Rajasthan Electricity Regulatory Commission
Jaipur

In the matter of determination of
Aggregate Revenue Requirement
for the year 2005-06
..

Filed by
Ajmer Vidyut Vitran Nigam Ltd.
………

Mr.Shanti Prasad, Chairman
Mr. S.M. Dharendra, Member
Mr.K.L.Vyas, Member

Present: On behalf of Ajmer Vidyut Vitran Nigam Ltd. :
Mr. K.C. Modi, CE (Commercial)

Objector:
Mr. D.S. Agarwal on behalf of Mr. K.L.Jain, Hon. Secretary, Rajasthan Chamber of Commerce & Industries, Jaipur

Date of hearing : 24.8.2005
Date of Order : 22.9.2005

ORDER

1. The Ajmer Vidyut Vitran Nigam Ltd. (AVVNL or Nigam or Discom for short) submitted on 31.1.05 the write-up, forms and other documents in respect of the revised Aggregate Revenue Requirement (ARR) for the year 2004-05 and ARR for year 2005-06 as required under regulation 3(3) of RERC (Terms and Conditions for Determination of Tariff) Regulations, 2004. The said ARR filing contained data on the basis of audited accounts for the year 2003-04 and projections for the year 2004-05 and 2005-06.

2. The said ARR filing were admitted by the Commission in its 85th meeting held on 16th February 2005.

3. The Commission's observations/shortcomings were intimated to AVVNL on 1.4.05, which were replied by them on 7.5.05. The Commission vide its letter dated 27.5.05 asked the AVVNL to publish salient features of ARR filing in the news papers for inviting objections/comments from general public.

4. Accordingly, the notices were published in the following news papers on the dates mentioned against each:

(i) Rastradoot	:2.6.2005
(ii) Dainik Bhaskar	:2.6.2005
(iii) Hindusthan Times:	:7.6.2005

The last date of receiving objections was kept as 4.7.05

5. Meanwhile, a request was received from JVVNL to extend the date for obtaining objections to 21.7.2005 in view of necessity of informing consumers through the electricity bills regarding the fact of submission of ARR and inviting objections. Accordingly, the Commission extended the last date for filing objections upto 21.7.2005 for all discoms. These revised dates were published in the following news papers on the date mentioned against each:

(i) Rastradoot	:5.7.2005
(ii) Dainik Bhaskar	:5.7.2005
(iii) Hindusthan Times	:6.7.2005

6. By the due date, two objections were received from the following:

(i) Shri Naresh Kumar, Jhunjhunu
(ii) M/s Rajasthan Chamber of Commerce & Industry, Jaipur.

7. The Commission observed that the objections furnished by Shri Naresh Kumar related to tariff and not ARR. Accordingly, the Commission invited the remaining objector for personal hearing on 24.8.05. The hearing was attended by M/s Rajasthan Chamber of Commerce & Industries, Jaipur (RCCI).

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Consideration of objections:

8. The Commission heard M/s RCCI at Jaipur on 24.8.2005. The objections on ARR received from both the objectors in writing and their replies by the Nigam and objections raised during hearing are discussed in subsequent paragraphs.

9. Shri Naresh Kumar Sharma of Nathasar District Jhunjunu referred to increase in his electricity bill for his agricultural service-connection under Chara yojana due to tariff hike and requested for withdrawal expressing it to be unbearable. His objection is not on ARR filing for financial year 05-06 (FY 05-06). As ARR is not the tariff petition, as such his objection is not considered. He shall have opportunity to file his objections as and when tariff petition is filed by AVVNL. It is stated that the Commission has passed tariff order dated 17.12.04 after considering all relevant factors including objections/ suggestions of objectors to that tariff petition.

10. M/s Rajasthan Chamber of Commerce and Industries (RCCI) have furnished common comments against ARR fillings of three Vitran Nigams.Only those relevant to AVVNL are discussed hereunder. They have objected to (i) specific consumption of 3468 kWH /hp/year proposed for Flat rate (others) category

consumers stating that it is too high as it would be equivalent to about 10 hours per day of electricity use throughout the year and (ii) Vitran Nigam adopting outside the state losses on energy purchases as 3.70% which is higher than 3.25% allowed by the Commission and (iii) employees cost per million kWH sold being higher than Rs.3Lakhs for 2 years. They have expressed that rate of supply of power from Dadri TPS indicated as Rs. 2.999 is quite high. They have desired that cost of power purchases from RVUN and RVPN power stations should be as per order of the Commission on their petitions. AVVNL has replied thatagriculture flat rate (other) category of consumers get 24 hours supply and hence are likely to consume more than the consumption norm for flat rate general category consumers. In consideration to high consumption , tariff fixed for such category of consumers isnearly 2 times that of General category . As regards employee cost per million kWh, it is stated that same works out as Rs.2.47 lakhs/million Kwh .The Commission has considered these and other aspects (referred above) in the assessment of energy sales, energy requirement and revenue requirements. The Commission has considered rate of 232.79 paisa per kWH as rate of sale from Dadri T.P.S.

11. RCCI have expressed that release of new agricultural connections indicated by three Vitran Nigams as 50000 is much higher than the ceiling target of 15000 in financial restructuring plan(FRP) and has further stated that Vitran Nigams as well as the State Government may consider its impact on energy availability and revenue deficit. In respect to their suggestions, AVVNL has replied that new agricultural connection policy, issued by the State Government on 18.9.04 has revised the targets for release of connections and its impact on energy requirement has already been considered while projecting the ARR for FY 05-06. During hearing, they stated that under unforeseen circumstances (like draughts, hot climate) such projections may get changed and there may be additional sales and purchases. the Commission would like to state that with an objective of clearing the backlog of pending applications for agricultural connection in 3 years , the State Government has formulated policy to release agricultural connection at much higher pace than that given in FRP of June 2003. The Commission considers higher release of connections to clear backlog as a step in consumers' interest and will consider the corresponding higher figure for assessment of energy requirement and revenue losses.

12. RCCI have requested that in respect of feeder renovation program, comparison of losses prior and after such renovation need be provided and have suggested that Vitran Nigams may target the voltage wise losses and the Commission may monitor them on quarterly basis. The Commission has been monitoring the energy audit of 11 KV feeders on quarterly basis. The Commission shall also be monitoring separately such information in respect of energy audit on feeders covered under feeder renovation program. The Commission observes that with 11KV feeder

monitoring, it will be feasible to work out 33 KV system losses. The Commission directs the Nigams to workout and report losses of 33kV system (including 33/11kV transformers) based on 11kV feeder monitoring and also of industrial areas/feeders separately. Wherever meters on 11kV feeders are defective or stopped, energy supplied through such meters may be assessed based on sales to consumers increased by six months average losses worked out when meters were in order. Alternatively, if this is not feasible then the energy recorded by the feeder meter for corresponding month of previous year with adjustment for increase in connected load may be adopted. If both of these methods, are not feasible then average monthly supply affected when meter was in order may be adopted. The Commission will have circle wise losses displayed on its web site of the Commission as well as those of the Vitran Nigams.

13. RCCI have suggested that Commission should allow losses as per targets of 29% fixed by the Commission and balance revenue requirement need be met by the State Government. The Commission has separately discussed the distribution losses to be considered for the purpose of aggregate revenue requirement.

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14. RCCI have raised issue of regulatory assets in their objection to ARR filing of JVVNL. In its order on said ARR, the Commission has expressed the view that till Vitran Nigams are having huge revenue deficit, even as per performance parameters (i.e. distribution losses , annual O&M expenses etc.) , the issue of determination of regulatory asset is not of any significance and therefore the Commission had not expressed its views on regulatory assets. The Commission has expressed that determination of quantum of revenue losses to be considered as regulatory assets should not be kept unresolved though recovery on this account can be deferred. After due deliberations on the filing of audited accounts as per para 18, the Commission will determine the regulatory assets and their considerations in subsequent ARRs.

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15. RCCI have expressed concern on huge outstandings of more than Rs. 700 Crores of three Vitran Nigams (consisting of Rs. 369 crores of JVNNL , Rs 170 crores of Jd VVNL and Rs.187 crores of AVVNL) in consumers and have suggested that these be brought down. The Commission directs that Vitran Nigams to segregate the recoverable and bad/doubtful amount as well as make vigorous efforts for their realisation / writing off their outstandings.

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16. RCCI have suggested that connections of subsidizing category, viz LIP, HT and Mixed load need be released expeditiously. AVVNL has expresses that this practice is already followed. The Commission has already specified in its regulation on supply code and connected matters the period within which a service connection is to be released. Vitran Nigams may cut short, the time schedule in respect of service connection to subsidizing category of consumers, wherever feasible. It is further directed that Nigam may furnish the quarterly progress report of status of consumer categorywise pending applications.

