation (Article 2.2). What is cost of generation per unit at Srisailam left bank considering pumping cost? Is it true that pumping cost per unit is more than generation cost / unit? Then what are the benefits of pumping mode ?

APTRANSCO response:- No charges for units consumed for pumping water (by APGENCO). Actually energy consumed for pumping will be given free of cost by AP Transco. Water pumped back will generate energy at peak hours, which is given free to AP Transco enabling AP Transco to avoid costly power purchases during peak hours.

i) Based on the number of units operated in pumping mode and water levels at Sagar and Srisailam the cost of input energy varies from Rs.1.2 / kWh to Rs.1.5 / kWh for each kWh of peaking power generated.

ii) If peaking demand is to be met by setting up gas / liquid based generating station with a capital cost of Rs. 2 Crores / MW operating at 6 hrs per day, the cost of generation would be Rs.5 /kWh. But at Srisailam, with the infra/structure already available, additional cost is only the cost of energy for pumping the water during light load conditions. The cost of generation at Srisailam delivered during peak load hrs would be Rs. 1.5 per kWh considering the cost of pumping water at Rs. 1.00 / unit.

47) **Clearances for Srisailam LBH:**

Objection: Has the Srisailam LBH all clearances. Does the large investment merit consent, if the project is evaluated on a stand alone basis. O & M and administrative charges for pumping mode alone should be considered.

APTRANSCO response:- Srisailam LB project has all clearances. No charge by APGENCO or any additional tariff for the pumping mode. Fixed cost is being paid on a pooled basis for all thermal and Hydro plants. No variable charges in the case of Hydro plants.

48) **Uniform Tariff**

Objection: Tariff is based on certain fixed charges and estimated variable charges which have been mutually agreed. Instead it should have been based on the figures as approved by the Commission. How can uniform tariff be allowed for all stations of APGENCO which has a mix of several power stations. Is the mixing legally valid and will it not encourage inefficiency.

APTRANSCO response:- APERC has suggested a common PPA with pooled fixed cost for all stations and station wise variable costs. Fixed cost could not be derived station wise as details of loans, interest and unfunded liabilities are only available on a pooled basis.

49) **O & M Expenses:**

Objection Full actual costs, if allowed, will permit inefficiency to continue. APTRANSCO should foot the bill related to optimum staff only. As O & M cost in subsequent years would be estimated, based on expenditure in 2002-03, will the same be audited under a fool proof mechanism?. Administrative and miscellaneous expenses are proposed with an annual inflation of 15% on the base cost of FY 2000. Only audited actually incurred costs should be payable in future.

Similarly in cases of consumables, only audited actual costs should be payable as against what is proposed, i.e., actuals of FY 2000 inflated annually at 10%.

APTRANSCO response: O & M expenses covers employee costs, repairs, maintenance, water charges, Administrative and miscellaneous expenses, insurance expenses and consumable stores.

i) GoI norms allow on normative basis 2.5% and 1.5% of current capital costs towards O & M expenses for the new thermal and hydro stations respectively. Adopting these norms O & M charges have to be worked out on a capital cost of Rs. 3.5 Crores / MW and Rs.3 Crores per MW for the installed thermal and Hydro capacities respectively with base year as 1999 and at an escalation rate of 6% per annum. Fixed charges limited to actuals.

ii) O & M expenses will be limited to actuals at the end of the financial year based on Audited annual accounts.

50) **Backing Down upto 60%:**

Objections (a): As per the PPA APTRANSCO has to purchase all the Power Generated by APGENCO. APGENCO's units operate at a very high plant load factor. As per clause 2.4 of the draft PPA gross generation of any unit should not be reduced by more than 40% of the installed capacity. With this stipulation APGENCO's cheap power producing units would be forced to back down their generation to some extent. APGENCO units must be declared as "Must run" units. In the PPAs of private IPPs, backing down is limited to only 1200 hrs in a year. What are the factors in arriving at the percentage of 40%?

APTRANSCO Response : The limit of 40% installed capacity referred to in the dispatch instructions at any given time is specified taking into account the need for oil support, likely increase in station heat rate, auxiliary consumption etc., which affect the normative parameters provided in the PPA. APGENCO need not run its thermal units at 60% load always. The Tariff order provides for purchasing all the Power generated by APGENCO. Grid security and reliability require APGENCO to back down some of its generation during light load conditions based on merit order. GENCO units cannot be permitted as "Must run" units. Drawal from CGS and IPPs etc are governed by different terms and conditions such as shares of other states (in respect of CGS) and the PPA conditions (for IPPs). The maximum capacity that can be backed down without oil support is mutually agreed to as 40% of the installed capacity.

Objection (b): Article 2.4 should be modified to stipulate that gross generation for any thermal unit should not be reduced by more than 15% of the installed capacity as APGENCO units have been running at a very high PLF of 90%

APTRANSCO: The dispatch instructions for generation depends on frequency, load and other system constraints. It would be very difficult to ensure the safety and security of the grid if the generation from APGENCO is to be utilised in full.

Objection (c): Allowing only one dispatch instruction per day for other IPPs and stipulating the same as two per day in case of APGENCO is discriminatory. In case of PPAs with private power projects it is incorporated that backing down shall not exceed 1200 hrs per year where as no such limitation is present in the draft PPA with APGENCO. Power drawal from APGENCO is said to be subject to system constraints. Are such system constraints not applicable in case of Central Generating Stations and IPPs? Such discrimination will make APGENCO units redundant.

APTRANSCO Response: APTRANSCO draws about 60% power from APGENCO. Drawal of power from central generating stations is governed by share the State has from CGS and drawal from IPPs on the conditions of the PPAs. APGENCO has entered into a single PPA for all generating stations of APGENCO. APGENCO stations are treated as a single unit.

During the change over of agricultural loads at 6 PM and again during nights, the system operator necessarily resorts to regulation of generation on merit order basis. Generation needs adjustment as per frequency. It is not possible to limit dispatch instructions in view of the security and stability of the grid which is vital. Subject to the dispatch instructions all APGENCO stations are "Must run".

51) **Non provision of ROE and depreciation:**

Objection / Suggestion: Not allowing return on equity and depreciation and incentives to a well performing APGENCO even in the latest PPA is contrary to the provisions of the Electricity Supply Act. In the last 3 years APGENCO is denied depreciation to the tune of Rs. 585 Crores, Return on equity at the rate of 16% amounts to Rs.1011.27 Crores and incentives to 247.29 Crores.

APTRANSCO: Even though APERC has suggested a single PPA containing pooled fixed cost for thermal and hydro units and a station wise variable cost and incentives, AP Govt. as the owner of utilities was not agreeable for (1) Return on equity (2) Incentives (3) Depreciation as a pass though in tariff and preferred the existing provision for reimbursement of actual debt repayment by GENCO, in order to prevent a raise in tariff for the end consumers.

52) **Demands of Grid:**

Objection / Suggestion: The demand of the grid has almost been static as can be seen from the figures of energy purchased by APTRANSCO.

Year	Power in MU
2000-2001	42189
2001-2002	40788
2002-2003	41333

In spite of this, capacity additions are coming up based on higher generating costs. Even if there is need for additional power, coal based plants proposed by APGENCO i.e., RTPP – stage II, VTPS – IV and KTPS VI should be encouraged.

APTRANSCO: No Response

53) **Pension liabilities:**

Objection (a): While the present PPA shows the employee pension and provident fund liabilities as Rs.4611 Crores, CAG report for the year ending 31-03-2002 states that it would be Rs. 6003 Crores in view of the omission of some of the employees from the list and the failure to consider leave encashment provision for retiring employees. The figures in the PPA should be changed to Rs.6003 Crores.

APTRANSCO: There is no omission of employees. CAG has taken into account the number of persons as per sanctioned strength, where as the terminal benefit liability was calculated by the actuary on the basis of number of persons actually on the rolls, as on 31-03-1999. As per the accounting procedure of the erstwhile APSEB, the liability involved in leave encashment will be recognized in the year in which it is paid. This rule is being followed by its successor entities

Objection (b): As no separate deposits have been made in pension funds and GPF, Employees of APTRANSCO, APGENCO and four DISCOMS are apprehensive of about payment of their terminal benefits. Hence, an escrow facility should be incorporated assuring payment of terminal benefits.

APTRANSCO Response: APTRANSCO has issued bonds for an amount of Rs.4387 Crores in May, 2002 with a floating rate of interest to discharge the commitment regarding pension.

AP State Government has accorded an unconditional guarantee vide GoMs No 57 & 58 dated 07-05-2002. It will ensure flow of funds into the master trust for the payment of terminal benefits.

54) **Guide lines on the terms of PPA:**

Objection: Have the guidelines communicated by the Commission vide its letter dated 16-07-2001 for formulating future PPAs been followed? Why is the PPA with APGENCO limited to one year (Art 6) while PPAs with others are for 30 years?. Not allowing return on equity, incentives and depreciation (Art1.1b) to APGENCO on the plea of poor financial status of TRANSCO while allowing the same for IPPs with higher generation cost is discriminatory and goes against the spirit of reforms. In the 3 years between 1999-2000 to 2001-2002 APGENCO lost Rs.565 Crores by way depreciation, Rs.1011.27 Crores of ROE and Rs.247.29 Crores of incentives totaling Rs.1800 Crores.

APTRANSCO: While the guidelines of Commission dated 16-07-2001 provide for the inclusion of ROE, incentives etc., the same are not included in the PPA as the owner of APGENCO i.e., Govt. of AP did not want them. As the present PPA does not include ROE, incentive etc. Its term is limited to one year as Government of AP and APTRANSCO felt that a one year PPA was advantageous. It would help in drawing lessons for future.

APGENCO has informed that it also prefers the PPA term to be one year instead of three years or more to let the question of ROE, incentive, depreciation etc., remain open instead of foregoing them for three years.

