Annexure-5

ODISHA POWER TRANSMISSION CORPORATION LTD

Actuarial Valuation of Leave Encashment Liability as at 31.03.2021

Report UNDER IND AS19 (2015)

B. CHATTERJEE INTERNATIONAL CONSULTANT (BCIC)

B. Chatterjee
Actuary

Report dated July 6, 2021

2 BECHARAM CHATTERJEE ROAD
BEHALA, KOLKATA 700 034

PHONE: 98300-76494, 84209-76494,
98310-76494, 90079-07494
Email: bhudev.chatterjee@gmail.com

Dr R Kannan
M. A., M. Sc., Ph. D., F.I.A.I
Consulting Actuary

CONTENTS

1 Preamble 3

2 Valuation at a Glance 4

3 Executive Summary 5

4 Detailed Report 7

5 Disclosures as PER IND AS 19 (2015) 12

6 Glossary 18

7 Appendix 19

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@

1. Preamble

I have been requested by the OPTCL to calculate the accounting expenses associated with the Leave Plan for the year ended 31.03.2021 in terms of Indian Accounting Standard (AS) 19 (2015) issued by the Ministry of Corporate affairs.

The results set out in this Report and its annexure are based on requirements of IND AS 19 (2015) and its application to the Plan. They have been prepared for the specific requirements of IND AS 19(2015) and should not be used for any other purpose. In particular this Report does not constitute a formal funding actuarial valuation of the Plan and does not present any recommendation of contributions or funding levels.

This Report is provided solely for the Company's use and for the specific purposes indicated above. Except where I expressly agree in writing, it should not be disclosed or provided to any third party, other than as provided below. In the absence of such consent and an express assumption of responsibility, no responsibility whatsoever is accepted by me for any consequences arising from any third party relying on this Report or any advice relating to its contents. The Company may make a copy of this Report available to its auditors, but I make no representation as to the suitability of this Report for any purpose other than that for which it was originally provided and accept no responsibility or liability to the Company's auditors in this regard. The Company should draw the provisions of this paragraph to the attention of its auditors when passing this Report to them.

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

2. Valuation at a Glance

The valuation at glance based on best estimate assumption as on current valuation date is as provided below:

Valuation at Glance as on current valuation Date

31.03.2020		31.03.2021
2837	Number of Staff	2598
168661775	Basic Salary	160291451
1211984978	Closing Liability	1215554179
1090336363	Closing Asset	1171143820
132245545	Charges to Profit/Loss Account for the Year	70361745

Dr. R. KANNAN ★ Membership No. 92 ★ Fellow, Institute of Actuaries of India

3. Executive Summary

3.1 Basic Staff Data _____ 6

3.2 Scale of Benefit _____ 6

3.3 Actuarial Basis used in Valuation _____ 6

3.4 Results Of Valuation

I) Liability to be shown in Balance Sheet _____ 6

II) Charges to Profit/Loss Account _____ 6

III) Other Comprehensive Income/Loss _____ 6

Dr R Kannan
M. A., M. Sc., Ph. D., F.I.A.I
Consulting Actuary

Actuarial Valuation of EL/HPL Liability As at 31.03.2021

We refer to your E-Mail requesting us to calculate the expenses, to be charged for maintaining Earned Leave Fund in financial Year, in terms of Indian Accounting Standard 19 (2015).
We have carried out the Valuation as per:
a) Principle laid down in IND AS19 (2015) issued by Institute of Ministry of corporate affairs, and
b) Guidelines APS27 issued by Institute of Actuaries of India.
Principle points of Valuation are summarized below:

3.1 Basic Data

31.03.2020		31.03.2021
2837	Number of Employees	2598
168661775	Salary	160291451

3.2 Scale of Benefit

Fresh leave is credited every year, as per company rules but accumulated leave shall not exceed 300

3.3 Actuarial Basis used in Valuation

31.03.2020		31.03.2021
6.66%	Interest Rate	6.97%
6.00%	Salary Inflation	6.00%
IALM 2006-2008 ULTIMATE	Mortality	IALM 2012-2014 ULTIMATE
1.00%	Attrition Rate	1.00%

3.4 Results of Valuation

31.03.2020		31.03.2021
1211984978	Liability to be shown in Balance Sheet	1215554179
132245545	Charges to Profit/Loss Account for the Year	70361745

Dr. R. KANNAN ★ Membership No. 92 ★ Fellow, Institute of Actuaries of India

Dr. R. Kannan
Actuary

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

4. Detail Report

4.1 Aim of Valuation 8

4.2 Coverage Scheme 8

4.3 Benefit Formula 8

4.4 Contingency of Payment 8

4.5 Waiting Period 8

4.6 Analysis of Data 8

4.7 Actuarial Bases for Leave Encashment Valuation 9

4.8 Rationale of Valuation 10

4.9 Result of Valuation 11

4.10 Conclusion 11

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

4.1 Aim of Valuation

4.1.1) The aim of valuation is to work out the Actuarial Liability of the Accrued Benefit as on valuation date

4.1.2.1) The liability to be shown in the Balance Sheet

4.1.2.2) The liability to be charged to Profit and Loss Account

4.2 Coverage Scheme

Employees irrespective to the Monthly salary being Basic and D.A are covered under the Leave Rules of the company.

4.3 Benefit Formula

Employees irrespective to the Monthly salary being Basic and D.A are covered under the Leave Rules of the company.

4.4 Contingency of Payment

4.4.1)Normal Retirement at age 60

4.4.2) Death during the period of Service

4.4.3)Resignation from Company's service

4.5 Waiting period

Leave is paid Retirement/Death and Disablement. As per Guidance Note APS27, uniform Accrual of Leave without any Waiting Period, has been assumed.

4.6 Analysis of Data

Data for this Valuation was supplied by way of E.mail.
The data was subjected to usual correlation Tests of

Age - Salary
Age - Service
Salary - Service

Such tests have not shown any inconsistency thereon.

Accordingly, the data has been used in valuation without amendments.

4.7) Actuarial Bases for Leave Valuation		
Bases of Actuarial Valuation	**Assumptions**	**Reason for Assumption**
1)Rationale	Projected Unit Credit Method has been used, for Valuation.	Actuarial Method for evaluation of Leave Encashment Liability
2)Mortality	IALM 2012-2014 Ultimate	As per Guidance Note APS27 of Institute of Actuaries of India the Mortality Table to be used for calculation of Leave Encashment Liability has been designated as IALM 2012-2014 Ultimate.
3)Retirement Age	60.00	Provided by the company
4)Attrition Rate	1.00%	Provided by the company
5)Salary Increase	6.00%	On long term basis
6)Pay Scale Revision	Not Taken into account	N/A
7)Discount Rate for Discounting from Current Age to Retirement Age	6.97%	As per GN of Institute of Actuaries of India Discount rate is based on the Government bond yields as at valuation date corresponding to a matching outstanding term, Refer Appendix 7.5 for Yield of GOI Securities
8)Return On Capital	6.97%	As per GN of Institute of Actuaries of India Discount rate is based on the Government bond yields as at valuation date corresponding to a matching outstanding term, Refer Appendix 7.5 for Yield of GOI Securities

4.8 Rationale of Valuation

Consider one aged x
Salary S
Accrued Leave P.L

We further assume that Encashment = Days of leave x Salary at date of Exit.

In his case Encashment "t" year from now will be

$EN(x+t) = P.L \times S \times (1+I)$

when I is the rate at which salary increases per annum

Probability that such leave will be payable at age x+t

$$p(x+t) = \frac{r(x+t) + d(x+t) \times w(x+t)}{l(x)}$$

when l(x) = Number of employees aged x now

r(x+t) = Number retiring at age x+t, on Retrenchment/Superannuation or Disablement

d (x+t) = Number dying at age x+t

w (x+t) = Number leaving at age x+t other than by resignation

Accordingly the amount of probable leave will be
= EN (x+t) x p (x+t)

Discounted value at age x of benefit payable at age x+t

will be $V(x+t) = EN(x+t) \times p(x+t) / (1+J)^t$

when J is the rate of discounting

Summarising V(x+t) for all values of t from 0 to 60 - x we arrive at leave liability for the individual.

Aggregate of leave liability for all individuals, constitute the leave liability of the Company.

4.9 Result Of valuation	
Number of Employees	2598
Salary as on valuation date	160291451
Closing asset	1171143820
Liability to be shown in Balance Sheet	1215554179
Charges to Profit/Loss Account for the period	70361745

4.10 Conclusion	
Fund is under Funded by	44410359



Dr. R. Kannan
Actuary

4. Disclosures As Per IND AS19 (2015)

Table1-Table Showing changes in present value of Obligations___13

Table2-Table Showing changes in fair value of Assets_____13

Table3-Table Showing reconciliation to Balance Sheet_____14

Table4-Table Showing Plan Assumptions_____14

Table5-Table Showing Expense Recognized in P/L statement_____15

Table6-Table Showing Other Comprehensive Income_____15

Table7- Table Showing Mortality Table_____16

Table8- Table Showing Sensitivity Analysis_____16

Table9- Table Showing Estimate Future Payments (outflow)_____17

Table10- Table Showing Bifurcation of Liability _____17

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

Table 1: Disclosure Item		
31.03.2020	Changes in Present Value of Obligation as at	31.03.2021
1163712463	Present value of obligation as on last valuation	1211984978
76354814	Current Service Cost	71859186
72591195	Interest Cost	79261743
N/A	Participant Contribution	N/A
-	Plan Amendments: Vested portion at end of period(Past Service)	-
-	Plan Amendments: Non-Vested portion at end of period(Past Service)	-
228527628	Actuarial gain/loss on obligations due to Change in Financial Assumption	-44873626
0	Actuarial gain/loss on obligations due to Change in Demographic assumption	0
(181691981)	Actuarial gain/loss on obligations due to Unexpected Experience	46923325
	Actuarial gain/loss on obligations due to Other reason	
0	The effect of change in Foreign exchange rates	0
147509141	Benefits Paid	149601426
0	Acquisition Adjustment	0
0	Disposal/Transfer of Obligation	0
0	Curtailment cost	0
0	Settlement Cost	0
0	Other(Unsettled Liability at the end of the valuation date)	0
1211984978	Present value of obligation as on valuation date	1215554179

