

ANNEXURE - V



Report

Actuarial Valuation

of

Gratuity, Pension & Leave  
encashment Liability  
As at March 31, 2009

Central Power Distribution  
Company of Andhra Pradesh Ltd.  
(APCPDCL)

July 27, 2009

GM (Rev)	✓
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(D&S)	✓
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Annexure V  
3/11/09



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## Central Power Distribution Company of AP Limited (APCPDCL)

### Actuarial Valuation of Staff Terminal Benefits

#### BACKGROUND

- I. The Government of Andhra Pradesh initiated reforms in power sector with the objective of ensuring efficient supply of electricity in terms of quality, cost and support economic and infrastructure development of the State. The road map of reforms also had set the direction to achieve financial discipline and become commercially viable. The implementation of Reform Process started with the enactment of Andhra Pradesh Electricity Reform Act, 1998, by the Government of Andhra Pradesh.

Under the power sector reform program, Andhra Pradesh State Electricity Board (APSEB) was corporatised and unbundled into the Power Generation Corporation of Andhra Pradesh Limited (APGENCO) and the Transmission Corporation of Andhra Pradesh Limited (APTRANCO) with effect from 1<sup>st</sup> February 1999. Further APTRANCO was unbundled into Transmission Company and four Distribution companies (DISCOMS) on 1<sup>st</sup> April, 2000.

The erstwhile APSEB since its formation in April 1959 has been making ad hoc provisions towards employees' terminal benefits: Pension and Gratuity. The provisions were grossly inadequate and were not cash funded. Payments of terminal payments as and when due was made from the current revenues.

APSEB ascertained the liabilities through an actuarial valuation as at 31<sup>st</sup> January 1999. This valuation was done with sample employee data.

Based on the said actuarial valuation the initial fund size for unfunded liabilities of pension and gratuity were estimated as under:

Rs. 1320.43 Crores for funding pension liability of pensioners. Pensioners are those employees, who retired on or before 31<sup>st</sup> January, 1999.

Rs. 2811.98 Crores for funding towards pension and Rs.254.54 crores towards gratuity in respect of serving employees that is employees who were on rolls as on 31<sup>st</sup> January 1999.

- II. In order to comply with legal, accounting and fiscal management requirements (Income Tax and Companies Act provisions) Trusts are set up to manage and administer Pension and Gratuity programs. Details of the Trusts are:

Master Trust	Managed / Administered by all the 6 Companies
Units' / Companies Trusts	Managed / Administered by the respective units / Companies

Master Trust is created to meet the Pension and Gratuity liabilities of the following category employees

1. 100% Pension liability of employees who have retired on or before 31<sup>st</sup> January 1999. This is backed with an investment of Rs. 1320.43 crores guaranteed by Government of Andhra Pradesh.
2. 74% of Pension and Gratuity liability in respect of employees who have continued in service beyond 31<sup>st</sup> January 1999. The sharing of 74% of the liability is backed with an investment of Rs.3066.52 Crores, guaranteed by Government of Andhra Pradesh.

Each of the 6 Units have created separate Trust Fund to meet Pension and Gratuity liabilities of the following employees

1. 26% of Pension and Gratuity liability in respect of employees who have continued in employment after 31<sup>st</sup> January 1999. This will also include the pension liability of those who retired between 31<sup>st</sup> January 1999 and 31<sup>st</sup> March 2009.
2. 100% of Gratuity liability in respect of employees in the respective units who have joined services on or after 1<sup>st</sup> February 1999.
3. Each of units' has made contributions to the respective Trusts and the funds are kept invested.

As per the Reforms Act a statutory authority called 'The Andhra Pradesh Electricity Regulatory Commission' has been constituted by the Govt. of Andhra Pradesh to oversee the functions of licensees including APTRANSCO, four distribution companies and fix the Power Tariffs to various categories of power consumers in the State.

Power tariffs are decided on the basis of costs and employee post retirement benefit obligation also is a constituent cost in deciding the tariffs as per APERC orders dated 15<sup>th</sup> March 2004 (paragraph 99 to 100)

## INTRODUCTION

Hewitt Associates (India) Private Limited has been mandated by Central Power Distribution Company of AP Limited (APCPDCL) to determine liabilities through an Actuarial Valuation as at 31/03/2009.