Objections / Information: The terms of the agreement have been limited to one year to draw lessons from the operations during the year (FY 2003) of anticipated surplus availability. If so why is the same is not applied in case of IPPs.

APTRANSCO's Response: Since APTRANSCO and APGENCO are both organizations of Govt. of A.P. both will be running on a no loss or no profit basis upto 2006 as per Business Plan. Beyond 2006 APTRANSCO will have a short-term PPA with APGENCO.

55) **Future Projects of APGENCO:**

Objection: Commissioning of a generating station takes, in general, five years from the time of approval in principle. It is obvious that "In principle" clearance must have been given for some of the generating stations to be constructed by APGENCO. However no mention has been made of such approved projects in the PPA. This is necessary to ensure that AP Transco projects are not side lined in preference to private IPPs.

APTRANSCO: Suggested information in cases of approved projects will be incorporated in future agreements.

56) **Time for seeking the PPA approval :**

Objection: According to the provisions the PPA will come into effect from 01-04-2002. Draft PPA is made public just one day before the date it is supposed to become effective, though APER Act 1998 gives 90 days to ERC to give its consent. This shows that licensee is not serious about transparency and public participation. There is apprehension as to how far the views of public would form a part of the final judgement. Time to discuss and finalise a PPA should be at least three months before the commencing of the year rather than three months after the year has commenced.

APTRANSCO response: As per AP Reform Act 1998, APTRANSCO and APGENCO have definite roles. APTRANSCO shall purchase the energy generated by APGENCO. For smooth functioning, PPAs are being entered into between APTRANSCO and APGENCO since 1999-2000. This is the third PPA. Tariff order is already issued by APERC for 2002-2003 considering ARR figures which find place in the present PPA.

57) **Fixed cost:**

Objection (a) : There is not much difference between the fixed costs of APGENCO plants and plants of IPPs, NTPC and Simhadri. The average cost of power from APGENCO is closer to the cost of IPPs this year.

Unit	Average cost present	Variable Cost Unit	Difference	Fixed cost per unit purchased Rs.	Fixed cost per MW (in Rs. Crores)
	Rs. (A)	Rs. (V)	Rs. (A-V)		
AP Genco Total	1.61	0.76	0.85	0.85	0.36
APGENCO Thermal	2.27	1.08	1.19	1.19	0.73
NTPC Simhadri	2.05	1.02	1.03	1.03	0.33
IPPs	2.13	0.89	1.24	1.20	0.88

These figures were given separately for hydel and thermal units in the ARRs of earlier years with capacity for each unit. But in ARR for 2002-2003 all the fixed costs are placed against the thermal units. Licensee may be directed to provide detailed information.

APTRANSO response : Considering long term liabilities vested in AP Genco through the first transfer scheme, escalation in O & M charges, and the age of the stations the fixed charges are reasonable.

For 2001-2002 average cost / unit sent out (Thermal + Hydel) is Rs.1.61 only and not Rs.2.10 as projected by the objector.

S.No	As billed	Rs. Crores	Per Unit Cost
1	Pooled fixed charges	1939.63	0.76
2	Thermal variable Charges	2169.09	1.09
3	Total Charges	4108.82	1.61
4	Total energy sent out (MU)	25555.79*	
	Unit		**1.61 ****

* (Thermal: 19908.47 MU + Hydel 5647.32 MU)** Calculated both on Hydel and thermal units.

The unit rate would have been only Rs. 1.44 / kWhr had APGENCO got 8748 MU Hydel, generation as anticipated.

Objection (b) : APGENCO fixed costs do not reflect reality. Fixed cost is not based on depreciation of capital assets and ROE, but on its debt obligation. This debt obligation is the result of loading the majority of (erstwhile) APSEB's loans on APGENCO. The relation between debt obligation of APGENCO and its real fixed costs needs to be unravelled

Cost / Unit of Power from APGENCO (Rs.)

Year	Fixed Costs		Total Costs	
	Thermal	Total	Thermal	Total
1999-2000	0.53	0.43	1.47	1.12
2000-2001	1.01	—	2.08	1.53

From the above table it is seen that within a year fixed costs have nearly doubled. The total cost of thermal unit has increased by 42% and average total cost increased by 37%.

<u>APTRANSCO response</u> : Cost per unit so far billed in 1999-2000 and 2000 – 2001 are given below.

Year	Fixed Cost	Variable Cost		Total Cost
	Thermal + Hydel	Thermal	Hydel	Thermal + Hydel
1999-2000	0.48	1.10	000	1.25
2000-2001	0.75	1.07	000	1.54

Base data in the initial period of bifurcation of APSEB was not clear with regard to the vital component of expenditure. Claim for fixed cost was on a provisional basis subject to necessary adjustments, once the annual audited amounts are finalised. Hence 48 paise cannot be taken as the final figure for FY 2000. For FY 2001 the debt repayment obligations and O&M expenditure had increased by about Rs. 200 Crores and Rs. 50 Crores respectively contributing to a raise of ps 13 / unit.

<u>Details:</u>

Year	Fixed Charges Rs. (Cr)	Variable Charges Rs (Cr)	Total Tariff Rs. (Cr)
1999-2000	1288.01	2102.06	3390.16
2000-2001	2007.75	2104.21	4111.96

Objection (c): In the case of the last unit of NTPS the per MW cost of the plant is Rs. 2.95 Crores while it s Rs 4 Crores per MW in case of GVK's Jegurupadu Plant. All other units are much older and their costs should have been much lesser. But the lesser costs are not reflected in the fixed cost of APGENCO. The following may be considered before a final decision is taken on next tariff.

Particulars	According to GO dated 01-02-1999 (1)	According to GO dated 31-01-2000 (2)	Difference (2-1)
Gross Fixed Assets	3724.71	8617.0	4892.29
Less Accumulated depreciation	1005.00	1191.9	186.90
Net Fixed Assets	2719.71	7425.1	4705.39
Total Fixed Assets	5099.83	9681.0	4581.17
Loans and Advances	1333.39	909.7	- 423.69
Total Current Assets	1506.43	1403.8	- 102.63
Total Assets	6606.26	11165.6	4559.34
Equity	700.21	2100.8	1400.59
Pension funds	1194.00	4386.0	3192.00
Total Long Term Debt	3583.77	6060.2	2476.43
Total Current Liabilities	2211.54	2190.6	- 20.94
Total Liabilities	6606.26	11166.6	4560.34

APTRANSCO's Response: The first transfer scheme represents the final picture of assets and liabilities as assessed and allocated to the unbundled entities.

i) The increase in liabilities is mainly due to increase in pension liabilities, long term debt and equity allocated to APGENCO which is matched by Gross fixed assets.

ii) Established power generation companies like APGENCO will always have embedded costs to be recovered as part of generation tariff.

Objection (d) : Within an year the value of assets and liabilities are revised by 69%, and shifting of liability due of pension funds, increased the burden to Rs.4.386 Crores. Equity is raised from Rs.700 Crores to Rs.2100.8 Crores without infusing any funds. Long term debts and the loans of APGENCO increased by Rs. 2476.43 Crores. To balance this, assets are also hiked by Rs. 4559.34 Crores.

APTRANSCO Response: In the past maximum investment was in generation sector from external sources, routed as loans from GoAP to APSEB. As a part of restructuring GoAP has written off loans to the tune of Rs. 2800 Crores till 31-01-1999. As a result, utilities have reduced their interest and repayment burden while GoAP has taken over the obligation to repay. The investments made in the project can be treated as equity from GoAP.

i) Though there is an increase in value of the assets and equity they have not been reflected fully in the tariff. Only debt repayment which is less than depreciation, is factored in. Also ROE and incentives are excluded.

ii) Pension / PF liabilities are covered under interest component of fixed charges of APGENCO without any impact on the retail tariff.

Objection (e) : Revaluation of assets and liabilities brings on par the cost of power generated by APGENCO and IPPs, though the former has much older plants which are still functioning efficiently.

APTRANSCO response: The pooled Tariff for 2002-03 in case of APGENCO is Rs.1.61 which is less than the average Tariff of IPPs of Rs. 2.22 / unit and the average purchase cost of Rs. 1.81 of APTRANSCO.

Objection (f): It is difficult to under stand how the already depreciated assets can be revalued. Controller and Auditor General of India has remarked that revaluation of generation assets and adjustment there of is against prudent accounting principles as it leads to withdrawal of assets from the business for discharging revenue liabilities.

APTRANSCO response: Revaluation of assets is a standard commercial practice adopted by corporations while restructuring the business. It is done following widely adopted principles. "Depreciated replacement cost" method is a prudent method.

Objection (g): Fixed charges should also be calculated plant wise separately to arrive at rate of return and depreciation more rationally.

APTRANSCO response: Station wise fixed charges could not be arrived since many of the major costs such as loans, interest, unfounded liabilities etc are available only on pooled basis and not identifiable project wise. This is in -line with APERC's directive dated 16-07-2001.

Objection (h): APGENCO is providing reactive compensation and emergency power support and should be compensated for the same.

APTRANSCO response: As full fixed cost expenses of APGENCO plants are met by AP Transco, additional payment towards reactive compensation and emergency power does not arise.

Objection (i): The interest on pension and gratuity liabilities of Rs.4386.95 Crores and on provident fund liabilities of Rs.230.12 Crores, interest, (as per terms and conditions of bonds being issued) is proposed to be included in the fixed charges. Vidyut Bonds of the order of Rs.1089.37 Crores are proposed to be redeemed in accordance with the terms and conditions of the bonds. If the proceeds of Vidyut bonds are used for the creation of assets and capitalized, the same should not be included in the fixed cost again. If the bonds are raised to cover revenue deficit the same should not be permitted to be included in the fixed costs. Past liabilities are imposing avoidable burden on the consumers by way of additional depreciation allowance and interest on bonds. Therefore permitting revaluation of assets to cover such past liabilities would mean penalizing the consumers by asking them to pay again. Past liabilities and interest there on should not be included in the fixed charges.