Table 2: Disclosure Item		
31.03.2020	Changes in Fair Value of Plan Assets as at	31.03.2021
1059309393	Fair value of Plan Assets at Beginning of period	1090336363
70550006	Interest Income	75996445
115000000	Employer Contributions	147600000
0	Participant Contributions	0
0	Acquisition/Business Combination	0
0	Settlement Cost	0
147509141	Benefits Paid	149601426
-	The effect of asset ceiling	-
0	The effect of change in Foreign Exchange Rates	0
0	Administrative Expenses and Insurance Premium	0
(7013895)	Return on Plan Assets excluding Interest Income	6812438
1090336363	Fair value of Plan Assets at End of measurement period	1171143820

Table 3: Disclosure Item		
31.03.2020	Table Showing Reconciliation to Balance Sheet	31.03.2021
-121648615	Funded Status	-44410359
0	Unrecognized Past Service Cost	0
0	Unrecognized Actuarial gain/loss at end of the period	0
0	Post Measurement Date Employer Contribution(Expected)	0
N/A	Unfunded Accrued/Prepaid Pension cost	N/A
1090336363	Fund Asset	1171143820
1211984978	Fund Liability	1215554179

Table 4: Disclosure Item		
31.03.2020	Table Showing Plan Assumptions	31.03.2021
6.66%	Discount Rate	6.97%
6.66%	Expected Return on Plan Asset	6.97%
6.00%	Rate of Compensation Increase(Salary Inflation)	6.00%
N/A	Pension Increase Rate	N/A
17	Average expected future service (Remaining working Life)	17
IALM 2006-08 Ultimate	Mortality Table	IALM 2012-14 Ultimate
60	Superannuation at age-Male	60
60	Superannuation at age-Female	60
1.00 % p.a.	Early Retirement & Disablement (All Causes Combined)	1.00 % p.a.
Ignored	Voluntary Retirement	Ignored

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

Table 5: Disclosure Item		
31.03.2020	Expense Recognized in statement of Profit/Loss as at	31.03.2021
76354814	Current Service Cost	71859186
0	Past Service Cost(vested)	0
0	Past Service Cost(Non-Vested)	0
2041189	Net Interest Cost	3265298
0	Cost(Loss/(Gain) on settlement	0
0	Cost(Loss/(Gain) on curtailment	0
53849541	Net Actuarial Gain/loss	-4762740
0	Employee Expected Contribution	0
0	Net Effect of changes in Foreign Exchange Rates	0
132245545	Benefit Cost(Expense Recognized in Statement of Profit/loss)	70361745

Table 6: Disclosure Item		
31.03.2020	Other Comprehensive Income	31.03.2021
	Actuarial gain/loss on obligations due to Change in Financial Assumption	
	Actuarial gain/loss on obligations due to Change in Demographic assumption	
	Actuarial gain/loss on obligations due to Unexpected Experience	
	Actuarial gain/loss on obligations due to Other reason	
	Total Actuarial (gain)/losses	
	Return on Plan Asset, Excluding Interest Income	
	The effect of asset ceiling	
	Balance at the end of the Period	
	Net(Income)/Expense for the Period Recognized in OCI	

Table 7: Disclosure Item	
Mortality Table	
Age	Mortality (Per Annum)
25	0.000931
30	0.000977
35	0.001202
40	0.00168
45	0.002579
50	0.004436
55	0.007513
60	0.011162
65	0.015932
70	0.024058

Table 8: Disclosure Item				
31.03.2020			31.03.2021	
Increase	Increase	Sensitivity Analysis	Increase	Decrease
11523162	1278026261	Discount Rate (-/+ 0.5%)	1149019323	1289421856
-4.92%	5.45%	%Change Compared to base due to sensitivity	-5.47%	6.08%
12778163	1151978662	Salary Growth (-/+ 0.5%)	1289230337	1148610052
5.43%	-4.95%	%Change Compared to base due to sensitivity	6.06%	-5.51%
12121032	1211866426	Attrition Rate (-/+ 0.5%)	1215710069	1215397878
0.01%	-0.01%	%Change Compared to base due to sensitivity	0.01%	-0.01%
12120628	1211907293	Mortality Rate (-/+ 10%)	1215675888	1215432509
0.01%	-0.01%	%Change Compared to base due to sensitivity	0.01%	-0.01%

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

Table 9: Disclosure Item	
Table Showing Benefit Information Estimated Future payments	
year	Indian Rupees(INR)
1	119590184
2	119789422
3	112150827
4	128454035
5	138565257
6 to 10	302674382
More than 10 years	2736473358
Total Undiscounted Payments Past and Future Service	-
Total Undiscounted Payments related to Past Service	3657697465
Less Discount For Interest	2442143286
Projected Benefit Obligation	1215554179

Table 10: Bifurcation of Net liability		
31.03.2020		31.03.2021
154178970	Current liability	115343015
1057806008	Non-Current Liability	1100211164
1211984978	Net Liability	1215554179



1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

6. Glossary

All definitions of terms are as per IND AS19 (2015). The following terms are used with explanations given below::

Actuarial Gain or Loss

From one plan year to the next, if the experience of the plan differs from that anticipated using the actuarial assumptions, an actuarial gain or loss occurs. For example, an actuarial gain would occur if the plan assets earned 12% for the year while the assumed rate of return used in the valuation was 8%. Other causes of actuarial gains or losses would include changes in actuarial assumptions and / or demographic changes in the population profile.

Balance Sheet Asset/(Liability)

The sponsor's balance sheet asset/(liability) entry, the net recognized amount, is the sum of the cumulative excess of contributions to the plan over net Annual Expense and other plan-related charges to income due either to business combination or accelerated recognition pursuant to IAS 19. The difference between this account and the Funded Status is the unrecognized net loss/(gain) unvested prior service costs [and net transition obligation.]

Funded Status This is the excess/(shortfall) of the fair value of plan assets over the Plan Liability.

Plan Liability This quantity is the discounted present value of all benefits attributed by the plan's benefit formula to service rendered prior to the measurement date. It is measured using an assumption as to future pay levels.

Service Cost This is the discounted present value of benefits attributed by the plan's benefit formula to services rendered by employees during the accounting period. It is measured using an assumption as to future pay levels.

Interest Costs The increase in the Plan liability over the accounting period due to interest (the time value of money)

Expected Return on Assets

The expected return on plan assets over the accounting period, based on an assumed rate of return.

Net Periodic Benefit Cost

This is the profit and loss charge for the accounting period, and comprises the sum of the service and interest costs less the expected return on assets, plus allowance for amortization of any net liabilities not recognized in the balance sheet.

7. Appendix

7.1 Staff Distribution 20

7.2 Employee Movement last Year 21

7.3 Mortality Table (Given in Disclosure Table-7) 16

7.4 Salary Growth 21

7.5 Yield of GOI Securities 21

7.6 Cash flow of Accrued Service Benefit Liability 22

7.7 Expected Exits in next 10 years 23

7.8 Experience Adjustment from last Valuation 23

7.9 Sensitivity Analysis (Given in Disclosure Table-8) 16

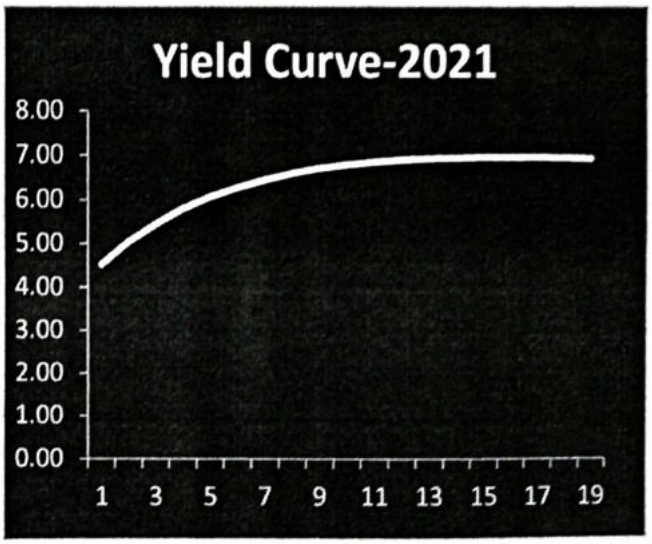
1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

Age	Number	BASIC SALARY	Sum of Leave Balance	Leave Encashment
<=20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	2	135252	150	338130
24	19	903708	1800	2619279
25	39	1955772	4110	6455826
26	69	3095703	9060	12971205
27	111	5044104	15195	21747609
28	123	5188950	17460	23556839
29	159	7327593	24105	36227997
30	149	6445881	23940	34115738
31	95	4516668	17520	29054142
32	136	6876675	27360	48811289
33	144	8445528	32055	67876673
34	100	6098742	24375	52068393
35	79	5017779	19425	43674696
36	78	5105880	21075	47873592
37	80	5241834	20490	46842822
38	48	3254472	12150	28668218
39	41	2599038	10815	24008166
40	36	2471274	9645	22876250
41	21	1454661	5445	13106282
42	10	859599	2985	8566448
43	14	1028547	3990	9908906
44	12	830700	3285	7484490
45	21	1640574	6015	16049124
46	17	1442610	4920	14180459
47	21	1649817	6195	16387196
48	26	2152566	7440	20030342
49	22	1286532	6300	12865320
50	15	905580	4305	8913587
51	33	1948284	9900	19482840
52	59	4055103	17430	39128427
53	74	5119920	22200	51199200
54	82	6024564	24405	60103427
55	122	10663661	35610	100583836
56	126	9891063	37230	97086717
57	121	8930610	35850	87779543
58	142	10250487	41925	98903084
59	125	8743644	36900	87010560
>=60	27	1688076	8100	16880760
GrandTotal	**2598**	**160291451**	**611160**	**1335437404**

7.2 Employee Movement last Year	
Number as at previous year	2837
Actual exit during the Year	246
Entry During current year	7
Number at Current Year	2598

7.4 Salary Growth for Continuing Employee			
Year	Total Staff	Average Salary	%Increase
Mar-20	168661775	59451	
Mar-21	160291451	61698	3.78%
		Average	3.78%