Implementation of the Commission's directives:

17. The Commission has given various directions in its orders on ARR filing and tariff petitions. Their status have been discussed in the Commission's order (last being dated 17.12.2004). The status of the Commission's directive, not implemented/under implementation by Nigam, is indicated at **annexure-1.**

A.R.R. for 2004-05

18. The Nigam has furnished figures for purchase and sale of power during FY 04-05 (hereinafter referred as FY-05) based on actual figures for 7 months and projections for 5 months. Actual figures of expenditure and revenue have been said to be available later when the accounts are finalized. As the year is already over, there is no point in analyzing aggregate revenue requirement for the year 2004-05 without audited accounts. The Commission would like to scrutinize the audited accounts when they are made available to the Commission. The Commission is not considering at present any revision in the ARR determined by it for the year 2004-05. Any adjustment/truing up shall be carried out after finalization of accounts for the year 2004-05. This truing up shall be carried for FY 01-02, 03-04 &04-05 based on audited accounts for these years. The Commission directs AVVNL to file actual figures of audited accounts for FY 01-02 to FY 04-05 within 2 months of this order. This submission will be made in the forms in which ARR filing has been made. This filing shall also indicate separately the borrowings made to meet revenue deficit and interest charges thereon and requirement of regulatory assets, if any. At this stage, the Commission would, however, like to make the following observations.

19. The Statement given below shows the sale and purchase of energy as projected in the order of ARR for FY 04-05 and ARR now furnished by the Nigam

Table -1

Energy purchase in MU			Energy sale in MU			Distribution losses%	
As per ARR order	Actuals (provisional)	Addl purchase	As per ARR	Actuals (provisional)	Addition al sales	As per ARR order	Actuals (provisional)
(a)	(b)	(c)=(b)-(a)	(d)	(e)	(f)=(e)-(d)	(a)-(d)/(a)	(b)-(e)/(b)
8402	9550	1148	5524	5397	(-)127	34.25%	43.49%

Rs. in Crores

	Power purchase cost			Revenue from sale of energy (including Other Income)		
	As per Tariff Order	Actual (provisional)	Additional	As per Tariff Order	Actual (provisional)	Additional
	(g)	(h)	(i)=(h)-(g)	(j)	(k)	(l)=(k)-(j)
Rs. In Crores	1601.58	1874.23	272.65	1806.73	1753.72	-53.01
Avg. Rate (Rs./unit)	1.91 (g)/(a)	1.96 (h)/(b)	2.37 (i)/(c)	3.271 (j)/(d)	3.249 (k)/(e)	- (l)/(f)

20. It would be seen from the above table that sale of energy as well as revenue from sale of energy has been less by 127 MU and Rs. 53.01 Crores respectively comparing to what was assumed in the tariff order dated 17.12.04, while purchases increased by 1148 MU and its cost by Rs. 272.65 Crore. This disproportionate increase in power purchase cost vis-à-vis revenue, has led to losses of Rs. 782.29 Crores, which is Rs. 325.66 Crores higher than revenue gap of Rs. 456.63 Crores as anticipated in Tariff Order dated 17.12.04. This has been caused due to high cost of power purchase. It is stated that purchase of additional 1342 MUs of energy was effected only to meet distribution losses being 9.24% higher than that targeted.

ARR for the year 2005-06

Energy Sales

21. The Commission has studied data in respect of number of consumers, sales, connected load, specific consumption and their compounded annual growth rate (CAGR) for last 4 years etc. of Ajmer Vidyut Vitran Nigam based on the actual figures for FY 99-00 to FY 03-04, projections for FY 04-05 & FY 05-06 (hereinafter referred as FY 06) given in ARR. Subsequent to filing of ARR, the Nigam has made available the figures of energy and revenue for the year 2004-05. However, the data in respect of FY 99-00 (i.e. year prior to unbundling) does not appear to be comparable with the trend of other years and as such the same has been excluded and assessment is based on the data for the period FY 00-01 to FY 04-05.

Domestic Service

22. The Nigam has projected sale of 1034 MU, which gives per capita consumption of 777.5 units/consumer for FY 05-06, which is a growth of 3.16% over previous year. Looking to the past trends and recent tariff rise, the per capita consumption may not rise to this extent and has been assessed by adopting growth rate of 1.58% (i.e. 50% of the growth rate) i.e. 766 units/consumer. It may be stated that after previous hike in tariff in FY 2001-02 also the per capita consumption remained practically constant. The estimated sale projections would be 1018 MU.

Non-domestic Service

23. Tariff for this category has not been increased. Hence, looking to previous year growth of 9.34%, the growth of 5.67% projected by the Nigam, is considered to be on lower side. Growth of 6.5% is considered keeping in view the growth of previous three years. The estimated sale projections would be 292 MU.

Public Street Lighting

24. Quantum of energy sale is small. However the projections indicated by the Nigam are slightly increased to the actual sale during the previous year i.e. 32 MU.

Agricultural Services

25. The Nigam intends to release 20000 agriculture connections during FY 05-06, all under metered supply category, as per directions of the Commission. Looking to the Government policy for elimination of backlog of pending applications for agriculture connections and actual release of about 20000 connections during previous year, it is expected that the Nigam would be able to release 20000 agriculture connections during FY 05- 06.

26. The Nigam in its ARR, under reference, has stated that because of strong opposition from the consumers against metering of flat rate consumers, they could convert only 5000 consumers during FY 05 and it would be impossible for them to convert balance 86282 nos. of consumers in one year. The Nigam has fixed a target to convert 10000 connections during FY 06. It is observed that conversion has been effected as under, which reflects the consumers resistance:
FY-02: 9683
FY-03: 35306
FY-04: 17071
FY-05: 5000

27. In view of the above the Commission accept the fact of not achieving 100% metering by FY 05-06. The Commission is separately issuing notification under Section 55 of the Electricity Act, 2003, extending the period of two years from the date of commencement of the Electricity Act (i.e. 9th June, 2005), for effecting supply through installation of a correct meter by 3 years.

(A) Agricultural Metered Supply Service

28. Following assumptions have been made by the Discom to arrive at Metered consumption
1. All new connections would be at average connected load of 6.07 kW/consumer.
2.Specific consumption for existing metered & new connections has been assumed at 913 units/kW
3. 10000 consumers shall be converted from Flat Rate (FR) to Metered Supply (MS) and assumed to consume in metered category for half of the year and their specific consumption is taken at the same level for FR consumers

29. Accordingly, the Discom has worked out the sale for Metered Supply as under

	No. of consumers	Av. Connected load	Connected load for FY 06	Specific consumption	Projected consumption(MU)
New connections (FY06)	20000	6.07	60700	913	55
Existing consumers	172617	5.54	956134	913	873
Converted consumers	10000	7.14	35700	1739	62
	202617				**990**

30. It is observed that as per form 2.1, the average connected load is 5.54 kW/consumer for all consumers under metered category and that for flat rate category it is 7.14 kW/consumer. For new-metered consumers the connected load is not likely to be higher than that of existing metered consumers. The Nigam have expressed to effect full conversion in 3 years. In consideration to this and number of flat rate consumers yet to be converted, the Commission considers conversion of 20000 consumers. Considering these factors and specific consumption of FY 04-05, the projected sale would be as under

	No. of consumers	Av. Connected load	Connected load for FY 06	Specific consumption	Projected consumption(MU)
New connections(FY06)	20000	5.54	55400	753	42
Existing consumers	172617	5.54	956298	753	720
Converted consumers	20000	7.14	71400	753	54
	212617				**816**

(B) Agricultural Flat Rate Service

31. Following assumptions have been made by the Discom to arrive at FR consumption

1. All consumers converted from Flat Rate (FR) to Metered Supply (MS) category, are assumed to consume in Flat Rate category for half of the year.
2. Assessment of Agriculture (Flat) – 'Others' category has been done at 3468 hours per annum against the norm of 1739 hours as allowed by the Commission.
3.The Discom has requested to allow the higher norms for Agriculture (Flat) – 'Others' category as these consumers get round the clock supply

32. Accordingly the Discom has worked out the sale for FR as under

	No. of consumers	Av. Connected load	Connected load for FY 06	Specific consumption	Projected consumption(MU)
Converted consumers	10000	7.14	35700	1739	62
Existing consumers	86282	6.24	538249	1739	936
Ag Flat (Others)	1255	5.28	6628	3468	23
	97537		580577		**1021**

33. The Commission has directed AVVNL to carry out loss diagnostic study, in its Tariff Order of 24.3.2001. In this study, average consumption of flat rate agriculture consumers will also to be determined. This part of the study has not yet been completed by the Nigam. The said study, interalia could have provided basis for setting norms for flat rate agricultural supply to normal and other categories. Further consumption as proposed by AVVNL for farmhouse, would mean operation of pumps for 11 to 14 hours a day. This is unconceivable even with 24 hours of supply. In absence of the data/ studies, the Commission is unable to accept Nigam's proposal and the basis of FR consumption @ 1739 units/kW/year, estimated by the Commission, shall be unaltered. Similarly, load of 7.14 HP per consumer is also on average basis for all types of FR consumers and will apply for all categories. The projected sale would be as under:

	No. of consumers	Av. Connected load	Connected load for FY 06	Specific consumption	Projected consumption(MU)
Converted consumers	20000	7.14	71400	1739	124
Existing consumers	76282	7.14	464293	1739	807
Ag Flat (Others)	1255	7.14	8961	1739	16
	97537		544653		**947**

Industrial Services

(A) Small Industries

34. It has been observed that the number of SIP consumers is continuously decreasing and the Nigam has indicated the number of consumers for FY 05-06 to be same as that indicated for FY 04-05.The Nigam has 264 applications pending for release of connections. SIP being a subsidizing category, the Nigam should strive to release all pending applications considering that the Commission had reduced minimum billing consumption of SIP consumers, which will affect healthy growth. The Commission considers all these aspects (Including release of 264 connections) and based on specific consumption of 948.27 kWh/kW/year and connected load per consumer of 8.02kW (as per Nigam's projection), considers the sales as 227 MU. The number of consumers and corresponding connected load would be assessed as 29865 and 244893 kW respectively

(B) Medium Industries

35. With the actual sale for FY 04-05, the projected growth works out to be only 2.48%, which is on very lower side looking to the previous year, which growth of 11.96% and 4-yr CAGR of 8.77%. Considering CAGR, the Commission projects the sale of energy to be 347 MU.