APTRANSCO Response: APERC in its Tariff Order 2000-01 has discussed the issue at length and has agreed to permit the recovery of the interest and repayment of Vidyut bonds.

58) **Liabilities of AP Genco:**

Objection (a): Liabilities of APGENCO should be restricted to costs that are incurred for generation. Balance should be reallocated to other utilities which have incurred the liabilities.

APTRANSCO response: Allocation of unfunded, employee liabilities among functional entities based on numbers on rolls was discussed extensively and rejected.

i) Revaluation of T & D assets to accommodate proportionate employee liabilities would affect tariff in the form of additional depreciation. This is avoided by limiting depreciation recovery by APGENCO to actual debt repayment.

ii) The final placement of employees in the restructured entities is still uncertain. Such reallocation to different utilities based on number of employees is not feasible now. The employees are comfortable with the liability in a single trust.

iii) Without sufficient cash resources, the unfunded liabilities are to be funded in the form of long-term liability with the issue of bonds. In the case of APTRANSCO and DISCOMS such loading of liabilities would have eroded their entire cash base.

iv) Based on the Transfer scheme, Pension / PF liabilities are covered under the interest component of fixed charges of APGENCO without any impact on retail tariff of consumers.

Objection (b): The disproportionate allocation of entire debt burden on APGENCO, will cripple APGENCO. Where as the inefficient arms of erstwhile APSEB viz., APTRANSCO and DISCOMs are being strengthened to reward private investors who are likely to purchase them, by making them healthier entities. By imposing the entire burden on APGENCO and denying what is due to it, it is being forced to bear additional burden of interest on loans and surcharges for default on payments. SCL has claimed Rs. 152 Crores as interest on delayed payments upto 31-03-2001.

APTRANSCO response: Post notification of finalized first transfer scheme, both APTRANSCO and APGENCO have commenced operations with a similar financial position. The debt to equity ratios of APGENCO and APTRANSCO as on 01-02-1999 were 3.26 and 3.30 respectively. For the disproportionate debt allocation APGENCO is compensated by the equivalent allocation of equity. The financial difficulty faced by APGENCO in meeting its financial obligations is a result of the overall cost revenue mismatch in the sector. The PPA is designed to meet all the cash commitments of APGENCO with a provision to retain gains, if any, as a result of latter's operating performance, as profit.

59) **Restructuring Plan:**

Objection: When did the sector restructuring plan come into existence. Provide us a copy.

APTRANSCO response: This was made effective from 31-01-1999. Copy was made available to the Commission.

60) **Srisailam LBH units:**

Objection (a): Srisailam left bank power house, set up at a cost of Rs. 3000 Crores, with interest on loans running into several Crores already, will be working only for 20 days in a year. If the cost of these units is to be recovered from the sale of the few units it would generate, such costly power would be beyond the reach of any consumer. The Project may be transferred to the tourism department after writing off the loan.

In the draft PPA loan against Srisailam LBH is shown as Rs. 768 Crores. Please provide details of expenditure so far including likely future expenditure, loan and investment that has come from APTRANSCO / APGENCO / GoAP. Though it is stated that as per the latest estimate the cost is Rs. 2482 Crores, an amount of Rs. 2416 has already been spent and around Rs. 80 Crores is proposed to be spent in 2002-2003.

<u>APTRANSCO response:</u> The revised project cost is Rs. 2482 Crores, excluding IDC against an originally sanctioned estimate of Rs. 1166.66 Crores (in September 1991).

i) Fault zones, heavy seepages, additional quantities of excavation, rock cutting, increase in the cost of materials due to Gulf war, devaluation of rupee etc are the reasons for the cost over run.

ii) Three units are already synchronized upto FY 2002. Two more likely to be commissioned in FY 2003, and the last one in 2004.

iii) Major portion of loan repayment was taken over by Govt. of AP leaving APGENCO with a loan burden of Rs. 768.24 Crores from JBIC and Rs. 110 Crores from PFC.

iv) Only one unit was operated during the monsoon period of FY 2001 due to low inflows. During the peak Rabi season viz, February and March 2002, the project has generated 191 MU through two units. Total generation during 2001 – 2002 was 382 MUs. (3 units were commissioned by August 2002 and balance 3 units are expected to be commissioned by August 2003).

v) The units are capable of operating in the pumped storage mode. When the state achieves surplus, off peak energy can be used to operate the project in pumping mode to supply peak demand, avoiding an investment of Rs. 3000 Crores in alternative peaking stations.

Sl.No	Source of expenditure	Latest estimate of the project Rs.(Cr)	Cumulative expenditure as on 31-03-2002 Rs (Cr)
1	JBIC Portion	2022.69 (81.5)	1955.39
2	PFC	110.00 (4.4%)	110.00
3	AP Genco	349.31 (14.5%)	351.00
	Total	2482.00 (100%)	2416.45

The details furnished in schedule II of PPA indicate the tentative expenditure estimated for FY 02-03.

i) Estimated cost of Rs. 2482 Crores as on April 2000 takes into account expenditure as on 31-03-2000 and future expenditure at an exchange rate of 1R= 2.7 yen. However during subsequent years due to yen appreciation (exchange rate variation from 1R= 2.7 Yens to 1R = 2.2 Yens)the expenditure in 2002-2003 will go up by Rs.13 Crores.

ii) Government of AP has assumed part of the loan repayment responsibility and the amount to be paid by APGENCO may be around Rs.781 Crores.

Objection (b): Given the predominant foreign exchange component in the SLBPH consent should not be given.

APTRANSCO response: GoAP has its own terms of interest and repayment terms with the GoI since monies are lent from GoI to GoAP and GoAP to APGENCO. Being a rupee loan by GoAP, foreign exchange variations, do not get reflected in the Tariff.

61) **ROE, Depreciation and Incentives:**

Objection (a): Return on equity and depreciation if permitted should be on actual equity, as allowing the same on inflated equity would harm consumers.

APTRANSCO response: Return on equity, should be based on equity recognized and approved under the first transfer scheme. Depreciation limited to the actual debt repayment obligation is factored into the tariff. Depreciation to be computed on the basis of book value of assets including any revision / revaluation.

Objection (b) : In the matter of incentives APGENCO is being discriminated against the IPPs on the plea of poor state of finances of APTRANSCO. Why the same poor state of finances is not preventing payment of incentives to IPPs.

APTRANSCO response: Govt. of AP, the owner of APGENCO did not want the same to be provided for as it would affect the tariff to the end consumers.

62) **Fuels (Coal & Oils)**

Objection (a): Cost of coal for KTPS (V) (Rs.1280 / MT) is more than cost of coal for KTPS - A (Rs.1050 / MT) though both are located in the same place. Similarly cost of coal at VTPS (Rs.1287/MT) is more than cost of coal at NTS (Rs.1281/ MT) though VTPS is closer to the coal mines.

APTRANSCO response: Cost of coal depends upon the grade of coal supplied and source of coal (SCL or MCL) and the source mine (Manugur and Talcher). Basic price and freight of coal indicated in the schedule III (c) of draft PPA is the weighted average cost of different grades of coal at a station from different sources. The invoice rate varies from consignment to consignment. VTS is being supplied from Mahanadi coal field and NTS from Singareni Coal field and hence their rates are not comparable. SCCL provides E, F & G grades (45%, 30% and 25%) while MCL supplies F&G grades.

Objection (b) : While all these plants use the same quantity of secondary oil, the prices at which they are obtained show large differences. In case of KTPS A, B C it is Rs. 12028/ kL where as for KTPS – V it is Rs 9809 / kL. It is 9355 /- in case of RTPP, 15013/ kL in case of NTS and Rs. 17741 in case of RTS – B.

APTRANSCO response: Furnace oil (FO), HSD and LD Oil (LDO) will come under the category of secondary oil and they are used to meet specific operating conditions. For example FO and LDO are used at KTPS – V where as FO and HSD are used at KTPS - A,B,C. The consumption in a month of each station varies based on the number of hot / cold startups and the intermittent oil support. Cost also varies for each station based on its location and type of oil used. Rates indicated in PPA are the weighted average cost (which varies with receipt at different times) of the mix of all oils received from different supply sources as in March 2001.

63) **New Projects – Separate PPA:**

Objection: Capital costs of future projects like RTPP – II, VTPS - IV which are not consented through separate PPAs, should not be allowed in the present PPA.

APTRANSCO response: Separate PPAs will be entered into with APGENCO in case of new projects including additions to the existing stations. The expenditure shown against each of these in Schedule – 1 is only indicative figure of the capital investments on these projects. They will not be passed through under the present PPA.

64) **Dispute resolution Authority:**

Objection: Reforms are aimed at reducing political interference in the working of Power sector. But article 8 of draft PPA states that in case of disputes between APTRANSCO and APGENCO the decision of AP Govt. shall be final and binding. Normally arbitrators are appointed in such cases on mutual consent.

APTRANSCO response: APERC may be the dispute resolution authority.

65) **Assignment:**

Objection: As per Reforms Act 1998, in case of transfer of any property or rights to any person or undertaking not wholly owned by Government the transfer of assets shall only be for fair value to be paid by transferee to the Government. Thus revaluation of generation assets is unwarranted and assets should have been transferred at book values as is done in case of T & D assets.

APTRANSCO response: Section 23(4) of APER Act 1998, does not prohibit revaluation of assets of the restructured under takings fully owned by the State Government during transfer of the property or rights.