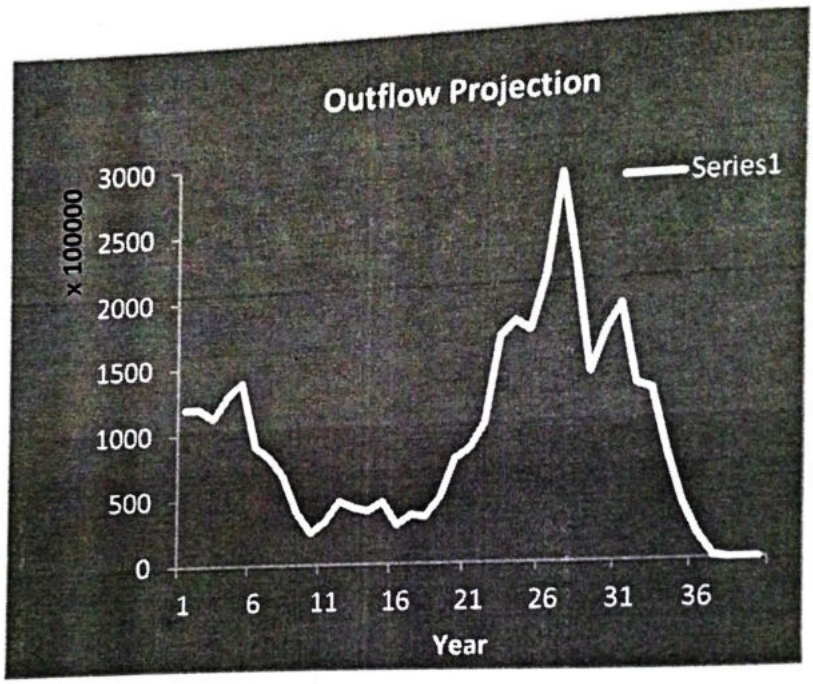
7.5 Yield on GOVT Securities as on Valuation Date		
Term	Yield-This year (%)	Graph
1	3.87	
2	4.52	
3	5.04	
4	5.46	
5	5.80	
6	6.07	
7	6.29	
8	6.46	
9	6.60	
10	6.71	
11	6.79	
12	6.85	
13	6.90	
14	6.93	
15	6.95	
16	6.96	
17	6.97	
18	6.97	
19	6.97	
20	6.96	



7.6 Cash flow of Accrued Service Benefit Liability

Year	Expected Outgo
1	119590184
2	119789422
3	112150827
4	128454035
5	138565257
6	90074337
7	81607846
8	67407224
9	39544226
10	24040750
11	32338204
12	47197165
13	42481146
14	40151097
15	46139223
16	29084293
17	36240123
18	34738854
19	48322320
20	77341625
21	84339482
22	102935429
23	166778929
24	178023100
25	171234441
26	211207743
27	284567807
28	216623114
29	138035068
30	168517027
31	187132714
32	128782295
33	124674123
34	78414374
35	41167716
36	17605156
37	2400790
38	0
39	0
40	0

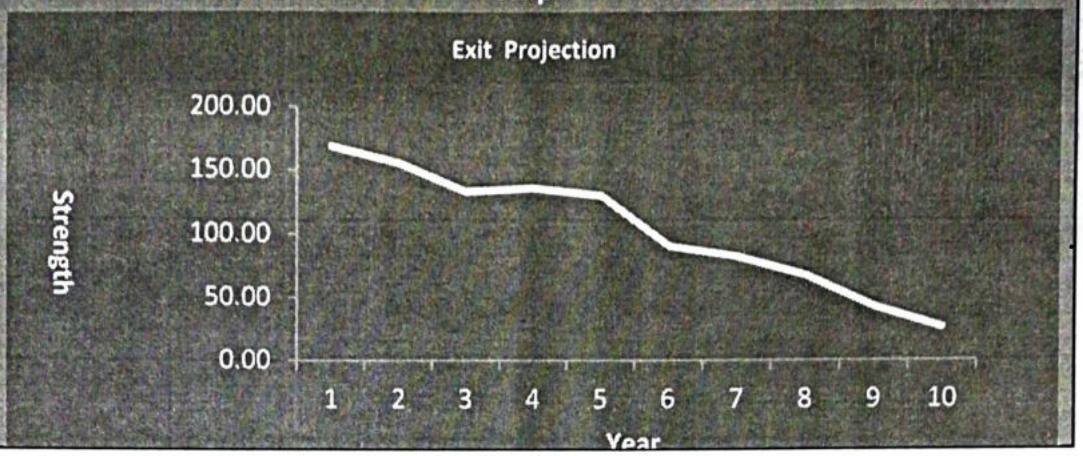
Graph



7.7 Expected Exits in next 10 years

Year	Expected Exits
1	169.22
2	156.47
3	133.56
4	136.22
5	130.21
6	90.63
7	81.98
8	67.14
9	42.51
10	25.90

Graph



7.8 Experience Adjustment from Last Valuation

Liability as on last valuation	1211984978
Change in liability due to Change in Discount Rate Assumption	-44873626
Change in liability due to Change in Salary Inflation Rate Assumption	0
Change in liability due to Variance in experience	46923325
Change in liability due to Change in Demographic assumption	0
Present value of Liability as on Current valuation	1215554179



Dr. R. Kannan
Actuary

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

ODISHA POWER TRANSMISSION CORPORATION LTD

Actuarial Valuation of Pension Liability as at 31.03.2021

B. CHATTERJEE INTERNATIONAL CONSULTANT (BCIC)

B. Chatterjee Actuary

Report dated July 6, 2021

2 BECHARAM CHATTERJEE ROAD
BEHALA, KOLKATA 700 034

PHONE: 98300-76494, 84209-76494,
98310-76494, 90079-07494
Email: bhudev.chatterjee@gmail.com

Dr R Kannan
M. A., M. Sc., Ph. D., F.I.A.I
Consulting Actuary

CONTENTS

1 Preamble 3

2 Valuation at a Glance 4

3 Executive Summary 5

4 Detailed Report 7

5 Disclosures as PER IND AS 19(2015) 15

6 Glossary 22

7 Appendix 23

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

1. Preamble

I have been requested by **ODISHA POWER TRANSMISSION CORPORATION LTD** to calculate the accounting expenses associated with the Pension for the year ended 31.03.2021 in terms of Accounting Standard (IND AS) 19 (2015) issued by the Ministry of Corporate affairs.

The results set out in this Report and its annexure are based on requirements of IND AS 19 (2015) and its application to the Plan. They have been prepared for the specific requirements of IND AS 19(2015) and should not be used for any other purpose. In particular this Report does not constitute a formal funding actuarial valuation of the Plan and does not present any recommendation of contributions or funding levels.

This Report is provided solely for the Company's use and for the specific purposes indicated above. Except where I expressly agree in writing, it should not be disclosed or provided to any third party, other than as provided below. In the absence of such consent and an express assumption of responsibility, no responsibility whatsoever is accepted by me for any consequences arising from any third party relying on this Report or any advice relating to its contents. The Company may make a copy of this Report available to its auditors, but I make no representation as to the suitability of this Report for any purpose other than that for which it was originally provided and accept no responsibility or liability to the Company's auditors in this regard. The Company should draw the provisions of this paragraph to the attention of its auditors when passing this Report to them.

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

2. Valuation at a Glance

The valuation at glance based on best estimate assumption as on current valuation date is as provided below:

Valuation at Glance as on current valuation date

31.03.2020		31.03.2021
1246	Number of Active Staff	1017
4155	Number of Pensioners	4168
3342	Number of Family Pensioners	3442
24242597509	Closing Liability	25020781259
18822192393	Closing Asset	19679313495
1413627268	Charges to Profit/Loss Account for the Year	1387152580
-101869119	Other Comprehensive Income	67910068

** THE OCI POSITIVE FIURE IS LOSS IN RESPECT TO THE COMPANY.



Dr. R. Kannan
Actuary

3. Executive Summary

3.1 Basic Staff Data _____ 6

3.2 Scale of Benefit _____ 6

3.3 Actuarial Basis used in Valuation _____ 6

3.4 Results Of Valuation

I) Liability to be shown in Balance Sheet _____ 6

II) Charges to Profit/Loss Account _____ 6

III) Other Comprehensive Income _____ 6

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

Dr R Kannan
M. A., M. Sc., Ph. D., F.I.A.I
Consulting Actuary

Actuarial Valuation of Pension Liability As at 31.03.2021

We refer to your E-Mail requesting us to calculate the expenses, to be charged for maintaining Pension Fund in financial Year, in terms of Indian Accounting Standard 19 (2015).
We have carried out the Valuation as per:
a) Principle laid down in IND AS19 (2015) issued by Ministry of corporate affairs, and
b) Guidelines APS27 issued by Institute of Actuaries of India.
Principle points of Valuation are summarized below:

3.1 Basic Data

31.03.2020		31.03.2021
1246	Number of Active Staff	1017
4155	Number of Pensioners	4168
3342	Number of Family Pensioners	3442

3.2 Scale of Benefit

See detail report point No 3

3.3 Actuarial Basis used in Valuation

31.03.2020		31.03.2021
6.66%	Interest Rate	6.97%
6.00%	Salary Inflation	6.00%
IALM 2009-2008 ULTIMATE	Mortality	IALM 2012-2014 ULTIMATE
1.00%	Attrition Rate	1.00%

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

3.4 Results of Valuation		
31.03.2020		31.03.2021
24242597509	Closing Liability	25020781259
1413627268	Charges to Profit/Loss Account for the Year	1387152580
-101869119	Other Comprehensive Income	67910068

Kindly note that the Report should not be used for any purpose other than that mentioned in the first paragraph. Report should be made available to the Auditor for their purpose. We will be only too glad to clarify any query from the Auditor. The Report should not be exposed to any third party.





Dr. R. Kannan
Actuary

4. Detail Report

4.1 Aim of Valuation ____ 8

4.2 Coverage Scheme ____ 8

4.3 Benefit Formula ____ 9

4.4 Contingency of Payment ____ 10

4.5 Waiting Period ____ 10

4.6 Actuarial Bases for Pension Valuation ____ 11

4.7 Rationale of Valuation ____ 12

4.8 Result of Valuation ____ 14

4.9 Conclusion ____ 14

4.1 Aim of Valuation

4.1.1) The aim of valuation is to work out the Actuarial Liability of the Accrued Benefit as on valuation date
4.1.2.1) The liability to be shown in the Balance Sheet
4.1.2.2) The liability to be charged to Profit and Loss Account

4.2 Coverage Scheme

All Employees who have opted for D.C.R.B. Scheme are covered .