(C) Large Industries

36. There are 37 number of pending applications and the Nigam has projected reduction in connected load keeping the number of consumers unchanged. The growth projected for FY 05-06 comes out to be 1.88% with respect to previous year, which seems to be on lower side. The Commission has therefore projected the sale as 1474 MU considering previous year’s growth of 3.66%.

Public Water Works

(A) Public Water Works - Small

37. The sales of 138 MU projected by the Nigam indicates the growth of 8.70% over the previous year, which seems to be reasonable looking to previous year growth of 10.39% and CAGR of 7.24%.

(B) Public Water Works - Medium

38. Being small quantum, the Discom's projection has been accepted.

(C) Public Water Works - Large

39. Looking to the previous year growth of 0.57% and CAGR of 2.81%, the energy sale projected by the Nigam for FY 05-06 as 110 MU reflecting a growth of 21.53% over FY 04-05, seems to be on higher side. The Commission has projected the sale as 100 MU for the year FY 05-06 considering a growth of 10%.

Mixed Load

40. The Nigam's projection gives a growth of 4.21% over the previous year, which seems to be slightly on higher side, looking to the previous year growth of 3.01% and CAGR of 3.52%. However, looking to the marginal difference, the projection given by the Nigam has been accepted.

41. Accordingly total sales for the year will be 5495 MU for 2005-06 as per Table-2:

Table 2

Category wise sales & energy requirement of Ajmer Vidyut Vitran Nigam

Figures in MU

Energy Sale in MU **AVVNL**

	2004-05		2005-06	
	Estimated by the Commission	**Actuals**	**Proposed by the Nigam**	**As per Commission**
Domestic	940	980	1034	1018
Non Domestic	259	274	290	292
Public Street Lighting	30	32	31	32
Agriculture (Metered)	1096	720	990	816
Agriculture (Flat Rate)	938	1133	1021	947
Small Industrial Service	205	213	225	227
Medium Industrial Service	310	319	327	347
Large Industrial Service	1421	1422	1449	1474
Public Water Works (Small)	118	127	138	138
Public Water Works (Medium)	32	30	31	31
Public Water Works (Large)	103	91	110	100
Mixed Load	72	70	73	73
Railway Traction	0	0	0	0
Total	**5524**	**5413**	**5719**	**5495**
Growth			5.66%	1.51%

DISTRIBUTION LOSSES

42. AVVNL has stated that actual distribution loss for the year FY 04-05 is likely to be 43.49%. AVVNL has considered Distribution loss reduction of 2.50% during the ensuing year and has accordingly considered distribution loss of 40.99%. for FY 05-06. The Commission in its order dated 17.4.04 has targetted distribution losses of

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34.25% for the year FY04-05 and 29.0% for FY05-06. AVVNL has stated that it would be undertaking feeder renovation program to reduce the losses in the worst / high distribution loss feeders but target of 29%, would mean reduction of 14.48% during FY05-06 which is impossible to achieve in one year.

43. It is evident that AVVNL has failed to achieve the distribution loss target of 34.25% fixed by the commission for FY04-05. Even the distribution loss reduction of 1% proposed by it in its ARR of 2004-05 and thereby achieving the distribution loss level of 37.9% have not been achieved and there has been only a marginal reduction of 0.52% vis a vis previous years actual losses.

44. In its Tariff petition for FY 01-02 AVVNL, based on anticipated distribution loss of 34.95% in FY 99-00, had proposed distribution loss reduction of 1.70% during FY 00-01 and 3.70% during FY 01-02 i.e. distribution loss levels of respectively 33.25% & 29.55%. In its order dated 24.3.01,the Commission while recognizing that determination of distribution losses is not feasible in absence of reliable assessment of energy consumption of flat rate agricultural supply, accepted the distribution loss level for FY 99-00 & its reduction as projected by AVVNL for FY99-2000 and FY00-01 and accordingly fixed the distribution loss level of 29.55% for the year 2001-02. It directed AVVNL to bring down the distribution loss to 20% by the end of 5 years starting from FY 2001-2002.

45. In its order dated 10.6.03, the commission noted with concern the failure of AVVNL to achieve distribution loss level of 29.55%. However on account of draught conditions during the intervening year, increased hours of supply to agriculturists and also to avoid too high a target for loss reduction, the Commission did not further lowered the distribution loss level and maintained distribution loss level of 29.45% for the year 2002-03 also. The Commission also specified trajectory of distribution loss reduction for next 4 years. However, even for the year 2003-04, there has been not only the failure to effect distribution loss reduction as per the Commission's order but even loss reduction of 1% as proposed by AVVNL was not achieved. The commission in view of draught and other reasons as above and impossibility of achieving targetted level of 29.55%, directed in its order dated 17.4.04 for achieving distribution loss level of 34.25% for FY 2004-05 and specified trajectory for loss reduction during next 4 years. The distribution loss level so targeted for these years, has not been achieved Distribution loss level during various years has been as under:

Table 3

Year	2000-01	2001-02	2002-03	2003-04	2004-05#
Distribution loss	34.81%	35.74%	39.90%	44.01%	43.49%

#anticipated

46. Thus distribution losses instead of reduction has shown an increase vis a vis FY 99-00 level. This is a matter of concern, as high distribution losses reflects in increased revenue gap of the Discom and shall ultimately fall on the State Government as higher subsidy burden.

47. In its aforesaid order of 24.3.2001,the Commission with a view to accurately assess distribution losses and also to effect their reduction, interalia, directed AVVNL that:

(i) An action plan for effecting distribution loss reduction shall be submitted within one month of this order.

(ii) A detailed field study (referred to as 'Loss diagnostic study') shall be carried out by selecting a representative sample size in each consumer category on the basis of which total technical and non technical losses and also the annual average consumption of flat rate agricultural supply can be assessed. This study is to be continued for three years for considering the seasonal and yearly variations on account of various factors but a preliminary report of such study was to be made available before the next tariff filing. <u>The Commission has stated in said order that it will take a view on distribution loss level and consumption of flat rate agricultural consumer this after the report of the study is available.</u>

(iii) All new connections for agriculture consumers should be released in metered category only and that the existing flat rate agricultural consumers should also be transferred to the metered category within a period of 3 years.

(iv) Energy audit will be undertaken in each revenue circle by metering power supply from all 11 kV feeders to ascertain energy supplied and billed. Responsibilities shall also be fixed for reducing this gap in the energy supplied and energy billed in a time bound manner.

(v) All connections in agriculture category above 3 HP and all other categories of consumers with a connected load of more than 25HP shall install shunt capacitors, as specified, within 3 months of the notice.

Action Plan

48. In compliance to these directives, the Nigam has prepared a comprehensive long term action plan for reducing T&D losses and has updated it annually but the plan has failed to yield desired results and distribution losses have increased. AVVNL has enumerated in their ARR application, the following measures which they have undertaken for reducing Distribution losses.

1. Strengthening of distribution network by construction of 33kV and 11 kV substations to effect reduction in 11kV line length.
2. Intensive electrification under APDRP
3. Replacement of defective / stopped meters.