66) **Opening of LC**

Objection: As per PPA, AP Transco shall make payments to APGENCO either by cheque or through letters of credit (LC). Amount covered under LC mechanism is Rs.200 Crores only against an average monthly payment of about Rs.354 Crores. While APTRANSCO is providing escrow felicity to all Private IPPs the same is not provided for APGENCO. APTRANSCO is giving priority to Private IPPs neglecting the interests of APGENCO. As on 06-04-2002 dues of APGENCO is Rs.744 Crores. APGENCO should be provided with an escrow or LC mechanism.

APTRANSCO Response: It is a fact that APTRANSCO has agreed to give escrow facility to three Private IPPs as per lender's requirements though only one (GVK) is under operation. Extension of this facility to other projects is subject to APERC's consent and APTRANSCO's financial position. APTRANSCO has been getting rebate upto 2.5 % for making early payment in cases of IPPs and NTPC whereas there is no such provision in case of APGENCO. APTRANSCO is paying APGENCO promptly. APTRANSCO is arranging funds for LCs opened by APGENCO in favour of its creditors instead of itself opening LC in favour of APGENCO.

67) **Cost in raise for SLBH:**

Objection / Suggestions (a) : APGENCO is forced to go for foreign debts. The cost of Srisailam left bank powerhouse of 6 x 150 MW pumped storage plant rose from Rs.1166.66 Crores in 1991 as sanctioned by the Planning Commission to Rs.3432 Crores mainly because of the exchange rate variation. Getting the equipment early without synchronizing the same, cost APGENCO Rs.5.69 Crores by way of Insurance Premium. Projects should be planned and implemented carefully to ensure cost effectiveness and economic viability. Foreign funding and foreign equipment and plant should be avoided.

APTRANSCO Response: When Planning Commission approved the revised estimate at Rs. 1166.66 Crores, exchange rate considered was Rs.1/- = 9.16 yens.

i) Major part of the equipment was imported between 1994-97 with exchange rate varying from 1Rs = 3.5 yens, to 2.7 yens, increasing the project cost.

ii) Normally design, manufacture and delivery of a pumped storage plant takes 5 years. Hence orders were placed in May 1991 to facilitate the commissioning of units by July 1997.

iii) Civil works took more time as tunnels are located 300 mts below ground level. During excavation, facile rock structure was encountered and additional works like stitching was required in some tunnels due to distressing rock.

iv) In major projects equipment is normally insured for any damage during storage, erection, testing and commissioning.

v) Loan from JBIC, a foreign funding agency has the approval of the Govt of India.

vi) Global tenders were invited for the procurement of equipment after obtaining approval from CEA, Ministry of Power and Department of Economic Affairs of GoI and JBIC. BHEL too got some orders.

Objection/Information (b): 81.5% of the project cost of Srisailam LBH is met by a Japanese Loan. It is also a tied credit meaning that machinery has to be purchased from Japan at a higher cost.

APTRANSCO's Response: JBIC has sanctioned a total loan of 63167 Million yen in three tranches. Only with respect to first tranche, procurement shall be from eligible source countries which includes countries from Asia, South America and South Africa. For rest of tranches, procurement is on a global basis.

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Objection / Suggestion (a): APGENCO is getting a loan from China for RTPP II and from Germany for VTPS –IV. If APGENCO was paid all the statutory payments, it

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68) Foreign Loans:

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APTRANSCO Response: It is not possible to allow ROE and incentives to APGENCO in view of financial implications that would reflect on Tariff to the end consumer or subsidy from Government.

Suggestion (b) : By paying APGENCO its statutory dues and extending a Rs. 1000 Crores financial support (by Government of AP), the following can be ensured.

New projects can be taken up with rupee funds and BHEL equipment, adding 500 MW capacity annually by recycling the revenue from new plants.

i) No foreign exchange variations, saving Crores of rupees in the long run.

ii) The undue benefits being given to IPPs at the cost of consumers can be avoided along with attendant delays and uncertainties.

iii) More coal based plants means less impact of costly liquid fuels.

iv) Cost effective and cheaper power can be ensured for consumer.

v) When APGENCO accumulates surplus funds subsidy can be given to the consumer.

69) **Renovation and modernisation R&M:**

Suggestion: More than 55% of thermal units are old and it is an appropriate to rehabilitate the thermal capacities of old units by Renovation & Modernisation. This is urgently required as hydro capacity cannot be utilized fully for want of reservoir water levels. APGENCO units should be allowed annual overhaul for atleast for a month. Alternatively we should add new capacities like VTPS IV which has a unit cost competitive with gas based plants.

APTRANSCO Response: APGENCO has a plan for the R&M of thermal and Hydel plants. R&M for KTPS – A(4 units) and KTPS – V is completed. KTPS-VI, VII and VIIIth units are planned for R&M shortly. Annual overhaul of APGENCO units are taken up in consultation with APTRANSCO. Plans for capacity addition in APGENCO are subject to the approval GoAP and APERC.

70) **Expenditure on New Plants:**

Objection / Suggestion: Many new plants are planned for 2002-2003 though actual addition can be 450 MW only.

APTRANSCO Response: Only expenditure figures against various projects are given in the PPA. They will not materialise in 2002-2003 itself. The total aggregate installed capacity as on 31-03-2002 (thermal + hydel) is 6065.5 MW. Additional capacity during 2002-2003 will be 300 MW.

71) **Prudent practices:**

Suggestion: The practices, techniques, standards that are generally accepted, may be highlighted in the PPA.

APTRANSCO Response : Prudent utility practices and methods are high lighted on page 6 of the PPA.

72) **Inter State Power Projects:**

Objection / Information: What are the methods of indicating fixed and variable costs of our share of power in the Interstate power projects. What are the details of Rs. 10 Crores shown as Interstate power purchase charges in the PPA.

APTRANSCO Response: There is no Interstate PPA. There are Agreements for sharing of power and expenditure in 70:30 ratio in case of Machkund and 80:20 ratio in case of TB dam. There are no charges for energy on per unit basis. Rs. 10 Crores shown on Page 27 of PPA is O & M and interest charges towards Machkund, (4.4 Crores) and TB dam and Hampi power house (5.6 Crores).

73) **Anticipated energy generation:**

Information: What are the basis for the anticipated energy generation for thermal and hydel stations in the PPA.

APTRANSCO Response: Hydel – Historical data for the last ten years. Thermal-energy, station wise, is calculated taking them as base load stations and making provision for expected, failed and planned outages.

74) **On going Projects:**

Objection/Information: On-going Projects include Mini Hydel Projects schemes completed long back (in 94-95). They have been shown as On-going Capital Investment Projects to be completed in 2002-2003 under Schedule I. Please clarify.

APTRANSCO's Response: It is programmed to Commission 4 Nos. Mini Hydel Stations on Kakatiya Canal with a total capacity of 4.15 MW during 2002-2003.

Capital investment figures shown against completed schemes under Schedule - I relate to up grading / R & M schemes of the existing stations.

CHAPTER IV

Staff Presentation and response of APTRANSCO and APGENCO

75) As the members of public may not be conversant with some of the highly technical provisions of a Power Purchase Agreement, the staff of the Commission made a presentation after an independent study/assessment of the PPA from the point of view of the concerns the Commission has to address. It was made clear during the hearing that the views of the staff were their own and did not represent the views of the Commission. This Chapter sets out the various points made by the staff in the presentation and response of APTRANSCO and APGENCO to the points made. For most of the queries/suggestions APTRANSCO furnished replies in consultation with APGENCO in their letter dated 02-09-02 which are detailed below. Direct views of APGENCO were received on a few points.

76) Loan Repayment:

Objection/Suggestion: APGENCO has to make loan repayments of Rs.542 Crores in the year 2004-05 and Rs.542 Crores in FY 2005-06 towards Vidyut Bonds. APGENCO was asked to explain its plan for dealing with such Loan Repayment. Creation of debt redemption reserve, capping of loan repayment to 90% of Gross Fixed Assets (GFA) and Loan rescheduling were suggested

APTRANSCO Response: As per Business Plan approved by GoAP, the bonds would probably be replaced by similar bonds carrying lesser interest rates and repayment would be rescheduled in such a way so as to redistribute the repayment burden over more number of years instead of two. No response on capping the loan or creation of a Debt redemption reserve was received.

77) Target PLF for Fixed Charges:

Objection/Suggestion: For Full recovery of Fixed Charges target PLF for thermal Block should be 80% and target availability for the hydel Block should be 85%.

APTRANSCO Response: Minimum expected energy from GENCO is linked neither to the PLF nor to the availability. With no provision for Deemed Generation, ROE and Incentive, it may not be necessary to specify the minimum expected energy for realizing full Annual Fixed Charges which GENCO, running strictly on cash neutrality basis may also not desire. Normally availability of GENCO Units, would be above 80%.

78) **Technical Parameters:**

A) **Auxiliary Consumption:**

Objection/Suggestion: Govt. of India Norms should be adopted wherever they are applicable i.e., 9.5% with cooling towers and 9% without cooling towers.

APTRANSCO response: APTRANSCO has allowed parameters based on the previous years' performance of APGENCO stations and also most of the GENCO's stations are ageing.

AGENCO Response: In its letter dated 25-06-2002, APGENCO informed that the Auxiliary Consumption varies from station to station based on the following:

(i) Consumption of ball mill is 3 times of that of the vertical mill.

(ii) Some stations get coal, which need no primary crushing.

(iii) Ash extraction in Wet Mode / Dry Mode has an impact on Auxiliary Consumption

(iv) Stations close to mines get coal by rope way or trucks needing no wagon triplers.

(v) Levels of chimney emission rate, has an impact on the consumption by the Electro Static Precipitator.

The parameters agreed between APGENCO and APTRANSCO not to be disturbed in the PPA for 2002-03.

(B) **Station Heat Rate**

Objection / Suggestion: Norms as per GoI guidelines as applicable should be incorporated in the PPA.

APTRANSCO response : Normative figures for station heat rate as per GoI guidelines are adopted wherever they are applicable (for thermal stations of capacities of 200 MW and above).