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

4.3 Benefit Formula

Benefits available to different categories are as follows :

3.1 Contingent Pension of DCRB OPTEES

Where benefit is as per formula applicable to OPTCL. Employees mainly superannuation pension which is 50% of Basic salary for 25 Years of pension able service called Basic Pension. This Basic Pension will attract DA relief in line with revision of the same as of Government of Odisha. There is provision for payment of Disablement Pension, which will be as per same formula as superannuation pension but paid with immediate effect. On death in service pension shall be paid for seven years or till employee/pensioner would have attained the age of 65years whichever is earlier and 30% of Pension shall be paid thereafter for the rest of life time of Pensioners/Family Pensioner.

3.2 Vested Pension of DCRB Pensioner

Pension as per rules detailed in 3.1 has been granted on exit. Thereafter certain rate of future increase in Original Pension are also awarded half yearly. Pension in payment consist of aggregate of both.

3.3 Vested Pension of DCRB Family Pensioner

On death in service Widow Pension is paid at 50% of pay subject to a minimum of ` 8,999/- for 7 years or 65 years of age for employee, had he been alive whichever is earlier and 30% thereafter as long as the Widow is alive and remained unmarried . On death after retirement man's pension for 7 years or 65 years of age for Pensioners had he been alive whichever is earlier and 30% of last drawn pay by pensioner will be paid to widow.

3.4 Additional Pension:

The quantum of pension available to the old pensioners shall be increased as indicated

In the following table w.e.f. 01.01.2016

Age of Pensioners / Family Pensioners	Additional quantum of Pension / Family Pension
From 80 years to less than 85 years	20% of the basic pension / Family Pension.
From 85 years to less than 90 years	30% of the basic pension / Family Pension.
From 90 years to less than 95 years	40% of the basic pension / Family Pension.
From 95 years to less than 100 years	50% of the basic pension / Family Pension.
100 years or more	100 % of the basic pension / Family Pension.

4.4 Contingency of Payment

4.4.1) DEATH/ DISABLEMENT/SUPERANNUATION
Pension is paid only on Superannuation, Death/Disablement. In the even of Voluntary Retirement Pension is paid after 10 years of service.

4.4.2) No benefit is paid if the Cessation of service is by way of removal/dismissal/resignation.

4.5 Waiting period

Although there is a certain Waiting Period for payment of Pension on other than Death and Disablement, as per Guidance Note GN 26, uniform Accrual of Pension without any Waiting Period, has been assumed.

In the event, no Pension is payable on exit by 10 yrs corresponding reserve will be released, requiring lower contribution in that year.

4.6 Actuarial Bases for Pension Valuation

Bases of Actuarial Valuation	Assumptions	Reason for Assumption
1)Rationale	Projected Unit Credit Method has been used, for Valuation.	Actuarial Method for evaluation of Pension Liability
2)Mortality	IALM 2012-2014 Ultimate	As per Guidance Note APS27 of Institute of Actuaries of India the Mortality Table to be used for calculation of Pension Liability has been designated as IALM 2012-2014 Ultimate.
3)Retirement Age	60	Provided by the company
4)Attrition Rate	1.00%	Staff size does not warrant computation of attrition rate for company only, Accordingly Industry wise attrition rate has been assumed.
5)Salary Increase	6.00%	Provided by the company
6)Pay Scale Revision	Not Taken into account	N/A
7)Discount Rate for Discounting from Current Age to Retirement Age	6.97%	As per GN of Institute of Actuaries of India Discount rate is based on the Government bond yields as at valuation date corresponding to a matching outstanding term, Refer Appendix 6.4 for Yield of GOI Securities
8)Return On Capital	6.97%	As per GN of Institute of Actuaries of India Discount rate is based on the Government bond yields as at valuation date corresponding to a matching outstanding term, Refer Appendix 6.4 for Yield of GOI Securities

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

4.7 Rationale of Valuation

Based on Actuarial parameters arrived at clause 7 (Actuarial Bases) of report we draw up a decrement table in the format showing number of lives/Deaths/Withdrawals/Retirement at age x

Age	Lives	Deaths	Withdrawals	Early Retirements	Age Retirements
x	l(x)	nd(x)	nw(x)	ni(x)	nr(x)

From table we note that probability, that one aged x out of l(x) people will die between age x+t & x+t+1, is that, one will be included in death occurring between age x+t and x+t+1 i.e.

Probability of Death between age X+t & x+t+1 = **nd(x+t)/l(x)**

Similarly Probability of withdrawal between age X+t & x+t+1 = **nw(x+t)/l(x)**

Early Retirement between age X+t & x+t+1 = **ni(x+t)/l(x)**

Age Retirement between age X+t & x+t+1 = **nr(x+t)/l(x)**

Consider Benefits for an employee t years from now who is now aged x.

Employee Pension = PPEN = 50% of Salary for 25 yrs of Service

PPEN = .5/25 x PSAL x PSERV

where

PSAL = (Basic Salary + D.A. at current date) x INFL1 ^ (t-1) x INFL2

PSERV = Accrued Service subject maximum 33 yrs

= Min (INT (DOV - DOJ) / 365, 33)

Monthly Pension = MPPEN = 60% of Employees Pension

MPPEN = 60% x PPEN

Value of Monthly Pension = VMPPEN = Monthly Pension x Probability of Exit x Life Annuity x Discount Factor

$$= MP\ PEN \times F1(x+t)/\ l(x) \times a(x+t) \times {}_vt$$

$$\text{Where F1 } (x+t) = \frac{NR\ (x+t)}{l(x)}$$

NR(x+t) = Number of Lives between age x+t and x+t+1, who on exit receives benefit.

l(x+t) = Number of lives at x+t

a(x+t) = Life Annuity at age x+t

V^t = (I + Inr) ^ -t

D.A. to Pensioner = D.A. Rate x Employees Pension before commutation

Value of D.A. to Monthly Pension = VDAPEN = DA Rate x Employees Pension x Probability of Exit x Increasing Annuity x Discount Factor

$$= DAR \times PPEN \times F_1(x+t)/\ l(x) \times Ia(x+t) \times v^t$$

Where DAR = Pension D.A. Rate

Ia (x+t) = Increase Annuity Rate at age x+t

Commuted Pension CP PEN = 30% of Original Pension

= 30% x PPEN

Value of Commuted Pension = Commuted Pension x Probability of Exit x Commutation Annuity

Restoration of Commuted Pension = Probability of Surviving + 15 yrs x age annuity from age x+15) x Discount Rate

$$VCPPEN = CPPEN \times F1(x+t)/l(x) \times \left[ac(x+t) + \frac{D(x+t+15)}{D(x)} \times a(x+t+15)\right] \times v^t$$

Where $D(x) = l(x)^v$

Family Pension of Death in Service

10.1 Death in Service = DPEN

Employer's Salary for 7 yrs or till age 60, whichever is lower

and 1/3rd of Employees Pension thereafter.

Diff = Minimum (Int (DOR –DOP) /365,7)

If Diff is less than 7 yrs

DPEN = PSAL

Otherwise

DPEN = 1/3 x PPEN

Value of Death in Service Pension = VDPEN

$$VDPEN = F_2(x+t) \times DPEN \times \left[a(y : y + Diff) + \frac{D(y + Diff)}{D(y)} \times a(y + diff)\right]$$

Where $F_2(x) = \frac{ND(x)}{l(x)}$

D.A. to Death in Service Pension DADPEN = DAR x DPEN

Value of D.A. to Death in Service Pension

$$VDA\ DPEN = F_2(x) \times DPEN \times DAR \times \left[Ia(y:y+Diff) + \frac{Dy+Diff}{D(y)} \times Ia(y+Diff)\right]$$

11) Death after Retirement

Widow Pension = WPEN = 1/3rd Monthly Pension

Value of Widow Pension = VWPEN = Fx(x)/l(x) 1/3rd MPPEN x aa(x) x v^t

Where aa(x+t) = a(x+t)y+t) for employees age x+t, ...

D.A to Contingent Widow Pensioner = Widow Pension x DA PEN

= DAWPEN = DAR x WPEN

Value of Contingent Widow Pensioner =

$$= VDA\ WPEN = \frac{F2(x)}{l(x)} \times DAR \times WPEN \times Iaa(x+t) \times v^t$$

Iaa(x+t) = Increasing annuity for employees age x+t

4.8 Result Of valuation	
Number of Active Staff	1017
Number of Pensioners	4168
Number of Family Pensioners	3442
Closing asset	19679313495
Liability to be shown in Balance Sheet	25020781259
Charges to Profit/Loss Account for the period	1387152580
Other Comprehensive Income	67910068

4.9 Conclusion	
Fund is under Funded by	5341467764



Dr. R. Kannan
Actuary

4. Disclosures As Per IND AS19 (2015)

Table1-Table Showing changes in present value of Obligations____16

Table2-Table Showing changes in fair value of Assets_____16

Table3-Table Showing reconciliation to Balance Sheet_____17

Table4-Table Showing Plan Assumptions_____17

Table5-Table Showing Expense Recognized in P/L statement_____18

Table6-Table Showing Other Comprehensive Income_____18

Table7-Table Showing allocation of Plan Assets_____19

Table8-Table Showing allocation of Plan Assets in %_____19

Table9-Table Showing Mortality Table_____20

Table10-Table Showing Sensitivity Analysis_____20

Table11-Table Showing Cash flow Information_____20

Table12-Table Showing Estimate Future Payments (outflow)_____21

Table13-Table Showing Outlook Next Year_____21

Table14-Table Showing Bifurcation of Net Liability_____21

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

Table 1: Disclosure Item		
31.03.2020	Changes in Present Value of Obligation as at	31.03.2021
23713828539	Present value of obligation as on last valuation	24242597509
1143949953	Current Service Cost	1084757602
1502541988	Interest Cost	1614301788
	Participant Contribution	
0	Plan Amendments: Vested portion at end of period(Past Service)	0
	Plan Amendments: Non-Vested portion at end of period(Past Service)	
648721550	Actuarial gain/loss on obligations due to Change in Financial Assumption	-253123152
0	Actuarial gain/loss on obligations due to Change in Demographic	0
(460168456)	Actuarial gain/loss on obligations due to Unexpected Experience	496013891
	Actuarial gain/loss on obligations due to Other reason	
	The effect of change in Foreign exchange rates	
2306276064	Benefits Paid	2163766379
	Acquisition Adjustment	
	Disposal/Transfer of Obligation	
	Curtailment cost	
	Settlement Cost	
0	Other(Unsettled Liability at the end of the valuation) *	0
24242597509	Present value of obligation as on valuation date	25020781259