4. Energy accounting and audit
5. Installation of 11kV and LT capacitor banks respectively of 175 and 98 MVAr capacity
6. Conversion of flat rate agricultural connections to metered ones
7. New agricultural connections to be released under LT less system only
8. Providing 2000 Kms of ABC conductors in 2 years.
9. Renovation of 100 nrs . of 11kV feeder.
10. Intensive vigilance checking

49. Some of these measures have also been listed in ARRs and Tariff petitions of earlier years also but have not been much effective in the reduction of distribution losses, as there has been no / insignificant reduction in distribution losses. This may be mainly due to the reason that action plan has mainly stressed on technical means to effect loss reduction while, in fact, non-technical losses (or commercial losses) are very high. As such stress has to be on vigilance checking and effecting the investment more gainfully. In earlier hearings, Shri Sanyam Lodha and S.S.Shukla have criticized the feeder renovation programme (FRP) and other measures taken up by Jodhpur VVNL for strengthening the distribution network and reducing losses, as it in their view will be leading to infructuous expenditure with no visible improvement. In the light of no substantial reduction in losses, their objection has some relevance and is applicable to other Nigams also. The Commission shall, therefore, be monitoring the proposed and actual benefits of feeder renovation program of some feeders on monthly basis. <u>The Commission directs that Nigam within 30 days of this order shall furnish list of feeders for which feeder renovation program has been / will be undertaken during FY 05-06 along with their cost, other technical details, schedule of commencement & completion, category of consumers catered and loss reduction envisaged.</u> The Commission shall convey the names of feeders for which it will monitor the progress and performance of feeder renovation program.

Metering of agricultural connection

50. This directive of conversion of flat rate agricultural connection to metered supply agricultural connection was issued with a view that metering of all agricultural connection will enable determination of actual distribution losses , conservation of energy due to user charges and metering installation will enable distinguishing between genuine and non genuine consumers. Out of 153342 flat rate consumers as on 1.4.01 in AVVNL only 67060 were converted to metered supply by 31.3.05 (i.e. in 4 years) and still sizable number of 86282 are yet to be converted. The slow progress has been reported to be due to consumer's resistance/agitations against metering. Section 55 of the Electricity Act 2003 provides for metering of all consumers within 2 years of commencement of the Act or longer period notified by the Commission. In view of consumers' resistance only feasible option to achieve 100% metering so that main objective of determining actual losses and identifying the loss area is achieved , is that meters are installed irrespective of

metered or flat rate supply tariff . The Commission, therefore, directs that installation of metering on the existing flat rate consumers be effected at their premises (or alternatively at pole on their service line or transformers) with consumers given an option to be billed at either metered supply tariff or flat rate supply tariff on the condition that such option will be exercised annually in April (and first such option exercised in October 05 shall be valid up to April 06). Option once exercised will not be allowed to be changed during the year except when tariff revision takes place. Nigam shall maintain such meters.

Energy Audit

51. AVVNL has installed metering system on all 11 kV feeders & provided feeder codes to all consumers for the purpose of energy audit. However it is observed that generation of reports is taking long time (normally more than 3 months) and report is not generated for some feeders due to consumer's codes not being correct or meters becoming defective .The delay in preparation of reports of energy audit defeats the very purpose of energy audit. AVVNL need take steps to shorten the preparation of report and take expeditious follow up action. As per last report of March 05, it is observed that no report is generated for about 40% feeders due to defective meters and that for about 10% feeders it is not correct (being negative) due to wrong consumer code etc. About 35% feeders have losses exceeding 40%. Circle wise distribution losses, as reported, are as under for FY 04-05:

(i) Ajmer Circle	19.55%
(ii) Nagaur Circle	60.31%
(iii)Sikar Circle	55.29%
(iv)Jhunjunu Circle	45.54%
(v) Udaipur Circle	27.19%
(vi)Bhilwara Circle	27.63%
(vii) Banswara Circle	40.61%
(viii) Chittorgarh Circle	45.29%

52. These results indicate that losses are less in the circles having H.T. industrial load. Apparently LT Losses in all circles appears to be of the same order.

Capacitor installation

53. LT capacitors at consumer end provides effective reactive compensation. It improves the power factor of load current and consequently line losses and lesser voltage drop which leads to better voltage profile. The Commission in its order dated 24.3.01 have made it mandatory for all agricultural consumers and the LT consumer above 25h.p. to install capacitors. In compliance to this directive, notices were served to consumers for installation of 537 MVAr of capacitors. However, only 102 MVAr have been installed. The Commission directs that Nigam may vigorously persue the program rather than being satisfied by the revenue

from capacitor surcharge and have the capacitor installation from the consumers. Wherever, on account of such installation, voltage profile becomes better, Nigam /RVPN may switch off / shift their capacitor bank(s). The Capacitor surcharge is not payable only when capacitor is installed by the consumer and is operative. So wherever consumer is not effecting the installation of capacitor, the Nigam may install the same to effect improvement in system parameters and continue to levy surcharge. It is reported that in some cases, consumers have deposited for the cost of shunt capacitor, in that cases shunt capacitors of the capacity for which cost has been charged may be installed by the Nigam and handed over to consumer.

Loss diagnostic study

54. The loss diagnostic study was undertaken by Nigam as per above directive. Its commencement & execution has been considerably delayed and its report is still awaited. First year's report of such study for Jaipur Vidyut Vitran Nigam, carried out by M/s K.L.G.Systel ,for FY 2003-04 has now been furnished to the Commission. The distribution system of all Vitran Nigams is practically similar and distribution losses of AVVNL is likely to be of similar order but not less than that of JVVNL. As such it will be relevant to discuss said report in brief. Loss diagnostic study of JVVNL has been conducted on sample of 40 numbers of 11 KV feeders (out of 2421 feeders), which are having predominately domestic, nondomestic, industrial and agricultural consumers. Some feeders having loads which comprised of mixture of these loads have been selected (termed in the study as 'mixed load' feeders). Majority of sampled feeders are in urban areas. This study has reported category wise losses of 11KV feeders as under:

Table- **4**

Type of feeder	Total loss	Technical loss	Commercial loss
Domestic	43.90%	5.63%	38.28%
Non domestic	45.53%	5.13%	40.40%
industrial	24.54%	5.01%	19.53%
agricultural	44.36%	8.72%	35.64%
Mixed load	37.82%	5.14%	32.68%

55. This study is based on some assumptions like uniformly distributed load, ratio of motive power to static load, iron losses and miscellaneous losses (like LT service line loss, energy meter loss etc.) of 1.1% (0.5% for industrial feeders in Jaipur City Circle), ratio of LT to HT line length as 1.8 etc. On account of these assumptions and selection of mainly urban feeders, technical losses of JVVNL projected by the study will have some error, but it will have marginally affect on the actual technical losses of 11kV feeders of JVVNL determined by the study. The distribution system parameters and load pattern among Vitran Nigams will differ but in view of higher losses for AVVNL (compared to JVVNL) distribution losses of

AVVNL is likely to follow pattern similar to JVVNL for category wise distribution losses except that these will be higher than JVVNL to reflect higher distribution losses. The irresistible conclusion of this study is that very high commercial losses exist in all categories of loads except the industrial loads where it is about 50% of other categories. Very high losses in respect of public street lighting may have to be studied, as such feeders are metered at sending end. Their high losses may be due to unmetered/directly connected street lighting points not accounted properly. As per tariff for supply of electricity fixed charges per lamp are to be charged in such cases and as such the equivalent consumption in respect of such points may be worked out at average rate per kWH of metered public street lighting connections connected in the respective city / municipality. Losses reported in the study, vide **table –4** are not reflective of distribution losses of JVVNL's system as their system also has extensive 33 kV system and 33kV losses are not accounted for in the study. 33kV losses as indicated in cost of supply study, referred to later is 3.8%. Considering 33kV system losses of 3.8%, the aforesaid technical and commercial losses of JVVNL would get modified as under:

Table- 5

Distribution losses of JVVNL based on loss diagnostic study for FY 03-04

Type of feeder	Distribution losses incl. 33Kv losses		
	Technical	Commercial	Total
Domestic	9.22%	36.83%	46.04%
non domestic	8.74%	38.86%	47.60%
Industrial	8.71%	18.79%	27.49%
agricultural	12.19%	34.29%	46.47%
mixed load	8.74%	31.44%	40.18%

56. In their petition for cost of supply, AVVNL has also supplied technical and commercial losses of various categories of consumers . The losses at EHV were taken as 6.21% as per ARR order of the Commission. From the studies carried out by the planning department of the Discoms as part of the strengthening and augmentation of the distribution system, the average incremental losses for 33 kV system were found to be 3.85%. Though no studies were available with Discom for loss level at 11 kV, the incremental technical losses were taken as 5% considering transformation losses in 33/11 kV around 1.1% to 1.2% and line losses of around 3.85% for 33 kV system only. For EHV supply T&D losses indicated were 6.21%. After discounting for 6.21% transmission losses of EHV grid, the distribution losses(for 33 kV and lower voltage system) shall be as per annexure **–2**. Overall losses accordingly will be 34.36%, which is close to the targeted distribution losses for FY 04-05. This indicates that aforesaid losses assumed in the study were reflecting the targeted losses and not the actual losses which are now indicated as 43.49%.

Distribution loss target

57. On account of sample size adopted and assumptions involved results of both studies (even reduced to common base of supply at and below 33kV) will differ. However, order of total losses in both studies are more or less the same except for LV industrial loads where loss diagnostic study has indicated lower level of losses. The lower losses may be on account of clubbing of LIP,MIP & SIP and also better vigilance on industrial loads & on feeders feeding to industrial areas. Taking both studies into consideration and accounting for difference of actual and targeted losses for FY 04-05 in case of cost of supply study, the estimated technical and non technical losses can be considered to be that as per **annexure –3** which gives overall distribution losses of 43.52% for FY 04-05.