In cases of lesser capacities, for which no norms exist APTRANSCO has allowed parameters based on the previous years' performance of APGENCO stations.

79) **Colony Consumption:**

Objection/Suggestion: Colony Consumption should be separated to identify actual Auxiliary Consumption.

APTRANSCO Response: All thermal plant colonies except RTS-B are HT Consumers, duly accounting for energy consumed

RTS-B and most of the Hydel colonies are fed by respective generating stations with metering arrangements in the Switchyard at the point of take off of the 11 kV Colony Feeders. APGENCO has applied for HT/LT services in respect of individual colonies for which DISCOMs have to release the connections by segregating and taking over the existing private Distribution.

80) **Station Heat Rate etc and R & M:**

Objection/Suggestion: All the stages of a power station are grouped for the fixation of normative parameters of station heat rate, auxiliary consumption etc. In the recent past sufficient amounts were spent on R & M of KTPS A & B Stations. In order to get full advantage the different stages should not be grouped together for SHR etc.

APTRANSCO Response: SHR and other parameters for KTPS – A & B have been fixed duly considering the benefits of the already completed R&M works in KTPS – 'A' Station and on going refurbishment in KTPS – 'B' and 'C' Stations. However as the switchyard for all the out going 220 kV and 132 kV feeders is common for the entire complex, station-wise Auxiliary Consumption (difference between Generation and Net Energy Export) cannot be computed. Similarly Coal Plant for B & C Stations is common. Hence, station-wise Coal Consumption cannot be computed. APTRANSCO has allowed parameters based on the previous years' performance of APGENCO's stations. Most of the APGENCO's stations are aged stations.

81) **Uniform Gross Calorific Value (GCV) for the secondary fuel oil for all stations.**

Objection/Suggestion: Gross Calorific Value (GCV) of secondary fuel is shown uniformly though different oils are used in adjacent stations. Price variations need to be explained.

APTRANSCO Response: Furnace Oil is used for flame stabilization in almost all thermal stations except NTS. For startup of units HSD is used in VTPS, in KTPS-A, B and C and RTS-B and LDO is used in the balance stations. The GCV varies from 8925 to 9840 kcal/litre. An average GCV of all the oils together is considered to specify the GCV of secondary fuel.

The rates adopted in the PPA are based on their respective quantities, station-wise, as of March, 2001 which takes into consideration the month's opening balance, receipts, date of supply and consumption during the month in each station. Hence there is variation in the prices.

82) **Expenditure against each loan:**

Objection/Suggestion: Details of expenditure against each loan to be given.

APTRANSCO Response: Detailed expenditure against each loan is already provided. Further information as requested by the Commission will be furnished by APTRANSCO on or before 12-09-02 (since furnished).

83) **Freezing of Loans and revaluation:**

Objection/Suggestion: Freeze the loan and projects on transfer scheme date. Due to revaluation of assets through transfer scheme, equity is increased by Rs. 1317 Crores. Consequent to this ROE will increase from 4 paise to11.7 paise per unit.

APTRANSCO Response: APGENCO is formed on 01-02-1999 adopting all liabilities, equity and assets transferred vide GOMs No. 11 dated 30-01-2000, and re-opening of Transfer Scheme issues at this stage is not appropriate.

84) **O & M Expenses:**

Objection/Suggestion: O & M charges may be allowed on normative basis (2.5% for Thermal and 1.5% for Hydel) considering notional current capital cost of Rs. 3.5 Crores / MW for Thermal units and Rs. 3.0 Crores / MW for Hydel units with an escalation of 6% per annum taking FY 1999 as the base year. O & M Charges given in PPA have increased by 16% over the actuals of the previous year.

APTRANSCO Response: As suggested in APERC letter dated 16-07-2001 (as given above) O&M Charges are computed on a normative basis by considering 2.5% of current capital cost (taken as 3.5 Crores / MW installed) for thermal units and at 1.5% of current capital cost (taken as Rs.3 Crores / MW installed) taking 1999 as the base year and with 6% annual escalation.

Total O & M Charges FY 2002 = Rs. 466 Crores

Total O & M Charges for FY 2003= Rs.511.22 Crores (given in PPA)

[For FY 2003 raise is 9.66% over the previous year]

85) **Working capital:**

Objection/Suggestion: This shall be allowed based on Norms or actuals. Rebates and penalties may be introduced on payments.

APTRANSCO Response: As annual fixed charges are allowed on a cash neutral basis, the issue does not arise.

86) **Objection/Suggestion: ROE, Incentive etc.:**

Provide ROE, Depreciation and Incentive as given below.

For Thermal Generation - 1paise per unit generated above 80% PLF.

For Hydel Generation - 1paise per unit of secondary energy generated.

APTRANSCO Response: Costs adopted are on a normative basis but not on actuals. APTRANSCO and APGENCO are both GoAP owned utilities. APTRANSCO has not paid the fixed charges to APGENCO on the basis of calculations of normative levels. In the PPA, 16% ROE and incentive structure have not been incorporated as the Reforms process is in a transition phase. Further, depreciation as per GOI Guidelines has not been allowed and debt repayment at actuals as per the final audited accounts of APGENCO is adopted.

APGENCO Response: APGENCO vide its letter dated 23-07-2002 submitted the following:

APGENCO has suffered a loss of about Rs 585 Crores on depreciation and total legitimate revenue loss of Rs. 2265 Crores upto FY 2003. To compensate such losses the following are requested to be approved.

i) 16% ROE on equity of Rs. 2010 Crores which comes to Rs. 337 Crores per annum.

ii) Depreciation should be allowed on value of assets at the prescribed rates. In addition whenever loan repayments are more than depreciation the same shall be allowed as additional appropriation in the tariff treating it as advance depreciation as is being adopted in cases of APTRANSCO and DISCOMs.

iii) The liability of Vidyut bonds mainly arise because Government did not discharge its own liabilities to APSEB (e.g.: subsidy etc.,) but adjusted them against Long Term Government Loans to APGENCO which were drawn for specific projects and payable much later. Hence Bonds have to be correctly factored into the Tariff.

iv) Incentive for Thermal Generation @ 1 paise / kWh for each 1% increase in PLF availability over 68.5% PLF or at 0.5% additional return on equity for each 1% increase in availability over 68.5% PLF should be allowed.

In case of Hydel generation , 0.6% of equity for every 1% increase of PLF over 85% upto 92% and thereafter 0.45% for each 1% increase in availability beyond 92% should be adopted (as per CERC Norms for Hydro stations).

v) The over all impact of above suggestions is about Rs.432 Crores per annum. The constraint in allowing these in 2002-2003 or later years is that this will raise Tariff or Government subsidy projections in the approved Business Plan.

vi) To overcome this difficulty the following are suggested:

For FY 2002-03, provisions in Fixed Cost such as O&M, provision for debt redemption and interest are to be adjusted to actuals, as per the PPA, from the initial provisions in ARR against Power Purchase Cost. If there are any savings in this, the same can be adjusted against ROE, Deprecation etc. Likely savings may be of the order of Rs. 156 to Rs. 206 Crores. The difference between the amount due to APGENCO and the amount that is released as above shall be treated as a regulatory asset to be amortized over the next 2 to 3 years as approved by the Commission.

vii) For future years normal principles of ROE, depreciation and incentive as detailed should apply with changes, if any, as applicable to all generators.

viii) Asset values, equity and other liabilities as per the transfer scheme approved by the Government must be taken as final and computation should be based on this.

ix) Depreciation below what is statutorily due should under no circumstances be contemplated.

x) There would be no need to increase the tariffs for 2004, 2005, 2006, 2007 beyond the levels of 2.63, 2.82, 3.01 and 3.02 per unit contemplated in the Business Plan inspite of providing above benefits. At any rate it will not be correct to restrict APGENCO's entitlement on the basis of Business Plan. It is the Business Plan, which should be corrected.

87) **Letter of Credit:**

Objection/Suggestion: An irrevocable letter of Credit should be opened for the entire monthly bill of Rs. 354 Crores forthwith, and escrow facility should be provided to APGENCO.

APTRANSCO did not respond to this. However on a similar suggestion from one of the Objectors APTRANSCO has given the following reply

It is a fact that APTRANSCO has agreed to give escrow facility to three Private IPPs as per lender's requirements though only one (GVK) is under operation. Extension of this to other projects is subject to APERC agreeing to this and APTRANSCO's financial position. APTRANSCO has been getting rebate upto 2.5 % for making earlier payment in cases of IPPs and NTPC whereas there is no such provision in case of APGENCO. APTRANSCO is paying APGENCO promptly. APTRANSCO is arranging funds for LCs operated by APGENCO instead of itself opening L/C in favour of APGENCO.

APGENCO Response: In its letters dated 23-07-2002 and 28-09-2002, APGENCO requested the following:

Though APTRANSCO has stated that payments are being made to APGENCO by way of cheque within 30 days dues pertaining to energy bills of previous year have only since been cleared. Currently APTRANSCO is paying Rs. 100-150 Crores directly every month and adjusting APGENCO's commitment like bills of SCCL, Government bonds, Interest on loans etc. Full payments are not made and there is no system of bill-wise payment. Though existing PPA provides for payment of Rs. 200 Crores through L/C, APTRANSCO is yet to implement this provision.

There is an urgent need for a mechanism to ensure timely payment by APTRANSCO. As on 23-07-2002, outstanding dues are of about Rs. 1300 Crores. APGENCO has to pay 15% interest per annum for delayed payments. 50% of APTRANSCO / DISCOM's revenue should be automatically requested to be deposited in separate account facilitating drawal by APGENCO. The PPA should incorporate appropriate provisions.

88) **Term of Agreement:**

Objection/Suggestion: Though the present PPA under consideration can be for 1 year future PPAs should be for three years.