Table 2: Disclosure Item		
31.03.2020	Changes in Fair Value of Plan Assets as at	31.03.2021
18511481572	Fair value of Plan Assets at Beginning of period	18822192393
1232864673	Interest Income	1311906810
1093700000	Employer Contributions	1534000000
	Participant Contributions	
	Acquisition/Business Combination	
	Settlement Cost	
2306276064	Benefits Paid	2163766379
	The effect of asset ceiling	
	The effect of change in Foreign Exchange Rates	
	Administrative Expenses and Insurance Premium	
290422212	Return on Plan Assets excluding Interest Income	174980671
18822192393	Fair value of Plan Assets at End of measurement period	19679313495

Table 3: Disclosure Item		
31.03.2020	Table Showing Reconciliation to Balance Sheet	31.03.2021
-5420405116	Funded Status	-5341467764
0	Unrecognized Past Service Cost	0
0	Unrecognized Actuarial gain/loss at end of the period	0
0	Post Measurement Date Employer Contribution(Expected)	0
N/A	Unfunded Accrued/Prepaid Pension cost	N/A
18822192393	Fund Asset	19679313495
24242597509	Fund Liability	25020781259

Table 4: Disclosure Item		
31.03.2020	Table Showing Plan Assumptions	31.03.2021
6.66%	Discount Rate	6.97%
6.66%	Expected Return on Plan Asset	6.97%
6.00%	Rate of Compensation Increase(Salary Inflation)	6.00%
N/A	Pension Increase Rate	N/A
6	Average expected future service (Remaining working Life)	5
IALM 2009-2008 Ultimate	Mortality Table	IALM 2012-2014 Ultimate
60	Superannuation at age-Male	60
60	Superannuation at age-Female	60
1.00%	Early Retirement & Disablement (All Causes Combined)	1.00%

Table 5: Disclosure Item		
31.03.2020	Expense Recognized in statement of Profit/Loss as at	31.03.2021
1143949953	Current Service Cost	1084757602
0	Past Service Cost(vested)	0
	Past Service Cost(Non-Vested)	
269677315	Net Interest Cost	302394978
	Cost(Loss/(Gain) on settlement	
	Cost(Loss/(Gain) on curtailment	
	Actuarial Gain loss Applicable only for last year	.
	Employee Expected Contribution	
	Net Effect of changes in Foreign Exchange Rates	
1413627268	Benefit Cost(Expense Recognized in Statement of Profit/loss)	1387152580

Table 6: Disclosure Item		
31.03.2020	Other Comprehensive Income	31.03.2021
648721550	Actuarial gain/loss on obligations due to Change in Financial Assumption	-253123152
0	Actuarial gain/loss on obligations due to Change in Demographic assumption	0
(460168456)	Actuarial gain/loss on obligations due to Unexpected Experience	496013891
	Actuarial gain/loss on obligations due to Other reason	
188553094	**Total Actuarial (gain)/losses**	**242890739**
290422212	Return on Plan Asset, Excluding Interest Income	174980671
	The effect of asset ceiling	
-101869119	Balance at the end of the Period	67910068
-101869119	Net(Income)/Expense for the Period Recognized in OCI	67910068

Table 7: Disclosure Item		
31.03.2020	Table Showing Allocation of Plan Asset at end Measurement	31.03.2021
	Cash & Cash Equivalents	
	Investment Funds	
	Derivatives	
	Asset-Backed Securities	
	Structured Debt	
	Real Estates	
	Special Deposit Scheme	
	State Government Securities	
	Government of India Assets	
	Corporate Bonds	
	Debt Securities	
	Annuity Contracts/Insurance Fund	
	Receivables and Interest on Receivables	
	Other (Accrued Interest)	
	Total	

Table 8: Disclosure Item		
31.03.2020	Table Showing Total Allocation in % of Plan Asset at end	31.03.2021
	Cash & Cash Equivalents	
	Investment Funds	
	Derivatives	
	Asset-Backed Securities	
	Structured Debt	
	Real Estates	
	Special Deposit Scheme	
	State Government Securities	
	Government of India Assets	
	Corporate Bonds	
	Debt Securities	
	Receivables and Interest on Receivables	
	Annuity Contracts/Insurance Fund	
	Other (Accrued Interest)	
	Total	

Table 9: Disclosure Item	
Mortality Table	
Age	Mortality (Per Annum)
25	0.000931
30	0.000977
35	0.001202
40	0.00168
45	0.002579
50	0.004436
55	0.007513
60	0.011162
65	0.015932
70	0.024058

Table 10: Disclosure Item				
31.03.2020			31.03.2021	
Increase	Decrease	Sensitivity Analysis	Increase	Decrease
23750957632	24753631464	Discount Rate (-/+ 0.5%)	2451786355	25543215172
-2.028%	2.108%	%Change Compared to base due to sensitivity	-2.010%	2.088%
24500781172	23981019882	Salary Growth (-/+ 0.5%)	2526773637	24768571784
1.065%	-1.079%	%Change Compared to base due to sensitivity	0.987%	-1.008%
24252052122	24233142896	Attrition Rate (-/+ 0.5%)	2502203229	25019530220
0.039%	-0.039%	%Change Compared to base due to sensitivity	0.005%	-0.005%
24342961863	24142233155	Mortality Rate (-/+ 10%)	2502903811	25012524401
0.414%	-0.414%	%Change Compared to base due to sensitivity	0.033%	-0.033%

Table 11: Disclosure Item	
Table Showing Cash Flow Information	
	Indian Rupees(INR)
Next Period Total (Expected)	--
Minimum Funding Requirements	--
Company's Discretion	--

Table 12: Disclosure Item	
Table Showing Benefit Information Estimated Future payments(Past Service)	
year	Indian Rupees(INR)
1	2423765489
2	2412258524
3	2347400622
4	2270043226
5	2322665547
6 to 10	9882087769
More than 10 years	19867489250
Total Undiscounted Payments Past and Future Service	-
Total Undiscounted Payments related to Past Service	41525710427
Less Discount For Interest	16504929168
Projected Benefit Obligation	25020781259

Table 13: Disclosure Item	
Table Showing Outlook Next Year Components of Net Periodic benefit Cost Next Period	
	Indian Rupees(INR)
Current service Cost(Employer portion Only) Next period	--
Interest Cost next period	--
Expected Return on Plan Asset	--
Unrecognized past service Cost	--
Unrecognized actuarial/gain loss at the end of the period	--
Settlement Cost	--
Curtailment Cost	--
other(Actuarial Gain/loss)	--
Benefit Cost	--

Table 14: Bifurcation of Net liability		
31.03.2020	Table Showing expected return on Plan Asset at end	31.03.2021
1976234125	Current liability	2343471086
22266363384	Non-Current Liability	22677310173
24242597509	Net Liability	25020781259



Dr R Kannan Actuary

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

6. Glossary

All definitions of terms are as per IND AS19 (2015). The following terms are used with explanations given below::

Actuarial Gain or Loss

From one plan year to the next, if the experience of the plan differs from that anticipated using the actuarial assumptions, an actuarial gain or loss occurs. For example, an actuarial gain would occur if the plan assets earned 12% for the year while the assumed rate of return used in the valuation was 8%. Other causes of actuarial gains or losses would include changes in actuarial assumptions and / or demographic changes in the population profile.

Balance Sheet Asset/(Liability)

The sponsor's balance sheet asset/(liability) entry, the net recognized amount, is the sum of the cumulative excess of contributions to the plan over net Annual Expense and other plan-related charges to income due either to business combination or accelerated recognition pursuant to IAS 19. The difference between this account and the Funded Status is the unrecognized net loss/(gain) unvested prior service costs [and net transition obligation.]

Funded Status This is the excess/(shortfall) of the fair value of plan assets over the Plan Liability.

Plan Liability This quantity is the discounted present value of all benefits attributed by the plan's benefit formula to service rendered prior to the measurement date. It is measured using an assumption as to future pay levels.

Service Cost This is the discounted present value of benefits attributed by the plan's benefit formula to services rendered by employees during the accounting period. It is measured using an assumption as to future pay levels.

Interest Costs The increase in the Plan liability over the accounting period due to interest (the time value of money)

Expected Return on Assets

The expected return on plan assets over the accounting period, based on an assumed rate of return.

Net Periodic Benefit Cost

This is the profit and loss charge for the accounting period, and comprises the sum of the service and interest costs less the expected return on assets, plus allowance for amortization of any net liabilities not recognized in the balance sheet.