58. Reasons advanced by Vitran Nigams for increase in distribution losses has been changes in consumer mix, increased and assured hours of supply to rural areas(including agricultural consumers) resulting in actual sales to certain categories of consumers being different than that approved by the Commission (impliedly the consumption of flat rate agricultural consumers being higher than normative level of 1739kWH/kW/year) and decline in industrial consumption (due to industries switching over to conventional / non-conventional captive generation). As all consumers except flat rate agricultural consumers are metered one so all aspects other than assessment of flat rate consumers will be covered by sales mix. Assessment of consumption of flat rate consumers was to be made in loss diagnostic study but same has not been conducted. However, it is high time that review of distribution losses is effected as per tariff order dated 24.3.01 based on the results of the study conducted by JVVNL . The impact of sales mix can be approximately assessed based on assumed category wise distribution losses as per annexure **-3**. This impact vide annexure **–4** has been varying from -0.90% to 2.55% for various years. It is 2.55% for FY 04-05. Considering this approximation distribution losses as per actuals and that targetted (by the Commission) would be as under. Revised figures of distribution losses targets accounting for consumer sales mix is given in bracket (vide details at **annexure-4,** with negative value ignored). Thus even considering the sales mix, the actual losses for 2004-05 are about 6.69% higher.

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Table-6

Year	Target	Actual
2001-02	29.55% (29.55%)	34.81%
2002-03	29.55% (29.55%)	35.74%
2003-04	29.55% (30.54%)	39.90%
2004-05	34.25% (36.80%)	43.49%

59. The Commission had considered the increased hours of supply to flat rate consumers in its order dated 17.4.04 and has revised the norm from 1379 to 1739

kwh/kw/year. Review of losses so worked out will again be made when loss diagnostic study including assessment of consumption of flat rate agricultural consumers is completed. Such reassessment will however affect distribution losses and not the revenue. Distribution losses will reduce if norms of consumption of flat rate agricultural service is increased (based on their actual consumption being higher than norm) but in such a case targeted distribution loss would also be reset.

60. These targets were based on the objective to bring down the loss level to 20% in 5 years and the fact that loss reduction will be more and more difficult as it approaches ideal distribution loss level. Nigam has expressed that to effect a distribution loss level by 14.49% from 43.49% so as to achieve target of 29.0% will be impossible. The Commission, while, recognizing this fact would like to state that distribution loss level trajectory has been fixed in various orders of the Commission (last being dated 17.4 04) and except for FY 2004-05 when there has been about 0.5% reduction in distribution losses, there has been no reduction in distribution losses. The Commission finds that even reduction in losses proposed by Nigam for financial Year 2003-04 as 3.4% and as low as 1% for financial year 2004-05 has not been achieved by the Nigam. In earlier hearing on ARR / tariff petitions, objectors had in have been highly critical of the petitioner's inability to reduce T&D losses and achieving the targets fixed by the Commission for reducing losses and that distribution loss level of about 40% is indicative of the petitioners inefficiency specially in controlling theft of power and malpractices. In past, objectors have also expressed the view that very high reduction in distribution losses will not be possible to be achieved in one year. The Commission finds itself in a dilemma that on one hand very high reduction in distribution loss may not feasible and targeting the same may not motivate the Nigam to make efforts to achieve loss reduction while on the other hand such a situation has been created because of continued failure of Vitran Nigam to effect loss reduction and revision in the trajectory may lead to Nigam taking loss reduction target casually and continuing to be in a state of complacency as in past.

61. The Government of India, Ministry of power has notified National Electricity Policy vides no. 23/40/2004-R&R (vol II) dated 12.2.05 under section 3 of the Electricity Act 2003. As per section 61(i) of the Electricity Act, the Commission is to be guided by the National electricity policy for the determination of the tariff. National Electricity Policy, interalia, states (vide para 1.4, 5.4.4, 5.4.10) that very high level of technical and commercial losses and lack of commercial approach in management of utilities has led to unsustainable financial operations, and that Multi-Year Tariff (MYT) framework is an important structural incentive to minimize risks for utilities and consumers, promote efficiency and rapid reduction of system losses and that it would have to be clearly recognized that Power Sector will

remain unviable until T&D losses are brought down significantly and rapidly. It also specifies vide para 5.4.6 , 5.4.11 and 5.8.10 as under:

"5.4.6 A time-bound programme should be drawn up by the State Electricity Regulatory Commissions (SERC) for segregation of technical and commercial losses through energy audits. Energy accounting and declaration of its results in each defined unit, as determined by SERCs, should be mandatory not later than March 2007. An action plan for reduction of the losses with adequate investments and suitable improvements in governance should be drawn up. Standards for reliability and quality of supply as well as for <u>loss levels shall also be specified, from time to time, so as to bring these in line with international practices by year 2012.</u>

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5.4.11 High Voltage Distribution System is an effective method for reduction of technical losses, prevention of theft, improved voltage profile and better consumer service. It should be promoted to reduce LT/HT ratio keeping in view the techno economic considerations.

5.8.10 It would have to be clearly recognized that Power Sector will remain unviable until T&D losses are brought down significantly and rapidly. A large number of States have been reporting losses of over 40% in the recent years. By any standards, these are unsustainable and imply a steady decline of power sector operations. Continuation of the present level of losses would not only pose a threat to the power sector operations but also jeopardize the growth prospects of the economy as a whole. No reforms can succeed in the midst of such large pilferages on a continuing basis.

<u>The State Governments would prepare a Five Year Plan with annual milestones to bring down these losses expeditiously--------------."</u>

62. The Commission has specified Multi Year Tariff philosophy in its regulation on terms and conditions of determination of tariff. Its regulation 88(6) and (7) specify that licensee will indicate distribution loss target for 5 years period and that if during tariff period (first such period being upto 31.3.09), if distribution licensee exceeds the target fixed by the Commission in any year, 50% of the gains will be passed on to the consumers and 50% can be retained by the company. On the other hand, if the distribution company fails to achieve the loss reduction target fixed by the Commission, the entire loss on this count will be borne by the company and not passed on to consumers.

63. As per the National Electricity Policy, the State Government is to fix targets for distribution loss reduction. The same have not been conveyed. Financial restructuring plan of power sector, which may reflect the State Government's targets, is under consideration of the State Government. It may be stated that such targets fixed by the State Government may be based on current distribution loss level and reduction therein expected by it from Nigam under present setup

and consequently subsidy support to be provided by the State Government. However, the targets fixed by the Commission will reflect the reasonable level of efficiency expected from the Nigam for the reduction of losses which will form the basis as to what extent the losses will be passed on to the consumers. If however, the State Govt. fixes liberal norms, subsidy support will be provided by the state government.

64. The reduction of distribution losses to international level by the year 2012 is, thus, the guideline of the national electricity policy. This level varies from 7% to 15%. In vast country like India where distribution system is wide spread in rural area and specifically in Rajasthan state which has vast desert stretch, characterized by long HT and LT lines and low loads, achievement of international distribution loss level will not only be difficult by 2012 but will require heavy investments. In nineties T&D loss level of 15.0% was conceived as a desirable target which can be achieved 2-3 years after 2012 in Rajasthan. Distribution loss reduction cannot follow linear scale as it is more and more difficult to achieve the same level of loss reduction, as it reaches ideal level. As such, loss reduction has to be initially high and need reduce progressively. It is reported that in Delhi, NDPL has achieved Aggregate Technical & Commercial loss reduction from 53.4% to 33.8% in 3 years. Considering that Delhi's discom is operating in urban area while AVVNL is operating in urban and rural areas, more than 5% loss reduction may not be achievable in a year. Considering the above aspects, the Commission considers it appropriate to take a realistic view and refix its reduction for the tariff period of FY 05-06 to FY 08-09 taking the actual distribution loss of FY 04-05 as base. The Commission accordingly fixes loss reduction of 10% of targetted Distribution loss of previous year as target for the tariff period of 1.4.06 to 31.3.09 under regulation-84 & 88 of RERC(Terms & Conditions of determination of tariff) Regulations,2004 . Accordingly, Distribution loss reduction will be 4.35% for FY 05-06, 3.91% for FY 06-07, 3.52% for FY 07-08 & 3.17% for FY 08-09. Accordingly target of distribution loss shall be as under:

FY 05-06:	39.14%
FY 06-07:	35.23%
FY 07-08:	31.70%
FY 08-09:	28.53%

65. The Commission is of the view that the targets so fixed for the year, looking to the previous years loss levels may appear to be difficult but with determined efforts it may not be impossible to achieve. The Commission expects the JVVNL to put in their best efforts so that the targets fixed for this year and also next few years are attained. This is the only way of enhancing their revenues and getting out of the dependence on massive subsidy support from the State Government and high financial losses which may lead to debt trap .<u>The above distribution loss level for period 06-09 shall be reviewed only for next tariff period.</u>

66. From the consumer category wise estimated distribution losses given at **annexure-2** , reduction in category wise losses to achieve a particular level of reduction can be worked out, which has been computed for different consume categories at **annexure-5** for overall loss reduction by 4.35% for FY 05-06 .