APTRANSCO Response: APTRANSCO and APGENCO are both GoAP owned utilities. As per Business Plan, both the organizations will be running on a no loss and no profit basis upto 2006 due to transition phase of reforms process. APTRANSCO will enter into a long term PPA with APGENCO after 2006.

APGENCO Response: APGENCO prefers to keep the PPA term as one year till facilities like ROE, Incentives and depreciation etc., are provided. In its letter dated

28-09-2002, APGENCO stated that Business Plan which is a dynamic document can be revised from time to time. ROE and other legitimate dues should not be denied to APGENCO for years to come.

89) **Coal Supply Agreement:**

Objection/Suggestion: Following amendments to Coal Supply Agreement are suggested.

(a). While inclusion of "suspension of supplies due to payment defaults" under SDQ (Supplier's Deemed Delivery Quantity) for arriving at SFQ (Supplier's failed Quantity) for paying compensation is in order, it shall be excluded from computing PFQ (Purchases Failed Quantity) for paying compensation as it would amount to double penalty.

(b). In case of agreement with Mahanadi Coal Linkage:

(i). Six months period for re-assessing and revising the declared grade of Coal from a CHP (Coal Handling Plant) is too long and is to be revised.

(ii). Statutory charges like Royalty, Stowing, Excise Duty and Sales Tax are not to be paid for a Coal with UHV less than 1300 k.Cal/KG or on shales, stones and foreign metallic material received.

(c). The Term of Joint Sampling & Protocol (JSP) cum FSA shall be co-terminus with the term of the PPA.

APTRANSCO Response: Did not respond to this

APGENCO Response: Did not respond to this

90) **Windage and Transit Losses:**

Objection/Suggestion: It shall be limited to 1% against 3% provided in the Schedule III (c) of the PPA and variable Cost Calculation has to be revised accordingly.

APTRANSCO Response (letter dt 02-09-02) : While Transit loss alone normally accounts for just 1% of coal receipts, there are other losses to be reckoned such as windage, shrinkage, coal rejects, intermittent fires in the stockyard, washing away of coal dust due to sprinkling of water or monsoon, loss of 'quality' of coal in open storage unit etc. All these losses take place mostly on reaching the destination and before the actual consumption in the boiler. There is no way of quantifying these losses other than undertaking physical stock verification at certain periodicity. In view of these inevitable losses in each station, it is requested to consider 3% as the maximum limit or actuals on all losses for coal accounting purposes so long as APGENCO is allowed to operate on a cash neutral basis.

Any revision can be considered, once a normative/performance based tariff approach is finalized with mutual consent of both the parties.

APGENCO Response: Expressed similar views in its letter dated 28-09-2002, requesting for retention of Windage and Shrinkage Losses as 3%. APGENCO has also stated that it has no means to recoup such losses.

91) **Provision of 0.2 Class Accuracy Meters:**

Objection/Suggestion: 0.2 Class Accuracy Meters to be installed at all Interface Points.

APTRANSCO Response (letter dated 02-09-02): APGENCO has provided 0.2 Class Accuracy Meters at all Interface points between APGENCO and APTRANSCO.

92) **Suggestions for the new PPA as contained in letter dt.16-07-2001.**

Objection / Suggestion: All the other suggestions of the Commission as in letter dated 16-07-2001 not expressly covered in suggestions made as a part of the staff presentation, are to be complied with.

APTRANSCO Response : Concerning structure of the PPA APTRANSCO has entered into PPA with APGENCO at a pooled fixed cost to be recovered for all generating stations and with station wise variable cost component. Further, as a general approach, it was decided on mutually agreed basis that incentives and ROE were not to be allowed to APGENCO due to ongoing reforms process and also because both are GoAP owned utilities.

CHAPTER - V

Commission's Analysis:

93) APERC received ten sets of objections in all from the public. The objections were broadly on the following issues:

(i) Absence of Technical norms

(ii) Discriminatory treatment of APGENCO stations by not allowing RoE and incentives.

(iii) Srisailam project cost without output.

(iv) Non-compliance of APERC directions in following the technical and financial norms.

APGENCO in their letter dated 3rd February 2003, have mentioned that if the existing arrangement of allowing repayment of loans, without RoE and incentives was to continue APGENCO would incur heavy book losses.

94) The Commission, after having considered the views of APTRANSCO the Licensee, APGENCO the generating company, the Commission's staff and the public objectors has identified the following key issues for analysis.

i) Change in the method for servicing liabilities

ii) Return linked to equity

iii) Introduction of incentives

iv) Recovery of operating costs, based on norms

v) Freezing the technical and financial norms paving the way for multi-year agreement

The treatment of these key issues will lay the technical and financial principles of the contractual framework between APGENCO and APTRANSCO. The key issues are discussed below in detail:

CHANGE IN THE METHOD FOR SERVICING EXTERNAL LIABILITIES:

95) The Commission in the past has allowed APGENCO to pass through in tariffs its debt servicing (interest and repayment) obligation for all loans. The Commission henceforth intends to do away with the practice of reimbursement of debt repayment. Instead, hereafter APGENCO will be allowed to recover through tariffs an annual depreciation charge calculated as per the existing CEA guidelines on the book value of the assets. APGENCO is expected to meet all its debt redemption obligations from the depreciation being provided to it now. This will be applicable with effect from 2003-04.

96) The debt redemption obligations include those arising out of the loans taken for creation of assets (e.g. vidyut bonds) and the Pension & Provident fund bonds.

97) While the interest on other loans used for creation of new assets is a pass through in the tariffs, APGENCO will have to bear the interest on the Pension, Provident Fund and Vidyut bonds, from depreciation.

RETURN LINKED TO EQUITY

98) The GoAP in their capacity as the owner of APGENCO have communicated to the Commission their decision of foregoing any return on equity as this would either increase the Government's subsidy or tariff to the consumers. On the other hand some objectors have highlighted the need for treating APGENCO in the same manner as other IPPs. The Commission appreciates the reasons given by both of them but concurs with the views of the public objectors that the returns should be commensurate with the investments in any business. The Commission is of the view that any move to compensate the generating stations by allowing a Return on Equity must be accompanied with operating norms and depreciation. In order to make the operations of

APGENCO financially sustainable on a long-term basis, it is necessary to allow for a return on the investment. The Commission allows an annualised return of 16% on the equity of APGENCO as a pass through in tariffs with effect from 2003-04.

99) The particulars furnished by APGENCO in their letter dated 22nd March 2003, have demonstrated (Annexure 1) that with the allowance of annual depreciation and return on equity, there would be adequate funds to meet the debt repayment (including Pension Bonds, Provident fund bonds and Vidyut bonds) as also the interest on Pension, Provident Fund & Vidyut bonds in the next thirty year period.

100) One of the concerns raised was the likelihood of increase of liability on account of interest on pension bonds. The possibility of grant of higher pensions and the extended longevity of the pensioners, makes the liability uncertain. After careful consideration, Commission agrees that any liability on account of interest on pension bonds in excess of that specified in the annexure will be allowed as a pass through in the tariff of APGENCO on a year to year basis. Similarly, any fall in the liability on this account will be adjusted in the tariffs on a year to year basis.

101) The Commission is of the opinion that APGENCO should earn return only on capital infused by the developer. Rs.1,326.54 Crores, out of the equity base of Rs.2,107 Crores, represents enhancement due to the upward revision in the equity at the time of First Transfer Scheme as a part of the revaluation of assets. As the terminal liabilities would be discharged in full over a period of thirty years with the return on the increased equity as demonstrated in Annexure 1, the Commission directs that the equity amount of Rs. 2107 Crores be reduced by Rs.1326.54 Crores at the end of FY 2033 for the purpose of computing the return on equity.

INCENTIVE REGIME:

102) APGENCO in their letter dated March 22nd, 2003 have requested the Commission to allow incentives as per any one of the following options:

(a) As prescribed by CERC i.e. 50% of fixed cost or 21.5 paise per Kwhr for each unit generated in excess of 77% PLF.

(Or)

(b) One paise for each percent increase in PLF over 68.5% for all units generated above this limit.

103) In order to encourage them to perform and improve over this level, the Commission has decided to incentivise APGENCO stations. As per CEA guidelines, incentives are paid as a percentage of equity, which is part of the project cost. Due to non availability of projectwise capital cost, the Commission would like to adopt the incentive scheme followed for central generating stations as per CERC order dated 21st December 2000. The computation of incentives for the generating stations has been described below:

104) For thermal stations: An amount of 21.5 Paise for every unit (kWh) for the energy generated over and above the threshold annual PLF of 77%. The PLF will be computed using all the thermal stations of APGENCO put together.

105) The Commission also suggests incentives for hydro stations as explained in CERC order dated 8th December 2000. The computation of incentives for hydro stations has been described below:

Incentive = (Annual hydel fixed costs- Primary Energy charge)* (CI-0.85)

Where;

Primary energy Charge = Primary saleable Energy (Ex-Bus)* Primary Energy Rate, where;

Primary Energy Rate=90% of lowest variable charges of APGENCO thermal plants

CI = (Declared capacity/Maximum available capacity)*100.

The Commission agrees that the incentive for both thermal and hydel projects can commence from FY 2003-04.

RECOVERY OF OPERATING COSTS TO BE BASED ON NORMS:

106) Since the unbundling of the erstwhile APSEB i.e. promulgation of the First transfer Scheme the power purchase arrangement between APGENCO and APTRANSCO is on the basis of reimbursement of actual operating expenses of APGENCO. This method of reimbursing the actual expenditure does not provide any incentive to the generating company for improving its operational efficiency. The Commission proposes to establish operating parameters like station heat rates, auxiliary consumption, specific oil consumption and O&M expenses.

107) An initial issue is whether the targets should be applicable for APGENCO as a whole or separately for each station. The Commission has decided to fix up the same norm for all the units of similar capacities in each station.