## PURPOSE OF THE VALUATION

To assess the liability of the accrued benefits in respect of the following

1. Pension Liability in respect of employees who retired on or before 31<sup>st</sup> January 1999
2. Accrued Pension and Gratuity Liability in respect of employees of APCPDCL who have continued in service after 31<sup>st</sup> January 1999
3. Accrued Gratuity liability in respect of employees of the company who joined on or after 1<sup>st</sup> February 1999. These employees are not members of the pension scheme.
4. Allocation of liabilities for Pension and Gratuity between APCPDCL and the Master Trust, in respect of employees who were on the rolls as on 31<sup>st</sup> January 1999 and continued in service beyond 31<sup>st</sup> January 1999, in the ratio of 26% to Unit Trust and 74% to Master Trust.
5. Determine the future contribution rates required as a percentage of the qualifying wage bill.
6. Leave encashment Liability for all the employees on the roll on the valuation date.

## BENEFITS VALUED

Retirement benefit plans which have been valued are:

1. Pension
2. Gratuity
3. Leave encashment with Long Term Compensated Absences (LTCA)

\*The benefit formula has been evolved on the basis of rules of the schemes as provided in the published booklet - The Andhra Pradesh Revised Pension Rules, 1980.

## VALUATION DATES

The valuation exercise has been carried out as on 31/03/2009.



DATA & ASSUMPTIONS

SUMMMAR OF EMPLOYEE DATA AS ON 31<sup>ST</sup> MARCH 2009 –ACTIVES

Joined before 31.1.99	Joined after 31.1.99	Total
7439	3330	10769

PENSIONERS

Retirement before 31.1.99		Retirement after 31.1.99		Total
Pensioners	Family Pensioners	Pensioners	Family Pensioners	
1515	2484	4683	2427	11109

VALUATION METHOD

The Actuarial value of Past Service benefits is calculated in respect of accrued service of active employees basing the calculations on the projected salaries from the date of Valuation to the assumed date of exit of the members. (This method is usually termed as projected accrued benefit method / projected unit credit method)

As regards future service, an annual contribution rate as a percentage of pensionable salaries is estimated, which, if paid regularly, (together with existing fund) is expected to meet the benefits out go in respect of existing members of the scheme.

# VALUATION ASSUMPTIONS

Rate of Interest / Discount	8% per annum
Rate of Salary growth	Scenario 1 = 7% Scenario 2 = 9%
Rate of inflationary increases in pensions	4%
Mortality – Active members	LIC 1994-96 ULTIMATE
Mortality – Pensioners	LIC 96-98A
Withdrawal – Age specific	Up to 30 years 1% 31 to 48 years 0.5% Above 48 years 2%
Rate of Commutation of Pension	40%
Restoration of Commutation	15 years from retirement
Retirement age	58 Years
Dependant benefits	As per provisions of the scheme

# BIFURCATION OF LIABILITY BETWEEN APCPDCL AND THE MASTER TRUST

The liability in respect of gratuity and pension has been bifurcated between APCPDCL and Master Trust as per details given below:

Accrued Liability in respect of:	Liability allocation	
	Master Trust	Unit Trust
Gratuity for employees who continued on rolls beyond 31 <sup>st</sup> January 1999	74%	26%
Gratuity for employees who joined with the units on or after 1 <sup>st</sup> February 1999	Nil	100%
Pension for employees who continued on rolls beyond 31 <sup>st</sup> January 1999 (excluding those retired from 1 <sup>st</sup> Feb 1999 to 31 <sup>st</sup> March 2003)	74%	26%
Pension for employees who joined with the units on or after 1 <sup>st</sup> February 1999	Not eligible	Not eligible
Pension to the Pensioners who retired from employment on or before 31 <sup>st</sup> January 1999	100%	Nil
Pensioners who retired from employment between 1 <sup>st</sup> February 1999 and 31 <sup>st</sup> March 2003	74%	26%



## FUTURE CONTRIBUTION RATES

### MASTER TRUST

The entire liability of the Master Trust is to be met out of the bonds issued and any shortfall as explained above will be met through additional interest payments. As such there are no future contribution rates for Master Trust

### APCPDCL'S SHARE

APCPDCL's share of total service liability will be met by existing fund, provided the contribution rates in the table below are maintained and that the demographic and economic assumptions are borne out. Total service liability assessment for units consist of the following

1. Pension liability in respect of those who retired between 1-2-1999 and the valuation date
2. Pension liability in respect of active employees who continued in service after 31.1.99
3. Gratuity liability in respect of active employees who continued in service after 31.1.99
4. Gratuity liability in respect of employees who are recruited after 31.1.99