67. It is evident from these calculations that to effect loss reduction , more emphasis is to be given to its reduction in low voltage domestic , non domestic , agricultural and industrial supply. Taking into consideration these calculations, the Commission directs that 11 kV feeders with losses higher than those indicated below and among them, those having higher distribution losses in absolute terms (in kWh) need be targetted for loss reduction by vigilance checking as well as feeder renovation program. Feeder renovation need cover installation of tamper proof service line (e.g. aerial bunched conductor , cable in conduit etc.) and meters in meter boxes installed outside the premises.

(i)	Domestic, non-domestic and Public street lighting load	40%
(ii)	Agricultural feeder	40%
(iii)	L.T. Industrial feeder	24%
(iv)	H.T. industrial load / industrial area11 kV feeder	10%
(v)	Other 11 kV feeders	10%
(vi)	33 kV feeders (including step down transformers)	4.0%

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68. Revenue realization through vigilance checking for theft and malpractices have shown downward trend since 2002-03. This has been reflected in increased losses. Vigilance target should, therefore, need be raised and be atleast that for FY 01-02 level and the Commission directs that targets need be fixed / reported separately for first four categories.

69. The Commission directs that there should be independent checking of meter reading on selective basis and for major discrepancy not only electricity bills be revised but action against defaulting employees may be taken. As service connection is to be released as per 'Supply Code' within 30 days of application or completion of substation / line work, so in order that billing start with first billing cycle after at the most 30 days of service connection order, practice of allotting account number with the service connection order need be strictly followed and where first meter reading is not conveyed for the billing cycle after 60 days of Service Connection Order , delay need be enquired & provisional billing be commenced subject to adjustment on receiving of date of connection and meter reading.

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70. The Commission further directs that In addition to rewarding of informer, and employees/officer involved in Vigilance checking already in vogue, Incentive scheme may be introduced to other employees of the Nigam directly involved in metering, billing and loss reduction program. The incentive be linked to reduction in distribution loss vis a vis previous year (or lowest level after FY 04-05 , whichever

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is lower) higher revenue realization per kWH sent out on 11kV feeder. For this purpose, the Commission will consider additional O&M expenses of Rs. 1.5 Crores for every 1% reduction in distribution loss. These O&M expenses shall be over and above that as per clause 94 of terms and conditions of determination of tariff regulation 2004 . The Nigam shall indicate separately the amount of rewards / incentives on this account included in actual O&M charges. The Commission directs that failure to effect distribution loss reduction achievement may be one of the item of annual appraisal report.

71. The Commission would like to state that energy audit of 11 kV feeders and loss diagnostic study are merely the tools to identify loss areas/feeders and to identify / prioritise the works to be undertaken in the implementation of loss reduction action plan which should be modified as per the results of energy audit/study. National electricity policy requires investment to be guided by loss reduction .The Commission accordingly direct that each feeder renovation need be justified by cost benefit analysis based on loss reduction envisaged and pay back period. Pay back period preferably be not more than three years and completion period of each scheme may not be more than 12 months. Nigam shall also indicate the cost, pay back period , month of commencement and completion for each scheme taken in hand. These details will also be the part of the ARR / tariff petition. Investment for the scheme not satisfying this condition shall not be considered by the Commission for the purpose of determination of fixed charges.

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72. In case of subsidized category, conservation of energy measures specially the use of high efficiency motors, drip / sprinkler irrigation etc. will reduce energy consumption and consequently the revenue loss / subsidy requirement. The State Government may like to frame schemes of incentive /capital incentives for promoting such energy conservation. Nigam have already commenced procurement of high efficiency transformers. In order to effect energy conservation and also reduce distribution losses , star rating system of Bureau of Energy Efficiency may be followed by the Nigam for transformer and other equipments being installed by it as well as by the consumers / other persons seeking connectivity with its system.

73. Technical loss level indicated in loss diagnostic study is reasonably low, as such the Commission does not agree with generally advanced argument that reduction in T&D loss will require considerable capital investment. It may require concerted efforts and increase in annual expenses on account of deployment of staff and incentives / rewards to induce the person to assist in reduction in losses. Shortage of staff not only adversely affect the normal maintenance and consumer services but it does not permit overloaded staff to take new initiative to curb theft & malpractices etc. Old/less qualified personnel at complaint centers/GSS is also affecting consumer servicing. Nigams have reported shortage of staff at various levels. The Commission would like the State Government to look into this aspect and give clearance, under Rajasthan Regulation of Appointment

to Public Services & Rationalization of Staff Act, 1999, to Vitran Nigam's proposal to effect recruitment of technical and non technical personals at entrance level (that is meter readers, complaint attendants, helpers, junior accountants and junior engineers) up to 5 % (five percent) of total existing strength mainly to be employed in rural areas.

74. As a token of its displeasure in Nigam's failure to reduce distribution losses, , the Commission would reduce the expenditure on purchase of power equivalent to 0.5 percentage point of distribution losses(i.e. 82.5MU), which comes to Rs. 1542 lakhs for AVVNL having failed to bring down its losses during last year to the specified level. The Commission also suggested that the State Government as sole owner of the three Vidyut Vitran Nigams should also give message of its intent to reduce distribution losses by providing administrative assistance and police protection to Nigam's staff specially engaged in vigilance checking.

Purchase of energy

75. RVPN has discontinued trading of electricity with effect from 1.4.04. The State Government has reassigned its share in partnership projects, allocation in central sector generating stations and generation capacity of RVUN in the ratio of 36:36:28 respectively among Jaipur, Ajmer and Jodhpur Vidyut Vitran Nigams.The Common pool supply from BBMB to Rajasthan Fertilizer Factories (RFF) shall be exclusively for Jaipur Vidyut Vitran Nigam. The State Government has also assigned non-conventional energy power stations among Vitran Nigams. Accordingly, capacity allocated to AVVNL is 110 MW of non-conventional sources (107 MW of wind farm and 3 MW Bio mass Sources). No Power is proposed to be purchased from CPP during the year. The Vitran Nigam is directly purchasing power from various generating stations through the common Rajasthan Power Purchase Centre with effect from 1.4.04 and bears transmission losses and transmission charges of STU (RVPN) and CTU (Power Grid Corporation of India). In its order of RVPN's transmission tariff for FY05- 06, the Commission has considered RVPN's transmission losses as 4.6% and outside the state transmission losses as 3.25%. The Commission has now determined the availability of power during FY 05-06, from various power stations, based on energy generation and allocation of AVVNL vide **annexure-6**. The generation of electricity from RVUN's power stations and availability from partnership projects have been considered as per the Commission's order dated 9.6.05 & 2.5.05 respectively. This availability has been reduced by the proportional share of AVVNL in supply of energy to the common pool consumers of BBMB and out of the state sale from Chambal and Satpura Complex. Based on the sales of **5495** MU, the total power purchase requirement by AVVNL shall be **9829**MU (vide table **7**),

Table -7

Power purchase requirement of Ajmer Vidyut Vitran Nigam

Figures in MU

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		Energy In MU
1	Total sales	5495
2	T&D loss targeted	39.14%
3	Energy Requirement at EHV GSS of RVPN	9,028
4	RVPN's transmission losses	
	%	4.60%
	MUs	435.33
5	**Sub-total (3)+(4)**	**9,464**
6	Within the state generation	6,145
7	RFF supply	
8	Outside state sales	**245**
9	**purchase from outside state at RVPN interface(5)-(6)-(7)+(8)**	3,564
10	**Outside state loss**	
	%	3.25%
	MUs	119.73
11	**Outside state Purchases**	**3,684**
12	**Total Energy purchase requirement (6)+(7)+(11)**	**9,829**
13	**Energy Availability**	**10527**
14	**Inter Discom sale**	**698**

76. The Commission directs AVVNL to work out schedule of monthly drawl considering the aforesaid purchase requirement and seasonal variations in load (specially that of agriculture consumers) and communicate the same to SLDC and the Commission . In assessing the monthly sales to unmetered agriculture services, appropriate factor of seasonal variation shall be applied to normative sale of 144.92 kWh/kW/month and shall be communicated to all unit officers and the Commission. The Commission shall monitor the performance of AVVN based on these detail.