108) Another need is to establish norms applicable for a duration that is suitable and realistic to achieve such efficiency. This will be for a period longer than that of the term of the PPA under consent. The Commission had instructed the licensee to submit a PPA for a period of three years with norms, but the licensee filed the PPA only for one year on reimbursement basis. The Commission reiterates that norms should be established not just for the present PPA but also for the next one, which should be for a period of three years.

109) The Commission sought the views of APGENCO and APTRANSCO for determining the Auxiliary Consumption and the station heat rate of each station. Both of them are of the view that it is not feasible to adopt stage-wise auxiliary consumption and heat rates as in some of the stations like VTPS and KTPS-ABC, there is continuous bus without stage-wise sectionalisation. All the outgoing feeders from the station are connected to this bus and hence stage wise export of energy cannot be known. They have also stated that for the stations of NTPC like Ramagundam (3x500 + 3x200MW) etc., the calculation of variable charges is only for the entire station.

110) The Commission has gone by the norms issued by Ministry of Power through the notification dated 30th March of 1992, wherever it is applicable. In other cases the actual historic station wise parameters have been taken as the basis for computing the norms. The technical parameters and corresponding station wise normative levels so computed have been listed in Annexure II. The following norms are prescribed for the parameters mentioned below.

111) Station heat rate:

i) For all stations that comprise units of rated capacity 200 MW or above, CEA norms of March 1992 are applicable.

ii) For all the other stations that comprise units of capacity less than 200 MW, the average of the actual station heat rate for the past three years is applicable provided that where Renovation & Modernisation (R&M) is carried out, the actual heat rate achieved after stabilisation period, post R&M, will be reckoned.

SHRs for the present term of the PPA for FY 03 and the subsequent period of three years (FY 04 to FY 06) is enclosed in Annexure II.

112) **Auxiliary consumption:**

The Commission desired to know the views of APTRANSCO and APGENCO on the adoption of the following norms for auxiliary consumption:

(i) For all stations that comprise units of rated capacity of 200 MW or above, CEA norms of March 1992 are applicable.

(ii) All other stations that comprise of generating sets of capacity less than 200 MW, the average of the actual auxiliary consumption for the past three years is applicable.

113) APGENCO has stated that the existing metering system and the orientation of the bus is not only for handling local generation but also receipts from the other sources in the grid, which pass through the same bus. Hence the actual auxiliary consumption is more than what is recorded at present. Besides, the meters are located at the Low Voltage (LV) end instead of the High Voltage (HV) end and the losses in Inter Connection Transformers and Excitation Transformers are not accounted for as they do not have meters. According to APGENCO all these losses put together are of the order of minimum 1% on average and the suggestion is to take the average auxiliary consumption on the basis of Gross Generation minus Net Energy Export for all the stations. APTRANSCO has supported the stand of APGENCO in this respect.

114) The Commission takes note of the fact that the meters should be located on the HV end instead of the present LV end. Till they are installed at the HV end the average auxiliary consumption for all the stations whose generating capacity is less than 200 MW will be worked out on the basis of Gross Generation minus Net Energy Export. When the meters are installed at the HV end, the auxiliary consumption will be the lower of the auxiliary consumption derived from the meter readings at HV end of generator and station transformer or the auxiliary consumption approved now.

115) The Commission approves the auxiliary consumption proposed in the PPA for FY 03.

116) For the subsequent three years (FY04 to FY 06) the Commission lays down the following norms:

i) All stations that comprise units of rated capacity 200 MW or above, CEA norms of March 1992 are applicable.

ii) For all other stations the auxiliary consumption shall be as indicated in Annexure II of this order.

117) Auxiliary consumption for all the stations are set out in Annexure II.

118) The Commission reiterates that installation of 0.2 class accuracy meters on the H.V. side of generator and station transformers should be completed by 30th June 2003 as directed. Further, energy audit may be carried out through an independent agency at all APGENCO thermal stations and a report should be furnished to the Commission by 31st October 2003.

119) **Specific oil consumption:** The CEA norm for specific oil consumption is 3.5 ml/kWh against which APGENCO has suggested a figure of 2 ml/Kwhr. On a specific enquiry from the Commission, APTRANSCO has also agreed vide their letter dated 30.1.2003 that the specific oil consumption for all the APGENCO thermal projects be taken as 2ml/kwh. The Commission has decided to accept the proposed figure of 2 ml/kWh as the norm for all the stations because it is within the CEA norm and the cost of secondary fuel is not significant when compared to the total variable cost (around 2–3%). The Commission likes to retain the present consumption of 2ml/kwh for the next three years (FY 04 to FY 06).

Operations and Maintenance cost:

120) The Commission has examined the following norms for O&M expenditure

(i) Norms as per CEA guidelines: O&M expenditure is arrived at by charging 2.5% of the base year (year of inception of project) capital cost for all thermal stations and

@1.5% on the base year capital cost for all hydel stations. This amount is escalated @ 6% per annum till FY 2003. Using this method the O&M expenses for FY 03 work out to Rs. 298 crores.

(ii) Norms as per CERC guidelines: O&M expenses for thermal projects are calculated @ 2.5% on the current capital cost (assumed as Rs. 4 Crores / MW) and O&M expenses on hydel projects @ 1.5% on the current capital cost (assumed as Rs.5 Crores/MW). Using this method the O&M expenses for FY 03 works out to Rs. 535 Crores (excluding Srisailam project).

(iii) The assets of APGENCO were revalued on 1.2.99 at Rs. 8617.03 Crores as per the First Transfer Scheme with an installed capacity of 5605.11 MWs comprising 2660.61 MWs of Hydel, 2942.50 MWs of Thermal and 2 MWs of Wind (Ramagiri). Taking the CERC norms for computing the O & M cost for APGENCO based on First Transfer Scheme figures, the O & M cost for APGENCO plants comes to Rs. 172.34 Crores as on 1.2.99. This amount when escalated by 6% per annum upto 2003, comes to Rs. 230.63 Crores.

(iv) Actual expenditure: The actual O &M expenditure for FY 2000 as per PPA presented is Rs. 300.20 Crores. This has been escalated taking into account inflation, increase in Dearness Allowance, increments etc., in the same manner as is being done for APTRANSCO and DISCOMS for the past three years. Using this method the O&M expenses for FY 03 work out to Rs. 357.92 Crores.

121) The Commission for the purposes of this PPA has chosen the method mentioned in (iv) above and approves Rs. 357.92 Crores as O&M expenses for FY 03. The reason for using this methodology is that it is close to the real expenses and the other two alternatives may lead to unrealistic amounts owing to the assumptions. The Commission desires to freeze the O&M expenses at Rs. 357.92 Crores for FY 02-03 and a further a period of three years (FY 04-06) and thereafter adopt norms based on para 1.2 (iii) above.

Windage and transit losses

122) It is pointed out by the staff that these losses be limited to 1% against 3% provided in the PPA. APTRANSCO contends that the transit loss alone normally accounts for 1%. Commission accepts the APGENCO's claim supported by APTRANSCO that the maximum limit for losses should be at 3% or actuals whichever is less.

Station wise PPAs

123) In view of the rigorous merit order system that is going to govern all despatches by APTRANSCO, it is very necessary that station wise PPAs should be entered into. APGENCO and APTRANSCO should initiate work in this regard and submit station wise PPAs for FY 2004-07 by October 2003.

Srisailam Left Bank:

124) The Commission queried as to whether Srisailam Left Bank Power House should be included in the system expansion plan to meet the system peak demand during the plan period 2002-07. APTRANSCO, in its response dated 16.11.2002 has agreed that the effective capacity of SSLBH is negligible for peaking purposes till the hydraulic constraints in the river bed are removed.

125) As per GOMs. No.69 dated 15.6.96 issued by Govt of Andhra Pradesh, no drawls of water are to be made at Srisailam reservoir for power generation through the right side power house and the pumped storage system on the left side below the reservoir level of 254.2 Mts. (834 ft.). APTRANSCO contends that during Non-Monsoon months conventional generation is prohibited from SLBPH as per the conditions stipulated in GOMs No 69 dated 15-06-96. Further, as per APTRANSCO's response. the pump mode operation is not feasible till 2008 due to hydraulic constraints in Krishna riverbed. In view of the above, for the time being, operation of SSLBPH in conventional mode to provide peaking power cannot be recognised. The Commission is of the opinion that the consumer should pay only for those assets, which are gainfully employed in the business. An amount of Rs. 768.24 Crores is appearing in the current

PPA as loan against this project. The interest on this loan, depreciation and O&M cost on the corresponding asset and return at 16% on the corresponding equity of Rs.357.67 Crs (as indicated in the APGENCO letter dated 12-03-2003) altogether totalling upto Rs.198 Crs are not allowed as a part of the fixed cost in the PPA.

126) However, APGENCO can sell the energy generated by SLBPH units, if any, after accounting for maximum possible generation by SRBH at the given time, to APTRANSCO at a mutually acceptable price subject to the approval of the Commission.

CONCLUSION:

127) The Commission has introduced the technical and financial norms in the PPA. But the real effect of these changes can be observed only when the commercial discipline is also introduced in the PPA along with the norms. Commission desires that:

i) A provision may be incorporated in the PPA for opening a revolving letter of credit in favour of APGENCO to cover one-month receivables for the term of the PPA.

ii) A mechanism may be incorporated in the PPA to ensure that the revenue accruing to APGENCO from tariffs is utilised to meet the Pension/PF liabilities as a first charge on the due dates.

128) APTRANSCO is directed to redraft the Power Purchase Agreement for FY 2003 duly incorporating the decisions taken by the Commission in this order on the various issues and resubmit the PPA within ~~three~~ six weeks from the date of issue of this order for grant of consent of the Commission. APTRANSCO is also directed to submit station wise PPAs for the next three years (FY 2004 – FY 2006) after incorporating all the norms and guidelines suggested in this order, by 31st October 2003.