7. Appendix

7.1 Mortality Table (Given in Disclosure Table-9)_____ 20

7.2 Yield of GOI Securities_____24

7.3 Cash flow of Total Service Benefit Liability_____25

7.4 Experience Adjustment from last Valuation_____26

7.5 Sensitivity Analysis (Given in Disclosure Table-10)_____20

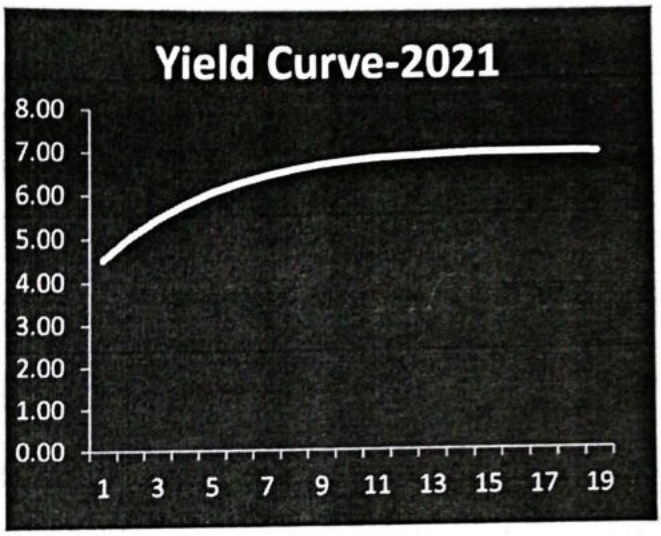
7.6 Security Details (Given in Disclosure-Table-7)_____19

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

7.2 Yield on GOVT Securities as on Valuation Date

Term	Yield-This year
1	3.87
2	4.52
3	5.04
4	5.46
5	5.80
6	6.07
7	6.29
8	6.46
9	6.60
10	6.71
11	6.79
12	6.85
13	6.90
14	6.93
15	6.95
16	6.96
17	6.97
18	6.97
19	6.97
20	6.96

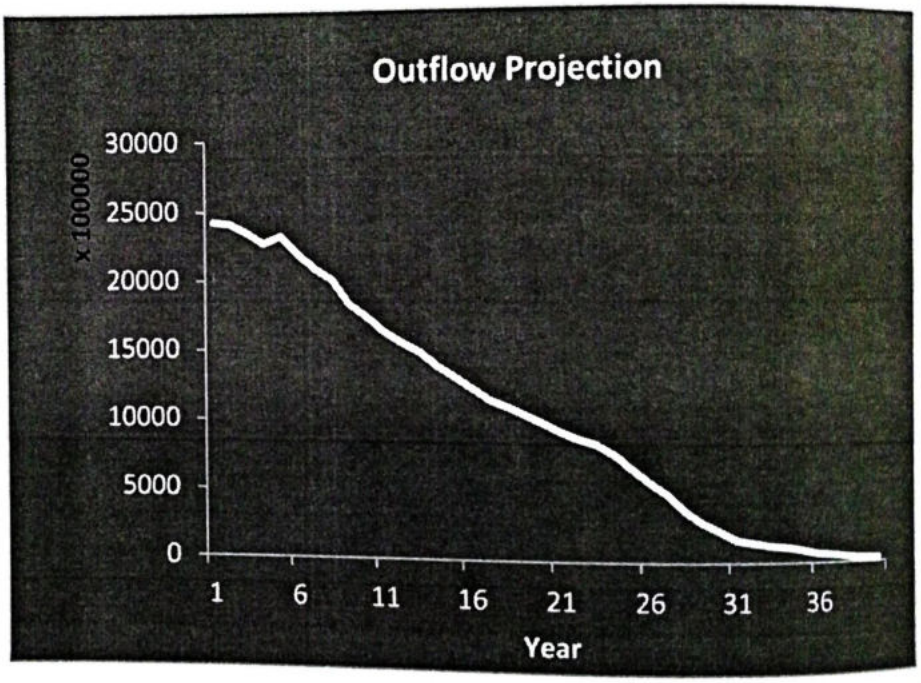
Graph



7.3 Cash flow of Accrued Service Benefit Liability

Year	Expected Outgo
1	2423765489
2	2412258524
3	2347400622
4	2270043226
5	2322665547
6	2194161720
7	2091506687
8	2013666494
9	1834279717
10	1748473150
11	1645406673
12	1567440910
13	1497360606
14	1401996314
15	1324049450
16	1243218569
17	1152878310
18	1104945011
19	1050918889
20	995636045
21	933757385
22	879889182
23	842925649
24	769739163
25	670969819
26	571435242
27	488578280
28	370875865
29	284724984
30	222791074
31	163345073
32	143129541
33	122336819
34	109911469
35	90200914
36	67134984
37	55112743
38	39767516
39	30353226
40	26659546

Graph



7.4 Experience Adjustment from Last Valuation	
Liability as on last valuation	24242597509
Change in liability due to Change in Discount Rate assumption	-253123152
Change in liability due to Change in Salary Inflation Rate Assumption	
Change in liability due to Variance in experience (*)	496013891
Change in liability due to Change in demographic assumption	
Change in liability due to consideration of actual current service cost	
Present value of Liability as on Current valuation	25020781259



Dr. R. Kannan
Actuary

ODISHA POWER TRANSMISSION CORPORATION LTD

Actuarial Valuation of Gratuity Liability as at 31.03.2021

Report UNDER IND AS19 (2015)

B. CHATTERJEE INTERNATIONAL CONSULTANT (BCIC)

B. Chatterjee
Actuary

Report dated July 6, 2021

2 BECHARAM CHATTERJEE ROAD
BEHALA, KOLKATA 700 034

PHONE: 98300-76494, 84209-76494,
98310-76494, 90079-07494
Email: bhudev.chatterjee@gmail.com

CONTENTS

1 Preamble 3

2 Valuation at a Glance 4

3 Executive Summary 5

4 Detailed Report 7

5 Disclosures as PER IND AS 19(2015) 12

6 Glossary 19

7 Appendix 20

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

1. Preamble

I have been requested by the ODISHA POWER TRANSMISSION CORPORATION LTD to calculate the accounting expenses associated with the Gratuity for the year ended 31.03.2021 in terms of Indian Accounting Standard (AS) 19 (2015) issued by the Ministry of Corporate affairs.

The results set out in this Report and its annexure are based on requirements of IND AS 19 (2015) and its application to the Plan. They have been prepared for the specific requirements of IND AS 19(2015) and should not be used for any other purpose. In particular this Report does not constitute a formal funding actuarial valuation of the Plan and does not present any recommendation of contributions or funding levels.

This Report is provided solely for the Company's use and for the specific purposes indicated above. Except where I expressly agree in writing, it should not be disclosed or provided to any third party, other than as provided below. In the absence of such consent and an express assumption of responsibility, no responsibility whatsoever is accepted by me for any consequences arising from any third party relying on this Report or any advice relating to its contents. The Company may make a copy of this Report available to its auditors, but I make no representation as to the suitability of this Report for any purpose other than that for which it was originally provided and accept no responsibility or liability to the Company's auditors in this regard. The Company should draw the provisions of this paragraph to the attention of its auditors when passing this Report to them.

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

2. Valuation at a Glance

The valuation at glance based on best estimate assumption as on current valuation date is as provided below:

Valuation at Glance as on current valuation date		
31.03.2020		31.03.2021
2837	Number of Staff	2598
168661775	Salary	160291451
1190420455	Closing Liability	1177610207
667700000	Closing Asset	727234868
96851065	Charges to Profit/Loss Account for the Year	88620985
264012759**	Other Comprehensive Income	79033899**

** THE OCI POSITIVE FIURE IS LOSS IN RESPECT TO THE COMPANY





4. Detail Report

4.1 Aim of Valuation 8

4.2 Coverage Scheme 8

4.3 Benefit Formula 8

4.4 Contingency of Payment 8

4.5 Waiting Period 8

4.6 Analysis of Data 8

4.7 Actuarial Bases for Gratuity Valuation 9

4.8 Rationale of Valuation 10

4.9 Result of Valuation 11

4.10 Conclusion 11

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

4.1 Aim of Valuation

4.1.1) The aim of valuation is to work out the Actuarial Liability of the Accrued Benefit as on valuation date

4.1.2.1) The liability to be shown in the Balance Sheet

4.1.2.2) The liability to be charged to Profit and Loss Account

4.2 Coverage Scheme

All Employees irrespective of the salary level are included in Scheme. Employee rendering less than 5 years Service on exit due to only death and Disablement. Employees rendering greater than 5 years Service will receive Gratuity on all causes of Exit

4.3 Benefit Formula

Gratuity is paid to the DCRB employees as half month pay subject to Maximum limit of ` 15Lac. Gratuity is paid to the remaining employee as per Gratuity Act 1972, ie, Maximum limit of `20Lac. w.e.f 01.01.2016

4.4 Contingency of Payment

4.4.1) Death Disablement-Gratuity is paid without any waiting period

4.4.2) Resignation/Superannuation-Minimum period of 5yrs to be served to be eligible for payment of Gratuity.

4.4.3) No benefit is paid if cessation is due to Moral Turpitude

4.5 Waiting period

Although there is a certain waiting period for payment of Gratuity on other than Death and disablement as per Guidance Note GN26, uniform Accrual of Gratuity without any waiting period, has been assumed.

4.6 Analysis of Data

Data for this Valuation was supplied by way of E.mail.

The data was subjected to usual correlation Tests of

Age - Salary
Age - Service
Salary - Service

Such tests have not shown any inconsistency thereon. Accordingly, the data has been used in valuation without amendments.

4.7) Actuarial Bases for Gratuity Valuation		
Bases of Actuarial Valuation	**Assumptions**	**Reason for Assumption**
1)Rationale	Projected Unit Credit Method has been used, for Valuation.	Actuarial Method for evaluation of Gratuity Liability
2)Mortality	IALM 2012-2014 Ultimate	As per Guidance Note 26 of Institute of Actuaries of India the Mortality Table to be used for calculation of Gratuity Liability has been designated as IALM 2012-2014 Ultimate.
3)Retirement Age	60.00	Provided by the company
4)Attrition Rate	1.00%	Staff size does not warrant computation of attrition rate for company only, Accordingly Industry wise attrition rate has been assumed.
5)Salary Increase	6.00% for Non-Executives	Provided by the Company
6)Pay Scale Revision	Not Taken into account	N/A
7)Discount Rate for Discounting from Current Age to Retirement Age	6.97%	As per GN of Institute of Actuaries of India Discount rate is based on the Government bond yields as at valuation date corresponding to a matching outstanding term, Refer Appendix 6.4 for Yield of GOI Securities
8)Return On Capital	6.97%	As per GN of Institute of Actuaries of India Discount rate is based on the Government bond yields as at valuation date corresponding to a matching outstanding term, Refer Appendix 6.4 for Yield of GOI Securities

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

4.8 Rationale of Valuation

Based on Actuarial parameters arrived at clause 7 (Actuarial Bases) of report we draw up a decrement table in the format showing number of lives/Deaths/Withdrawals/Retirement at age x

Age	Lives	Deaths	Withdrawals	Early Retirements	Age Retirements
x	l(x)	nd(x)	nw(x)	ni(x)	nr(x)

From table we note that probability, that one aged x out of l(x) people will die between age x+t & x+t+1, is that, one will be included in death occurring between age x+t and x+t+1 i.e.