Table of Contribution rates assuming salary escalation rates of

(a) 7% p.a (Scenario I)

(b) 9% p.a (Scenario II)

are given below:

Name	APCPDCL	
Average Age	42.5	Years
Average Past Service	15.75	Years
Ratio of Fund to Accrued Liability	38	%
Contribution Rate ( 2009)	29.80	SCENARIO I
Contribution Rate ( 2009)	30.86	SCENARIO II

The future contribution rate as a percentage of qualifying salary depends on various factors. These include average age, average past service and the funding status (i.e. Ratio of the current fund to the total accrued liability calculated on the basis of actual past service and estimated salary at the time of separation of each individual employee).

## RESULTS OF THE VALUATION & CONTRIBUTION RATES REQUIRED

Results for the year 2008-09 are given in Annexure A


### Cash flow projections

Estimates of outgoes for the following years arising from payments of

- (1) Pension in respect of existing pensioners.
- (2) Commuted value (lump sum at retirement)—active employees
- (3) Pension—active employees and
- (4) Gratuity in respect of employees retiring after 31-03-2009 (both pre and post 1-2-99) have been worked out on the following assumptions

- The fund will be paying the pensions and will not be purchasing annuities from LIC or any other insurance company
- The pensionable salary growth is at the rate of (a) 7% and (b) 9%
- Pension increases at the rate corresponding to an inflationary increase of 4%.
- All employees will commute the maximum allowable at 40%
- All survive, serve and retire on the normal retirement date

Cash flow projections are given in Annexure B

  
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(Fellow of Institute of Actuaries of India)

Place : Mumbai  
Date : 28<sup>th</sup> July 2009

Annexure A

PLAN-WISE LIABILITY

APCPDCL		Scenario-1 - 7% Salary Esc		Scenario-2 - 9% Salary Esc	
BASIS-Unit 26%, Master 74%					
31st March 09					
Accrued Liability		UNIT	MASTER	UNIT	MASTER
Gratuity for employees on rolls ON 1-2-1999		275,085,652	782,936,088	288,058,872	819,859,867
Gratuity for employees who joined units on or after 1.2.1999		68,964,720	-	91,984,407	-
Pension : employees on rolls on 1-2-99 -excl. retirees from 1.2.99 to 31.3. 09		1,747,997,183	4,975,068,907	2,118,412,435	6,029,327,785
Pension for employees who retired from 1.2.99 to 31.3. 09		2,891,368,443	8,229,336,339	2,891,368,443	8,229,336,339
Pensioners(pre 01.02.99)and Family pensioners			3,907,346,591		3,907,346,591
Total Accrued Liability as at 31st March 09		4,983,435,999	17,894,687,924	5,389,844,188	18,985,870,582
Fund as on 31st March 09		1,910,000,000		1,910,000,000	
Deficit					
Contribution Rate		3,073,435,999		3,479,844,188	18,985,870,582
Gratuity					
Total Service Liability (Active as on 1-2-99)		339,047,484	964,981,299	339,048,152	964,983,202
Total Service Liability (post 31.1.99)		284,388,058			284,390,700
Sub Total 1		623,435,542	964,981,299	339,048,152	1,249,373,902
Pension:					
Total Pension :employees on rolls on 1-2-1999-excl. retirees from 1.2.99 to 31.3. 09		2,475,076,313	7,044,447,967	3,111,698,118	8,856,371,568
Total Pension : Those retired from 1.2.99 to 31.3. 09		2,891,388,443	8,229,336,339	2,891,388,443	8,229,336,339
Pensioners(pre 01.02.99)and Family pensioners			3,907,346,591		3,907,346,591
Sub Total 2		5,366,464,756	19,181,130,897	6,003,086,562	20,993,054,497
Grand total		5,989,900,298	20,146,112,196	6,342,134,714	22,242,428,399
Fund as on 31st March 09		1,910,000,000		1,910,000,000	
Liability to be funded through future contributions		4,079,900,298		4,432,134,714	
Contribution pa as % of qualifying wage bill to fund future liability		29.8		30.86	
Leave encashmet Liability		2,244,153,848		2,638,963,464	