Revenue Assessment

Sale of electricity

77. The revenue from sale of electricity (fixed charges plus energy charges) to different categories of consumers during FY 2005-06 has been estimated by the Commission vide table-**8** based on tariff order dated 17.12.04**.**

Table –8

Sr. no	Categories of consumers	Sale in MU	Revenue in Rs.Lakhs
1	Domestic	1018	41120
2	Non Domestics	292	16330

3	Public street lighting	32	1227
4	Agriculture		
	(a) Metered	816	11443
	(b) Flat rate	947	12717
5	Industries		
	(a) Small	227	9324
	(b) Medium	347	14409
	(c) Large	1474	62725
6	Public water works		
	(a) Small	138	5204
	(b) Medium	31	1249
	(c) Large	100	4252
7	Mixed load	73	3131
	Total	5495	183131

Late payment Surcharge 2960

186091

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78. Expenses for the year FY 05-06:

(i) Power Purchase Cost:

AVVNL has proposed total purchase of 10322 MU. At the target loss level of 39.14% and total sales of 5495 MU determined by the Commission, the total energy requirement works out to 9829 MU. In consideration of energy requirement of three Discoms, the Commission has modified the power purchase requirement by not considering interstate/inter regional purchases and appropriate reduction in temporary allocation. The energy purchases and interdiscom sales have been accordingly assessed as 10527 & 698 MUs respectively. The revised power purchase cost of AVVNL after considering the target loss level comes to Rs.204117 lakhs for 9829 MU as per **annexure 6**.

The net power purchase of 9829 MU shall be the basis for conveying monthly/daily schedule to SLDC as per regulation 5 of RERC (Power Purchase & Procurement Process of distribution licensee) Regulation, 2004 and in case of energy sales exceeding 5495 MUs, additional power requirement, including unscheduled interchange (UI) at loss level of 39.14% may be effected by AVVNL at an overall average rate of Rs.2.7775 per kWh (5% above RAPP tariff). Under frequency UI (i.e. UI at frequency below 49.8 Hz) shall be limited to 10% additional power purchases. UI and inter Discom purchases shall be worked out as per para 85 of the Commission's order dated 17.4.04. The cost of power purchase has been assigned as per **annexure-6**. In assigning the same, inter Discom purchases among JVVNL, AVVNL & JdVVNL has been taken at Rs.2.6450 per kwh. If however, AVVNL is required to purchase of energy over and above the quantum and rate specified by the Commission at the instance of the State Government for supply to subsidizing category, the State Government will provide subsidy for such purchases.

In assessing the power purchase cost, the cost of generation of RVUN's power stations has been considered as per RERC's order dated 9.6.05. The cost of power from partnership projects has been considered as per RERC's order dated 2.5.05.

The cost of power purchase for wind & biomass based power stations have been considered as per government of Rajasthan policies under which these were established.

The cost of generation at hydro power stations of National Hydro Power Corporation (NHPC) have been worked out based on petitions for determination for the period FY 04-05 to FY 08-09, filed by NHPC with CERC. In determining the tariff; fixed charges have been determined considering design energy as per the petition. Energy charges have been worked out based on energy rates as per the tariff petition. Income tax & incentive have been considered as per the Discom's reply dated 7.5.2005.

The cost of generation at thermal power stations of National Thermal Power Corporation(NTPC) have been worked out based on fixed charges and energy charges based on the petition for tariff determination for the period FY 04-05 to FY 08-09 , filed by NTPC with CERC. Energy charges have been enhanced by 9% to account for fuel price adjustment since energy charges of petitions are determined on base prices of March,2004. Income tax and incentives has been taken as per the Discom's reply. No enhancement had been effected for FERV, as exchange rate considered in the petition has not undergone substantial change.

In respect of Dadri TPS cost of generation has been calculated at specified PLF of 80% as such , no incentive has been considered.

In respect of Nuclear Power Stations, the tariff for sale of power is taken as determined by the Department of Atomic Energy, Government of India vide order dated 8.4.2003 and 10.2.2004. Subsequently, NPC board has effected the reduction in depreciation rates. Rate per MT of heavy water leased and lease charges have also undergone reduction. This accounts for reduction of about 15-paisa/kWh. for RAPP 2,3 & 4 and about 32 paisa/kWh for NAPP. Considering the base rates of 279.79 Paisa/kWh for RAPP and 252.56 Paisa/kWh for NAPP, the rates indicated in petition are in order and accepted.

The total power purchase cost allowed by the Commission is detailed at annexure-6. The break up is as under:

Table- 9

(Rs.in lakhs)

S.No.	Sources	Amount
1	Central Sector Generating Stations	62206
2	RVUN (inclusive of incentive)	127459
3	RVPN shared stations including RFF	1436
4	Other sources	7286
5.	Inter Discom Sale/Purchases	(-) 18463
6	PGCIL transmission charges	3871
7	RVPN's transmission charges	19680
8	SLDC Charges	642
	Total	**204117**

RVPN's transmission charges and SLDC charges have been considered as per RERC's order dated 2.5.05 and PGCIL's transmission charges have been apportioned in the ratio of 36:36:28. Transmission charges of PGCIL has been based on those indicated by Discoms.

(ii) Operation & Maintenance Expenses

While projecting the estimated O&M expenses for the year 05-06, AVVNL has considered higher base of Rs.17241 lakhs for the year 04-05. The Commission has considered an increase of 5% on the actual O&M expenses for the FY 03-04 based on annual increase in WPI. Accordingly, the O&M expenses of Rs. 17470 lakhs work out as under for the FY 05-06:

Table-10

(Rs.in Lakhs)

S. No.	Particulars	Claimed in petition for 05-06	Actuals for 03-04	Normative O&M expenses for 04-05 considering 5% escalation to actuals of 03-04	Normative O&M expenses for 05-06 considering 5% escalation to normative O&M of 04-05.
1	Employees Cost	14380	12325	12941	13588
2	Administrative & General Expenses	1652	1588	1667	1750
3	Repair & Maintenance Expenses	2255	1933	2030	2132
	Total	**18287**	**15846**	**16638**	**17470**

(iii) Addition to fixed assets during the year 05-06:

As per the audited accounts for the year 04-05 furnished by AVVNL, it is observed that nearly 74% of the total of capital outlay and the opening balance of work in progress has been transferred to the fixed assets in the year 04-05. The investment plan of the AVVNL of Rs. 30018 lakhs for the year 05-06 is under examination of the Commission and some clarifications have been sought which are yet to be replied. The Commission, therefore, tentatively considers the budgeted capital outlay of Rs. 30018 lakhs for the year 05-06. The addition to fixed assets @ 74% of the total of capital outlay and opening work in progress works out to Rs.29200 lakhs for the year 05-06 as under:

Table11

(Rs.in lakhs)

Particulars	Opening Balance	Capital outlay for the year	Capitalized during the year including IDC	Closing Balance	Capitalization in %
As on 1.4.03	3265	15922	14160	5027	73.79%
As on 1.4.04	5027	30812	26397	9442	73.65%
As on 1.4.05	9442	30018	29200	10260	74%

(iv)<u>Depreciation charges</u>:

AVVNL has claimed depreciation of Rs.4032 lakhs as against Rs.7795 lakhs in FY 2003-04 and advance against depreciation of Rs.7183 lakhs. Regarding amount of depreciation claimed, the Nigam in its reply has stated that it does not have information on the assets already depreciated and hence the percentage of net fixed assets to gross fixed assets has been multiplied with the rate approved by the Commission and has been used on opening GFA to arrive at depreciation for the year. The Commission does not find any logic in the methodology adopted by AVVNL in working out depreciation. It is also observed that depreciation on the assets added during the year has also not been considered. In absence of the detailed asset register, the Commission had considered 4% of the assets as lost/damaged and 3.5% of the assets as fully depreciated in it's order dated 17.04.04 determining the ARR for the year 04-05. Accordingly, an amount of Rs 11513 lakhs was reduced from the total assets to work out the depreciation. The Commission has adopted the same analogy to work out the gross fixed assets for the year 05-06 on which depreciation is to be provided. Accordingly, an amount of Rs.13352 lakhs has been reduced from the total assets to work out the depreciation. The depreciation determined by the Commission is Rs. 6727 lakhs indicated below:

Table-12

DEPRICIATION (AVVNL) FOR THE YEAR 05-06 (Rs.in Lakhs)

S. No.	Asset group	Opening balance	Additions proposed in the petition	Additions allowed	Total assets	Adjust ments#	Total Fixed Assets	Rate of deprecia-tion	Amt.