Probability of Death between age X+t & x+t+1 = **nd(x+t)/l(x)**

Similarly Probability of withdrawal between age X+t & x+t+1 = **nw(x+t)/l(x)**

Early Retirement between age X+t & x+t+1 = **ni(x+t)/l(x)**

Age Retirement between age X+t & x+t+1 = **nr(x+t)/l(x)**

Thus probability that one aged x now will exit between age x+t & x+t+1 =
[nd(x+t)+nw(x+t)+ni(x+t)+nr(x+t)]/l(x)=FAC(x+t)

Consider an employee at 31.03.2021 to be aged x years with past service Serv(x),salary sal(x)
Gratuity Accrual to such employee=
Grat(x)=15/26*Sal(x)*Serv(x)

Accordingly if he leaves `t' years from now, then Gratuity arising out of his service up to now would be increased due to salary escalation during these years as well as additional service rendered. Accordingly Gratuity payable would be

Grat(x+t)=15/26*Sal(x)*(1+j)^t*Serv(x+t) , where j is the rate of increase in salary ,

Probable Gratuity is Payable on exit= Probability of exit between x+t and x+t+1 x Gratuity Payable =Fac(x+t)*Grat(x+t)

Present value of Gratuity payable at age x+t=Vgrat(x+t)=Fac(x+t)*Grat(x+t)/(1+i)^(-t) where i is rate of discount

Adding present value of gratuity for all years t=0 till retirement age we arrive gratuity liability at one aged x= ∑Vgrat(x)

4.9 Result Of valuation	
Number of Employees	2598
Salary as on valuation date	160291451
Accrued Gratuity	1318374519
Closing asset	727234868
Liability to be shown in Balance Sheet	1177610207
Charges to Profit/Loss Account for the period	88620985
Other Comprehensive Income	79033899

4.10 Conclusion	
Fund is under Funded by	450375339



Dr. R. Kannan
Actuary

4. Disclosures As Per IND AS19 (2015)

Table1-Table Showing changes in present value of Obligations____13

Table2-Table Showing changes in fair value of Assets_____13

Table3-Table Showing reconciliation to Balance Sheet_____14

Table4-Table Showing Plan Assumptions_____14

Table5-Table Showing Expense Recognized in P/L statement_____15

Table6-Table Showing Other Comprehensive Income_____15

Table7-Table Showing allocation of Plan Assets_____16

Table8-Table Showing allocation of Plan Assets in %_____16

Table9-Table Showing Mortality Table_____17

Table10-Table Showing Sensitivity Analysis_____17

Table11-Table Showing Cash flow Information_____17

Table12-Table Showing Estimate Future Payments (outflow)_____18

Table13-Table Showing Outlook Next Year_____18

Table14-Table Showing Bifurcation of Net Liability_____18

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

Table 1: Disclosure Item		
31.03.2020	Changes in Present Value of Obligation as at	31.03.2021
1151956631	Present value of obligation as on last valuation	1190420455
77483343	Current Service Cost	60388411
64329382	Interest Cost	74771264
	Participant Contribution	
0	Plan Amendments: Vested portion at end of period(Past Service)	0
	Plan Amendments: Non-Vested portion at end of period(Past Service)	
128937721	Actuarial gain/loss on obligations due to Change in Financial Assumption	-34053151
0	Actuarial gain/loss on obligations due to Change in Demographic assumption	0
139813378	Actuarial gain/loss on obligations due to Unexpected Experience	121407249
	Actuarial gain/loss on obligations due to Other reason	
	The effect of change in Foreign exchange rates	
372100000	Benefits Paid	235324021
	Acquisition Adjustment	
	Disposal/Transfer of Obligation	
	Curtailment cost	
	Settlement Cost	
	Other	
1190420455	Present value of obligation as on valuation date	1177610207

Table 2: Disclosure Item		
31.03.2020	Changes in Fair Value of Plan Assets as at	31.03.2021
675100000	Fair value of Plan Assets at Beginning of period	667700000
44961660	Interest Income	46538690
315000000	Employer Contributions	240000000
	Participant Contributions	
	Acquisition/Business Combination	
	Settlement Cost	
372100000	Benefits Paid	235324021
	The effect of asset ceiling	
	The effect of change in Foreign Exchange Rates	
	Administrative Expenses and Insurance Premium	
4738340	Return on Plan Assets excluding Interest Income	8320199
667700000	Fair value of Plan Assets at End of measurement period	727234868

Table 3: Disclosure Item		
31.03.2020	Table Showing Reconciliation to Balance Sheet	31.03.2021
-522720455	Funded Status	-450375339
-	Unrecognized Past Service Cost	-
-	Unrecognized Actuarial gain/loss at end of the period	-
-	Post Measurement Date Employer Contribution(Expected)	-
-	Unfunded Accrued/Prepaid Pension cost	-
667700000	Fund Asset	727234868
1190420455	Fund Liability	1177610207

Table 4: Disclosure Item		
31.03.2020	Table Showing Plan Assumptions	31.03.2021
6.66%	Discount Rate	6.97%
6.66%	Expected Return on Plan Asset	6.97%
6.00%	Rate of Compensation Increase(Salary Inflation)	6.00%
N/A	Pension Increase Rate	N/A
6,28	Average expected future service (Remaining working Life)	5,27
IALM 2006-2008 Ultimate	Mortality Table	IALM 2012-2014 Ultimate
60	Superannuation at age-Male	60
60	Superannuation at age-Female	60
1.00%	Early Retirement & Disablement (All Causes Combined)	1.00%

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

Table 5: Disclosure Item		
31.03.2020	Expense Recognized in statement of Profit/Loss as at	31.03.2021
77483343	Current Service Cost	60388411
0	Past Service Cost(vested)	0
	Past Service Cost(Non-Vested)	
19367722	Net Interest Cost	28232574
	Cost(Loss/(Gain) on settlement	
	Cost(Loss/(Gain) on curtailment	
	Actuarial Gain loss Applicable only for last year	
	Employee Expected Contribution	
	Net Effect of changes in Foreign Exchange Rates	.
96851065	Benefit Cost(Expense Recognized in Statement of Profit/loss)	88620985

Table 6: Disclosure Item		
31.03.2020	Other Comprehensive Income	31.03.2021
128937721	Actuarial gain/loss on obligations due to Change in Financial Assumption	-34053151
0	Actuarial gain/loss on obligations due to Change in Demographic assumption	0
139813378	Actuarial gain/loss on obligations due to Unexpected Experience	121407249
	Actuarial gain/loss on obligations due to Other reason	
268751099	**Total Actuarial (gain)/losses**	87354098
4738340	Return on Plan Asset, Excluding Interest Income	8320199
	The effect of asset ceiling	
264012759	Balance at the end of the Period	79033899
264012759	Net(Income)/Expense for the Period Recognized in OCI	79033899

Table 7: Disclosure Item		
31.03.2020	Table Showing Allocation of Plan Asset at end Measurement Period	31.03.2021
-	Cash & Cash Equivalents	-
-	Investment Funds	-
-	Derivatives	-
-	Asset-Backed Securities	-
-	Structured Debt	-
-	Real Estates	-
-	Special Deposit Scheme	-
-	State Government Securities	-
-	Government of India Assets	-
-	Corporate Bonds	-
-	Debt Securities	-
-	Annuity Contracts/Insurance Fund	-
-	Other	-
-	Total	-

Table 8: Disclosure Item		
31.03.2020	Table Showing Total Allocation in % of Plan Asset at end Measurement Period	31.03.2021
-	Cash & Cash Equivalents	-
-	Investment Funds	-
-	Derivatives	-
-	Asset-Backed Securities	-
-	Structured Debt	-
-	Real Estates	-
-	Special Deposit Scheme	-
-	State Government Securities	-
-	Government of India Assets	-
-	Corporate Bonds	-
-	Debt Securities	-
-	Annuity Contracts/Insurance Fund	-
-	Other	-
-	Total	-

Table 9: Disclosure Item	
Mortality Table	
Age	Mortality (Per Annum)
25	0.000931
30	0.000977
35	0.001202
40	0.00168
45	0.002579
50	0.004436
55	0.007513
60	0.011162
65	0.015932
70	0.024058

Table 10: Disclosure Item				
31.03.2020			31.03.2021	
Increase	Decrease	Sensitivity Analysis	Increase	Decrease
1146898683	1238013465	Discount Rate (-/+ 0.5%)	1126808103	1233582020
-3.656%	3.998%	%Change Compared to base due to	-4.314%	4.753%
1222871317	1157291054	Salary Growth (-/+ 0.5%)	1205637330	1148805861
2.726%	-2.783%	%Change Compared to base due to	2.380%	-2.446%
1190682348	1190158562	Attrition Rate (-/+ 0.5%)	1177492446	1177739744
0.022%	-0.022%	%Change Compared to base due to	-0.010%	0.011%
1194503597	1186337313	Mortality Rate (-/+ 10%)	1178034147	1177174491
0.343%	-0.343%	%Change Compared to base due to	0.036%	-0.037%

Table 11: Disclosure Item	
Table Showing Cash Flow Information	
	Indian Rupees(INR)
Next Year Total (Expected)	1137441748
Minimum Funding Requirements	547730728
Company's Discretion	-

Table 12: Disclosure Item	
Table Showing Benefit Information Estimated Future payments(Past Service)	Indian Rupees(INR)
year	181977035
1	149962758
2	132753919
3	146069925
4	143564675
5	305403299
6 to 10	1884945423
More than 10 years	
Total Undiscounted Payments Past and Future Service	2944677034
Total Undiscounted Payments related to Past Service	1767066827
Less Discount For Interest	1177610207
Projected Benefit Obligation	

Table 13: Disclosure Item	
Table Showing Outlook Next Year Components of Net Periodic benefit Cost Next Year	Indian Rupees(INR)
Current service Cost(Employer portion Only) Next period	92010880
Interest Cost next period	75737532
Expected Return on Plan Asset	82079431
Unrecognized past service Cost	
Unrecognized actuarial/gain loss at the end of the period	
Settlement Cost	
Curtailment Cost	
other(Actuarial Gain/loss)	
Benefit Cost	85668980

Table 14: Bifurcation of Net liability		
31.03.2020	Table Showing expected return on Plan Asset at end Measurement	31.03.2021
418050487	Current liability	175948507
772369968	Non-Current Liability	1001661700
1190420455	Net Liability	1177610207



Dr R Kannan Actuary

6. Glossary

All definitions of terms are as per IND AS19 (2015). The following terms are used with explanations given below::

Actuarial Gain or Loss

From one plan year to the next, if the experience of the plan differs from that anticipated using the actuarial assumptions, an actuarial gain or loss occurs. For example, an actuarial gain would occur if the plan assets earned 12% for the year while the assumed rate of return used in the valuation was 8%. Other causes of actuarial gains or losses would include changes in actuarial assumptions and / or demographic changes in the population profile.