## Annexure B

### Cash flows

Year	SCENARIO-1					SCENARIO-2				
	ACTIVE EMPLOYEES				TOTAL	ACTIVE EMPLOYEES				TOTAL
	COMMUNIC - TATION	PENSION	GRATUITY	PENSIONERS		COMMUNIC - TATION	PENSION	GRATUITY	PENSIONERS	
2009	2.56	1.34	2.02	15.99	21.91	2.61	1.37	2.07	15.99	22.03
2010	5.15	1.97	2.87	16.29	26.27	5.31	2.03	2.89	16.29	26.52
2011	3.83	2.48	2.42	16.58	25.31	4.02	2.58	2.45	16.58	25.63
2012	3.24	3.05	2.35	16.93	25.57	3.47	3.20	2.41	16.93	26.01
2013	3.90	3.68	2.59	17.19	27.36	4.25	3.90	2.67	17.19	28.01
2014	3.77	4.24	2.88	17.61	28.51	4.18	4.54	2.99	17.61	29.32
2015	3.92	4.85	2.73	17.84	29.34	4.43	5.23	2.85	17.84	30.35
2016	3.86	5.54	2.88	18.10	30.38	4.45	6.04	3.02	18.10	31.61
2017	4.53	6.22	3.28	18.44	32.47	5.32	6.86	3.45	18.44	34.06
2018	4.42	6.91	3.41	18.64	33.38	5.28	7.69	3.61	18.64	35.23
2019	4.40	7.65	3.43	18.70	34.19	5.36	8.60	3.66	18.70	36.32
2020	4.50	8.39	3.85	18.70	35.43	5.59	9.53	4.15	18.70	37.96
2021	5.00	9.04	4.09	18.61	36.75	6.31	10.37	4.47	18.61	39.76
2022	3.94	9.73	4.13	18.50	36.30	5.06	11.25	4.63	18.50	39.45
2023	4.15	10.17	4.03	20.00	38.35	5.44	11.85	4.50	20.00	41.79
2024	4.28	11.36	4.46	19.22	39.32	5.72	13.33	4.94	19.22	43.21
2025	5.17	12.66	4.72	19.39	40.94	7.04	15.03	5.20	18.39	45.66
2026	5.84	14.06	5.61	17.52	43.03	8.09	16.92	6.17	17.52	48.70
2027	7.19	15.48	6.83	16.51	46.11	10.16	18.85	7.30	16.61	52.91
2028	6.83	16.59	6.33	15.67	45.42	9.77	20.36	6.69	15.67	52.50
2029	3.98	17.50	5.54	14.71	41.73	5.83	21.62	5.70	14.71	47.86
2030	3.04	18.36	4.92	13.73	40.05	4.53	22.81	5.00	13.73	46.08
2031	8.80	65.34	6.29	49.06	129.48	13.36	81.53	6.31	49.06	150.26
2032	4.25	67.82	5.58	45.31	122.97	6.59	85.01	5.59	45.31	142.50
2033	3.82	70.18	5.17	41.62	120.79	6.03	88.37	5.17	41.62	141.18
2034	2.28	72.53	4.74	38.00	117.56	3.67	91.75	4.74	38.00	138.17
2035	1.96	74.75	5.23	34.51	116.45	3.20	94.99	5.23	34.51	137.92
2036	1.14	76.78	4.57	31.15	113.65	1.90	98.02	4.57	31.15	135.65
2037	1.03	78.73	5.42	27.97	113.15	1.75	100.99	5.42	27.97	136.13
2038	0.49	75.58	4.42	24.97	105.47	0.85	97.40	4.42	24.97	127.64
2039	-	77.39	3.46	22.18	103.03	-	100.23	3.46	22.18	125.87
2040	0.11	79.31	2.87	19.61	101.89	0.19	103.26	2.87	19.61	125.93
2041	-	81.24	2.02	17.25	100.51	-	106.38	2.02	17.25	125.65
2042	-	82.94	1.47	15.12	99.53	-	109.22	1.47	15.12	125.80
2043	-	84.09	0.70	13.21	98.00	-	111.32	0.70	13.21	125.23
2044	-	84.84	0.63	11.51	96.96	-	112.90	0.63	11.51	125.03
2045	-	85.30	0.57	10.01	95.88	-	114.08	0.57	10.01	124.66
2046	-	85.39	0.25	8.70	94.34	-	114.77	0.25	8.70	123.72
2047	-	85.21	0.19	7.56	92.96	-	115.08	0.19	7.56	122.84
2048	-	84.73	0.08	6.57	91.38	-	114.98	0.08	6.57	121.64

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