This Order is signed by the A P Electricity Regulatory Commission on 24th March, 2003

Sd/- (K. SREE RAMA MURTHY) MEMBER	Sd/- (D.LAKSHMI NARAYANA) MEMBER	Sd/- (G.P.RAO) CHAIRMAN

SEAL OF AP ELECTRICITY REGULATORY COMMISSION ◆ HYDERABAD ◆

CERTIFIED COPY

Secretary
A.P. Electricity Regulatory Commission
Hyderabad.

ANNEXURE – I

(Para 99 of the Order)

Year	Deon.	ROE	Total	Debt Re-payment	Interest on Bonds VIDYUT	Interest on Bonds PF	Interest on Bonds PENSION	Total Interest on Pen. PF. Vid. Bonds	Net Cash Flow	Book Profit or Loss
1	2	3	4	5	(6a)	(6b)	(6c)	6(d)	7	8
									(4)-(5)-(6 (d	3)-6 (d)
2002-03	553.00	337.00	890.00	502.00	163.00	20.00	155.00	338.00	50.00	-1.00
2003-04	601.00	337.00	938.00	588.00	160.00	20.00	173.00	353.00	-3.00	-16.00
2004-05	632.00	337.00	969.00	570.00	120.00	20.00	258.00	398.00	1.00	-61.00
2005-06	597.00	337.00	934.00	428.00	109.00	20.00	281.00	410.00	96.00	-73.00
2006-07	586.00	337.00	923.00	682.00	99.00	20.00	102.00	221.00	20.00	116.00
2007-08	571.00	337.00	908.00	606.00	76.00	20.00	163.00	259.00	43.00	78.00
2008-09	528.00	337.00	865.00	597.00	54.00	20.00	115.00	189.00	79.00	148.00
2009-10	522.00	337.00	859.00	479.00	32.00	20.00	206.00	258.00	122.00	79.00
2010-11	503.00	337.00	840.00	317.00	10.00	20.00	238.00	268.00	255.00	69.00
2011-12	410.00	337.00	747.00	146.00	0.00	20.00	242.00	262.00	339.00	75.00
2012-13	273.00	337.00	610.00	449.00	0.00	20.00	180.00	200.00	-39.00	137.00
2013-14	271.00	337.00	608.00	196.00	0.00	0.00	211.00	211.00	201.00	126.00
2014-15	257.00	337.00	594.00	140.00	0.00	0.00	254.00	254.00	200.00	83.00
2015-16	222.00	337.00	559.00	143.00	0.00	0.00	257.00	257.00	159.00	80.00
2016-17	201.00	337.00	538.00	75.00	0.00	0.00	292.00	292.00	171.00	45.00
2017-18	179.00	337.00	516.00	141.00	0.00	0.00	236.00	236.00	139.00	101.00
2018-19	178.00	337.00	515.00	153.00	0.00	0.00	229.00	229.00	133.00	108.00
2019-20	177.00	337.00	514.00	135.00	0.00	0.00	256.00	256.00	123.00	81.00
2020-21	176.00	337.00	513.00	160.00	0.00	0.00	233.00	233.00	120.00	104.00
2021-22	175.00	337.00	512.00	171.00	0.00	0.00	227.00	227.00	114.00	110.00
2022-23	175.00	337.00	512.00	200.00	0.00	0.00	204.00	204.00	108.00	133.00
2023-24	173.00	337.00	510.00	225.00	0.00	0.00	190.00	190.00	95.00	147.00
2024-25	172.00	337.00	509.00	276.00	0.00	0.00	164.00	164.00	69.00	173.00
2025-26	171.00	337.00	508.00	305.00	0.00	0.00	141.00	141.00	62.00	196.00
2026-27	171.00	337.00	508.00	352.00	0.00	0.00	109.00	109.00	47.00	228.00
2027-28	171.00	337.00	508.00	320.00	0.00	0.00	75.00	75.00	113.00	262.00
2028-29	119.00	337.00	456.00	354.00	0.00	0.00	40.00	40.00	62.00	297.00
2029-30	101.00	337.00	438.00	45.00	0.00	0.00	16.00	16.00	377.00	321.00
2030-31	100.00	337.00	437.00	47.00	0.00	0.00	12.00	12.00	378.00	325.00
2031-32	57.00	337.00	394.00	51.00	0.00	0.00	7.00	7.00	336.00	330.00
2032-33	9.00	337.00	346.00	56.00	0.00	0.00	1.00	1.00	289.00	336.00
Total	9031.00	10447.00	19478.00	8909.00	823.00	220.00	5267.00	6310.00	4259.00	4137.00

Assumptions

ANNEXURE – I

(Para 99 of the Order)

Year	Depn.	ROE	Total	Debt Re-payment	Interest on Bonds Vidyut	Interest on Bonds PF	Interest on Bonds Pension	Total Interest on Pen, PF, Vid. Bonds	Net Cash Flow	Book Profit or Loss
1	2	3	4	5	(6a)	(6b)	(6c)	6(d)	7	8
									(4)-(5)-(6 (d)	(3)-6 (d)
2002-03	553.00	337.00	890.00	502.00	163.00	20.00	155.00	338.00	50.00	-1.00
2003-04	601.00	337.00	938.00	588.00	160.00	20.00	173.00	353.00	-3.00	-16.00
2004-05	632.00	337.00	969.00	570.00	120.00	20.00	258.00	398.00	1.00	-61.00
2005-06	597.00	337.00	934.00	428.00	109.00	20.00	281.00	410.00	96.00	-73.00
2006-07	586.00	337.00	923.00	682.00	99.00	20.00	102.00	221.00	20.00	116.00
2007-08	571.00	337.00	908.00	606.00	76.00	20.00	163.00	259.00	43.00	78.00
2008-09	528.00	337.00	865.00	597.00	54.00	20.00	115.00	189.00	79.00	148.00
2009-10	522.00	337.00	859.00	479.00	32.00	20.00	206.00	258.00	122.00	79.00
2010-11	503.00	337.00	840.00	317.00	10.00	20.00	238.00	268.00	255.00	69.00
2011-12	410.00	337.00	747.00	146.00	0.00	20.00	242.00	262.00	339.00	75.00
2012-13	273.00	337.00	610.00	449.00	0.00	20.00	180.00	200.00	-30.00	137.00
2013-14	271.00	337.00	608.00	196.00	0.00	0.00	211.00	211.00	201.00	126.00
2014-15	267.00	337.00	604.00	140.00	0.00	0.00	254.00	254.00	200.00	83.00
2015-16	222.00	337.00	559.00	143.00	0.00	0.00	257.00	257.00	159.00	80.00
2016-17	201.00	337.00	538.00	75.00	0.00	0.00	292.00	292.00	171.00	45.00
2017-18	179.00	337.00	516.00	141.00	0.00	0.00	236.00	236.00	139.00	101.00
2018-19	178.00	337.00	515.00	153.00	0.00	0.00	229.00	229.00	133.00	108.00
2019-20	177.00	337.00	514.00	135.00	0.00	0.00	256.00	256.00	123.00	81.00
2020-21	176.00	337.00	513.00	160.00	0.00	0.00	233.00	233.00	120.00	104.00
2021-22	175.00	337.00	512.00	171.00	0.00	0.00	227.00	227.00	114.00	110.00
2022-23	175.00	337.00	512.00	200.00	0.00	0.00	204.00	204.00	108.00	133.00
2023-24	173.00	337.00	510.00	225.00	0.00	0.00	190.00	190.00	95.00	147.00
2024-25	172.00	337.00	509.00	276.00	0.00	0.00	164.00	164.00	69.00	173.00
2025-26	171.00	337.00	508.00	305.00	0.00	0.00	141.00	141.00	62.00	196.00
2026-27	171.00	337.00	508.00	352.00	0.00	0.00	109.00	109.00	47.00	228.00
2027-28	171.00	337.00	508.00	320.00	0.00	0.00	75.00	75.00	113.00	262.00
2028-29	119.00	337.00	456.00	354.00	0.00	0.00	40.00	40.00	62.00	297.00
2029-30	101.00	337.00	438.00	45.00	0.00	0.00	16.00	16.00	377.00	321.00
2030-31	100.00	337.00	437.00	47.00	0.00	0.00	12.00	12.00	378.00	325.00
2031-32	57.00	337.00	394.00	51.00	0.00	0.00	7.00	7.00	336.00	330.00
2032-33	9.00	337.00	346.00	56.00	0.00	0.00	1.00	1.00	289.00	336.00
Total	9031.00	10447.00	19478.00	8909.00	823.00	220.00	5267.00	6310.00	4259.00	4137.00

Assumptions

Technical parameters adopted for 2002-03, 2003-04, 2004-05 & 2005-2006.
(Para 110 of the Order)

Station	2002-2003			2003-04, 2004-05 & 2005-06		
	SHR kcal/kWh.	Aux. Consumption %	S.O.C. ml/kWh.	SHR kcal/kWh.	Aux. Consumption %	S.O.C. ml/kWh.
VTPs – 1	2500	10	2	2500	@ 9	2
VTPs – 2	2500	10	2	2500	@ 9	2
VTPs - 3	2500	10	2	2500	@ 9	2
RTPP	2500	10.5	2	2500	9.5	2
KTPS – A	3000	10.5	2	3000	** 8.5	2
KTPS – B	3000	10.5	2	* 3000	** 10.5	2
KTPS – C	3000	10.5	2	* 3000	** 10	2
RTS – B	2800	10	2	2800	** 9	2
NTS	3680	14	2	3680	** 14	2

@ To be revised to 9.5% for the units for which cooling towers will be provided.

* To be revised based on performance achieved after R& M

** After metering on HV side by 30-06-2003 actuals to be ascertained and fixed as norms. To be revised again after Energy Audit (to be conducted by 31-10-2003.)