1	Lands & Rights	44	0	0	44	0	44	0	0
2	Building & Civil works	4792	1015	790	5582	0	5582	1.80%	93
3	Hydraulic Works	4	0	0	4	0	4	1.80%	0
4	Other Civil works	43	303	236	279	0	279	1.80%	3
5	Plant & Machinery	50200	6834	5319	55519	0	55519	3.60%	1903
6	Lines & other Net work	121994	28651	22298	144292	13352	130940	3.60%	4312
7	Vehicles	1149	24	19	1168	0	1168	18%	209
8	Furniture & Fixtures	106	48	37	143	0	143	6.00%	7
9	Office equipments	3075	645	502	3577	0	3577	6.00%	200
10	**Total:**	**181407**	**37520**	**29200**	**210608**	**13352**	**197256**		**6727**

#Adjustments

Opening GFA	181407
Less 4%`	7256
Net	174151
Less: 3.5%	6095
Net GFA	168055
Reduction	13352

(v) <u>Interest and finance charges</u>:
AVVNL has claimed interest and finance charges of Rs.20458 lakhs, the break-up of which is as under:

Table-13

(Rs.in lakhs)

Particulars	Average Loan Amount	Interest charges
Interest on long term loans	100075	9906
Interest on short term borrowings (Revised)	87712	7638
Interest on security deposit @ 6%	-	1697
Finance charges	-	2056
Less: Interest capitalized	-	839
Net Interest		**20458**

The Commission has however observed that AVVNL has not been able to achieve the target loss level fixed by the Commission from time to time, which has resulted in higher revenue deficit and consequently higher borrowings to meet the deficit. The Commission would like to calculate the actual subsidy requirement of AVVNL for the period FY 00-01 to FY 04-05 based on the target loss level. As per audited accounts the details of deficit and subsidy received is as under:

Table-14

REVENUE DEFICIT OF AJMER DISCOM (Rs.in Lakhs)

Year	Revenue Deficit	Subsidy in Cash	ED Retention	Interest and other Subsidy	Total	Net Revenue Deficit	Cumulative Revenue Deficit
2000-01	24328	0	4600	0	4600	19728	19728
2001-02	42785	0	9395	90	9485	33300	53028
2002-03	53574	7116	9070	173	16358	37215	90243
2003-04	67312	14098	9900	415	24413	42899	133142
2004-05#	71643	20712	14881	502	36095	35548	168690

#-As per audited accounts

The deficit as per the targeted distribution loss shall be less than as indicated above. Since, the Commission is determining ARR as per the targeted losses, it will ensure that the interest charges on borrowings to meet revenue deficit are not reflected in ARR of future years. As stated above, the Commission will determine the same upto FY 04-05 on receipt of its audited accounts at the time of truing up following the principles of multi year tariff.

The Commission has also worked out the interest to be capitalized for the year 2005-06. The addition to fixed assets including IDC considered by the Commission for the year 2005-06 is Rs. 29200 lakhs. This is to be funded by equity to the extent of Rs. 7550 lakhs, by consumer contribution to the extent of Rs.13400 lakhs (revised) and balance of Rs.8250 lakhs by long-term loans. Interest during construction period at the rate of 9.9% included in this loan component for six months is Rs 372 lakhs, which is required to be capitalized. Interest component at the rate of 9.9% included in the closing balance of work in progress amounting to Rs. 10260 lakhs for six months is Rs. 462 Lakhs. The total interest to be capitalized therefore comes to Rs. 834 lakhs. The total interest charges allowed by the Commission are as under.

Table-15

(Rs.in lakhs)

Particulars	Average Loan Amount	Interest charges
Interest on long term loans	100075	9906
Interest on short term borrowings	87711	7638
Interest on security deposit @ 6%	-	1697
Finance charges	-	2056
Less: Interest capitalized	-	834
Net Interest		**20463**

(vi)Advance against depreciation:

As stated above, the AVVNL has claimed advance against depreciation of Rs.7183 lakhs being the difference between the long term loan repayment and depreciation claimed. The Commission has corrected the depreciation charges from Rs.4032 lakhs, as claimed in ARR to Rs.6727 lakhs. The Commission observes that the sum of equity plus long term loans is higher than the sum of Net Fixed assets plus works in progress. The Commission has not, therefore, considered Advance against depreciation.

(vii) Working Capital Requirement:

The working capital requirement of AVVNL as per RERC (Terms and conditions for determination of tariff) Regulations, 2004 is allowed as under:

Table-16

(Rs.in lakhs)

Particular	**Amount**
Normative O&M expenses for one month	1456
Maintenance spares for two months based on annual requirement of 1% of GFA of previous year as determined by the Commission worth Rs.181407 lakhs	302
Receivables for 60 days as determined by the Commission.	33085
Total:	34843
Less: Security deposit	28282
Net working capital	6561

Against the above requirement of working capital the Nigam has proposed short-term borrowings of Rs. 20000 lakhs in the year 05-06. The Commission directs that the Nigam may effect reduction in the same progressively. The Commission has already allowed interest charges on the total loan requirement (long term and short term) of AVVNL. Average short term borrowings considered therein is

Rs.87711 lakhs and the same is higher than the working capital requirement. As such no separate interest on working capital requirement is considered.

(viii) Lease Rental:
Lease rent of Rs.26 lakhs claimed by the petitioner is hereby allowed.

(ix)Revenue from Theft & Malpractice:
AVVNL has proposed revenue of Rs.1819 lakhs on account of theft and malpractice which corresponds to the actual amount of FY 03-04. The Commission has observed that the revenue from theft and malpractice in the year 01-02 was Rs.1921 lakhs, which has increased to Rs.1947 lakhs in 2002-03, and reduced to Rs.1819 lakhs in 2003-04. The Commission considers that the level of 2002-03 at least should be maintained. Accordingly, the Commission considers revenue on account of theft and malpractice to be Rs.1947 lakhs for the financial year 05-06.

(x) Other Income:
The other income of Rs.1825 lakhs (on account of investment and other non tariff income) is accepted. The petitioner has also considered the following income of Rs.12420 lakhs as part of revenue from sale of power:

			Rs. in lakhs
(i)	Difference of minimum charges	:	12366
(ii)	Incentive	:	(-) 908
(iii)	Voltage rebate	:	(-)556
(iv)	Meter & Transformer Rent	:	257
(v)	Power Factor/Shunt Capacitor charge		625
(vi)	Load/Excess Demand charges etc		636

			12420

This has been considered by the Commission as other tariff income.

(xi)Aggregate Revenue Requirement:
The total aggregate revenue requirement etc. of AVVNL for the year 05-06 determined by the Commission is as under:

Table-17

Rs. in lakhs

Particulars	Claimed by the	Allowed by the

	petitioner.#	Commission
A - Revenue from		
Sale of Electricity	187012	186091
Other Tariff Income	12420	12420
Revenue from theft/malpractices	1819	1947
Other Income	1825	1825
Total:	**203076**	**202283**
B - Expenditure		
Power Purchase Cost	211644	204117
Operation and Maintenance	18287	17470
Depreciation	4032	6727
Advance against Depreciation	7183	0
Lease Rental	26	26
Interest & Finance charges	20458	20463
Total:	**261630**	**248803**
C - Reduction in expenses on account of failure to reduce T&D loss		**1542**
Deficit (B) - (A) - (C)	**58554**	**44978**

Revised as per reply dated 7.5.05.

79. The above deficit is based on tariff as per RERC's tariff order dated 17.12.04. Subsequently, State Government under provisions of section 65 of the Electricity Act, 2003, have effected the reduction in tariff and the Commission has indicated subsidy requirement for the same as Rs. 72.74 crores for the FY 05-06 for AVVNL as under. The deficit as above is without accounting for this subsidy and in addition the conversion of interest free loan of Rs43.89 crores (for AVVNL) into subsidy due for FY 04-05.

a. Subsidy of non implementation of tariff order upto April,2005 : Rs14.63 Crores
b. Subsidy as per directive dated 26.5.05 (7.62+3x11.43 Cr.) : Rs41.91 "
c. Subsidy as per directive dated 13.7.05 : Rs16.20 "
Total: Rs72.74 Crores

80. The above deficit also does not consider the impact of staying recovery as per the aforesaid tariff order of the Commission on any account. For such stays by the State Government, subsidies would be payable as per section 65 of the Electricity Act, 2003 for the period of stay.

81. Revenue gap is thus Rs. 44978 lakhs for FY 05-06. This gap is to be bridged by tariff rise and/or fuel price adjustment or subsidy from the State Government. Even for earlier years, revenue of AVVNL has been much less than its expenses. This gap has not been bridged by the subsidy provided by the State Government. Due to

large gap, AVVNL will not be in the position to discharge its liability for payment to generating companies, transmission companies and SLDC. There may be default in payment as well as extra borrowings to discharge liability. On account of this, additional liability may accrue due to late payment surcharge payable to Central Sector Power Station and Central Transmission Utility and/or interest charges on such borrowings, which has not been accounted for in the above revenue gap.

82. Any slippage in achieving targeted distribution loss will lead to higher purchases. Additional loss of 1% will be equivalent to additional purchase of 163 MUs, which at the incremental cost of generation at STPS of Rs.1.8927 per kWh (including incentive) works out to extra loss of Rs.30.85 crores. Actual additional losses may be still higher due to purchases effected at much higher rate. To avoid such heavy additional losses, AVVNL need closely monitor and regulate sales to its consumer (specially under subsidized category) and effect purchases from generating companies on daily/monthly basis matching with the sales keeping in view the distribution loss level to be achieved.

83. Copy of this order shall be supplied to AVVNL, objectors heard and the State Government. It shall also be placed on the Commission's website.

sd/-	sd/-	sd/-
(K.L.Vyas)	(S.M.Dharendra)	(Shanti Prasad)
Member	Member	Chairman

Deleted: ¶