Balance Sheet Asset/(Liability)

The sponsor's balance sheet asset/(liability) entry, the net recognized amount, is the sum of the cumulative excess of contributions to the plan over net Annual Expense and other plan-related charges to income due either to business combination or accelerated recognition pursuant to IAS 19. The difference between this account and the Funded Status is the unrecognized net loss/(gain) unvested prior service costs [and net transition obligation.]

Funded Status This is the excess/(shortfall) of the fair value of plan assets over the Plan Liability.

Plan Liability This quantity is the discounted present value of all benefits attributed by the plan's benefit formula to service rendered prior to the measurement date. It is measured using an assumption as to future pay levels.

Service Cost This is the discounted present value of benefits attributed by the plan's benefit formula to services rendered by employees during the accounting period. It is measured using an assumption as to future pay levels.

Interest Costs The increase in the Plan liability over the accounting period due to interest (the time value of money)

Expected Return on Assets

The expected return on plan assets over the accounting period, based on an assumed rate of return.

Net Periodic Benefit Cost

This is the profit and loss charge for the accounting period, and comprises the sum of the service and interest costs less the expected return on assets, plus allowance for amortization of any net liabilities not recognized in the balance sheet.

7. Appendix

7.1 Staff Distribution 21

7.2 Employee Movement last Year 22

7.3 Mortality Table (Given in Disclosure Table-9) 17

7.4 Salary Growth 22

7.5 Yield of GOI Securities 22

7.6 Cash flow of Accrued Service Benefit Liability 23

7.7 Expected Exits in next 10 years 24

7.8 Experience Adjustment from last Valuation 24

7.9 Sensitivity Analysis (Given in Disclosure Table-10) 17

7.10 Security Details (Given in Disclosure-Table-7) 16

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"

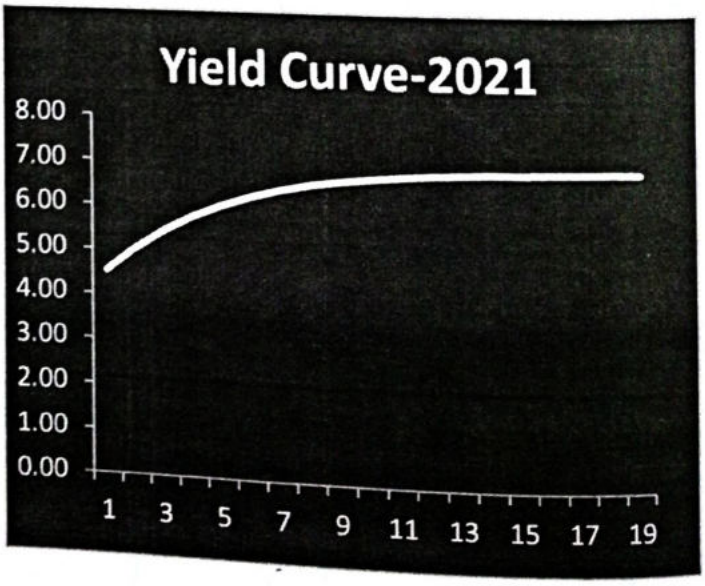
7.1 Staff Distribution

Age	Number	SALARY	Sum of Service	Accrued Gratuity
<=20	1	100737	51	1500000
21	0	0	0	0
22	0	0	0	0
23	2	135252	4	156060
24	21	1038960	60	1500322
25	39	1955772	131	3469702
26	63	2689128	275	6577732
27	110	4976127	477	11613641
28	130	5696379	591	14230478
29	155	7000929	777	19859720
30	141	5938101	727	17228361
31	101	4913883	599	17375381
32	137	6942078	921	28578152
33	145	8506368	1064	39062184
34	98	5902299	802	29323894
35	87	5631093	739	29279407
36	61	3813966	541	20551927
37	90	6065982	796	32263854
38	47	3149523	413	16695026
39	39	2422134	341	12891688
40	42	2946879	435	18017945
41	22	1519362	245	9833592
42	11	939744	163	7447040
43	11	799695	123	5229410
44	13	914706	219	7608166
45	19	1514916	324	13431796
46	21	1713114	348	14819589
47	19	1558908	366	15159252
48	25	2026908	489	18741717
49	25	1443429	588	16430978
50	14	886860	333	10871103
51	34	1948869	841	23626168
52	51	3677778	1302	43328905
53	72	5008653	1919	63242946
54	88	6403176	2346	78312026
55	121	10298855	3456	127863323
56	124	9817236	3530	127157241
57	117	8626059	3420	115278999
58	137	9814545	4112	133027710
59	142	9849411	4367	140896006
>=60	23	1703637	750	25893078
Grand Total	2598	160291451	38985	1318374519

7.2 Employee Movement last Year	
Number as at previous year	2837
Actual exit during the Year	246
Entry During current year	7
Number at Current Year	2598

7.4 Salary Growth for Continuing Employee			
Year	Total Salary	Average Salary	%Increase
Mar-20	168661775	59451	
Mar-21	160291451	61698	3.78%
		Average	3.78%

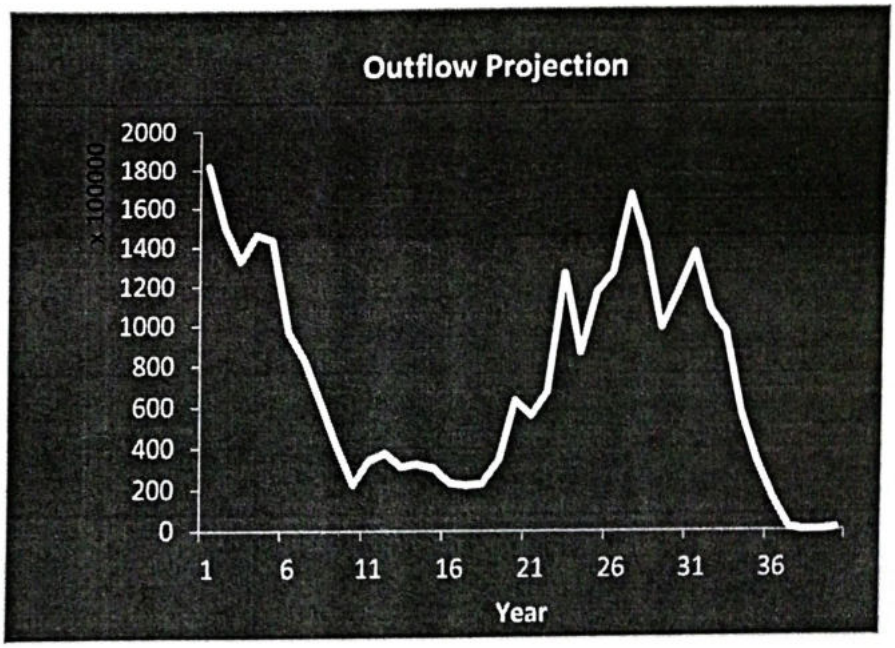
7.5 Yield on GOVT Securities as on Valuation Date		
Term	Yield-This year (%)	Graph
1	3.87	
2	4.52	
3	5.04	
4	5.46	
5	5.80	
6	6.07	
7	6.29	
8	6.46	
9	6.60	
10	6.71	
11	6.79	
12	6.85	
13	6.90	
14	6.93	
15	6.95	
16	6.96	
17	6.97	
18	6.97	
19	6.97	
20	6.96	



7.6 Cash flow of Accrued Service Benefit Liability

Year	Expected Outgo
1	181977035
2	149962758
3	132753919
4	146069925
5	143564675
6	96500906
7	83051088
8	62259298
9	41301801
10	22290207
11	34101731
12	37550553
13	30830751
14	32218999
15	30447195
16	23135581
17	22175934
18	22650787
19	34125986
20	63477647
21	55645434
22	67563454
23	126542421
24	86687099
25	117102193
26	126807358
27	166986297
28	140100314
29	99074456
30	116975506
31	137246300
32	108486506
33	96768955
34	56814203
35	33211413
36	15357053
37	1718694
38	12661
39	13331
40	1116611

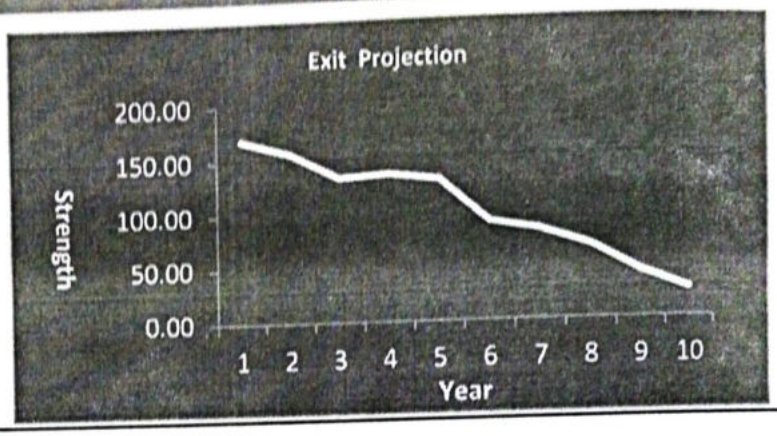
Graph



7.7 Expected Exits in next 10 years

Year	Expected Exits
1	169.22
2	156.47
3	133.56
4	136.22
5	130.21
6	90.63
7	81.98
8	67.14
9	42.51
10	25.90

Graph



7.8 Experience Adjustment from Last Valuation

Liability as on last valuation	1190420455
Change in liability due to Change in Discount Rate assumption	-34179361
Change in liability due to Change in Salary Inflation Rate	0
Change in liability due to Variance in experience	121407249
Change in liability due to Change in demographic assumption	0
Change in liability due to consideration of actual current service	
Present value of Liability as on Current valuation	1177610207



Dr. R. Kannan
Actuary

1-A, "SRIRAM", 4, PillaiyarKoil Street, Thiruvanmiyur, Chennai 600041
Cell number +91 9940450768 / 9384694669 | Email"kannan.consulting.actuary@gmail.com"